Implementing Reforms in the Telecommunications Sector

Lessons from Experience

EDITED BY
BJORN WELLENIUS
AND
PETER A. STERN
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WORLD BANK

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Implementing Reforms in the Telecommunications Sector

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# Contents

Foreword vii
Preface ix

Implementing Reforms in the Telecommunications Sector: Background, Overview, and Lessons
   
   Björn Wehlenius and Peter A. Stern 1

Part I Current State of Telecommunications Policy and Structural Issues 65
1: Telecommunications Reform in Developing Countries: Importance and Strategy in the Context of Structural Change 67
   
   Peter R. Scherer 67
2: Restructuring the Telecommunications Sector: Experience in Some Industrial Countries and the Implications for Policymakers 83
   
   Robert R. Bruce 83

Part II Recent Experience in Latin America 111
3: Telecommunications Restructuring in Latin America: An Overview 113
   
   Björn Wehlenius 113
4: Liberalization and Privatization in Chile 145
   
   José Ricardo Melo 145
5: The Argentine Telephone Privatization 161
   
   Hector A. Mairal 161
6: Privatization of Telecommunications: The Case of Mexico 177
   
   Carlos Casanis 177
7: Privatization of Telecommunications: The Case of Venezuela 185
   
   Aileen A. Pisciotta 185

Part III Recent Experiences in the Asia-Pacific Region 195
8: Restructuring the Telecommunications Sector in Asia: An Overview of Approaches and Options 197
   
   Robert R. Bruce and Jeffrey P. Cunard 197
9: Telecommunications Reform in Australia 233
   
   Michael J. Hutchinson 233
Implementing Reforms in the Telecommunications Sector

10: An Alternative View of Australian Telecommunications Reforms 247
   Henry Ergas

11: Telecommunications Liberalization and Privatization: The New Zealand Experience 253
   Hunter Donelson

   Vernon Watson

13: Corporatization and Partial Privatization of Telecommunications in Malaysia 267
   Syed Hussein Mohamed

Part IV Recent Experiences in Western, Central, and Eastern Europe 271
14: The European Situation: An Overview 273
   Herbert Ungerer

15: The Evolution of Telecommunications Policy in the United Kingdom 285
   Bruce Laidlaw

16: Restructuring Telecommunications: The French Experience 293
   Eric Huret

17: PTT Telecom Netherlands: Civil Servant or Entrepreneur? 303
   Gerard J. van Velzen

18: Reform and Unification of Telecommunications in Germany 317
   Karl-Heinz Neumann and Thomas Schnöring

19: Challenges and Issues in Central and Eastern European Telecommunications 339
   Timothy E. Nulty

20: Closing the Capacity and Technology Gaps in Central and Eastern European Telecommunications 353
   Jürgen Müller and Emilia Nyervikel

21: Restructuring in Hungary 375
   Krisztina Heller

Part V Privatizations: Foreign Operators' Perspectives 383
22: Privatization of Telecommunications Enterprises: The Viewpoints of Foreign Operators 385
   Judith D. O'Neill

23: Evaluating Investment Opportunities: Bell Atlantic's Approach and the New Zealand Experience 391
   Hyde Tucker

24: The Point of View of a Global Operator: Cable & Wireless 399
   Joseph E. Pilcher
25: Internationalizing Telecommunications Operations: STET and the Argentina Experience 403
   Francesco Massari

Part VI Mobilizing Capital for Privatization 409
26: Privatization of Telecommunications Enterprises: The Viewpoints of Investors 411
   François J. Grossas
27: Trends in Strategic and Market Equity Investments 419
   Christopher M. Harland
28: Options for Selling a Telecommunications Company 425
   Dean Lewis
29: Privatization through Public Issue of Shares 433
   Dan Vallimarescu
   Desmond Watkins
31: Exploring New Ways to Attract Capital for Privatization 463
   Robert R. Bruce, Jeffrey P. Cunard, and Lothar A. Kneifel

Part VII Issues of Regulation 471
32: Regulation and Telecommunications Reform: Exploring the Alternatives 473
   Richard J. Schultz
33: Regulation: Reconciling Policy Objectives 485
   Nicholas P. Miller
34: The Vital Role of Regulation in the Telecommunications Sector 505
   David N. Townsend
35: Regulation and Competition Policy 511
   Paul Waterschoot
36: The Strategic Role of Regulation in France 517
   Dominique Garnier
37: Telecommunications Regulation in the United Kingdom and the Role of OFTEL 527
   Donald Mason

Part VIII Conclusion: Strategic Issues of Implementation 543
38: The Political Economy of Telecommunications Reform in Developing Countries 545
   Peter F. Cowhey
39: Managing the Process of Sector Reform 567
   John J. Collings
Foreword

The movement toward structural reform of the telecommunications sector, which began in the 1980s, has become a veritable worldwide wave of change. Most Organization for Economic Cooperation and Development (OECD) countries, and a growing number of developing countries, have by now either completed major reforms or have these well under way. The reforms are driven by growing awareness of the importance of telecommunications in an increasingly integrated and competitive world economy, coupled to continued technological innovation leading to new network and market structures as well as dramatically lower costs. This is a good time to take stock of the considerable volume and diversity of accumulated experience, and to draw some lessons of practical significance for countries still at the early stages of change.

The time to take stock is also right from the standpoint of international institutions as they evolve in the early 1990s in response to rapid change in the global telecommunications scene. For example, the International Telecommunication Union upgraded the development function to an equal footing with well-established activities in the areas of standards and radio communications. The World Bank integrated its telecommunications and information technology experts within a new central vice presidency responsible for financial and private sector development, with a mandate to innovate in the Bank's approach in these broad thematic areas. The International Finance Corporation established a specialized unit to help mobilize capital for private investment in telecommunications in developing countries. For the first time since the creation of the General Agreement on Trade and Tariffs, telecommunications have been included in negotiations on trade liberalization.

In the context of these sectoral and institutional changes, in 1991, the World Bank, the International Telecommunication Union, and the Commonwealth Telecommunications Organisation jointly hosted a seminar in Washington, DC, to examine the experience of implementing reforms in the telecommunications sector. This highly successful event brought together over one hundred participants involved in telecommunications reform in some forty countries.

The message from the seminar was clear. In order to overcome persistent shortfalls in telecommunications development, it is necessary to attract private investment and new entrants to the telecommunications business as well as to shift
Implementing Reforms in the Telecommunications Sector

the role of governments from ownership and management of operations to sector policy formulation and regulation. The impact of initial reforms along these lines has been generally very positive: accelerated growth, better and new services, higher productivity, and gains by most or all stakeholders. There are, however, no standard blueprints for sectoral reform. Sector designs and implementation strategies must be crafted to fit the specific economic, political, and institutional features of each country. Imperfect solutions are often the best that can be achieved in practice. From inception to maturity, sector reform is typically a long process. Although some components of reform, including privatizing state enterprises, can be successfully completed fairly quickly, other components, notably developing regulatory capabilities and competition, require more time and sustained government attention. Some developing countries can successfully go most or all the way on their own, but many others will need substantial financial and technical assistance to help them along.

The book you now have in your hands is the product of a collective undertaking to make available the main findings of the Washington seminar to a larger audience. As the reform debate moves from principles to practice, we trust this book will provide readers with valuable insights on the process of reform as well as contribute to the design and implementation of solutions for the telecommunications sector throughout the developing world.

Jean-François Rischard
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Secretary General
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Chairman
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Driven by technological change and market demand, a wave of change in the organization of the telecommunications sector began in the early 1980s in a few highly industrialized countries, gradually extended throughout the Organization for Economic Cooperation and Development (OECD), and by the early 1990s had reached a number of developing countries. Traditional state monopolies are giving way to more complex sector structures that seek to overcome past constraints on telecommunications development through commercialization of operations, competition, and private sector participation.

Organizations such as the International Telecommunication Union (ITU), the Commonwealth Telecommunications Organization (CTO), OECD, the Agence de Coopération Culturelle et Technique (ACCT), and the World Bank have become increasingly involved in helping governments address the complex policy, regulatory, financial, institutional, and management issues that arise in such a process of change. In particular, since 1985 the World Bank, along with ITU, CTO, and ACCT, has organized a series of gatherings that focused on management and reform in the telecommunications sector. Seminars in Nairobi and Harare were followed by others in Barbados; Kuala Lumpur; Windsor, England; Washington, DC; and most recently Tunis.

The Kuala Lumpur seminar, organized in November 1987 by the World Bank and CTO, examined the forces driving sector reform, as well as the main policy issues and options. The experiences presented were mainly those of precursor industrialized countries. The United States was well advanced in the transition toward a highly competitive environment, and the United Kingdom and Japan had recently restructured their telecommunications sectors. Several developing countries in Asia and Latin America were preparing for change. Four years later, in April 1991, when the World Bank, ITU, and CTO organized a similar seminar in Washington, DC the base of experience had widened substantially. Many more countries, including several from the developing world, had completed reform or were well advanced in the process. Many more were seriously examining their options. The Washington, DC, seminar and a follow-up in the French language organized by the World Bank with ITU and ACCT in Tunis a year later, gave policymakers, operators, regulators, strategic and market investors, international bankers, representatives of the international development community, profession-
Implementing Reforms in the Telecommunications Sector

cals, academics, and other key players the opportunity to share their experiences on
the actual design and implementation of telecommunications reforms and to learn
from others.

This book brings together material on the practical experiences of sector reform
from a wide range of viewpoints, which attests to the varying interest of a worldwide
pool of experts who have actually participated in reforms in the telecommunications
sector. Most of the material is derived from contributions to the Washington, DC,
seminar, expanded and updated by the original authors. In addition, a number of
new contributions were invited. All contributions were then extensively revised and
reorganized to ensure a logical flow and bring out common themes and contrasts.
Reference material was prepared on telecommunications sector organization and
regulatory framework in some eighty countries. A substantial glossary was developed.

Thus, the experience and knowledge of nearly fifty experts in reform in the
telecommunications sector are gathered in one volume. It offers readers an up-to-
date account of approaches to major policy and structural issues, describes practical
experiences in Latin America, Asia and the Pacific, and Europe, and discusses
issues related to investment, regulation, and implementation. Whereas each of the
book's eight parts is intended to elaborate on a particular aspect or area of experience
in sector reform, several recurrent themes are brought out, and a number of
countries' experiences are examined successively from different angles sustained by
various players. We expect this volume will provide valuable reference information
on how reforms have actually been carried out, give some insight into how well these
reforms have worked and what main areas remain for further improvement, draw
lessons that may be useful to those now embarking on similar processes of change, and
stimulate further reflection and discussion of related policy and implementation issues.

The value and success of this book rests largely on the work of the experts who
contributed to it. Their patience and the great deal of personal time they devoted
to preparing and revising their material confirms the enormous interest that the
subject of this book has generated among an ever-increasing audience.

Mark Fowler, former chairman of the U.S. Federal Communications Commis-
sion and Janice Obuchowski, then head of the U.S. National Telecommunications
and Information Administration added their valuable insight through keynote
speeches during the Washington seminar. This is reflected in the contents of this
book although their speeches have not been transcribed.

Ahmed Laouyane and Anthony Odeh of the ITU, Ana Martinez, Carmel
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Implementing Reforms in the Telecommunications Sector: Background, Overview, and Lessons

Björn Wellenius and Peter A. Stern

Driven by unrelenting technological and market forces, telecommunications is today one of the world's most dynamic economic sectors. Until not long ago a relatively obscure territory of interest mainly to engineers, telecommunications today seem to be everybody's proper playing field. Large and small businesses, user groups, investment banks, policymakers, development organizations, legislators, economists, political scientists, and lawyers, among others, are now also actively and visibly involved in telecommunications. Hardly a day goes by without telecommunications events making news in the international and local press—ask anyone who reads, for example, the Economist, the Financial Times, the New York Times, the Asian Economic Review, El Mercurio, or the China Daily.

How did this change come to be? What are the broad directions in which telecommunications are evolving? How are the developing countries faring? What are the practical lessons that emerge from the experience of recent years? Those are the main questions around which this chapter, and to a large extent this book, is centered.

This opening chapter provides a background, an overview, and a synthesis of the rich material contributed to the book from the viewpoints of different stakeholders and on a wide range of countries. The chapter is organized in five parts. The first gives a brief account of how the perceptions about the development role of telecommunications have evolved from the 1960s. In the second, the changes under way in telecommunications sector organization and ownership worldwide are outlined, and some lessons are drawn from the early experience of sector reform in industrial countries. The third part takes a closer look at what is happening in the developing countries, from past shortfalls and constraints to the beginnings of structural change and the special problems of implementing reforms in these countries. In the fourth, the reader is given an annotated walk through the various parts and chapters of the book. Along this walk, selected common themes and contrasting views are pulled together. Lastly, some lessons from cross-country experiences are drawn. These lessons highlight the complexity of designing and implementing effective sector reforms, and also identify areas in which a better understanding is needed of the underlying processes and factors.
Telecommunications and the Economy: Changing Views

Traditionally, telecommunications was regarded as a relatively straightforward public utility. Economies of scale, political and military sensitivities, and large externalities made telecommunications a typical public service believed to be a natural monopoly. In this environment, telecommunications development focused mainly on extending standard service, building basic networks, and improving the performance of the operating entities. The main issues were technological, and management of telecommunications enterprises was largely oriented toward engineering.

Research in the 1960s and 1970s documented the importance of telecommunications as infrastructure for economic and social development. It was shown that telecommunications services are used in connection with a wide range of economic production and distribution activities, delivery of social services, and government administration. They also contribute to the quality of life and to social, political, and security objectives. Where available, telecommunications benefit a broad cross-section of the urban and rural population by income, education, and occupation. These features result in high social and (with appropriate tariffs) private returns from telecommunications investment, as well as in a considerable financial resource mobilization capacity.

Information is regarded today as a fundamental factor of production, alongside capital and labor. The information economy accounted for one-third to one-half of gross domestic product (GDP) and of employment in Organization for Economic Cooperation and Development (OECD) countries in the 1980s and is expected to reach 60 percent for the European Community in the year 2000. Information also accounts for a substantial proportion of GDP in the newly industrialized economies and the modern sectors of developing countries.

This increasing information intensity of economic activity, coupled with the globalization of capital flows, trade, manufacturing, and other activities, resulted in strong demand for better, more varied, and less costly communication and information services. Demand growth has been intertwined with rapid changes in telecommunications technology fueled by advances in microelectronics, software, and optics. These changes have greatly reduced the cost of information transmission and processing, changed the cost structures of telecommunications and many other industries, made possible new ways of meeting a wider range of communication needs at lower cost, reduced user dependence on established operating entities, and increasingly integrated information and telecommunications technologies and services. These interrelated market and technological processes show no signs of abating.

In this context, telecommunications is now widely considered a strategic investment to maintain and develop competitive advantage at all levels—national, regional, firm. Telecommunications constitute the core of, and provide the infrastructure for, the information economy as a whole. Telecommunications facilitate market entry, improve customer service, reduce costs, and increase productivity. They are an integral part of financial services, commodities markets, media, transportation, and the travel industry, and provide vital links among manufacturers, wholesalers, and retailers.
Moreover, industrial and commercial competitive advantage is now not only influenced by availability of telecommunications facilities, but also by choice of network alternatives and control to reconfigure and manage networks in line with changes in corporate objectives. Countries and firms that lack access to modern telecommunications systems cannot effectively participate in the global economy. This applies to the least-developed countries of Africa and Asia as much as to middle-income countries, such as those in Latin America, East Asia, and Central and Eastern Europe that aspire to become industrial countries in the next decade or so.

The Telecommunications Sector in Transition

In most industrial countries, telecommunications services were provided by government departments or state enterprises. These entities generally succeeded in building and profitably operating countywide infrastructures, meeting the demand for basic telephone service, and starting to introduce more advanced services.

In the 1980s, however, driven by the twin forces of technological innovation and growing demand discussed above, a wave of liberalization and privatization led to major changes in telecommunications sector structure in most industrial countries. Deregulation and divestiture of the Bell System in the United States was followed by privatization and introduction of competition in the United Kingdom, Japan, and, more recently, in Australia and New Zealand. By the early 1990s, virtually all OECD countries were at some stage and form of restructuring the telecommunications sector. These reforms have accelerated investment, increased responsiveness to user needs, greatly broadened user choices, and reduced prices.

Main Directions of Structural Change

Although the policy issues and options faced by governments in reforming the telecommunications sector are fairly universal, the relative importance of the issues, the package of sectoral solutions chosen, and especially the strategy to implement it, are turning out to be highly country-specific. Yet, all telecommunications reforms so far mainly involve some degree of change along each of four directions: commercializing and separating operations from government; increasing the participation of private enterprise and capital; containing monopolies, diversifying supply of services, and developing competition; and shifting government responsibility from ownership and management to policy and regulation. This is true for developing as well as industrial countries.

Commercializing Operations. Telecommunications operations are being reorganized along the lines of commercial companies. Agreement is widespread that telecommunications operating entities, irrespective of who owns them, perform best when run as profit-driven businesses.

Achieving this with state-owned entities involves transforming them into companies or otherwise placing them in conditions that approximate the freedoms,
Implementing Reforms in the Telecommunications Sector

incentives, and discipline of commercial enterprises. In particular, state operating entities are being distanced from governments by reorganizing government departments into state enterprises, state-owned joint-stock companies, mixed state/private companies, or private companies. All reforms are moving in this direction, although only some go the whole way to privatizing state operations.

At the same time, improvements are also undertaken in internal organization and management, such as reorganizing the enterprise into cost and profit centers, subcontracting functions that can be undertaken efficiently by other organizations, establishing or improving commercial accounting and management information systems, as well as emphasizing customer service, cost awareness, financial discipline, and staff performance.

**Increasing Private Sector Participation.** The private sector is playing a much larger role than in the past. Increased private sector participation can attract new sources of capital, management, and technology to the telecommunications sector; it also contributes to the development of the private sector overall.

A number of countries are considering the option of privatizing the state telecommunications enterprises by transferring a controlling interest to the private sector, and several have already done so. Privatization may take a number of different forms. For example, ownership control can be transferred through the sale of shares of an existing enterprise to strategic investors or in public markets, or may involve setting up state/private joint ventures, possibly with experienced foreign operators. Alternatively, one or more new companies can be set up by taking over parts of the assets of the existing enterprise and then sold separately. Evidence is mounting that privatization in this sector as well as others, when correctly conceived and implemented, is accompanied by accelerated investment and growth, increased efficiency, and gains by most or all stakeholders (consumers, labor, government, investors). Telecommunications privatizations are also generating large government revenues and helping reduce sovereign debt.

Besides privatization of state enterprises, there are many other avenues for private participation in existing telecommunications operations. Some options involve an increased role of the private sector in the operation of state enterprises; for example:

- Existing state enterprises may divest or outsource construction, maintenance, transportation, routine design, billing and collection, directory services, operator assistance, and other functions traditionally undertaken internally.

- Experienced private operating companies can be retained under management contracts to run the state enterprises.

- State enterprises can be reorganized as joint-stock companies and some shares sold to institutional investors and the public while the state retains a controlling interest.

Other options involve alternative forms of private sector financing, such as:
Background, Overview, and Lessons

- Bonds and other commercial debt instruments can be floated in domestic and sometimes foreign markets.

- Private financial entities can be attracted to invest in developing profitable extensions of the public telecommunications networks to new areas.\textsuperscript{3}

- Subscriber financing schemes can raise a large proportion of the local funds needed for expansion in situations of severe supply shortage.\textsuperscript{4}

One of the most important avenues to attract private sector participation, however, is new entry.

**Developing Competition.** The number of providers of telecommunications services and networks is rapidly increasing. A single monopoly operating enterprise, whether state-owned or private, is increasingly unable to meet equally well the large, varied, and rapidly changing demands of all types of users.

In the context of broad economic liberalization, an essential element of sector reform is developing competition. Competition, or a credible threat of competition, is likely to spur established operating enterprises to focus attention on customers, improve service, accelerate network expansion, reduce costs, and lower prices. Competition also widens user choices and accelerates the introduction of new services and facilities. Elements of competition can be effectively introduced in the early stages of sector reform and extended by stages to most or all market segments.\textsuperscript{15}

Technological changes are making competition possible in a widening range of market segments. Competition in the provision and maintenance of customer premises equipment and value added services is beneficial in virtually all countries. The introduction of elements of competition in the long-distance networks makes sense as increasing traffic volumes reduce the importance of economies of scale. In several countries, industrial and developing alike, licensing private company networks and regulating their interconnection to the public network and provision of service to third parties has been used to build up competition in this market segment.

At present, large economies of scale make competition in the provision of wired local services viable only in exceptional situations (for example, highly developed urban business districts); however, new radio technologies (such as cellular, public communication networks, and mobile satellite), although still more costly than wired telephones, already offer competing alternatives to business and high-income residences when conventional telephone lines are very scarce or perform poorly, and when time to provide service is highly valued.\textsuperscript{16}

In addition to measures that promote competition, there are various other ways to diversify and expand the provision of services and networks. Diversifying supply can attract new sources of capital and management to the telecommunications sector, develop rivalry among service providers regarding performance and price, and generate cost benchmarks to guide pricing of monopoly suppliers. The following are some options:
Implementing Reforms in the Telecommunications Sector

- Dividing monopolies by regions

- Setting up joint ventures for the provision of specific new services or facilities (such as very small aperture terminal (VSAT), packet-switched data, cellular)

- Leasing, build-operate-transfer (BOT), and related arrangements with other operating companies, equipment manufacturers, and investors for developing parts of the public network

- Licensing selected specialized networks to meet the needs of major communication-intensive sectors of the economy (for example, banking, tourism, mining)

- Franchising independent public telephone companies in unattended areas (for example, rural communities, new industrial estates, residential developments)

- Licensing extensions of the public telephone network (for example, public call offices)

- Articulating rules for voluntary commercial relationships between dedicated and public telecommunications networks.

**Developing Regulation.** Operations are being separated from the functions of sector policy and regulation. While operations remain in the public sector, the political system provides, however imperfectly, for reconciling diverse objectives such as those of commercial efficiency and broader national and regional development. As operations move away from government and the number of participants in the telecommunications business increases, this arrangement breaks down and the functions of policy and regulation must be developed separately from operations.\(^{17}\)

The nature and extent of sector reforms that can be undertaken are conditioned by the existence of institutions capable of effectively formulating policy and regulating its implementation. Irrespective of the particular sector and ownership structures adopted, regulation is needed to enhance economic efficiency of markets, contain monopoly power, and create market rules to encourage investor and consumer confidence. In particular, regulation is essential when public sector monopolies are privatized.\(^{18}\) It is generally politically intolerable to substitute private for public ownership of monopoly services unless there is effective government oversight of the new owners' prices and behavior.\(^{19}\)

**Telecommunications and International Trade**

Industrialized countries which have substantially liberalized their telecommunications sectors, such as the United States and the United Kingdom, are actively promoting similar market openings in other countries. They are doing this through multilateral and bilateral negotiations to establish new international trade and regulatory regimes. For example, the 1988 World Administrative Telegraph and
Telephone Conference (WATTC-88), which resulted in new International Telecommunication Regulations (ITR), removed certain international regulatory restrictions on the provision of nonbasic services which are not generally provided to the public. With respect to trade rules, the 1989 Canada-U.S. Free Trade Agreement was the first bilateral agreement to embody services and, more particularly, the liberalization of trade in enhanced telecommunications services.

In 1985 the United States was instrumental in having services included for the first time in multilateral trade negotiations under the General Agreement on Tariffs and Trade (GATT) Uruguay Round, whose final act contains, in addition to a number of other trade related texts, a General Agreement on Trade in Services (GATS) made up of three parts: a framework setting out the basic rules for trade in all services; some sectoral annexes which clarify the application of the framework with respect to specific sectors; and schedules of market access commitments for sectors and subsectors. Annexes have been developed for financial services, air transport, and telecommunications, with the latter being by far the most comprehensive, confirming its overall importance in the information economy. The dual role of telecommunications as a tradable service and as a mode of delivery of other services is set out in the statement of the objectives of the telecommunications annex. The North American Free Trade Agreement (NAFTA), which was signed among Canada, the United States, and Mexico in December 1992, and which went into effect on January 1, 1994, contains provisions pertaining to telecommunications similar to those of the GATS.

Why this emphasis on having others liberalize their telecommunications markets? At least two factors are relevant: the changing production and marketing environment of the firm, and the growing importance of services and services trade in the economy.

Slower economic growth and the entry of new suppliers have increased competition in certain world-scale industries such as automobile, banking, textiles, and electronics. These industries are adopting new production and marketing methods through which they can better confront the new competitive environment. Production is decentralized and globalized. Similar products are differentiated for diverse markets rather than produced undifferentiated in large numbers to cater for all markets at the same time. Production is more rapidly adapted to changing demand in quantity, color, size, and other distinguishing characteristics. Timing of production is brought closer to the receipt of actual orders.

This new production and marketing environment requires continuous communication and interaction among productive units, suppliers, design and sales teams, distributors, and customers around the world. Telecommunications are essential, and to make most effective use of them large multinational firms in these industries are increasingly calling for the freedom to configure, manage, and control their networks. They want to be able to dynamically allocate bandwidth and to dimension their networks in accordance with rapidly changing requirements and circumstances. They want the flexibility to use the most suitable mix of public and private facilities and, in sum, to have at their disposal the right capacity and facilities when they need them.
Implementing Reforms in the Telecommunications Sector

without having to pay for excess capacity and unused facilities when they do not need them. The United States has probably the most open market structure in this respect. Multinationals are, however, hampered in their global aspirations by varying regulatory regimes around the world. They would naturally want to have the same freedoms that they enjoy in the United States and in a few other countries with relatively open telecommunications structures. They are therefore pressuring governments to agree to more liberal trade and regulatory regimes. These pressures are being felt by governments of both industrialized and developing countries, which may otherwise be reluctant to allow such extensive market openings.

Another important factor causing pressure for countries to liberalize the sector is the growing importance of services in national economies and in trade. This has been especially important for countries such as the United States with persistent merchandise trade deficits, which have, however, been offset by surpluses in services trade. For example, in 1991 the United States had a negative trade balance in merchandise of US$73.6 billion. In absolute terms this was nearly double the positive services trade balance (US$52.2 billion). Yet, in spite of a growing positive services trade balance, the United States continues to have an overall negative trade balance, as figure 1 shows. These amounts do not take into account the substantial sale of services through foreign affiliates of U.S. firms.

Given its comparative advantage in services and the growing importance of its services industry relative to the production of goods, it is of little wonder that the U.S. government and industry groups are actively promoting services trade liberalization and the opening of other countries' markets in the services sectors, of which the most significant are travel and tourism, business and professional services (such as consulting), financial services, education, maritime shipping, and, of course, telecommunications.

In spite of the large net settlements outpayments associated with U.S. international telephone traffic, which in 1992 reached US$4 billion, the liberalization of telecommunications remains high on U.S. trade negotiators' agenda because of its increasing importance in delivering the other services where the United States continues to have surpluses. Given the additional benefits derived from services provided by affiliates of U.S. companies in other countries, there is a strong incentive to open these markets to both basic and enhanced telecommunications services provision either through local affiliates, branches, or across the border.

Some Early Lessons from Industrial Countries

Significant early milestones in telecommunications sector reform in industrial countries were the consent decree of 1982 which led to the divestiture of AT&T in 1984, the establishment of a facilities-based duopoly and privatization of British Telecom and Cable & Wireless in the United Kingdom in 1981 and 1984, respectively, and the introduction of competition and privatization of NTT in Japan in 1985. These were followed in 1987 by the corporatization of the New Zealand Post Office and the privatization of Teleglobe Canada, Canada's international
Figure 1. U.S. Services and Merchandise Trade Balance 1981 - 92
Implementing Reforms in the Telecommunications Sector

telecommunications operator. In 1987 also the European Commission issued its Green Paper, which has paved the way for sector reform not only within the European Community but also in most of the rest of Europe, including states of Central and Eastern Europe. By the end of the 1980s many more OECD countries were in the process of reforming or were planning it. A review of how the process was undertaken, the structures selected, the regulatory issues raised, and the way state enterprises were commercialized and privatized serves as a source of early lessons from industrial country experiences with sector reform. It should, however, be underlined that because the situation has been different in each country, one cannot generalize these experiences.

THE PROCESS. One of the most important conclusions that can be drawn from observing these experiences in industrial countries is that the process is complex and there is no single model or design. This is because of the multitude of factors, conflicting interests, and interrelated events that are involved.

Industrial countries with parliamentary systems have, for example, learned to appreciate the benefits of a transparent process which involves consultation with stakeholders at all stages of policy and law making. The experiences in the United Kingdom, France, and Canada have been particularly revealing in this respect. Responsive governments have taken criticisms raised during such consultations into account when redrafting their initial proposals.

When reform has also included privatization of a state enterprise, governments have sometimes been able to convince the population of the benefits of reform by encouraging them to become shareholders of the new company and by facilitating their doing so. This was done effectively in the United Kingdom when British Telecom was first privatized in 1985, at a time when it was the policy of the Thatcher government to encourage more Britons to become shareholders.

Governments in industrial countries have come to appreciate and take into account the concerns of the employees of a state enterprise which is to be privatized. These employees, who generally had job security, generous pensions, and other advantages which were as good as, if not better than, those in the private sector, were, therefore, brought into the consultations and encouraged to participate in privatizations through employee stock ownership plans. In addition, conditions of sale have required, as they did in Canada, that the new owners offer existing employees conditions equal to those that they enjoyed as civil servants. Privatization has brought with it improved labor productivity; this has meant reducing the former state enterprise's labor force. Although some of the former state enterprise employees have been able to find jobs with competitors or subcontractors, this has not been the case for all. On the other hand, it has resulted in better salaries for those who have continued because they have been able to adapt and contribute to the new commercially-oriented operations.
The Policy Decisions. Design of more liberalized sector structures has required policymakers to select among a complex array of interrelated parameters. Among other matters, they have had to decide on which areas to open to competition and which to maintain for monopoly provision; how many competitors to allow to enter into the competitive domain; how long to maintain restrictions on entry into the monopoly domain or further entry into a partially opened competitive domain; what sorts of regulatory safeguards to put into place to guarantee fair practices; and what sort of regulatory mechanism to select.

Establishing a boundary line between monopoly and competitive domains or between different competitive domains is no easy task. With time these boundary lines have become untenable since those who are allowed to operate or compete in one domain will soon find ways to transgress boundaries, which are never absolute. Attempts to distinguish between basic and enhanced in the United States and Canada, Type I and Type II in Japan, reserved service and others in Europe, domestic and international in Japan and the United Kingdom, have either failed or have come under untenable pressure.29

Policymakers in industrial countries have also had to deal with the difficult issues of cross-subsidization and rebalancing of tariffs. To what extent will subscribers in rural or remote areas of the country be asked to pay for the higher price that it costs the operator to bring the service to them? To what extent should the new entrants have to contribute to the incumbent’s cost of continuing to supply services in these areas to which newcomers are not particularly attracted, that is, to maintain universal service? These questions have become particularly important in countries such as Japan, Canada, and the United Kingdom after the introduction of competition.

Governments have also had to weigh the benefits of a privatization against the costs. Sales of telecommunications enterprises have resulted in substantial one-time cash infusions into the treasury at the cost, however, of a lost income stream and perhaps also a convenient instrument for economic and social policy implementation.

Regulation. Regulatory structures after reform have become more involved and complex. This is particularly true when reform also included privatization of a state enterprise. Prior to privatization social control of the company had been achieved through public ownership with the government appointing the board of directors and approving the company’s budgets, tariffs, construction program, and general policy direction.30 This simple and fairly straightforward relationship between the telecommunications operator and the state changed substantially with reform, which introduced a whole new set of issues, including how to:

- Prevent the incumbent operator from abusing its dominant position to prevent competition
- Ensure that a private monopoly does not make monopoly profits
Implementing Reforms in the Telecommunications Sector

- Continue to promote certain economic and social goals, including universal service
- Ensure adherence to certain technical standards
- Ensure that quality-of-service standards are maintained
- Monitor license conditions and ensure that laws and regulations are respected
- Deal with interconnection problems
- Regulate tariffs and contribution payments for network development.

These issues are complex, interrelated, and sometimes conflicting. The regulatory mechanisms developed in industrialized countries as a result of reform have had to deal with these unequivocally but fairly. Thus, to facilitate the development of competition, regulations for new entrants have had to be more lenient than for the incumbent without, however, disadvantaging the latter unduly. The Federal Communications Commission (FCC) in the United States has, for example, regulated the long-distance carrier AT&T more rigorously than its new competitors, including MCI and Sprint.\(^3\) In Japan the new entrants received favorable pricing conditions with respect to access to the local network of the former monopoly’s (NTT). In Canada the new entrant in the long-distance market (Unitel) will be able to charge 15 percent less than the incumbent (Stentor).

Important in the United States, Canada, and the United Kingdom is the flexibility which has been built into the regulatory framework to deal with rapidly changing and unforeseen circumstances. Indeed, the law which regulates telecommunications in the United States and which applies even today was drafted in 1934. The Canadian law, which only now is being redrafted, was adopted in 1906. Although there has been no lack of suggestions, proposals, and even pressure to change these laws, politically, change has proven to be far too difficult and therefore has been avoided. Yet even in the absence of up-to-date legislation, policymakers and regulators in these and other industrialized countries are dealing with new and even more complex issues of how the new entrants should be permitted to access the incumbent carrier’s local networks, what the most appropriate form of price regulation should be, and what level of subsidy the new entrants should have to contribute to network development.

The distinction between the policymaking responsibilities of the government and the regulatory functions of an independent regulator in countries where this distinction exists, such as the United States, Canada and the United Kingdom, has not always been as clear-cut as may have been intended. Indeed, it has sometimes been convenient for governments to let the independent regulator make difficult policy decisions on its behalf.

Countries that have carried out reforms have discovered that the cost of regulation is not negligible. Independent regulatory bodies have had to hire substantial numbers
of highly qualified experts. Operating companies have also had to dedicate substantial resources to satisfying the requirements of the regulators, and armies of lawyers, economists, accountants, engineers, and others are involved every day in a complex regulatory process in countries such as the United States and Canada. These did not exist under the old monopoly PTT-type structures.

**Commercializing and Privatizing State Enterprises.** In the United Kingdom, Canada, and New Zealand, when the government decided to privatize their state-owned telecommunications operations they proceeded first to prepare them structurally, financially, and commercially in order to optimize the proceeds from the sale; government departments such as the British and New Zealand Post Offices first had to be corporatized to allow them to develop proper commercial management, accounting, and legal practices. They were given boards of directors (often with members from the private sector), management structures, balance sheets, profit and loss statements, and business plans, which made them look very much like their private counterparts. Governments knew that potential buyers would look very closely at the historical development of the company, its growth, its cash flow, and its return on assets in deciding whether and how much to offer. In Canada the capital structure of the corporatized international operator, Teleglobe Canada, had to be changed to give it a ratio of debt to equity which potential buyers would find attractive. Also the value of the company's assets and goodwill had to be properly evaluated for regulation and sale. Corporatization was sometimes accompanied by a separation of telecommunications from the nontelecommunications activities of the entity. This was the case in both the United Kingdom and New Zealand.

The Canadian government chose outright sale of its international telecommunications carrier to one buyer; others, for reasons mentioned earlier, chose the issuing of shares to the general public and the employees. The United Kingdom, which chose the latter, privatized British Telecom in tranches over a period of several years. This had the advantage of the government's maintaining control (initially, majority) over a transition period as the company adjusted to both a competitive and a commercial environment. Furthermore, the government was able to benefit in each subsequent flotation from an appreciated value of the shares of the partially privatized company.

Governments that have chosen flotations have had to prepare the necessary prospectuses and procedures and, most important, have had to price the shares so as to maximize the benefits to the state but also to attract a large number of buyers. The New Zealand government chose to avoid the complexities of a flotation by selling to a consortium of a few buyers with the condition that the buyers had to offer a part of the company for sale at a later stage through a flotation that they had the responsibility of organizing.

Governments have learned from experience that the conditions of sale of a state enterprise have to be clearly defined and unambiguous. This includes terms of exclusivity granted to the newly privatized company as well as other privileges and obligations. There have been cases where initial calls for tender have failed precisely
Implementing Reforms in the Telecommunications Sector

because such conditions were not clearly stated. Bidders came back with so many questions and with such demanding conditions of their own that the sale had to be canceled. Because the process is so dynamic and constantly evolving there is still no set of well-defined models of sector reform in industrial countries to which one could specifically refer. New, unforeseen problems arise daily and there are no set formulas for dealing with them. The countries must improvise and define and redefine structures continuously.

One can, however, draw an initial conclusion with respect to who has benefitted in industrial countries. So far, at least, all the stakeholders have come out ahead as a result of reform, including the governments, the operators and service providers, the consumers, and the employees. Governments have benefitted from the sale of state-owned telecommunications entities which in turn have gained greater commercial and financial freedom. Employees have gained with better salaries, and the consumer has seen an increase in choice along with a substantial reduction in the price of telecommunications services.

Telecommunications in the Developing World

In developing countries, telecommunications services were initially run by foreign private companies and colonial government agencies. In the 1960s, most telecommunications operations were nationalized and taken over by the public sector. This reflected the emergence and consolidation of independent nations in Asia and Africa, widespread adoption of development strategies based on increasing state participation in economic production and distribution, and concerns about the security and development significance of telecommunications.

Persistent Shortfalls

State telecommunications monopolies in most developing countries, unlike in industrial countries, generally fell short of meeting the service requirements. That is still mostly the case today:

**Large Unmet Demand for Connections.** Outstanding applications for telephone connections are numerous, and people often wait several years to obtain service. In the late 1980s it was estimated that the supply of about 60 million telephone connections in the developing world was about 20 million lines short of expressed demand, and total unmet demand was maybe 30 million to 40 million lines. By 1993, the estimated unmet demand in China and India alone exceeded 50 million lines. In addition, more advanced services (such as cellular, data transmission, electronic mail, access to information and data-processing services) are in their infancy or nonexistent.

**Call Traffic Congestion.** The limited telecommunications infrastructure is heavily congested. During peak business hours communicating by telephone is often
impossible. International service is ultimately constrained by congestion at the local and interexchange levels. Congestion partly reflects insufficient traffic capacity of switching and transmission equipment but ultimately derives from the shortage of lines in service.

**Poor Service.** Reliability and quality of service tend to be inconsistent and generally substandard. Cities are often left without telephone service when it rains. Individual lines break down frequently and can take weeks or even months to repair.

**Limited Territorial Coverage.** Much remains to be done to complete a countrywide infrastructure of basic telephone service. Most facilities are concentrated in a small number of cities, and a large proportion of the population lives in places without even a public telephone. Lack of a countrywide infrastructure of basic telephone service also impedes development of more advanced business services.

**User Willingness to Pay More.** Many users clearly value the service more than they are charged for. One way or another, they often pay in excess of official tariffs to obtain service, for example, by acquiring telephone connections in secondary markets (legal or otherwise) or by paying premium rentals for properties with telephones.

**User Pressure to Develop Own Facilities.** As public service fails to meet their needs, major users tend to set up their own networks. Modern technologies have substantially reduced the cost of bypassing public networks.

### Main Constraints

The annual rate of return of telecommunications investment to a developing country's economy as a whole is often in the range of 20 to 30 percent or more, well above the 10 to 14 percent threshold returns used to screen public sector investments in general. With adequate tariffs, telecommunications are also a profitable business. Investments often yield annual financial rates of return of 15 percent or more. Given these high social and private returns, why do telecommunications services lag so far behind demand? There are three main constraints:

**Investment Capital.** The level of investment has consistently been much lower than that needed to meet demand. Although overall telecommunications investment in the developing world grew in the last twenty years at 10 to 12 percent per annum in real terms, to about US$11.1 billion in the late 1980s, this averaged only 0.4 to 0.6 percent of gross national product (GNP). Developing countries that succeeded in rapidly modernizing their economies invested in telecommunications a much larger share of GNP (for example, Singapore 1.1 percent, Malaysia 2.3 percent). On average, about US$1,800 is needed to provide one additional telephone line, of which in most countries 50 to 80 percent is in foreign currency.
Implementing Reforms in the Telecommunications Sector

Underinvestment reflects capital and foreign currency shortages in the public sector generally, many competing demands, government appropriation of telecommunications operating surpluses to the detriment of reinvestment within the sector, and limited or no access of the operating enterprises to other sources of capital. Furthermore, like other public or parastatal entities, telecommunications enterprises are subject to investment ceilings to contain public sector spending and attain broader macroeconomic objectives (for example, to contain inflation).39

In the 1970s, attempts to accelerate telecommunications growth and modernization focused on obtaining for this sector a larger share of the countries’ limited public funds and external development credit and aid. This, combined with borrowing by enterprises in creditworthy countries, and in some cases by mandatory subscriber financing and surtaxes on telecommunications bills earmarked for reinvestment, resulted in sustained rapid growth and modernization of telecommunications services in several countries.

Overall, however, the telecommunications operating entities did not have access to enough capital for investment. Deteriorating national economies and tighter international credit in the early 1980s further constrained investment and led to escalating supply shortages and lower service quality, even in countries that earlier had done fairly well.

In the late 1980s it was estimated that for developing countries in Asia-Pacific, Latin America, and Africa to catch up with the demand for basic telephone service by the year 2000, as a group they would have to invest in the 1990s about US$25 billion to US$30 billion per annum, or about five times the average achieved in the 1980s in real terms. To this must be added at least US$10–15 billion per annum for upgrading facilities in Central and Eastern Europe and in the former U.S.S.R., and an unknown but rapidly growing amount for more advanced business services and facilities. By 1993 all these numbers appeared to have been underestimated by a wide margin.

Organization and Management. The operating entities are often organized and managed in ways that may be appropriate for government administration but not for running a high-technology commercial service in a rapidly changing business environment. Common problems include inadequate organization structure, financial management, accounting and information systems, procurement, and personnel development.

These weaknesses result in high cost of operation and expansion, poor maintenance, slow response to changing demands and business opportunities, and limited capacity to prepare and implement development programs and projects. Project preparation and implementation capacity are often the ultimate constraints on telecommunications expansion and improvement in the least-developed countries.

Sector Policies. The telecommunications operating entities generally lack the freedoms and incentives to perform as efficient businesses. Capital shortages and poor enterprise performance can ultimately be traced to inadequate government policies for the telecommunications sector.
Specific problems include insufficient financial and administrative autonomy, little incentive to contain costs and improve customer service, noncompetitive salaries and career opportunities for staff and managers, tariffs that do not reflect the entity's financial requirement and cost structure, limited or no access to capital markets, and political interference.

**Forces of Change**

From the mid-1980s, a growing number of developing country governments realized that, in order to overcome these persistent constraints, the prevailing sector arrangements would have to be overhauled. This movement was driven by the same factors underlying reforms in the industrial world, namely, technological change and demand, amplified by six additional factors:

- The limits of state monopoly of telecommunications supply had been reached and were increasingly recognized. In particular, it became clear that the governments would be unable to provide the huge amounts of capital required to meet outstanding and rapidly growing demand. Also, although organization and management improvements within the telecommunications operating enterprises resulted in more efficient use of scarce resources in several developing countries, in the context of sector policies that did not provide the necessary freedoms and incentives for these entities to perform better, internal changes alone had proved to be of limited value.

- Developing countries began to adopt economic strategies including measures to liberalize trade, promote competition, deregulate financial and capital markets, reduce restrictions on foreign investment, and restructure public enterprises. Rapid growth in developing countries in the 1960s and 1970s came to a halt in the late 1970s and early 1980s, the result of excessive external debt, rising energy costs, overgrown public sectors, and inefficient import-substitution industries. The turnaround in economic policy gave renewed urgency to developing telecommunications as required for the broader economic reforms to be effectively implemented. The constituency for telecommunications development quickly grew to include a whole crowd of powerful and vocal users, including multinational corporations, domestic and foreign investors, industrialists, traders, and bankers, demanding telecommunications services required for them to succeed under the new economic strategies. Telecommunications became a central theme in multilateral and bilateral trade in services negotiations. Suddenly, governments started to feel pressure to do something definitive about telecommunications. The new economic strategies also provided a framework in which new models of sector organization became politically acceptable. In several countries, telecommunications were chosen to lead government efforts in state enterprise restructuring.
Implementing Reforms in the Telecommunications Sector

- Popularly elected governments found that public dissatisfaction with service and, in many countries, extensive corruption of telephone company personnel, resulted in widespread support for major reform initiatives.

- Telecommunications reforms in industrial countries raised international awareness of a wide range of sector policy issues and options, and demonstrated the viability and increasing political desirability of alternatives to state monopoly.

- Telecommunications operating companies in industrial countries, repositioning themselves in their own changing domestic markets, aggressively started to pursue new business opportunities in developing countries.

- Commercial banks sought to shift their exposure in highly indebted developing countries from nonperforming loans to new investment opportunities, among which telecommunications were particularly promising.

Beginnings of Reform in the Developing World

The wave of telecommunications reforms that began in the 1980s in a few highly developed economies has quickly spread and is reaching worldwide dimensions. By 1993, major reforms had been completed or were well under way in at least fifteen developing countries, and a comparable number were in preparation. The pace and scope of structural change has varied considerably among regions.

Latin America. The reform movement got to an early start in Latin America. Privatizations of state telecommunications enterprises were completed in Chile (1987), Argentina (1990), Mexico (1990), and Venezuela (1991). By 1993 reforms were at various stages of preparation in Bolivia, Ecuador, Panama, Peru, and Uruguay, and being considered in Brazil, El Salvador, Honduras, Nicaragua, and other countries.

Former U.S.S.R. and Eastern Bloc. Following the collapse of the communist regimes in Central and Eastern Europe and in the former U.S.S.R., rapid progress was initially made in outlining broad sector reform strategies to deal with the huge service and technology gaps relative to the rest of Europe. By 1993 all governments were developing the details of implementation, and several of them (for example, Hungary, Poland, Ukraine) were already building state-of-the-art business networks and extending service to rural areas through joint ventures and innovative investment and management modalities.

Asia. Reforms were initially slower and of more limited scope in Asia: corporatization in Malaysia (1987) and subsequent partial privatization (1990), corporatization and liberalization of nonbasic services in Indonesia (1990), decentralization
of operations in India (1985, partial) and China (1988, extensive), government initiatives to accelerate development outside the main urban centers in the Philippines (from the late 1980s), and reorganization from telecommunications departments to state enterprises in Sri Lanka and Fiji (1990). The pace picked up, however, with Pakistan preparing for privatization, Thailand embarking on major build-transfer-operate (BTO) ventures, the Philippines government taking steps to develop competition (international services, 1993), Indonesia having established a new, partially state-owned competing international operator (1993), the Malaysian government issuing several new international gateway licenses (1993), the Indian government exploring options for sector reform (1992) which may include restructuring the state operating entity and opening up parts of the market to new service providers, and China moving toward sweeping reforms including competition and possible private investment.

Africa. It could be argued that, in relative terms, the least-developed countries have the most to gain from sector reforms. Yet in sub-Saharan Africa the efforts to overcome telecommunications shortages have so far been largely confined to trying to improve the performance of existing telecommunications state entities. Although some African countries have explored possible new modalities, including joint ventures with PTTs and introducing some competition, most governments still hesitate to consider broader reforms and privatization. This mainly reflects their concern for limited available resources, especially skills to prepare and implement such programs. Compounded by small markets, extreme paucity of existing facilities, disproportionate size of social needs, and sometimes unfriendly economic policies, getting involved in Africa appears less attractive to foreign operators and investors than opportunities in other regions. In many developing countries, concerns about national security, which loomed large in telecommunications policy discussions of the 1960s and 1970s, are waning as telecommunications facilities become widespread and are viewed as production and consumption items commercially available to all buyers; yet in Africa, national security is still a politically significant issue, compounded by a broader concern about foreign control of key factors of economic production and distribution.

Nevertheless, telecommunications privatization is now underway in Côte d'Ivoire and Guinea. Some other governments have expressed interest in privatization experiences. There are success stories of small private ventures (for example, cellular) led by local entrepreneurs in a few countries, and regional organizations are starting to examine the broader prospects for telecommunications restructuring.

Special Issues of Reform in Developing Countries

Developing countries offer exceptional opportunities for telecommunications reform. Large pent-up demands make attractive markets. Major efficiency gains can be achieved quickly through separation from government, improved management, technological innovation, and accelerated growth. Substantial operating surpluses
Implementing Reforms in the Telecommunications Sector

can be generated from the beginning to help finance expansion. Telecommunications reform, however, faces some unique difficulties in developing countries, as outlined below.

INCOMPLETE INFRASTRUCTURES. Developing countries have very incomplete telecommunications infrastructures. Changes in technology and markets are driving governments to undertake profound sector reforms well before countrywide networks have been built. Existing facilities are of insufficient capacity and have yet to be extended to many places that lack even basic services. At the same time, more advanced services must be quickly introduced to meet the needs of the modern sectors of the economy, but the infrastructure that would make these new services viable is not in place. Reforms are thus likely to require the restructured operating companies to meet demanding growth targets, placing large burdens on cash flow to finance large up-front investments that can only be recovered over long periods. In contrast, industrial countries have entered the current wave of sector reforms equipped with extensive and generally well-functioning infrastructures, and the demand for basic services is largely met.

SCARCE HUMAN RESOURCES. There is a limited base of educated professionals. In particular, whereas most developing countries have cadres of competent and well-educated telecommunications engineers and technicians, many are short of experienced managers, accountants, and computer specialists needed to run telecommunications as commercial operations. Likewise, it may not be possible to assemble a sufficient number of qualified professionals to build up even a minimum core of expertise in all basic regulatory functions. The problem is compounded since other sectors are likely to be reformed at about the same time as telecommunications, creating further pressure on the small human resource base. These shortages limit the range of sector designs that are viable, especially in the least developed countries of sub-Saharan Africa and some parts of Asia.

PAUCITY OF INFORMATION. Limited information is available on the telecommunications operating enterprises. Accounts often do not follow internationally accepted practices. Financial statements are audited late or never. Information on liabilities, especially regarding debt and pensions, tends to be unreliable. Information on plant, particularly on cable network utilization and customer connections, is often out of date and incomplete. Prospective strategic investors thus have little to go by to assess the financial and physical condition of the enterprise.

UNDEVELOPED LOCAL CAPITAL MARKETS. Few developing countries have well-established local capital markets. Stock markets are usually small or nonexistent. Institutional investors (such as insurance companies, pension funds) that can pool small savings are seldom in place. Wealthy families and large companies are few and tend to demand high rates of return to invest in the country. Local markets for debt instruments, if they exist, tend to be narrow, and the private sector is crowded out by
public sector borrowing. Long-term debt is seldom available, and short-term debt is unreliable and expensive.\textsuperscript{45} Thus, although in many developing countries the potential for domestic savings is substantial, the market mechanisms to channel these savings towards the large investments required by telecommunications are rarely in place. Privatization may thus be tantamount to foreign ownership, and domestic ownership is likely to be highly concentrated, which may raise political issues.

\textbf{Weak Legal, Regulatory, and Institutional Framework.} Many developing countries are still struggling to replace legal and institutional arrangements geared to a state-dominated economy by a framework in which a competitive, open, market economy, based increasingly on private enterprise and capital, can effectively function. Examples of inadequacies of the legal and regulatory framework include lack of or ineffective laws and enforcement mechanisms to protect private property; absent or outmoded trade laws; no antitrust law in most countries; a complex tax regime that is often antibusiness; and controls on access to foreign exchange. The telecommunications law is often too old to provide meaningful reference in the context of contemporary technologies and markets; or telecommunications is covered by laws primarily designed for other sectors which it no longer resembles (for example, transport and communications, or electricity, gas, and telecommunications). The institutional arrangements are also often quite weak. Examples include a judiciary that lacks independence from the executive power or is prone to manipulation by interest groups; a legislative that is either captured by the executive or paralyzed by party fragmentation; unstable governments; and slow, ineffective, and sometimes corrupt government administration. There are generally no effective telecommunications regulatory institutions separate from the main operating enterprises, and there is little or no regulatory tradition of any public service.

\textbf{Limited Interest of Foreign Investors and Banks.} Although many developing countries now profess to be open to private investment in telecommunications, including foreign, the conditions are still seldom right to attract investors. Foreign firms are deterred from investing particularly by political risk, possibility of expropriation of assets or profits, foreign exchange controls, discretionary taxation, and restrictions on capital repatriation. Although multinationals invest in their subsidiaries, they do so only in small amounts. Foreign portfolio investment, although growing in some countries, remains overall very limited. Also, following a borrowing binge in the 1970s and early 1980s, many developing countries are saddled with relatively large sovereign and private external debts that leave little room for new debt financing. International commercial bank lending is now rarely available without external guarantees or political risk insurance.\textsuperscript{46}

\textbf{Outline and Highlights of This Book}

Sectonal reform, which began in only a few countries in the early 1980s, has intensified and become widespread in the 1990s. This book presents these experi-
Implementing Reforms in the Telecommunications Sector

ences from a diverse and broad perspective, describing not only the forces that caused change but also the problems, solutions, successes, failures, and the lessons of reform.

The book has eight parts. The first reviews the current state of telecommunications policy and structural issues in industrialized countries as well as assesses their impact on, and implications for, developing countries. Experiences in Latin America, the Asia-Pacific region, and Europe are presented in the next three parts. This is followed by two parts on investment, giving the perspectives of both strategic and market investors and the various modes of raising private capital. The last two parts cover issues related to regulation and implementation of sector reform. An annex summarizes the sectoral structures and regulatory arrangements in over 80 countries as of the beginning of 1994. A glossary explains in plain English many of the specialized terms used throughout the book.

Current Policy and Structural Issues

Part I of the book provides a background to the discussion of telecommunications reforms by outlining how they relate to the countries' broader economic development strategy and to events and current issues in the industrial countries.

The case for telecommunications reform in developing countries is made by Peter R. Scherer (chapter 1). Reform, he suggests, is essential if countries are to succeed in an increasingly globalized, competitive, and information-based world economy. He shows how business activity in many sectors is becoming critically dependent on users having access to and control of telecommunications and information. Modern and inexpensive telecommunications have become a key determinant of economic competitiveness. Yet, argues Scherer, successful restructuring of telecommunications can only be achieved in the environment of national economic strategies that favor a stable business environment, prudent fiscal and exchange rate policies, effective competition, price and foreign trade liberalization, and sound financial and capital markets. Conversely, reform of telecommunications could be used as a catalyst to engender changes in the role of government and in other sectors that would go beyond the direct role of telecommunications in enhancing a country's economic performance. Scherer postulates that the economywide incentive system is more important than ownership for effective modernization of telecommunications. Contrary to Richard J. Schultz (40), however, he believes that few state-owned telecommunications enterprises can successfully change as radically as needed. The solution generally must be sought through disengagement from government intervention. This can be achieved initially through corporatization of the public telecommunications company, preferably with the simultaneous introduction of competition by allowing private sector entry. Change in ownership, another policy instrument, may or may not be part of the restructuring process and is neither strictly necessary nor sufficient for good performance, unless important additional conditions are met. Although advocating that governments disengage from direct management of telecommunications, Scherer calls for a continued role of governments
focused on policymaking and regulation. Lastly, he proposes that developing
countries planning to undertake reforms should recognize that:

• A balance must be struck between investment in telecommunications and in
other sectors.

• Quality of reform is considered a test for the country's ability to improve the
domestic business climate.

• Judicious choice of sector structure and regulatory framework is critical.

• Business demand for advanced services must be attended at the same time as basic
services are extended to unattended populations.

• Efficiency is the overriding objective of reform.

• Plant development must be accompanied by organization and management
changes that improve performance.

• Competition is an effective policy tool to promote growth and efficiency.

• Tying telecommunications development to domestic equipment manufacturing
results in high costs to the economy.

• Policy and regulation must be separated from operations.

• The participation of foreign capital and expertise need not compromise national
sovereignty.

Countries contemplating sectoral restructuring can benefit from the experiences of
industrial countries. Robert R. Bruce (2) presents an overview and critical analysis of
recent experiences in those countries, with special attention to the European Commu-
nity (EC), Japan, and the United States. A dominant theme is the need to keep policies
moving forward. Telecommunications policies and structures in EC member states are
being harmonized in accordance with the 1987 Green Paper, which seeks to achieve
a single European telecommunications market. Bruce argues, however, that despite
enormous progress, reform must now proceed further. For example, the performance
of telecommunications is already being constrained by lack of competition in facilities
and in voice services. In particular, the Open Network Provision (ONP), which
describes the terms and conditions under which leased-line capabilities are offered to
new service providers, does not allow local switching and network management
capabilities to be offered to third parties, placing EC users at a disadvantage relative to
the United States, where a more pro-competitive open network architecture (ONA)
policy is in place. Furthermore, EC policy does not provide for a sufficiently
Implementing Reforms in the Telecommunications Sector

independent and well-developed regulatory authority that can deal effectively with issues related to interconnection (access) charges and tariff rebalancing.

According to Bruce, Japan also needs to reassess elements of the 1984 Telecommunications Business Law and other policy developments. Current Japanese policy does not allow the dominant domestic and international operators to compete with each other; more formal and transparent regulation is needed; and the separation between facilities-based and services-based competition is increasingly difficult to maintain. The U.S. experience, despite important shortcomings, shows how policy and regulatory changes have resulted in diversified and unbundled service offerings, cost-oriented prices, a spectacular demand-driven expansion of network capacity, the development of safeguards for new entrants through (complex) regulation of access charges, the development of elements of price-cap regulation, a well-developed even if intricate (and costly) regulatory process, and a division of regulatory responsibilities between federal and state authorities.

There is also valuable experience to be gained from smaller industrialized countries. In Finland, local telephone cooperatives are poised to compete in long-distance and new services with Telecom Finland, the newly corporatized former PTT. New Zealand presents a unique experiment in privatization, with foreign participation, open entry, and reliance on competition law rather than sector-specific regulation. Australia provides an example of privatization accompanied by the opening of markets to competition.

Lessons drawn from these and other experiences in the industrial world suggest that successful reforms are likely to include:

- Liberalizing both facilities-based and service-based markets—at least at the margins
- Rebalancing tariffs to help users become globally more competitive and as a means to attract investment
- Reorganizing the PTT to separate it from the government and to allow it to operate independently and in a commercial manner
- Decentralizing the operator’s functions to separate out new business activities and perhaps local, long-distance, and international services
- Using novel approaches to encourage investment and develop effective competition.

Many issues, however, will have no straightforward answer, including:

- Determining the appropriate procedure for rebalancing rates
- Parameters of price-cap schemes
- Interconnection arrangements
Cost-accounting and allocation criteria

Means of introducing competition and using it as a regulatory tool

How to structure the regulatory and policy functions.

Bruce concludes with a warning. The process of restructuring telecommunications is very complex, requiring a variety of skills and expertise, and time must be allowed to prepare the operating entity and the legal and regulatory framework.

Recent Experiences in Latin America

Latin America has taken the lead in reforming telecommunications in the developing world. First Chile, then Argentina and Mexico, and most recently Venezuela, have undergone profound changes in sector structure and ownership. These experiences, and lessons that may apply to future reforms in this region as well as elsewhere, are discussed in part II of the book. An overview and synthesis of these experiences and lessons (Wellenius, 3) is followed by more detailed analyses of the experiences of Chile (Melo, 4), Argentina (Mairal, 5), Mexico (Casasús, 6) and Venezuela (Pisciotta, 7). Aspects of the Latin American experience are also discussed later in this book, from the viewpoint of strategic and market investors (for example, Massari, 25, on Argentina; Vallimarescu, 29, on Chile; Watkins, 30, on reduction of sovereign debt) and the relationship of sector reform and the political system (Cowhey, 38, on Mexico and Argentina).

Like developing countries generally, telecommunications in Latin America have lagged far behind demand. Compared with the rest of the developing world, however, this region generally has more advanced telecommunications systems and better institutional and human resource bases. One after another, by the late 1980s most Latin American countries had returned to democratic forms of government and started to put in place new economic strategies that emphasized competition, private enterprise, and openness. This has provided a favorable political and economic environment for telecommunications reform.

The reforms undertaken in Latin America have similarities and also significant differences. They are similar in that in all cases so far, reform has revolved around privatization of state enterprises; privatization has been realized through international competitive bidding; elements of competition in nonbasic services and networks were introduced immediately; protection of the dominant operator from competition in the core business has been assured for a limited time; and international capital markets were willing to invest in the privatized companies. There are also important differences. The process of reform was very focused and rapid in Argentina, Mexico, and Venezuela, where privatizations were completed in less than two years, and somewhat indecisive and much slower in Chile, where it took over ten years. Important improvements were made in Mexico’s enterprise before privatization, whereas those in the other countries were sold “as is” (ranging from good to
Implementing Reforms in the Telecommunications Sector

poor), and internal changes were left to the new owners. In all countries, the privatized companies were granted operating concessions, but the role and scope of these varied. For example, the concessions in Argentina, Mexico, and Venezuela, but not in Chile, defined monopoly privileges as well as quantitative service development targets. In Argentina, the basic rules of the game were set mainly in the terms and conditions of sale of the state enterprise and in the sales contracts, rather than in the concession. Pricing policies and rules for marginal cost pricing were set in the law in Chile, while price-cap regulation was adopted elsewhere with capping formulas defined in the concessions or sales contracts. Both approaches to pricing have run into problems, including implementation difficulties in Chile and the government's reneging on indexation in Argentina (Massari). In all cases markets were initially structured as multiple monopolies (Cowhey), and then split up in rather different ways. In Chile, where monopoly is not granted by legislation or contract, local telephone service is provided by two de facto monopoly operators, one covering a small region and the other, the rest of the country. A third company operates most long-distance services and facilities. In Argentina, local and domestic long-distance telephone services were divided into two regional companies of about equal size. Here the government granted them monopoly privileges for seven years with a possible extension of up to ten years, subject to exceptionally good performance. In Mexico, the main operator has a six-year monopoly of basic services and networks, but another enterprise exercises the satellite facilities monopoly granted to the state by the Constitution. In Venezuela the concession granted to the privatized Compañía Anónima Nacional de Teléfonos de Venezuela (CANTV) was granted exclusivity for basic services for nine years. In most cases the state enterprises were sold to consortia that include experienced foreign operators who have responsibility for running the companies (the exception being the Chilean long-distance company, in which none of the investors has a controlling interest). These controlling consortia, however, own varying proportions of the company, ranging from 20 percent to over 50 percent. Likewise, requirements varied among countries regarding the extent of domestic ownership. Where needed, capital structures were modified before the sale to allow minority (including foreign) owners to have administrative control. In all cases, although a single buyer was given controlling interest, ownership of the companies was widely dispersed among domestic and foreign investors, company employees, and the public at large.

In general, initial results from reform in Latin America have been very positive. Investment has accelerated, service has expanded rapidly, and new services have been introduced. There are indications that the countries' economies gained considerably from privatization, and in some cases all major stakeholders (customers, foreign and domestic investors, employees, government) have benefitted. The operating companies are much better positioned for sustained development. In particular, new management teams have been put in place, unfavorable contracts with domestic suppliers renegotiated, corruption reduced, improved work practices introduced, and urgent technical problems addressed; however, many problems remain to be solved. In particular, regulatory institutions remain weak. In Venezuela a temporary
Background, Overview, and Lessons

regulatory entity had to be established by presidential decree because it was not possible to promulgate a new telecommunications law before the privatization of CANTV. Like the original Argentine regulatory agency, it lacks funding. In Argentina and Mexico the regulatory agencies got off to a very slow start. In Chile the reliance on a mix of sector-specific regulation and antitrust law has been rather slow in dealing with critical issues.

A well-designed concession can, however, as Björn Wellenius shows, serve as an effective means of regulating the privatized operator's network expansion, quality, pricing, and other obligations. This is the case in Mexico. Developing competition at the margins and the necessary skills are also very important.

Comparing the major privatizations in Latin America (those of Argentina, Mexico, Venezuela, and Chile), Wellenius draws the following conclusions:

- There is a pattern of selling controlling interest in the state enterprise to private owners, giving them a limited-term monopoly, and opening immediately some segments to competition (such as cellular).

- There has been considerable interest of domestic and foreign investors in Latin American telecommunications privatizations.

- Privatizations in Argentina, Mexico, and Venezuela were achieved quickly and generally effectively because there was political support at the highest level.

- Employees were persuaded to support reform.

Recent Experiences in the Asia-Pacific Region

Part III of the book examines the experience with telecommunications sector reform in the Asia and Pacific region. An extensive regional overview by Robert R. Bruce and Jeffrey P. Cunard (8) is followed by more detailed analyses of events in two industrial countries: Australia (Hutchinson, 9; Ergas, 10) and New Zealand (Donaldson, 11). Two developing countries at different stages of reform are also discussed: Sri Lanka (Watson, 12), and Malaysia (Syed, 13).

The Australian telecommunications reforms must be understood in the context of broader economic reforms begun in 1983, including the financial, manufacturing, transport, and communication sectors, which involved changes in government policy regarding competition, regulation, and state enterprises. The telecommunications reform announced in 1990 sought to enhance competition by setting up a duopoly of all services and networks between a merger of the existing domestic and international state companies (AOTC, now Telstra) and a new private company, to be built starting from the sale of state's satellite company (AUSSAT); taking specific steps to increase competition in cellular and other specific market segments; and establishing pro-competitive safeguards. Michael J. Hutchinson discusses the
Implementing Reforms in the Telecommunications Sector

main issues raised in connection with reform, including the need to continue ensuring universal service, attract private domestic and foreign investment, promote Australian telecommunications manufacturing, develop a regulatory framework, and ensure interconnection and equal access. The resulting policy requires that both Telstra and the new carrier cross-subsidize the universal provision of services, at an estimated annual cost of some A$250 million. AUSSAT was sold to a consortium including 49 percent interest of two foreign operating companies. Australia is pursuing telecommunications liberalization through both bilateral and multilateral negotiations—including the GATT Uruguay Round on trade in services—as a means to promote domestic telecommunications manufacturing, software, and service industries. The role of the independent regulator (AUSTEL) has been strengthened and consolidated; its functions now include monitoring competition, protecting new entrants from potential abuse by the dominant carrier, reviewing interconnection and equal access arrangements, promoting carrier efficiency, setting standards, preventing misuse of market power by international entrants, protecting consumers, and acting as arbitrator between carriers where their commercial negotiation is unsuccessful. Telstra, the dominant carrier, is required to provide to new carriers connection with the main network at a directly attributable incremental cost and on an equal access basis.

Henry Ergas is critical of Australia's approach, especially of the government's continued involvement in the sector after the reform, and suggests that the sector is mature enough for competition to develop without direct government involvement, which he believes is constraining and delaying competition. In particular, the government's power to set prices and the conditions for community service obligations are contrary to the objective of increasing aggregate welfare. There is also the risk that the government will use state ownership of the dominant carrier to promote its own investment, human resources, and service interests rather than leaving these to market forces. Ergas highlights the burden on the carriers of financing community service obligations and the continued reliance on the treasury to finance the dominant carrier's investments, especially in international ventures.

New Zealand's approach is closer to the model Ergas would have preferred for Australia. Like Australia, New Zealand was characterized until the early 1980s by a large and pervasive public sector judged to be inefficient, inflexible, and subject to political interference. Hunter Donaldson describes the process of reform. In the mid-1980s the government decided to corporatize a number of state-owned enterprises, including the Post Office, which was responsable for telecommunications. Posts and telecommunications were separated, as were the regulatory and operational functions. This was, however, only the first step to what is now regarded as the most radical liberalization and deregulation of any telecommunications market to date. By 1991 all restrictions to market entry and ownership were removed, and any new network operators could be established on proof that they met certain criteria specified in the Telecommunications Act. With the 1990 sale of Telecom Corporation of New Zealand (TCNZ), the corporatized successor of the Post...
Office's telecommunications operations) to a consortium of local and foreign investors, including two foreign operating companies, the government was wholly out of the business of providing telecommunications services. The New Zealand government does, however, retain veto power on specified matters, particularly to ensure that TCNZ meets agreed service obligations. Unlike Australia, New Zealand does not have a telecommunications regulatory agency. Rather, the policy is to rely on various provisions of the commerce, antitrust, and telecommunications laws to regulate the market. Allocation of use of the radio spectrum is subject to a tendering process. The initial results of reform in New Zealand, according to Donaldson, have been generally positive in terms of accelerated investment as well as better and more services at lower prices. The world continues to watch eagerly.

In contrast, progress toward telecommunications reforms in the developing countries of Asia and the Pacific have been scattered and achieved mixed success. In 1987 the government of Sri Lanka decided to reorganize the telecommunications department into a separate state-owned company with the possibility of foreign private participation at a later date. Despite good progress toward setting up a regulatory authority and drafting new legislation and a corporate charter, this attempt at reform was abandoned by a new government in 1988. This, according to Vernon Watson, resulted largely from management, labor, and political opposition. In 1991 the government adopted a more modest reform program and created Sri Lanka Telecom (SLT) as a fully government-owned corporation to be run on a commercial basis but controlled by the government through a board of directors. A ministerial regulatory authority, less independent than originally envisaged, was also established. The initial adjustments to the new structure are still underway, and it is too early to assess whether they will result in substantial change in behavior and performance. Restructuring in Malaysia has been more consistent. As Syed Hussein Mohamed points out, it was driven by government policy to turn the private sector into the engine of economic growth. The government's telecommunications department was first corporatized in 1987 and then partially privatized through sale of shares in 1990. As in Sri Lanka, staff were offered job security and improved conditions if they chose to move into the new company. Restructuring was accompanied by the inculcation of a new commercial approach through training and emphasis on marketing, customer services, and quality of service. The former telecommunications department remains responsible for regulatory matters, including issuing of operating licenses, establishing of network standards, type approval of terminal equipment, and spectrum management. Reform in Malaysia has resulted in improved operating and financial performance, reflected in more than tripling of share prices by mid-1993.

In their survey of reform in twelve countries, Bruce and Cunard make some general observations about the experiences in the region:

- The Four Tigers (Singapore, Hong Kong, Korea, and Taiwan) should liberalize further by allowing greater competition in nonvoice services.
Implementing Reforms in the Telecommunications Sector

- Corporatization and privatization need to be pursued in these countries and foreign ownership rules need to be relaxed.

- All countries of the region can learn from the Thai example of bringing in private investors through new arrangements such as build-operate-transfer (BOT).

- Private parallel networks can be developed as a means of competing with the existing operator.

- Strong political commitment to reform needs to be maintained as well as large investment programs supported, at least partially, by tariff structures designed to generate necessary investment capital.

- Allowing in new competitors can also be a means to attract investment.

- Adequate regulatory structures, which are still lacking to a large extent in the region, need to be put in place.

Recent Experiences in Western, Central, and Eastern Europe

Europe has a unique mix of telecommunications sector development situations. While the countries of Western Europe, which have some of the world’s most advanced telecommunications facilities, are moving toward a single telecommunications market, no part of the world has been so abruptly exposed to accumulated weaknesses of its telecommunications facilities and skills as Central and Eastern Europe (CEE). Attempts to catch up with the West in a few years place huge burdens on financial resources and on the emerging market-oriented policies and institutions. Part III of the book looks at some pieces of this European kaleidoscope. A concise regional overview by Herbert Ungerer (14) is followed by more detailed analyses of three Western countries with very different sector approaches within a common European Community (EC) policy framework: Bruce Laidlaw (15) summarizes the United Kingdom’s pioneering progress in privatization and liberalization; Eric Huret (16) and Gerard J. van Velzen (17) examine the different approaches followed by France and the Netherlands toward increasing commercialization and competition without privatization. The unique case of Germany following reunification is presented by Karl-Heinz Neumann and Thomas Schnöring (18). The situation of other Central and Eastern European countries following the collapse of communist governments are discussed by Timothy E. Nulty (19), Jürgen Müller and Emilia Nyevrikel (20), and Krisztina Heller (21).

EC telecommunications policy is reflected in the 1987 Green Paper on telecommunications, the 1990 Green Paper on satellite communications, and various sectoral directives, all of which are part of a wider process of building a single European market. Telecommunications, as Ungerer points out, have a vital role to
play in Europe's services market, and liberalization of telecommunications structures is essential if these markets are themselves to be liberalized and thereby allowed to develop. Sector reform in progress mainly comprises liberalization of terminal equipment supply (including Europe-wide type approval) and most services except the telephone; separation of regulatory and operational functions; opening and harmonization of access to the network for new services providers through open network provision (ONP); transborder provision of services; and opening of domestic markets to foreign suppliers of major equipment. Ungerer concludes with a review of current work and challenges of the European Commission in areas of the liberalization of satellite communications, frequency coordination for various mobile services, numbering plans, and the future integration of Eastern Europe.

Within the framework of EC policy, the United Kingdom and France have approached reform in two completely different ways. The U.K. liberalization process, described by Laidlaw, began in 1981 with the corporatization of British Telecom (BT) and the creation of Mercury, the first potential competitor to BT's core business. The corporatization of BT and creation of Mercury were followed by the liberalization of mobile services and cable television markets and by the privatization of BT through sale of a majority of shares in the United Kingdom and foreign markets. Concurrently, a regulatory framework and agency, the Office of Telecommunications (OFTEL) were put into place, and a duopoly was established (BT and Mercury). Markets were further liberalized in 1991 following a review of the duopoly policy. Although there are still shortcomings, such as the limited competition in international basic services and the continuing dominance of BT, the United Kingdom has the most liberal telecommunications market in Europe. The approach to reform in France was quite different. Whereas in the United Kingdom many of the early decisions were made by Parliament without much input from the public, the French government undertook a wide-ranging consultative process involving PTT employees and unions, civil servants, and the general public. "Le débat public," described by Huret, involved hundreds of thousands of people expressing their views at meetings, national conferences, broadcast debates, by mail and videotext, and through questionnaires. The resulting reforms reflect the diversity of inputs, striking a balance between competition and the provision of a public service, and between regulatory control and market forces—competition within a public service framework. State-owned France Télécom, the monopoly provider of basic services and networks, obtained a large degree of financial and management autonomy but at the same time has strict public service obligations established by contract. This duality is reflected in the government's having functions of both a public regulator and a supervisor of France Télécom's service responsibilities.

The usual pressures to liberalize and deregulate the telecommunications sector were augmented in the Netherlands by the country's dominant position as a regional and international center for transport, financial services, and other communication-intensive sectors. Van Velzen discusses reform in Dutch telecommunications from the point of view of the operator. Following promulgation of a new telecommunications law in 1989, PTT Telecom Netherlands was corporatized, its postal and
Implementing Reforms in the Telecommunications Sector

banking facilities spun off, and the regulatory function left with the ministry. The main thrust of reorganizing PTT Telecom Netherlands has been to make it more commercially-oriented by developing a new corporate culture focused on service quality, setting specific customer-oriented investment objectives, adopting a new organizational structure with greater management flexibility, and emphasizing internationalization of the business activities of PTT Telecom Netherlands via joint ventures and the creation of specialized subsidiaries.

After long studies and the recommendations of a government-appointed commission, the telecommunications sector was restructured in the Federal Republic of Germany on January 1, 1990. Consistent with EC policy, regulatory and operational functions were separated, telecommunications were separated from posts and banking, and DBP Telekom maintained exclusive rights over the telephone service and network. The new structure was hardly in place when the unification of East and West Germany took place in October 1990. The consequent merger of the two telecommunications entities presented a much more substantial challenge. East and West had very different structures and levels of development, as Neumann and Schnöring point out. In the former the government was responsible not only for policy, regulation, frequency allocation, and operation but also for manufacturing, installation, and export promotion. The network was outdated, penetration rates were one-fourth those of the West, and data and other new services were virtually nonexistent. Neumann and Schnöring describe the ambitious plans and massive investments (about DM 60 billion) underway to bring telecommunications performance in the eastern states to Western standards by 1997, with priority for business customers.

The task is even more daunting in the other CEE countries, which have no ready access to the huge amounts of capital needed. There had earlier been isolated attempts to develop the telecommunications infrastructure in Bulgaria, East Germany, and Hungary. As Müller and Nyevrikel show, however, only Bulgaria achieved significant growth, with financing and help from local municipalities, agricultural cooperatives, and user networks. All these countries, according to Nulty, face a particularly difficult challenge to bring their telecommunications infrastructures and services up to the level of those in Western Europe. They will have to develop their network at an accelerated pace using the newest of technology, under unfamiliar commercial conditions, in the absence of well-developed financial markets, and with a lack of adequate skills. Nulty estimates a total requirement of about US$60 billion over ten years (of which 40 to 50 percent will be in acutely short hard currency) or 2 percent of GNP. He discusses possible strategies that CEE countries might employ to overcome these challenges. These include establishing joint ventures with Western firms, developing digital or cellular overlay networks, exploiting the rights of way and infrastructures of other public utilities, and franchising independent operators. The CEE countries also need to develop a regulatory framework that strikes a balance between protecting commercial interests of private operators and the obligations of public service providers. There is, furthermore, the problem of dealing with domestic manufacturers which have hitherto been protected but whose technological level is inadequate. Finally, Nulty reviews possible sources of financing.
which may be available to countries of CEE, including internal generation through retained earnings, issuance of subscriber bonds, outside financing, including direct foreign investment (for example, share equity, joint ventures, franchises), multilateral development financing, and bilateral and supplier loans. Müller and Nyevrik discuss several other measures, including implementing tariffs that reflect costs as well as improving network management and work practices.

Heller shows that in Hungary, since World War II at least, the political situation and the structure of the telecommunications sector have been closely linked. Liberalization of the political regime in 1989 and 1990 led to legislation which will substantially reform the sector through the introduction of competition, privatization, and more open markets.

Privatization: Foreign Operators’ Perspective

What makes a particular business opportunity in developing countries attractive to a foreign telecommunications operating company? That is what part V of the book seeks to elucidate, especially regarding privatization of state telecommunications enterprises. Judith D. O’Neill (22) suggests that a balance must be struck between the objectives of the government and those of the private investor-operators (also referred to as active or strategic investors) that is good for both and that enhances the value of the investment opportunities. Following O’Neill’s overview of the elements that go into such a balance, three major operators (Bell Atlantic, Cable & Wireless, and Société Finanziaria Telefonica Spa (STET)) describe what they seek in a privatization and also what they perceive to be a government’s goals in privatizing a telecommunications company. In presenting their views, frequent cross-reference is made to specific country experiences discussed earlier in this book (for example, Tucker on New Zealand, Massari on Argentina), and the reader will doubtless note many stimulating complementary as well as contrasting opinions.

A strategic investor’s prime motive is the creation of additional revenue at minimal risk. The choice of time and place to invest varies. As Bell Atlantic’s Hyde Tucker (23) points out, there are more telecommunications investment opportunities today than there is global investment capacity. As home markets are being liberalized and the potential for growth decreases, operators seek new opportunities in untapped, emerging markets. They have the know-how, the strength, and often also the financial and human resources. In addition, sometimes cultural reasons have a bearing on a decision to where to invest, as Telefónica and STET (Massari, 25) have shown in Latin America. The potential investor-operator will take many factors into consideration. He will, as Tucker states, look at the revenue-generating capabilities of the company to be purchased and how this may be affected by government pricing, market regulation, taxation, and foreign exchange policies. Control is most important, says Joseph E. Pilcher (24), for an investor such as Cable & Wireless (C&W) which is a telecommunications operating company, not a financial investor, and seeks therefore to control the company in which it has invested. STET, on the other hand, sought both foreign (France Télécom) and local partners to share the risk and
Implementing Reforms in the Telecommunications Sector

the financial burden of its investment in Argentina. The local partner, says Francesco Massari, is important because of its intimate knowledge of the local market conditions. For C&W, in contrast, joint ventures with local partners are purely marriages of convenience.

Another set of factors which interests foreign operators is what Tucker calls productivity improvement opportunities, including the freedom to reduce staff if necessary, to introduce new labor-saving technologies, and to tie salaries to performance. For Pilcher, it would be unreasonable for the government to expect foreign operators to meet demanding service obligations, refrain from rationalizing the labor force, and at the same time confront new competitors that have neither obligations.

The legal and regulatory structure, which for O'Neill includes the appropriate enabling legislation, creation of an independent regulatory body, a new telecommunications law, and the sector-specific regulations, must be well defined and transparent so that the investors can assess the political and legal risk of their investments. Most important, since the privatization of a public utility raises a number of social welfare concerns, there must be a clear understanding of what the potential buyer's obligations with respect to these are (Pilcher).

Political stability and a strong government commitment to reform are also very important. Given the size of investment and the time required to realize benefits, the foreign operator seeks both political and economic stability, safety for its assets and employees, and freedom from corruption and other pressures (Tucker, Pilcher). The foreign operator must have assurances that the conditions of the sale will not change once a deal is struck. Massari and Pilcher refer specifically to uncertainty regarding the government's commitment to honor tariff agreements.

Just as important as the conditions of the privatization are those of the process. It must be well managed, clearly defined, consistent with the government's objective and timetable, and it must allow sufficient time for the investor-operators to carry out the necessary research (Pilcher), yet not be excessively long to discourage them (O'Neill). The process must, furthermore, be free of corruption and inappropriate influences. All relevant information must be made available to all potential bidders. Pilcher suggests that involvement of potential bidders in establishing the conditions of the sale during the pre-bid negotiations will ensure that the best interests of both the government and the investor-operator are taken into account. Also a telecommunications company which has been put in order and improved before the sale, for instance through corporatization, will be much more attractive to potential strategic investors (O'Neill).

Governments are perceived by potential foreign operators to have a wide range of motives for wanting to sell off their telecommunications enterprises (Massari). These include:

- The need to rapidly build up a network that is key to economic development
- The need to attract private (especially foreign) capital for this purpose
• Recognition that privatization provides the sector with flexibility to meet rapidly changing requirements

• User pressure

• Reducing public foreign debt

• Developing a domestic capital market

• Safeguarding the company management from political influence

• Motivating management and employees through employee stock ownership plans (ESOPs)

• Achieving a commitment by the company to maximize profits

• Desirability of associating foreign investors with the necessary expertise, experience, and pride in operating a telecommunications undertaking.

**Mobilizing Capital for Privatization**

Market investors, which include commercial and investment banks as well as both institutional and retail public equity investors, invest in emerging markets for reasons somewhat different to those of strategic investors. According to François J. Grossas (26), the former invest in emerging markets because they want to:

• Diversify their portfolios and enhance the potential for long-term returns

• Find venture capital alternatives to mature industrialized country markets where investment opportunities have become more scarce

• Invest in markets whose performances are not strongly correlated to those of the European, North American, and developed Asian markets

• In the case of commercial banks, find opportunities to exchange sovereign debt for equity which has potential for growth.

Like strategic investors, market investors are attracted to these markets because they see potential for high yields and returns on their investments and certain conditions being met which tend to reduce their risks. Strategic investors have longer-term perspectives and are, therefore, usually willing to sacrifice near-term earnings and pay a higher price to build up the value of their investments in the long
Implementing Reforms in the Telecommunications Sector

term. Market investors, on the other hand, want stable earnings and high dividend yields. They want shares which are accessible and easy to trade, generally facilitated through a large equity flotation and, in order to attract foreign equity investors, the issuing of share certificates such as American Depositary Receipts (ADRs) in major international stock exchanges (Harland, 27). Listing requirements imposed by the latter and their financial regulators are, as Dan Vallimarescu (29) point out, a comforting stamp of approval to most investors.

The 1990 flotation of shares of Compañía de Teléfonos de Chile (CTC) was, in this respect, a success, as were the sales of shares of TELMEX, Telecom Corporation of New Zealand (TCNZ), and British Telecom shares. These privatizations through public share issues on domestic and international markets were successful because a number of favorable attributes, described by Grossas, Harland, and Vallimarescu, were present, including:

* A stable political and economic environment
* High potential for economic growth
* A well-defined and transparent legal and regulatory structure
* A viable company with high potential for growth
* A competent and stable labor force
* Fair and neutral tax treatment
* Evidence of a capital market and financial regulations which are favorable to foreign investment
* Financial statements using internationally recognized accounting standards
* Potential to finance network expansion through internally generated funds
* A fair and predictable tariff-setting structure
* Attractive share price/earnings ratio
* Association of strategic investors and local partners.

In addition, market and strategic investors both want a well-defined and effectively managed process which is simple, transparent, predictable, and absent of bureaucracy, and which gives them enough time to assess the company being offered for sale.

Dean Lewis (28) discusses five options for selling a telecommunications company, in order of increasing complexity, and examines the relative merits of each. The
negotiated sale of the company to a single buyer is relatively straightforward and may maximize the sale price, but most likely no single domestic buyer who is large enough can be found or the company's management or board may not be supportive of a particular buyer, especially if foreign. As a second option, sale of a partial stake to a single buyer or group of buyers may be easier to achieve and can be used to restrict the level of foreign participation, to allow the state to retain a share in the ownership if so desired. Proceeds can approach those from an outright sale. The third option, privatization through public share offerings in domestic or international markets, details of which are discussed by Vallimarescu, can attract a wide range of investors. Domestic markets tend to be too small, however; few companies from developing countries meet the strict standards required by major foreign markets; transaction costs are high; and the potential benefits to the government depend on the price at which the shares can be sold. The fourth option is to sell a controlling stake to a single strategic buyer combined with one or a sequence of public offerings. Involvement of a single major shareholder enhances the public offering by instilling confidence and stability in the market and encouraging competitive bidding among strategic financial investors. The fifth option, break up and sale of components of the company, is the most difficult and time-consuming and may result in lower overall benefit to the government. (A hybrid between the last two options, however, has potential advantages in terms of developing competitive markets and has been successfully utilized, for example, in Argentina).

Vallimarescu also discusses a number of factors which governments should consider in privatizing through the issuing of shares in domestic or international markets, whether or not accompanied by the sale of a significant package to a single buyer. Initially, the legal and corporate status of the company to be privatized must be clearly defined. Restructuring and operational changes might be required before the privatization can take place. The government must decide if it will maintain a majority or a minority ownership share or if, alternatively, it wishes to retain a “golden share” giving it effective control when, for example, issues of a nationally sensitive nature arise. It must put in place a predictable, disciplined, and fair tariff-setting process free from arbitrary political involvement. The share issue must be large enough to ensure liquidity, equity research, and a large secondary market. The government must, furthermore, structure the flotation to the type of investors (for example, domestic institutional and retail; nonresident national, foreign institutional retail; experienced utility; or “country play”) which it wishes to attract. It must not overlook national sensitivities, and it must be able to price properly the shares to be issued so as to maximize proceeds while achieving widespread investor interest.

Privatization through public share issues may be hampered because of the limited availability of both local and foreign equity capital. Desmond Watkins (30) discusses the conditions under which foreign commercial banks may be prepared to exchange sovereign debt for the assets of a telecommunications operator. Countries employing debt exchange programs can not only reduce their foreign debt exposure (for example, privatization of Empresa Nacional de Telecomunicaciones (ENTel) in Argentina) but also help develop a viable and successful private sector through the
Implementing Reforms in the Telecommunications Sector

participation of foreign commercial banks. This in turn can bring debtors and creditors back together in the marketplace and stimulate foreign and domestic capital markets. The banks do this by bringing along their financial, managerial, and other skills and also by associating themselves with foreign operators and local investors who contribute sector-specific technical and commercial expertise. Successful sovereign debt exchange programs applicable to various sectors, such as those in Argentina, Venezuela, and Chile, were characterized by:

- Projects large enough to interest commercial banks and other potential investors (the privatization of ENTel) involved US$5 billion in debt exchanges and over US$0.5 billion in cash
- Relatively small fixed discount on the debt (such as 15 to 30 percent in Venezuela, depending on the project) or discount determined through auction or negotiation
- Clearly defined rules and conditions regarding the portions of a project that can be financed through debt exchange as distinct from new funds
- Attractive foreign investment legislation, including conditions for repatriating earnings and capital
- Clear commitment of government to the targeted sectors
- Fast and efficient execution
- Flexibility of process and possibility to negotiate on a case-by-case basis
- Noninflationary mechanism achieved through debt-for-debt or direct exchange of debt for assets rather than governments printing money to finance debt-for-equity programs
- Equality of treatment of commercial banks with other market and strategic investors.

Important for the commercial bank which seeks to redeploy sovereign debt is that the debt exchange program must be perceived as a more attractive alternative to continuing to hold the debt.

For a variety of reasons it may not be initially possible to privatize a telecommunications company through any of the above mechanisms. In such cases governments might consider, among others, the approaches suggested by Robert R. Bruce, Jeffrey P. Cunard, and Lothar A. Kneifel (31) for attracting private capital to the telecommunications company. Under an asset-based financing scheme, private entities build and own infrastructure facilities which they then lease to the telecommunications company. The entities raise the necessary financing in domestic and
international capital markets and eventually exchange their assets for shares in the telecommunications company. An alternative approach is for private entities to construct and operate segments of the network in terms of a franchise agreement with the telecommunications company. Eventually these franchises can be repurchased by the telecommunications company in exchange for shares. Such franchising schemes could be applied to rural telephone systems, VSAT networks, private automatic branch exchanges (PBX), and small business exchanges. These relatively small, decentralized, and low-risk investments can attract small and medium investors. They can also help develop entrepreneurial skills and provide opportunity for introducing rational pricing and billing mechanisms that may gradually be extended to the existing network.

Issues of Regulation

The authors in part VII of the book underline the need to have a well-developed regulatory framework in place well before any major reform of the sector takes place. The task is complex, must balance a number of competing interests and objectives, and takes considerably more time than other components of a reform program, such as sale of a state enterprise.

Richard J. Schultz (32) explores the complexities of economic regulation. Although some prescriptions suggest that regulation is relatively straightforward, Schultz argues otherwise. He describes the multiple goals now being pursued in regulatory systems and how those goals need to be specified as clearly as possible and then ranked, to avoid confusion and unnecessary conflict. He then discusses the need to refine the various regulatory instruments available, both because traditional instruments have not been useful in promoting certain objectives, especially regulated firm productivity, and because of the new economic circumstances, such as competition, within which regulatory instruments must operate. Finally, Schultz describes some of the major institutional alternatives for implementing regulatory control that have developed.

Privatization of a telecommunications company raises issues of public policy, economic development objectives, social justice, and the boundary between government and private roles. Because competition is still not generally possible in some major market segments (especially the local telephone network), monopoly provision is, as Nicholas P. Miller (33) points out, often the only option for privatization. This entails continued government intervention. Also, as David N. Townsend (34) shows, telecommunications monopolies, because of their declining marginal costs and the inelastic demand for their services, will tend to maximize profits in a way which does not maximize social welfare. A private operator will be interested in investing in areas where the short-run demand and potential for profits are high rather than throughout the network (as needed for economic development) where the investment can be profitable only in the long run. Tariffs must allow the private monopoly to expand the network and earn a reasonable return on its investment yet offer service at affordable rates.
Implementing Reforms in the Telecommunications Sector

For Paul Waterschoot (35), application of competition or antitrust rules is often a more effective way to regulate the provision of a monopoly service than through sector-specific measures. A regulator, he suggests, will be more reluctant than the courts to challenge aspects of a regulatory framework in which he also operates. Furthermore, application of antitrust rules by the courts only when required is less burdensome than the continuous and detailed surveillance which a priori regulation of a monopoly entails. The reluctance of the monopolist to provide relevant information does not make the regulator's task easier. Miller agrees that the threat of competition is the best form of regulation but argues that because competition is not feasible in a large part of the network, the government must intervene to ensure that its social and economic goals are met. John J. Collings (39) also prefers regulation of structure by a regulatory authority based on well-defined rules rather than regulation of conduct as implied in Waterschoot's approach. Collings is critical of the European Commission's use of antitrust rules to achieve policy goals. In contrast to Waterschoot, Miller believes that an independent regulatory agency is more effective than legislatures and courts.

Waterschoot would admit a monopoly only in cases where a public service cannot be provided in competition with other service providers. Where privatization is accompanied by the introduction of competition, conditions must exist which allow an appropriate and viable competition to develop; that is, new entrants must not be crowded out of the market by the dominant operator. For Waterschoot the functions of a regulator can be summarized as preventing the monopoly operator's discriminating among different categories of users; preventing abuse of the operator's monopoly power where, for example, it can use the benefits from its monopoly services to subsidize its competitive services; ensuring the maintenance of a prescribed quality of service; and avoiding monopoly profits. Collings suggests that the protection of the established operator from economic harm to allow it to meet its network expansion and service obligations is also an important role for the regulator. Miller adds to this the need to ensure that a number of sector development and government policy objectives are met, including expansion of the network; bringing prices in line with costs; stable or reduced prices; maintenance of limited, occasional, but explicit subsidies; and facilitating the introduction of more open markets where the regulator must act as arbitrator among conflicting interests involving the role of the monopoly operator (Waterschoot). This can be achieved only if the regulator is independent of the operator.

Although Miller and Collings argue that the regulator should also be independent of the government, Waterschoot suggests that a regulatory agency responsible to a government department can act in a much more pro-competitive manner because it has to be less concerned about being neutral. Indeed, this was the option the French government chose when it reformed the sector in 1990. This decision was based less on a desire to use the regulator (Direction de la Réglementation Générale) as a vehicle to promote greater competition than, as Dominique Garnier (36) points out, to ensure continued close government involvement in telecommunications matters.
Background, Overview, and Lessons

related to national sovereignty and independence as well as the development of France's public sector infrastructure. Having the regulator within the government has, according to Garnier, the added advantage that the regulator is able to participate in decision-making processes of international bodies such as the European Commission and the International Telecommunication Union (ITU). Decisions of these bodies, be they directives, regulations, or other have a direct impact on France's national telecommunications policy. In the United Kingdom, as Donald Mason (37) points out, independence of the regulator is embodied in the post of director general of telecommunications, the head of OFTEL. The Telecommunications Act of 1984 clearly defines his role and responsibilities with respect to that of Parliament and the secretary of state for trade and industry, the minister responsible in the United Kingdom for telecommunications. In Venezuela, as Aileen A. Pisciotta (7) shows, the government wanted to establish an independent agency but could not because it was neither contemplated nor permitted under the government structure.

For Miller a regulatory agency should have expertise in four general areas:

- Developing and implementing regulatory policy
- Financial analysis of prices and costs
- Capability to assess quality of service, investment programs, technical standards, and conformity of terminal equipment
- The administrative, legal, and information support necessary to carry out its functions.

The structure of the FCC, given as one example, is based largely on these functions. In France, where the regulator mainly grants licenses, approves terminal equipment, manages the spectrum, and settles disputes arising between network operators, a capability in detailed financial analysis or quality of service standards is not needed. Properly staffed and funded, strong, independent, imbued with a definite legal mandate and clear objectives are, according to Miller, some of the attributes of a successful regulator. OFTEL, the U.K. regulatory, satisfies these criteria. The act which established it clearly defines the role of its director general with respect to granting, enforcing, and modifying licenses, handling complaints, and appointing staff. OFTEL's functions are, as Mason shows, clearly defined with respect to, among others, universal service obligation, competitive safeguards, regulation of tariffs (via price caps), quality of service, interconnection, standards, numbering and public consultation. Mason also shows the staffing and organization of OFTEL and indicates the main sources of its £8 million annual budget. This was not the case in Venezuela where a regulatory agency had to be established in haste by presidential decree to allow the privatization of the telephone company to go ahead in the absence of telecommunications legislation which was being held up for political reasons (Pisciotta).
Implementing Reforms in the Telecommunications Sector

Conclusions: Strategic Issues of Implementation

The book ends by looking at telecommunications reforms from two viewpoints that cut across many aspects dealt with earlier, namely, the relationship between reform and the political system (Cowhey, 38) and the process of reform (Collings, 39), and also by challenging some of the underlying concepts (Schultz, 40).

The telecommunications reforms that are most likely to succeed depend on the country's political system and institutions. The political aspects of reform, however, have been dealt with largely through common sense and the intuition of key players. Results have been mixed. It could be argued that some of the problems—for instance, the collapse of the otherwise well-crafted first attempt at reform in Sri Lanka (12) and the failure to start up the regulatory agency in Argentina (3)—could have been averted through more deliberate and knowledgeable consideration of political and institutional factors. Only very recently have the relationships between reform and political systems begun to be examined more systematically.

Peter F. Cowhey sketches the beginnings of a theory of regulation of telecommunications systems in developing countries, in that light he revisits the experience of Mexico and Argentina and briefly discusses Singapore, Japan, and Canada. He proposes a typology of restructuring models, ranging from improving the monopoly to full competition. Examples illustrate how the political institutions—that is, the electoral and party system, the degree of federalism, and the division of power within the government—have a bearing on the model that is selected. For example, Singapore, which has a parliamentary system with a strong centralized leadership, adopted the monopoly modernization model with close political oversight and strong government influence on the board of directors. That model suited the government's policy to use its influence in all key sectoral activities toward developing Singapore as the preeminent commercial center in Southeast Asia. Mexico and Argentina, in contrast, have presidential systems within federalist structures. The strength and influence of the dominant political parties play an important role in the way the governments act, and sector policy as well as the timing and modality of privatization can be explained in terms of party strategies and changing political constituencies. Heller (21) in her historical sketch of reform in Hungary illustrates how closely this has been tied to the political situation of the time.

Although each country has gone about reforming the telecommunications sector in its own way, some common lessons on how to manage the process of change are highlighted by John J. Collings. There are four broad policy variables that any government contemplating sector reform must take into consideration. These involve determining the appropriate:

- Degree of competition
- Sector structure, including separation of regulatory, policy, and operating functions, determining boundaries between competitive and noncompetitive domains, and other market structures
- Regulatory framework consistent with the degree of competition, the sector structure, the social obligations, and other conditions established

- Ownership structure.

Collings suggests that the approaches to sector reform which have so far been adopted can be classified into four types, and he agrees with Cowhey that choice will depend on each country's political, institutional, economic, and sector-specific circumstances:

- The piecemeal approach, as in the United States, where change is achieved through regulatory rule making and adjudication at both the federal and state levels as well as application of antitrust law

- The gradualist approach, as in the United Kingdom, with a managed transition to competition over many years

- The goal-oriented approach, as in Argentina, where reform was driven by the government's decision to privatize public enterprises while ensuring that public service obligations were not neglected

- The strategic approach, such as adopted by the European Commission as part of its policy to develop a single European market in all sectors.

Collings discusses the relative merits of these options; he favors a strategic approach which he believes an increasing number of countries will adopt, but notes it may not be applicable in some political environments, for the reasons explained by Cowhey. Collings offers a procedural checklist of items to be considered in the formulation of a strategy for sector restructuring:

- Situation analysis to provide factual basis for policy development

- Defining the government's primary policy aims

- Identifying specific sector goals and constraints

- Translating critical goals and constraints into specific sector objectives and performance measures.

Finally, Collings argues that realistic timing is essential for effective privatization and setting up a regulatory framework. Timing and the approach and model chosen are closely related.

Richard Schultz takes exception to five views widely held across this book. The first he labels "the gospel of globalization," and he argues that even in many industrialized countries development of the domestic infrastructure takes precedence over ensuring
Implementing Reforms in the Telecommunications Sector

interconnection with the advanced networks of other countries. This is not the view of Scherer (1), for whom countries which fail to adopt their telecommunications infrastructure to the global, information-based economy will fall behind. Second, Schultz challenges the image of poor performance by public enterprises. He argues that in countries with a long-established public service ethic, the road to greater efficiency and productivity, better performance, and more ethical corporate practices is not necessarily through privatization, but more likely through better regulation, incentives, and management tools. Huret (16) had indicated that the French, when consulted on their preferences for reform, came to a similar conclusion. Bruce (2) and Scherer would probably agree on the need for an effective regulatory framework and organization but are less confident that the public service is up to the difficult task of implementing and carrying through the required improvements. Third, Schultz disagrees with the notion that divestiture of ownership reduces government involvement. The state, he points out, simply reappears in another form. Direct control through full ownership of the operating company is replaced by minority or golden share ownership or the privatized company's public service, network expansion, tariff, and other obligations. Fourth, like Bruce (2), Wellenius (3), and others, Schultz emphasizes that countries contemplating reform cannot merely copy solutions in place elsewhere. But he makes the point that many of the contributors to this book, while subscribing to this view, do not understand or bring out the shortcomings and implicit limitations of the systems they are putting forward as examples. Finally, Schultz believes that sensitivity to foreign ownership of telecommunications operations is often exaggerated and inconsistent with policies of globalization. Donaldson (11) and Laidlaw (15) would no doubt agree that this was the case in New Zealand and the United Kingdom.

Some Lessons from Cross-Country Experience

Although it is too early to assess the extent to which reforms in the developing countries will in the long run overcome past constraints and provide a basis for sustained sector growth and performance, the initial experience in implementing reforms is generally encouraging. In particular, telephone service has expanded and improved at a faster pace, productivity has increased, new services have become available, and in some cases the international capital markets have been effectively tapped to finance subsequent investment. Sector reform, however, is not without pitfalls and difficulties, nor is it a singular event that can be taken care of in one stroke and then left to itself. Some of the lessons drawn in different ways by a number of the contributors to this book are highlighted below.

Privatization—Ownership Matters But Is No Panacea

The significance of privatization is to obtain for the public the full range of benefits of the incentives that drive competitive private enterprise—innovation, efficiency, responsiveness to user needs. Privatization has demonstrated considerable poten—
tial for attracting capital and management resources as well as overcoming admin-
istrative and other public sector constraints. Privatization is not always a feasible
option, however, nor does it by itself guarantee improved sector performance. The
following summarizes some of the main issues of privatization.

FACETS AND SEQUENCING OF PRIVATIZATION. Privatization is a complex process
of introducing private capital and know-how in telecommunications operations, and
there is more than one way to time and sequence this process effectively.

Various facets of the privatization process can be distinguished:

- Separating operations from government and nontelecommunications activities
  (for example, posts, manufacturing)

- Restructuring telecommunications operations as an independent state enterprise
  charged with being financially self-sufficient and placing its financial relationship
  with government at arm's length

- Internally reorganizing the enterprise in ways that are suited for running it as a business

- Reorganizing the telecommunications enterprise under private company law

- Devising a privatization strategy including decisions on controlling interest, employee
  stock ownership, tranche of stock sales, and residual state ownership, as well as
  changing the company's capital structure to enable implementation of this strategy.

- Carrying out the sale.

A number of these facets may be dealt with over a relatively short time (as in
Argentina, Mexico, Venezuela) or they may evolve in stages over longer periods (as
in Chile, Malaysia). There are also various ways of sequencing these changes. For
example, internal reorganization of the enterprise may be undertaken before priva-
tization to enhance the company's value (for example, Mexico) or left to the new
owners (for example, Argentina, Venezuela). Management contracts could be used to
run the enterprise along private business lines, followed later by privatization of assets.

FACTORS OF SUCCESSFUL PRIVATIZATION. Successful privatization of a state
telecommunications enterprise depends on a number of factors falling into place.

Privatization must be inserted in the political process. The timing and modality of
privatization in a given country is largely conditioned by relatively narrow and
somewhat unpredictable windows of political opportunity and by broader develop-
ments in economic strategy. At an early stage, the government must clarify its
position regarding trade-offs among conflicting interests arising from privatization,
such as among existing operators, workers, prospective buyers, potential competi-
tors, investment bankers, the treasury, equipment suppliers, large users, and the
Of particular importance is addressing from the start the concerns of organized labor. Privatization also requires creating a market structure and a regulatory environment that provides the new owners incentives and obligations to invest and perform as well as an institutional arrangement that frees the operators from unwarranted controls yet safeguards users and reconciles commercial interests with broader development objectives. The regulatory framework for privatizing a monopoly must separate out potentially competitive activities, establish the tariff and interconnection regimes, clarify service goals, develop cost containment targets and incentives, and create or strengthen a regulatory capability to oversee implementation. In particular, privatization brings to the fore central issues of pricing policy and regulation. Of special importance is sorting out to what extent, if at all, it is necessary to continue charging prices well above costs for some services (such as international) in order to finance expansion of the basic network. A closely related issue is that of the scope and duration of monopoly privileges. Initial practice has been to give the dominant operator exclusive rights to provide basic telephone services and networks during up to ten years, largely on grounds that this was needed to enable investors to undertake the large initial investments needed to modernize and expand facilities. The trend, however, is likely to be toward more pro-competitive sector designs, including narrower scope of protection (for example, more liberal licensing of private networks and interconnection to the public network) and shorter duration (for example, up to three years).

International market considerations are also increasingly important. A large number of sales of telecommunications enterprises are planned in both industrial and developing countries. Only a limited number of experienced operating companies, however, are interested in these opportunities. Timing and preparation will influence the extent to which privatization offerings by developing countries succeed. Commercialization of operations, organizational and financial restructuring of enterprises, renegotiation of labor contracts, and improvement of available enterprise information are examples of actions that can make a particular offering more attractive. Some of the most visible and promising privatizations, however, have been carried out very quickly (in little over one year), which limited opportunity for preparatory work to the bare essentials.

Proper design and implementation of the complex process of privatization and related sector reforms require strong and visible high-level political commitment, clear allocation of authority and resources to manage the process, and expert assistance (including foreign) on policy, regulatory, legal, and financial matters. Although sectoral solutions are highly country-specific and individual models cannot readily be transplanted, the experience of other countries (including industrial countries) in dealing with related issues and options has proven to be highly relevant.

Concerns about future privatizations. Initial results from privatizing state telecommunications enterprises are generally very encouraging. Governments have
Background, Overview, and Lessons

Successfully sold to consortia led by experienced foreign operating companies capable of providing expert managers, specialized management tools, and continued access to the latest technologies. Good financial performance, reflecting both major tariff adjustments and lower costs, is allowing privatized companies to initially finance accelerated investments largely from internally generated funds. Also, international markets have been increasingly willing to provide large amounts of capital for privatized companies in countries with sound macroeconomic and regulatory frameworks (for example, Chile, Mexico, Argentina).

Some concerns have been raised, however, about the longer-term prospects. Privatization is now being considered in a number of countries perceived by investors as posing higher political risk or offering less attractive markets. In several of these countries, even after sector-specific steps are taken to improve the investment environment, raising post-privatization capital may be a problem. The companies may be unable to attract enough private foreign capital, find themselves cut off from traditional sources of development financing, and lack sufficiently developed domestic capital markets on which to fall back.

The importance of foreign operators will increase as privatization reaches the less-developed enterprises. Some analysts, however, worry that the incentives and obligations of the operators as set by the government at the time of privatization are not strong enough to secure their permanence for the rather long periods that are needed to turn around some of these companies.

Some observers also believe that only five or six major operating companies will dominate the world market in which state telecommunications enterprises are sold. If such is the case, dealing with cartel-like proposals will become an issue. Other analysts, however, believe that in the long run, at least twelve to fifteen companies will be in this business and that the market will continue to be vigorously competitive. Under that scenario, design of the privatization process should emphasize the use of competition to the selling country's advantage.

Although so far these problems are largely hypothetical, they do raise questions that must be examined in designing the reforms. Experience will show to what extent these concerns are justified, and how reform strategies might be modified to deal with them.

**Competition and Regulation—Essential Twin Pillars of Reform**

Besides increased private sector participation, all major reforms involve two other key elements: competition and regulation. These elements are closely intertwined, and are essential for success of the reforms in terms of the long-run ability to overcome past constraints on telecommunications development. Yet in practice they have been largely shortchanged. Partly this reflects the fact that building up competition and regulation is an inherently slower and more laborious process than selling state enterprises, requiring sustained action over a number of years. It also reflects less political will and sometimes inadequate management of the emerging regulatory institutions.
Implementing Reforms in the Telecommunications Sector

REGULATORY SHORTFALLS. The single most troubling issue in recent reforms is slow progress in developing regulatory capabilities. All major reforms have been based on the expectation that effective public regulation of the privatized monopolies, especially with respect to prices, service obligations, interconnection, competitive behavior, and access to the public domain (including use of the radio spectrum), can be developed fairly quickly.

Yet building up regulatory institutions where none exist, in countries with little or no regulatory tradition in any sector, is proving to be an arduous and slow task. Whereas some developing countries have carried out satisfactory privatization in little over one year, the telecommunications regulatory systems are only in their infancy. The initial operation of the largest privatized companies is taking place with little or no competition and in a regulatory vacuum in which critical regulatory responsibilities regarding licensing, pricing, technical and accounting standards and performance monitoring, for example, are not properly discharged. In a market dominated by one operator, and lacking effective and proactive regulation, competitors are unlikely to emerge and become firmly established, and numerous forms of anticompetitive behavior may become entrenched. The impact and cost resulting from slow start-up of regulation has not been assessed, but there is a growing volume of anecdotal evidence that lends support to these concerns.

FACTORS OF SUCCESSFUL REGULATION. Whatever the specific regulatory structure, successful regulation requires:

- Political will in the government to make it work
- Strong regulatory leadership committed to serving the public interest
- Good management of the regulatory process, including knowledge of the industry
- Qualified professional staff in the various related disciplines
- Fair and open decisionmaking mechanisms accessible to all the parties affected
- Actions that respond to the broad political goals of the government.

Effective regulation can only develop where there is strong government support and understanding of its goals. Lack of progress in building up effective regulatory institutions and processes is seen by some observers as symptomatic of a lack of government will to regulate the sector. This is basically a political problem. A government will find the will to regulate when it faces a political penalty for not regulating. Such will is typically created by interests within the economy demanding that the government define transparent rules to govern the marketplace. In an economy emerging from government domination, as is the case in most of the developing countries where telecommunications reforms have been undertaken,
typically the only economic interests coalesced at the beginning of reform are those of the entrenched suppliers and the new owners that have purchased the privatized assets. Those groups will not generally favor strong regulation, at least not initially.

LOCATION AND INDEPENDENCE OF THE REGULATORY FUNCTION. Regulation requires both a political mandate and freedom from narrow political agendas. An effective regulator must mediate among competing interests seeking to appropriate rents and understand how this affects sector performance. In particular, the regulator must issue and implement decisions that provide incentives for investment while it also must protect customers from potential monopoly abuses. Given the high sunk costs that characterize the telecommunications sector, an effective regulator must also produce credible and stable regulatory policies that promote investment by reducing the risk of expropriation of profits through regulation.

This regulatory capacity can be organized in a variety of institutional ways, ranging from dependence on antitrust legislation and tribunals and courts, to independent regulatory agencies, to locating telecommunications regulatory authority in a ministry. There is no unique formula for success. For example, locating the regulatory function in or under a ministry, as is the case in a number of countries (industrial as well as developing), rather than in an autonomous agency, makes regulation more responsive to broad government policy directions; this advantage, however, has to be balanced against the risk that the ruling powers may co-opt the regulator for self-serving political purposes, which may not be consistent with developing truly open and competitive markets or with effectively controlling the new owners of monopoly services. Nevertheless, locating telecommunications regulatory authority in an agency that is at least partly insulated from party politics and changes of government is more likely to be conducive to reducing investor risk and, thereby, to promoting investment to meet demand. Autonomy can be enhanced by full public exposure of all regulatory action, rules of engagement that restrict channels for the government to insert its political will in the regulatory agency's decisions, and financing that is independent from the annual budgetary cycle.

STEPS TOWARD BETTER REGULATION. The search for better regulatory solutions merits high priority in the design of sector reforms. The following partial steps can help.

Development of regulation is closely intertwined with that of market structure. Designing the sector reforms in ways that set up strong competitors in key market segments from the outset generates a demand by both the new entrants and the dominant operators for regulatory action and shifts the regulatory focus from economic issues to the more technical issues of interconnection and standards. There are, however, limits to how much competition a particular market can sustain.

There are important complementarities and trade-offs between telecommunications-specific regulation and broad regulation of commercial activities. Where effective antitrust legislation and enforcement mechanisms are in place, they may be relied upon to handle some of the matters that otherwise need sector-specific regulation. Some countries (such as New Zealand) have chosen initially to leave all telecommunications
regulation to the latter mechanisms, while others (for example, Chile) resort to a mix of both. The jury is still out on the relative effectiveness of these arrangements.

Government action on regulation can be encouraged by creating political incentives through the creation of new constituencies. Of particular significance are building up competitors, consumer groups, and commercial user groups which will benefit economically from effective regulation, and giving these groups a forum to express their interests to the government and to the regulatory body.

Major regulatory decisions can be built into sales contracts, concessions, or licenses granted to the operators rather than left to the incipient regulatory process. For example, the concession can define the terms and limits of competition, the required capital expansion of the network, and the prices or rules to set the prices to be charged. In particular, setting caps for real prices of baskets of services has the potential of simplifying price regulation, providing the operator with incentives to contain costs as well as a degree of freedom to rebalance tariffs to reflect changing factors, and affording some protection to consumers. Some self-enforcement can be expected to follow. Substantial implementation and oversight problems, however, typically remain. For example, tariff rebalancing and the regulation of the interface between competitive and monopoly segments of the businesses cannot be left to self-enforcement alone, partly because there is a large imbalance in resources and information between the dominant operators and other players. Also, key parameters must be changed over time. For example, the targets for service growth and quality cannot be set in advance for the duration of a concession (typically twenty years or more) but may have to be revised, say, every five years. The productivity gain factor in a price-cap formula has to be adjusted from time to time in the light of actual evolution of costs. Lastly, contracts are not particularly effective in some countries.

The regulatory function could be divided into discrete tasks, some of which may be subcontracted. Possibilities (so far untested) include retaining internationally reputable audit firms to monitor compliance with franchise and other obligations (or requiring the main operating companies to retain such firms to report periodically to the regulator); contracting out recurrent regulatory procedures and conflict resolution to local management or legal consultants, probably with foreign associates for specialized assistance; adopting technical standards and type approvals from another country; and retaining the spectrum management agency of another country to set up a local branch backed up by the agency’s established norms, practices, processing hardware and software, and expertise.

Other possibilities to improve regulation include arbitration of disputes, government’s appointing a public counsel to press for and assist in regulatory actions, and establishing an advisory board representing users and other key interests and charged with setting an agenda for the regulator.

**Practical Limits to Regulatory Design.** Development of regulation, like privatization, is not a one-shot affair but rather a political process, and it will struggle with the same problems as the broader government. The quality and progress of the telecommunications sector will be tied to those of the country as a whole. Structures
that are possible and necessary in the more advanced developing economies that have vigorous participation in competitive global markets may be neither affordable nor really necessary in lesser ones.

In many cases, regulatory arrangements that seem optimal from a sectoral viewpoint may not be feasible, and compromise solutions become necessary. In particular, the economic benefits of improved services following privatization of a state enterprise may well outweigh the rents captured by an imperfectly regulated monopoly. In some countries, having to pay high prices for communication, which accounts for only a small proportion of total cost of most businesses, may be less of a handicap to users than lack of good services. As an extreme example, entrusting services to an experienced foreign investor-operator may quickly remove communication bottlenecks in critical productive sectors, even if the absence of competition and effective regulation may keep prices high and compromise the pace of future innovation.

In all situations, earlier and more prominent attention to the regulatory component of sector reform is an essential anticipatory response to such inevitable difficulties. Increasingly, this is also signaling the need for more pro-competitive reform designs.

**Telecommunications Reform and the Political System**

Telecommunications reforms do not occur in isolation from the broader economic and social changes taking place in developing countries. The linkages to economic policy and strategy have already been briefly noted. More generally, it is increasingly recognized that the timing and drive for telecommunications reforms, several key features of the sector solutions, and the ways governments go about preparing and implementing reforms, are all closely related to the country’s political environment. In particular, a country’s political institutions and electoral arrangements, the interests of constituent groups, and the role of the judiciary and of the government bureaucracy, are likely to be key determinants of policy outcomes and reform features. Conversely, the effectiveness of particular sectoral solutions, and indeed, whether they are at all viable, are largely conditioned by country- and time-specific political factors.

Yet the political dimension of sector reform, in telecommunications as much as in other public services, is given only casual attention by practitioners. In recent years, however, valuable research has begun that should help improve on this state of affairs.

One approach of recent research is based on the modern theory of institutions, which emphasizes informational, commitment, and transaction cost considerations in understanding the role of economic and political institutions. In this framework, Brian Levy and Pablo Spiller have focused on the credibility of arrangements that limit arbitrary change of the “rules of the game” by the government, which is necessary to attract large and sustained private investment. A comparative analysis of five industrial and developing countries with private telecommunications operations suggests that the design of regulatory systems can usefully be viewed at two distinct levels: the “basic engineering” of the regulatory system establishes the
mechanisms to constrain regulatory discretion and resolve conflicts that arise in relation to these constraints, while the "detailed engineering" defines the rules governing pricing, market entry, interconnection, and other regulatory decisions. The study suggests that, in order to limit administrative discretion, the basic engineering must include substantive restraints on the regulator embedded in the regulatory system, formal or informal constraints on changing the regulatory system, and institutions that enforce these constraints. A country's institutional endowment is therefore an important determinant of whether it can credibly put in place a regulatory system that meets these requirements. Of particular importance are the judiciary's structure, organization, and tradition of independence; the nature and structure of the legislative and executive; and informal norms. Some countries will only be able to restrain arbitrary administrative action by erecting institutions that substantially limit regulatory flexibility and hence narrow the range of possible detailed engineering solutions. For example, efficient regulatory rules, such as price-cap regulation, require institutional foundations which are likely to be absent in many low-income countries. Rules that appear optimal from a sectoral viewpoint may require a basic engineering that is not feasible in a particular country, and thus the country may have to settle for less than optimal solutions. In the absence of an institutional endowment required for workable regulation, however, a country may find it possible to commit to stable rules of the game through the use of certain modalities of privatization, or perhaps by using international substitutes for the missing national foundations.

Another research approach looks at telecommunications regulation from the viewpoint of allocation of property rights and competition as the main determinants of investment and of allocative and technical efficiency in a private economy. By focusing on the linkages between political incentives and institutions, the reallocation of property rights implied in sector reform, and changes in the regulatory regime, Cowhey has sketched the beginnings of a theory of telecommunications regulation in developing countries. Observations in several countries suggest that the regulatory arrangements that can be expected in different countries are closely tied to the forms of government.

The results of these lines of inquiry are very promising. The analysis of telecommunications development, which in the 1960s emphasized engineering and finance, in the 1970s discovered economics and institution building, and in the 1980s again expanded its scope to include sector policy and regulation driven by global technology and demand, might in the 1990s encompass the practical links of all this with the countries' political and institutional realities. The research illustrates the value of doing. It also provides some guidance on what to look for during the design of sector reforms: a checklist of political and institutional aspects could be produced momentarily, for use in the course of sector analysis.

Further research would be well justified. For example, creating conditions that attract investment (the central concern of Levy and Spiller) is a necessary, but not sufficient, condition of successful reform. Economic efficiency and equity, however, which are equally important objectives of reform, have so far received only passing
attention. The research illustrates that these objectives are to an important extent in conflict with one another. For example, in one of the countries studied by Levy and Spiller, a sector structure and regulatory design explained by the need to establish government credibility with investors has been accompanied by large economic inefficiencies—lack of incentives or controls to contain capital and operating costs, very distorted price structure, large and growing cross-subsidies, and sweeping and permanent monopoly privileges. The argument that this was the only possible sectoral solution in that country’s political and institutional environment capable of attracting sustained private investment to ensure badly needed network growth and modernization, and that there was at best space for marginal improvements, is not convincing. Closer examination of the trade-offs among the growth, efficiency, and equity objectives of reform would probably show that a substantially better balance was possible. Also, recognition that sectoral designs are subject to changing forces would say something on reform as a dynamic process. For example, in the current world technological and market context, the country solution discussed above is unsustainable—the structure creates powerful incentives for bypass by users and for entry of new providers. This will inevitably lead to the government’s initiating further reforms despite its credible assurances of stability. The initial sector solution will largely determine the negotiating positions of government and the investors in this next round.

The test of the practical value of these new lines of inquiry will lie in their operational significance. Although research so far has been quite successful in explaining past events, it has had little to say on how things could have been done better, or how they could be improved in the future, or how they could be done well elsewhere. The road toward operationalizing the findings of research could start by including political economic analysis in the early stages of reform design in a small number (say, two or three) of countries and in regional telecommunications reform studies. In addition to testing the practical significance of adding a new dimension to sector analysis, these countries’ experiences would surely be of value in setting the agenda for further research.

Endnotes

1. In a number of places this chapter draws (often verbatim) on Björn Wellenius and others, “Telecommunications: World Bank Experience and Strategy,” World Bank Discussion Paper (Washington, DC: World Bank, March 1993). Both were developed more or less in parallel, and improvements in one were incorporated in the other. Thus, this chapter owes much to many Bank staff and managers who participated in the discussion of successive drafts of the strategy paper. Cross-references and quotations are omitted from both documents.

Implementing Reforms in the Telecommunications Sector

3. Efforts to study the relationships between telecommunications and economic development began in the mid-1960s, peaked probably in the late 1970s, and tailed off rapidly in the early 1980s. By that time a fragmented but fairly comprehensive picture of the development role of telecommunications had been pieced together, and new studies largely confirmed earlier findings without breaking new ground. For a comprehensive overview of analytic techniques and results, as well as an extensive bibliography, see R. J. Saunders, J. J. Warford, and B. Wellenius, *Telecommunications and Economic Development* (Baltimore and London: The Johns Hopkins University Press, 1983; rev. ed. 1993).

Nonetheless, in contrast with, say, power and transportation, telecommunications were never fully integrated into the development debate (Jan Bjerninger, Swedish International Development Authority, Seminar on Economic and Financial Analysis of Telecommunications Projects, Uppsala, Sweden, March 1991) and received only spotty attention from government planners and development agencies.

From the mid-1980s, the shift toward economic development strategies that increasingly emphasize domestic and international competitiveness resulted in business and political forces bringing government attention to telecommunications. In this context, the interest of analysts has shifted from questions of resource allocation (what should be telecommunications' share of scarce government and aid resources?) to questions of creating an environment in which telecommunications can be effectively run as a business capable of attracting the necessary capital, management, and technology.

Questions on the development role of telecommunications, however, are being revisited in terms of the potential of information technologies for redeveloping rural areas and regions based on declining industries in the United States and other highly industrial countries. See, for example, Edwin B. Parker, Heather E. Hudson, Don A. Dillman, and Andrew D. Roscoe, *Rural America in the Information Age—Telecommunications Policy for Rural Development* (Lanham, MD and London, England: The Aspen Institute and University Press of America, 1989).

4. Loosely speaking, the information sector comprises all activities that involve the production, processing, and distribution of information and knowledge, as distinct from physical goods. It includes activities that primarily comprise the handling of information, such as banking and government, as well as the information components of other activities, such as accounting in a factory and management of a farm. The information sector thus includes activities traditionally counted under the primary, secondary, and tertiary sectors. The information sector has been quantified by a number of researchers in the U.S., Europe, and Japan, from the 1950s. Data for developing countries are more limited. Several studies in the Asia and Pacific region in the early 1980s, using data of the late 1970s, however, give some indicative figures of the information sector as proportion of GDP, for example, Singapore 25 percent, Indonesia 19 percent, Malaysia 14 percent. See, for example, Meheroo Jussawalla, Donald M. Lamberton, and Neil D. Karunaratne, *The Cost of Thinking—Information Economies of Ten Pacific Countries* (Norwood, N.J.: Ablex Publishing Corporation, 1988).

6. The main exceptions being the United States, Canada, and Finland.


8. Although this is fairly obvious in industrial countries, only in recent years has it begun to be widely accepted in the developing world. One of the main contributions of the ITU's advisory group on telecommunications policy was to send this message unambiguously. The ITU's Plenipotentiary Conference of 1989 endorsed the group's recommendations and brought them to the attention of all member governments. See ITU, "The Changing Telecommunications Environment: Policy Considerations for the Members of the ITU" (Geneva, Switzerland: International Telecommunication Union, February 1989).

9. It has been proposed that subcontracting can also be an effective tool among different organizational units of the same operating company. See Robert R. Bruce, "Franchising and Subcontracting for Services and Facilities: New Options for Attracting New Sources of Investment," Roundtable on Eastern European Telecommunications, Badacsonytomaj, Hungary, May 1991. This concept is also developed in this book's chapters by Bruce (2), and by Bruce, Cunard, and Kneifel (31).


11. For example, the sale of state-owned shares in Teléfonos de Mexico yielded about US$4 billion. Annual net flows of funds from Telemex to the treasury have also increased, despite abolition of the special telephone tax, as a result of ending government contributions to investment and rapidly growing taxable profits.

12. For example, sale of the telephone company allowed the Argentine government to recover about US$5 billion of state bonds from foreign markets.

13. The new facilities can be operated by the private investor, by the existing telecommunications company under lease, revenue sharing, or other arrangements, or by new operators created for this purpose.

14. Subscriber financing can also be used to diversify company ownership or as a price mechanism to allocate scarce supply efficiently.

15. Competition is a big word that includes a wide range of possible modalities, from competitive award of time-limited monopoly or duopoly to minimally regulated entry to unrestricted competition. The following are examples: (a) international competitive bidding for a ten-year license to provide cellular services in a given region (more than one or two cellular operators are seldom possible in terms of market size and radio spectrum capacity); (b) competitive supply of subscriber terminal equipment (for example, telephone sets, PBXs) subject to technical standards and type
Implementing Reforms in the Telecommunications Sector

approval to ensure network compatibility; (c) unrestricted competition in the provision of shared data processing, information, electronic mail, packet-switched data, and store-and-forward facsimile, and telex.

16. For example, to quickly upgrade existing networks (as in Eastern Germany following unification) and for disaster relief.


18. Early development of regulatory frameworks and institutional arrangements are needed to monitor operator performance, prevent abuses of market power, and promote the development of competition. Alternatively, temporary arrangements could be made to oversee the transition from public to private ownership and deal with regulatory matters that require attention while a more permanent capability is built up.

19. This appears to be the case even in New Zealand, where government policy was to have no sector-specific regulation. In late 1991 the minister responsible for telecommunications warned that he would intervene and change this policy if the country's rival operators did not resolve their differences. Two new operators were complaining that Telecom New Zealand, the former state company sold in 1990 to a consortium led by two U.S. regional telephone companies (Bell Atlantic and Ameritech), was not upholding its obligations and was trying to use its near-monopoly position to crowd them out. Specific disagreements related to interconnection and billing information.

20. For an excellent analysis of the requirement of large multinationals in the automotive, banking, electronics, and other industries to configure, manage, and control their own telecommunications capabilities to adapt to a more competitive international environment, see François Bar and Michael Borrus, "Information Networks and Competitive Advantages: The Issues for Government Policy and Corporate Strategy," presented at a seminar on Information Networks and Business Strategies, Berkeley Roundtable on the International Economy (BRIE), Paris, October 19–20, 1989. One of the key findings of this OECD-BRIE user group study was the need for countries to achieve an optimal balance of regulation and competition to realize flexibility as well as integration and diversity. Too much regulation sacrifices flexibility, but too little regulation leads to network fragmentation, network incompatibility, and needless redundancy.

21. Source: "The Service Economy," Coalition of Service Industries (CSI), April 1992, Washington, DC, and additional information provided by Marie Eli of CSI and Zaharo Sofianou of the Boston Company Economic Advisors Inc., New York. These statistics, however, pertain only to cross-border sales of services. Sales of services through affiliates of U.S. companies in other countries are not considered balance of payments transactions and are not included in normal trade figures. They are, however, significant and important. For example, in 1989 (the last year for which statistics are available), sales of services through foreign affiliates of U.S. firms
amounted to nearly US$ 100 billion, which is nearly five times the positive services trade balance for that year.

22. The contribution of each of these key sectors to the overall positive U.S. cross-border services trade balance in 1991 was as follows:

<table>
<thead>
<tr>
<th>Sector</th>
<th>Balance (US$ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royalties and License Fees</td>
<td>13.8</td>
</tr>
<tr>
<td>Travel</td>
<td>11.8</td>
</tr>
<tr>
<td>Business, Professional and Technical Services</td>
<td>7.8</td>
</tr>
<tr>
<td>Education</td>
<td>5.0</td>
</tr>
<tr>
<td>Passenger Fares</td>
<td>5.0</td>
</tr>
<tr>
<td>Financial Services</td>
<td>2.3</td>
</tr>
<tr>
<td>Other Transportation</td>
<td>0.3</td>
</tr>
<tr>
<td>Insurance</td>
<td>-0.6</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>-2.8</td>
</tr>
<tr>
<td>Other</td>
<td>-9.6</td>
</tr>
<tr>
<td>Overall U.S. Cross-border Services</td>
<td>52.2</td>
</tr>
</tbody>
</table>

The negative figure for telecommunications is due in large part to the net outpayments of U.S. international carriers in their telephone traffic with the rest of the world and which were between US$2 billion and US$3 billion. (Source: Coalition of Service Industries, Washington, DC, the Boston Company Economic Advisors Inc., New York, and the Bureau of Economic Analysis, New York.) Lester Thurow of MIT does not believe there is much scope for growth of services trade in the U.S. economy. He does not feel that services are worth fighting for in the Uruguay Round. See Lester Thurow, *Head to Head: The Coming Economic Battle Among Japan, Europe and America* (New York: William Morrow, 1992).

23. The U.S. government and U.S. international carriers have relentlessly been pursuing the reduction of accounting rates, the tariff permit of traffic applied between international carriers in each bilateral relations. Above-cost accounting rates accompanied by large traffic imbalances result in net settlement outpayments by the international carrier which sends out more traffic than it receives. The U.S. government in support of its international carriers has lobbied other governments through the OECD, the European Commission, the ITU, and the GATT to have their international carriers agree to substantial lowering of accounting rates in their relations with U.S. international carriers.

24. Descriptions of reform in the United States, the United Kingdom, Japan, and New Zealand can be found in Henry Geller, "U.S. Telecommunications Policy: Increasing Competition and Deregulation"; John A. C. King, "The Privatization of Telecommunications in the United Kingdom"; Nubuyoshi Mutoh, "Deregulation of Japan's Telecommunications Business and the Role of Kokusai Denshin Denwa"; and
Implementing Reforms in the Telecommunications Sector


25. Eric Huret in chapter 16 of this book, "Restructuring Telecommunications: The French Experience," describes the extensive consultation process undertaken by the French government before reforming its telecommunications sector. The United Kingdom and European Commission have used discussion papers and invited comment before finalizing policy. In Canada, after a proposed new telecommunications law was introduced in the House of Commons in February 1992, it was referred to a Standing Committee of the Senate for "pre-study." Over a two-month period, the committee heard from more than ninety witnesses representing thirty organizations from all parts of the Canadian telecommunications industry and users. As a result of these consultations, the committee recommended that a number of changes be made to the draft law. Most of these recommended changes were taken into account when the draft law was sent to the House of Commons for Second Reading more than one year later. A good review of the Canadian legislative process and discussion of the proposed new law can be found in Hudson N. Janisch, "New Federal Telecommunications Legislation and Federal-Provincial Arrangements," The National Conference on the Future of Telecommunications Policy in Canada, Toronto, April 1–2, 1993.

26. Share prices in some privatizations, like that of British Telecom in the United Kingdom, have been deliberately underpriced to allow shareholders to make some initial capital gains. This has been used effectively to attract a public which has not traditionally bought and traded shares to become shareholders in private companies.

27. In a letter announcing the choice of the successful bidder for the purchase of Teleglobe Canada, Canada's international telecommunications carrier, the minister of state for privatization stated that the government had taken the necessary dispositions concerning the conditions of the sale to take into account the employees' concerns with respect to employment security, union collective agreements, a new pension plan equivalent at least to that in the rest of the industry, an ESOP offering at least a 5 percent share in the new company, and the maintaining of the headquarters of the company in the city of Montreal (Privatization of Teleglobe Canada, letter by Barbara McDougall, Minister of State for Privatization, dated February 11, 1987). Memotec, the successful bidder, offered existing employees a pension plan equivalent to that of the federal civil service as well as 5 percent of the shares of the company with a 10 percent reduction off the purchase price of the company and a five-year interest-free loan to facilitate purchase of the shares.

28. See, for example, Hunter Donaldson, "Telecommunications Liberalization and Privatization: The New Zealand Experience," chapter 11 of this book. In Japan NTT has reduced its staff by 70,000 since it was privatized in 1985. There are similar
examples of staff reductions in the United Kingdom, Canada, the United States, and other countries. When the president of AGT Ltd., the privately owned telecommunications company in the Canadian province of Alberta, recently announced that the company was laying off 1,200 people out of a total of 8,000, he said, "It's never going to be the same again as it was in the old monopoly days. We can no longer afford to be all things to all people" (The Globe and Mail, Toronto, April 16, 1993).


30. See discussion on the regulatory role of the state in chapter 32 of this book by Richard J. Schultz.

31. Following the divestiture of AT&T in 1984 the FCC treated competitors to AT&T such as MCI and Sprint as "nondominant"; that is, they were not subject to the same regulatory obligations (such as the requirement to file tariffs) as was AT&T. AT&T appealed this practice, and in November 1992 the U.S. Court of Appeals ruled that the Communications Act of 1934 did not give the FCC the authority to adopt such a policy. MCI, Sprint, and other nondominant carriers have since then been required to file tariffs with the FCC, which is now, in the light of the court's ruling, proposing to streamline their filing requirements.

32. Teleglobe Canada was a state enterprise (Crown Corporation) for thirty-seven years before it was privatized in 1987. It was set up as a corporation when the assets of Cable & Wireless and Marconi were nationalized in 1950 to form the Canadian Overseas Telecommunications Corporation, the predecessor to Teleglobe Canada.

33. See note 26 above.

34. This was the case with the privatization of Telecom Corporation of New Zealand; see chapters by Tucker (23) and Donaldson (11) in this book. In Canada, Teleglobe Canada was sold to a single buyer, Memotec, which was, however, a publicly held share company.


36. Expressed demand is the sum of connected line plus outstanding applications. Total demand is generally much higher, as prospective customers do not bother to apply when they are aware that service takes years to be provided, and telephone
companies usually do not accept applications in areas where service expansion is not planned.

37. Total telecommunications investment in the developing world is estimated to have grown from about US$3 billion in the 1970s to US$7 billion in the 1980s and to US$11 billion in the late 1980s, all in 1990 dollars. These are tentative figures based on international statistics on growth in telephone lines and average investment cost per line under World Bank projects.

38. This is the total investment in public telecommunications divided by the net addition of telephone lines in the same period. It provides some indication of the average cost of adding one line, including all parts of the network—subscriber set and installations, cable network, local exchanges, interexchange and long-distance transmission and switching, international facilities. The average varies considerably among countries and enterprises, from less than US$1,000 to over US$5,000 per line, depending on the size, density, and coverage of the network, procurement and financing arrangements, quality of management, and other factors.

39. The inflationary impact of increases in telecommunications tariffs is likely to be negligible, since telecommunications accounts for only a small fraction of production costs. Government measures to combat inflation, however, often do not distinguish among individual public services, and telecommunications tariffs are controlled together with those of transportation, water, electricity, and other services which, taken together, do have a significant impact on inflation.


41. Several countries in the Caribbean have also gone through substantial changes in the ownership of their telecommunications sectors, but these continue to be organized as traditional monopolies. For example, in Jamaica in 1967 the foreign-owned domestic telephone company was taken over by the state, in 1971 the separate foreign-owned international services company was reorganized as a joint venture with the state, and in 1987 all services were merged into a state/private joint venture with complete monopoly for the duration of the franchise. In several other countries the state monopolies were sold to foreign private operators without much other change (for example, Belize).

42. The seminar on which this book is largely based included a number of participants from Africa but did not specifically address the particular concerns of Africa. Follow-up seminars have subsequently been organized to respond to that interest. The first one, for francophone countries, took place in Tunis, Tunisia, in May 1992.

43. It has sometimes been said that underdevelopment is largely a matter of lack of management capability. This point was made, probably not for the first time, by Radomiro Tomic, a candidate to the presidency of Chile in 1970. (He lost.)

44. About thirty economists, engineers, accountants, and lawyers is probably the minimum needed to staff all basic regulatory functions. See Nulty and Schneidewinde, "Regulatory Policy for Telecommunications" in Restructuring and Managing the Telecommunications Sector, ed. B. Wellenius, P. A. Stern, T. E. Nulty, and R. D.
Stern, A World Bank Symposium (Washington, DC: World Bank, 1989). When this was pointed out to a team designing a reform plan for a relatively small Latin American country in 1992, experts who knew the country well commented that there probably were fewer than thirty economists in the whole country!


46. This paragraph is partly taken from Desmond Watkins, op. cit.

47. In Argentina, Telefónica de Argentina, the southern regional company owned by a consortium led by Telefónica de España, earned taxable profits during the 1991–92 financial year of US$293.2 million, 81 percent higher than the year before. During the same period the net profits of Telecom Argentina, the northern regional company owned by a consortium led by France Télécom and the Italian STET, were US$150.3 million, a 172 percent increase over the previous year. Profits at Telefónica de Argentina during the first half of the 1992–93 financial year were up 53 percent. Telefónica de Argentina has been able to finance 80 percent of its investment program from retained earnings (“Profits at Argentine Telecoms Group Soar,” Financial Times, May 18, 1993).

48. AOTC and AUSSAT are now known as Telstra and Optus, respectively.

49. Subsequently the 1990–91 duopoly review did involve a consultative process in which interested parties and some individuals participated.

50. Mark Fowler, “Privatization as an Objective: The Case of Telecommunications,” keynote address of the closing dinner of the seminar which originated this book.

51. For example, sale price can be enhanced by giving the new owners extended monopoly privileges, whereas reducing service costs and promoting responsiveness and innovation requires competition and regulation.


53. It is often said, correctly, that today's extensive networks in industrial countries were built with the help of extensive cross-subsidies facilitated by integrating all services under monopoly operators. This is one of the arguments given in favor of limiting competition in basic services and networks for a long initial protection period following privatization. On the other hand, in increasingly market-oriented international and domestic environments, rebalancing monopoly tariffs to reflect costs becomes a major objective of sector policy along the way toward creating conditions for effective and sustainable competition. Moreover, these two objectives are not mutually exclusive and can be reconciled, for instance, by a mix of tariff rebalancing to render local services profitable, attracting new entrants to the basic networks business, and allowing interconnection charges that reflect the value of basic network expansion to other operators.

54. A growing number of major telecommunications operating companies from industrial countries are getting into ventures in developing countries as part of strategies to globalize their business. Some of them are already now involved in several developing countries, and the trend is likely to continue. There are limits, however, to the pace at which these companies can divert internal human and
Implementing Reforms in the Telecommunications Sector

financial resources to foreign ventures, and in the context of a growing number of opportunities, the companies can be increasingly selective.

55. The size and relative importance of the presence of experienced foreign operators varies considerably, from rather marginal in the companies that already were good performers before privatization (such as Chile’s CTC) to critical where major overhauls are required (such as Argentina), with the middle ground occupied by companies where foreign experts play an important advisory role but are not centrally involved in management (for example, Mexico).

56. International capital markets may have little interest in emerging companies located in relatively risky countries, where many future privatizations will be attempted, or they may require returns so high as to be politically unacceptable. Developing-country capital markets already appear to be too small to meet the requirements of several privatized companies. Although in the initial years internally generated funds are likely to meet most of a company’s investment requirements, a better mix of sources of funds, including fresh equity capital and long-term debt, will be essential to sustain growth in the longer run. And in most developing countries, a large proportion of telecommunications equipment will continue to be imported, posing a burden on the balance of payments. The problems of raising capital may be especially acute for telecommunications companies, given this sector’s high capital intensity, large initial investments required to modernize and expand facilities, and mainly local currency revenues.

57. The government’s expectation of sustained commitment by foreign operators is often reflected in the new sector laws and regulations, the terms and conditions of sale, and the transfer contracts and franchises, all of which provide for medium- and long-term incentives and obligations. In certain cases, however, it can be argued that the foreign operator has mainly secured a profitable management contract supplemented by a minor equity interest, and that under those conditions the cost of exiting could be lower than that of staying if things get rough. Others, however, point out that major operating companies, intent on building up an international presence, are unlikely to walk out or do less than their best.

58. For example, in Chile issues of new entry to the basic services market have been under review by the telecommunications regulatory agency and litigated in the antitrust and regular courts for several years without coming to closure. This has delayed new service offerings to customers who would benefit from competition and has immobilized substantial amounts of equipment purchased by one of the operating companies. In Argentina, lack of resolution by the regulator regarding clarifications of the scope of the concessions of the two regional privatized operating companies reportedly has resulted in slower investment than would otherwise have been the case.

59. Much of this and the following two sections draw on World Bank staff discussion of alternative regulatory schemes, and on a summary note prepared by Nicholas Miller in early 1992.

60. It is difficult to estimate before the fact how quickly productivity can improve following reform. Experience in Mexico, for example, only a little over one year after
privatization, suggested that the price-cap formula underestimated widely the initial gains from accelerated growth, technological change, and competitive procurement. In the United Kingdom, successive increases in the productivity offset of the price cap may be interpreted along similar lines.


63. The institutional endowment of a country comprises (a) the legislative and executive institutions of government, including formal mechanisms for appointing legislators, making and implementing laws and regulations, and determining the relations between the legislative and executive; (b) the judicial institutions, including formal mechanisms for appointing judges, determining the structure of the judiciary, and impartially resolving disputes among private parties as well as between private parties and the government; (c) custom and other informal but widely accepted norms that tacitly constrain the actions of individuals and institutions; (d) administrative capabilities; and (e) contending social interests, the balance among them, and the role of ideology.

64. This emphasizes the difficulty of transplanting regulatory designs from one country to another.

65. For example, wide distribution of share ownership limits the opportunity and increases the political cost to government of reneging on commitments made to the newly privatized company (for example, the United Kingdom). Also, the credibility of the terms and conditions of a telecommunications privatization that is the flagship of a broader public sector reform program is protected by the government's need to be seen to meet its obligations as a factor of success of the remainder of the program (for example, Argentina).

66. For example, international guarantees against noncommercial risk, underwritten by the government.

67. For further details, see Peter F. Cowhey's chapter, "The Political Economy of Telecommunications Reform in Developing Countries," later in this book.

68. Including spurious businesses that are only viable while the factors of inefficiency remain in place.

69. The choice of countries could usefully be in terms of a priori likelihood that political economic analysis will have a significant impact in the outcomes. (It is unclear, however, what are the relevant selection criteria.)

70. Such as a World Bank study under way on the prospects for telecommunications reform in Africa, or partial reinterpretation of a similar study being finalized in Asia.
Part I

Current State of

Telecommunications Policy

and Structural Issues
Telecommunications Reform in Developing Countries: Importance and Strategy in the Context of Structural Change

Peter R. Scherer

Technological progress is changing the ways of communicating and doing business at breathtaking speed. This process constitutes an opportunity for and a threat to governments and businesses alike. Those who use the process effectively will enhance economic growth and gain markets; those who fail to do so simply will lose out. Modern telecommunications systems and user flexibility have become important parameters in promoting economic development. Governments in developing countries in particular are faced with the challenge of harnessing effectively a complex array of technologies and systems which have tremendous potential for enhancing social welfare but pose heavy demands on organizational and financial capabilities. Surprisingly though, telecommunications reforms in many developing countries are being driven more by myopic fiscal and debt management concerns than considerations of strategic development.

The purpose of this chapter is to analyze key elements of telecommunications reform in the broader context of interlocking structural changes for enhancing economic efficiency and growth in developing countries. The chapter is based on the following presuppositions:

- The quality and range of telecommunications services has become a strategic element in determining a country's competitiveness in an increasingly globalized economy.

- The success of developing countries in improving telecommunications services, and in reaping the benefits from such improvements, is linked intrinsically to progress in broader reforms in the macroeconomic environment and in public enterprises.

- Telecommunications reform can be used effectively as a spearhead for changing contractual relationships and improving business practices in the economy at large.
Implementing Reforms in the Telecommunications Sector

- Although developing countries can choose from a menu of strategic options in sequencing the reform of telecommunications, they will not make much progress unless they unshackle the sector from the constraints that typically are imposed on government-managed public utilities and introduce competition.

The chapter concludes by setting forth a number of premises devised from institutional experience as a framework for designing telecommunications sector reform.

Global Competition: Challenge and Opportunities

Business is going global. The output of transnational corporations and international trade has been growing at more than twice the rate of world output. Aggregate telecommunications output and productivity growth have outpaced corresponding macroeconomic parameters by a multiple of three. International telephone traffic has grown at five times the rate of world output. It is estimated that the information sector now accounts for more than one-third of gross domestic product in most countries of the Organization for Economic Co-operation and Development. The high quality of telecommunications systems and services has become a critical determinant of economic competitiveness. Farsighted policymakers therefore are increasingly focusing on telecommunications, and more broadly, on information technology not merely as an element of supporting infrastructure but as a driving force of economic growth.

Information technology capability (commonly defined as the integration of computing and telecommunications hardware and software) is being used increasingly as a strategic instrument for gaining market share and for entering new markets. Improved communications and computational capabilities enable firms to grow larger, become more complex, and enter into joint production and servicing arrangements. In the process, national labels and boundaries are losing meaning and importance. National economies are becoming increasingly interdependent; telecommunications is a major driving force in this development, leading to global markets, global competitors, and global marketing strategies. Hence, decisions on the location of manufacturing plants, design studies, and research facilities increasingly are made with a view to gaining advantages from a global reach.

Business activities that depend on telecommunications and information-processing facilities go beyond financial services, commodity markets, media, transportation, and tourism. Communication services by now have become vital links between manufacturers, wholesalers, and retailers. Some examples are manufacturers who link to a worldwide web of suppliers by means of electronic data interchange (EDI); retailers who coordinate fashion decisions for their stores through video and electronic mail; and service-oriented firms that receive customer complaints and dispatch service personnel from single command stations. Advanced information processing also has paved the way for introducing new work methods such as simultaneous engineering, synchronous manufacturing, and just-
in-time procurement; it provides strategic capabilities to achieve vertical integration of companies in the areas of manufacturing and marketing systems, inventory adjustment and reconciliation of purchase orders, capture of point-of-sale information, and analysis of market trends.

The ability to use information technology effectively will be among the determining factors in separating leaders from laggards in the world economy during the coming decade. As advances in information technology are driving the globalization of capital flows, trade, and manufacturing, opportunities for creating competitive advantage in international trade are being offered. These opportunities are not determined merely by the physical configuration of the telecommunications network. Firms need to have access to a broad choice of network alternatives, from integrated public services to private facilities and dedicated applications. Firms also need sufficient management and control flexibility to configure and reconfigure network choices in line with changes in corporate objectives.

As information networks have become the central nervous system of the global economy, they have developed into policy instruments to attract economic activities on a regional or national scale. The capacity of telecommunications services and the rules governing their use have become crucial factors for transnational corporations in locating regional headquarters as well as service and production sites. The government of Singapore, for example, has been using reliable, efficient, and sophisticated telecommunications facilities as a major incentive to develop the country into a center for international commerce, financial and banking services, transportation, and electronic publishing. Many transnationals have set up regional headquarters in Singapore. Singapore's container-port has become number one worldwide, mainly because it is using advanced information technology to cut turnaround time to a fraction of that of competitor ports. In Europe, the United Kingdom and the Netherlands have been successful, through telecommunications liberalization and deregulation, in attracting increasing numbers of information-sensitive industries, as well as transport and financial services. These institutions and services have been acquired at the expense, among others, of Germany, which had maintained an entrenched and rigid structural service monopoly.

Gaining Competitiveness: Need for Structural Reform

Virtually all developing countries are undertaking structural reforms of some kind—varying in scope and depth—to enhance economic efficiency as a prerequisite toward increasing national welfare. The range and impact of telecommunications reform are intrinsically linked to this broader reform agenda. Successful restructuring toward international competitiveness typically would include actions in the following areas:

- Macroeconomic policies geared toward providing a stable business environment based on prudent fiscal, monetary, and exchange rate policies.
Implementing Reforms in the Telecommunications Sector

- Effective competition policies combining phased import liberalization, changes in regulations to reduce barriers to entry and exit, and promotion of export rivalry

- Liberalization of factor and output prices combined with competitive deregulation of financial and capital markets

- Provision of effective institutional and infrastructure services, including the establishment of a credible administration, sound governance, and development of human resources, power, transport, and telecommunications.

A change in the role of government from predominantly selective (including direct management of utilities) to functional intervention has been a core element of the more successful reforms.

In a broad strategic sense, the conceptual framework for structural reform can be characterized as follows. Strengthening the competitiveness of a country's economy requires improvements in productivity, financial viability, and service quality of enterprises. Achieving these objectives, in turn, requires changes in the organization of enterprises, their incentive framework, and their way of doing business. The policy instruments for achieving these objectives seek to change both the enabling environment and the corporate domain of the enterprise. Changes in the environment focus on establishing efficiency prices to reflect economic scarcities through effective competition and regulation. Changes in the corporate domain focus on improving the capability of enterprises to respond to price signals and improvements in infrastructure through rational decisionmaking and organizational strengthening.

Government disengagement from direct intervention in the economy through control of strategic industries and infrastructure toward a system driven by market forces and competitive regulation would seem to be among the main conditions for successful restructuring in most developing countries. In theory a state-owned firm can operate as efficiently as a private firm if both function according to the same set of rules, regulations, and incentives. All too often, however, this is not the case in practice. On the one hand, governments tend to provide special protection and incentives to the state-owned companies. On the other hand, private enterprises, with clearly defined profit incentives, are more likely to emphasize discipline in imposing cost control, flexibility in responding to user demand, and new technology to increase efficiency.

Slow progress, and in many cases outright failure, in improving public sector services has put pressure on governments in developing as well as in industrial countries to disengage from managing industrial, commercial, and infrastructure activities. Public enterprises typically display some or all of the following characteristics: poor operating performance, unresponsive service, weak financial positions, bloated workforce, inadequate capital investment, a cumbersome decisionmaking process, and distorted prices and tariffs. Generally it has been recognized that changes in the contractual relationships among stakeholders of state-owned com-
Telecommunications Reform in Developing Countries

Companies are key to overcoming these deficiencies and that these changes can be achieved more effectively through private sector participation.

Contractual arrangements and business practices determine, within the context of a country's regulatory norms, the extent to which price signals reflect efficiency levels and to which companies respond effectively. Successful restructuring typically entails contractual changes in the following areas:

ADMINISTRATION. Central public administrations tend to interfere in core business transactions of public enterprises without having the requisite expertise and without having to account for mistakes. Overriding concerns with social objectives are often used to camouflage inefficiency and justify the absence of good business practices.

LABOR MANAGEMENT. Public officials tend to be less willing than private managers to face labor conflicts simply because of differences in the incentives for increasing labor productivity. As a consequence, labor union leaders typically have a tremendous grip on the management of public enterprises that frequently goes beyond salary issues to encompass personnel decisions and organizational, technological, and operational issues.

SUPPLIERS AND BUYERS. Suppliers want to sell at high prices and buyers want to purchase at low prices. Although this axiom applies generally, the scope for abuse is highest in a noncompetitive environment; it is higher in public than in private enterprises, where rents can be built into contracts more easily.

A rather solid body of international evidence would suggest that a commitment to change contractual relationships throughout the economy is a critical prerequisite in most developing countries for making full use of technological advances in offering better, wider, and more varied telecommunications services. The political and economic environment of a developing country thus essentially sets the stage for the design of telecommunications reform. The degree of political commitment to broad multisector restructuring, the ability to enhance factor mobility and supply response, and the suitability of the political process for reaching decisions on issues with economy-wide implications are the principal parameters that define the scope of sector reforms. Hence, the options for organizational and structural changes in telecommunications cannot be seen in isolation. Ultimately, the pace of reform and the extent to which its potential benefits can be harnessed will be contingent on the capability of governments to create an environment that promotes efficiency and enables private investment and initiative.

Modernizing Telecommunications: Effects of Technological Change

Rapidly developing information technologies are cause and consequence of the drive for global competitiveness. They are ushering in innovative types of telecomm-
Implementing Reforms in the Telecommunications Sector

Communications services that bring opportunities for business to reduce costs, to increase supply flexibility, and to gain advantage in the marketplace. As such, they are creating dynamics for organizational and institutional changes that have been taxing the management capabilities of industrial and developing countries alike. Basically, technological developments have altered the conditions of entry into the telecommunications sector and the role governments have been playing in the development of the sector.

Key among the technological changes which have been shaping the structure of telecommunications operators and the introduction of competition are the following:

- Microwave and signal-processing technology have led to a significant increase in private network capacity, with a concomitant differentiation in some countries between wholesalers who own networks and retailers who rely on the facilities of other carriers.

- Digital exchange technology allows users to route calls selectively through networks owned by different operators and to bill these calls appropriately.

- Advances in switching technology have resulted in lower costs of switching relative to transmission. This has paved the way for increasing decentralization by prompting users to install their own switches and manage their own networks.

- Similarly, synchronous digital hierarchy transmission systems are enhancing the commercial attractiveness of smaller networks by allowing the entry and exit of individual data streams from within broadband systems at a reasonable cost.

- Finally, satellite technology (using very small aperture terminals) and dramatic advances in cutting the costs of wireless radio-based telephony are effectively competing in basic telephone service with the traditional wireline facilities in both urban and rural areas.

These technological advances have made it possible for telecommunications service providers to enter the sector efficiently on a smaller scale than in the past. Although this development is made possible by the fall in the cost of equipment, it is also affected by the increased diversity in demand for telecommunications services. This is making it profitable for suppliers to offer specialized network services and features. Hence, new service providers can, using new technology, now enter on a smaller scale more cheaply than they could in the past on a larger scale using the older technology.

Technological advances cast a new light on the traditional argument for a proactive government role in telecommunications. This argument rests on the assumption that telecommunications is an infrastructure with inherent externalities; that is, benefits derived from telecommunications services cannot be captured fully by their provider. It is generally agreed that the telecommunications infrastruc-
Telecommunications Reform in Developing Countries

ture serves a broad public interest because its existence promotes development of the economy at large. Yet a private owner of a basic network may not be willing (or able) to deploy speedily advanced technologies—such as an integrated services digital network (ISDN)—throughout the public network. Advanced technologies are needed to transmit sophisticated intracompany applications beyond company limits to partners or subcontractors in a network-based production process. Accelerated development of the public-switched network thus would seem necessary to meet this requirement. Seen from a different angle, individual corporate strategies, articulated around privately controlled networks, do not necessarily add up to optimal economy-wide exploitation of information networking technologies.

The challenge facing decisionmakers of developing countries in deciding on a development strategy for telecommunications is perhaps best exemplified in the different approaches adopted by France and the United States. In France, the strategic objective has centered on providing an integrated network through a government monopoly that features one of the world's highest rates of network digitization, the largest packet-switching network, and the national availability of ISDN service. To a large extent these services have been provided in anticipation of user demand. Thus, the telecommunications network in France is being used as a spearhead to promote economic activities and harness associated benefits that otherwise would have materialized only later, or not at all. In contrast, the overarching goal in the United States has been the competitive provision of a wide choice of networks and network services by the private sector. Competition is being relied upon as the driving force to bring down costs and to foster dynamic innovation in telecommunications equipment and services. As a result, large telecommunications users have unmatched access to a wide array of telecommunications resources and substantial freedom to control their deployment and use. The different approaches followed in the United States and France have resulted in significantly different telecommunications infrastructures and regulations in the two countries.

In deciding on the merits of selective intervention to develop an infrastructure that the private sector would not provide, governments in developing countries need to carefully ascertain their administrative, financial, and technical capabilities to take on this task. Although there is a risk of market failure, notably in the early stages of telecommunications development (when the coverage of the system has to be expanded rapidly to meet demand and social objectives), there also is a risk that government failure may exacerbate problems rather than solve them. Rapid technological evolution in telecommunications has brought great opportunities for expanding penetration, lowering costs, and upgrading services, thus affording developing countries an opportunity to leapfrog the stages of network development in industrial countries. At the same time these changes have added tremendous complexities to the work of designing, procuring, and managing telecommunications systems which are likely to overtax the capabilities of governments, and domestic private sectors for that matter, in most developing countries.

The need to go global in order to take advantage of the opportunities embodied in technological progress is manifest in the transformation of the traditional state
Implementing Reforms in the Telecommunications Sector

telecommunications operating entities in industrial countries towards global business consortia with increasing transborder investment that aim at providing one-stop shopping for the client. This development is in large measure the result of pressure on competitive efficiency and greater productivity, which require the design of systems that stimulate service innovation, accelerate diffusion of technical innovation, and improve responsiveness to customer needs. This movement toward global networking appears to be proceeding at an inexorable and accelerating pace. Similarly, the increase in worldwide competition is causing communications equipment suppliers to polarize because of increasingly low margins, even on products such as packet switches and large multiplexers that were launched not that long ago. Suppliers are moving out of the pure product business and into services—systems integration, operation and management, and eventually facilities management. The effectiveness with which developing countries are able to tap into this world of fast-moving changes, protocols, architectures, and standards, and of transforming telecommunications service providers and equipment suppliers, will significantly affect their ability to carve out international-product market shares.

Defining a Telecommunications Strategy: Choice of Policy Instruments

It seems that developments are turning full circle from the early days of telephony, when telecommunications companies were in private hands. The arguments that led to their transformation into noncommercial utilities under government monopoly were based on the need to (a) realize the scale economies of the basic telecommunications network, (b) use revenues from profitable services to subsidize universal domestic service and perhaps other government activities, and (c) retain control of a strategic infrastructure for political, social, economic, and defense programs. Developments in the last decade have changed this scenario drastically. On the one hand, quantum jumps in technology have rendered these presumptions largely obsolete; on the other hand, traditional government-operated telephone utilities have not performed well in the face of surging consumer demand for new, better, and faster telecommunications services.

The options for organizational and structural changes in telecommunications cannot be seen in isolation from the plans for change in other sectors. Still, success in reforming telecommunications may well accelerate developments in sectors with more mature technology in which the need for change may not be that obvious but in which substantial efficiency gains could be achieved nonetheless.

Drawing on the paradigm of telecommunications reform, four closely related yet distinct policy instruments to transform public telecommunications monopolies can be identified: corporatization, competition, privatization, and regulation.

The mix and sequencing of these instruments, as well as the speed of their deployment, depend on country characteristics. There are examples of private ownership yet limited competition, corporatization without private sector entry, and priva-
Telecommunications Reform in Developing Countries

tization without effective regulation. In the same vein, examples of cautious incrementalism contrast with cases of bold structural and organizational leapfrogging.

Well-documented evidence indicates that effective corporatization of state telecommunications operations can result in significant improvements in operational efficiency, consumer responsiveness, diversification of services, and accelerated investments. Corporatization aims at moving the telecommunications service provider out of the civil service, subjecting it to the discipline of commercial law, and vesting its management with the authority that is common in a private company. Corporatization also typically implies a change in accounting standards and the publication of balance sheets and profit and loss statements. Increased transparency and changes in management incentives have proved to be powerful instruments in promoting efficiency improvements. Furthermore, corporatization enlarges the scope for revenue-sharing arrangements and build-operate-transfer (BOT) schemes to access private sector technical expertise and capital.

International experience suggests that typically the benefits of corporatization are significantly expanded with the introduction of competition or a pending threat of competition. Indeed, competition policies have become the main instruments in modernizing telecommunications sectors. There is ample evidence that monopolies are not well suited to adapt to increasingly dynamic and globalized markets. Pointing to the actual performance of the monopoly operators, potential competitors are pressing the case that they would be in a position to provide many telecommunications services more efficiently. Indeed, technological progress has substantially increased the scope for competition, even in the local loop, provided the authorities permit interconnection and leasing of lines on reasonable terms. There are various options for introducing competition, often starting with customer premises equipment while maintaining network facilities under a monopoly, expanding to value added services including mobile telephones, to fully competitive networks. It is difficult to say a priori which option is most suitable in the context of a given country. There are tradeoffs between market efficiency and economies of scale, as well as considerations of regulatory effectiveness, maturity of the existing telecommunications network, and a country's attractiveness for foreign investment.

Privatization, narrowly defined as a change in the ownership of telecommunications infrastructure, is seen by many as the most important vehicle for sector restructuring. However, it is not a sufficient condition for improvement unless important side conditions are met. It could be argued that privatization may not even be a necessary condition. There are many inefficiently operated private telecommunications companies. Yet some state-owned companies are among the world's top performers, such as Sweden's Telia AB and Singapore Telecom. In reviewing the conditions for successful transformation, it could plausibly be postulated that the economy-wide incentive system is more important than ownership. To the extent that incentives are distorted, however, ownership indeed would matter in most developing countries. Although many developing countries are sensitive to a change in ownership, they have shown themselves to be quite amenable to privatization, defined broadly as allowing participation of nongovern-
Implementing Reforms in the Telecommunications Sector

ment parties in the telecommunications sector. Although it may be possible to create competition among fully government-owned entities, it is unlikely that it will bring the complete range of benefits (capital, management expertise, technical skills) that would result from the participation of private sector interests.

Because privatization is a process (one that transfers some or all of the operations, management and ownership of state-owned telecommunications facilities to the private sector), it can be initiated and expanded in a variety of ways, including use of management contracts, revenue sharing, joint ventures, and diverse forms of BOT. Considerable experience has now been gained in managing privatization. Issues involve the timing and integration of policy design (competition, structure, pricing, performance targets) with social considerations (employment, early retirement, work rules, pensions), as well as the modalities of sale. All these issues will need to be considered by decisionmakers in the broader, economy-wide context of government role and regulations. Similarly, there are many options for private sector participation short of the outright sale of shares to private operators and the public. These options in turn can be applied to conventional local networks, cellular radio systems, satellite systems, or long-distance terrestrial and submarine links. Most of these schemes are attractive in that they do not require changes in legislation. Their drawback is that desirable legislative modifications involving changes in competition policies and sector regulation may not be introduced.

Sector restructuring addresses only one side of inadequate telecommunications services. The other side is effective government control over the various players to ensure that restructuring does indeed achieve the intended purposes. Regulation is essential for optimizing the performance of the telecommunications sector as long as competition is limited, natural monopoly characteristics prevail, and standards and norms change frequently. Regulations of the sector typically address issues of network interconnection, network expansion targets, pricing and use of leased lines, and cross-subsidies to achieve social objectives. There are various models of regulation, depending on the degree of government intervention in the economy. A fundamental principle in designing regulatory functions is to separate those functions from both policy and management functions. Setting up an effective regulator is indeed a daunting challenge in countries where a tradition of independent administration tribunals does not exist. Transitional solutions may have to be found.

The process of telecommunications reform evidently will be most effective in an institutional structure that clearly defines separate and distinct roles for policymaking, regulation, and management. Although the importance of removing operating functions from the central government has been widely accepted, the need for separating the policymaking and the regulating functions has not been generally recognized. The policymaker concentrates on long-term objectives, the structure of the telecommunications sector, its importance in relation to other sectors, and the financing of its investment. Specifically, the policymaker sets rules with respect to the scope of competition, pricing, quality and condition of service, network interconnection, provision of leased lines for resale, approval of network facilities, application of technical standards, and sale of terminal equipment. In contrast, the
regulator is responsible for implementing government policy, ensuring that the operator is accountable for responding to economic and social objectives, resolving disputes between competitors and between consumers and operators, and monitoring the cost efficiency and tariff adequacy of different services. Thus the regulator acts as a buffer between telecommunications operators and policymakers.

Developing Telecommunications: Catalyst for Broader Reforms

High-quality telecommunications service is only one among various factors that determine a country's competitiveness and its attractiveness for investment. There is no conclusive evidence either way in the debate on the potential catalytic role of telecommunications in accelerating economic development. There are examples of both fast-and-slow growing countries that have emphasized telecommunications as a spearhead for gaining competitive advantage in manufacturing and services, and there are examples of fast-and-slow growing countries that have developed telecommunications in response to consumer demand. Limited technical and administrative capabilities would seem to advise against government directly intervening in providing telecommunications services in developing countries; rather, emphasis should be on setting incentives that are most conducive to the development of the sector. Generally, governments in developing countries should aim at minimizing investment outlays for the public telecommunications network while ensuring that the range and quality of service required for reasons of competitiveness and social equity are met.

Even though the macroincentive environment sets the framework for scope, pace, and ultimately the achievements of telecommunications reform, changes in structure and operation of the telecommunications sector may prove to be an effective catalyst in engendering reforms in other sectors. More broadly, these changes may reform business practices in the economy at large, which could go beyond the direct role of telecommunications in enhancing a country's economic performance. There are technological arguments and considerations of political economy that would support this proposition, as well as tangible evidence of the substantial benefits from telecommunications reform.

The demands of export-oriented sectors and of the service industry for a wide and sophisticated telecommunications menu, clearer transparency in measuring the performance of telecommunications, and technical possibilities to bypass the public network are leaving governments little choice but to restructure the sector. The challenge is to use this restructuring as an opportunity for initiating reforms on a broader scale, because introducing the best international practices in telecommunications will require overcoming many issues of a generic nature that likewise constrain the development of other sectors.

The scope of telecommunications reform obviously will be determined by the financial health of the sector and its relative efficiency in satisfying demand; the externalities of reform will depend on the extent to which the economies are already
Implementing Reforms in the Telecommunications Sector

market-oriented and governments have shifted to the role of facilitator and regulator. Demonstrable improvements in the performance of the telecommunications sector can be seen as a general test of the ability of governments in developing countries to overcome vested interests in modernizing their economies. In order to overcome opposition from these interests, governments may be able to form stronger alliances with user groups and with parts of the administration in telecommunications than they could with other sectors. Yet the signal effect of allowing competition in a previously protected public domain, the application of commercial principles in a market segment with significant social connotations, and the introduction of accountability in a more transparent regulatory framework most likely will have implications on the way business is done elsewhere in the economy.

The task of forming coalitions for change seems easier and the benefits of extending competition to other sectors more obvious when looking at successful examples of overhauling traditional telecommunications structures. Two examples may suffice to make the point. Both New Zealand and Japan are among the industrial countries, but there is no apparent reason why developing countries could not make similar relative progress. After all, the issue is not national mastery of technology but national commitment to a process of change. First, a look at New Zealand, which has introduced virtually open competition in its telecommunications market, including basic network services and the allocation of slots in the radio spectrum. This environment has led to some impressive achievements: within eighteen months, price for the basket of telecommunications services was reduced by 31 percent in real terms. Similarly, the efficiency of the Telecom Corporation of New Zealand (TCNZ), measured in lines per staff, improved by more than 20 percent in less than one year. Generally, time for installation was cut, new technology was introduced (the proportion of customers served by digital lines was raised from 35 percent to 70 percent), tariff rates were rebalanced, and profits increased. These results were achieved during a period (1989-90) when the government was still the single shareholder of TCNZ and there was merely a threat that competition would be introduced.

Japan is another telling example of the benefits of competition to the consumer and of the speed with which reforms can be introduced. Until twenty years ago, Japan prohibited the connection of computers to the telecommunications network, and it was only in 1985 that the monopolistic structure of telecommunications service was dismantled. By March 1993 some 80 facilities-based (Type I) carriers and more than 1,200 carriers provided specialized services to their customers by leasing lines (Type II). Fierce competition among the various service providers has led to significantly reduced telephone charges. Between 1985 and 1991, average tariffs for domestic long-distance telephone service were reduced by one-half, whereas international rates fell by one-third. Monthly service charges for cellular telephone service were cut to nearly one-fourth and the pulse rate by one-third. Similarly, paging charges were reduced by one-third. Price reduction and increased choice have dramatically expanded privately owned customer premise equipment. The number of cordless telephones has grown 40 times, and the number of cellular...
telephones 20 times. Sales of facsimile equipment have been rising by 23 percent per year and telephone sets by 56 percent per year.

Whereas telecommunications sector reforms in New Zealand and Japan were undertaken in the context of broader economic reforms, Argentina is the clearest example of a government using restructuring of telecommunications as a lever to initiate broad reform programs (that is, to change the traditional way of doing business) and to gain credibility with foreign investors. In reorganizing and privatizing telecommunications, Argentina's government demonstrated its commitment and ability to overcome the opposition of public enterprise managers, labor unions, equipment suppliers, political organizations, and large segments of the public bureaucracy. By succeeding against the odds of a highly unfavorable economic and fragmented political environment, the government of Argentina was able to start establishing new rules of the game that ultimately translated into consumer confidence, macroeconomic stability, and a resurgence of direct foreign investment. Even though it would be misleading to qualify telecommunications reform in Argentina as the single causal factor for the economic turnaround, the powerful effects of reform demonstrate that the government was well advised to choose telecommunications as the battleground for establishing a new economic paradigm.

The Argentina example, no doubt, is an extreme case because of the adversity of the starting position regarding the performance of telecommunications, the state of the economy, and the credibility of the government as well as the degree of change and the speed of its implementation. Yet, it provides an interesting lesson on how full commitment to telecommunications reform (which, although part of a more comprehensive reform package, preceded reforms in other sectors), can change, among other things, administrative procedures, labor legislation, public enterprise management responsiveness, and regulatory practices. This occurred despite flaws in implementation that were rooted in the country's exogenous endowments.

Planning for Change: Frame of Reference

Based on the foregoing considerations and drawing on international experience, some premises can be formulated that may be useful as a frame of reference for planning telecommunications reform in developing countries.

Premises

- Advanced telecommunications capability is a tremendously important factor in determining a country's competitiveness, but a nation's development has to be seen in the context of other factors that constitute the enabling environment for economic growth. There is a strong correlation between high telecommunications investment and high rates of economic growth, but there is no evidence of a causal relationship. Although telecommunications may be an engine of growth under certain circumstances, it is possible to overbuild the physical infrastructure in relation to the needs of service. The challenge to policymakers is to find the right
Implementing Reforms in the Telecommunications Sector

Implementing reforms in the telecommunications sector is crucial to ensure balanced development of skills and physical endowments and the efficient deployment of productive factors in the economy.

- Reform of telecommunications has acquired added importance as it is considered both a test for the ability of governments more generally to overcome vested interests opposed to economic modernization and a catalyst for engendering changes in a country's traditional way of doing business, thus improving the domestic business climate and gaining credibility with foreign investors.

- The resource envelope for telecommunications financing is finite. There are limits to a nation's domestic savings effort and to its ability to borrow abroad, and there is competition for resources from other sectors. The enormous investment requirements for developing telecommunications and the wide array of technological options put a premium on the judicious choice of sector structure and the regulatory framework.

- There can be a conflict between the objectives of rapidly achieving high rates of coverage at affordable prices and of providing sophisticated services to the business community at cost-based tariffs. There is no right answer to determine the appropriate balance; it is essentially an issue for the policymaker to use judgment in deciding. However, in assessing balances, the relative contribution of telecommunications compared with other basic services in enhancing social welfare and in relation to other policy variables in promoting competitiveness has to be taken into account. Ultimately, lost business also means social welfare costs in terms of lost income for wage earners. Thus, there is a limit to cross-subsidization, on the one hand, and an imperative to use capacity economically on the other hand.

- Organizational and management changes are at least as important, if not more so, as the expansion of physical facilities. Simply put, the basic issue is how to structure the telecommunications environment so that telecommunications facilities are used most effectively. In fact, there are indications of wide variations in management performance among developing and industrial countries alike. In this sense, telecommunications mirrors a broader economic challenge: how to design a system of incentives and penalties to ensure that both capital and human resources are employed so as to achieve the highest returns to society.

- Competition policy is the most powerful instrument to expand and manage the telecommunications sector with a high degree of efficiency. The threat of losing business, or the risk of not getting it, does wonders to motivate those involved to give the maximum effort; it even promotes changes in behavior which are at the grassroots of development. Competition essentially means eliminating monopolistic rents, be they of the government or the private sector, by removing barriers to entry. Thus, competition means a broader participation of the private sector, not necessarily privatization in terms of ownership change.
Structure, organization, and the rules of the sector should be designed to meet overall market needs in the most effective way. An essential condition for achieving this objective is the selection of additional players who demonstrably make the greatest contribution to sector performance. Hence, a decision on private sector participation in telecommunications development should, whatever the specific arrangement, be based on a thorough assessment of the real value added, that is, the tangible contribution to overcoming financial, technical, and managerial constraints. Avoiding free riders is essential for gaining efficiency.

Subsidizing domestic telecommunications manufacturing capability by setting restrictive standards, imposing reserve procurement, or providing tariff protection has shown limited benefits at best. International experience suggests that the opportunity cost of high-priced services and constraints on technological offerings far outweigh the benefits associated with the development of domestic telecommunications manufacturing. Examples in Eastern Europe, Brazil, and even Korea indicate that the development of switches, just to pick an item with some national appeal, has had either negative rates of return or rates below the opportunity cost of capital, if strict economic calculations are applied. There is ample evidence, however, that developing countries can establish domestic production capability in important market segments (such as peripheral equipment and software) under competitive conditions.

An efficient, high-quality telecommunications sector requires a clear separation of policy, regulatory, and operational functions. The policymaker ought to concentrate on setting objectives and defining strategies. The regulator should ensure compliance with these parameters in a transparent and equitable manner, taking account of the needs of consumers as well as those of operators. The facilities and service providers, operating under commercial principles even if government owned, ought to focus on delivering needed services at the lowest cost.

National sovereignty is not tantamount to monopolistic public ownership of basic facilities or restrictions on foreign participation. Rather, sovereignty calls for deciding the rules of the game that are best suited to the country and enforcing them transparently and effectively. The telecommunications sector is a good example. Exclusion of foreign capital and expertise can limit the ability of a developing country to compete, ultimately weakening its position in the global economy. Similarly, whereas monopolistic public ownership would seem to ensure that rents accrue to the treasury, the probability of inadequate service response that comes with a monopoly implies less business and thus, ultimately erodes the government’s ability to use the monopoly to achieve social objectives.
Restructuring the Telecommunications Sector: 
Experience in Some Industrial Countries and the 
Implications for Policymakers

Robert R. Bruce

The debate and dialogue about the restructuring of the telecommunications sector has grown increasingly sophisticated and complex. Proposals for reform and liberalization that just a few years ago might have seemed radical are now considered to be part of the conventional wisdom of policy reformers. Although there is no consensus about any ideal approach to sectoral restructuring, there is broad acceptance of the idea that existing policies cannot go unexamined. There is also an increasing perception that maintaining a state telecommunications monopoly unchallenged by competition is no longer a viable option.

Policymakers have also grown increasingly sophisticated about the distinctions between policy options favoring liberalization and privatization; they are more sensitive to the potential conflicts between these objectives. They are beginning to appreciate, as well, that privatization can involve a myriad of different mechanisms and timetables for introducing private capital into state posts, telegraphs, and telephone (PTT) operating entities and modifying the structure of governance. It is better recognized that policy reform is a long and arduous process—with no prompt and painless solutions—that is likely to test severely the patience and resolve of political leaders. Pressure has increased for sectoral strategies tailored to the unique institutional, economic, and political context of each country; formulaic solutions are unacceptable.

As attention to telecommunications reform from political leaders has grown, so has the interest in privatization from finance ministries and the financial community. This interest often results in an orientation toward policies that might lead to privatizing a state telecommunications operating entity in a sheltered competitive environment, a scheme that might maximize returns in the short run. It can sometimes be difficult to assure a full hearing for policy options favoring not merely privatization but an aggressive approach to the introduction of competition that may in the long run contribute most reliably to sustained economic growth.

What follows is not a comprehensive updating of sectoral reforms in major industrial and developing countries. This chapter offers an assessment of recent
Implementing Reforms in the Telecommunications Sector

experience with reform in the telecommunications sector. The perspective may be somewhat unconventional, even radical, in perspective. Change begets more changes. Policy determinations in the telecommunications sector do not occur in a vacuum; they are a product of political compromise. Hard-won reforms in one country not only create an impetus for further changes in that country but also create an impetus for more rapid and more radical reform in countries that have delayed initiating the process of sectoral reform.

Incremental reforms may have been successfully implemented in countries that have permitted new entrants on the peripheries or in the use of the network infrastructure. Incremental reforms may not, however, be the right prescription for sectoral reform in countries where the technical and institutional infrastructure has collapsed, huge backlogs of demand have accumulated, and business users desperately need new services. More far-reaching reforms that contemplate a role for new entities in the provision of core infrastructure—that find some parallels in smaller industrial countries—should not necessarily be viewed as a radical program for reform. Such reforms may involve a sensible, even a conservative, response to a desperate need for new investment in telecommunications infrastructures.

Future debates about sectoral reform will not necessarily be led by policymakers from industrial countries. New options for privatizing and for introducing new sources of private investment into telecommunications sectors are being much more freely explored in discussions about sectoral reform in Latin America, Asia, and Eastern Europe than in the heart of the European Community. Ironically, innovative techniques for financing new network infrastructures in developing countries might well provide the models and mechanisms for implementing broadband or intelligent networking capabilities in countries with developed infrastructures. This chapter assesses in particular some of the conventional wisdom about how to privatize and identifies possible new options for introducing private sector investment into the telecommunications sector.

Because of the rapid evolution of the telecommunications environment, policy prescriptions must be based on new and empirically derived concepts as well as on assessments of future trends. This applies particularly to the likely future evolution of telecommunications policies of countries that have been undergoing restructuring; policies cannot be drawn merely on the patterns of past policy determinations. This chapter attempts to anticipate some of these new policy directions.

Sectoral Restructuring in Some Major Industrial Countries: An Assessment of Trends and Future Developments

Examined below are important issues being confronted in the reform of the telecommunications sector in the European Community (EC) as well as in Japan and the United States. Sector reforms in three smaller countries—Finland, New Zealand, and Australia—are also the focus of attention. The bold and innovative thrust of reform initiatives warrants close scrutiny by countries still deciding on future sectoral policies.
The discussion that follows is not intended as a detailed primer on reforms in the above-mentioned countries; such background information is available elsewhere. Instead, the focus is on identifying trends and likely future developments. Important lessons for policymakers now weighing options for sectoral reform may often lie less in a factual account of what has happened than in an interpretative assessment of the direction in which developments are headed and what revisions of past reform initiatives might be anticipated. Interpreting and predicting future trends is inherently a controversial, subjective, and risky undertaking. However, such an effort provides an important underpinning in determining policy prescriptions for countries faced with decisions concerning how to develop their telecommunications infrastructure in the future.

Countries still developing their infrastructure or attempting to effectuate a rapid and smooth transition from centrally managed to market-driven economies need not slavishly imitate the reform initiatives of countries that earlier started down the road to reforming their telecommunications sectors. Policy reforms must, of course, be tailored to unique national circumstances. Moreover, policy reforms of late starters can also leapfrog the first tentative initiatives of early reform efforts. They can and should reflect changes in conventional wisdom and any new synthesis of ideas about restructuring telecommunications sectors that emerge from the experience of other countries. The following assessment of the experiences of the European Community, Japan, the United States, and several small industrial countries is thus intended as a backdrop for the later discussion on some implications of recent sectoral restructuring efforts that focuses on a number of new or unconventional approaches to telecommunications sector reform.

**Sectoral Reform in the European Community**

The EC Commission’s 1987 Green Paper represented a brilliant synthesis, both in political and policy terms, of telecommunications policy discussions that had been taking place in Europe, the United States, and Japan. It defined a new consensus—a European response to developments in the United States and Japan—that both was influenced by, and has influenced, policy debates under way in various EC member states.

This European consensus drew largely on efforts by the Japanese in their business telecommunications law to distinguish between the provision of facilities and the provision of services. The consensus, however, was distinguished from the predilections of both American and Japanese policymakers to favor facilities-based competition in its consideration that network infrastructure, public-switched voice services, and potentially certain public-switched data services should all be considered “reserved services” of the PTTs. Nevertheless, the Green Paper left the door open for limited facilities-based competition from satellite services. At the same time, it acknowledged the right of some EC member states, such as the United Kingdom, to pursue a more open-handed approach to facilities competition.
The Community has had remarkable success in defining a policy consensus among twelve member states with vastly different institutional structures and stages of development. It has been effectively implementing that consensus through its terminal equipment and services directives, as well as through a number of other initiatives. The Community efforts have, moreover, crystallized policy debates on a continent-wide basis. The Green Paper has become a starting point for discussions about telecommunications reform both in European Free Trade Area (EFTA) countries and in Eastern Europe. As such, the paper may well be one of the most influential statements of telecommunications policy that has ever been formulated.

The EC's approach to telecommunications reform as first articulated in its Green Paper includes four main elements. First, it endorsed the liberalization of the provision of all services utilizing existing infrastructure with the exception of certain previously described reserved services. Second, through its Open Network Provision (ONP) initiative, the European Community has been encouraging harmonization among EC member states with respect to the terms and conditions of access to network-based services essential for the provision of service-based competition. Third, although not rejecting the policy preference of the United Kingdom for facilities-based competition, the Green Paper left the door open for limited facilities-based competition from satellite services. Through its Satellite Green Paper, the Community is pressing for consensus on liberalizing satellite-based services (at least those services permissible under its services directive). Fourth, the Green Paper has forcefully advocated the separation of the operational and regulatory roles of PTTs. In so doing, it has created an environment within which ongoing policy reforms can be pursued at the national level. Nevertheless, each of these important elements of the EC's consensus approach to telecommunications reform is being severely eroded by new developments and pressures in the telecommunications sector. The core elements of the European consensus may have to be re-evaluated relatively soon.

**Widening the Scope of the EC Services Directive.** The EC services directive's limited focus on nonvoice services may not adequately recognize growing pressures from large and middle-size users for managed network offerings of both voice and data services. PTTs will no doubt be keen to respond to these pressures; however, it will be difficult for them to do so unless service providers unaffiliated with PTTs do not have comparable opportunities to offer such services. Pressures for integrated data and voice service offerings are both technology and market driven.

In the United States and, more recently, in the United Kingdom as a consequence of white paper recommendations resulting from the U.K. duopoly review, large carriers are offering specialized services to large users based on discounted tariffs. Users are insisting on enhanced capabilities to manage and configure their own networks. Sophisticated network management capabilities make it harder to differentiate public and private network services; however, this growth in demand for managed network services will generate pressures to differentiate the regulatory and business arrangements through which such services are offered. From a
Restructuring the Telecommunications Sector

strategic standpoint it may thus be advantageous for large carriers to differentiate services provided on overlay networks or those with specialized network management capabilities from those services that are routinely offered to long-distance customers.

To compete with modern facilities and networks installed by new entrants, PTTs may have to create new business organizations within their corporate structures to offer specialized networking services. Faced with claims by new entrants that pricing for large users is predatory or not cost justified, an established carrier may find it useful to establish a separate business enterprise to offer services for large business users. Such a business unit would provide a basis for establishing cost accounting and cost allocation systems necessary to justify pricing for new services in response to complaints to regulators of unfair competition made by new entrants.

From a technological standpoint, as well, the emergence in the coming decade of intelligent network architectures may result in a separation, driven by business considerations, of the capabilities and resources necessary to manage and operate networks from the operational level of a PTT consisting of its switching and transmission capabilities. It is likely that PTTs will begin to shift the strategic center of their business to separate business units that manage and control transmission and switching resources wherever they might be located (in a PTT's national market or overseas).

The essential capabilities for devising and managing all types of future telecommunications services will thus be increasingly distinguishable from the PTTs' physical network infrastructure. Moreover, the primary hardware and software capabilities for managing and controlling future networks is likely to be supplied from outside the traditional telephone industry by firms in the computer and information-processing fields that have been developing network management capabilities for data services. Such firms are not likely to accept a permanent exclusion from becoming suppliers of both data and voice services, because distinctions between voice and data services are rendered obsolete by advances in digital techniques. Users will reinforce this trend toward competitive provision of managed network services. They are not likely to agree to the packaging and management of their networks by PTTs unless third parties or users themselves can engage in similar network management services. A package price will probably not be acceptable unless parts of the package can be separately provided and priced.

Necessity has become the mother of policy innovation. The scope of services open to competition will expand as a consequence of the EC's promotion of satellite-based networking and from the urgent need to utilize such services to speed the integration of Germany and of Eastern and Western Europe. For example, the gross inadequacy of telecommunications links between the eastern and western regions of Germany has forced the German Ministry of Post and Telecommunications to lift restrictions it had imposed on the utilization of satellite networks to provide switched voice services. Although undertaken as a temporary measure, this move may be difficult to retract because users may not easily surrender their freedom to use satellite services on a flexible basis.
Implementing Reforms in the Telecommunications Sector

The Community has proposed in its Satellite Green Paper to limit the use of satellite networks to services that can be offered subject to restrictions in its services directive. However, like the German Ministry of Post and Telecommunications, the Community will have no incentive to block the use of switched voice services on satellite links between Eastern and Western Europe when adequate terrestrial services are not available. Moreover, it is not likely to be a sustainable policy option to permit switched voice services on satellite links into Eastern Europe but not into EC member states such as Portugal or Greece, where terrestrial networking is not as yet fully developed. In short, the scope of services reserved under the EC services directive seems likely to narrow substantially.

Expanding the Scope of the ONP Initiative to Include Options for Unbundling Local Exchange Capabilities. The Community is likely to have to take into greater account the real differences between its ONP initiative and the Federal Communications Commission's (FCC) Open Network Architecture (ONA) efforts in the United States. The EC's ONP initiative has yet to wrestle with hard questions concerning the local switching capabilities that should be offered to third-party providers of services and at what price. These policy concerns are finally being addressed in the context of the EC's investigation of future intelligent network architectures. However, to date the European Community has seen its ONP effort primarily as a means of achieving greater harmonization concerning the terms and conditions under which leased-line capabilities are offered to new service providers. In the United States such harmonization of service offerings was largely achieved because of the unifying influence of American Telephone and Telegraph Corporation (AT&T) prior to its divestiture.

Neither the European Community nor its member states, except for the United Kingdom, have really addressed how to structure and price access arrangements for new entrants. The United Kingdom's duopoly review focused attention on some difficult issues that the Office of Telecommunications (OFTEL), the UK telecommunications regulatory agency, must face in establishing competitive safeguards applicable not merely to Mercury, but to all new competitors dependent on British Telecom's (BT) local exchange capabilities. As the debate over formulating access arrangements grows more sophisticated and intense in the United Kingdom, there will inevitably be some spillover of the consequences and outcomes of these discussions elsewhere in Europe. Users of leased-line services and providers of value added services will also be driving the debate forward as they seek from PTTs access to the same sets of local network capabilities that are available to them in the United States.

Permitting Facilities-Based Competition in the Community. The cautious approach of the EC Green Paper, and European policy generally, toward facilities-based competition is likely to come under increasing pressure for a variety of reasons. The U.K. duopoly review established the basis for more far-reaching and unrestricted competition in the United Kingdom. Inevitably, the widening gap
Restructuring the Telecommunications Sector

between the liberal approach to authorizing new facilities-based competitors in the United Kingdom and policies favoring an infrastructure monopoly seems likely to undermine the legitimacy of, and political support for, status quo-oriented policies in Europe.

The opening for limited facilities-based competition that will be created by the Satellite Green Paper will accelerate changes in the current policy environment. It has not escaped the notice of business users of telecommunications services in Europe that European policymakers are still in the process of implementing liberal policies toward satellite networks almost four years after the issuance of the 1987 Green Paper and two decades after the adoption of the FCC's Open Skies policy that stimulated the development of satellite services in the United States. Moreover, there seems to be growing interest on the part of large users and some European railway companies in exploring options for the construction of new fiber-optic networks. Although the legal and practical barriers to the entry of new facilities-based competitors are substantial, large users seem quite convinced that they lack access to the wide range of transmission options available to their competitors in the United States and Japan.

In the long term, PTTs that perceive an irreversible trend toward further liberalization of services-based competition may see their incentives to be the exclusive investors in transmission and switching facilities significantly reduced. Moreover, as PTTs begin to center their business strategies around the management of networks and the development of service applications, they may conclude that being the exclusive provider of infrastructure need not necessarily be an essential part of their business strategy. In addition, the joint-venture business model utilized in constructing transoceanic fiber-optic cables might begin to influence the business arrangements through which trans-European networks are constructed. Finally, the possibility of a global credit crunch and the resulting shortages of capital necessary to construct new networks and new switching infrastructure might encourage PTTs to become more open to a new role for intermediaries in the financing and construction of telecommunications infrastructures.

What might be decisive, however, in tilting the balance in Europe toward policies more receptive to facilities-based competition could be the view that the absence of competitive pressures from new facilities-based entrants has slowed down the process of rate rebalancing in Europe. One of the major consequences of divestiture in the United States has been to compel the regional Bell operating companies (RBOCs) to base their long-term profitability on efficiently priced and regulated local exchange services. Vigorous competition in the interexchange market in the United States has guaranteed that efforts to remove embedded subsidies between local and long-distance services have moved at a vigorous pace. Indeed, perhaps the most significant consequence of the major restructuring of U.S. telecommunications policies in the past decade has been to turn first AT&T—through the FCC's initial deregulatory initiatives—and then the RBOCs—through divestiture—into the prime movers of price reform in the U.S. telecommunications sector. It has been U.S. carriers as interested parties, and not U.S. regulators, that have been the engine
Implementing Reforms in the Telecommunications Sector

behind the introduction of highly efficient pricing arrangements in the U.S. telecommunications sector.

Surely arguments persist over whether embedded cross-subsidies have been eliminated in the United States. No doubt European PTTs have also initiated their own rebalancing efforts. These rebalancing initiatives, however, have lacked the strong impetus that facilities-based competition inevitably provides. Moreover, as the price-rebalancing process proceeds in the United States, it undermines the case that facilities-based competition necessarily results in “cream skimming” and loss of revenue necessary to meet universal service goals.

European business and economic policymakers may begin to perceive that Europe is at a strategic disadvantage because of deeply embedded disparities in the pricing of telecommunications services and infrastructure between Europe and the United States and Japan. Bulk transmission capacity is not only much more expensive in Europe than in the United States, but there is also much less diversity of supply with respect to the unbundled capabilities of local exchange facilities. Thus, for all the reasons discussed above, it may be reasonable to expect a steady and possibly rapid erosion of support in Europe for policies disfavoring facilities-based competition.

SHARPENING DEBATE IN EUROPE ON REGULATION. One of the most important elements of the EC’s telecommunications reform initiatives is the impetus for the separation of the policy and regulatory responsibilities of the PTTs from their operational responsibilities. New regulatory bodies are springing up throughout Europe in the aftermath of the 1987 Green Paper—most notably in France, the Netherlands, Portugal, and Spain. However, in Italy, with its byzantine and apparently reform-resistant industry structure, it has proved difficult even to identify an individual or institution that is a pretender to becoming an Italian regulatory body.

There are considerable differences in the structure of new regulators. Only in the United Kingdom is the regulatory body significantly independent of the operator or the ministry that maintains control of the state’s ownership stake in the operator. Although it is true that in Germany there is separation of operational and regulatory responsibilities, there is not that same degree of separation between regulatory and ownership responsibilities. Ultimately, the German Minister of Post and Telecommunications has responsibility for the German regulatory body and for Deutsche Bundespost Telekom (DBP Telekom). However, the German experience demonstrates that an effective and vigorous regulatory mechanism can be established notwithstanding the dual entrepreneurial and regulatory responsibilities of the minister. One of the most impressive aspects of the German regulatory initiatives is its extraordinary openness; public comment has been sought on significant policy initiatives both from Germans and foreign interests. Such openness is an important antidote against both the perception or the reality that a regulatory mechanism is likely to favor an established competitor.

In spite of the impressive progress in recent years in developing new regulatory mechanisms in Europe, European regulators have not yet been fully tested. They
Restructuring the Telecommunications Sector

have not had to confront difficult controversies generated by the emergence of facilities-based competition and by pressures for unbundling local exchange capabilities.

United Kingdom regulatory officials were quite insistent on being able to regulate with a light hand, often contrasting their intended approach with the burdensome and litigious aspects of regulation in the United States and Canada. The United Kingdom's duopoly white paper and, in particular, the OFTEL director general's commentary in an appendix on BT's pricing policies suggests that overseeing the British competitive scene will become much more complex as a result of initiatives favoring a more open competitive environment. One illustration of this likely complexity is the white paper's discussion of how to deal with BT's evident frustration at not being able to rebalance its local exchange tariffs on a more accelerated basis. OFTEL has agreed to a limited rebalancing of local tariffs; one of the concessions for continued restraint on local pricing increases has been to accord BT more flexibility to introduce special discounted services for large users. Such flexibility will come with the caveat that pricing reductions cannot be predatory or be set below long-run incremental costs. However, pricing for large users need not, according to the OFTEL director general, have to be based on fully distributed costing principles.

How OFTEL, BT and its competitors will determine whether specific pricing proposals conform with these benchmarks remains to be seen. OFTEL evidently intends to demand more from BT in the way of transparent accounting and cost allocation principles. It is also apparent that OFTEL will become increasingly embroiled in the process of establishing access charge arrangements. What seems inevitable in the United Kingdom—and perhaps ultimately in the European Community—is that both new entrants and users will see themselves having a greater and greater stake in the process of rate rebalancing and structuring access tariffs. However, the necessary tools and regulatory skills to oversee this complex process are not readily available. European regulators may have to begin a serious exploration of new procedures for the resolution of disputes arising from intensified levels of competition.

Replication of the institutional structure and procedures of American or Canadian agencies is certainly no answer to the difficult challenges that European regulators will be facing. Truly novel institutional arrangements will have to be devised in order to be responsive to the structure of competition that is introduced into each different national market. Regulators in Europe are being drawn into an increasingly contentious debate over the high level of international tariff charges and the long-term viability of international settlement mechanisms. It is not likely that either national regulators or competition authorities in Brussels, who have been undertaking an investigation of international rates and settlements, can or should deal with the restructuring of the international settlement mechanism. However, political and regulatory pressures, as well as new competitive policies, will eventually reduce subsidies for local services from international services. As these subsidies are drained away, PTTs will find themselves in the position of having to make
Implementing Reforms in the Telecommunications Sector

significant rate level and structure changes in order to finance adequately future infrastructure investments.

These international price pressures are significant indeed in the long run. The dependency of PTTs in Europe and beyond on international revenues will be reduced, and preparations for radical pricing changes must be undertaken. Regulators in Europe will find themselves having to deal more frequently with PTT-devised rate rebalancing proposals.

Recent Developments in Japan

Telecommunications policies in Japan, like those adopted in the United States, have relied heavily on a strong commitment to competition on an across-the-board basis. However, Japanese policy has been based on establishing a clear demarcation between competition in the provision of facilities and competition in the provision of services. Providers of facilities are designated as Type I service providers, providers of services as Type II service providers.

Japanese policy has also endeavored to maintain a distinction between the policies applicable to the provision of services domestically and internationally. In particular, one of the most distinctive aspects of the Japanese telecommunications scene has been the effort to compartmentalize the roles of domestic and international providers of telecommunications service. As discussed in detail below, some critical elements of Japanese telecommunications policy may undergo some re-evaluation in the next several years.

Looking at the Consequences of Competition. Since the enactment of the Telecommunications Business Law in 1984, Japanese policymakers have permitted far-reaching competition in both the domestic and international sectors of their telecommunications market. However, the consequences of such competition in the international and domestic segments of the Japanese market have been quite different; changes initiated since 1984 are likely to set in motion even more far-reaching changes in the coming years.

Both Kokusai Denshin Denwa Company Limited (KDD) and Nippon Telegraph and Telephone Corporation (NTT)—which had traditionally dominated the international and domestic segments of the Japanese markets—were confronted with new entrants but were not permitted or encouraged to compete with each other. KDD was confronted with two new Type I facilities-based competitors, International Telecom Japan Incorporated (ITJ) and International Digital Communications (IDC), as well as with a number of service-based special Type II carriers known as international value added network providers, or IVANs. NTT now confronts three Type I competitors that have constructed terrestrial networks within Japan, as well as two other Type I facilities-based competitors utilizing satellite services. Literally hundreds of new entrants have been authorized to compete with NTT in providing value added network services.
In the international segment of the Japanese telecommunications market, KDD has been able to respond rather dramatically to price reductions introduced by the new entrants ITJ and IDC. The rationale for such a competitive response, which convinced the Ministry of Posts and Telecommunications (MPT) officials wary of permitting NIT to respond in a similarly vigorous way to its domestic competitors, was provided by dramatic evidence of loss of market share by KDD. KDD's ability to react strongly to new entries, has, however, had some disruptive consequences for new competitors. In the longer run, it may require these entrants, or Japanese policymakers, to question whether fusion between domestic and international new entrants should be permitted. Alternatively, it may open a new debate, even in the extraordinarily cautious Japanese environment, about whether NTT should be permitted to become a provider of international services.

The introduction of competition in the Japanese domestic sector is also somewhat of a mixed success. In some ways, all the players in the market may be dissatisfied with the status quo. New Type I entrants were encouraged to discount their prices significantly below those of NTT; however, they were discouraged from competing with one another. NTT, for its part, was often constrained from responding to new entrants by lowering or restructuring its own prices.

Two years ago the MPT deferred any decision on the restructuring of NTT for five years; it imposed on NTT a number of competitive safeguards intended to assure fair competition in the Japanese market. NTT has been required, for example, to convert its powerful data subsidiary into a separate independent entity. It has also been required to keep separate accounts for its different lines of business. Nevertheless, NTT has generally been subject to less stringent or explicit regulatory safeguards than were applied in the United States to AT&T before the divestiture.

The result of Japanese policy has been to leave new domestic entrants in a position in which they are highly vulnerable to competitive forays by NTT. In turn, NTT has been, at least until recently, significantly inhibited from responding vigorously in the new competitive environment. Many observers believe that the lack of a formal regulatory process in Japan has significantly impaired the emergence of a vigorous competitive environment.

DEVELOPING MORE FORMAL AND TRANSPARENT REGULATION. It is often observed that significant changes in industry structure and competition policy inevitably require changes in legal and regulatory arrangements. The Japanese experience with telecommunications reform is, however, a significant exception to this rule. The traditional mechanisms for government oversight have tended to linger on and have changed only in limited ways compared with the radical shift in Japanese policy toward new entry that were mandated by the Telecommunications Business Law.

Only time will tell whether pressures will grow for a more formal and transparent regulatory process in Japan. Japanese observers repeatedly point out that the mechanisms utilized in the United Kingdom are not well suited to the administrative and cultural style of Japan. The Japanese MPT, however, is beginning to deal in a more open manner with controversies over access issues and the future.
Implementing Reforms in the Telecommunications Sector

development of open network architectures. Foreign entrants in the Japanese market, and even new Japanese competitors, have criticized the closed mandarin-style decisionmaking of the past as being insufficiently open and responsive in coping with the difficult transitional issues and disputes created by a competitive telecommunications sector. Japanese policymakers will soon be forced to address head-on some of the difficult questions faced in the U.K. duopoly white paper. In particular, they will have to decide how NTT can be more effectively permitted to respond to pricing initiatives of the new domestic common carriers.

REASSESSING INDUSTRY ARRANGEMENTS. Although the Japanese MPT was not scheduled to revisit fundamental questions about NTT's structure until 1993, pressure certainly existed to consider the implications and results of the far-reaching sectoral restructuring undertaken in Australia, where the role of international and domestic service providers had historically been kept separate; however, Australian policymakers decided to merge Telecom Australia and Overseas Telecommunications Commission (OTC) and to permit duopolistic competition by privatizing and opening to foreign investors the Australian satellite provider, AUSSAT.

Although it is certainly risky to make predictions about the future direction of Japanese telecommunications policy, the results of the U.K. duopoly review and the major restructuring under way in Australia seem likely to make a substantial impression on the thinking of Japanese policymakers. Because the Japanese are already committed to the open-entry policies permitted in the U.K. following the duopoly review, the review's tough-minded recognition of the problems of overseeing competition between BT and Mercury is bound to become a benchmark for evaluating the status and effectiveness of current Japanese policies toward umpiring competition between new and established entrants. Moreover, the Australian decision to blur distinctions between domestic and international service providers is likely to be studied carefully in Japan by competitors and policymakers concerned with the viability of the current industry structure.

Ultimately, it seems reasonable to predict some significant changes in the Japanese approach to structuring its telecommunications sector in the next few years. Advocates of divestiture within NTT may grow in number and significance. Many key decisionmakers in Japan are not convinced that all parts of NTT are of equal strategic significance. During the last review of NTT's structure, there was a substantial body of opinion that the overall value of NTT would be increased through restructuring and divestiture. There is certainly a respectable case to be made that NTT would become a more efficient and a more effective competitor if it were not so constrained by the MPT. The dilemma of Japanese policymakers is that there may be no significant way to increase NTT's competitiveness without further major structural reforms.

Such reforms might well seek to ensure that any step to break or at least to formalize ties between NTT’s local exchange and interexchange businesses would be accompanied by increased flexibility for NTT to operate as an international service provider. In turn, if NTT is permitted to integrate outward to become an interna-
Restructuring the Telecommunications Sector

tional service provider, KDD is sure to be allowed to integrate inward and become a provider of domestic services. It would seem, however, that some of the solutions rejected in Australia—permitting the former international carrier, OTC, to become a domestic competitor of the established domestic carrier, Telecom Australia—would be more viable in the Japanese context than permitting the established carriers to merge in order to compete against some configuration of new entrants.

REVISITING REGULATORY DISTINCTIONS IN THE INTERNATIONAL ARENA. Other elements of the reforms adopted in the 1985 Telecommunications Business Law have also proved less workable than the Japanese might have anticipated or hoped. For example, as might have been predicted, the distinction adopted in the international arena between facilities-based Type I carriers, (such as ITJ and IDC) and the IVANs, has turned out to be a difficult one to maintain in practice. The primary difference has been that Type I carriers negotiate directly with cable consortia owners and with International Telecommunications Satellite Organization (INTELSAT) and IVANs do not. Moreover, Type I carriers can offer switched voice services, whereas IVANs cannot; however, as pressures grow for managed network voice and data services, the Type I—Type II distinction may prove to be untenable internationally.

Because of pressures from U.S. trade negotiators, the Japanese have also had to relent and permit more leeway for flexible use of leased international circuits by entities that are not classified as IVANs. The U.S.-Japan IVAN agreement negotiated in 1992 established that customers of leased circuits had certain leeway to offer intracorporate networks and were not required to be treated as carriers. Overall, however, the Japanese have adamantly insisted that the CCITT’s (Comité Consultatif International Télégraphique et Téléphonique) D Series Recommendations did not permit various types of third party activities that have been freely authorized in a European country such as the Netherlands that has a liberal and flexible approach to the use of international circuits. Given this posture, the Japanese have insisted on negotiating carrierlike interconnection agreements with the United Kingdom and a number of other European countries, as well as with Hong Kong and countries in Southeast Asia.

Ultimately, movement toward liberalizing the D Series Recommendations, along with pressures from large users, may require the Japanese to further relax their insistence on formal interconnection agreements for IVANs. Their stance internationally has tended to confuse the distinction between customers and carriers. It has placed the Japanese squarely in the camp of not permitting third-party uses by customers of leased circuits that clearly are not carriers unless such non-telecommunications entities are subjected to MPT regulatory licensing.

Not surprisingly, such a rigid licensing policy is better suited to the consortium-oriented approach taken by Japanese companies that have emerged as providers of international value added services than to the interests of foreign financial or other service organizations seeking to gain access to the Japanese market. In spite of the fact that the Japanese IVAN policy framework has proved resilient in response to
Implementing Reforms in the Telecommunications Sector

criticism from Japan's trading partners, the heavily regulation-oriented policy toward IVANs does not seem likely to be sustainable in the long run. The Japanese may eventually be required to collapse their distinction between Type I and Type II international carrier. In turn, there should be more receptivity to allowing ordinary users of leased circuits more freedom to operate without being subject to MPT regulation.

REASSESSING FACILITIES-SERVICES DISTINCTION. In 1985 when the Telecommunications Business Law was adopted, Japanese policymakers proudly proclaimed that their distinction between service-based and facilities-based competition was more progressive and less prone to definitional ambiguity than the FCC's distinction between basic and enhanced. Slowly but surely the Japanese have had to retreat from this posture. For example, they have had to add a gloss to their typology for international services to permit, in effect, only enhanced facsimile services. As noted above, the facilities-services distinction has proved difficult to apply internationally.

As useful as this important distinction proved to be in the years immediately following the adoption of the Telecommunications Business Law, it now seems apparent that a more defined and sophisticated approach to definitional boundary lines will be required in Japan and in other countries as well. It has turned out, in fact, that the Japanese never meant to imply that domestic Type II service providers could offer all services. The resale of switched voice services never proved to be a practical option for Type II providers because of NTT's refusal to permit such practices and the MPT's acquiescence in such a carrier-imposed gloss on the definition of the services opened to competition.

Japanese telecommunications reform has tended to enshrine the distinction between services and facilities. For reasons set forth in detail below, it may also be important for policymakers to take a closer look at the concept of a provider of facilities or infrastructure. It might well be useful to develop a new concept of the role of an infrastructure provider. Such a new approach might distinguish between the ownership and operation of transmission and switching assets when provided to carriers and when provided to the public at large. Establishing such a distinction might create flexibility for new sources of investment, either private or foreign, in countries that have been cautious about preserving control over the telecommunications sector. The real lesson of the Japanese experience—and indeed a lesson of the experience with telecommunications reform in other countries—is that sectoral structuring is a highly dynamic process. Stability is not one of the hallmarks of the telecommunications policymaking process. Policymakers must be prepared to deal not with a static environment, but with one that is likely to change in kaleidoscopic fashion.

Experiences with Divestiture and Deregulation in the United States

The American experience with telecommunications reform is almost inevitably written off as unique and of limited relevance to countries that are geographically smaller or are still in the process of developing their infrastructure. Nevertheless, there are a number of aspects of the American experience with deregulation and
Restructuring the Telecommunications Sector

divestiture that are likely to be important for policymakers in other countries to take fully into account.

Commentators on the American scene, especially those who view it from abroad, inevitably focus on the fervor with which American policymakers have sought to open to competition virtually every sector of the telecommunications industry. Indeed, much attention is directed at what is often viewed as an excessively zealous, even misguided, effort to sever—through the modified final judgment (MFJ) that ended the Department of Justice's antitrust suit against AT&T—the nexus between the provision of local exchange and interexchange services on the part of the seven RBOCs that emerged from the MFJ. Whatever the merits of continuing in place the MFJ's restrictions on the RBOCs, some important practical consequences of the restrictions imposed are often overlooked, especially by foreign observers of the American scene.

Restructuring of Telecommunications Pricing. Perhaps the most significant impact of divestiture has been its acceleration of the pace of the restructuring of telecommunications pricing in the United States. The RBOCs have been given a significant impetus to make their local exchange businesses profitable. Their desire to stimulate new utilization of their networks by offering the functionalities of the local network to third-party service providers and their desire to escape the line of business restrictions of the MFJ have led the RBOCs to play a constructive and leading role in developing the FCC's ONA initiative. Pricing of local access capabilities has become very cost oriented, and service offerings have become increasingly diversified and unbundled.

Adopting Demand-Driven Policies. Another important consequence of policies adopted in the United States over the past two decades is that the country has evolved a truly demand-driven approach to the marketing of infrastructure. The FCC has reported that there is now four times the network transmission capacity that existed in 1984 at the time of the AT&T divestiture. Price reductions over the past seven years have demonstrated dramatically that there is significant elasticity of demand for long-distance service. The experience of the past decade illustrates that the market has extraordinary capability to absorb new transmission capacity that is provided both through carriers and through intermediaries who have installed transmission capacity to lease to carriers.

Coping with Disparities. The FCC has wrestled with disparities in market position between established and newer entrants, a problem that besets or will beset regulators around the world as competition is opened up in the sector. The FCC is exploring in particular how to deal with special discount offerings for large customers and whether to allow AT&T significant new degrees of freedom to price its services. The FCC's energies are now being focused as well on complex issues involved in properly setting the level and structure of access charges for new providers of interexchange and local exchange services. It is also concerned with
Implementing Reforms in the Telecommunications Sector

how the pricing in FCC tariffs of separate service elements available as a result of the FCC’s ONA initiative might affect comparable service capabilities available under state tariffs.

INTRODUCING PRICE-CAP REGULATION. Along with OFTEL in the United Kingdom, the FCC has had a pioneering role in developing effective new ways of overseeing rates of interexchange and local carriers. In shifting its focus from rate of return to price-cap regulation, the FCC has differentiated, at least in terms of the timing of implementation of its new approach to rate regulation, between AT&T’s interexchange services and RBOC’s local exchange services. In its price-cap proceeding, the FCC confronted enormously difficult issues that are often glossed over in discussions about price-cap regulation in European regulatory forums. The agency has addressed the difficult question of whether it would be appropriate to cap existing rates without determining how related to cost they might be. It focused on whether there should be one or several different price caps for different sets of services. And finally, the FCC addressed the need for periodic review and readjustment of results as a consequence of the application of the new regulatory regime.

FACING THE TRANSITION TO COMPETITIVE MARKETS. For all the criticism hurled at the American regulatory process, it cannot really be denied that American regulators have devised workable solutions to some intractable problems that their counterparts in the United Kingdom and Australia, in particular, are just beginning to confront. The American experience suggests that regulatory proceedings ought to be conducted in a less onerous and litigious way. It also suggests, however, that there is no escape from confrontation over the hard task of overseeing the major transformation of a once monopoly-dominated sector into one that is effectively competitive. Policymakers elsewhere who hope to effectuate similar sectoral changes will have to steel themselves to the fact that competition cannot be introduced without more complex regulatory oversight of the telecommunications sector, at least in a transition period.

DEALING WITH FRAGMENTED REGULATORY JURISDICTION. A final important aspect of the American regulatory process is the persistent and successful effort at sharing regulatory responsibilities between federal and state authorities. The FCC has grown adept at this process in the face of an increasingly hostile legal environment that has required the agency to negotiate with state public utility commissioners rather than mandate important regulatory initiatives that affect the states.

This aspect of the FCC’s experience may be of particular interest and relevance in the few but important situations around the world in which the sharing of regulatory power among central and local authorities is an important issue. The American experience has parallels in Europe, where the Community is striving to integrate telecommunications policies on a national and regionwide basis. In the former Soviet republics, the People’s Republic of China, and Canada procedures
and protocols for allocating regulatory and policymaking responsibility are of critical importance as well.

SPILLING OVER OF U.S. DEVELOPMENTS IN THE INTERNATIONAL ARENA. The American regulatory experience is less important for policymakers overseas because it may be a model for restructuring than because changes in the U.S. telecommunications sector have a way of affecting the dynamics of other important national markets and the international telecom market as a whole. The most important such impact has been, and will continue to be, the extraordinary pressure exerted by U.S. price levels and structures on the level of international tariffs. Pricing reductions for international services have become a fact of life. Telecommunications administrations around the world that historically depended on international tariffs will have to adjust to this reality.

The other major trend that is likely to evolve out of the American scene is an increasing tendency for international services to be provided on an end-to-end basis with the assistance of sophisticated network management techniques. Traditional correspondent relationships will not disappear, but they will be supplemented by a new range of business relationships between foreign and local carriers. As will be discussed subsequently, there may be a new impetus for international carriers to become more involved in the construction of infrastructure for international services in overseas markets. There may be techniques for facilitating these new roles that minimize interference and involvement by major international carriers in the operations of their overseas partners in smaller markets.

Sectoral Reform in Smaller Markets: Finland, New Zealand, Australia

Because of the large scale and developed status of the telecommunications sector in many industrial countries, it may be tempting to conclude that any lessons derived from the experience of such countries have limited applicability to smaller countries that are still developing their infrastructure. Hence, it may be of particular interest to consider the situations of three small industrial countries—Finland, New Zealand, and Australia—that are in varying stages of introducing highly competitive industry structures.

REFORMING TELECOMMUNICATIONS IN FINLAND. For many years Finland has had a highly complex industry structure in which public and private sector entities have had important roles. The Finnish PTT has been in recent years converted from a government ministry into a public corporation, Telecom Finland, whose shares are held by the government. It is responsible for interexchange services within Finland as well as internationally. It is also a provider of local exchange services in many small communities.

The largest local telephone companies, those serving the cities of Helsinki, Tampere, and Turku, as well as many other local telephone companies are operated by cooperatives of the local companies' subscribers. These local companies have
been able to form an independent carrier, Datatie, which can offer leased-line and private network services for customers. It is likely that Datatie may soon be authorized as an interexchange carrier for the second Global System for Mobile Communications (GSM) cellular carrier in Finland. As a result of competition from Datatie, Telecom Finland has engaged in a major rebalancing of its tariffs, which has resulted in significant price reductions for Finnish subscribers. The competition between Datatie and Telecom Finland is the basis for full competition in switched voice services at all levels, which will be allowed in 1994. The complex competitive environment is overseen by an independent regulatory agency, the Telecommunications Administration Centre, in the Ministry of Telecommunications. This body is responsible for ensuring the evolution of a fair and effective competitive environment.

DEVELOPING COMPETITION IN NEW ZEALAND. In New Zealand the government moved aggressively to privatize Telecom Corporation of New Zealand Limited (TCNZ). In 1990 Bell Atlantic and Ameritech acquired the shares of TCNZ with an expectation that their stake in the company would be reduced to less than a 50 percent interest within two years.

Policymakers in New Zealand opted for an entirely open market. New entrants are able to offer either interexchange or local exchange services. Instead of creating a new regulatory body, New Zealand officials have taken the unusual step of relying on the country's Commerce Act, its basic competition law, to oversee the evolution of competition. In practical terms, the absence of a regulatory process may place TCNZ in the difficult position of determining how far it can go in rebalancing its pricing in response to competition. New Zealand authorities have not mandated the development of any specific accounting standards or cost allocation principles. Consequently, the company has had to take the initiative itself to justify the various rate packages it hopes to implement. Moreover, as a practical matter TCNZ has been constrained from increasing its local tariffs; instead, it has proposed and justified reductions in long-distance tariffs.

TCNZ's ability to adjust to a competitive climate is clearly a result of its privatization, which has produced a substantial reduction in its work force. Increasingly, TCNZ has been contracting out for all but the most essential services. New Zealand thus is a fascinating and important laboratory in which the effects of both privatization and open-entry policies in small markets can be assessed. In particular, the process of sectoral reform in New Zealand will illustrate how well government officials can seek to oversee a competitive environment with only a minimal regulatory regime centered around competition law principles.

REFORMING THE SECTOR IN AUSTRALIA. After extended debate over a number of different restructuring options, the Australian government decided to merge the two major players on the Australian telecommunications scene, Telecom Australia and OTC into a single new entity now called Telstra. This new entity combined the small but highly market-oriented international carrier OTC with its gigantic
domestic counterpart Telecom Australia, which many observers viewed as slow moving and overstaffed. It was to face across-the-board competition from the heavily debt-ridden and money-losing national satellite carrier AUSSAT, which was offered for sale to consortia of Australian and foreign interests.

Prior to the sale, the Australian government had to simultaneously wrestle with two difficult and interrelated concerns: (1) which consortium was to be permitted to buy AUSSAT and on what terms and conditions, and (2) what arrangements for combining OTC and Telecom Australia would be adopted and what competitive safeguards for the introduction of competition would be implemented. In particular, government policymakers—along with the Australian Telecommunications Authority (AUSTEL), the independent regulatory body—had to devise a set of access arrangements through which the new entrant and perhaps even Telstra could utilize local exchange capabilities. Undoubtedly, potential purchasers took a keen interest in what flexibility Telstra had in order to respond to offerings by its newly privatized competitor.

To establish a yardstick to assess Telstra’s response to competition, Australian policymakers may have to mandate Telstra to conduct extensive cost-accounting and cost-allocation analyses. Thus, the recent experience of American regulators and OFTEL’s recent policy determinations in its duopoly white paper are likely to be of great relevance to Australian policymakers. Policymakers in Australia also had to grapple with the reality that they could not easily attract new investors without a clearly defined set of regulatory initiatives setting forth the basic parameters in which competition is likely to occur.

The balances that ultimately were struck in Australia should be of interest to policymakers around the world who are contemplating, or are in the process of, privatization. The Australian experience should fundamentally test the tolerance of investors for arrangements where privatization and vigorous competition coexist. A well-structured competitive environment may offer the best possible assurance to investors that both new players on the Australian scene are well motivated to structure their operations in the most efficient way.

**CONSIDERING OPTIONS BEYOND THE EC CONSENSUS.** The important lesson that can be drawn from the experience of all three of these countries is that a full range of restructuring options going well beyond the consensus embedded in the 1987 EC Green Paper are practical and worthy of careful consideration. That the national markets of these three countries are small by comparison should not alter policymakers’ analysis as to how much competition may be viable.

**Some Implications of Recent Sectoral Restructuring Efforts**

The following summarizes a number of observations about the sectoral restructuring processes under way in industrial countries around the world that may have some relevance to countries still developing their infrastructure.
Implementing Reforms in the Telecommunications Sector

Options for Reform

Policymakers should not necessarily limit the range of options to those that have evolved in countries with well-developed infrastructures. Where there is a pressing need for new infrastructure to serve the needs of users, a full range of options for encouraging new investment should be fully explored. In particular, telecommunications users and new service providers with access to foreign-exchange resources should be permitted to invest in facilities that can be utilized in connection with a PTT's facilities. Very small aperture terminals (VSAT) satellite networks may be one way to provide services rapidly in the face of facilities shortages. The experience of German regulatory officials in encouraging voice telephony services between the eastern and western regions of Germany should be carefully studied. In general, satellite networks should not be limited to nonvoice services and precluded from offering switched voice services where reliable transmission links are urgently needed. As is more fully set forth below, there may be other effective ways of meeting demand and encouraging independent entrepreneurs to become retailers of services marketed through a PTT's network. The experience of smaller industrial countries also suggests that there is room for new providers of infrastructure and that fair terms and conditions of competition can be structured between new and established service providers. Overall, PTTs are likely to be well served by liberalizing arrangements through which telecommunications users can utilize leased circuits and add their own switching and application-related information processing capabilities. Telecommunications carriers should permit broad flexibility for users to tailor the networks and capabilities that are necessary for key sectors of the national economy, such as banking, transportation and tourism, and manufacturing activities. Carriers should recognize that such specialized networks often will entail third party or shared use of networks and may even involve the resale of pure telecommunications transmission services.

The practical effect of liberalizing the provision of value added networks and of ancillary transmission facilities such as VSATs will be primarily to attract new sources of investment and to put PTTs in the position of becoming more oriented to the needs of their customers. Permitting new entrants and new services should help in tapping new sources of investment necessary to develop telecom infrastructures.

Options for Increasing Self-Financing Capabilities

Telecommunications operators should recognize the crucial importance of improving their capability of financing new infrastructure investment through measures that increase revenues and cut costs.

Restructuring Tariffs. One of the most critical steps is for a PTT to begin to redress historic tariff imbalances which have generally resulted in local tariffs being too low and interexchange tariffs being too high. Raising local tariffs does not generally appear politically expedient. However, the experience of countries that
Restructuring the Telecommunications Sector

have been restructuring their telecommunications sectors strongly suggests that repricing local services is imperative.

One of the consequences of liberalization and deregulation around the world has been the reduction of interexchange and international tariffs. Maintaining international and interexchange tariffs at traditional levels places national telecommunications users at a competitive disadvantage in an increasingly globalized economy. Pricing policies that are not set on an efficient basis and are not consistent with international benchmarks are also likely to place the telecommunications operator at a competitive disadvantage in seeking to raise financing in international capital markets. The efficiency of telecommunications pricing may often be a determining factor in foreign investors' decisions about where to locate plants as well as service industries dependent on computer-processing capabilities.

Another reason for moving promptly to adjust tariff structures is that both collection and settlement rates for international services are steadily being reduced as a result of pressures in the international arena. Such services have traditionally contributed a disproportionately high percentage of PTT profits. Failure to put in place new tariff structures to offset expected lost international revenues could place a PTT at a serious disadvantage.

Reductions in international and interexchange tariffs may often contribute to significantly higher levels of calling. Although profit margins may decrease, a PTT may have opportunities to maintain the current level of contribution to its profits from international services through increased calling volumes. Such a strategy requires, however, that a PTT take increased demand into account in its facilities planning.

A PTT may also be able to identify means of increasing local tariffs on a selective basis. For example, if an overlay network of new digital facilities is implemented, users of these new facilities might be expected to pay local exchange charges that are set at international levels.

INCREASING EFFICIENCY THROUGH ORGANIZATIONAL REFORM. There are a number of approaches to reducing costs at a PTT. Such initiatives often involve fundamental changes in organizational or management structure. Privatization may, of course, create significant incentives for cost cutting. Private investors inevitably will demand substantially more information about operating results and will expect management to follow through on its cost and revenue projections. Improvements in management performance can also be obtained through more limited measures that transform a PTT from a government department into a corporate entity whose shares are owned by the government.

Corporatization usually results in a complete reexamination of a PTT's relations with the state. Commercial considerations will weigh more heavily in determining how funds are invested by the state or borrowed from public or private lenders. A PTT's dividend policy might be restructured to conform with the practices of private corporations. A PTT might also expect to pay both corporate and excise taxes in the same way as private corporations. In addition, a PTT might be given leeway to collect accounts payable without taking into account the governmental
Implementing Reforms in the Telecommunications Sector

status of its debtors. In this way, a PTT could be prevented from making de facto transfer payments to support the operations of entities responsible for other areas of governmental activity.

Mere changes in the legal status of a PTT may not make it more aware of the profitability of its various lines of business. A PTT may also have to improve its cost accounting systems to make it possible to measure the performance and profitability of its various lines of business.

Decentralizing Operations of PTTs. One useful technique for increasing the awareness of managers of the profitability of a PTT's business is to decentralize its organizational structure. A first step can usually be taken with respect to new business activities such as the provision of data networking, terminal equipment, or cellular services. Such activities can be set up as separate subsidiaries incorporated under private law (usually even where a PTT operates as a public corporation). The creation of subsidiaries also facilitates the establishment of joint ventures and investment in a PTT's business by domestic or foreign entities. It may also be useful to consider breaking a PTT down into core businesses such as local exchange, domestic interexchange, and international services. The implementation of cost accounting and allocation systems should facilitate the identification of specific business initiatives necessary to increase profits or to reduce operating deficits.

Another approach might be to begin the process of reorganization and restructuring within the existing organizational structure but establish a parallel corporate structure that could be utilized as a vehicle for attracting new investment in infrastructure. New entities could be created to own and potentially manage new infrastructure assets and would be established with up-to-date management systems. A PTT could also be reformed by gradually shifting more and more operational responsibilities from the old PTT structure into a parallel new business unit. In effect, a new institutional structure might be established as an overlay on the traditional structure. In a similar way, new network facilities would be added as overlays to the existing network infrastructure.

One important advantage of decentralizing existing organizational structures is that managers would be required to negotiate explicit transfer prices for services provided within a PTT. Services that could not be performed efficiently by PTT staff could be contracted out. The operators of interexchange services would have to contract with local exchange service providers to terminate circuits; however, if transfer prices were set too high, an interexchange business unit could be permitted to make independent arrangements for local loops, in effect bypassing the local exchange operating unit. Through such a strategy, policymakers would be, in effect, setting in motion institutional rivalries within a PTT that might spur more efficient performance. These efficiency-producing benefits could be obtained even where no decision had been taken to permit competition by entities other than a PTT.

Encouraging Infrastructure Development through Cooperative Arrangements. In addition to decentralizing existing business units within a PTT,
it may also be appropriate in some countries where a great unmet demand exists to encourage new entities or suppliers to build out the ends of a PTT's network. Under such arrangements, described in greater detail in chapter 31 a PTT would authorize private entities to construct segments of the local network. These would be connected to the PTT's network, subject to a franchise agreement that would set out technical interface standards and the division of revenue between the PTT and the new entity. The franchise agreement might provide for the PTT to purchase the assets of the franchise in exchange for stock in a privatized PTT at a later stage. Local cooperatives might be established to take on such franchises.

This approach could facilitate the raising of investment capital for infrastructure development, offer a training ground for a new class of entrepreneurs and managers, and stimulate the development of specialized equipment and billing systems. The development of new local cooperative companies would thus become an important mechanism for preparing a PTT for privatization.

Utilizing New Methods for Financing Infrastructure. As already discussed, there may be novel mechanisms for attracting private investment into a PTT even without initially selling shares in it. For example, a structure of financing entities that would enable a PTT to attract sources of private or foreign investment capital for the construction of new infrastructure might be established. These entities could be structured to finance the construction of local exchange facilities in particular cities or regions or in the country as a whole and then lease these facilities to the PTT. They could also be utilized as a vehicle for attracting capital for particular business initiatives such as the development of cellular services or packet-switching networks. Such an asset-based financing approach is also discussed in detail in chapter 31.

Developing a Comprehensive Plan for Financial Recovery of a PTT. Both the utilization of a separate financing mechanism and initiatives to encourage new investment on the peripheries of a PTT's network should help establish the necessary groundwork for a PTT to privatize. Investors should view these as significant and useful steps, which should increase the success of the privatization process.

It makes little sense to rush toward privatization without addressing a number of threshold problems, including most of the issues that must be confronted in the process of corporatizing a PTT. Certainly among the most important concerns are reassessing the structure of government-held debt, defining dividend expectations of the government with respect to shares retained, and delineating the ongoing control relationships between a PTT and the state (including board representation and mechanisms for holding and voting shares).

The timing and sequence of privatization thus become matters of crucial importance. The incumbent management of a PTT and the state may not be ideally suited to undertake the important initial steps involved in privatization. Still, moving too quickly may ultimately diminish the value of the government's stake in
Implementing Reforms in the Telecommunications Sector

a PTT. This could leave few options other than replacing government control with control by one or more outside investors.

**Overall Approach to Sectoral Reform**

Any consideration of privatization as an option must be undertaken in the context of a thorough review of options for restructuring the telecommunications sector as a whole. Modernizing and privatizing a PTT alone is seldom likely to provide the necessary impetus for the full development of the telecommunications sector as an engine for economic growth. It is a mistake to conclude that a PTT, or even a privatized PTT, can meet all the needs of all the industry sectors dependent on telecommunications services; thus, diversification in supply of equipment and service capabilities is essential. Moreover, the careful introduction of competition into the telecommunications sector is likely to prod a PTT into performing more effectively and efficiently; competitive pressures in the sector also minimize the burden on regulators to assure that, once privatized, a PTT does not abuse its advantageous position in the market.

Notwithstanding the important benefits of competition in the sector, the privatization process can often create pressure from those responsible for selling a PTT to maintain it as an exclusive provider of certain services, such as switched voice services. It is not always clear, however, that these concerns about limiting competition are well founded. The real and legitimate concern of investors is, or should be, that the parameters for future regulatory and competitive arrangements are explicitly and clearly delineated and provide for a level playing field. Investors should not necessarily be concerned about competition in the sector; rather, their concern should be that the regulatory and competitive environment will not be capricious and unpredictable.

**Regulatory Mechanisms for the Sector**

Often it is easier for policymakers to maintain the regulatory status quo than to attempt to undertake the daunting task of defining a new regulatory environment. It is beyond the scope of this discussion to detail fully the issues that must be addressed in structuring a new regulatory framework. Nevertheless, some of the most difficult issues center around how to oversee the pricing of a PTT that is to undergo restructuring and face competition for the first time.

**OVERSEEING THE PROCESS OF RATE REBALANCING.** There is usually no easy way to initiate the process of rate rebalancing. Policymakers can know with confidence the direction in which rates must be revised; usually, local rates must be increased by a factor of three or four and international rates must be lowered. How this process is initiated can be an important and controversial issue, especially in nonmarket economies that concurrently are introducing principles of the free market and of democratic control. In such countries it may often be politically unacceptable simply...
to accede, without analysis and deliberation, to a new rate prescription developed by a former or soon-to-be former state monopoly. Ministry officials or even legislators will insist that a PTT provide information justifying rate changes; they will want to be involved in the process of developing new rates. Insistence on public control can, however, easily lead to populist resistance to the unpleasant consequences of necessary price restructuring. Thus, it is necessary to devise new procedures that not only permit public participation and input but also expert analysis of complex pricing issues.

**ASSESSING THE PITFALLS OF PRICE-CAP REGULATION.** Introducing a form of price-cap regulation can often be an important step forward. However, price-cap regulation can be counterproductive if the proper prices are not set before the application of a price cap. Policymakers in some countries have sought to develop a scheme of international benchmark prices. Devising these benchmarks may be an extraordinarily difficult task and may not adequately reflect conditions unique to a national market. Nevertheless, reference to pricing levels and practices in industrial countries can be a good starting point for rate-rebalancing proposals.

In implementing price-cap regulation in an environment where a PTT has been a monopoly and may remain an exclusive supplier of some essential services such as local exchange services, two particularly difficult policy issues are (1) how many price-cap baskets to structure and what services to include in them, and (2) how to deal with the special problem of setting prices for access to the local network. In the United States, a number of different baskets were created to differentiate among AT&T's various interexchange services in which AT&T was viewed as having differing market shares and potential for cross-subsidization. Similarly, an even larger group of separate price-cap baskets were implemented for local exchange services provided by RBOCs.

**STRUCTURING INTERCONNECTION ARRANGEMENTS.** Although it is a difficult task to devise interconnection arrangements, a good start is to base such arrangements initially upon contractual negotiations between a PTT and the competitive entity or the users requiring network access. Policymakers, can, however, insist on some basic principles, such as nondiscrimination by the PTT among similarly situated users and between entities affiliated and unaffiliated with the PTT. Whether interconnection arrangements must be equal or merely comparably efficient is a question with which policymakers have grappled in many industrial countries, especially the United States.

**DEVELOPING COST-ACCOUNTING AND ALLOCATION SYSTEMS.** Assuring that pricing is cost based or cost oriented is difficult to achieve in practice. PTTs often have inadequate business accounting systems that are based on functional rather than on line-of-business accounting principles. Deciding on proper cost-accounting and allocation systems is an inexact process. However, it may be useful for officials responsible for overseeing a PTT to encourage the adoption of business
Implementing Reforms in the Telecommunications Sector

accounting schemes that permit an assessment of the profitability of different business activities of a PTT. One of the advantages of creating separate subsidiaries is that costs and revenues can be effectively accounted for.

Utilizing Competitive Entry as a Regulatory Tool. Implementing effective cost-accounting schemes is a process that cannot take place in isolation from a well-focused effort to introduce competition into the telecommunications sector. Competitive entry will tend to encourage a PTT to take a closer look at its operational costs and its pricing practices. There is, of course, substantial potential for predatory pricing by a PTT anxious to maintain its traditional market share when first confronted with new competition. Regulators may be inclined to assure the viability of new competitive entrants; thus, they may hesitate to approve a PTT’s efforts to meet competition with new pricing plans, particularly discount pricing targeted at large users. As noted above, NTT has been quite constrained in its ability to respond to new entrants. In the United Kingdom, the duopoly white paper addressed for the first time a concrete scheme for allowing BT increased flexibility in offering discounted pricing options for its customers.

As much as regulators may wish to shy away from the quagmire of addressing cost accounting, cost allocation, and pricing issues, they may avoid facing these issues only at the risk of impairing the rapid and effective emergence of competition in the telecommunications sector. Regulators must be able to devise dispute-resolution mechanisms that permit carriers and users affected by price changes to accommodate their differences. PTTs in the process of restructuring must be allowed leeway to implement pricing structures that will encourage new investment. However, these policies must also permit a competitive environment to flourish.

It is important to ensure that when new and established entrants are competing in the same market, they are subject to comparable licensing schemes and regulatory burdens. However, regulators must also recognize that special importance attaches to the negotiation of a regulatory framework or concession for the operation of a PTT. Such a framework must explicitly address competitive safeguards or special obligations essential to ensure the viability of any new competitive initiatives that are to be adopted.

Separating Regulatory Functions and Establishing Open Procedures. As discussed, questions concerning regulatory structure and process are extraordinarily important and will affect policy outcomes. There are many ways of approaching the separation of regulatory, operational, and ownership functions that have, in many countries, been centered in the same institution. The core concern of policymakers should be to assure that these separate roles are kept in separate hands as fully as possible.

A vigorous and aggressive competitor cannot be a fair umpire. Likewise, the role of devising effective regulation for a PTT involves quite different concerns than must be addressed by a chairman of the board of a large enterprise. Overlapping responsibilities may result in ineffective regulation as well as in ineffective corporate
Restructuring the Telecommunications Sector

governance. Ultimately, devising new regulatory mechanisms is less about establishing new institutions than it is about establishing new procedures that permit the issues and disputes generated by a transition to a new industry structure to be effectively addressed and resolved. Those procedures must assure an openness that allows all affected interests to have their views heard.

Overseeing the Process of Sectoral Reform

It is appropriate to make some concluding observations about the role of multilateral lending institutions and private enterprise banks in the process of sectoral reform.

A Multidimensional Process

The process of sectoral restructuring is clearly an extraordinarily complex one with many dimensions. There are at least four major elements in this process: (1) a plan for modernizing the organizational structure of a PTT, reforming its pricing, and setting new strategic priorities, (2) a scheme for financing the development of a PTT's infrastructure, including an assessment of options for introducing new sources of investment from the private sector into a PTT, (3) a design for the future market structure and for competitive arrangements in the telecommunications sector as a whole, and (4) a mechanism for setting policy and regulating a PTT and others in the sector.

Managing the restructuring process requires a diverse array of skills and expertise. Attention must be focused both on the future of a PTT and of the sector as a whole. One of the risks implicit in any restructuring process is that there will be too much of a rush to sell the assets of a PTT and not enough time given to the arduous process of preparing a PTT and the telecommunications sector for the privatization process. Policymakers must keep in mind that investors have to be convinced of both the viability of a PTT and the overall regulatory and competitive arrangements for the sector.

Conflicts between Short-Term and Long-Term Objectives

Policymakers must make some basic decisions about their objectives. In particular, they must decide whether they want to maximize proceeds from the sale of a PTT or whether they want to create a competitive environment that will benefit telecommunications users and even a PTT in the long run. It is certainly not at all clear that the shareholders of a state-owned PTT will be better off by limiting competition in critical sectors of a PTT's business. Permitting competitive pressures may force a PTT to become more efficient and profitable. Over time, the state may benefit from increased tax revenues derived from a well-run PTT, as well as from economic activity stimulated by diverse and widely available telecommunications services.

In order to transform the functioning of a PTT and the telecommunications sector as a whole, the contributions of private investment bankers and multilateral lending
Implementing Reforms in the Telecommunications Sector

agencies are required. Multilateral lenders have an essential role in devising new regulatory and institutional arrangements. They are often, however, less able to contribute to the identification of new financing methods and strategies for organizational reform. The utilization of conditions on sectoral readjustment loans may sometimes be too blunt and ineffective an instrument to bring about rapid sectoral changes.

Entrepreneurially Oriented Restructuring

Another approach for multilateral lending agencies is to consider making loans for initiatives that involve new techniques for infrastructure financing or organizational reform. Such loans would not be centered around a project investment in the traditional sense. Rather they would be intended to achieve quite focused objectives in terms of organizational reform or sectoral organization.

For example, the utilization of a separate financing mechanism as described above would require a PTT and sector policymakers to reach agreements on crucial new institutional and regulatory arrangements. A financing entity that is established to build an overlay network might only become viable if restructured pricing arrangements were put in place for services to be offered through the overlay network. The new operating entity would have to enter into negotiations with local exchange providers to obtain access services. In the process, steps would be taken to reform existing mechanisms for settlement of revenues among different parts of a PTT.

New private sector investment could not be feasibly introduced unless some agreement on future regulatory arrangements was reached among national policymakers and those developing a new overlay network. In short, the process of developing both a business and a strategic plan for a new enterprise should inevitably result in important steps toward sectoral restructuring.

Need for Incremental Options

Some observers believe that the potential sellers of PTTs may now be outnumbering the potential buyers. Investors may be becoming increasingly wary of the risks involved in a major restructuring and in the privatization of an entire PTT. It may thus be important to begin actively exploring techniques that allow an incremental approach to introducing new private investment into the telecommunications sector but involve important steps toward overall sectoral reform.

Conclusion

The lessons of recent experience with sectoral reform and privatization are no doubt valuable ones. However, the most critical ingredient for the success of future sectoral restructuring may be the ability to devise solutions that are unique to each national setting and that involve new and imaginative approaches to financing and institutional reform.
Part II

Recent Experiences
in Latin America
Telecommunications Restructuring in Latin America: An Overview

Björn Wellenius

Nowhere in the developing world has the movement toward restructuring the telecommunications sector been as rapid and vigorous as in Latin America. First in Chile, then in rapid succession in Argentina, Mexico, and Venezuela, and by 1993 under way at various stages in Bolivia, Brazil, Colombia, Ecuador, El Salvador, Honduras, Panama, Peru, and Uruguay, profound changes have been sweeping through this region, especially since the late 1980s. Governments are replacing the traditional model of state telecommunications monopoly embraced in the 1960s with solutions that largely rely on services provided by the private sector, growing competition, and a shift of government role from ownership and operation to policy and regulation. These changes seek to overcome long-standing constraints on economic and social development imposed by telecommunications services that are in short supply, unreliable, of poor quality, and slow to respond to changing demand patterns and technology choices.

The reforms in Chile, Argentina, Mexico, and Venezuela are outlined and discussed below, and progress so far in other Latin American countries is briefly described in the Annex. The rest of this chapter presents some lessons on implementation of reforms drawn from the Latin American experience, including a tentative assessment of how well these reforms have met the governments' objectives. This chapter concludes by raising some concerns about the long-term success of reforms in overcoming past constraints on telecommunications development. The following chapters discuss in more detail selected aspects of the reforms in Chile (chapter 4), Argentina (chapter 5), Mexico (chapter 6), and Venezuela (chapter 7).

The Beginnings of Sector Reform in Latin America

Chile was the first country in Latin America to undertake major reforms of the telecommunications sector and the first to complete privatization of its state enterprises in 1987. Argentina and Mexico did likewise by 1990, at what was then regarded as an exceptionally fast pace. By the time Venezuela followed suit in 1991, a pattern had been established.
Implementing Reforms in the Telecommunications Sector

Chile

Reform of the telecommunications sector in Chile started in 1975 and was substantially completed in 1987. At the time reforms began, telecommunications were dominated by two joint-stock companies, mainly state-owned. Compañía de Teléfonos de Chile (CTC) had about 95 percent of the local telephone market, and Empresa Nacional de Telecomunicaciones (ENTEL) operated most long-distance and all international facilities. CTC had been a private, foreign-owned company until 1964, when it became jointly owned by the state, which injected substantial amounts of capital for expansion and modernization. In 1970 CTC was taken over by the government, and in 1974 the foreign partner was bought out. ENTEL had been established as a state-owned company in 1964 with the mandate of building a countrywide, modern long-distance network and, shortly after, satellite facilities for international services.2

Early reform attempts had mixed results. For example, several new small companies were licensed in the mid-1970s to provide local telephone service in competition with CTC in areas where there was large unmet demand. Although these companies initially thrived developing overlay local networks wholly financed by high subscriber connection fees, none of them ever achieved anywhere near efficient size; one went bankrupt, and the rest became involved in protracted litigation with CTC over revenue sharing, predatory practices, and other regulatory problems which the government was not well equipped to handle. On the other hand, telex services were successfully reorganized from a stagnant section of the government’s posts and telegraphs administration into a dynamic commercial state enterprise that was then sold to Chilean private investors.

Concurrently, however, a reform process got under way comprising a relatively slow but ultimately consistent sequence of changes that transformed the sector overall very successfully. In the context of the government’s adoption in 1975 of a strong market-oriented economic development strategy favoring private enterprise and foreign investment, a series of steps was taken to create a policy and regulatory framework specifically for telecommunications. In 1977, Subsecretaría de Telecomunicaciones (SUBTEL) was established in the Ministry of Transport and Telecommunications, with responsibility for mainly technical regulation. An executive decree of 1978 promulgated a telecommunications policy which set the basic principles that guided all subsequent liberalization and privatization. In 1982 a telecommunications law was passed which enabled enforcement of specific actions to implement the government’s policy and abrogated preexisting, conflicting statutes. An amendment to the law in 1987 established specific means to implement privatization. In particular, it defined mechanisms for investment financing and a system for regulating the tariffs of monopoly services. In 1986 the government began to sell some of its shares in CTC and ENTEL to company employees and the public.3

In 1987 international bids were invited for a controlling interest in CTC and awarded to Alan Bond, an Australian investor; the balance of the state’s ENTEL shares were sold to various domestic and foreign investors and to the public at large.
In 1989 the government sold its remaining CTC shares to employees and the public. In 1990, Bond sold CTC to Telefónica de España, which by then also held a 25 percent interest in ENTEL.

The reforms have greatly revitalized the telecommunications sector. Telephone lines, which had been growing at about 5 percent in the 1970s and 1980s, expanded at over 20 percent per annum in 1990 and 1991. Digitalization accelerated from around 35 percent to over 70 percent. Modern optical-fiber networks, digital microwaves, and satellite systems were or are being built. Labor productivity, already rather good for developing countries at around 13 staff per 1,000 lines, improved further to 7 in 1991, which is within the range of industrial countries. New services were introduced and there is substantial competition in nonbasic services and networks. Three companies (including one subsidiary each of CTC and ENTEL) compete in providing cellular service in the main cities. Business users can choose between the public-switched telephone system and network solutions offered by several new carriers besides CTC and ENTEL. The deregulated market for customer premises equipment offers a wide variety of telephones, private automatic branch exchanges (PABXs), fax machines, and other goods. CTC and ENTEL are operating very profitably, new sources of financing have been developed (including CTC's breakthrough placement of US$100 million in new shares in the U.S. market in 1990), and share values of both CTC and ENTEL roughly doubled in 1991. There are also the beginnings of competition in long-distance voice service. CTC negotiated with a new company to carry about 20 percent of the traffic earlier handled through ENTEL.

From a broader economic viewpoint, moreover, there is some evidence that the Chilean telecommunications reforms have resulted in substantial benefits to all stakeholders. A study shows that with the privatization of CTC, aggregate welfare has been enhanced by some US$600 million, of which 94 percent accrues to Chilean parties. Consumers were the biggest winners, capturing 90 percent of the gain in domestic welfare, largely resulting from accelerated investment leading to a greatly increased stock of telephone lines in service, and from the introduction of new services. The government, CTC's domestic shareholders and employees, and ENTEL share the balance. Privatization with foreign participation thus created a non-zero-sum game which benefited both nationals and foreigners.

The regulatory arrangement is also overall successful. Chile's stable political institutions and the independence of the judiciary result in contracts (for example, government licenses to private operators) that are credible and enforceable. The relative difficulty of passing or amending legislation gives stability to the sector's legal framework, making it less vulnerable to policy changes from one government to the next. In particular, pricing rules for monopoly services are spelled out in the telecommunications law in considerable detail, including a five-year cycle for revisions. This allows investment decisions based on revenue forecasts that are fairly robust, while allowing for periodic reassessment in the light of changes in technology and other factors. SUBTEL has clearly defined functions, including the authority to verify compliance by service producers and users of legal, procedural, and technical...
Implementing Reforms in the Telecommunications Sector

resolutions. Deciding whether a service is not subject to effective competition, and thus its prices should be regulated, is left to the antitrust tribunal in the context of well-established general commerce law. Disputes on sharing costs and revenues among operating companies are resolved through arbitration.9

Nevertheless, not all is well. The market is still dominated by CTC and ENTEL. As for quality of service, the results have been mixed. Faults are being cleared faster, and CTC appears to be more responsive to customer complaints; however, the fault rate has not continued to decrease, call completion rate has actually dropped, and the increased percentage of busy signal suggests growing network congestion.10 No practical solution has been found to ensure service in rural and other areas that are less profitable than cities, and mechanisms for direct government subsidy, where needed, have proven ineffective.11

There are also critical regulatory issues that remain unresolved despite several years’ litigation in the antitrust tribunals and ordinary courts of justice. One issue is of particular importance in terms of competition. CTC’s plans to become a long-distance carrier and develop its own optical-fiber and satellite long-distance network have been challenged by ENTEL, which holds a virtual monopoly of these facilities over many routes. A court order has restrained CTC from putting into service new equipment and satellite leases already purchased. In turn, ENTEL’s attempts to expand its base of direct access to final business users has been contested by CTC. Another issue has a major bearing on sector structure and thus also on competition. From the viewpoint of Chilean antitrust policy and law, Telefónica’s substantial although minority stake in ENTEL conflicts with its ownership of CTC. This is further complicated by ENTEL employees’ intention to sell their shares, and by the possibility of financial restructuring of ENTEL that would reportedly allow Telefónica to take administrative control. Whatever is the right solution to these regulatory problems, the fact that they have not been sorted out definitively within a reasonable period of time points to significant weaknesses of the Chilean regulatory system.

As for SUBTEL, it is not fully equipped to discharge its regulatory responsibilities effectively. In particular, relatively low government remunerations make it difficult for SUBTEL to attract and retain qualified specialists who are also in high demand in the private sector. Being part of a ministry largely dominated by the much larger transportation sector, SUBTEL’s problems tend to receive rather limited attention at the higher levels of government.12 Solutions under consideration include reorganizing SUBTEL as a more independent “superintendencia,” similar to the successful banking regulatory agency, or along the lines of the widely acclaimed energy commission.

Argentina

In early 1989 the president of Argentina announced his decision to privatize Empresa Nacional de Telecomunicaciones (ENTel), the state telecommunications monopoly. A prominent politician was appointed as trustee of ENTel with mandate to sell it in about twelve months. The trustee retained a small number of experienced managers and professionals from the private sector to prepare and carry out this task.
In January 1990 an executive decree outlined the government's new sector policies and structure and set forth the terms and conditions for the sale of ENTeL. These provisions were designed to enhance competition and diversify ownership. In particular, ENTeL was to be divided into two regional companies, each including about half of the lucrative Buenos Aires market. The regional companies would have the monopoly of basic telephone services and networks for seven years, or up to ten years subject to meeting higher performance targets. Sixty percent of the shares of each regional company would be sold under competition to foreign telecommunications operating enterprises responsible for managing the new companies, associated with local and foreign investors. Bidding and evaluation were designed to give preference to different owners-operators for each regional company, partly in order to facilitate subsequent performance comparisons and to give credibility to the potential for competition between them. Two separate companies, jointly owned by the regional companies, would provide international and competitive services, respectively. Franchises for cellular services would be awarded under competition, the first franchise in each locality being adjudicated to a company other than the regional telephone operator. The supply of subscriber terminal equipment, private networks, and data and value added services, would be liberalized immediately. Three independent companies, licensed during a short-lived liberalization effort by the previous government, were to continue developing competing data networks and services using satellite technology.

Privatization was completed close to schedule. In early November 1990 the new owners-operators took over the two regional companies. Telecom Argentina, the northern regional company, is owned by a consortium led by France Télécom and STET (Italy). Telefónica de Argentina, the southern regional company, is owned by a consortium led by Telefónica (Spain). The remaining 40 percent of shares were sold by tranches in 1991 and early 1992 to the employees, subscribers, existing rural telephone cooperatives, and the public at large. The public sales, in Argentina and through agents abroad, were several times oversubscribed.

The new owners-operators got off to a good start. Six months after taking over, new organization structures were in place in both regional companies, and about 100 specialists had been brought over from the parent operating companies to occupy senior management positions and assist in a wide range of tasks at middle-management and supervisory technical levels. The companies were renegotiating labor contracts and introducing improved work practices and had taken initial steps to control fraud. Urgent technical problems were being addressed, service was starting to improve for large users, and investments worth about US$700 million were under way in 1991, mostly financed from operating surpluses.

A tentative assessment two years after privatization confirms that the new owners-operators have been successful in rationalizing the two regional companies and meeting the performance and investment targets set forth in the terms and conditions of sale. The labor force has shrunk by 20 percent, from a combined total of 41,000 workers at the end of 1990 to 33,000 in early 1993, mostly through voluntary retirements for which the companies made incentive payments. The combination of
Implementing Reforms in the Telecommunications Sector

sharply reduced workforce and modest growth resulted in an improvement of labor productivity from 13 to 10 workers per 1,000 lines in the first year of operation. Improved systems for internal information and control were put in place, especially in the areas of billing and collection, payroll, contracting, and purchasing. Contracts with equipment suppliers inherited from ENTel were renegotiated, resulting in price reductions of up to 50 percent. All contracts in excess of US$0.5 million were awarded through international competitive bidding, further reducing investment costs. Already in 1991, the first year of operation after privatization, the regional companies averaged a modest 4 percent return on equity. The return on investment was much larger for the foreign operator partners who, including management contracts, netted 17 percent for STET and France Télécom and 83 percent for Telefónica. The regional companies’ investment plans for 1991–96 are well in excess of what would be required to meet the targets agreed at the time of purchase.

Progress on the regulatory front, however, has been slow. An executive decree of June 1990 established Comisión Nacional de Telecomunicaciones (CNT), a semi-autonomous telecommunications regulatory agency, and outlined its functions and organization. Although the CNT chairman and six directors were appointed and took office at around the time the ENTel sale was completed, in mid-1991 government administrative decisions were still pending regarding temporary organization, staffing, salary scales, and budget and accounting rules. Whereas the sector reform schedule called for a core regulatory capacity to be in place by the time the regional companies were transferred to the new owners-operators, in practice this did not materialize. Urgent regulatory matters, including establishing guidelines for interconnection pricing between the regional companies and their international and competitive services subsidiaries, specifying the basic flows of information from the regulated companies to enable CNT to monitor compliance with service and performance obligations, and establishing regulations for competitive services, were not given timely attention.

Lack of effective regulation immediately after privatization is likely to have had a significant, albeit unquantifiable, negative impact on sector development. The following are some examples. CNT has been unable to verify the regional companies’ compliance with service and performance obligations. CNT failed to act when, five months after privatization, the government reneged on its contractual agreement to let the regional companies adjust their tariffs for inflation, a key determinant of the viability of the companies; eventually the issue was resolved, but through direct negotiation between the companies and the Ministry of Economy, not CNT. Unregulated marketing of calling card services by international operators may have violated the temporary exclusivity rights of the incumbents and may result in significant revenue losses to them. The introduction of new services, as well as the extension of basic services by cooperatives to new areas, were delayed by CNT’s failure to develop standards and processes for issuing licenses. Consumers found CNT unable to handle complaints.

The reasons for CNT’s initial failure are not entirely clear, but several contributing factors can be identified. First, although CNT was designed to be accountable
Telecommunications Restructuring in Latin America
directly to the president, eventually it was placed under the Ministry of Public Works and Services (MPWS). Furthermore, soon after the CNT directors took office, the MPWS was abolished and CNT came under the authority of an undersecretary of the Ministry of Economy who also was responsible for a number of other sectors. Second, some observers also point out that quality of management was a factor. A motivated, strong manager could, it is argued, have broken through the government's indifference and got CNT working. Also, for want of qualified staff, the directors took upon themselves responsibility for day-to-day professional work divided among them by lines of business (for example, broadcasting, satellites), thus forgoing the benefits of collective decision making detached from technical preparation, and also resulting in weak technical work, since only two of the directors had any telecommunications experience.

Third, although funds were available, CNT lacked access to them. A levy of 0.5 percent on gross operating revenues of Telecom Argentina and Telefónica de Argentina, established by the same decree that created CNT, generated sufficient funds to meet CNT's operating costs, including competitive remunerations. CNT, however, never got the government to approve its budget and administrative procedures and was unable to tap these funds, which accumulated in a non-interest-earning account. CNT was unable to hire qualified staff as prescribed in the decree or retain local consultants to assist on a temporary basis. Some of the directors were based in the provinces and CNT was unable to fund their commuting to Buenos Aires. Although a substantial amount was also available from a World Bank loan to the government for consultants, seconded experts, equipment and software needed to jump-start CNT, they were not used, partly due to CNT's inability to assemble a qualified local counterpart team.

Lastly, some observers interpret these events as clear indication of weak government commitment to the new regulatory framework. This framework had been established largely at the insistence of consultants and financial advisers rather than in response to the government's own political interests.17

By early 1992, pressure for the government to do something about CNT had built up from several sides, including new consumer advocacy groups, emerging new service providers, and the regional operators themselves. The government responded by appointing an energetic new undersecretary for communications (a position that had earlier been abolished) with a clear mandate to turn CNT into an effective regulator. In the following three months, trustees appointed to take over temporarily the positions of CNT commissioners achieved more than had been done in the fifteen months since CNT's creation. During 1992, CNT issued licenses to regularize the operation of 140 of 300 independent new telephone cooperatives; initiated bidding for cellular licenses outside Buenos Aires; established norms for competitive provision of domestic data transmission, private mobile radio, and videoconferencing; established norms for the use of the radio spectrum, resumed monitoring and greatly improved collection of fees; took important steps to protect customers;18 and retained a firm of international consultants to prepare a development plan for CNT.
Implementing Reforms in the Telecommunications Sector

There is still a long way to go, however, before Argentina can claim to have a stable, credible telecommunications regulatory regime. For example, the rules of the game (and investor confidence) were undermined when the revitalized CNT undertook to negotiate with the regional companies tariffs below those guaranteed in existing contracts, which it regarded as excessive. CNT made lower tariffs a condition for granting the regional companies the second cellular license in Buenos Aires, an essentially unrelated regulatory matter.19

CNT's institutional development outlook also remains unsettled. The current managers are political appointees unlikely to remain in office for long, and plans to staff and equip CNT on a more permanent basis are not being implemented. Contrary to what was established in the decree that created CNT, the agency does not have effective control over the fees it collects from the regulated companies but instead depends on government allocations to meet its expenses. CNT's authority and enforcement capability remains compromised by being ascribed to an undersecretary of economy with numerous other responsibilities. The very existence of CNT is at the mercy of the government, as it was created by executive decree, which can be readily revoked, rather than by law of Congress.20

Mexico

As of 1989, Teléfonos de México S.A. de C.V. (TELMEX), a 51 percent state-owned parastatal company, provided local, long-distance, and international telephone service throughout Mexico.21 The Secretaría de Comunicaciones y Transporte (SCT), through its Subsecretaría de Comunicaciones y Desarrollo Tecnológico, was the government's policy and regulatory agency. SCT also owned and operated a national microwave network, the domestic satellite system, a small packet-switched network, aeronautical and maritime stations, and other facilities. The postal administration operated the telex and telegraph services. Although Mexico's was the second largest telecommunications system in the developing world (after Brazil's) and TELMEX was one of the country's best-run parastatals, Mexico exhibited all the telecommunications deficiencies typical of developing countries.

In August 1989 the government published a program for the modernization of telecommunications. It identified four main structural obstacles to better sector performance: complex labor and administrative arrangements that limited technological innovation and service quality improvements; tax and tariff distortions that resulted in excessive dependence of TELMEX on long-distance revenues and, consequently, limited possibility of introducing competition;22 insufficient management and financial autonomy of the operating enterprises; and inadequate regulation of TELMEX's monopoly operations. The modernization plan sought to improve service to reach internationally competitive levels; expand service coverage in rural and urban areas; diversify and modernize services; establish competitive tariffs at the international level and achieve financial self-sufficiency; and promote greater private investment and competition. To achieve these objectives, the modernization plan proposed a new regulatory framework that would promote efficiency, competition,
and private investment; abolish the telephone tax and restructure tariffs; privatize TELMEX and subject it to price and service quality regulation; introduce competition in the provision of local and long-distance services as well as in new services; and franchise competing regional cellular operators.

These far-reaching policy proposals were, to a very substantial degree, implemented during 1990 and 1991. Tariffs were increased to ensure profitable operations and rebalanced to reduce distortions. The tax on telephone bills was replaced by a special tax on profits that could be offset by accelerated investment. Two licenses for cellular services were awarded in each of nine regions, one to a TELMEX subsidiary and the other to independent operators. SCT became solely the sector regulatory agency after its operating functions were reorganized as an autonomous state enterprise. The telecommunications regulations were extensively revised. The supply of customer premises equipment, provision of value added and information services, and ownership and operation of private networks, all were liberalized. A controlling interest in TELMEX was sold to a consortium of national and foreign investors associated with France Télécom and Southwestern Bell. The privatized TELMEX was granted a concession that provided for price-cap tariff regulation, serious obligations for network expansion in urban and rural areas, as well as progressively demanding targets for quality of service, and exclusivity for basic services and networks until 1996, after which competition will be allowed.

Some fifteen months after TELMEX's privatization, the sector appeared to be making good progress along the lines sought by the government's modernization program. TELMEX had overall met its obligations under the concession regarding growth, quality, and price of basic telephone service; had improved availability and quality of service for large business users; was building a sound organizational, physical, and financial base for sustained expansion and improvement of service; and yielded high returns to its investors. Independent operating companies were successfully competing with TELMEX's cellular subsidiary in each of the nine zones; were providing business and high-income residential customers cellular alternatives to the scarce and unreliable wired telephone service at prices close to the U.S. average; and as a group were becoming a force to be contended with when TELMEX's monopoly privileges end in 1996. Private corporate networks using satellite, microwave, and other own and leased facilities continue to develop, providing cost-effective solutions to meet the needs of large business users and specific communications-intensive sectors of the economy.

Progress in developing regulation receives mixed reviews. Significant successes were achieved in preparing for and following privatization. TELMEX's concession is a carefully crafted contract that provides essential government assurances to the operator while imposing important service obligations. The new telecommunications regulations established in Mexico for the first time a comprehensive, modern framework with policy formulation, licensing, and regulatory functions exercised by the government, with telecommunications networks and services largely provided by the private sector in an increasingly competitive marketplace. In several instances, SCT has responded effectively to important regulatory issues. For example, a wide
Implementing Reforms in the Telecommunications Sector

divide between TELMEX and the independent cellular operators regarding interconnection charges was successfully settled through SCT intervention.

On the other hand, progress in developing SCT as a regulatory agency with strong professional staff capability has been slower than expected. Although SCT prepared, with the assistance of consultants, a comprehensive development plan, SCT's new organization did not come into effect until April 1992. Moreover, implementation of the development plan has been constrained by a shortage of authorized management positions (related to the government's austerity program). There is also an acute shortage of experienced senior professional staff. As of mid-1992, SCT was not well equipped to deal with a number of regulatory issues likely to arise in the near future. For example, competitive pressures were building up rapidly, from within Mexico as well as across the U.S. border, raising issues such as possible cross-subsidy between TELMEX's monopoly and competitive services, and possible preferential provision of scarce leased lines by TELMEX to its own subsidiaries. Some observers believe that TELMEX's monopoly will break down well before it expires in 1996, particularly regarding long-distance networks and services, bringing forward a full range of regulatory matters to be handled by SCT. Also, discussions on telecommunications are under way in the context of the proposed North American Free Trade Agreement, which requires a substantial level of regulatory competence in Mexico to deal with the implementation issues likely to follow, perhaps as early as 1993. SCT does not have a sufficient number of appropriately qualified management and professional staff to deal with these issues as well as complex calculations of TELMEX performance with respect to its price cap, quality of service, and growth obligations. The question does arise whether, in the longer run, a quasi-independent commission, outside any ministry, could provide a more effective means for regulating the sector.

Venezuela

Approximately 1.6 million lines were in service in Venezuela at the end of 1990. This was the fourth largest telecommunications system in Latin America (after Brazil, Mexico, and Argentina), and with 8.2 lines per 100 inhabitants it was also among the largest relative to population size. Service, however, was very poor: call completion rates were less than 30 percent for long distance and international calls and waiting periods exceeded 18 months for new lines. Unmet demand for new telephone connections was estimated at up to 3 million. Local tariffs were far below cost, with the result that total revenue per subscriber (for all services) averaged only $250 in 1990.

In mid-1990, the government appointed a new Minister of Transport and Communications and also a new president of Compañía Anónima Nacional de Teléfonos de Venezuela (CANTV), the state-owned monopoly providing local and long-distance service throughout the country. A Telecommunications Restructuring Group was established to manage the reform of the sector and the privatization of CANTV. Consulting firms were hired in early 1991 to analyze the competition regime, develop
a new tariff structure, prepare a new telecommunications law and regulations, and
design the regulatory institutional regime. An investment banking consortium was also
hired to prepare the sales memorandum and bidding documents.

In March 1991, the government published pre-qualification criteria for the
privatization. The criteria included six financial and technical benchmarks. Based on
these criteria, eight international operators were pre-qualified. Draft bidding docu-
ments were distributed and discussed with the pre-qualified firms. Following these
discussions and the due diligence period, the government issued the final bidding
documents in September 1991. The government established a base price of US$900
million for the sale of 40 percent of CANTV’s shares. An additional 11 percent was
to be sold to CANTV employees on the same terms and conditions. The govern-
ment’s remaining shares (49 percent) were to be progressively sold in the future
through global share issue(s).

The public tender process took place on November 15, 1991. Two consortia
participated, including one consortia led by GTE and one led by Bell Atlantic. The
GTE consortia won the tender with a bid of US$1,885 million ($2,930 per line
in service). The company was formally transferred to the new owners-operators
the following month.

Privatization was accompanied by the preparation of a new telecommunications
law (still before congress), the establishment of a new regulatory agency (CONA-
TEL), major tariff adjustments, and the introduction of competition in cellular,
private networks, and value added services. One cellular band was granted to
CANTV (and transferred to the new operator following the privatization). The
second band was awarded through competitive bidding to TELCEL (A Bell-
South consortium) at a price of roughly US$100 million.

Key features of the privatization of CANTV included:

- The new operator would have a 9-year monopoly on basic service, including long
distance and international. This essentially followed the Mexican and Argentin-
ian examples. The exclusivity period was deemed essential to ensure sufficient
financial incentive and cashflow to finance the ambitious expansion program for
the basic network.

- The concession requires an aggressive investment program: 3,000,000 new lines
in addition to 640,000 replacement lines over 9 years (or 400,000 lines annually). The
concession also included a number of service performance targets to be
achieved during the exclusivity period.

- Tariffs were increased in mid-1991 (prior to privatization) and again on January
1, 1992 (upon transfer to the new operator). This included major increases in local
tariffs, as well as the introduction of a new surcharge for digitalization and
modernization. As a result, revenue per subscriber line increased from US$250
in 1990 to an estimated US$500 in 1992. Tariffs were grouped into three baskets,
to be regulated on a price-cap basis, with full inflation indexing on a quarterly
Implementing Reforms in the Telecommunications Sector

basis until end-1996, followed by partial indexing for the remainder of the exclusivity period (end-2000).

- The new operator was required to adhere to the collective labor contracts (which were to expire at end-1993). The government did not implement any work force reductions in CANTV prior to privatization. At the time of privatization, CANTV productivity was 12.3 employees/1000 lines, about average for Latin America.

Some Features and Lessons of Recent Reforms

Although the Latin American reforms are country-specific, some common features and preliminary lessons can be noted.

Scope and Pace of Reforms

The authorities entrusted with the design and implementation of the reforms succeeded in identifying and addressing a wide range of key policy, regulatory, managerial, and financial issues. Although the governments' decisions to restructure initially focused narrowly on transferring ownership of state enterprises to the private sector, the teams in charge of this process responded rapidly to signals from consultants and financial advisers that a broader range of issues needed to be tackled. Reflecting this comprehensive approach to policy issues, the reforms completed or under way have four main components:

- Selling a controlling interest in the state enterprises to private owners (generally led by foreign operating companies) and the balance to employees and a large number of investors. This places administrative control and management responsibility on a single owner group with experience in telecommunications operations. At the same time, this scheme creates a large number of new stakeholders by distributing ownership widely among domestic and foreign investors. Transfer of shares to the operating companies' workers in largely concessional terms contributes to bringing labor on board the privatization program.

- Reducing the scope and duration of monopoly privileges formerly held by the state companies. The privatized companies are granted exclusivity privileges for the core telephony business, including the necessary networks, for up to ten years as a maximum, and in most cases less than that. At the end of the exclusivity periods, competition may be introduced in any and all segments of the business.

- Opening immediately to competition important segments of the telecommunications business. Various degrees of competition are allowed (indeed, in some measure actively pursued by the governments) in many nonbasic services and facilities, including cellular telephony, customer premises equipment, value
Telecommunications Restructuring in Latin America

added and information services, as well as private networks with various degrees of resale and interconnection to the public network.

- Establishing public regulation separate from the operating entities. Although specific institutional arrangements vary, the regulatory agencies so far are either parts of ministries or are under the authority or direct intervention of ministries.

Possibly the most striking feature of telecommunications reforms in Latin America has been their speed. Contrary to belief widely held on the basis of the experiences of industrial countries (for example, United Kingdom and Japan), the state telecommunications enterprises of Argentina, Mexico, and Venezuela were privatized in little over one year. Although the timetables set by the governments for privatization often appeared to be unrealistically tight, in the event they proved feasible.

Regulatory Development

Not all components of the reform packages, however, progressed at the same pace. In particular, development of regulatory capacity has lagged far behind privatization of the state enterprises. In Chile, despite an overall good regulatory design, little was done to develop the specialized telecommunications regulatory authority. Repeated rounds at various levels of the ministries and the judiciary over a period of several years failed to resolve major issues of market structure and competition policy, at high cost to the operating enterprises, the users, and the economy at large. In both Argentina and Mexico, privatization included careful regulatory designs, and telecommunications regulatory agencies were competently outlined and formally set up or redefined at about the time the state enterprises were transferred to the new owners. However, three years later, these agencies (subject to the same public sector constraints that earlier afflicted the operating companies) were still struggling to get organized and build up a basic core of expertise which should have been in place at the time of privatization or earlier. In Venezuela the government had planned to establish a temporary regulatory authority to overview the transition from state to private operation and act on urgent regulatory matters such as licensing new networks and services. A more permanent regulatory structure would be developed and take over later. Almost two years after privatization, however, the new telecommunications law still had not been passed by Congress.

Given the difficulty of getting regulation off the ground, it is important to identify partial measures that help, even if they do not offer comprehensive solutions. First, in the political and institutional environment of Latin America, a carefully crafted concession can be an important instrument of self-regulation by the dominant operator. In Mexico, for example, even if SCT is not yet equipped to monitor compliance thoroughly, TELMEX takes the obligations under the concession very seriously. Several features contribute to make the concession an effective instrument of self-regulation. One is that the obligations are not unreasonable: they strike a good balance between what the government wanted for development and public interest.
Implementing Reforms in the Telecommunications Sector

reasons, on the one hand, and, on the other, what can be achieved in practice by a commercial operator. Another feature is that major actions (such as the introduction of cost accounting) required of the operator for reasons of sound policy and regulation (for example, to contain cross-subsidies between the competitive and monopoly businesses) are also wanted by the operator (as tools for good business management).

Second, a well-designed concession provides a framework for negotiations between the operator and the regulator. This helps keep negotiations largely in the technical arena, containing the risk of undue politicization which, in turn, would weaken the power of the concession as an instrument to define the terms of business of the operator. For example, SCT and TELMEX agreed in 1991 and 1992 on tariff adjustments that differed somewhat from the mechanism defined by the concession but followed very closely the principles established therein.

Third, steps to introduce competition at the margin can spearhead the development of a competitive marketplace. Again in Mexico, the independent cellular operators are building up a credible threat of competition to TELMEX beyond the limits of the cellular business. An important contributing factor is the existence of an association of cellular companies which groups all cellular operators that are not subsidiaries of the dominant operator. This association has successfully helped the independent operators face the dominant operator on critical issues such as interconnection standards and prices. Another factor is the network strategies chosen by the cellular operators. For example, they have already built some 2,200 kilometers of digital microwave networks, which may give them a head start in becoming a second long-distance carrier in the future.31

Lastly, although regulation may get off to a slow start, countries can make the transition from very basic to fairly sophisticated regulatory capabilities in about one decade—much longer than the time needed to sell a state enterprise, but well within the planning horizon of a broad reform agenda. In Chile, a number of economists, engineers, and lawyers in government, academia, and the consulting business have developed from the mid-1980s considerable regulatory skill and insight. These competencies have been clearly noted by analysts of the Chilean regulatory environment and are visible through the participation of some of these experts in international regulatory roundtables and conferences. In Mexico, small pockets of regulatory expertise and culture are quickly emerging where none existed only two or three years ago. These pockets are found in local consulting firms, the cellular operators' association, major users, academia, and of course, SCT and TELMEX.

An important factor seems to have been the government's decision to open the cellular market to competitive entry at an early stage of the reform process. This started to create a constituency for regulation. A related factor may have been the pressure by large users, and the favorable response of the regulator in the mid-1980s (well before the government decided to reform the sector), to allow users to build their own satellite earth stations and microwave links. This has resulted in a wide mix of technologies and combinations of own and leased facilities, and in an environment in which diversity of supply and user choice are increasingly the accepted norm.
Strong Competition for Private Entry

Despite the considerable (and growing) number of similar business opportunities in other parts of the world (notably Asia and Eastern Europe), the Latin American reforms have attracted considerable interest among foreign operators, investors, and manufacturers. For example, seven consortia of foreign operators and banks associated with domestic investors prequalified to bid for ENTEl in Argentina, and three bids (involving four operators) were eventually received. Over 100 bids were received in Mexico for the licenses to provide cellular services in nine regions. In 1990, CTC's first international issue of stock (US$100 million in the New York Stock Exchange was oversubscribed. The sale of shares in Telefónica de Argentina and Telecom Argentina in 1991 and 1992 were also several times oversubscribed. The price of TELMEX ADRs, which for years have been traded in the U.S., more than quadrupled in one year as preparation for privatization got under way, and again roughly doubled following the first earnings report under private ownership.32

The bidding and award processes were designed to enhance credibility and price competition. However, it could be argued that the procedures followed in the event did not always take full advantage of competition. For example, in Chile (1987) only three firms were invited to bid for CTC, without competitive prequalification, and eventually the sale was negotiated with one of them (Australian investor Alan Bond) after all bids were rejected. Opposition to a privatization effort of the previous Argentine government may have been related partly to the government's having entered into negotiations with a single prospective buyer, without the benefit of a transparent bidding process. By announcing the winning bids before the contracts were negotiated in substance, and having cornered itself into a tight deadline to conclude the sales, the Menem government may have weakened its bargaining position in the late stages of privatization.

The prices paid for the various state telecommunications enterprises varied considerably. Although what the investor buys is the future business rather than the existing plant, the price paid per telephone line in service at the time of purchase, corrected for the different shares of the total equity bought in each case, provides a rough measure of value. The unit prices, shown in Table 3-1 for Chile, Argentina, Mexico, and Venezuela, have varied over a 4:1 range among countries and over time.

Observers differ in their interpretations of this wide range. The level of tariffs and other terms of business, as well as the rules for adjusting them, are key determinants of company value. The market growth prospect—which relates to the current service deficits, population income distribution, and the country's expected economic development potential—is also a major factor. Country risk, in terms of the government's commitment to sector rules (for example, on changing tariffs), broad economic policy (such as treatment of foreign investment), and overall political prospects, is often mentioned (but may be more significant in deciding whether to buy rather than how much to pay). Lastly, the transparency and competitiveness of the sale process itself affects the price.
Implementing Reforms in the Telecommunications Sector

This long list of factors leaves considerable latitude for explaining the wide differences in unit prices. For example, the low price at which CTC was sold in 1987, compared to 1990, could be attributed to limited transparency and competition in the initial sale. An alternative explanation, however, is that the higher price of 1990 largely reflected increased investor confidence in the government's by-then proven resolve to sustain the rules of the game in this sector. Another factor may have been that the 1987 sale was the first among sizable telecommunications companies in developing countries, whereas by 1990 the market for such transactions was well developed. In most cases, however, the investments have proven to be highly profitable, at least in the short run. CTC and TELMEX shares have appreciated considerably with privatization. The Mexican and Argentine governments made large gains by deferring the sale of the balance of their equity until the privatized companies had increased in value.

Political Will and Leadership

The breakneck pace of reform in Argentina, Venezuela and, to a lesser extent, Mexico, was both necessary and possible because a clear political decision was taken

<table>
<thead>
<tr>
<th>Country</th>
<th>Company (year)</th>
<th>US$ per line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>CTC (1988)</td>
<td>700</td>
</tr>
<tr>
<td>Argentina</td>
<td>ENTel (1990)</td>
<td>700</td>
</tr>
<tr>
<td>Chile</td>
<td>CTC (1990)</td>
<td>1,100</td>
</tr>
<tr>
<td>Mexico</td>
<td>TELMEX (1990)</td>
<td>1,700</td>
</tr>
<tr>
<td>Venezuela</td>
<td>CANTV (1991)</td>
<td>3,200</td>
</tr>
</tbody>
</table>

Note: In 1988 Bond purchased 35 percent of CTC shares for US$140 million; the company had about 550,000 lines in service. In 1990, Bond sold to Telefónica 50 percent of CTC shares for US$390 million; the company by then had about 700,000 lines. In Argentina, for both regions taken together Telefónica de España/STET/France Télécom in 1990 paid US$214 million cash, US$380 million in promissory notes, and US$5 billion face value of government debt, for 60 percent of shares; ENTel had about 3.3 million lines; the calculation assumes the government debt was worth 17 percent of face value (in line with marginal transactions at the time, for want of a better indicator). Carso/Southwestern Bell/France Télécom in 1990 paid US$1.76 billion for 20.4 percent of TELMEX, which had about 5.2 million lines. In 1991, GTE/Telefónica de España/Electricidad de Caracas/Cima/AT&T paid US$1.9 billion for 40 percent of CANTV, which had about 1.5 million lines.
Telecommunications Restructuring in Latin America

at the highest level of government authority. Necessary, because these high-level decisions had implications that went well beyond the telecommunications sector alone. In particular, the privatizations of ENTel, TELMEX, and CANTV were flagships of broad public sector reform programs. Prompt success in such lead operations was needed to demonstrate (to both domestic and foreign constituencies, including the international financial community) the governments' resolve and effectiveness. Also, although the decisions to restructure telecommunications were made from positions of political strength, such strength, and therefore the likelihood of completing the task, could be expected to erode with time. Possible, because in the wake of high-powered political decisions, the persons charged with implementing reforms were able to cut many bureaucratic corners and mobilize support from a wide range of sources. Also; the fact that government credibility for a much larger reform program was at stake reduced the political risk to investors in telecommunications.

Restructuring has been largely driven by the finance and economic authorities, not by those responsible for telecommunications. Whereas the lead players therefore mostly lacked telecommunications experience, they brought to the reform process direct access to the highest levels of political and government authority, consistency with broader economic reform programs, ability to put together teams with strong business backgrounds, and skill to liaise with the main relevant players in the telecommunications sector and business community. The leaders also recognized the need for specialist advice and were quick to bring on board consultants as well as investment and development bankers to provide expert inputs. In this manner, the teams quickly developed an understanding of the essential concepts as well as considerable sophistication in dealing with the issues and options in hand.

These observations are consistent with the experience in situations where top-level political decisions were or are lacking. Although Chile was the first Latin American country to fully privatize telecommunications and start to develop significant competition, it took more than ten years from the government's initial attempts at liberalization to final privatization of CTC and ENTEL. The previous Argentine government's attempt to privatize ENTel ran into political deep water as deteriorating country economic conditions and approaching presidential elections weakened the government earlier than expected. In the absence of clear political definition, the pace, direction, and ultimate extent of telecommunications restructuring in Brazil, Panama, and Uruguay, for example, are still uncertain.34

Organized Labor

Labor organizations have eventually supported the reforms. The underlying process, however, is not well documented. Very little was ever made public on discussions and negotiations with labor unions. Replies by government officials to questions on this subject were generally inconclusive. Some observations, however, are generally applicable. First, labor unions are very concerned about prospective major changes that may result in loss of acquired worker privileges and union power. Any reform process must be prepared and carried out in a manner that brings worker
Implementing Reforms in the Telecommunications Sector

organizations on board. This emphasizes that reform is not merely a technocratic exercise but also a political process and needs to be managed accordingly.

Second, worries about possible massive layoffs ultimately proved to have been exaggerated. It is not necessary to reduce total employment in order to increase productivity. Major gains result from rapid growth in connections and traffic as the operating enterprise accelerates investment, modernizes facilities and adopts modern management methods. Furthermore, reforms lead to rapidly expanding new business opportunities which create attractive employment alternatives. The new management needs, however, to change the mix of skills. Although some workers can be retrained, others must be eased out and new talent brought into the company. In practice, this does not appear to have been an insurmountable problem. Attrition, early retirement, and other incentive schemes well within what the company can manage without undue financial burden, seem to have sufficed. 35

Third, worker participation in company ownership has played an important role in securing labor support for reform. Employee stock ownership plans have been an integral part of the capital restructuring of all state telecommunications enterprises privatized in Latin America so far. In all cases, they have involved transfer of shares to workers under favorable terms with a substantial grant element.

Country-Specific Solutions

The Latin American experience confirms that the sector solutions adopted, and especially the strategies to implement them, are highly country-specific. Sector structures and institutional arrangements cannot be readily transplanted from one country to another.

Despite this country-specificity, the Latin American experience also confirms that the main issues, as well as the elements of solutions, are rather universal. 36 Thus, knowledge gained in one country can be reinterpreted usefully in others. In Latin America, consultants, investment bankers, and development bankers contributed to the understanding of the issues and options at play, drawing on the experience of other countries. In particular, the experience of industrial countries in North America, Europe, and Asia, where related matters had been assiduously debated and studied for years, proved relevant and valuable.

An international body of expertise in telecommunications restructuring is thus gradually building up, on which countries embarking in telecommunications reforms can increasingly draw.

Concluding Remarks

The pace and scope of telecommunications reforms in Latin America show that with political will and management skill, major structural changes can be undertaken rather effectively in a short period of time. Initial results suggest that under appropriate terms and conditions, the newly privatized companies are starting to be rebuilt and managed in ways consistent with the governments' expectations. The longer-term outlook is less certain. Questions are already being asked regarding the extent of commitment of the
foreign operators and investors, access to foreign capital for sustained investment, and the ultimate prospects of regulation. Other issues are likely to emerge.

Have the reforms secured long-term access to management and technology? A primary objective of privatization has been to turn around the former state telecommunications enterprises into modern, efficient, well-run businesses. That is why Latin American governments have chosen to sell to consortia led by well-established foreign operating companies capable of providing expert managers, specialized management tools, and access to the latest technologies. Turning around these enterprises, however, is in many cases a formidable task that can only be accomplished over a number of years and therefore requires a long-term commitment by the new owners. The terms and conditions of sale of the enterprises in most cases reflect this. For example, franchises have been awarded for twenty or more years, monopoly privileges granted for up to ten years, and service development objectives and performance targets initially specified for about five years, subject to periodic renewal.

The issue is whether the new owners have sufficient incentives to address the painstaking, long, and costly task of overall enterprise reorganization, modernization, and expansion, rather than limit their intervention to short-term exploitation of the more profitable segments of the market. This question received, of course, considerable attention at the time of preparing the new sector regulations, the terms and conditions of sale, the transfer contracts, and the licenses, all of which include incentives and obligations. The views are divided, however, as to whether these incentives and obligations will prove strong enough in practice. For example, in some cases it can be argued that the foreign operator has mainly secured a profitable management contract supplemented by a relatively minor equity interest, and that under these conditions the cost of exiting could be less than that of staying on if things get harder than expected. Also, short-term transactional profits could prove more attractive than longer-term business gains, giving the whole exercise a rather speculative character. Others argue, however, that foreign operators move into developing countries as part of broader strategies to diversify their markets and develop a global business presence, have their international reputation at stake, and thus can be counted upon to do a serious job.

How important is the role of the foreign operator? The answer to this question surely varies among countries and over time. Partly it depends on how well run the telecommunications enterprise was before privatization. There are only three Telefónica people in Chile’s CTC (the chief executive officer, an adviser, and a member of the board of directors). CTC’s improved performance has been largely achieved by Chilean staff and managers, mostly the same people who ran the company under state ownership. Nonetheless, this does not tell the whole story. Through the ownership link, CTC gained ready access to modern tools for management, quality assurance, and operation, as well procurement experience and cost information, which are well established in Telefónica de España, the parent company. Conversely, Telefónica gained an environment with highly qualified professionals who can contribute to adapting and further developing these tools in ways that Telefónica can then apply in other countries. A different situation prevails in Argentina, where the
companies needed major overhaul. There, Telefónica, STET, and France Télécom have about 100 people who occupy the key senior management positions as well as middle-level management and specialized technical posts. Yet there is no reason why not to believe that in a few years these numbers could be reduced to a barely nominal presence, once the companies are running well and Argentine managers and staff have gained enough experience in the context of modern operations. The situation in Mexico is somewhere in between. A team of about thirty professionals from France Télécom and Southwestern Bell joined TELMEX in an advisory capacity and are assigned to different tasks as needed. The parent companies are also available for consultation at their headquarters. The partners have tended to divide their support along lines that reflect their different business and regulatory environments. For example, Southwestern Bell is assisting in the areas of marketing, information systems, and tariffs, while France Télécom concentrates on outside plant construction and maintenance, development of new services, and planning. Since all these services could alternatively have been secured through contracts with suppliers and consultants, it may well be that in Latin America the main role of the foreign operators was to reduce the risk of the main investors by ensuring competent management of their assets.

Will privatization give the new companies sustained access to foreign capital? This was also a primary reason for selling to consortia including foreign partners. Some argue that, in common with other privatized state enterprises, some of the new companies may become financial orphans—unable in the long run to attract foreign private capital, being cut off from traditional sources of long-term development financing that require state guarantees, and not having sufficiently developed domestic markets from which to obtain adequate debt and equity financing. Although in the initial years most or all of the funds needed for investment are being internally generated, a better mix of sources of funds—including fresh equity capital and long-term debt—will be essential to sustain growth in the longer run. If a foreign operator or investor has or develops only a limited interest in staying on, it is unlikely to contribute such new equity. Likewise, the foreign bank partners, goes the argument, have at best a medium-term interest, and at worst are in the venture only to recover some of the losses from holding highly devalued government debt paper by transforming them into equity in a promising business, and in either case are also unlikely to bring in fresh capital. Foreign capital markets might have little interest in emerging companies located in fairly high-risk countries (several of the Latin American countries currently preparing for privatization are in this category), or require returns so high as to become politically unacceptable. The successful experiences of CTC and TELMEX may be exceptions, in terms of both low country risk and high company quality, that prove this rule. Domestic capital markets may be too small to meet the capital requirements of several large privatized companies (as is the case of Chile). Also, mostly domestic financing of telecommunications investments with large import requirements would adversely affect the countries' balance of payments.
Will future reforms in Latin America follow the established pattern? Not necessarily. The next wave of reforms is likely to include significant departures from recent trends. For example, in contrast with the wholesale top-down privatizations of Chile, Argentina, Mexico, and Venezuela, events starting to unfold in Brazil seem to favor bottom-up development of private sector participation, as well as regionalization, growing autonomy, and possible participation in capital markets of mainly state-owned operations. In Colombia, provincial and municipal telephone companies may develop new enterprise structures and lines of business in competition with the central state-owned company, now slated for privatization. There is some experience in Latin America (and in some industrial countries) with subscriber ownership of telecommunications operating enterprises through shareholding and cooperatives, which may be further developed as a reform modality.

Some observers say that Latin America is merely returning eventually to where it was forty years ago—private, foreign-owned telecommunications monopolies. If this is all there is to the reform movement, it would be unfortunate indeed. After all, telecommunications companies were taken over by the Latin American governments in the 1960s not only because of the wave of nationalistic fervor and inward-looking economic development strategies sweeping the region, but primarily because the telephone companies were increasingly unable to meet the countries’ development needs. True, this had come to be for much the same reasons that lead to restructuring and privatization today, namely, inadequate sector policies.

It is unlikely that reforms are merely repeating history. At least three conditions are very different today than in the 1950s and 1960s. First, technological change has made it possible and increasingly cost-effective to have a highly diversified supply of telecommunications services. The argument for natural monopolies has largely faded away. Second, with increasing globalization and information intensity of world economic activity, numerous economic agents demand more, better, and lower cost services and networks, well beyond what any single enterprise can effectively provide. Third, driven by these forces, structural changes in telecommunications worldwide are subjecting developing countries to a wide range of new demands and business opportunities. Lastly, the developing countries are increasingly turning to economic policies and strategies that advocate competition as well as diversified domestic and foreign investment.

In this very changed environment, the major reforms of telecommunications taking place in Latin America constitute important improvements. Undoubtedly, as time goes by, it will be clear that some things could have been done better. But so far everything seems to confirm that, with reforms, telecommunications are finally moving from a constraint to becoming a leading factor of Latin American economic development.
Annex: Beginnings of Telecommunications Reforms in Other Latin American Countries

Major restructuring of the telecommunications sector has been completed in Chile, Argentina, Mexico, and Venezuela. These are discussed in the main text and following chapters. A number of other countries have made some moves toward revising the established policies and structures. Events as of mid-1993 are summarized below.

Bolivia

With only 174,000 telephone lines, or about 2.7 lines per 100 inhabitants, Bolivia has one of the least-developed telecommunications systems in Latin America. ENTEL, a state-owned enterprise, operates the domestic and international long-distance network for telephony, telex, telegraph, television networking, and other services. Seventeen cooperatives provide local residential, business, and public telephone service, primarily in the main cities. About 40 percent of telephone lines are in the capital city of La Paz, 25 percent in Santa Cruz, 15 percent in Cochabamba, and the balance in smaller localities. Although this scheme superficially resembles the successful structure of Finland, and some parts function rather well (for example, COTAS, the local cooperative of Santa Cruz de la Sierra, Bolivia's second largest city), the Bolivian network remains highly fragmented and inefficient.

Partly seeking to emulate the relatively good performance of COTAS, the government decreed in 1985 the reorganization of all other local operating entities—at the time mostly poorly performing municipal enterprises—into subscriber-owned cooperatives. This by itself, however, has not resulted in substantial improvements. In particular, most operators are unable to raise the capital needed for sustained expansion and modernization. Major constraints on telecommunications development are the inadequate regulatory framework and institutional arrangements, tariffs unrelated to costs and expansion requirements, ineffective sector and enterprise management, and interference by various interest groups in the management of the operating entities.

The government seeks to expand basic telephone service in urban and rural areas to an average of 5.2 telephone lines per 100 inhabitants by the year 2000, as well as introduce data and other services for specific market segments where there is demand; improve service quality and reliability; improve operating efficiency across the board; and mobilize sufficient capital from operating surpluses as well as domestic and foreign investment.

In 1992 and 1993, a team including representatives from various branches of government, the cooperatives, and ENTEL, supported by international telecommunications consultants and lawyers, developed a strategic plan for sector reforms that would overcome constraints and enable the sector to move toward these targets. The plan mainly envisages (a) making the local cooperatives the engines of sector growth through voluntary merger into a small number (possibly three) of regional
operating enterprises restructured as joint-stock companies, and (b) privatizing ENTEL to attract capital and management expertise. Policy options include giving the regional companies equity interests in ENTEL, to strengthen the companies’ balance sheets and to facilitate network integration.

The team also drafted a new telecommunications law that outlines the new sector structure and regulatory framework as well as enables privatization. The plan and the draft law have been extensively discussed with various political groups and other constituents and appear to have fairly broad support. The next step is to send the draft law to Congress.

Brazil

Brazil has the second largest telecommunications system in the developing world (after China), with about 10 million telephone lines in service. Telecommunications services and networks are mainly provided by Telecomunicações Brasileiras S.A. (TELEBRÁS), a federal state holding of twenty-nine operating companies, one in each state plus Empresa Brasileira de Telecomunicações (EMBRATEL), the interstate and international long-distance company. Established in the late 1960s, TELEBRÁS had been remarkably successful in consolidating over 1,000 scattered telephone operations, quickly building up a modern and fast-growing countrywide telecommunications infrastructure. However, in the context of Brazil’s deteriorating overall economic conditions in the 1980s, including constraints on public sector investment and on international credit, TELEBRÁS was unable to keep up the pace of growth and innovation. Major contributing factors were government price controls that did not allow TELEBRÁS to fully recover costs and generate surpluses for reinvestment, an increasingly outdated policy of industrial autarky resulting in high cost of equipment and slow technological change in the network, and TELEBRÁS’s organizational structure that gives the individual state enterprises insufficient managerial and financial autonomy to be run as modern businesses. Large backlogs developed for basic telephone service, service quality deteriorated, and new services increasingly required by Brazil’s dynamic modern business sectors have been slow to develop.

Although until now there has been no concerted attempt to overhaul the telecommunications sector, a number of partial measures have been adopted by the government. Several ministerial decrees issued in 1990 were aimed at alleviating these constraints by opening the doors to private participation in the telecommunications business. Users were allowed to build and operate their own networks, and private entities were allowed to offer value added services, in parallel with TELEBRÁS’s public-switched network. Satellite, data, and cellular services were opened to private provision. New modalities were authorized to finance investment in the public network by private parties. At the same time, broad trade and industrial policy reforms are under way that would promote domestic and international competition in the supply of telecommunications equipment to TELEBRÁS and others, leading to lower costs and accelerated technological innovation. In particular, the informatics law was revised, relaxing restrictions on trade in telecommunications equipment. For the longer run, the government reportedly has also considered
Implementing Reforms in the Telecommunications Sector

restructuring the twenty-eight TELEBRÁS state enterprises into eight large regional companies and exploring possibilities of attracting private capital to some of these. A constitutional reform, currently planned for 1993, would seek to modify the article that reserves to TELEBRÁS and its subsidiaries all public telecommunications networks and services except for limited services offered to closed groups with common activities and interests.

Progress, however, has been slower than initially planned by the government. In particular, implementing regulations for the 1990 telecommunications decrees were only finalized more than one year later. Moreover, the government’s past tendency to overregulate TELEBRÁS now seems to have extended to the new players as well. For example, the implementing regulations of the 1990 decrees focus largely on interconnection between the new networks and TELEBRÁS, with emphasis on preserving the public network rather than facilitating and promoting development of new networks.

Colombia

Local telephone services are provided by some forty municipal or provincial telephone companies. Several of the larger ones, such as Telefonos de Bogotá in the nation’s capital, and Empresas Públicas de Medellín (which also provides electricity, water, sewer, and trash collection services) in the capital of the province of Antioquia, are veritable regional operating companies. Empresa Nacional de Telecomunicaciones (TELECOM), a state enterprise, operates most domestic long-distance and all international facilities. TELECOM has also over the years acquired some twenty small local telephone operations in various provinces and has developed an extensive rural network.

As elsewhere in Latin America, there is a persistent shortage of telecommunications services. The performance of the operating enterprises varies considerably from one to another, ranging from highly efficient operation by some of the larger municipals to stagnation and decay in many of the smaller ones. Overall, the sector has lagged behind rapid modernization and growth of the economy.

Four decrees enacted in September 1990 provide the basis for potentially sweeping reforms of the telecommunications sector. In particular, these decrees would allow the Ministry of Communications to license existing regional telephone companies, alone or in association with foreign partners, to build and operate domestic long-distance networks in competition with TELECOM. The decrees also allow the regional operating companies to provide new services, including cellular and nonbasic services. In 1991, as part of an effort to improve public sector enterprises generally, the government entered into a performance contract with TELECOM, which was also asked to undertake a revision of its internal organization and management. In 1992, these events were overtaken by the government’s decision to privatize TELECOM. There has been, however, little progress in any of these directions.
Ecuador

A new telecommunications law passed by the Congress in August 1992 gave Empresa Estatal de Telecomunicaciones (EMETEL), the state monopoly telecommunications enterprise (formerly Instituto Ecuatoriano de Telecomunicaciones, IETEL), considerably more autonomy to be run as a business. In particular, the enterprise was given control of its revenues and expenditures independent of the national budget; it is no longer subject to civil service rules on staff hiring and remunerations; and it can undertake procurement independently of the cumbersome central government procedures. EMETEL is, however, still subject to a number of controls as a public sector enterprise. In particular, it needs approval from the Ministry of Finance to undertake new foreign debt. Also, a number of key policy issues remain to be resolved before EMETEL can be run as a fully commercial enterprise. For example, major adjustments in tariff level and structure are needed to better reflect costs.

The 1992 law also established Superintendencia de Telecomunicaciones as the specialized telecommunications regulatory agency. The agency is independent of EMETEL, from which it took over management of the radio spectrum.

The two political parties facing a second round of presidential elections in June 1992 considered options for further restructuring Ecuador's telecommunications sector, including privatizing EMETEL. The government had already taken steps toward inviting competitive bids for a franchise to provide cellular services countrywide.

Although during the electoral campaign the now-president of Ecuador had advocated privatizing EMETEL, in his inaugural address he announced that EMETEL would be given "a second chance." It appears that the government seeks to improve the enterprise before privatizing it in 1994 or 1995. The Consejo de Modernización del Estado (CONAM), established by the president under the direction of a prestigious private sector industrialist, is the lead agency for public sector reform, including EMETEL.

Panama

The vice president of Panama announced in April 1991 the government's intention to restructure Instituto Nacional de Telecomunicaciones (INTEL), the state telecommunications monopoly, as a company owned 51 percent by the private sector and 49 percent by the state. Consultants assisted in defining a new sector policy, structure, and regulatory regime, and in preparing a plan for privatizing INTEL. The consultants also drafted a new telecommunications law which would establish the framework for private provision of telecommunications services, setting a time limit for INTEL's monopoly, issuing cellular licenses to independent operators, and opening up other market segments to competition.

Subsequent progress, however, was slower than expected. A general law of privatization of public enterprises was passed by Congress but excluded INTEL. A draft law that would enable the government to privatize INTEL was not submitted to Congress.
Implementing Reforms in the Telecommunications Sector

until December 1992, for lack of sufficient congressional support to pass. Discussion of this law in Congress began in March 1993. Cellular services are still not available.

Peru

The government of Peru has been moving since 1991 to address major weaknesses in the telecommunications sector, the least-developed in Latin America except for Bolivia's.

A telecommunications law passed by the Congress in November 1991 established a broadly liberalized framework for the provision of services, allowing competition in all market segments, subject to concessions and licenses.

In early 1992 the Comité de Privatización (CPRI) was established by the president of Peru to privatize all state enterprises, a key component of the government's program. This includes divesting the state's 22 percent interest in Compañía Peruana de Teléfonos (CPT), the mainly subscriber-owned local telephone monopoly in metropolitan Lima, with about 300,000 lines including most of the high-traffic business users. It also includes the state's 100 percent ownership of Empresa Nacional de Telecomunicaciones (ENTEL), which runs all long-distance and international services as well as about 220,000 telephone lines in the provinces.

Privatization of ENTEL and CPT is scheduled to be completed by December 1993. International firms of telecommunications consultants, lawyers, and investment bankers have been retained by CPRI to help prepare a strategic plan for sector reform, outline a regulatory framework and institution, restate financial information in line with international accounting standards, draft terms and conditions of sale, contracts, and licenses, as well as carry out the sales.

Policy options include selling the state's shares of ENTEL and CPT as a single package, leaving it up to the new owners to decide on possible merger or other restructuring. Alternatively, the government may decide to divide ENTEL into long-distance and local operating companies, then sell these and CPT separately. Other critical issues to be sorted out include the scope and duration of any monopoly privileges of the privatized companies as well as a protracted conflict between ENTEL and CPT on sharing of long-distance revenues.

At the same time, steps are being taken to improve ENTEL's performance before the sale. The company's labor force has been reduced by one-third, from about 11,500 to 7,500 workers. Reportedly, these cuts mainly affected former operators rendered redundant by automatization and redeployed to make-work community telephone offices now privatized; excess labor hired in response to past governments' employment objectives; and persons on the payroll who did not actually perform any functions. These labor reductions, together with tariff adjustments predating CPRI, have turned ENTEL into a highly profitable operation.

Uruguay

With about 10 telephone lines per 100 inhabitants, Uruguay's telecommunications system is (in relative terms) one of the most developed in Latin America.
However, there is still substantial unmet demand for basic telephone service, especially outside Montevideo, and service is often unreliable and of poor quality. Despite digitalization of part of Montevideo's exchanges, much of the plant countrywide is antiquated and in disrepair. More advanced services required by the modern economic sectors (which account for a large part of Uruguay's economy) have been slow to arrive.

In 1990 the Congress of Uruguay passed two public sector reform laws that sought to end monopoly privileges of all state entities and privatize the national telecommunications, air transport, ports, gas, and liquor enterprises. In principle, this legislation opened the way to introduce competition in the provision of telecommunications services and private participation in Administración Nacional de Telecomunicaciones (ANTEL), the state telecommunications monopoly. A study of options for restructuring the telecommunications sector, carried out in 1991 with the assistance of consultants, recommended substantial reforms, including privatization of ANTEL.

Opposition groups, however, succeeded in defeating these initiatives by calling for and winning a national referendum on the government's plans. In Uruguay, the government is obligated to hold a referendum on any matter for which a petition can collect a number of signatures equal to at least 25 percent of the number of votes cast in the immediately preceding presidential election. The referendum, held in December 1992, mustered a substantial majority of voters opposing privatization of ANTEL. Some observers interpret this result more as a no-confidence vote on the government rather than specific opposition to telecommunications reform. The setback may also reflect lack of private sector involvement in managing the privatization initiative and insufficient attention to inserting this initiative in the political process. Whichever is the right reading, no further action toward telecommunications reform is likely, at least until after the next presidential election in 1994.

Central America and Paraguay

Telecommunications reform has been talked about from time to time in Central America from the late 1980s, but little action has followed. By mid-1993 the main exception is El Salvador. In the wake of the end of civil strife which had severely damaged the country's already modest telecommunications facilities, the government, with the assistance of consultants, carried out a review of Administración Nacional de Telecomunicaciones (ANTEL), the state telecommunications enterprise. Whereas initially the focus was on improving ANTEL, it subsequently broadened to consider a wider range of sector options. Consultants will help prepare detailed plans for reform. There is also some movement in Honduras. In early 1993, the president of Honduras announced the privatization of Empresa Hondureña de Telecomunicaciones (HONDUTEL), the state telecommunications company. Action may follow the presidential elections of late 1993. Also, bids have been invited from independent operators for a national license to provide cellular services. In Nicaragua, in 1992, the government examined options for telecommunications reform as part of a broad economic strategy review, but in the context of deteriorating
Implementing Reforms in the Telecommunications Sector

economic and political situations no decisions have been announced. Scattered initiatives toward private sector participation in Costa Rica and Guatemala were quickly defeated by various interest groups.

In 1991 the government of Paraguay expressed interest in revising the telecommunications sector arrangements. So far, however, action has been limited mainly to introducing cellular services.

Endnotes

1. These characteristics and constraints are discussed for developing countries in general in the first chapter of this book.

2. Several other smaller companies, including a few private ones, provided telephone service in parts of the country, and domestic and international telex.

3. Employees were offered 50 percent of future severance payments provided they invested 80 percent of the amount received in purchasing CTC shares. Eighty-four percent of employees thus acquired 6.4 percent of CTC by the end of 1987. Pension funds acquired a further 7.6 percent. By end 1987, 25 percent of CTC was privately owned.

4. This figure is comparable to Europe (for example, British Telecom 9) and close to the U.S. average of about 5.

5. These results are based on subtracting from the social net present value of CTC under private operation from what would have been its value had it continued under public ownership. The methodology and detailed analysis of various cases can be found in Galal and others, World Bank, forthcoming. The analysis for CTC is given in Ahmed Galal and Clemencia Torres, "Compañía de Teléfonos de Chile," World Bank, 1992, processed.

6. Lower tariffs would further increase consumer gains, but CTC privatization did not result in tariffs changing either way.

7. ENTEL's gains from CTC privatization followed from the prevailing sector structure in which most of the highly profitable long-distance and international traffic was carried by ENTEL. As competition builds up in these market segments, ENTEL's gains will be shared with new entrants.

8. This is in contrast with the initial results of similar studies in Mexico and Argentina, which suggest that the gain in welfare was captured mainly by foreigners while nationals were actually left worse off. These findings, however, may relate to the fact that since the studies were done soon after privatization, data on actual service growth and improvement, which are the main source of user gains, were not yet in hand.

9. For a detailed discussion of the evolution and features of the Chilean telecommunications regulatory regime, and its impact on sector development, see Ahmed Galal, "Regulation, Commitment and Development of Telecommunications in Chile," World Bank, December 1992, processed.

10. Since Galal's study did not include quality of service in the measure of welfare changes, this means that the figures for consumers (and the total) are somewhat overstated.

11. Although the discussion of the provision of telephone service in rural areas is often cast in terms of the need for subsidy, the problem probably has more to do with
rural areas being less profitable than meeting unmet demands in cities. A number of commercially successful rural telephone services operate in Chile, including that promoted by a small regional operating company in the south of the country as well as telephone and power cooperatives.

12. In a sense it could be said that SUBTEL suffers the weaknesses of ministerial regulatory arrangements but enjoys few of the advantages.

13. The government decided at an early stage that ENTel had to be divided before sale, on a regional or services basis. The consultants' initial proposition—to break up ENTel into three regional companies (Buenos Aires, north, and south)—proved highly controversial in terms of market structure. In particular, the Buenos Aires company would have most of the revenue-earning potential but little of the network, which would be mostly in the other two companies. This imbalance was thought to exacerbate issues of division of revenues and also to limit the threat of competition in the lucrative Buenos Aires market at the end of the exclusivity period. Eventually the government agreed to have only two regional companies, splitting Buenos Aires in the middle—along Avenida Cordoba. It was considered that the technical difficulties of untangling the two companies' network in Buenos Aires were not unduly intractable, could be largely done by the companies themselves after taking over from ENTel, and the costs would be more than offset by the gain in market dynamics.

14. In mid-1992, the two regional companies also consolidated operations in their respective territories by purchasing the assets of Compañía Argentina de Teléfonos (CAT). CAT, an Argentine company related to L. M. Ericsson of Sweden, was a residual from much earlier sector structures. Nonetheless, with about 290,000 telephone lines (9 percent of Argentina's total) in Mendoza and several other provinces, CAT was not an insignificant operation. CAT's operating authorization, however, had expired several years before ENTel was privatized, and it had been agreed that the successors to ENTel would negotiate directly the purchase of CAT assets in their respective coverage areas. It may be noted that the combined sale price of US$120 million, or about $400 per line, paid for CAT amounts to little over one-half the price per line paid for ENTel two years earlier (see Table 3-1 in the main text), and an even lower fraction of the share value of the regional companies at the time they took over CAT.


17. The consultants who helped the government draw up the terms and conditions for sale of ENTel, the World Bank, which financed preparation of the privatization and awarded the government a large balance-of-payments support loan partly on condition of good progress in this process, as well as the local and international investment bankers who led the actual sale, all insisted on the need to establish clear regulatory foundations. They regarded this as essential to provide assurances to the
Implementing Reforms in the Telecommunications Sector

new operators-investors as well as to safeguard the public interest and that of emerging competitors. The government went along with this but, with hindsight, never took much interest. In particular, the World Bank went as far as meeting President Carlos Saúl Menem to press the point of setting CNT directly under his office, but failed to achieve this goal.

18. CNT now pays an independent consumer defense group to receive and process customer complaints. In response, Telefónica retained an international accounting and management firm to provide computerized service centers to handle customer billing and complaints.

19. Licenses for cellular services in the provinces (that is, outside Buenos Aires, where a subsidiary of BellSouth and Motorola has been in operation since 1990) will be awarded under competition. TELECOM and Telefónica de Argentina will be allowed to provide a second cellular service in the provinces only two years later, to allow the new entrants to get started.

20. This and the preceding paragraph draw mainly on Alice Hill and Manuel Abdala, “Regulation, Institutions and Commitment: Privatization and Regulation of the Argentine Telecommunications Sector,” World Bank, January 1993, processed.

21. This section draws extensively on Peter Smith and Björn Wellenius, “Mexico Telecommunications: One Year (Plus) After the Reform Program,” World Bank, May 1, 1992 mimeo.

22. In general compared with practice in the U.S. and other countries where tariffs are closer to costs, TELMEX’s rental and local call charges were low, and connection fees and international call charges high. This was compounded by a telephone tax averaging over 30 percent of telephone bills, with higher tax rates for international and long-distance than for local use. This was perceived to cause substantial economic inefficiencies, including a competitive disadvantage to Mexican businesses.

23. Telecomunicaciones de Mexico (TELECOMM) took over SCT’s former operating functions as well as the telex and packet-switched data services of the postal administration. Subsequently, TELECOMM sold the microwave network to TELMEX. TELECOMM, which does not receive government funding, is now almost solely in the satellite business, mainly leasing facilities to TELMEX and a substantial number of private networks. TELECOMM owns and operates the domestic Morelos satellites, is building a new satellite system (Solidaridad) for domestic and subregional coverage in Latin America, and provides access to the INTELSAT system for international services. An article in the Mexican constitution has been interpreted to mean that only the state can own and operate satellite systems.

24. It should not be assumed that reforms proceeded entirely along a smooth sequence as might be inferred from the text. For example, the modernization program went through successive drafts and was finalized only after TELMEX had been privatized. The franchises to independent cellular operators were awarded before the reform package was fully defined and at the time appeared to some as premature and preempting some policy choices as well as potentially undermining TELMEX’s sale price. The franchise for cellular services in the federal district of
Mexico City, the largest single cellular market, was not awarded through competition but rather granted as an extension to an existing license for mobile radio.

25. For example, in 1991 the number of connected public-switched telephone lines increased by 12.5 percent (670,000 lines), exceeding the minimum 12 percent per annum required in 1991–94 by the concession. It was also above the 11 percent actual growth in 1990 and 1989 and the paltry 5 to 7 percent since the early 1980s. Quality and continuity of service targets (defined by composite indexes, including fault rate and proportion of faults cleared in one and three days, time to obtain dial tone, local and long-distance completion rates, operator response times, and number of public telephones in service) were met in all regions except the capital city, where a massive improvement program was under way. Tariff levels were adjusted from time to time for inflation and remained below the aggregate cap established in the concession while further rebalancing individual service charges (higher rental and local call charges, lower long-distance and international call charges), bringing them closer to international practice.

26. TELMEX has done very well financially. In real terms, during 1991 revenues increased 21 percent while operating expenses rose only 7 percent. Net income after cost of financing, taxes, and workers' profit sharing increased by a whopping 78 percent, yielding a healthy 28.7 percent return on stockholders' equity, up from 20.3 percent in 1990. In 1991, about 75 percent of total investment was financed with internally generated funds.

27. For example, several of the cellular companies have built about 2,000 kilometers of digital microwave routes for interconnecting cellular facilities, but this may also provide a starting point for developing a second long-distance carrier in the future.

28. For example, cellular operators seeking to expand the scope of business, private networks selling excess capacity.


30. This section was kindly contributed by Robert R. Taylor.

31. Another factor is the relative homogeneity of cellular technology. The nine Mexican independents use equipment supplied by only two manufacturers, which minimizes the technical problems of network integration.

32. American Depository Receipts (ADRs) represent ownership of shares held in other countries by U.S. banks or their agents. They are traded in the U.S. as regular stock.

33. Nonetheless, some analysts believe that the price paid for CANTV, and maybe for TELMEX, will in the long run prove to have been excessive, in terms of the investors' exposure and credit rating, if not in terms of initial returns on equity. Recent events lend some support to these views. For example, in a single week in June 1992, TELMEX's shares lost almost one-third of their value, ending three years of uninterrupted appreciation that made TELMEX one of the most sought-after stock market investments.

34. There is related experience in other regions. For example, the case of Sri Lanka will be discussed in a later part of this book.
Implementing Reforms in the Telecommunications Sector

35. The government’s accrued pension liabilities are often large, insufficiently documented, and highly valued by the workers. The tendency so far has been for these liabilities to stay with the state rather than be passed on to the new owners. This gives assurance to the workers as well as facilitates the buyers’ evaluation of the company.


37. For example, Bond’s sale of CTC, after contributing little to the company apart from carrying it across the threshold between the state to private sectors, could with hindsight be interpreted this way. This is not to say that the privatization had no effect on CTC’s performance. It did, but mostly resulting from freeing CTC from the constraints it had been subjected to as a state-owned enterprise, and from profit-seeking pressure by the foreign owners on CTC’s local management, rather than due to any contribution of management or technical resources.

38. The operators do not view themselves as financial investors and have so far kept their equity participation at a minimum. See, for example, the views of STET and Bell Atlantic in a later part of this book.

39. Also note that although the flotation of US$100 million by CTC in the U.S. market was a breakthrough, it contributed but a small fraction of the capital required for investment.

40. For example, there are successful cases of rural telephone cooperatives in Brazil, Argentina, and Chile. Telephone service in the city of Santa Cruz, Bolivia, is successfully provided by a cooperative, COTAS (but similar arrangements in other cities have been less satisfactory). Finland’s highly efficient telecommunications sector is largely structured in terms of small local cooperatives. A study completed in 1992 by TELECON (the Finnish PTT’s international consulting arm) and the World Bank has examined the Finnish experience and drawn lessons for developing countries that are relevant to Latin America.

41. Some technological developments, however, work in the opposite direction. It could be argued that the advent of wide-band optical-fiber transmission, for example, reintroduces large economies of scale.

42. In 1992 China’s telecommunications system became the largest in the developing world. Relative to population, Brazil with about 8 lines per 100 inhabitants is somewhat above average for Latin America and several times the average for the developing world. China has about 1 line per 100 inhabitants, the lowest in Asia and one of the lowest in the world.

43. In particular, local communities and real estate developers may now invest in and build local telephone facilities interconnected with TELFBRÁS.

44. In one province, telecommunications are organized as a provincial company, providing both local services and intraprovincial long-distance service.
Liberalization and Privatization in Chile

José Ricardo Melo

The process of liberalization and privatization of the telecommunications sector in Chile began about fifteen years ago. The legal, economic, technical, administrative, and political components of reform were dealt with in stages. New policy, law, regulatory arrangement, and pricing rules were designed and successively introduced. The government then sold its shares in the major telecommunications operating companies. Although it has gone a long way, the reform process is still not complete. Currently, a reevaluation of the whole process is likely to lead to further policy and regulatory adjustments. This chapter describes the main features of the Chilean telecommunications reform, focusing on changes in regulation and ownership.

The Preliberalization Scene

Until the mid-1970s, the telecommunications scene in Chile was one that was quite common in developing countries. The accepted view was that for infrastructure sectors, such as telecommunications, the government should not only direct and oversee the development and operation of the sector but also be directly involved in planning and operating the facilities and services. Even if the law did not rule out private operating companies, in practice the government-owned enterprises dominated the field. Although the resulting system was overall technically sound, development was constrained especially regarding financing and management of the dominant operating enterprises. The sector organization came to be perceived as clearly unable to catch up with demand and face the growing requirements of the emerging information era.

The Legal Framework

There was no specific law for telecommunications. The Electric Utilities Law was deemed to apply to telecommunications, even if the resemblance between both sectors was quite limited. Actually, only two provisions of this law were enforced in the telecommunications sector. First, any user or supplier interested in establishing and operating a public or private (that is, dedicated) telecommunications facility or service had to apply for a government license. In practice, monopoly operation,
Implementing Reforms in the Telecommunications Sector

although not established either by law or the terms of the concessions, was the norm. The government did not authorize new public service operators in areas already covered by existing concessions, irrespective of whether the existing operator met user needs. Licenses for dedicated networks (for instance, for use among sites of large mining and farming companies) were granted, provided the public operators could not meet the users’ requirements.

The second aspect of the Electric Utilities Law that was applied to telecommunications was pricing. Tariffs of public telecommunications services were set by the government so as to allow each operating enterprise to make a 10 percent rate of return on fixed assets. Approved tariffs, however, often were lower than those applied for by the operators. This led to company accounting practices that overstated the value of fixed assets. The government agency responsible for reviewing the applications for tariff changes largely lacked the accounting standards, analytic skills, access to information, and independent regulatory power to deal with tariffs in any depth. In this context, tariffs were largely decided on a political basis.

Technical standards issued by the government were all but nonexistent, as were the control procedures for their enforcement. Standards were mostly issued by the monopoly companies themselves as internal norms which thus became the de facto national standards.

The Operating Enterprises

In this period there were two main public telecommunications enterprises and a number of smaller ones. These two main companies, both state-owned, had the power to control almost every significant development in the telecommunications sector, since for every new project it was normally necessary to request some local or long-distance capacity from them, the sole providers.

Compañía de Teléfonos de Chile (CTC) was the largest of these enterprises. CTC provided local telephone service to about 300,000 subscribers, accounting for 95 percent of the country’s total. CTC resulted from mergers among a large number of small private local telephone companies set up around the turn of the century, consolidated in 1930 into a company owned by International Telephone and Telegraph Corporation (ITT). In 1967 the government invested in an ambitious program to expand and modernize CTC, which thus became jointly owned by ITT and the Chilean state. In 1971 the government unilaterally intervened and took over CTC’s management and assets. Finally in 1974 a compensation agreement was reached with ITT, and CTC became a mostly state-owned company under the control of Corporación de Fomento de la Producción (CORFO), the state development corporation. Despite accelerated growth in the 1960s, service penetration remained very low (about 3 telephone lines per 100 inhabitants in 1976) and showed no signs of growing. Unsatisfied expressed demand (waiting list) had reached over 50 percent of lines in service, and hidden demand probably amounted to a similar or even higher figure. Although local service in most locations was automatic, new technologies coexisted with old and service innovation was slow. In particular,
Liberalization and Privatization in Chile

CTC's outdated long-distance network using mainly open wire lines and a single short microwave link between the capital city Santiago, and the main port Valparaíso, had not kept up with development of local facilities; all calls required operator assistance, and service was often of poor quality and subject to long delays.

Empresa Nacional de Telecomunicaciones S.A. (ENTEL), the other large operator, was a mainly state-owned company established by CORFO in 1964. Together with government investment in and joint ownership of CTC, the advent of ENTEL represented the culmination of years of public debate—largely led by the professional engineering associations and academia—and increasing government awareness of the extent to which inadequate telecommunications was constraining economic and social development. ENTEL built a modern, countrywide microwave network including terrestrial links to neighboring countries and in 1969 was first in South America to introduce international service by satellite. ENTEL's main business was leasing domestic long-distance capacity to CTC, other local telephone companies, television broadcasting networks, and corporate users, as well as operating international services. CTC was not authorized to expand or modernize its own long-distance facilities; the old network was largely segmented to provide spurs into low-traffic centers, while circuits leased from ENTEL provided the main trunks. Although the new facilities greatly improved service, protracted conflicts between CTC and ENTEL impeded introducing subscriber trunk dialing, data transmission, and other services and facilities. Also, although long-distance revenues were to be split, theoretically, in proportion to each operating company's share of costs, in practice greatly overpriced long-distance and international services cross-subsidized underpriced, flat-rate local services; this, however, did not result in sustained extension of service to new areas.

There were also two smaller telephone companies: Compañía Nacional de Teléfonos (CNT) provided local and intraregional long-distance telephone service in the south of continental Chile to about 12,000 subscribers, accounting for about 4 percent of the country's total; Compañía de Teléfonos de Coyhaique (CTY) provided telephone service in the main towns of the province of Aysén, with about 1,000, or less than 1 percent of all subscribers. Both companies were privately owned until they were taken over by the government in 1971. Domestic and international telex service was provided to about 1,500 subscribers across the country by the telegraph branch of Correos y Telégrafos, the government post office administration. Three small privately owned companies competed with the post office to provide international cable, and later telex in major cities.

Deregulation

In 1975, a new national development strategy was implemented in Chile, encompassing almost every sector of the economy. It was based on encouraging a free market economy, stressing the roles of domestic and international competition and of private investment. Efficiency in the allocation of resources and in business management was strongly advocated. One of the first steps was to liberalize sectors
Implementing Reforms in the Telecommunications Sector

that were highly regulated, thus opening the way for new investments and more efficient operation. Moreover, better management in government-owned corporations was sought.°

First Openings

In the telecommunications sector, only partial measures were initially taken. Resale of telephone lines by subscribers was made legal, overriding objections by the operating companies, resulting in a more efficient allocation of available lines, reduced pressures on company management, and in market transaction prices that better reflected the real scarcities of service. Likewise, telephone companies were required to accept the transfer of telephone service with rental or sale of real estate. Shortly after, telephone companies were also required to interconnect terminal equipment—especially telephone sets and private branch exchanges (PBXs)—obtained by the subscribers from independent suppliers. The absolute power of the main telecommunications companies started to decline.

Establishment of a Regulatory Agency

The first important change in telecommunications legislation established in 1977 a government agency responsible for telecommunications regulation. This was the Subsecretaría de Telecomunicaciones (SUBTEL, or Office of the Undersecretary of Telecommunications) under the Ministry of Transport and Telecommunications. SUBTEL was put in charge of granting licenses and franchises, developing and enforcing technical standards, and overseeing the operation of all telecommunications networks and services. Clearly, the government was establishing an institutional basis for a new legal structure of the telecommunications sector.

Telecommunications Policy

The next important step was the promulgation, in 1978, of a national telecommunications policy. This was a public statement of principles and intentions, a rather uncommon step in the Chilean legal and political system. The policy statement introduced the principle of economic efficiency and established that telecommunications services would normally be provided by parties other than government. The policy, however, had limited legal standing (it was an executive decree, not a law) and was operationally inconclusive (general principles with no specific rules). Therefore, it was unsuitable for direct enforcement and most probably was not intended for that purpose. Nevertheless, it was on the policy's principles that sector reform was subsequently built.

The process of change was not without legal problems in the first years. As old regulations based on the electric utilities law had still not been abrogated, they frequently conflicted with the new principles espoused in the policy. It was well known that the government was trying to follow the latter, but legally the old
regulations had to be complied with. Important decisions were not made because of insufficient legal basis, and others ran the risk of being challenged in courts by those interested in maintaining the status quo.

Even if not directly enforceable, the policy encouraged aggressive entrepreneurs, who started investing in telecommunications almost as soon as the policy was promulgated. Of course, these were not isolated initiatives: private investors had noted and felt supported by the fact that the whole economic regime was moving in the same direction, and that the telecommunications policy was just one among several related economic and legal initiatives taken by the government.

The 1982 Telecommunications Law

In 1982, a new telecommunications law was finally passed, one that reflected the 1978 policy statement very closely. The old Electric Utilities Law was explicitly abrogated for telecommunications.

In broad terms, the 1982 Telecommunications Law included a classification of different services; a system of concessions and licenses whereby any person or entity, national or alien, can apply to provide telecommunications services; the requirement that all telecommunications operators comply with basic technical and operational standards (defined through subsequent ministerial decrees); the reinforcement of SUBTEL's regulatory powers; and penalties for infringements of the law.

One important point on which the law elaborated very little, however, was tariffs. Only a general statement was included, indicating that monopoly services could have their tariffs set by the government, tariffs for other services being set without restriction. This did not provide enough information for prospective investors to assess the returns that could be obtained in most telecommunications businesses. Nonetheless, given that the government still exercised ownership control of the main operating companies and that its general pricing policy was that tariffs should reflect costs, tariffs were gradually adjusted toward decreasing cross-subsidies.

The 1987 Additional Telecommunications Law

In 1987 a major addition to the 1982 law was introduced, focusing mainly on three matters: procedure for setting monopoly tariffs, service obligations for public telephone companies, and subscriber financing of new investment.

On the issue of tariffs, the Fiscalía Nacional Económica (Office of the National Economic Prosecutor) was empowered to decide whether a service was offered under monopoly conditions and thus the government should set its tariffs. A tariff-setting procedure was specified for such cases, based on incremental costs subject to review every five years. Regarding service obligations, the additional law required the telephone companies to provide a telephone line to any applicant within two years of filing for service in listed urban areas within the company's concession territory. The list would be revised from time to time until eventually all urban areas were included. New operating companies would be licensed to offer service in areas where the existing
Implementing Reforms in the Telecommunications Sector

companies had failed to meet this obligation. Lastly, the telephone companies were given the option of requiring that new subscribers contribute capital up to the average investment cost per line, in exchange for which the company must give the subscriber shares in the company's capital stock, or bonds or other debt instruments.

The 1987 law also established a fee to be paid to the government by every licensee who holds a band in the radio frequency spectrum, according to the kind of service, bandwidth, and radiated power. The 1982 and 1987 laws were followed by several decrees that detailed technical standards for different services and networks.

At present, the overall framework established by the policy, laws, and decrees, is legally in full force: the concessions and licenses system, the standards-setting system, the supervisory system, and the rate-setting system, are effectively in operation (the latter since 1989). This framework, even if far from being perfect, has provided the basis for major changes in the supply of telecommunications services which are generally well regarded by users. It has been also the basis for very significant changes in the ownership of the largest telecommunications companies.

Privatization

Abandoning the traditional view that state ownership was essential for telecommunications development, the 1978 telecommunications policy advocated private ownership of the telecommunications operating companies.

Emerging New Operators

In 1978 and 1980, two small privately owned telephone companies were established and granted concessions overlapping parts of CTC's service areas. These companies took advantage of the severe shortage in the supply of telephone lines, especially in affluent residential and commercial districts. CTC was required to interconnect to the new networks, which partly duplicated CTC's own networks. Later, a new small private company, a joint venture with a foreign operator, was established to provide mobile telephone service. By then, several small firms represented and distributed foreign telecommunications equipment manufacturers; the terminal equipment market in particular flourished.

Sale of State-Owned Enterprises

By 1982, the government started selling its shares in telecommunications companies. First it sold CNT and CTY, the two small telephone companies in southern Chile. Both were bought through private bids by VTR, one of the existing private telex companies.

A struggle had started by that time within and outside the government on the eventual privatization of the two largest state-owned companies, namely CTC and ENTEL. Several voices (including the military) opposed total or significant priva-
zation, on political, economic, labor, and security grounds. However, the government went ahead with its plans. In 1986, Telex-Chile, the successor to Correos y Telégrafos's telex operations which had been restructured as a state-owned company and prepared for privatization under commercial management, was put up for sale by the government and awarded to a consortium of Chilean investors and telecommunications professionals. That same year the government began selling limited amounts of stock in CTC and ENTEL through the Santiago stock exchange and private sales. The principal buyers were several Chilean private pension funds and other national and foreign investors. A significant percentage of ENTEL stock was sold to the company's employees.

In 1987, the government identified three consortia interested in CTC and invited them to bid for a controlling package of CTC shares. The very simple terms and conditions of sale required the buyer to increase the company's capital by US$100 million within twelve months of the sale but did not include any obligations regarding service expansion or quality improvement. At this time, however, the 1987 additional law was passed, including provisions concerning tariffs and service obligations. The terms and conditions of sale allowed bidders to make their offers partly payable in Chilean sovereign debt outstanding in the international financial markets. The selected bid was disqualified by the State Comptroller's Office (Controloría General de la República), however, on administrative grounds. The government subsequently negotiated with the previously selected bidder, Australian investor Alan Bond, who paid US$140 million for 35 percent of CTC's shares and took control of the company in early 1988. Two years later, after investing the required US$100 million in CTC and collecting about US$90 million in dividends, Bond sold his share of CTC stock, now about 50 percent, through direct negotiation to Telefónica de España for US$390 million. In mid-1990, US$100 million of new CTC's stock was sold in the U.S., the first transaction of this kind by a Chilean company.

In 1989 Telefónica de España, which had unsuccessfully bid for CTC in 1987, bought from CORFO 10 percent of ENTEL's shares, and a further 10 percent in 1990. Although this did not give Telefónica a controlling interest in ENTEL, it was the largest single holding and allowed it to exercise considerable power.

By mid-1991, the state retained no significant ownership of any telecommunications company. Telefónica, with a strong minority interest in ENTEL and majority ownership of CTC, had become the largest single investor in Chilean telecommunications. By the end of the year, ENTEL's employees sold a small percentage of the shares they held in the company, dismantled the association they had set up for jointly managing their stock, and distributed the remaining shares among the employees individually; however, the ownership pattern may not be fully settled: in April 1993, the Supreme Court decided that on anticompetitive grounds Telefónica must sell its stock in either CTC or ENTEL. In the meantime, the market prices of CTC and ENTEL shares have increased above the average increase of the index of the Chilean stock market.
Implementing Reforms in the Telecommunications Sector

Pricing Policy and Tariffs

Throughout the liberalization and privatization process, one ever-present issue has been that of tariffs. At the beginning of reform, the average level of telecommunications tariffs was too low to provide an adequate return on investment, and the tariff structure (that is, the relative prices of the various services) bore little relationship to the cost structure.

Initial Tariff Corrections

Despite general agreement that these imbalances should be ended as soon as possible, there were different opinions on the timing of tariff adjustments. A particular difficulty was the lack of reliable cost data by types of service. Nonetheless, the government decided that the direction of adjustments was clear enough, and that initial adjustments could be safely undertaken even if the exact cost figures were not yet known. The first corrections were introduced in 1983 and 1984. At the same time, the first service-based cost studies ever conducted in Chilean telecommunications companies were started. These studies were expected to provide a better basis for the next round of tariff review.

Experience with these tariff changes showed that they could be implemented quickly and that demand was rather inelastic, at least initially. However, as service expanded to lower-income groups, incremental demand slowly became more elastic, especially in relation to the initial connection charge.

Theoretical Model for Telecommunications Tariffs

In 1987, a rate model for telecommunications was developed. Its theoretical basis was the determination of long-term incremental costs for each service, in each part of the country, and for each operating company. Rather than actual costs, those of ideally efficient companies were used, reflecting what would result from using the most appropriate new technologies available. Since these incremental costs most probably would not be enough to cover total costs, they would be corrected in such a way as to minimize distortions [sic], thus obtaining a set of tariffs that ensured near-maximum economic efficiency as well as self-financing for every service, every region, and every company. Profits were indirectly set since capital costs were included; the exact applicable figure for capital cost would be calculated considering basic risk-free investments, market risk, and telecommunications industry risk.

An indexation formula was included in the model for each company. The whole tariff system was built on a plan for services development that each operator was to submit to the government in advance of the tariff-adjusting process.
Practical Simplifications of the Model

Even if theoretically appropriate, this model was too elaborate for practical purposes, and some simplifications became necessary. Not enough information on the cost of capital was available in Chile, and so a proxy had to be adopted. Then, clearly, the model could not solve the classic problem of irrefutably apportioning common costs among different services of regions. Moreover, it could not determine unambiguously which was the ideal efficient network design. And finally, the process assigned to the regulated companies the dominant role in the process of setting its own tariffs. But the model at least provided a reasonable general framework, and it was put to work.

It also became apparent that even if the avowed goal was to eliminate all cross-subsidies in five years, that would not be possible in some cases. A small distant city in the far south of the country, for example, linked only by satellite to the rest of the country, would have its long-distance rates multiplied several times if it were to pay for all its costs. The definition of a very large service area became necessary to allow some averaging out of singularly high cost elements.

Finally, decisions were made, simplifications were introduced, and numerical results came out of the model, setting the tariff framework for a term of five years; however, this term has been shown to be one of the most critical parts of the system. On the one hand, it is desirable that frameworks such as this be kept as stable as possible, in order to allow for adequate evaluation of possible investments by private companies. On the other, it is also desirable to keep open the option of introducing some changes in the model if it reveals itself as inadequate or too tight, especially when being applied for the first time.

In this case, the model, although too rigid, was embodied in the law, making it therefore extremely difficult to modify. As the end of the first five-year term approaches, both the government and the companies are interested in modifying some parts of the tariff system, even if each side has different opinions on which parts should be revised. Moreover, introduction of competition in the long-distance area will necessarily change some of the assumptions made when the tariff system was first set up.

The Telecommunications Companies in the New Environment

In Chile, telecommunications liberalization has shown that dismantling monopoly powers is a rewarding but long and difficult task. New companies have been established, and of course, many of the old monopoly powers have all but vanished. Nevertheless, the two old big companies, CTC and ENTEL, now private and partly subject to competition, are still the strongest controlling powers on the Chilean telecommunications scene. One can only wonder what the results would have been had there been just one big company. Before privatizing CTC, the government
Implementing Reforms in the Telecommunications Sector

debated whether to first break it up into smaller regional companies; it became
convinced, however, that significant economies of scale continued to prevail and that
the regional pieces would eventually have been merged into a new single company.

It is evident that in any liberalized sector, companies try to keep their old monopoly
niches and simultaneously try to erode those of other companies and advance into
new markets. Their credo might well be "My area is a natural monopoly, but yours
is a competitive one." No company likes to be labeled a monopoly, but it dreams of
having a market niche for itself.

Long-Distance and New Services

In the aftermath of liberalization in Chile, the most interesting opportunities are
perceived to be in the long-distance market. Both CTC, the mainly local services
company, and at least one of the smaller operators, Telex-Chile, have shown
themselves to be very aggressive in disputing this market with ENTEL. CTC has
also entered or is trying to enter other markets, including cellular, consultancy,
customer premises equipment, and even investment in telecommunications abroad.
For the time being, CTC is not fearful of having its original local services market
invaded: with current technology, this market is still largely a natural monopoly, even
if cellular telephony could become a strong challenger (it is therefore no coincidence
that CTC is investing heavily in cellular service).

Other companies are trying to position themselves in new emerging markets.
Telex-Chile has been very active exploring and developing technically more sophis-
ticated markets, because the demand for telex is quickly disappearing. In fact, Telex-
Chile has established an independent domestic and international long-distance
satellite network (which CTC is still not allowed to do). A contract has been signed
between Telex-Chile and CTC through which a significant portion of the public
international traffic is managed by this network. This contract has been denounced
by ENTEL and VTR as monopolistic (VTR has established a network similar to
that of Telex-Chile, but it has not been able to reach a similar agreement with CTC).
Other smaller companies are still looking for an appropriate place in the market.

Even if initially the different companies were interested in entering domestic long-
distance, now clearly the focus of interest is international long-distance. The present
tariff system, recognizing the benefits of imbalances in international traffic, permits
exceptions to the general criteria of cost-based tariffs. The exceptionally high returns
thus produced are now attracting several competitors, but the outcome of competi-
tion in this area is still not clear: Who should be accepted into this very profitable
market? What tariff-setting system should be applied, if any? Is uneconomic entry
into the market being promoted by the present conditions? If this is the case, how
can it be avoided?

This is just the point where a strong dispute has arisen, shaking the whole new
regulatory system. Even before it had requested the corresponding concessions,
CTC bought some US$50 million worth of the latest long-distance equipment and
is now at least temporarily prevented from installing and operating it by a restraining
court order. ENTEL argued that a captive market could be developed by CTC with its local subscribers and requested that if a competitive market is established for long-distance services, CTC should be excluded from it. In the meantime, other companies such as Telex-Chile and VTR have already established their systems; yet it has been impossible to reach a stable agreement for operation during the more than three years that this dispute has lasted. Up to now, the only point acknowledged by everyone is that the most adequate structure for competition is the so-called dialled multicarrier (whereby every long-distance call would include a special digit through which the caller would select its preferred carrier); however, there is still dissent on how and when this system should be introduced (and who would be the competitors).

The Government’s Position in the New Environment

The reform process has deliberately changed, in a major way, the role of the government in the telecommunications sector. Traditionally, the government determined its sectoral policies and implemented them through the enterprises that were directly under its control. Liberalization, and especially privatization, extinguished this path. Moreover, sectoral policy today is conceptually quite a different subject: more orientation than direct action, more emphasis on services than on systems and networks.

The government is still developing the exact idea of what a sectoral policy should be in this new environment. Very important issues, such as under what conditions could or should the regulator reject an application for a concession, have not yet been solved. Even if all the operational activities are now in private hands, there is general agreement that this is a sector where the government must keep a supervisory and possibly an orientation role. However, the exact extent of these remain to be defined. At the same time, the institutional means to discharge these duties must be determined.

One of the most important lessons from the reform process is that the government did not adequately foresee the need of a specific institution to take over the role of developing and overseeing implementation of sectoral policy. Between 1977, when SUBTEL was established, and 1987, when privatization was largely under way, the state-owned companies were still the most important institutions in terms of sectoral policy. During this time SUBTEL devoted itself mostly to technical and administrative matters. But then, after 1987, the government found itself with no locus for sectoral policy formulation, and this is clearly a point that must be changed.

Also, long-standing conflicts among telecommunications companies call for important additional policy guidelines and regulatory decisions, but the current allocation of responsibilities has resulted in protracted debate with no firm decision in sight. Two cases in point are the conflict between CTC and ENTEL regarding competitive provision of long-distance services discussed above, and the question of whether Telefónica should divest itself of either CTC or ENTEL to avert the risk of anticompetitive practices and possible monopoly consolidation of the two dominant operating companies. For more than three years, both these issues had been subject to successive rounds of review, decisions, revision, and referral to other
Implementing Reforms in the Telecommunications Sector

agencies, by SUBTEL, the antitrust tribunals, and the ordinary courts of justice. Irrespective of what each player thinks is right, a system that takes several years in settling these crucial matters badly needs improvement. Independently of whether CTC overstepped its authority when it purchased new long-distance equipment, as some observers argue, the fact is that it has been impossible to define the final destination for a substantial amount of equipment; this results in economic loss not only to the companies involved but also to the economy at large.

Overall Evaluation of Results

Almost fifteen years after the beginning of the reform process, the results seem to be considered, overall, quite positive, but major weaknesses remain to be addressed.

Successes

Evidently, the telecommunications sector is currently far more active than it was in the old times of state-owned monopoly. Many new services have been introduced, including data transmission, cellular telephony, radio paging, and cable television. Even though supply still lags behind demand, public-switched telephony has been growing at more than 10 percent per annum (especially in these last years), more than twice the rate of the preceding two decades.

Besides the increase in the volume and variety of services being offered, a significant improvement in the ease of transactions must be emphasized. The market has replaced a centralized scheme where almost every sale or purchase was made to one of the large monopolies. Now resale is possible in almost every situation, and normally one can find several providers for different service needs. Many third parties contract freely among themselves and transfer the facilities they have at their disposal.

The equipment market has also developed. Terminal equipment and the number of providers have increased dramatically in number and variety. The big telecommunications companies have also increased the variety of equipment they buy, and now do business with numerous manufacturers of many different countries. Chile is no longer the territory of any particular supplier.

Moreover, the public seems to judge positively the changes that the sector has undergone. A limited survey, conducted in 1989, showed that users rated service as generally good, even if some aspects were mentioned as deserving improvement.

Weaknesses

On the other hand, the reform process itself also shows some weaknesses. First, and despite the increase in number and variety of service providers, the two large traditional carriers, CTC and ENTEL, still have much power in the overall system. Of course CTC, as the local distribution company, controls much of the access to the final users, and it still has not been possible to balance this power to guarantee a real, open network for other providers. It is not that CTC's network is totally closed, but
Liberalization and Privatization in Chile

neither is it totally open; would-be competitors tend to distrust CTC, which happens also to own the basic means to access the users, as it tries entering almost every other market. Even if much weaker, ENTEL is in a similar situation in the long-distance market, where economies of scale seem to have decreased much faster than in local distribution. In fact, in the area of domestic long-distance ENTEL is no longer the only alternative; it may soon be losing its controlling position in the international long-distance market as well.

An additional problem is the limited real capacity of the regulatory system to control the supervised companies and services as indicated by law. Besides the lack of institutional locus for policy formulation and overview, the regulatory agency has very limited human and financial resources to carry out its functions. Any effective control of compliance with standards and service regulations has been all but impossible; procedures for testing and approving equipment to be connected to the network are still not wholly defined; the tariffs for monopoly services are largely determined by the regulated companies, while the regulator is unable to fully probe or challenge them. Finally, some aspects of regulation are under other jurisdictions, more specifically the ordinary courts of justice and the antitrust tribunals. This adds confusion and delay in dealing with regulatory problems.

One special point still not resolved is the difficulty currently faced by the government in promoting telecommunications projects of social interest, such as rural services, when these projects are not sufficiently profitable to attract the interest of the private operators. The feasibility of direct government subsidies was initially investigated, and this approach worked reasonably well in limited situations for some time; however, the administrative procedure proved to be too cumbersome, involving authorities in many different areas of government, and had little practical capacity to verify the extent of subsidies actually justified. Direct subsidy has been all but discontinued, and the prospects for getting a predictable flow of capital for this purpose from the central government budget are not encouraging. Probably some kind of limited cross-subsidy within the telecommunications sector would offer an acceptable compromise, but current rules do not provide for this.

Next Steps

A government evaluation of the whole telecommunications policy and of the present condition of systems and services was initiated in 1991. As a result, some amendments to the telecommunications law were proposed to Congress by the end of 1992, dealing mainly with the policy of competition in this sector, some refinements of the concession-granting procedure, and changes in the price-setting system. Evaluation of the most adequate institutional form for the regulatory agency is still ongoing. This could lead to further proposals of change in 1994. However, the most widely accepted opinion is that the fundamental basis of the sector policy should be kept and that only a few adjustments for better guaranteeing the basic goals of a liberalized system should be introduced.
Implementing Reforms in the Telecommunications Sector

On the other hand, feeling is widespread that the present state of relations among the main operating companies does not favor development. Of course, competition means some degree of confrontation, but at this time it seems that too many aspects of the market remain still undefined, and that this situation has lasted for too long. Legal conflicts among the companies are recurrent and the associated juridical procedures can take years. Challenges of governmental decisions in court frequently immobilize regulatory action, and practical capacity of the regulatory institution is still very limited.

Unquestionably, these conditions must change. The government would expect to find a way out of this, for itself and for the companies, through modifications in the law or other means; but then, in a liberalized system such as the one that is being built, it is not clear up to which point the government can actually intervene in affairs that can be considered private or that are currently subject to decisions of the courts. The proposals for modifications of the law will be a crucial test for the government’s capacities in dealing with these problems.

Clearly, some aspects of reform still remain to be resolved. Most probably they have to do with some kind of re-regulation; that is, a regulation specially suited for a liberalized system. Probably one of the most important results that has become apparent in the Chilean process is that deregulation, liberalization, and privatization should not be considered synonymous with elimination of regulation but rather with adapting regulation to a new environment.

Endnotes

1. Throughout this process CTC was a company incorporated under the Chilean companies law. A small proportion of shares was normally traded in the Santiago stock exchange. CTC’s franchise covered 76 percent of Chile’s territory and 92 percent of its population.

2. A study carried out by the University of Chile in the late 1960s documented, for the first time in a developing country, that with supply shortage the number of outstanding applications for new telephone connections largely understated unmet demand. In Santiago, the capital city, the study found that residential telephone connections demand at prevailing tariffs was about four times the number of outstanding applications. The existence of large hidden demands has since been repeatedly observed in other countries.

3. An important role in this process was played by Empresa Nacional de Electricidad (ENDESA), the highly successful and prestigious national state-owned power utility. ENTEL was eventually organized along the lines of ENDESA, which also provided its first generation of senior managers.

4. CNT was a joint venture by Chilean investors and Siemens, the main source of equipment and technical support. CNT served the main cities from Valdivia to Puerto Montt and extensive rural areas, developed its own long-distance regional network, and was the first to introduce subscriber trunk dialing in Chile.
5. These companies were subsidiaries of, or joint ventures with, foreign companies. ITT Comunicaciones Mundiales was part of ITT’s world radio telegraph network. VTR was a joint venture between RCA, several European manufacturers, and Chilean investors. Both provided international cable, and then telex service, to customers in major cities using their own transmission and switching facilities connected to users through lines leased from the local telephone companies. A subsidiary of Cable and Wireless offered cable services and later specialized in press services until it closed down in the 1970s.

6. Certainly it is ironic that this liberalizing policy could be enforced only by resorting to the powers of the military regime then in office.

7. Small businesses sprang up specializing in brokerage of telephone lines by individual local exchange areas. Individual buyers and sellers advertised in the main newspapers. Transaction prices typically were in the range of US$500 to US$2,000. Even higher prices prevailed for some time in certain business and high-income residential areas where shortages were particularly acute. Potential buyers were encouraged to check with CTC to ensure the change was technically feasible and paid CTC the standard fee levied to any subscriber for moving to a new location.

8. However, this provision would be fully enforced only at the end of a ten-year period, that is, in 1997.

9. See also chapter 29 by Dan Vallimarescu, “Privatization Through Public Issue of Shares.”

10. On April 20, 1993, Chile’s Supreme Court ruled that Telefónica must divest itself of its holding in either ENTEL or CTC. The court left the decision up to Telefónica. Also on April 20, 1993, Chile’s antitrust tribunal decided that Chile’s telecommunications market should not be segmented and that CTC and ENTEL should be permitted to enter each other’s markets which are open also to other service providers.
The Argentine Telephone Privatization

Hector A. Mairal

On February 6, 1991, the private groups that had purchased a controlling interest in the Argentine telephone system from the Argentine state paid the last installment of the purchase price. The first stage of the privatization process begun in September of 1989 was thereby successfully concluded.

The previous Argentine government had endeavored to privatize the telephone system in 1988 by selling a 40 percent participation to Telefónica de España S.A. Lack of competitive bidding was the main objection raised by the opposition to block this effort; however, given the swing in public opinion in favor of the privatization of state-owned public utilities, it was not surprising that when the opposition was elected as the new government in 1989, it announced from the start that it would pursue the same objective.

Most of the Argentine telephone system was nationalized in 1946-48. Until then, the main operator had been a subsidiary of ITT which functioned under a never-well-legislated regime of authorizations. In six of the twenty-two provinces, the service was owned and operated by the Compañía Argentina de Telefónos (CAT, a subsidiary of L. M. Ericsson), which was never nationalized and was still operating in 1989. Telephone cooperatives operating services in small communities also existed.

The telephone system acquired by the state was put under the ownership and operation of Empresa Nacional de Telecomunicaciones (ENTel), a wholly state-owned enterprise subject to the law of state enterprises. The main services provided by ENTel were: (a) public-switched telephone (local, long-distance, and international); (b) national and international telex; (c) packet-switched data; and (d) leased circuits. Prior to privatization, ENTel operated approximately 3,300,000 lines, comprising over 90 percent of all public network subscribers (CAT had 6 percent, and the balance was provided by local cooperatives). Argentina had only 8.8 telephone lines per 100 inhabitants, compared with 25 and 16 for Spain and Portugal, respectively. Quality of service was low: telephone call completion rates were estimated at 49 percent for urban calls and 29 percent for long-distance calls; there was a backlog of over four years to connect a new line; and the average repair time was fourteen days. Tariffs were low in comparison with neighboring countries; they were one-fourth of those in Chile and one-third of those in Uruguay. ENTel had 47,000 employees in 1989, most of them unionized.
Implementing Reforms in the Telecommunications Sector

The Legal Framework

The legal basis for the privatization program was provided by the State Reform Law 23,696 enacted by the National Congress in September 1989, and by its implementing regulation, Executive Decree 1105 of October 1989, whose main features were:

- According to Law 23,696 Congress decides which state enterprises may be privatized; however, the law identifies some state enterprises and companies which are to be privatized, including ENTel.

- Once a state enterprise or company is declared by Congress to be subject to privatization, the executive is empowered to carry out the privatization process.

- Privatization may be implemented through a sale of assets or shares, as well as by means of the granting of licenses or concessions.

- In principle, the new owner is to be selected through competitive bidding.

- The executive may choose to accept payment of part of the purchase price through the redemption of Argentine public debt.

As soon as the State Reform Law was enacted, the Executive issued Decree 731/89 to implement the privatization of ENTel. Successive decrees approved and amended the terms and conditions of the competitive bidding process, set its calendar, approved the awards, and finally approved the transfer agreements and granted the licenses to the new operators.

The Dramatis Personae

The State Reform Law gave the minister of public works and services the responsibility for implementing the privatization program. Responsibility for the privatization of ENTel was vested in an interventor appointed by the executive with all the chief executive powers granted by ENTel’s charter to the board of directors. Key roles were also to be played by the secretary and the undersecretary of communications.

One of the first decisions of the interventor was to appoint technical and financial advisers. This was achieved through a shortlist selection process, which proved essential to maintain the required professionalism of the privatization within the limits imposed by the general political and economic environment and the situation of ENTel itself. The management consulting firm Coopers & Lybrand, which drew on its experience in the privatization of British Telecom, was appointed technical adviser, while Morgan Stanley, a U.S. investment bank, and Banco Roberts, an Argentine bank, were appointed financial advisers.
The Key Initial Decisions

The State Reform Law provided for privatizations by means of competitive bidding, thereby excluding, in principle, direct negotiations with possible interested parties. Although this enhanced the transparency of the process, it imposed limitations on the discretion of the people in charge of the process; this was because Argentine rules on competitive bidding, at least as generally construed, tend to emphasize formal aspects and accept only a static comparison of offers instead of a more dynamic competitive cum negotiation process allowed, for example, by rules in the United States on negotiated procurement procedures.\(^\text{10}\) It became necessary, therefore, to draft the conditions so as to include all points which the bidders would need to know to be able to make a firm offer. Thus, most of the terms which normally would be included in a license granted to a telephone operator (as is the case with the license of British Telecom), were now included in the conditions provided to bidders. Initially, also, it had been expected that the text of the transfer agreements were to be firmed up by ENTEL prior to the date for presentation of offers so that no subsequent discussions on this point would take place, but this did not prove possible.

The State Reform Law had also provided for the total privatization of ENTEL, instead of the partial approach tried by the previous government. This ruled out a retention of partial ownership by the state, either as a simple shareholder or enjoying special rights through a mechanism of a golden share.\(^\text{11}\) The law did not specify whether the new operator(s) would enjoy a quasi-monopoly status, such as did ENTEL's.

Conflict among public objectives soon became evident. The interest of bidders in the privatization and consequently the price of the offering clearly favored extending the monopoly. Also, a high sales price and high investment requirements would have meant high rates for users. Furthermore, the higher the protection enjoyed by local equipment suppliers, the lesser would be the chances of attracting efficient operators or ensuring low costs and tariffs.

One aspect of the decision was easy: the privatization was to be final; that is, there would be no reversion of the telephone operation to the state. This called for a sale and not a mere concession to operate the assets of ENTEL. It also called for a license to be granted to the new operator, instead of the public service concession, an instrument taken from French administrative law and heretofore prevalently used in Argentina for privately operated public utilities; the main difference between these two concepts is that in a concession of public service the state is supposed to delegate or transfer the operation of the public service to a private party and may thus reassert such operation at the end of the term of the concession (and even during its course when so dictated by public interest),\(^\text{12}\) whereas when a license expires, the natural consequences are either its renewal to the existing operator or the granting of a new license to a different operator.

Given these conditions the following characteristics of the privatization emerged:

- The country was divided into two regions (north and south) of almost equal importance,\(^\text{13}\) with the Greater Buenos Aires area split between the two.
Implementing Reforms in the Telecommunications Sector

- The personnel and the assets of ENTel (but only a few of its liabilities) were transferred to two new corporations setup by the interventor of ENTel. These were to become the licensees for each region (provisionally called Telco Norte and Telco Sur and now called Telecom Argentina and Telefónica de Argentina, respectively).

- The personnel and the assets pertaining to the international service were transferred to a third corporation; those pertaining to all services provided by ENTel in competition with private firms, to a fourth. The shares of both these corporations were allocated, equally, to the two newly formed licensees.

- The initial objective of the privatization was the sale by ENTel of 60 percent of the shares of Telco Norte and Telco Sur to one investor group each. The remaining 40 percent was to be sold at a later stage to the personnel of the Telcos, the local telephone cooperatives, and to the general public in proportions of 10 percent, 5 percent, and 25 percent, respectively.

- The Telcos were to enjoy monopoly rights during an initial seven-year period (the first two years of which were considered a transition period in which the Telcos were be reorganized by the new owners) and, provided certain exceptionally demanding investment and tariff objectives were met, for a subsequent three years. After this period, competition was to be allowed.

Although it caused complex problems of area definition and assets and personnel allocation, the division of the country into two regions was considered advantageous for two main reasons: first, it would allow the government to analyze the performance of both licensees and obtain valuable comparative information; second, it would set the basis for effective competition when the monopoly status ended and each Telco (as well as any newcomer) was free thereafter to enter the other Telco’s region.

The Main Problems

The privatization team was faced with problems common to all sectors and with additional ones specific to ENTel. The former had to do with the economic, political, and legal environment of Argentina. The new government had taken office in July 1989 in the midst of a bout of hyperinflation: the retail price index had risen by 114 percent in June 1989, 197 percent in July, and then subsided to 38 percent in August. (A second bout occurred in early 1990: in January the retail price index rose by 79 percent, in February by 62 percent, and in March by 96 percent.) This caused a rapid reduction in real income of wage earners, played havoc with tariff levels, and forced bidders to make offers in a context of high uncertainty. Complicating this were the arrears since April 1988 on Argentina’s interest payments on its foreign bank debt, including that of ENTel. This debt had been renegotiated in 1985 and 1987, resulting in a General Refinancing Agreement, the terms of which
required the consent of a certain proportion of the creditor banks for some major decisions of the debtor entities.

The political environment was more favorable, with all but a minority of the political spectrum in favor of the privatization. However, Congress had reserved for itself a monitoring role in the State Reform Law, and at least on one occasion it became necessary to obtain informal congressional approval for some key financial decisions.

Finally, there had been in the legal history of Argentina several annulments of government contracts with foreign investors decided unilaterally by the executive. Although compensation was finally paid to the foreign investors in all cases, memories of those actions were still fresh in the minds of the legal profession. Furthermore, the fiscal problems of the Argentine government had forced Congress to include in the State Reform Law a two-year moratorium on the enforcement of money judgments against the state, thereby giving rise to doubts about the effectiveness of future contractual commitments of the government.

Problems specific to ENTel were also important. First of all, there was a lack of reliable accounting information. ENTel did not have international auditors, and its financial statements, audited by a government agency, were two to three years old and were, in addition, qualified. This created great difficulties for the listing and valuation of ENTel's assets. The situation of work contracts in force, which were to be assumed by the privatized Telcos, was not precisely known. Union troubles, including a major strike, arose during the privatization process. In addition to defaulting on the interest payments of its external debt, ENTel was in arrears in payments to its local creditors, one of whom tried, without success, to attach the proceeds of the sale. Poor maintenance and lack of investments, the results of low tariffs and political mismanagement over many years, had produced a low standard of service and a huge backlog of unfilled installation requests. The new licensees would, therefore, have to make substantial investments to bring the service up to more acceptable levels.

Another area of concern was that of local equipment supply. Argentina had two main manufacturers of telephone equipment and a local manufacturer of cables and other materials. Although the privatization was conducted within a general economic policy of opening up of the economy after almost fifty years of protectionism, there was concern that new operators could maintain, or set up, their own links with suppliers, which might increase costs and limit technological choice.

Lastly, after many years of state-operated telephones, there was no experience in the regulation of this activity. Practice had shown that, although regulatory powers were retained by the central government during those years, the government seldom had exercised a zealous control over state-run public utilities except to set their tariffs, with political considerations often gaining the upper hand. Existing laws and regulations applicable to the telecommunications services were drafted with the concept that a state enterprise would be the main operator of the telephone system. Thus, a new regulatory framework for a privately run system had to be drafted and a new agency created to enforce the new regulations.
Some of the Solutions

The conditions and the transfer agreements were therefore drafted in order to provide at least partial answers to some of these problems, namely:

- The lack of reliable information was tackled by establishing a two-step procedure whereby at the outset only the more basic information was provided to the purchasers of the conditions. Interested parties which met the required standards of net worth (US$1.5 billion for the operator and US$4 billion jointly for each bidding group) and experience in operating were to be prequalified prior to any submission of bids. The parties thus selected were then to have access to more detailed information provided through a data room and direct consultations with ENTel in order to prepare their bids, which they were then free to present or not without penalty.

- This two-step procedure had the added advantage that it allowed for a distinction between the selection of qualified bidders and the selection of the winners, with the latter based solely on a comparison of the amounts bid for purchase of the shares of the Telcos. This was deemed important since it eliminated a complicated and long, drawn out award procedure as well as subjective decisions, which are always open to suspicion. Accordingly, and also to avoid setting a value to the Argentine debt to be tendered (a request posed by the banks), the price was set with a cash portion which had to be met by all bidders and which was the same for all bidders. The debt portion was therefore the deciding factor with only a minimum having been set. In this respect, all foreign debt was to be computed at face value regardless of the technical differences between different types of government foreign debt.

- The gradual approach was also confirmed in the setting of a relatively low bid bond (1 percent of the cash portion of the price, or about US$1 million for each bidder). This allowed hesitant selected parties to submit bids with the knowledge that, if in the meantime dramatic changes in the Argentine economy occurred, they would be able to withdraw at a nominally fixed cost.

- To avoid the uncertainties concerning hidden or contingent liabilities, only the assets of ENTel (with a few specific liabilities) were transferred to the Telcos. According to one opinion this infringed upon the Argentine law on transfer of businesses, which required publication of the sale and allowed creditors of the seller to oppose any such transfer unless paid or guaranteed.20 Given the size of foreign and local debt of government enterprises, this point of view would have prevented most privatizations, including that of ENTel. A federal court of appeals, however, confirmed that the reorganization of ENTel was authorized by the State Reform Law and, furthermore, since it concerned the reorganization of
a state entity, it was subject to administrative law and not to the rules applicable to private business entities.\textsuperscript{21}

• With respect to tariffs, the conditions stated that the Telcos would be delivered to the winners with a tariff level that allowed a reasonable return on assets to an efficient operator and would thereafter be adjusted by the cost-of-living index. Were the new operators to deem such return insufficient, they were entitled to seek, during the transition period (that is, the first two years), biannual readjustments in order to reach a 16 percent return on a value of assets to be set prior to the date of submission of the bids. Following the transition period, the rates had to decrease 2 percent in real terms each year during the remaining five years of the monopoly. This annual reduction had to reach 4 percent during the optional three-year extension of the monopoly. This was similar to the price-cap system used in the privatization of British Telecom.\textsuperscript{22}

• To cope with the requirements of foreign creditors, the transfer agreements provided in their initial drafts that obtaining the waiver required by the General Refinancing Agreement was a condition of closing. As the signature of the transfer agreements was delayed until after this waiver was granted, the point became moot. The fact that debt conversion was allowed went a long way to ensure favorable reception of this request by the international banking community.

• The uncertainty over the existence and working conditions of the assets of ENTel led to the adoption of the following provisions:

1. The sale of the shares was not accompanied by a warranty on the working conditions of the assets; that is, the assets were to be taken on an "as is" basis.

2. The failure to transfer certain major assets such as facilities, the lack of which caused an interruption of service for more than thirty consecutive days and affected at least 1 percent of the lines in the region above the prevailing average rate of interruption, was to be compensated by a cash payment, return of Telco notes (see following section on financial returns), and delivery of government debt of similar terms to that surrendered in payment, in the same proportion as that existing between the aggregates of each component of the price (that is, 3.75 percent in cash, 6.65 percent in Telco notes, and the balance in government debt).

3. With respect to other assets, the obligation of ENTel was limited to the nonretention of any asset included in the inventories.

4. Damages and other harmful events occurring between the act of signing of the transfer agreements and the closing were to be covered by insurance.
Implementing Reforms in the Telecommunications Sector

- A covenant on the part of ENTel not to exceed certain ceilings on new work and service contracts, both in time and amount, was included in the conditions. In the transfer agreements, the assignment of contracts in the course of performance at closing was made dependent on the consent of the contractors not to hold the Telcos liable for the debt accrued prior to closing and to accept the ceilings reported by ENTel, both as to the subsequent time of performance and as to the amount still to be invoiced.

- The value of the assets of ENTel, on which the 16 percent rate of return would be based, was to be set at a level which would allow an annual profit sufficient to generate the investments needed to meet the high improvement of quality and penetration standards set by the conditions. This annual profit was set at US$557 million in the aggregate for both Telcos during the second year of the transition period.

- The conditions included a rule whereby all purchases in excess of US$500,000 in any given year had to be made on a competitive bidding basis. This rule was subsequently watered down in the transfer agreement negotiated by the minister.

- The conditions forbade the Telcos to provide telephone equipment (for example, telephone sets, PABXs to subscribers.

Finally, prior to the submission of bids, a new regulatory agency framework was established by executive decree.13

The Financial Terms

According to the conditions of sale, the financial terms for both Telcos were as follows:

- Total cash price: US$214 million.

- The minimum amount of sovereign debt to be retired was US$3,500 million of principal face value. All interest accrued on this amount and unpaid as of June 26, 1990, was to be forgiven as well.

- In order to provide some leverage, the Telcos were to jointly recognize a debt to ENTel of US$380 million, to be evidenced in promissory notes and reimbursed over six years, with three years' grace, at an annual rate of interest equal to the LIBOR plus 0.8125 percent.

- On closing, and against delivery of 60 percent of Telcos' shares, the buyers were required to pay the cash part of the price and deliver the sovereign debt instruments. The latter was rendered more flexible in the transfer agreements as the buyers irrevocably undertook to provide the sovereign debt instruments within ninety days of closing.
• Also on closing, the Telcos, under their new boards of directors, were to execute the notes and deliver them to ENTel.

Other Features

Other features of the conditions were that:

• Each winning bidder group was to establish a local company to act on its behalf as the buyer and holder of the shares in the respective Telco. Thirty percent of the shares in this local investment company had to belong to a core of up to three shareholders, including one or two operators whose own participation had to be at least 4.9 percent.

• The operator of the winning group was to enter into a management agreement with the respective Telco.

• The name of each Telco was to include the identifying part of the name of the respective operator.

• After closing, any sale of more than 49 percent of the shares of the investment company would require the approval of the regulatory agency. Members of the core group could not reduce their holdings without such approval.

• No minimum local participation was required.

The Timetable

The decision to privatize ENTel was made in September 1989. Table 5–1 compares the initial, rather ambitious timetable and the actual dates at which the main stages were carried out.

Although there was some telescoping of the intermediate dates, the process was completed only one month later than scheduled. This delay was caused by the withdrawal of one of the winning bidders and the consequent need to negotiate the respective transfer agreement with another bidder group.

The largest deviation from the planned timetable occurred in the dates planned for the signing of the transfer agreements. This occurred because it had been planned to provide the selected parties with the text of the transfer agreements prior to the date of submission of bids and to sign it two months prior to closing; however, the first deadline could not be met because the prospective bidders would not agree on the sections regulating the eventual transfer of CAT’s assets, an issue that had been the subject of a separate agreement between the government and CAT negotiated by the minister. This inability forced the privatization team into long negotiations.
Implementing Reforms in the Telecommunications Sector

Table 5-1. Planned and Actual Implementation Dates

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<th>Stages</th>
<th>Plan</th>
<th>Actual</th>
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<tr>
<td>Executive approval of terms and conditions of sale of ENTel</td>
<td>December 31, 1989</td>
<td>January 5, 1990</td>
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<tr>
<td>Submission of requests for prequalification</td>
<td>March 21, 1990</td>
<td>April 27, 1990</td>
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<td>Announcement of selected parties</td>
<td>March 28, 1990</td>
<td>May 2, 1990</td>
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<tr>
<td>Submission of bids</td>
<td>June 11, 1990</td>
<td>June 25, 1990</td>
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<tr>
<td>Executive approval of awards</td>
<td>June 28, 1990</td>
<td>June 28, 1990</td>
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<tr>
<td>Signature of transfer agreements</td>
<td>August 6, 1990</td>
<td>November 8, 1990</td>
</tr>
<tr>
<td>Closing</td>
<td>October 8, 1990</td>
<td>November 8, 1990</td>
</tr>
</tbody>
</table>

with the winners over the terms of the transfer agreement. These were only finalized on the day of closing. Thus, the signing of the transfer agreement and closing took place on the same day.

The Controversy over Rates

The amount initially contemplated as the value of the assets on which the 16 percent rate of return was to be based during the transition period, was an estimated market value of US$3,900 million, an amount which was below ENTel's book value and which yielded the required revenue to fund annual investments in excess of US$500 million. At a congressional inquiry held in March 1990, the minister of public works agreed to reduce this to US$1,900

Since this amount was insufficient to generate the cash necessary for the required investments, the bidders lost interest in the rate-of-return formula and sought another alternative, namely, the actual tariffs which were to be in effect at closing. These had already been set by a resolution of ENTel's interventor on March 5, 1990, and were subject to adjustment thereafter by the increase in the cost of living; however, the cost-of-living increase for the month of March 1990 was 96 percent. A debate ensued in the last stages of the privatization on whether the cost-of-living adjustment of the rate set on March 5, 1990, had to include the 96 percent increase for that month. Finally, the minister negotiated a different approach: the buyers were to forgo the increase that they had claimed and in its place accept a new formula for adjustments which had a dollar component to temper the effect of devaluation, which greatly exceeded the increase in the cost of living at a given time. The transfer agreement included this new formula and deleted the 16 percent rate-of-return rule. This change seriously weakened the powers of the regulatory agency to control the financial performance of the licensees,
since the rules granting such power were predicated on a rate-of-return system and not on a cap on an inflation-adjusted tariff.

The Participants and Winners

All seven groups which requested to participate were prequalified. They were:

- Telefónica de España, with Citibank and a local group led by Techint
- The Italian state-owned STET, with Morgan Stanley and a local group led by Perez Compancc
- France Cable et Radio, a wholly owned subsidiary of the French state telephone company, France Télécom
- Bell Atlantic, with Manufacturers Hanover and a local group
- Cable & Wireless PLC
- GTE
- NYNEX.

Only four of these, however, presented offers. They were placed in the following order by bid amount:

Telco Sur:

(i) Telefónica de España
(ii) STET/France Cable et Radio

Telco Norte:

(i) Telefónica de España
(ii) Bell Atlantic
(iii) STET/France Cable et Radio

The conditions were designed to avoid awarding both Telcos to the same bidder, provided the runner-up was prepared to match the highest bid. Consequently, Bell Atlantic was invited to match Telefónica’s bid for Telco Norte, which it agreed to do, and was awarded this Telco, with Telefónica being awarded Telco Sur.

After three months of hard negotiations, however, the Bell Atlantic group was unable to sign the transfer agreement when called to do so on October 4, 1991. Telefónica, on the other hand, was by then prepared to sign for Telco Sur. Bell Atlantic’s bid was rejected and Telco Norte was awarded to the STET/France Cable et Radio group, which also matched Telefónica’s offer. This group had one month to sign the transfer agreement and pay the cash portion of the price. It was able to do so on November 8, 1990, at the same time as Telefónica, when 60 percent of the
Implementing Reforms in the Telecommunications Sector

shares in the two Telcos were delivered to the buyers, who assumed management control on the same date. Delivery of the sovereign debt portion of the price took place on February 6, 1991, ninety days after closing.

Aftermath

In the last quarter of 1991, a group of four Argentine and eight international banks undertook to make a global offering of the 30 percent of the Telcos shares still owned by the government. This 30 percent included the 5 percent to be sold to the cooperatives as initially contemplated.

The sale was made by a private offer in the United States under Rule 144A of the SEC and by a public offer in Argentina. The 30 percent was divided into (a) a wholesale competitive tranche (15 percent) which set the price through a "Dutch auction" mechanism; (b) a wholesale noncompetitive tranche (7.5 percent) to be allocated on a pro rata basis at the price set by the competitive tranche; and (c) a retail tranche (7.5 percent) to be sold to Argentine residents at the same prices less 5 percent, also on a pro rata basis.

Although it was initially contemplated that both stockholdings were to be sold simultaneously, in the end Telefonica's 30 percent was sold in December 1991 and Telecom's 30 percent in March 1992. In both sales all shares were sold. Total proceeds were US$838 million for Telefonica de Argentina's (Telco Sur) and US$1,266 million for Telecom Argentina's (Telco Norte) shares.

Two noticeable developments during 1991 and 1992 were:

- The reorganization of the Comisión Nacional de Telecomunicaciones (CNT), the semiautonomous telecommunications regulatory agency, through the appointment of an interventor and three subinterventors to replace the board.

- The "dollarization" of the telephone tariffs as a result of an agreement reached by the government with the licensees at the time of the placement of Telefonica's 30 percent stockholding and which had been made necessary by the passing of the Convertibility Law in March of 1991, making all inflation adjustment clauses referring to local currency thereafter invalid: tariffs are now fixed in dollars and adjusted in line with the U.S. consumer price index.

Conclusion

Given the obstacles faced and the time constraint, the privatization of ENTel can be considered a success. ENTel received US$214 million in cash and US$380 million in promissory notes issued by the Telcos. A total of US$5,028 million of face value of Argentine foreign debt principal and interest was canceled. Additional proceeds were to be generated by the later sale of the remaining 40 percent of the shares still held by ENTel.
Although it is too soon to expect a material improvement of service, the Telcos have begun to correct some of the practices which accounted for ENTel's lackluster performance. Full management teams comprising both local and foreign professionals have been put in place. Contracts with domestic suppliers have been renegotiated, reportedly reducing the purchase price of major equipment by about one-third. Illegal practices are being eradicated; for example, phony salary recipients have been weeded out, and the large clandestine telephone network which charged its customers reduced rates and then had the differences billed to other unsuspecting users has been uncovered and dismantled.

It is to be hoped that future improvements of the service and an adequate level of tariffs will lead the Argentine public to share this conclusion and that the path thus opened may be followed by other major public utilities still operated by the government in Argentina.

Endnotes

1. The government of President Raul Alfonsin of the Radical party, which had been elected in 1983 and which served up to July 1989, when the newly elected president, Carlos S. Menem, of the Peronist party, took office.

2. Telephone service was subject to the Telegraph Law 7501/2 of 1875. The main regulation specifically concerning the telephone service was Executive Decree 91.698 of 1936. See, in general, Manuel M. Diez, Servicio Publico de los Teléfonos, Buenos Aires, 1942.

3. Law 13,653 as amended and restated. Its implementing regulation is Executive Decree 5883 of 1955. ENTel's current charter was granted by Executive Decree 2748 of 1978.

4. A "decree" or "executive decree" is a decision issued by the executive, either of an individual or general nature. They shall be referred to hereafter simply as "decree."

5. Decree 731 of September 12, 1989, was amended by decree 59 of January 5, 1990. The terms and conditions of the competitive bidding, which also included the terms of the licenses to be granted to the new operators were approved by decree 62, also of January 5, 1990, and subsequently amended by Decrees 575, 636 and 677 and 1130 of March 28, April 4, April 11, and June 14, 1990, respectively. The awards were approved by Decrees 1229 and 1230 of June 28, 1990, and, due to the withdrawal of one of the winners, the new award was approved by Decree 2096 of October 4, 1990. The transfer agreements were approved by Decree 2332 of November 8, 1990. The licenses to the Telcos were granted by Decrees 2344, 2345, 2346 and 2347 also of November 8, 1990, respectively. The incorporation of the new telephone companies was approved by Decrees 60 and 61 of January 5, 1990. Other executive decrees which regulated certain aspects of the competitive process were Decrees 420, 1948, 1967, and 1968 of February 28, September 21, 1990, and, the last two, September 26, 1990. In addition, several decisions of the Ministry of Public Works and Services and of the intervention of ENTel were issued along the privatization process to govern other aspects thereof.
Implementing Reforms in the Telecommunications Sector

6. Throughout the privatization of ENTel the minister was Dr. José Roberto Dromi.
7. Interventor is an officer appointed by the executive to act as the interim head of an agency, often after the removal of the executive of the collegiate body which is the head of such an agency.
8. The interventor, Engineer María Julia Alsogaray, was appointed by Executive Decree 191 of July 12, 1989.
9. The secretary of communications was Engineer Raul Otero and his undersecretary was Engineer Raul Parodi. During the privatization the administration was reorganized and all secretaries were eliminated. Eng. Otero then became undersecretary, and Eng. Parodi continued as a high officer of the undersecretary of communications.
13. The proportion set between the two regions for purposes of the cash part of the price and the minimum debt amount to be surrendered was 53.3 percent for the south and 46.7 percent for the north.
14. Section 14 of Law 23,696 established a bicameral commission to liaise with the executive and keep Congress informed on the implementation of the privatization process.
16. Sections 50 to 56 of Law 23,696 governed this issue.
17. One of the Offering Memoranda of the investment companies formed by the bidders included this paragraph: "No historical financial information is available for the years 1988 and 1989 or for any period during 1990. The historical financial statements that are available and included in this Memorandum for the years 1983 to 1987 have not been audited by an independent recognized accounting firm. In addition, the governmental accounting body that audited such statements would not provide an opinion with respect to the financial statements for 1983 through 1985, and qualified its opinion for 1986 and 1987 due to the lack of independent verification of the existence, ownership and value of ENTel's fixed assets. Moreover, other accounting practices and lack of audit controls make the existing historical financial information inadequate or unreliable. Consequently, investors should not rely on historical financial information in making their decision to participate in the Exchange."
18. Guía de la Industria v. ENTel, decision of the 2d Chamber of the Federal Administrative Court of Appeals, dated November 6, 1990.
The Argentine Privatization

19. Law 19,798 of 1972 was the Telecommunications Law in force during the privatization of ENTel. Pursuant to the authority granted by sec. 10 of the State Reform Law, the executive excluded the application of some of the rules of law 19,798 (see Decree 731 of September 12, 1989, sec. 5).


21. Decision cited at 19, supra.


23. Decree 1185 of June 22, 1990, which created the Comisión Nacional de Telecomunicaciones.


25. According to the conditions of sale, operators who had been qualified as selected parties could submit a joint bid.

26. Plus interest accrued from June 26, 1990, until the date of actual delivery of the debt instruments.

27. Law 23,928.

Privatization of Telecommunications: The Case of Mexico

Carlos Casasús

As in many other developing countries, Mexico's telecommunications state monopoly was characterized by serious shortcomings in service delivery, reliability, and quality. By all usual measures of performance, basic services were far below the standards expected in a newly industrialized country, and value added services were virtually nonexistent. Day-to-day management of the operating company was often guided by political objectives instead of broad public goals and sound business practice. The company was regarded by the government largely as a source of revenue. Tariffs, rather than reflecting costs, were used as indirect tools of macroeconomic policy. Expansion was constrained by government limitations on public spending. At the time of the devastating 1985 earthquake in Mexico City, telecommunications in Mexico had reached a state of near crisis. Recognition of these problems, and growing awareness of the experience of developed countries with liberalization and privatization, led the government to announce in 1989 a comprehensive modernization plan for the telecommunications sector. In this chapter we shall examine how successive earlier Mexican governments from 1925 had handled the sector, the measures introduced from 1989 to achieve structural change, and an assessment of the process of change as viewed shortly after privatization of the state operating company.

Past Governments and Telecommunications Policies

Telecommunications policy in Mexico has been closely linked to the general strategy of the governments that have run Mexico since the Revolution of 1910. Four periods of government, and the effects they had on telecommunications policy, can be distinguished.

Post-Revolution (1925–1948)

After the period of armed struggle, in which telecommunications played a key role in ensuring military control of the country, a regulatory framework was established
Implementing Reforms in the Telecommunications Sector

by President Cárdenas that gave extraordinary powers to the government for intervening in the telecommunications sector. This framework is embodied in the Law of General Means of Communications, which dates from 1938. The highly interventionist framework, and the fact that the country had two competitive telephone service concessions that were not interconnected, impeded accelerated development of the sector. In 1950 the country had only 141,000 telephone lines for a population of 26 million people (0.5 lines per 100 people).

Desarrollo Estabilizador (1948–1970)

For a period that runs from the 1950s through the 1970s, Mexico had a succession of governments that made inflation control a central policy goal. This period is known as “desarrollo estabilizador,” or development with stability. Government participation in economic activities was limited. Public finances were kept under control and, as a result, inflation was kept at single-digit levels. Rapid economic growth followed, averaging more than 6 percent per year for the twenty-two-year period.

During this period, telecommunications developed within the private sector, but with the active support of government. In 1950 the government induced the two competing telephone companies to merge, approved adequate tariffs, and provided soft financing for accelerated network development. Following the merger of the two networks, growth accelerated. From 1955 until 1976, Teléfonos de México (TELMEX), the merged company, grew at an average rate of 10 percent per year, well above the growth rates achieved by most other developing countries in that period.


The period of “desarrollo estabilizador” started showing signs of stress in 1968. Extreme presidential power and lack of democratic alternatives for participation led to serious political disturbances, including widespread student unrest immediately prior to the Olympic Games that took place in Mexico in 1968. When President Luis Echeverría was elected in 1970, he responded to political pressure with a macroeconomic strategy based on populism. The government started spending heavily on programs that subsidized special interest groups and that promoted greater public sector participation in the economy. As a result, public finances, which had been kept under strict control in the “desarrollo estabilizador” period, showed growing deficits. Money supply, in turn, grew at an accelerated rate. Inflation set in, and by 1976 the country had a serious balance of payments problem, which led to the first currency devaluation in twenty-two years. The next government (of President López Portillo) maintained the populist policies of his predecessor, but this time with the support of oil discoveries that helped public finances momentarily in the late 1970s. Nevertheless, public spending increased. Inflation accelerated even further, and when oil prices tumbled in 1982, the country found itself in the midst of a foreign debt crisis that was to burden its development for years to come.
In the telecommunications sector, populism translated into the nationalization of the telephone company. In August 1976 TELMEX entered into an agreement with the Mexican government through which the government became majority owner of the company. Nationalization created a series of new obstacles for continuing sector development. The government became, at the same time, owner, competitor, and regulator. Regulation of the telephone company reflected the government's pursuit of short-term political goals rather than of sector performance. Short-sighted tariff policies resulted in serious deterioration of revenues and profitability as well as the worsening of cross-subsidies from long-distance to local service. The government was politically unable to stand up to strong labor pressures, which led to deteriorating labor relations and an increasingly unproductive work force. Growth slowed down because inadequate internal funding was coupled to growing difficulty in obtaining external financing.

The telecommunications system became increasingly unable to meet demand. Insufficient plant capacity caused growing congestion in the network, and quality of service deteriorated. Scarcity and low prices induced corruption in the relationship between customers and telephone company employees.

Recovery (1982–Present)

Mexico's recovery started during President De la Madrid's government from 1982 to 1988. Macroeconomic policy focused on reestablishing public finance control. President De la Madrid was able to reduce the fiscal deficit from the high level of 18 percent of GDP which prevailed in the last years of his predecessor to nearly zero in 1988. This government opened the Mexican economy to foreign trade, eliminated quantitative trade barriers, and joined the General Agreement on Tariffs and Trade (GATT). President De la Madrid also opened the door to more democratic electoral processes and allowed for the irreversible development of opposition democratic forces within the political system, making opposition parties, for the first time, credible alternatives to the ruling party.

This period was very difficult for the telecommunications sector. The government, strapped for fiscal resources, increased taxes on telephone services. Simultaneously, it reduced the levels of its yearly investments in telecommunications, further stretching the company's capacity for financing growth. The lowest point in the company's recent history was probably reached when the 1985 earthquake of Mexico City destroyed the nucleus of the long-distance network and left the country's capital without communications with the outside world for two weeks. In 1985 Mexico, despite being one of the fifteen largest economies in the world, ranked eighty-third in telephone density. Average waiting time for a telephone line was in excess of three years. The country had no cellular telephones or data transmission services, and the tariff structure was severely distorted with relation to costs. In order to modernize the network, massive investments on the order of US$2 billion per year needed to be undertaken.

President De la Madrid's economic team, headed by Mr. Carlos Salinas (the current president) and Mr. Pedro Aspe (the current finance minister), realized that
the telecommunications situation was no longer tenable and started a series of measures that culminated with the privatization of the company.

Systemic Change in the Telecommunications Sector

These measures have to be thought of as a systemic change. The measures taken would have been insufficient if they had been implemented individually, but because they were taken jointly, they reinforced each other, creating very favorable conditions for the development of a modern telecommunications sector.

Tariff and Fiscal Reform

First and foremost was tariff and fiscal reform. Tariffs, which had deteriorated significantly with inflation, had to be adjusted to reflect the cost of providing each service. Accordingly, substantial increases in local service and national long-distance tariffs went into effect, and international long-distance prices, which were well above international norms, were reduced. The tax on telephone services, averaging about 35 percent and among the highest in the world, was substituted for a tax on profits that does not penalize the company if investment programs of the magnitude required are undertaken. As a result of the tariff and tax reforms, revenues per line, which had deteriorated to approximately half their peak value, rose again to approximately US$860 per line in 1991.

Regulatory Framework

The Law of General Means of Communication of 1938 is still the basic legal instrument. It gives extraordinary faculties to the state for intervention in company affairs, reflecting the determinant impact that telecommunications had during the postrevolutionary period in national security. The company's license was extremely simple and reflected the ease with which the government could influence the company, given its dual role of regulator and owner.

In order to modernize the sector, the government began a reform of the regulatory framework along three main directions. First, there has been an effort to reform the Ministry of Communications, which besides policy and regulation functions also operated certain networks and services in competition with the main regulated telephone company. The government sold to TELMEX the federal microwave network that the ministry operated directly. The government also privatized, or restructured under a separate state enterprise, other services that it earlier provided directly. As a result, the ministry now is exclusively a policymaker and regulator, and not a service provider.

The second main avenue for regulatory reform involved revision of the concession under which TELMEX operates. The new concession establishes telephone tariffs subject to a price cap which keeps an index of prices of a basket of different telephone services constant in real terms until 1996. Nevertheless, the price formula allows for local service to increase and international long-distance to decrease in such a way that
by the end of the period, local service will cover its costs and rates of return will be roughly similar for all services. The new concession also forces a gradual opening to competition of all telecommunication services. It prohibits competition, however, in local and long-distance services and networks during the six-year period in which prices will be rebalanced.

The concession requires the company to grow at least at a rate of 12 percent per year in installed telephone lines and requires that the company provide service to all towns of more than 500 inhabitants by 1996. The concession establishes quality-of-service goals and penalties in case these goals are not met. TELMEX has also been granted a national cellular concession. This concession, however, has been granted on a duopoly basis making TELMEX one of two competing suppliers in each region.

Lastly, the government published a new implementing regulation for the Law of General Means of Communications, specifying the conditions for competition and limiting the intervention faculties of the government.

**Company Reorganization**

The company's structure was modified to allow greater decentralization. The organization along functional lines was replaced by a corporate structure based on profit centers responsible for financial results by specific geographic area or by service. This change accelerated decisionmaking, clarified responsibility, helped allocate capital more efficiently, and focused service strategies on the needs of TELMEX's different customer groups.

**Labor Renegotiation**

In April 1989, TELMEX negotiated a major settlement with its union. The amended contract greatly simplified the old bargaining process by reducing the number of different job categories and provided management with flexibility to introduce new technology and allocate the labor force as required. This agreement allowed TELMEX to achieve significant economies by permitting the implementation of its capital expenditure program with only modest growth in total employment.

**Privatization**

In September 1989, the government announced its intention to privatize TELMEX, selling a majority position in the company's equity, thereby facilitating the evolution toward more efficient and competitive telecommunications. President Salinas announced the following objectives of privatization:

- To maintain government sovereignty over the sector

- To guarantee the rights of the existing workers and give them opportunity to participate in the company's ownership
Implementing Reforms in the Telecommunications Sector

- To raise service quality to international levels
- To retain Mexican majority control of the company
- To assure sustained network growth
- To strengthen research and development.

To ensure rapid progress towards privatization, in October 1989, Mr. Pedro Aspe, by then secretary of finance and public credit, was appointed chairman of the board of directors of TELMEX, and Mr. Alfredo Baranda, previously governor of the State of Mexico and ambassador to Spain, was appointed president. The new management team was fully committed to privatization and had the clout to make it come about.

In order to comply with the restriction of keeping the control of TELMEX in Mexican hands and simultaneously allowing a wide participation of foreign investment in its equity, the capital structure of the company was changed. At that time, TELMEX had two classes of shares: series AA, in which ownership was restricted to the Mexican government and represented approximately 56 percent of the shares, and series A shares, which were publicly traded and had no ownership restriction. On June 15, 1990, a stockholders meeting adopted a new capital structure. AA shares can now be owned not only by the Mexican government but by any person or corporation of Mexican nationality. A new class of limited voting shares, denominated L shares, were distributed as a dividend to AA and A shareholders at a rate of 1.5 L shares for each existing share. L shares have no ownership restrictions and have identical economic rights as common shares.

As a result of this reform, the new capital structure is as follows:

- 20.4 percent AA shares that have full voting rights and can only be owned by Mexican nationals
- 19.6 percent A shares that have full voting rights and no ownership restrictions
- 60.0 percent L shares with limited voting rights and no ownership restrictions

As a consequence of these measures, the government ended up with 20.4 percent of the company's capital in AA shares, approximately 5 percent in A shares, and 31 percent in L shares.

These holdings would be sold to the private sector in three steps. First, the government announced the sale of 4.4 percent of its A shares to the company's employees. Employees paid for these shares using an eight-year credit provided by NAFINSA, the government's development bank, on very favorable conditions. Second, the 20.4 percent AA shares were auctioned to Mexican-led consortia, in which foreign operating companies were allowed to participate as minority partners. After an initial evaluation period in which twenty-three companies made
visits to TELMEX, three groups headed by Mexican investors submitted bids by November 15, 1990. In strict accordance with the schedule of privatization, the winning group was announced on December 19, 1990. The new controlling consortium was led by Grupo Carso, a diversified Mexican group, in association with Southwestern Bell and France Télécom. Lastly, 31 percent of L shares were sold in several public and private offerings in the world capital markets. The government filed a registration statement for the L shares before the U.S. Securities and Exchange Commission, and the L shares were approved for trading in the New York Stock Exchange.

Results So Far

The fiscal and tariff reforms had a dramatic impact on TELMEX's financial results. Revenues increased 44 percent, from US$2.66 billion in 1989 to US$3.84 billion in 1990. Profits increased 82 percent from 1989, to US$1.1 billion in 1990. TELMEX expects to generate internally nearly 80 percent of the funds needed for its US$13.9 billion five-year investment program. In addition, the company has once again been able to participate in the world capital market and has been placing new debt issues with extraordinary success.

The network is growing again at rates that exceed 10 percent. As a result of taking advantage of the latest equipment, it will leapfrog technological stages and, in five years' time, will be one of the world's most modern.

The winning consortium appointed a new president of the company on December 19, 1990, and a new board of directors on January 9, 1991. The management change took place with a minimum of outside appointments, and TELMEX is well on the way to making the transition to a private telecommunications company.

These results were reflected in spectacular appreciation of share value. The share price rose from US31¢ in January 1989 to nearly US$3 dollars in April 1990, an increase of 460 percent. In the same period, the Mexican Stock Exchange grew 123 percent in dollar terms, and the Dow Jones only 16 percent. As a consequence of the rapid appreciation of the shares, the government will receive approximately US$5 billion from the TELMEX privatization.

Privatization of Telecommunications in a Global Context

Not surprisingly, privatization of telecommunications is now in vogue. In 1991, for example, more than eighteen countries were contemplating the privatization of their telephone companies. Governments that adopt a privatization policy generally expect to accomplish specific objectives, such as to improve service delivery, develop new services, improve public finances, and stimulate local capital markets. However, unless a systemic approach is adopted, the results can be less than satisfactory and may in fact hinder development efforts.

To achieve the desired results, governments would benefit from adopting simultaneous measures that create snowball effects in the sector's modernization. Namely, measures to:
Implementing Reforms in the Telecommunications Sector

- Create or reform the regulatory framework, addressing issues such as how to adjust tariffs, which standards to adopt, rules for how competition will be allowed, and the structure and role of regulatory bodies

- Reorganize the telecommunications company to improve its performance, therefore obtaining a better price when it is privatized

- Establish guidelines for privatizing the enterprise, specifying the capital structure, the bidding process, the valuation criteria, and managing of the bids and public equity offerings

Well-planned telecommunications sector reform will certainly entice potential investors. Cross-border investments in telecommunications have boomed in the last few years. At least forty major acquisitions have occurred between 1984 and 1990. In 1991 there were perhaps US$20 billion of public offerings by governments privatizing telephone companies. Most of these transactions occurred in the industrial world. However, the potential reward from investing in developing countries can be very considerable. To be able to attract investors and convince them that despite the multiple risks involved, they can achieve an attractive return, authorities need to address the following areas:

Link Between Macroeconomic Strategy and Telecommunications Policy. It is paramount to convince investors about the soundness of the economic and political dynamics of each country, because these will be the key to understanding how profound and systematic the reform of the telecommunications sector will be.

Regulatory Environment. Another key issue is the regulatory environment that a privatized company will find. Particularly important is that ground rules must be clear and that pricing guidelines and decisions have sufficient permanence to ensure that potential returns on long-term investments can effectively materialize.

Transparency of Information. Investors should be given a clear understanding of the company. Its network infrastructure, the staff's technical capability, and the organizational design of the company will be key to its future profitability.

Financing Consideration. The investment vehicle per se has to be well understood and, it is hoped, will be an instrument that is registered in major capital markets. That will ensure that the security will become easily tradable in the future.

In the Mexican case the privatization process addressed all these issues adequately. That is why TELMEX has been such an extraordinarily attractive investment and why the privatization process guarantees that the telecommunications sector of Mexico will transform itself from being an obstacle for development to being one of its major propellants.
Privatization of Telecommunications: The Case of Venezuela

Aileen A. Pisciotta

The privatization of the telephone company of Venezuela, Compañía Anónima Nacional de Teléfonos de Venezuela (CANTV), finalized in December 1991, is probably most commonly noted for its unexpectedly successful financial outcome. Although the total value of CANTV had been estimated at approximately US$2 billion, a controlling 40 percent share was sold to a GTE-led consortium for the surprising sum of US$1.885 billion. There were, however, other significant aspects of the transaction which will be far more telling of the prospects for long-term success and sustainability of the privatization.

One of the most important of these aspects is the approach taken in Venezuela to the establishment of a regulatory process. Much attention was paid by the government of Venezuela during the privatization process to the establishment of a regulatory entity, Consejo Nacional de Telecomunicaciones (CONATEL). Nonetheless, long after the institutionalization of CONATEL, many issues remain concerning the ability of the Venezuelan regulatory process to meet expectations of successfully steereing the course toward a private market. After briefly summarizing the "vital statistics" of the CANTV privatization, this chapter reviews and comments on the process and constraints in Venezuela in the creation of a regulatory authority and suggests lessons to be learned for future privatizations.

Background and Legal Framework

Founded in 1930 by Felix A. Guerrero, a private investor, CANTV grew through acquisition of preexisting private concessions and eventually competed directly with other telephone, telegraph, and telex systems owned and operated by the government.

In 1940, the Telecommunications Law was enacted, specifying the exclusive powers of the government with respect to telephone and other telecommunications services, as well as radio and television broadcast services. Under the 1940 law, which is still in effect, the government is exclusively responsible for the "establishment and exploitation" of telecommunications services. However, the executive branch has the power to grant concessions and permits to private entities for the provision of such
Implementing Reforms in the Telecommunications Sector

services. The 1940 law also authorizes the government to promulgate regulations concerning telecommunications and requires the executive branch to approve tariffs.

In the early 1960s, the government began to acquire private concessions, some held by foreign companies. In 1964, CANTV and all of the competing government systems were consolidated into one national operating company. In 1965, the Law for Reorganization of Telecommunications Services was enacted, granting to CANTV an exclusive concession to operate telecommunications systems in Venezuela for twenty-five years. The 1965 law left open the possibility that concessions might be granted to other private parties, but no such concessions were actually granted.

The 1965 law provided that regulatory functions were to be assumed by the Ministry of Transportation and Communications (MTC) and that all operational functions were to be performed by CANTV. In practice, however, MTC dealt mainly with radio and television issues, while telecommunications tariffs, technical standards, and frequency allocations were left largely to CANTV's determination, with MTC's nominal approval.

The Privatization Process

Work on the privatization of CANTV began in early 1991. Initially, it was planned that a private operator would enter into a management contract for the operation of the telephone company, with an option to buy up to 30 percent of the stock of CANTV in two years. The remainder of the stock ultimately would be sold in national and international capital markets, with a portion reserved for CANTV employees and with a share retained by the government of Venezuela to safeguard national security interests. It was believed that this plan would permit swift improvements in the quality of service and would maximize the value of the stock for sale. Later, upon further analysis, the plan was changed to permit a direct sale at the outset of 40 percent of the stock to an international telephone operator and 11 percent to employees.

Pursuant to contracts financed by the World Bank, the Venezuela Investment Fund and the Telecommunications Restructuring Group of the MTC hired consultants to develop a strategic plan for the telecommunications sector, design a regulatory framework, develop procedures and documents for the sale of CANTV, prepare financial projections, and establish a valuation of the enterprise. Pursuant to separate contracts financed by the U.S. Trade and Development Program, MTC hired other consultants to design a regulatory entity.

Prior to the completion of work by these consultants, a proposed new telecommunications law was drafted with the assistance of the MTC and CANTV and introduced into the Venezuelan Congress. Key features of the proposed law included the promotion of competition in certain services and the establishment of clear criteria for the control of noncompetitive services. Most significantly, the legislation contemplated the establishment of an autonomous regulatory authority. Critically, the proposed law was addressed only to changes in the provision and administration of telecommunications and did not address any issues concerning radio and television broadcasting. It was expected that the legislation would pass Congress by
The Case of Venezuela

October 1991, well before the closing of the sale. As recounted further below, however, the law did not pass on schedule.

It was determined that the grant of authorization to the newly privatized company should be by concession rather than by license. Therefore, a central part of the privatization process was the drafting and negotiation of the concession agreement, including proposed regulations for basic services and establishment of criteria for the suspension or termination of the concession rights granted.

On March 6, 1991, a dozen companies filed prequalification statements. In order to prequalify, companies were required to have (in non-Venezuelan systems) more than 6 million installed lines, over 25 percent digitalization of local exchanges, over 65 percent completion of international calls, 1-month average waiting time for new lines, and 16-hour average time for line repair. Candidates also had to have gross annual income of over US$5 billion. On April 18, 1991, the government announced that eight firms had prequalified, namely, Ameritech, Bell Atlantic, Bell Canada, France Télécom, GTE, Nippon Telephone & Telegraph, Southwestern Bell, and US West.

On November 15, 1991, two final bids were submitted. The GTE-led consortium was the clear winner with a bid for a 40 percent share of CANTV of nearly $1.85 billion. The consortium members were GTE Telephone Operations (51 percent), Telefónica de España (16 percent), Electricidad de Caracas (16 percent), the Venezuelan Consorcio Inversionista Mercantil Cima (12 percent) and AT&T (5 percent). The losing consortium, which bid $1.4 billion, included Bell Atlantic, Bell Canada, Italcable, Nippon Telephone & Telegraph, and the Venezuelan groups Banco Provincial, Finalven, and Organización Diego Cisneros. In addition to their cash payment, the GTE consortium assumed $125 million out of the $600 million owed by CANTV in foreign debt. Of the remaining 60 percent of stock, 11 percent was placed in trust for CANTV employees and 49 percent was retained by the government, ultimately to be offered for sale in the Venezuelan stock market.

Market Structure

The main impetus for the privatization of CANTV in Venezuela was the urgent need to improve the quality of basic telephone service. With a lack of sufficient investment in infrastructure, switching equipment had become obsolete and transmission systems had deteriorated. This resulted in high levels of congestion, difficulty in obtaining dial tone, and interrupted connections. Prior to privatization, call completion was only 54 percent, with interruption running at 23 percent. Excessive redialing for basic services further burdened the system, while requirements for new services, including fax and value added services, were increasingly leading to intolerable congestion. At the same time, although Venezuela's density of telephone lines, at 7.3 percent, was slightly higher than the Latin American average of 6 percent, subscribers still waited an average of eight years for a new telephone line.

Privatization was intended to create incentives and opportunities for private sector management of and investment in the basic telephone network. The concession agreement governing the newly privatized CANTV is for an initial duration of thirty
Implementing Reforms in the Telecommunications Sector

years and includes a period of exclusivity for the provision of basic services for nine years. The concession also establishes a price-cap system of tariff regulation to encourage and reward efficiency.

The concession contract also sets forth certain specific requirements for service quality improvement. For example, in 1992 CANTV must install over 169,000 new digital lines and modernize over 40,000 lines. Until the year 2000, CANTV must provide 355,000 new digital lines per year and modernize 75,000 lines per year. CANTV must also establish a plan for the development of basic services in rural areas with inhabitants of 5,000 or less. Other important service quality requirements include:

- Improvement in dial tone (obtained within 3 seconds) from 78 percent in 1992 to 98 percent in the year 2000

- Improvement in call completion for local, interurban, and international calls from 52 percent, 38 percent, and 25 percent respectively in 1992 to 68 percent, 68 percent, and 65 percent respectively in the year 2000

- Improvement in operator response from 10 seconds in 1992 to 5 seconds in 1993

- Improvement in repair response time, including repairs within 48 hours and successful completion of repairs per visit, from 70 percent for each in 1992 to 90 percent and 96 percent respectively in the year 2000

- Improvement in waiting time for obtaining a new line. Between January 1, 1994, and December 31, 1995, 70 percent of requests for new service must be satisfied in less than 180 days. After January 1, 1998, 98 percent of all requests for new service must be satisfied in less than 5 days

- User satisfaction must increase from 15 percent in 1992 to 98 percent in the year 2000.

In addition to providing for the improvement of basic telephone service, the privatization of CANTV was intended to permit development of certain competitive services. In this respect, the Venezuela privatization was more aggressive than certain others have been. At the same time that the government endeavored to encourage the development and improvement of the basic telephone network, it attempted to move aggressively to encourage competition, not only in value added services, but also in private network services, which in some respects are substitutes for basic services. This was seen to be a necessary strategy to satisfy unmet demand and service requirements, particularly for large business users.

Specifically, competition was introduced in cellular telephone services with the awarding of a twenty-year renewable competitive cellular concession on May 31, 1991, to TELCEL Celular, C.A., a private consortium led by BellSouth with minority participation by Comtel, owned by Venezuelan businessman Oswaldo Cisneros, Bancor, a Venezuelan bank, and Telecomunicaciones BBS, a Venezuelan engineering
group. TELCEL's winning bid was US$107 million for nationwide concession for cellular voice and data transmission. At the time of the privatization, CANTV operated the "wireline" band of cellular service but had only 4,000 subscribers in Caracas. Starting in Caracas, TELCEL quickly signed up 8,000 subscribers.

Competition in value added services was specified as part of the privatization plan, and special regulations for such services, including for VSAT (very small aperture terminal) satellite data networks were adopted in October 1991. In May 1992, CONATEL also announced plans to grant concessions for private trunking and paging operations to provide mobile radio services for taxi companies, ambulances, contractors, and building security services.

Satellite services were also liberalized in connection with the privatization. Under Decrees 1876 and 1877, adopted in October 1991, the provision of satellite services was officially opened to competition. Private entities may apply for licenses for utilization of any satellite for either private networks or public services. Satellites operating in Venezuela include the international consortium INTELSAT and the U.S. licensed private international satellite operated by Alpha Lyracom/Pan American Satellite (PanAmSat).

Most significantly, the new market structure implemented at the time of privatization included authorization for private networks. The notion of authorizing private networks created a quandary, as such networks can serve as "bypass" systems that drain revenues from the basic switch network. Nonetheless, it was determined that authorization of private networks was important in Venezuela. Such authorizations would provide continuity of services already established through major private networks utilized by the oil companies and others, as well as relief from service quality problems for large users during the period of service improvement by CANTV. Thus, the government established policies and procedures for authorization of private networks by either permit (for networks restricted to internal company use) or concession (networks for third-party service). The authorizations included restrictions on interconnection with the public-switched network.

In anticipation of the establishment of private network regulations, numerous parties filed applications with CONATEL. By early 1992, CONATEL had awarded several concessions for private domestic and international business services, including teleports, VSAT networks, and other voice and data networks.

Regulatory Process

The success of an implementation of a new regulatory regime in connection with privatization depends not just on the wisdom of substantive regulatory policies, but also on the structural elements of the regulatory process. In particular, it is critical to the success of a new regulatory authority that its jurisdiction and powers be clearly established, that it be guaranteed some degree of insulation from political processes, that significant funding be assured, and the mechanisms be provided for access to special experts and advisory services, particularly in the early stages when significant training is required. Each regulatory authority in every individual country will have to
Implementing Reforms in the Telecommunications Sector

resolve these issues within the context of that country's own legal system. Necessarily, the instrumentalities of regulation, as well as the goals and objectives of the regulatory process, must be uniquely tailored for every situation. The critical aspects mentioned here, however, are fundamental elements of the essential survivability of a regulatory process, particularly for countries that have had no recent or well-established tradition of regulation and must quickly marshal resources to address complex issues.

At the outset of the privatization process in Venezuela, it was the intention of the government of Venezuela to establish an independent regulatory agency, reflective of the powers and capabilities of model regulatory authorities in other countries, such as the Federal Communications Commission (FCC) in the United States. The governmental structure of Venezuela, however, neither contemplates nor permits the establishment of an "independent" regulatory agency.

In particular, the Constitution of Venezuela, adopted in 1965, provides that authority over telecommunications is reserved exclusively to the federal government. Telecommunications services were established, in the 1940 law, as "public services" which are the responsibility of the government to provide, either directly or through concession to private parties. Jurisdiction over telecommunications public services is delegated to the MTC. Thus, any regulatory authority with oversight in telecommunications matters had to be developed within, or in a structure related to, MTC. This is in strong contrast to the U.S. governmental structure which, through the U.S. Constitution, delegates powers over interstate commerce to the Congress, which has delegated jurisdiction over interstate and international communications to the FCC.

Moreover, under the organizational law of the government of Venezuela, there are only limited options for the structuring of a "regulatory authority." One option was to continue with a separate general directorate for communications within the ministry. This, however, was deemed not to provide the desired political and economic independence for the regulatory authority. The second option was to create an "autonomous service," again within the ministry. This is a form of governmental entity which has intermediate autonomy. It does not have a legal identity separate from the ministry, but unlike a general directorate, it may maintain a budget and assets separate from the ministry.

Some interpretations of Venezuelan law indicated that an autonomous service, even though formed as part of a ministry, had to be established by law. In fact, the Venezuelan attorney general had issued formal opinions in other cases to that effect. The attorney general had also, however, accepted certain other cases in which autonomous services had been established through presidential decree.

A third option for a regulatory entity was the establishment of an "autonomous institute." Unlike an autonomous service, an autonomous institute would have a separate legal identity and could directly receive its own revenues. An autonomous institute would have to be "ascribed" to or connected with the ministry, but would be essentially independent. It could maintain its own administration and could directly receive revenues from license fees, and appeals from its decision could be made directly to the courts.
The draft telecommunications law being considered by the Venezuelan Congress in the spring and summer of 1991 provided for the establishment of an autonomous institute: the Instituto Nacional de Telecomunicaciones (INATEL) which was to be ascribed to MTC but would be given full and complete authority for actual regulatory functions, including development of policy proposals, promulgation of regulations and technical standards, issuing of permissions and concessions, administering the radio frequency spectrum, entering into international agreements, and overseeing tariffs. INATEL was to be directed by a board of seven members with staggered terms, each member to be selected by the heads of different government departments. The president of INATEL was to be selected by the Minister of Transportation and Communications.

The draft legislation also provided for the creation of another entity called the Consejo Nacional de Telecomunicaciones (CONATEL), which was intended to be organized within MTC and led by the Minister of Transportation and Communications. The role contemplated for CONATEL was as adviser to the government on objectives and policies. CONATEL was to be composed of twenty-one members representing various governmental and commercial interests, including labor unions and users.

Unfortunately, the progress of the telecommunications law ran into unexpected political impediments. The primary difficulty was that, although the 1940 law addressed both telecommunications and broadcasting issues, the proposed new telecommunications law created a new regime only for telecommunications. Certain interests in the government desired new legislation to govern broadcasting. The resistance of broadcasters to this development resulted in an impenetrable deadlock. Consequently, the privatization of CANTV had to proceed without a new telecommunications law and without the benefit of the establishment of an independent regulatory entity.

As a result, on September 5, 1991, President Perez issued Decree 1826, which formed CONATEL as an autonomous service within MTC. CONATEL was constituted through the reorganization of a department of engineering which had reported to the General Directorate for the Sector of Telecommunications. CONATEL is now responsible for all regulatory functions, including the following:

- Planning, directing, and supervising telecommunications services
- Regulating telecommunications services
- Keeping abreast of the execution of plans and programs in the telecommunications area
- Recommending and granting concessions, permits, and other authorizations
- Promoting investment and technological innovation
- Applying administrative sanctions permitted under law to enforce technical and service regulations
Implementing Reforms in the Telecommunications Sector

- Ensuring that regulated entities respect the rights of the users
- Coordinating with national and international organizations on technical aspects of telecommunications
- Administration of the radio frequency spectrum
- Developing criteria for administration of tariffs; and
- Any other functions that may be assigned by law.

A separate consultant or advisory council (Consejo Asesor) also was created to help advise CONATEL on regulatory policy.

Although the telecommunications law remains pending in Congress as of early 1993, passage would require resolution of very intricate political issues, and such resolution does not appear likely in the near future.

The consequence of these developments is that Venezuela is faced with very significant and intricate regulatory issues but is severely handicapped with respect to regulatory resources that it can apply. CONATEL has no independent base of continued funding and is completely dependent upon allocations from MTC and whatever assistance it can obtain through sympathetic foreign or multilateral sources, such as U. S. Trade and Development Program (TDP). Whereas at one time it had been contemplated that CONATEL would receive a percentage allocation from the substantial concession fee payments made by TELCEL and GTE, those funds have been absorbed into the general treasury without any mechanism provided for direction of a portion of the revenues to the regulatory effort. Also, whereas it was originally expected that CONATEL would be able to impose and collect regulatory processing and license fees, it now cannot do so.

The Venezuela market is a particularly complicated one, as it is characterized by a particularly progressive combination of monopoly and competition elements. It is in such mixed markets that regulatory issues become most complex. CONATEL is faced with the need to address very sophisticated regulatory policy issues in the areas of interconnection, frequency allocation, pricing and tariff oversight, service quality monitoring, consumer responsiveness, international cooperation, and establishment of subsidy for rural telephony. The paucity of resources available do not bode well for optimum regulatory attention to these issues.

Lessons Learned

The first lesson learned from Venezuela is that the regulatory process itself is a critical element of the success of a privatization, both before and after the closing of the transaction. The success of the privatization must be measured not only in terms of the price paid, but also in the ability of the participants in the process to achieve established goals and objectives. In Venezuela it is clear that the goals have been to
improve the quality of basic services quickly while moving expeditiously to a competitive market model. These objectives require regulatory authorities to deal with the most sophisticated regulatory issues. The stability and rationality of the regulatory process, therefore, was an important element in attracting investors to Venezuela. The degree of success achieved in meeting established goals for improvement of service quality and reduction of barriers to entry, however, will not be apparent for some time and will depend upon the continuous effectiveness of the regulatory process, long after the privatization itself has been completed.

The second lesson is that, although we may take from foreign models the best that alternative systems have to offer, foreign systems can never be successfully grafted on to a different legal system. In Venezuela, as has been the case in other privatizations, it was tempting to try to apply notions of U.S. regulatory processes. The unique structure of the Venezuelan government, however, as dictated by the Constitution and other domestic laws, as well as the fact that Venezuela is a civil law country, requires that unique regulatory structures be devised.

The third lesson is that no matter how attentive advisers are to domestic legal structures and requirements, and no matter how elegant the plans may be for the implementation of an effective regulatory structure uniquely suited to that particular country, such plans may fail. In the case of Venezuela, the best laid plans for an "independent" regulatory entity were sidetracked with the unexpected failure of the passage of the telecommunications law. The resulting structure, established by presidential decree, along with the limitations on funding and lack of insulation from political shifts, is by no means optimum. Therefore, it is very important to develop contingency plans for the establishment of a regulatory process and to provide, to the greatest extent possible, for the most critical elements of regulatory structure, namely clarity of jurisdiction, political insulation, and adequate funding.

The fourth lesson is that, of all of the fundamental elements of an effective regulatory process, funding is perhaps the most important, at least in the early stages. Significant funding is needed to hire and train competent staff and, where desirable, to hire expert advisers. It is important for privatizing governments to ensure that certain financial resources, perhaps earmarked from concession fees, be directed to the regulatory effort. It is also important for international agencies supporting privatization programs to commit resources to follow through in ensuring the effective implementation of regulatory programs long after the closing of the sale.

Finally, another lesson is that expert advisers working on different aspects of regulatory processes and substantive issues should be closely coordinated. The structure of advisory contracts varies from one privatization to the next. In some cases, only one legal adviser is appointed to handle the transactional and regulatory issues. In other cases, separate contracts may be awarded under the same funding source. In still other cases, as was true in Venezuela, separate contracts may be awarded and funded by separate agencies. This favors diversity of viewpoints which is a valuable asset in the privatization process. Ineffective coordination, however, results in duplication of effort, tremendous waste, and ineffective advice. For example, substantive regulatory policy issues, raised for the purpose of drafting
Implementing Reforms in the Telecommunications Sector

bidding documents by one firm must be closely related to assumptions in the organizational structure of a regulatory entity designed by a different firm. For lack of effective coordination, some important opportunities to share and take best advantage of diverse expert resources were lost.

Conclusion

In spite of the problems that Venezuela inevitably will face, the privatization of CANTV has opened the door to a new era of market-based telecommunications systems in that country. There certainly will be many fits and starts as policies evolve and the market adjusts to new participants and developments in services and technologies. It is hoped that the new regulatory process in Venezuela, though not the structure originally envisioned, will survive and prosper and serve as a positive force in fostering market developments.

Endnotes

1. CANTV's concession under the 1965 law expired in 1990. Prior to that expiration, however, the Venezuelan Supreme Court ruled that the concession actually was not necessary, and that CANTV operated as an instrument of the state pursuant to the obligations and powers already established for the government in the Constitution and the 1940 Law.

2. The author, international communications counsel for Latham & Watkins, was legal adviser to MTC under the TDP contract granted to Teleconsult, Inc., for the design of a telecommunications regulatory entity.

3. A concession is a form of delegation, to a private party, of rights and obligations that legally remain with the government. A license or permit is a governmental authorization of a private sector activity.


5. Another initial participant in the consortium, Racal Telecom of the U.K., subsequently pulled out.


7. In contrast to the U.S. common law legal system derived from England, which is based on judicial precedent reflective of basic principles, Latin American countries generally have civil law systems derived from Western Europe and based on legislatively enacted codes which establish comprehensive sets of rules. One of the key distinguishing features between modern common law and civil law systems is the role of the judiciary.

194
Part III

Recent Experiences

in the Asia-Pacific Region
Restructuring the Telecommunications Sector in Asia: An Overview of Approaches and Options

Robert R. Bruce and Jeffrey P. Cunard

The process of developing and restructuring the telecommunications sector in emerging and developing countries and economies in Asia has been as complex and diverse as the myriad economic, political, and social milieus of the region. This chapter is not a comprehensive analysis of sectoral reform in each country or economy in Asia. Rather, it is highly selective and impressionistic and is intended to highlight several of the varying approaches to sectoral reform being explored. Notably, this chapter does not discuss the Japanese experience because of its complexity and because Japan is much further along the path toward competition and reform. It concludes with some perspectives concerning possible future policies in the region.

Overall, the restructuring process in Asia has, so far, been distinctly different from reform in Latin America, Europe, or North America. In Latin America the process is characterized by efforts to privatize state enterprises at a very accelerated pace. In connection with this effort, Latin Americans have sought significant amounts of foreign investment while, at least temporarily, limiting competitive entry into basic service sectors.

In Asia, by contrast, a mixed set of strategies for the telecommunications sector is being pursued. It is not surprising that this is so, given the aggressive approach to economic development in Malaysia, the Republic of Korea, Singapore, Taiwan, and Hong Kong. In Malaysia, privatization of the telecommunications operator has been implemented in a deliberate, carefully staged process without significant involvement by foreign investors. Singapore Telecom, a company serving a thriving city-state with an abundance of resources, has been restructured; the first stock offering is anticipated for 1994. Latin American-style privatization is an approach being pursued in Pakistan.

Economies such as Korea, Singapore, and Taiwan have been able to generate substantial investment resources for basic infrastructure. For them, cutting-edge debates have focused on how to permit new services and service providers to use the infrastructure. In Hong Kong, the debate also has focused on the nature and viability of future infrastructure and service-based competition.
Implementing Reforms in the Telecommunications Sector

In other countries, where it is often difficult to establish basic connections, service-based competition, though no less important from the standpoint of telecom users, may be an elusive goal. In those environments, policymakers may well have to confront the significance of permitting new providers of core infrastructure, either directly, as competitors to the existing operator, or as contractors to that operator.

Thus, the future evolution of the telecommunications sector in Asia may be characterized by dynamically new scenarios for the evolution of industry structure. The fact that many of the newly industrial economies of the region have been able to make substantial investment in infrastructure without new entrants or competition may not necessarily mean that others, with more limited resources, can afford to follow a similar path for development of their telecom infrastructure.

Beyond those economies that have already achieved significant telephone penetration, policymakers are wrestling with difficult choices concerning steps that might be more limited than immediate privatization of the operator. They are seeking ways to introduce private investment into the sector. They are attempting to focus on rearranging existing organizational and institutional structures to lay the groundwork for sectoral reform. They are also addressing issues of whether regulatory reform ought to precede—or is a consequence of introducing—competition in or the privatization or reorganization of operators in the telecommunications sector.

Regional Pacesetters: In the Footsteps of the Four Tigers

In each of the rapidly emerging economies of Korea, Taiwan, Hong Kong, and Singapore, there is significant penetration of the telecommunications infrastructure. Korea has approximately 35 subscriber lines per 100 population. Taiwan has over 33, Hong Kong has 45, and Singapore has 47. In each one of these environments, the existing operators are confronting a wide range of issues and competitive challenges from diverse quarters.

Republic of Korea

Korea has achieved a remarkably high level of telephone penetration through an aggressive program of sectoral investment initially managed through the Korea Telecommunications Authority (KTA). Telephone penetration expanded from 2.8 million access lines in 1980 to over 15 million in 1990, and in the same period the telecommunications sector's share of national fixed assets jumped from 3 to 7 percent. With 35 telephone subscribers per 100 population by April 1991, Korea now has among the highest telephone penetrations in Asia, and the ninth-largest telephone network in the world, measured in terms of access lines.

On January 1, 1991, KTA was converted from a governmental authority to a joint-stock company, Korea Telecom, that the government plans to privatize. It is anticipated that the majority of the shares of Korea Telecom will remain in the hands of the government. The plan had been to offer shares in Korea Telecom to Korean investors, beginning with an initial tranche of 25 percent of the shares,
followed by the sale of another 24 percent over the following two-year period. Privatization plans have been delayed for several reasons, including the downturn in the Korean stock market.

The Korean government has remained wary of removing restrictions on foreign ownership of Korea Telecom's shares. As part of the much broader economic objective of trying to diversify the country's industrial base beyond the few large, highly diversified business conglomerates, or chaebol, the government has been cautious about major Korean industrial or trading firms obtaining a significant ownership stake in Korea Telecom. The privatization plans would bar any single shareholder from owning more than 10 percent of Korea Telecom.

Notwithstanding the very deliberate pace with which Korea Telecom is being restructured, major changes have taken place in the structure and organization of the Korean telecommunications sector. These changes are largely the result of a) a recognition by Korean policymakers that further industrial development is predicated on a modern and efficient telecommunications sector; b) pressures from major telecommunications users in Korea; c) intense trade pressure from Korea's major trading partners—principally the United States—for a more liberal and open telecommunications regime.

In August 1991, Korea enacted a new telecommunications law that establishes lines of demarcation between various service categories: General Service Providers (basic telephony and data services), Special Service Providers (cellular, paging, and other regional or wireless services), and Value Added Service Providers. The new legal framework also establishes the regulatory framework for authorizing new service providers. As a result, competition is now emerging in various subsectors of the Korean telecommunications sector.

For example, for many years all data communications services were provided through the Data Communications Corporation of Korea (DACOM), which was created in 1982. DACOM has been a private-sector entity organizationally independent of—but partially (33 percent) owned by—Korea Telecom. Among its remaining twenty-seven private corporate shareholders are a number of Korea's major firms. To a significant extent, DACOM saw itself as competing with (at least at the margins)—and more entrepreneurial than—Korea Telecom, which was limited to a monopoly in domestic and international voice services. Recently, the Korean government has lowered the barriers between markets to sanction a less segmented approach to the provision of services.

First, DACOM's monopoly with respect to data services was ended in 1992. Korea Telecom has been allowed to offer data as well as voice services. Second, to ensure that fair and viable competition develops between DACOM and Korea Telecom, the latter was required to transfer its shares in DACOM to the government by 1993. Third, as of December 3, 1991, DACOM has been able to provide international voice services, which had been the exclusive preserve of Korea Telecom. DACOM has moved aggressively into this market; with a 5 percent rate advantage over the services of Korea Telecom and the ability to provide bypass services, DACOM has substantial shares of traffic on major international routes. Fourth, DACOM is
Implementing Reforms in the Telecommunications Sector
eagerly pursuing a license to provide domestic long-distance services by 1995. This initiative is opposed by Korea Telecom, in part because rates are not yet rebalanced.

The services that Korea Telecom and DACOM can provide will remain somewhat partitioned, at least for the next several years. The opportunities for direct head-to-head competition in the domestic market are still limited, though competition internationally is quite vigorous. Korea is now headed toward a competitive industry structure with full duopolistic competition between Korea Telecom and DACOM.

The Koreans are also moving aggressively to introduce competition in mobile services in the Special Service Provider category. Significant foreign investment in the provision of mobile services is expected; several of the U.S. regional operating companies and equipment suppliers are actively pursuing opportunities in Korea as they become available. No foreign entity can, however, own more than one-third of the voting stock of such a provider.

Again, in an attempt to diversify the sector, the government has decided to exclude Korea Telecom and DACOM from the mobile sector. Korea Telecom is, in fact, in the process of divesting its stake in Korea Mobile Telecommunications Corporation (KMTC); in October 1989, KMTC sold 35 percent of its shares to its employees and the general public. In a further attempt to encourage competition, individual companies may not own more than one-third of a Special Service Provider's voting stock.

As a consequence of several years of tough trade negotiations with the United States, the Korean government has been yielding ground stubbornly with respect to long-standing restrictions on the competitive provision of value added services. Over time, and in phases, restrictions have been lifted on the offering of such services. First, information processing was opened up. Then, group value added network (VAN) operations were permitted. Next, private companies could participate in certain local area networks and group VAN services.

Private companies and Korea Telecom are permitted to provide a wide array of domestic value added services. As a result of the 1991 law, a registration requirement has been adopted for authorizing providers of certain value added services; views differ on the simplicity or automaticity of registration. Providers of domestic database and remote computer services are not required to register. Over time, it is expected that the registration requirement will be further liberalized.

Also in 1991, Korea and the United States, and later Korea and Japan, entered into arrangements to permit the international provision of value added services (the so-called IVANs). These services could include electronic data interchange (EDI) and other message-handling services.

The Koreans continue to resist lifting the remaining restrictions on foreign ownership of providers of value added services. Currently, foreign investors can hold no more than 50 percent of the shares of a Korean provider of value added services (but there is no restriction on database and remote computer services). Largely as a result of trade pressure, in February 1992 the Koreans agreed to lift this restriction by January 1, 1994. Restrictions on foreign investment will not be lifted, however, with respect to General Service Providers.
Taiwan

Change in the telecommunications sector in Taiwan is coming about very deliberately, and with increasing impatience from large users and Taiwan's trading partners. For several years Taiwanese policymakers have recognized the need for reform. Various structural options have been evaluated and advisory groups have been formed. Currently, a draft law that would reform the telecommunications sector is being circulated.

Given the size and growth of that economy, the relatively slow movement in Taiwan is somewhat surprising, but it may be the result of several factors. Taiwan has been subject to less significant external and internal pressures than other countries to open the telecommunications sector. In addition, widely felt concerns over national security issues have delayed consideration of steps that would permit competition and encourage reform in a sector as vital to the national interest as that of telecommunications. Moreover, the overall pace of change—not just in telecommunications, but in the capital markets and financial services area, for example—is far more deliberate and cautious than in other countries in Asia. The deliberate approach toward introducing reform has not been without its frustrations, for both Taiwanese and foreign industries.

At the same time, many believe that the telecommunications operator, the Directorate General for Telecommunications (DGT), has done a reasonable job. The DGT recently launched a twelve-year, US$22 billion investment plan. In 1991, Taiwan ranked thirteenth in the world in total telecommunications expenditures, behind Korea (ranked eleventh) but ahead of the Netherlands (fourteenth) and Sweden (nineteenth).

The DGT is part of the Taiwanese Ministry of Transportation and Communications and has not yet been corporatized, although there have been various proposals to corporatize or otherwise transform the DGT. The most recent proposal is wending its way through the government in parallel with the draft law that would, if enacted, create a new, competitive structure for the telecommunications sector. Operational and regulatory responsibilities remain bundled in the ministry. For example, in spite of significant demand for cellular telephony, the DGT has maintained control over such services. The existing cellular service, installed with Ericsson equipment, grew from 38,500 subscribers in 1990 to over 210,000 subscribers currently. An additional contract to install another 220,000 lines has been awarded. Likewise, with respect to paging services, foreign firms have been restricted to supplying systems and equipment, even though demand for paging services is burgeoning. (In 1991, the demand for a second paging system increased 41 percent over the previous year, nearly filling the 1 million line capacity of the system.)

The Taiwanese approach to the provision of value added services also has been incremental. Certain value added services can be provided on a competitive basis domestically; to date, those services that can be provided competitively have been quite limited, focusing on information storage and retrieval, information processing,
remote transaction services, and electronic mail. Additional restrictions are imposed on the extent to which international value added services can be provided. The Taiwanese are, however, taking some steps to liberalize the use of leased circuits by large users.

The most significant limitation to date has been the absolute bar on any foreign investment in providers of telecommunications services, including value added services. Under current Taiwanese law, even a single foreign shareholder could disqualify a company from being able to provide such services, whether domestically or internationally. The draft law would permit some—perhaps up to one-third—limited foreign ownership of providers of value added services. The stated intention of some in the government is that over time the restriction might be lifted altogether.

The first steps toward structural reform may involve instituting more liberal arrangements for the use of DGT infrastructure. For the foreseeable future, the DGT will probably remain under relatively tight government control. There is little talk about permitting competition in wireline infrastructure, though cellular telephone and other mobile services are seen as presenting significant potential opportunities for foreign investors.

The draft law contemplates dividing the telecommunications sector into two categories of service, a hybrid of the approaches pursued in Japan (Type I and Type II) and the United States ("basic" and "enhanced" services). Category II services—intended to be value added services that use the facilities of a Category I enterprise—could be provided on a relatively competitive basis. Presumably, Category I services—defined as the installation of telecommunications facilities that provide telecommunications services—would (aside from mobile services) remain a monopoly of the corporate successor to the DGT.

The draft law contemplates that the DGT would be transformed into a state-run company, Chinese Telecommunications Company (CTC), which would be permitted to provide both Category I and II services, subject to the requirement that there be no cross-subsidies. Much thinking has gone into this law to alter the status of the DGT, with considerable attention to personnel and retirement issues. CTC shareholders could include only Taiwanese entities or those of Taiwanese nationality; foreigners could hold up to one-third of the shares of any such shareholding entity, however.

In short, the government in Taiwan remains concerned about maintaining control over what is obviously considered a strategic sector. There is already a relatively high level of investment by the DGT. Telephone penetration is significant, amounting to over 33 main lines per 100 population. Telephone subscription increased to 6.7 million in 1991, an 8.1 percent increase over the previous year. Accordingly, there is little pressure to introduce private investment to accelerate the expansion of infrastructure. Nevertheless, the government’s investment program for the period 1991–1996 is highly ambitious. It calls for:

- The installation of 12 million lines of digital local switching equipment by the end of 1996—with 92 percent of these lines digitalized by that time
Restructuring the Telecommunications Sector in Asia

- 100 percent digitalization of toll switching lines by 1994
- Construction of 23,000 kilometers of fiber-optic network
- Significant investment in international transmission projects and in the development of ISDN capabilities in the national network.

There is growing concern that the Taiwanese government has not made a sufficiently adequate investment in a range of basic infrastructure. As pressures grow for increased investment, Taiwanese government officials may become more open to permitting increased participation by private investors, including foreigners, in the telecommunications sector. Such a step may well be a prerequisite to any effort to accelerate the process of reforming DGT’s existing structure.

Hong Kong

In Hong Kong, Cable & Wireless (C&W), through its holding company, Hong Kong Telecommunications Ltd. (Hong Kong Telecom), has a monopoly on the provision of both domestic (Hong Kong Telephone Company) and international (Hong Kong Telecom International) services. Given that these monopolies expire in 1995 and 2006, respectively, policymakers have spent the last couple of years exploring models for encouraging facilities-based competition in Hong Kong. In the abortive effort to franchise a cable television system in Hong Kong, which collapsed in late 1990, it was made clear that such a system should have the capability to provide telecommunications services as well.

Competition in mobile services is exceptionally vigorous. In cellular telephony the Hong Kong-based conglomerate Hutchison Whampoa is a major player, in competition with Hong Kong Telecom. Three licensees operate four cellular networks with the second-highest rate of subscribers in the world. Other radio-based systems also serve as viable competitors to Hong Kong Telecom’s wireline network. With thirty paging licensees, Hong Kong has the highest penetration of pagers in the world (650,000 subscribers for a population of 5.9 million) and two operators of CT2-type cordless telephone or telepoint services have together built up a customer base of 50,000 in a year.

In 1991, Hong Kong concluded bilateral agreements to provide international value-added network services with the United States and Japan. These arrangements carefully delimit what services can be provided, excluding, for example, basic voice and facsimile services. Over time, they will undoubtedly apply pressure on C&W’s monopoly to provide international switched voice services. Due to Hong Kong’s status as an essential node on emerging global networks, it seems likely that C&W will have to cede some control over the provision of international switched voice services into Hong Kong if it wishes to have operational flexibility in and access to other major international markets.
Implementing Reforms in the Telecommunications Sector

A new price-cap regulatory scheme has been put in place for Hong Kong Telephone Company, which elected to shift from a traditional scheme of price regulation based on reliance on rate-of-return regulation. Under the new scheme, Hong Kong Telephone will be allowed to increase its prices by a rate equal to the rate of inflation, minus a factor $x$. This factor will be fixed at 4 percent for the last three years of the company's franchise.

Telecommunications policy in Hong Kong is driven in significant part by the recognition that telecommunications services of every sort are needed to maintain the growth and vigor of Hong Kong as a trading and financial center. This is particularly true as Hong Kong aggressively competes with Singapore and Tokyo to be the economic epicenter of the world's fastest-growing region. Accordingly, value added services can be provided within Hong Kong on a liberal and competitive basis. The licensing scheme is straightforward and various service providers are thriving. Hong Kong Telephone has moved smartly to meet competition and introduce new services tailored to the dynamism of the market, including the provision of very sophisticated facsimile services over a separate, dedicated network.

How fast Hong Kong will open up its telecommunications sector will depend on various external factors. To a significant extent, it may be determined by the pace at which other relatively closed markets in continental Europe are opened in the 1990s. If competition in infrastructure becomes a broadening phenomenon on the Continent, it may be difficult for Hong Kong to remain isolated from what could become an international trend.

Sector developments in Hong Kong must also be understood in the context of the changes that will take place in 1997. Already, China has a powerful and growing political and economic presence, including a 20 percent shareholding in Hong Kong Telecom through China International Trust and Investment Corporation (CITIC). Combined with intensifying pressures from international users and service providers, these changes will have a profound—and still uncertain—impact on the dynamic Hong Kong market.

Prompted by these factors and the general worldwide trend to liberalization, the Hong Kong government conducted a telecommunications policy review. As a result of this review, the government decided that Hong Kong Telephone Company's exclusive franchise would be replaced in 1995 by a nonexclusive license which would include a universal services obligation. In addition, in September 1992 the government invited proposals for competing providers of local service. By the closing date of February 1, 1993, it had received seven proposals, some involving the world's major telecommunications operators. The government undertook to assess each proposal on its merits and a priori not set a limit to the number of competitors it would license. It promised a decision by mid-1993 to allow adequate transition to competition at the conclusion of Hong Kong Telephone Company's monopoly in 1995. At the end of November 1993 the Hong Kong government announced that it had awarded three licences to provide domestic fixed telecommunications network services. These were awarded to: Hutchison Communications Ltd. owned by Hutchison Whampoa (80 percent) and Telstra of Australia (20 percent); New T&T
Restructuring the Telecommunications Sector in Asia

Hong Kong Ltd. owned 100 percent by Warf Holdings Ltd. of Hong Kong; and New World Telephone Ltd. which is owned by New World Development Ltd. of Hong Kong (66.5 percent), US West (25 percent), Shanghai Long Distance (5 percent) and Infa Telecom Asia Ltd. of Hong Kong (3.5 percent). Also, a newly established regulatory body will be given the power to arbitrate between a new competitor and Hong Kong Telephone Company on appropriate interconnection arrangements and access charges if the two are unable to agree through negotiation. If the Hong Kong government accepts one or more of the competing proposals, Hong Kong will become an important laboratory within the Asian region to test how competition might be introduced into the major "city-states" of the Asian region.

The government of Hong Kong is continuing to review core elements of its regulatory framework. By mid-1993 it had put in place a new regulatory entity known as the Office of the Telecommunications Authority (OFTA). Interestingly, the director-general of the OFTA is a former senior staff member of the Australian regulatory body AUSTEL; this demonstrates that not only new competitive policies, but even regulatory officials attuned to overseeing procompetitive policies, are on the move in the Asian region.

The government is likely to proceed carefully, especially in the international arena. Pressures are mounting for further liberalization; at the same time, the government is reluctant to take any action that would be construed as a unilateral termination of an existing franchise agreement, given the general climate of concern about the transition to occur in 1997. The overall pace of change in Hong Kong may well be governed by the pressures from the United States and Japan, which have open markets and where C&W has been permitted to offer services competitively. It is likely that these two trading partners will argue, both to C&W and to officials in Hong Kong, that their firms are entitled to reciprocal market access in Hong Kong.

Finally, additional international competitive pressures—an inevitable consequence of Hong Kong's continuing participation in commercial and financial markets—will dictate the future direction of events in Hong Kong. Hong Kong is less insulated from and more vulnerable to external pressures than is Singapore. Consequently, it seems possible to imagine that Hong Kong will be the gateway through which developments from other regions are passed on to and adapted for the Asian environment.

Singapore

The telecommunications scene in Singapore has been dominated by the pervasive presence of Singapore Telecom (ST). The extraordinary success and the visible and concerted orientation of ST toward becoming a global player are emblematic of Singapore's status as an economic powerhouse in the region.

Singapore is locked in a competitive dynamic with the other major economic centers of the region: Tokyo and Hong Kong. The intensity of this competition and the jockeying for international business are likely to ensure that Singapore will take
Implementing Reforms in the Telecommunications Sector

steps to liberalize the use of telecommunications infrastructure at least to the level of Hong Kong.

The status of Singapore and, derivatively, that of ST are unique in the region. Officials in the Singaporean government and within ST (the de facto policymaker and regulator in the telecommunications sector in Singapore) are sufficiently savvy to be able to react swiftly to pressures from abroad. Singapore may not need to lead the region in the process of restructuring the sector, given the uncertainties of Hong Kong’s status after 1997 and the developing state of Malaysia’s economy.

Conversely, ST may increasingly be exposed to insistent pressures from Singapore’s major international trading partners to open up the Singaporean market. Following the highly successful example of Singapore Airlines, ST is seeking to enter the international arena more actively as a competitor (and as a provider of managed network services for large business users). As it moves outward, ST may confront demands to loosen its stranglehold over the telecommunications sector in its home market. For example, although there is now in place a regulatory body, the Telecommunications Authority of Singapore (TAS), and a regulatory regime for international value added services, Singapore’s approach to service-based competition is much more restrictive than that permitted under the EC Services Directive. For example, applicants for licenses for international value added network services are required to show a substantial “value added” element to the proposed service. Any services that purport to involve any element of resale of ST’s services are not permitted.

TAS undertakes to evaluate new applications for service on an ad hoc basis; however, the regulatory regime in Singapore is much more restrictive than in most major industrial countries. Thus, many service providers that are able to implement services within the European Community under its Services Directive and hope to connect such services to the United States, Japan, and Australia will find that Singapore has become a restrictive bottleneck where emerging international managed network services cannot be provided. ST has attempted to accommodate large private line subscribers within the existing regulatory framework; increasingly, ST will be expected to accommodate international providers of value added and managed network services, especially as it seeks increased presence in international markets as a service provider.

On April 1, 1992, ST was corporatized as Singapore Telecommunications Pte. Ltd., which is wholly government owned through a holding company (MinCom Holdings Pte. Ltd.). At the same time a reconstituted TAS was given the responsibility to regulate telecommunications and postal services. Privatization itself is being undertaken principally to enhance ST’s global competitiveness and to improve the incentives for its management.

About 11 percent of Singapore Telecommunications was floated in November 1993 in three tranches. Two of the three tranches (approximately 550 million shares) were reserved for Singaporeans including employees of ST. The third (approximately 550 million shares) was open to bidding by Singaporeans and foreigners. The basic sale price per share was S$2.
The corporatization-privatization project follows the privatization of the telecommunication operator in Malaysia and of Singapore Airlines. ST seems to understand that it may need to present a more commercial, corporate face to the world to venture with partners abroad. Indeed, it is for this reason that foreign partners ultimately may be invited to make equity investments in ST. ST also recognizes the strategic importance of realigning the balance between local and international revenues. Singapore has been quite successful in attracting large users to route their traffic through its facilities, notwithstanding its controversial volume-based orientation to charging for leased circuits. Consequently, revenues from international services have long been the economic engine behind the success of ST.

ST's financial results are almost unimaginable for others in less developed markets. In the year ending March 31, 1991, ST reported a surplus of US$1.1 billion on revenues of US$2.1 billion—representing a rate of return of 36.7 percent of operating income. (By comparison, Hong Kong Telephone's after-tax return is reportedly 30.8 percent.) Profits in the first six months ending in September 1993 were S$0.78 billion (a 20 percent rise over the same period the previous year) on revenues of S$1.53 billion. As is true of its counterparts in Korea and Taiwan, ST has been able to reinvest surpluses aggressively into its operations. Of the US$1.1 billion surplus, only US$217 million was turned over to the Singapore government treasury. It is believed that ST's profits from the offering of international services are sufficient to completely subsidize the expansion and costs of the services provided over the domestic network. ST has an accumulated surplus of US$4.9 billion, out of which US$2.4 billion is earmarked for investment in new assets. Investments of US$3.2 billion are planned over the next five years. Once privatized, ST would pay a government corporate tax of 32 percent and be required to pay dividends to the state, to the extent it remains at least a partial shareholder.

At the end of 1991, substantial controversy was generated when the government proposed to begin charging on a usage basis (Singapore $1.4 or US$0.8 per minute during business hours and half that rate the rest of the time). Annual subscriber fees of US$190 for a residence line and US$290 for a business line were to be reduced to US$100 and US$150, respectively. Despite these reductions in monthly fees, policymakers elsewhere in the region might take note of the extent to which local exchange tariffs are structured to recover investment costs.

Privatization is focusing attention on the economic dynamics of providing telephone service in Singapore and other major urban centers in Asia. Singapore's experience provides a fascinating benchmark for other Asian markets that aspire to follow in its footsteps. According to ST's own statistics, the top 30 percent of users account for 74 percent of all traffic; the bottom 30 percent generate 2.2 percent of all calls.

Singapore's successful strategy for developing its telecommunications sector has several important components. First, Singapore has maintained a tariff structure for local access that has supported investment in the sector. It is now modernizing that tariff structure to take into account increased use of local plants for data and facsimile transfer as well as to respond to pressures to lower international accounting rates.
Implementing Reforms in the Telecommunications Sector

prices for international calls. Second, ST has been able to accumulate significant cash reserves to finance new investment. The government has resisted the temptation to siphon off revenues to support other areas of activity, and ST has generated huge cash reserves for future plant improvements. This strategy of aggressive reinvestment certainly should be given careful consideration by economic planners elsewhere as they assess how best to keep up with the fastest moving economies in the region.

Developing Economies in Rapid Pursuit: The Cases of Malaysia, Thailand, Indonesia, and the Philippines

Countries that have lagged behind the Four Tigers in the pace of overall economic development have been pursuing various approaches to sectoral reform. These countries' economies are pressing hard to follow the lead of the four economies that have sprinted ahead. To varying degrees, development of the telecommunications infrastructure, coupled with structural change, is perceived as critical to realizing sectoral reform.

Malaysia

The approach to privatization in the telecommunications sector in Malaysia has been lengthy and deliberate. It has also been consistent with Prime Minister Mahathir's views that the private sector should take the lead in developing the country's economy and that the effort should be to move as quickly as possible to follow Singapore. Although the government has focused on restructuring and reorganization, the telecommunications sector has been marked by substantial investment plans to increase the number of main lines and to modernize and digitalize the network. The goal is to have a telephone penetration rate of 15 percent by the middle of this decade and 40 percent by the year 2005. In the meantime, mobile communications is growing quickly, with four cellular telephone companies, thirty-two paging licenses, and other licenses granted for new mobile technologies (such as CT2).

In 1984, the government began the process of privatization by separating the regulatory and operational roles of the Ministry of Energy, Posts and Telecommunications. It did this on January 1, 1987 by transferring the telecommunications operating function to a new entity, Syarikat Telekom Malaysia Berhad (STM), a wholly owned government company incorporated under the companies Act of Malaysia, and now known simply as Telekom Malaysia. Regulatory functions were retained in the telecommunications department (Jabatan Telekom Malaysia or JTM) of the Ministry. As a first priority, policymakers focused on how best to introduce private investment into Telekom Malaysia, the operating entity rather than on setting up elaborate regulatory procedures within the Ministry. Telekom Malaysia began operations on January 1, 1987. The company's structure was reorganized and steps leading to its privatization proper were taken.

In November 1990, the government offered a block of approximately 23 percent of Telekom Malaysia's shares on the basis of a private placement to various Malaysian
institutions. It also effect ed a public offering of a portion of these shares on the Malaysian stock exchange. Of the 470,000 shares offered by the government, 70,000 were reserved for employees and managers of Telekom Malaysia. Moreover, as part of the government's policy of developing the Malay population of the country, 100,000 shares were reserved for Bumiputera institutions. Another 152,000 shares were reserved for "designated institutions"—financial institutions and pension funds.

Although they are allowed to own up to 25 percent of the shares of Telekom Malaysia, foreign investors now hold a total of about 15 percent of the privately held shares. In this first tranche of the public offering, the government did not rely on substantial investment by foreign institutional or strategic investors. Thus, in sharp contrast with the first wave of privatizations in Latin America, no foreign operator was involved in the privatization of Telekom Malaysia.

The thrust of the privatization process in Malaysia has been to accord the operator more operational autonomy and independence to finance its operations. The goal has not been necessarily to reduce foreign debt or to inspire confidence for those who would invest directly in the economy. (Despite some recent economic difficulties, Malaysia has had little difficulty attracting foreign investment.) Rather, the government's objective has been to widen and deepen the liquidity of the Malaysian capital market through the flotation of Telekom Malaysia's shares.

Recently, the telecommunications scene in Malaysia has grown more complex, with the government's issuing a number of facilities-based, cellular, and paging licenses.

Technology Resource Industries (TRI), a holding company, divested itself of all its nontelecommunications business, purchased the remaining 49 percent of Celcom Sdn Bhd, the independent mobile cellular operator, and obtained an international gateway license. (TRI had previously purchased 51 percent of Celcom from Telekom Malaysia, which had been required by the government to divest itself of this cellular operation.) Initially TRI plans to provide international services to its own mobile cellular customers which, at the end of 1992, numbered 160,000 and were increasing at a rate of 6,000 to 8,000 new subscribers a month; its long-term plan, however, is to establish itself as a competitor in international services to Telekom Malaysia.

Binariang Sdn Bhd, a privately held company with diverse interests, also obtained licenses to operate an international gateway, to provide local public network services, to operate a nationwide GSM mobile cellular service, and to launch and operate Malaysia's geostationary orbit satellite, MEASAT. Binariang intends to develop its local network using fixed wireless rather than fixed w ireline facilities and to compete aggressively with Telekom Malaysia and TRI in international services. Its GSM mobile cellular service, due to start in mid-1994, will compete with TRI's Celcom, Telekom Malaysia's ATUR, and the new Mobikom, which is jointly owned by Telekom Malaysia (30 percent), the Bumiputera Bank (30 percent), Malaysia's automobile manufacturer EON (30 percent), and Sapura Holdings, a manufacturer of telecommunications equipment (10 percent).

A third potential competitor to Telekom Malaysia in domestic long-distance and international services is Time Telecommunications, which is currently laying a 1,000-kilometer fiber-optic cable along the new north-south expressway and hopes
Implementing Reforms in the Telecommunications Sector

to obtain an international gateway license and the right to interconnect its facility into the public network. Time sold its 49 percent interest in the Celcom mobile cellular operation to TRI.

The government has issued thirty-two paging licenses. Not all of these are operational or nationwide; there are, however, five to six large, nationwide competitors. The provision of pay phones has also been liberalized, with Sapura Holdings being both a supplier and operator of pay phones as well as the country's largest paging operator.

Malaysian officials have not yet developed a regulatory institution that could address all the issues arising from a more competitive environment. It would appear that the possible emergence of a competitive challenge—rather than the privatization of Telekom Malaysia itself—will create the impetus for new regulations. Malaysian government officials have stressed the importance of developing an overall policy for the development of the telecommunications sector—a policy that was not adopted at the time that Telekom Malaysia was privatized. They have also focused on the relatively antiquated nature of the basic legislative framework for the telecommunications sector which, in their view, is lacking with respect to:

- Policies on competition, licensing, foreign equity participation, and type of technology as well as a policy on how to implement competition, especially for basic services
- An adequate procedure for revocation of licenses, disputes settlement, license fees, use of rights-of-way, etc.
- Provisions for the control and supervision of new value added and computer-based services
- An adequate regulatory framework for developing competition in both the basic and value added services and the new personal communications system (PCS) type services
- A sufficient number of qualified persons to regulate the sector
- Policies on interconnection of competing networks.

Thus, in Malaysia, regulation will evolve as competition evolves. In this regard, the Malaysian experience may offer some useful insights for countries beginning the process of reform and trying to decide what degree of emphasis or priority should be given to formulating new regulations and regulatory institutions in the crucible of the privatization process. Malaysia has left some leeway for refinement of its national telecommunications policies. Having been one of the first countries in the region to privatize its telecommunications operator, it may be one of the first countries in the region, excluding Australia, Japan, or New Zealand, to implement real competition.
Restructuring the Telecommunications Sector in Asia

New policy initiatives in Malaysia are not being driven by ideological considerations; rather there is a very pragmatic concern with how to attract the necessary investment to develop the telecommunications infrastructure further. Though Telekom Malaysia has been expanding the number of local access lines at almost 10 percent a year, the size of the waiting list for new telephones in Malaysia's fast-growing economy has trebled. The government recognizes that new mechanisms for attracting private investment, and perhaps new service providers, will be needed to keep the telecommunications infrastructure growing at the pace required to sustain Malaysia's future economic expansion.

Thailand

In Thailand, perhaps to a greater extent than for any other country in the region, the telecommunications sector has been unable to remain entirely insulated from politics. This may be due to the greater political stability elsewhere and because other economies historically have been controlled by single parties.

The web of relationships between the Communications Authority of Thailand (CAT) and the Telephone Organization of Thailand (TOT) has been complex and difficult to unravel. TOT is the primary provider of domestic telecommunications services in Thailand; CAT provides international telecommunications services as well as telex, telegraph, packet-switching, and domestic satellite services.

Telephone penetration remains low. Currently, there are only about 3 main lines per 100 persons, and these largely in Bangkok. Although the number of lines doubled between 1986 to 1991, the waiting list almost quadrupled over the same period. As of 1991, the installation backlog was over 900,000 lines in an economy that has become one of the fastest-growing in the world, with 11 percent average growth between 1987 and 1991. TOT is required to add 3 million lines by 1996, for a total of 5.3 million lines or a penetration rate of 10.

There are, accordingly, very substantial investment projects under way. Mobile services, including cellular telephony and paging services, are becoming quite widespread. Both CAT and TOT have entered into concessions with private investors to develop both services.

For example, in 1990 the Shinawatra Computer Group, a Thai computer and communications equipment consortium, was granted a concession to offer data communications service. It later sold 49 percent of its holdings in the franchise to Singapore Telecom. Shinawatra was also awarded a concession by CAT to offer a digital paging service; another paging franchise was granted to a joint venture between the Hong Kong-based Hutchinson Telecommunications and Lokey Company. A thirty-year concession to operate a national satellite system was awarded by the Ministry of Transport and Communications to the Shinawatra group. The 12-transponder satellite should be operational by 1994. The Post and Telegraph Department has also awarded franchises for data transmission. TOT and CAT have major plans to develop integrated services digital network (ISDN), teleports, and international submarine optical-fiber systems. TOT and the State Railway of
Implementing Reforms in the Telecommunications Sector

Thailand plans to jointly install 3000 kilometers of optical-fiber cable along four railway lines by 1995.

The lack of a clear-cut regulatory mechanism has resulted in a concession-granting process that mixes what might be viewed as traditional licensing of third-party service providers with the process of subcontracting services by telecommunications operators.

Both TOT and CAT have large workforces entangled with public sector unions, political parties, and other interests powerful in Thai society. Policymakers recognize that the telecommunications sector in Thailand must become an impetus for, and not a barrier to, further growth in the rapidly developing Thai economy. Nonetheless, neither CAT nor TOT necessarily has the dynamism to channel new resources into the telecommunications sector.

Largely in response to rigidities in the existing sectoral arrangements, several years ago the Ministry of Transport and Communications began exploring the possibility of constructing new lines and facilities through a build-transfer-and-operate arrangement (BTO) with an outside contractor. Discussions were begun with several consortia of private investors and, eventually, with the successful bidder, a large Thai conglomerate, Charoen Pokphand (CP). The bid was to install 2 million lines in Bangkok and another 1 million lines outside Bangkok.

CP, which did not have substantial expertise in the telecommunications sector, initially identified a foreign operator, British Telecom (BT), which was to take responsibility for management of the construction project. CP and its foreign partner were to take responsibility for raising construction funds through the international capital market; they hired a financial adviser to take the lead in this process. CP's agreement with the Thai ministry ensured CP a percentage of revenues collected by TOT in compensation for the services provided by CP in installing new lines, raising capital, and providing certain operational and managerial capabilities as well.

This initiative of the Thai government encountered considerable resistance. It was a major point of contention in the spring of 1991 when the Thai military staged a coup. After a long and contentious review process, the agreement with CP was restructured so that CP would take responsibility only for installing the 2 million lines in Bangkok. NYNEX replaced British Telecom as the outside contractor, and the new venture was renamed Telecom Asia. As of fall 1992, Telecom Asia had begun the installation of lines in Bangkok under a renegotiated agreement calling for Telecom Asia to channel 16 percent of its revenues to TOT. The project is estimated to cost US$4 billion. Lines outside Bangkok would be provided through a separate contractor, a partnership of Loxley Bangkok and Jasmine International that is now known as Thai Telephone & Telecommunications (TT&T), which agreed to provide TOT with 43.1 percent of its revenues, reflecting the fact that the services offered by TT&T in rural Thailand are expected to involve a significant percentage of profitable long-distance and international calls.

From the Thai experience it is clear that the BTO option has considerable promise but also presents potential pitfalls. Using contractors permits the mobilization of new sources of capital and expertise to develop badly needed infrastructure. It permits, in particular, new partnerships between the telecommunications operator...
Restructuring the Telecommunications Sector in Asia

and private investors, both domestic and foreign. The option allows construction of not only specialized services such as cellular telephone networks, but also of core local switching services. New ventures can be targeted at different segments of the telecommunications operator's network infrastructure.

The scope of ventures to contract for new construction or the operation of new service providers must be carefully delineated. There is no single best way to address such fundamental issues as (a) the scope of the venture; (b) the role of the private contractor in providing operational capabilities; (c) the timing of transfer of new assets to existing entities; and (d) methods of financing the transaction. The most difficult issues are how to integrate new and established operators from an operational and technical standpoint.

Tensions between any new contracting entity and the existing operator can, of course, present serious problems and create opportunities. A new entity could use management and accounting systems for greater efficiency in operation; it can serve as a benchmark for measuring the performance of the existing operator.

As is all too well illustrated in the Thai situation, the successful implementation of an initiative to contract out construction requires a high degree of political support. When this political support falters, so, too, will the new venture. Thus, although the incentive for using new entities might be to bypass existing institutional structures, they can precipitate a political or institutional crisis. In this way, policymakers will be forced to contend with the very forces, those resistant to changes in the status quo, that the new structures were to bypass.

The process of contracting out services to third parties in Thailand has been very much complicated by the government's very ad hoc approach to the task of sectoral restructuring. CAT and TOT continue to encompass a mix of operational and regulatory responsibilities; this confusion of roles will ultimately make more difficult the task of third-party contractors like Telecom Asia and TT&T. The potentially rivalrous relationship between new service providers and existing organizations could create paralysis and indecision as contractor and contractee attempt to work out potentially differing approaches to their respective business objectives. Since TOT and CAT will retain responsibility for setting tariffs, they will continue to have considerable leverage over Telecom Asia and TT&T.

By the fall of 1992, the Thai government had added another element of complexity by requesting advice concerning the eventual privatization of TOT and CAT. Privatization of these two entities will inevitably ensure a more intensive review of the long-term relationship of TOT and CAT as well as of their respective relationships with Telecom Asia and TT&T.

Potential investors in TOT and CAT will certainly insist on a full delineation of sector relationships and policies. Investors in Telecom Asia and TT&T may end up regretting that their significant financial commitments were not made in light of an overview of future sectoral arrangements.

Notwithstanding these concerns, the use of new techniques for infusing private capital and expertise into the telecommunications sector in Thailand and elsewhere in the region may hold substantial promise for rapidly upgrading the infrastructure. Contracting initiatives can be flexible and diverse. Many different operational
Implementing Reforms in the Telecommunications Sector

relationships are available, especially where policymakers hope to mobilize new sources of capital quickly. As sector arrangements in Thailand unfold, it is likely to become ever more apparent that the benefits of contracting out to attract new investment can be thwarted if future sectoral policies are not carefully delineated on a concurrent basis.

Indonesia

Policymakers recognize that the challenge of developing new infrastructure in Indonesia is immense. With a population of 180 million people, Indonesia has a telephone penetration of only 0.7 per 100, far below that in neighboring Malaysia (11.6) and Singapore (47). Telephone density in Jakarta is ten times the national average; however, the waiting list is 80 percent of existing lines.

The Indonesian government has set an investment goal of about US$7.5 billion over the five-year 1994–1998 period in hopes of increasing telephone penetration to 3.2 per 100. Nevertheless, the barriers to achieving this target are very formidable. With an area stretching 5,000 kilometers from west to east and 2,000 kilometers from north to south, only 50 percent of its subdistrict capitals and 25 percent of its 65,000 villages are now served by telephone service.

In Indonesia, as in Thailand, policymakers have been exploring the prospects for developing new infrastructure through contracting out with private entities. These discussions have had some false starts; initial efforts were too limited in scope and involved too many outside contractors. Indonesian officials now appear prepared to address how to structure a relationship with an outside contractor to expand and develop the infrastructure.

The government has taken the position that constitutional and national security considerations require all telecommunications services to be provided by government-owned service providers; however, leeway has been opened for private investment in cellular and satellite services; the government remains committed to finding new ways to increase private investment in the telecommunications sector.

In addition to focusing on new techniques for financing development, Indonesian officials are trying to reform existing institutional arrangements. In 1991, Perumtel, the government department which, until then, had provided telecommunications services, was organized into a wholly government-owned joint-stock company called, PT Telekomunikasi Indonesia (PT Telkom). Any effort to involve new entities in installing infrastructure will be implemented in a framework in which PT Telkom functions as a holding company with ultimate responsibility for providing service to the public.

PT Telkom is exploring a variety of ways of increasing its efficiency and attracting new sources of investment capital. The holding company is being organized into a series of regional companies as well as a long-distance operating company. Each of these companies would have increased responsibility to manage its costs and revenues; central management functions would be reduced and decentralized.
Restructuring the Telecommunications Sector in Asia

Strategic investors are being sought to participate in these subsidiary companies with an expectation of increased competition among the regional operators. There is also much focus on other financing activities such as issuance of bonds, formation of joint ventures, requiring bonds from subscribers, and even enhanced build-operate-and-transfer schemes.

One of the primary difficulties of various contracting schemes is that they have not provided real impetus to managerial reforms within PT Telkom. As is the case in Thailand, there is an urgent need to integrate effectively the utilization of new techniques for contracting out with a coherent program to restructure the existing telecommunications operator.

PT Indosat, also a wholly government-owned joint-stock company, provides international services via the INTELSAT satellite network and various undersea cable systems. Currently, cellular and paging services are being provided through joint ventures between PT Telkom and two private investors, Elektrindo Nusantara (EN) and Centralindo Panca Sakti (CPS).

In January 1993 a new company, PT Satelindo, was established to provide international, cellular, and satellite services using existing satellite capacity and developing additional capacity for the latter. PT Satelindo is owned by PT Telkom (30 percent), PT Indosat (10 percent), and PT Bima Graha (60 percent), a private company. By 1995 PT Satelindo will take over the operation of the Palalpa domestic and regional satellite system (PT Telkom will continue to operate the earth stations). In its first five years PT Satelindo plans to invest US$800 million, half to develop its domestic cellular business and half to purchase satellite and international facilities, including earth stations and capacity in undersea cable systems. In April 1993 it signed a US$128 million contract with Hughes Aerospace to launch two satellites with regional coverage in 1995. There are no immediate plans to allow foreign participation in PT Satelindo nor for the two (competing) state enterprises, PT Telkom and PT Indosat, to divest themselves of their interests in the new company.

Although the future direction of policy developments in Indonesia remains clouded, some observers believe that a combination of contracting out and competitive entry will be necessary to accelerate investment in a country where overall telephone penetration lags well behind other countries in the region. Such pressures may be an effective way to stir PT Telkom into becoming a more efficient enterprise and to ensure greater responsiveness to the needs of telecommunications users.

Only limited steps have been taken to formulate a new regulatory framework. Some believe it might be preferable to have the emergence of competition control the tempo of regulatory developments. Of immediate concern is the development of programs for overseeing tariffs that create incentives for new investment. Tariff and investment policies in the sector must be freed from political interference through the creation of more independent and stable regulatory arrangements. Multiyear financing plans are essential to increasing efficiency and reducing costs. The government needs a well-concerted plan to exploit new radio-based services to increase local access capabilities.
Implementing Reforms in the Telecommunications Sector

Another crucial area where reform is required concerns procurement policies. Traditionally, protective government policies kept the cost of service excessively high through import controls and market allocations to existing suppliers. Recently, new suppliers have gained a foothold in the Indonesian market and hold promise for significantly reducing the cost of new installations. As might be the case elsewhere in Asia, regulatory functions and capabilities will evolve in response to sectoral developments; it may not be wise to implant all at once a framework that could overly limit innovation and new entry.

The Philippines

The Philippines is unique in Asia in that its industry structure has been quite fragmented. Other countries in the region have had rather centralized industry structures dominated by government-owned telecom operators. Fragmentation in the Philippines has, along with broader economic difficulties, posed special problems for Filipino policymakers.

Some observers note parallels between the tradition of private ownership and reliance on regulation in the Philippines, on the one hand, and the sectoral arrangements in the United States, on the other; however, the performances of the telecommunications sectors of the two countries are obviously hardly comparable owing to a wide variety of factors beyond the differences in overall economic and political development. There are significant differences as well in both the entrepreneurial and regulatory cultures of the two countries. In the Philippines, private entrepreneurs are deeply entangled in a web of close-knit relationships among well-placed groups with great economic and political influence. Inevitably, such relationships affect both the governance arrangements and the performance of firms within the telecommunications sector.

Telephone penetration is low, with only 1.4 main lines per 100 across the 7,100 islands in the Philippine archipelago. In Manila, the penetration is better, with 8 subscribers per 100, and there are at least 400,000 people on the waiting list. This penetration level is lower than in other major urban centers in the region such as Bangkok; moreover, there appears to be a chronic failure of the dominant provider of domestic telecommunications in the Philippines, the privately owned Philippines Long Distance Telephone Company (PLDT), to make any dent in the backlog, even in urban areas where demand is strong and subscribers have the resources to pay for telephone service. (Penetration in rural areas, by contrast, is only 0.4 per 100.)

In the Philippines, there are several providers of telecommunications service. PLDT operates more than 94 percent of the telephones in the country, mostly in urban areas. Overall, there are more than seventy telecommunications companies in the country; some do not have access to the main network.

Seven domestic record carriers provide domestic telex, facsimile, and leased-line services. Four international record carriers have been authorized to provide international services.
Two international gateways have been authorized to Eastern Telecommunications Philippines, Inc. (ETPI), a company that is 40 percent owned by C&W, and Philippine Global Communications Corporation. ETPI, however, cannot serve customers in most areas of the Philippines, including, in particular, Manila, without interconnection with PLDT. It does have a subsidiary, Digitel, that provides services in several localities, however.

Competition is emerging in satellite services as well. Five companies have been granted permits to provide domestic satellite services. The Philippines Communications Satellite Corporation (Philcomsat) is confined to being a wholesaler of satellite circuits and to dealing with PLDT and other authorized carriers.

C&W, Telstra of Australia, Benpres, and a number of small Philippine investors are considering establishing a US$3 billion joint venture to enter the Philippine domestic market.

Until recently, competition among the various service providers has been highly segmented. Competition has only recently emerged in the provision of mobile telephone services. Other service providers have been seeking to broaden the scope of their franchises to compete in the provision of switched voice services. PLDT, however, has met these moves to reduce its dominance by resisting interconnecting with new service providers. Moreover, controversies over the scope of existing franchises have been hard fought, not only through the regulatory process but into the legislative process as well.

Policymakers in the Department of Transport and Communications created an independent regulatory body, the National Telecommunications Commission (NTC), which is responsible for authorizing new licenses and use of the radio spectrum. Nonetheless, given that the most significant issues are not technical but concern the definition of operational and financial relationships among PLDT and other service providers, the most pressing concerns are beyond the NTC’s legal competence. Consequently, the present institutional relationships pose unresolved questions regarding the respective roles of the department and the NTC.

Existing regulatory mechanisms are not strong enough or independent enough to provide an effective forum to precipitate the emergence of competition. In turn, as competition has evolved only slowly, there has been only a limited constituency to convert existing regulatory mechanisms into effective dispute resolution bodies.

As a privately owned venture, PLDT primarily is subject to regulatory and policy guidance from the department and the NTC. PLDT has, however, been plagued by allegations of entanglements with former President Ferdinand Marcos and of affiliations between its shareholders and President Corazon Aquino.

PLDT has been coming under increased pressure to eliminate the growing backlog of requests for service in relatively affluent areas of the Philippines. It has begun to seek increased financial resources in international capital markets. In this process, it is likely that its operations will receive intensive scrutiny from potential investors who are likely to compare the financial performance of PLDT with other telecommunications operators in the region and around the world.
Implementing Reforms in the Telecommunications Sector

These pressures, along with the challenge presented by new entrants in the Philippine telecommunications sector, will force PLDT to look more critically at its existing tariff structures and internal operations. As pressures increase on the revenue streams generated by international services, PLDT will have to prune its operations and rebalance its tariffs, reducing its dependence on international revenues and seeking new ways to install local access lines very rapidly.

The critical concern for the country is how to create incentives to develop the core infrastructure in the Philippines. The government has had an ambitious investment plan to increase telephone density to 3.5 main lines per 100.

One significant question is how to create incentives for PLDT to invest in rural areas. The company has an economic incentive to focus its attention on serving the large metropolitan centers, such as Manila; it asserts that over 70 percent of its revenues derive from toll calls and, in particular, from international calls. Policymakers are keen to encourage PLDT to extend service to more remote or rural areas served by government-owned telephone enterprises.

Even though PLDT faces a great challenge in serving rural areas, its greatest challenge may be in meeting demand in major urban centers. The overall economic recovery of the Philippines may depend heavily on making modern telecommunications capabilities available to highly educated and entrepreneurially-oriented groups in the Philippines.

There are some interesting parallels between PLDT and TELMEX in Mexico prior to its privatization. Like the preprivatization TELMEX, PLDT is structured as a joint-stock company with significant private investment; has begun to access international capital markets; is highly dependent on revenues from international services and is hobbled by excessively low local tariffs; operates in a political environment highly sensitive about maintaining sovereignty with respect to strategic parts of the national economy. Unlike TELMEX prior to its privatization, PLDT is already nominally in private control, despite its long-standing and significant entanglements with the executive and legislative branches of the government of the Philippines.

One of the future challenges for policymakers in the Philippines is likely to be how to make PLDT more responsive to user needs and more open to external competitive pressures. One option is surely to steadily increase competitive pressures on PLDT and at the same time to recognize the importance of permitting PLDT to restructure itself to deal with these pressures. The difficult transition faced by PLDT might also be facilitated by encouraging it to seek out strategic investment partners; such partners might play a significant role in PLDT, as have foreign strategic investors in TELMEX, within a corporate governance structure that leaves control in the hands of investors from the Philippines.

One of the key roles for strategic investors might be to mobilize resources to ensure the rapid installation of local access lines in major urban centers. Any effort to expand local access lines rapidly might require a resort to innovative financing techniques. For example, PLDT and any new strategic investors might be able to structure new and opportunistic arrangements providing for the installation of local lines through
contracting out or franchising arrangements. Policymakers might permit as well the utilization of two-tier pricing for local access lines (or in effect allowing new access lines to be priced on the same basis as cellular telephone services until backlog is reduced).

PLDT has been involved in several exploratory discussions concerning joint ventures or joint investments with foreign operators. In addition, foreign suppliers have been actively pressing to enter into turnkey construction projects outside PLDT’s operating territories. Subsidized export funding from their home countries would be managed by the department; broader strategies for encouraging development in the sector have, however, been hindered by the turbulence, both political and economic, through which the Philippines has been passing in the past several years.

As new competitive entrants are established on the scene and as new investors take a stake within PLDT, there may be a new impetus behind efforts to change traditional arrangements through which policy in the telecommunications sector is developed and overseen. There is an inevitable linkage between regulatory reform and increased performance within the telecommunications sector; however, it is very difficult to put an end to old arrangements and begin anew. New competitive structures and influences are likely to beget new governance arrangements, but effective entry cannot occur without new policies in the telecommunications sector.

The challenge for policymakers in the Philippines will be to break a vicious circle of traditional and self-defeating policies. A new consensus among all concerned participants in the sector—among new entrants and PLDT—will be required; PLDT will have to conclude that new policies will benefit it as well as new entrants.

PLDT faces, in fact, enormous challenges that are likely to require basic structural and policy changes. It must meet unfulfilled demand for telephone service to remain the preeminent service provider in the Philippines. To do so, it must compete with other fast-moving telecommunications operators in the region for scarce resources in international capital markets. Simply maintaining the status quo within the Philippines may not effectively enable PLDT to confront the challenges it faces.

Telecommunications Sectors of the Indian Subcontinent

Adding to the complexity of sectoral strategies to reform in the Asian region are the differing situations of the Indian subcontinent. The following discussion touches on approaches being followed in three countries: India, Pakistan, and Bangladesh. In doing so, however, it does not intend to diminish the value of a provocative proposal considered some years back in Sri Lanka, before the present political turmoil and civil strife there, or to ignore early efforts to consider issues of infrastructure development and sectoral reform in Nepal.

India

Over the years, policymakers in India have struggled with the enormous challenge of increasing telephone penetration to the immense and diverse Indian populace and of developing an industrial base in the sector. The results of years of innovative and
focused attention on the problems of the telecommunications sector have been quite mixed. Telephone penetration is extremely low (in 1987, there were 0.4 telephone lines per 100 population), and service is not considered to be of high quality. A vigorous debate continues over the extent to which government resources should be devoted to the sector.

In India, the Department of Telecommunications (DOT) both sets the rules for and provides telecommunications services. At the same time, it encourages the manufacture of domestic telecommunications equipment. The issues of sectoral reform are now being reviewed intensively at the highest levels in the Indian government.

More than any other country in the region, India has devoted attention to nurturing the manufacturing capabilities in the telecommunications sector. In particular, Indian policymakers have given the highest priority to developing an innovative switching technology, through its research and manufacturing organization, C-DOT, which is intended for smaller, rural exchanges. In this way, the DOT has encouraged the development of telecommunications services and of manufacturing capabilities. Doing so has fostered favorable conditions for producing equipment domestically, at the expense, however, of constricting the importation of switching and other technologies from abroad.

In the view of many observers, intermingling industrial and telecommunications policies has significantly held back investment and innovation in the sector. They believe that an important first step for the future development of Indian policy is to separate quite sharply the responsibilities for industrial policy and for telecommunications policy. Further, and within that overall approach, the DOT's responsibility for making policies and developing regulations must be segregated from its operation and management of telecommunications services.

For several years, policymakers have attempted to delegate operational responsibility to independent business units within the DOT. Mahanagar Telephone Nigam, Ltd. (MTNL) was established as a corporate entity within the DOT to operate telephone services in Bombay and New Delhi; it was also charged with generating financing through the issuance of bonds. Similarly, Videsh Sanchar Nigam, Ltd. (VSNL) was established to operate international telecommunications services.

These steps toward creating autonomous business units within the DOT have hardly been an unqualified success. Indeed, some observers believe that MTNL has been unable to achieve real operational autonomy and that it has remained subject to close oversight by officials of the DOT. Moreover, MTNL has not been able to retain earnings independently for reinvestment.

VSNL, like its predecessor, Overseas Communications Service (OCS), which was responsible for India's international services, has had a longer tradition of independent operation than that of MTNL. VSNL, however, must provide service to its customers through MTNL and through the DOT in areas outside of Bombay and New Delhi. Thus, despite its regular contacts with the largest Indian and foreign telecommunications users, VSNL has not been able to function along the lines of an entirely independent private sector entity.
Restructuring the Telecommunications Sector in Asia

Against the background of these only partially successful steps, the Aethyea Committee, a high-level government committee made up of diverse constituencies concerned about the future of the telecommunications sector, submitted its recommendations in March 1991. These recommendations were designed to encourage more regionalization and decentralization in the DOT. The committee recommended that the DOT's operational function be separated into five regional operating companies; a separate group within the DOT would offer services on an interregional basis. The committee also recommended a restructuring of regulatory and policymaking functions within the DOT.

The committee's recommendations, however, have encountered some stiff resistance from employees of the DOT. They have asserted that corporatizing the DOT would oblige the government to incur immediate obligations for accumulated pension rights of the DOT's employees.

Recently, as a result of a new government's coming to power, in June 1991, there has been a broader policy examination of options for the Indian telecommunications sector. These included the possibility of introducing private investment for cellular telephony and value-added services. In 1992 the Indian government moved ahead with the process of attracting private investment in cellular telephony systems throughout India; however, after operating rights were awarded to potential new cellular operators, this important new initiative has become seriously bogged down in litigation over alleged improprieties and lack of transparency in the concession granting process.

Several years ago, the DOT had been considering creating an overlay network intended to serve large business users. The objective had been to have users finance the network with up-front subscription fees. This initiative became bogged down and was never implemented.

Currently, the Indian National Railways and the Oil and Natural Gas Commission are developing more sophisticated private networks. Other state-owned enterprises in the manufacturing and services sectors have funneled substantial capital into developing private networks to meet their needs.

In the coming years, policymakers will want to examine how to exploit effectively the need or willingness of large users to invest in telecommunications infrastructure. Certainly private investors would have an interest in investing in ancillary telecommunications services such as cellular telephone networks. Avenues for direct investment in core infrastructure are less clear, however.

For some time, the government of the State of Maharashtra (in which Bombay is located) has been exploring how to attract major Indian or foreign private investment in infrastructure. To date, initiatives to bring new investors into the Indian telecommunications sector have not borne fruit.

Nonetheless, officials in India are more conscious of the fact that many economies in Southeast Asia are growing at a very fast pace, and they realize that telecommunications infrastructure makes an important contribution to this growth. An across-the-board approach to sectoral reform may not work, however, because it might take too long to implement and could stymie initiatives of the most progressive users of the key sectors of the Indian economy. Thus, to the extent that Indian policy
Implementing Reforms in the Telecommunications Sector

recognizes the importance of certain Indian industrial sectors not falling further behind the dynamic economies of the region, the government and the private sector will want to explore seriously how to increase infrastructure investment targeted at high-growth regions and sectors in India.

Policymakers in India will be faced with a serious dilemma of deciding how to get the process of sectoral restructuring under way. The India telecommunications sector is immense; the potential political obstacles to reform seem intractable. An entirely ad hoc approach to sectoral reform may result in a serious misallocation of scarce resources; reform initiatives may not contribute toward the realization of a future workable structure for the telecommunications sector. On the other hand, if immediate steps are not taken and new investment is not attracted into the sector, the policymakers' best vision of well-structured future arrangements may be entirely unattainable; the economic penalty of delay and indecision in adopting new sectoral policies may be incalculable.

Indian policymakers might be well advised to assess carefully some innovative initiatives beginning to be taken in China as a result of administrative decentralization. In China, as the superstructure of administrative arrangements is being reformed on a top-down basis, various initiatives at the local and provincial level are being allowed to flourish. In India, a careful blend of restructuring on a top-down basis—emphasizing more entrepreneurial autonomy and full separation of regulatory and operational responsibilities—and a flowering of new entrepreneurial initiatives within and outside the DOT may be the required prescription for real sectoral reform. Policymakers in India will have to devise an innovative mix of policies to achieve success. There is much in the rich experience of telecommunications restructuring in the Asian region—in the initiatives of policymakers in China, Malaysia, and Thailand—that could contribute toward a workable set of future policies for the Indian telecommunications sector.

Pakistan

As of mid-1991, Pakistan's national telephone company, Pakistan Telecommunications Corporation (PTC), provided access to a telephone to only about 1 percent of Pakistan's population of 110 million. By the end of 1992, telephone density had increased to about 1.5 main lines per 100 inhabitants; density at a level of 1.8 per 100 is projected for the end of 1993. Many observers attribute the increased pace of infrastructure expansion to the conversion of PTC into a corporate entity.

In 1989 the Pakistani government granted two cellular telephone system licenses to two consortia of private companies, the first awards of major telecommunications projects in Pakistan to private entities. A third license was awarded to provide cellular telephony in 1992. Other licenses have been issued to private firms to install card pay phones and paging systems.

Currently, there is active exploration of options to privatize the PTC. In this regard, the approach of the government has resembled that of Latin America: a top-
down sale of shares in PTC. It is reported that the government is considering the sale of 25 percent or so of PTC's equity to a private investor.

Until 1992 the government had shown much interest in attracting investors to install infrastructure on a contractual basis. In 1992 the government authorized a special scheme for the installation of 500,000 lines under a contracting arrangement now being implemented. Various turnkey projects are being supported by supplier credits and government guarantees.

Consistent with the path being followed, Pakistani officials are focusing on how to define Pakistan's regulatory framework in detail. Options for structuring a regulatory entity are under review; Pakistani officials seem to be leaning in the direction of establishing a multimember commission rather than an entity like OFTEL in the United Kingdom. One possible result of steps to delineate future regulatory arrangements is that potential investors in PTC may try to limit the scope of potential competition in the telecommunications sector.

As in Latin America, the purchasers of a privatized PTC may seek a significant period of exclusivity for PTC, at least with respect to the provision of switched voice services. Nonetheless, an overly restrictive approach to authorizing entrants may be unwise, in that it could limit the possibilities for attracting investors to build telecom infrastructure.

Pakistani officials must, however, develop schemes for aggregating and deploying capital to build infrastructure. They may wish to avail themselves of the various techniques for infusing new capital and expertise into the telecommunications sector through joint ventures, or through BTO- or BOT-like arrangements, such as are being explored in Thailand and Indonesia.

**Bangladesh**

Currently, Bangladesh has one of the lowest telephone densities in the world, with 0.2 main lines per 100 population, ranking below China with 0.3, India with 0.5, and Indonesia with 0.5. It is estimated that US$1 billion will be required to raise telephone density over the coming decade by 0.3.

Service is currently provided by the Bangladesh Telegraph and Telephone Board (BTTB). Recent efforts to reorganize BTTB into a fully government-owned public corporation foundered along with efforts to attract private investors.

Policymakers have explored several approaches to encouraging new investment. They had sought to establish a joint venture, known as Banglatel, with C&W to provide international services. Due to resistance within the government, the joint venture could not be effectuated. The government has also attempted to establish three separate privately owned entities to provide telecommunications services in rural areas as well as a private company to provide cellular services.

Notwithstanding these efforts to restructure and reorganize the means by which service is provided, policymakers in Bangladesh have been unable to overcome some severe and fundamental impediments to attract new investment. In particular, an unstable political environment has undermined efforts to encourage private invest-
Implementing Reforms in the Telecommunications Sector

ment into the sector. In Bangladesh neither top-down institutional reform nor initiatives for private investment have been successful.

The Special Case of China

A detailed description of the complex structural arrangements and potential reforms under consideration in China is beyond the scope of this paper. Some observations may highlight a few of the major issues facing China.

The Ministry of Posts and Telecommunications (MPT) provides all public domestic and international telecommunications services, primarily through about thirty provincial posts and telecommunications administrations which coordinate the approximately 350 city Post and Telecommunications (P&T) enterprises. Thirty of these city enterprises are located in the provincial capitals; however, the provincial P&T administrations are separated and distinct from the provincial city P&T enterprises which provide services in the provincial capital. One further step down, around 2,150 county P&T enterprises provide local service in the county capital. These county-level enterprises are grouped, sets of six to eight of them reporting to each city P&T enterprise. Each one of the 2,500 city and country enterprises has rural branches, which together with all kind of cooperatives and Township and Village Enterprises, are in charge of providing services to urban centers lower than county capitals. (Centers administratively lower than county capitals, irrespective of size or population, are termed rural in China.)

The telecommunications system is large but consists of mainly obsolete technology, with wide variations among large cities (some of which have the latest technology) and small centers (many county-level installations are old manual exchanges). In 1991, there were about 8.5 million main lines plus around 4.0 million lines in the rural network, giving an overall telephone density of 1.29 percent.

Mobile service is being introduced into China. Competing cellular and radio paging services serve many cities across the country. As to cellular services, a roaming function serves Guangdong, Beijing, and Hong Kong.

The MPT began to reorganize in 1988. The objectives of the reorganization program included decentralization of the MPT in favor of the provincial administrations, accountability for financial performance, separation of regulatory and operational functions, as well as separation of Posts and Telecommunications. The separation of government and enterprise responsibilities is being implemented through the creation of a Directorate General for Telecommunications, which will be in charge of all telecommunications operating activities, a Directorate General for Posts, which will be in charge of all post-related services, and several departments in the central MPT which will be in charge of the governmental responsibilities (regulation, policy, monitoring, etc.). These objectives have been only partially met. Central planning and complex lines of control govern the telecommunications sector. Certain of the wealthier provinces have achieved more independence from central control than have other provinces.
Rentucturin the Telecommunications Sector in Asia

The telecommunications system grew rapidly in the 1980s, reaching a growth rate of 16 percent in the latter part of the decade. The number of main lines grew by 23 percent from 1990 to 1991. Investment in the system reached US$1.5 billion in 1988. In 1989, the MPT achieved an annual rate of return of about 12 percent on net fixed assets in operation. In 1992, the total investment will be Yuan 10.5 billion (US$1.84 billion). The performance of different services and regions varies considerably, with large cross-subsidies both within the telecommunications system and between the telecommunications system and the postal system.

The projected growth of the telecommunications systems during the 1990s is by far the most ambitious development program in the world; the ongoing five-year plan includes an expansion of local networks in the range of 20 million to 25 million main lines, together with around 50,000 kilometers of new fiber-optic transmission lines, and 50,000 kilometers of new digital microwave lines.

In China, as in India, important state enterprises, such as the national railway system, have been channeling significant investment into the telecommunications sector. These efforts are parallel to the investments of the MPT.

The Chinese have taken significant steps to decentralize the provision of telecommunications services. Provincial governments and telecommunications administrations have more responsibility for new infrastructure investment. Special efforts are being made to stimulate telecommunications investment in Special Economic Zones.

At the same time, various management incentives have been put in place to increase staff initiative. Revenues are distributed in accordance with the contribution of particular provincial posts and telecommunications enterprises. Salary is related to total traffic volume of each province. The director of the provincial administration signs a contract—which includes rewards and penalty provisions—with the MPT. Given the system, these measures may be an effective way of stimulating the responsiveness of and growth in the telecommunications sector in China.

Institutional reform has gained increased momentum in recent years. Chinese officials have been open to limited reforms intended to increase the efficiency of the existing operational activities of the MPT. They are becoming more open to considering the introduction of more business-oriented arrangements in the telecommunications sector. Such arrangements could include encouraging the joint development and exploitation of infrastructure by the MPT and other ministries that require high-capacity telecommunications services.

It is possible, in the long term, to imagine that the MPT's operational activities might be organized into a corporate structure. Relationships between the operating entity responsible for long-distance services and providers of local exchange services might be structured through specific tariff arrangements rather than a general division-of-revenues formula. Conceivably, the major regional entities, charged with providing local telecommunications services, might begin to offer services to subscribers in their regions on a countrywide basis.

Recently, prospects for foreign investment in the sector have revived significantly. Decentralization in the Chinese telecommunications sector has opened the door for
Implementing Reforms in the Telecommunications Sector

many innovative arrangements between local operators and foreign suppliers. As of now, foreign participation in the provision of services has been foreclosed, however. More flexible arrangements for the construction of telecommunications networks and the provision of nonbasic services, such as paging, dedicated business networks, and domestic VSAT services, are now emerging. The MPT, in turn, is becoming more focused on studying tariff arrangements to ensure better alignment of tariffs and the costs of providing different services, including specifically local, long-distance, and postal services. The introduction of commercial accounting principles is being carefully considered. Enterprise and regulatory responsibilities within the MPT are becoming more sharply differentiated. Within individual administrative units, employees are being given greater managerial autonomy and responsibility for expanding the services that they manage.

All of these changes cumulatively are accelerating the pace of change within the Chinese telecommunications sector and enhancing the interest of foreign suppliers and investors in being part of the process of restructuring that is now beginning to gain significant momentum. The immense program of investment in the telecommunications sector of the world's most populous country is being watched with keen interest around the world by suppliers, investors, and other telecommunications administrations.

A Survey of Developments and Suggested Policy Options in Asia

Several observations can be made about the diversity of approaches to reform and restructuring being pursued in Asia. These are not meant to be an exhaustive catalogue of options for reform. They do, however, suggest some trends that observers may wish to follow more closely in the years ahead.

Focus on Service-Based Competition in the Four Tigers

First, it may be appropriate to focus on the most highly developed economies (other than Japan) in the region. In Korea, Singapore, Hong Kong, and to a lesser extent, Taiwan, where significant investment in infrastructure already has been made, the cutting-edge issues will center around opportunities for service-based competition. Businesses have more flexibility in how they may use leased circuits. Providers of service to third parties increasingly will be able to offer a wider range of nonvoice services. Nevertheless, restrictions on foreign investment, even with respect to value added services, remain in place in Korea and Taiwan. The Koreans have committed to lifting their restriction. The restrictions in Taiwan will unquestionably become the subject of tough, trade-based demands for further liberalization.

Global competition for managed data and voice services will continue to evolve in the 1990s. As they seek to provide such services, the well-entrenched and capable telecommunications operators of Singapore and Hong Kong will be subject to intense pressures to permit the provision of a wider spectrum of services, including public-switched voice services, in their home markets.
Restructuring the Telecommunications Sector in Asia

**Steps toward Corporatization and Privatization**

Second, the globalization of the telecommunications business will force profound changes in the very organizational and financial makeup of the most advanced players. In particular, telecommunications operators such as Singapore Telecom, Korea Telecom, and the Taiwanese DGT (or CTC, its corporate successor) will aggressively seek to overhaul their institutional and capital structures.

Currently, Singapore Telecom is the furthest along the road to privatization. Korea Telecom, to a much greater extent than the Taiwanese DGT, continues to operate in a climate unresponsive to the establishment of global operating companies with international capital structures. Even Telekom Malaysia operates in an environment that accords first priority to generating private investment capital from domestic sources.

Investment in Asia by strategic investors, such as the Bell operating companies or the major European PTTs, has been spotty to date. Obviously, very significant investments have been made in the non-Asian, Pacific countries of New Zealand and Australia. NYNEX has a very significant project in Thailand. Other foreign companies are actively pursuing opportunities for cellular service in Korea, Taiwan, and elsewhere in the region. Equipment suppliers are seeking to extend their reach into the construction of networks or the provision of service. Foreign investors are, no doubt, eyeing with great interest the opportunities and strategic advantages that a potential investment in Singapore Telecom or, to a lesser extent, Telekom Malaysia might present.

If investment opportunities in the economies of the Four Tigers or Malaysia do materialize for foreign investors, they would probably be made available on a restricted basis. Unlike the Latin American (or Australian or New Zealand) cases, it is unlikely that operators in any of those countries would surrender control to a single foreign investor, or even to a consortium of investors. Instead, privatization will be seen as a mechanism for strengthening emerging domestic capital markets.

**New Techniques for Introducing Private Investment**

Third, countries such as Thailand and Indonesia have shown themselves to be more open to foreign investment. They have very low rates of telephone penetration, however. In such countries, officials are exploring techniques for introducing private investment through various contracting initiatives. Such techniques are not yet fully developed, and they have generated substantial political controversy, in Thailand, for example. Contracting initiatives confront policymakers with a significant set of issues: how to define the scope of new ventures; the relationships between new and established entities; and the techniques for dividing revenues among existing service providers and new operators.

There may be promise in using these new techniques in tandem with efforts to reform existing arrangements on a top-down basis. In Indonesia, Perumtel has been converted from a public corporation into a limited liability company; however, it is a truism that a mere change in legal status does not necessarily result in changes in the performance of the institution.
Implementing Reforms in the Telecommunications Sector

In Thailand, rationalizing the operational functions of CAT and TOT is a formidable task. Consequently, using a contracting arrangement may be an effective mechanism to implement a new investment program while encouraging the introduction of management practices and techniques from the "bottom up." Time will tell, in India, for example, whether the government will rely on private firms to accelerate investment in the sector.

New Approaches to Infrastructure Development: The Tinkertoy Model

Fourth, where existing institutional arrangements are not efficient at attracting the investment capital required to increase network penetration, policymakers may choose to explore new techniques for introducing investment in the sector. What may work in one country, where infrastructure has been developed through a single provider, is not necessarily optimal for other countries in the region.

In India, China, and other countries, large public and private sector enterprises are channeling resources into developing and maintaining parallel private networks. Hence, one method for encouraging investment may be to permit use of private networks on a more liberal basis. In other words, infrastructure might be developed in a "Tinkertoy" fashion—by adopting liberal policies regarding the interconnection of those private networks with one another, and with the basic network provider.

Top-Down and Transitional Techniques for Reform

Fifth, a top-down approach to sectoral reform can be quite successful. This much is evident from the Malaysian experience with privatization. Nevertheless, the process of institutional reform obviously cannot be accomplished overnight; full implementation can take years. Thus, interim or transitional arrangements to accelerate investment into the sector may have substantial merit.

Importance of Maintaining a Political Commitment to the Reform Process

Sixth, sectoral reform requires political commitment and will, and it can be difficult to implement. The Malaysian experience strongly suggests how deeply rooted economic policies favoring across-the-board privatization are able to assist in effectuating reforms in the telecommunications sector. The turbulence in Bangladesh is striking evidence of how even incremental reforms favoring limited private sector investment can be thwarted without political consensus.

Thus, in countries where private investors can invest in the telecommunications sector, a high-level political commitment is usually needed to sustain the effort. Critical to the success of reforms, therefore, is the leadership not just of officials in the telecommunications sector, but also of economic advisers and others concerned about overall economic performance. Undoubtedly, a broader approach to reform of the sector is important to ensure that privatization initiatives do not inadvertently-
Restructuring the Telecommunications Sector in Asia

result in policies that are overly protective of the existing provider, unnecessarily limiting the potential for new entrants and investment in the sector.

Pricing and Sectoral Investment Policies

Seventh, Asia has some truly striking examples of countries that initiated massive investment programs in the telecommunications sector. Korea doubled the percentage of its national output devoted to the telecommunications sector. Taiwan has doubled its level of sectoral investment in the past year. Singapore Telecom has generated huge surpluses that are being reinvested in the telecommunications sector. Its successful investment program is closely related to the careful structuring of tariffs to generate necessary investment capital.

Policies to Promote Competition as a Pragmatic Tool to Increase Investment and the Efficiency of the Existing Operator

Eighth, an important implication of the foregoing discussion is that new entry and the prospect of competition may be promising tools for attracting new investment and encouraging increased efficiency by established providers. To date, experience in Asia (essentially, in Japan) with vigorous, across-the-board, facilities-based competition is quite limited.

In Malaysia, where the government has issued a number of local service and international gateway licenses, there is scope for some facilities-based competition to develop. Foreign investment in the new facilities-based providers as in the various cellular and paging operations is not excluded; however, there are no clearly defined rules for the time being on the limits of foreign participation. In Indonesia, the new international and cellular operator PT Satelindo is poised to compete aggressively with PT Indosat internationally and PT Telkom (through an extensive cellular network) domestically, even though the latter owns 40 percent of Satelindo itself.

In India, international and domestic services are served by separate operating entities within the DOT. There, too, it is conceivable that eventually VSNL, the international provider, could be permitted to diversify and become an alternative carrier serving, in particular, large business users.

The rationale for greater reliance on competition in Asia might well be pragmatic rather than ideological. New entrants are an attractive source of capital and expertise. Moreover, competitive pressure on existing operators may accelerate the process of institutional and sectoral reform.

Here, a further point might be noted with respect to some of the new techniques—such as contracting out to other entities—for introducing private investment into the telecommunications sector. Established operators may principally choose to use outside contractors as sources of capital and expertise. Policymakers may choose to restrict such contractors from offering service directly to end users; contractors’ lines and facilities would be absorbed by existing operators. Conversely, contractors ultimately might be permitted to provide services directly and independently to end users. Given the
Implementing Reforms in the Telecommunications Sector

possibility of their providing such services directly to users, new contractors may well be seen as, or actually become, a form of potential competition to the existing operator.

The Structure and Timing of Regulatory Reform: Getting the Horse in Front of the Cart

Finally, it might be appropriate to offer a few observations about the evolution of regulatory procedures and policies in Asia. In hardly any of the economies of Asia can it be said that new regulatory mechanisms have fully or effectively developed. In the Philippines, there is the NTC; however, the NTC has not demonstrated that it is capable of coping effectively with structural difficulties in the telecommunications sector.

In Malaysia, which has successfully moved ahead with a privatization program and established a regulatory body within the Ministry of Energy, Posts and Telecommunications, the regulatory scheme is not yet fully articulated. As new service providers emerge, a more fully-developed regulatory scheme may also evolve.

Clearly, if competitive entry is to become an important tool for developing new infrastructure and encouraging existing operators to become more efficient, officials will have to think through and develop effective frameworks for regulation. Policy-makers have several regulatory models from which to choose. The contrasting situations in Australia and New Zealand present illustrative paradigms.

In New Zealand, a laissez-faire approach toward the development of new regulatory institutions has been adopted. A consciously pro-regulatory stance was adopted in Australia with the creation of AUSTEL. Until the emergence of recent disputes over such matters as interconnection arrangements between TCNZ and the new entrant, Clear Communications, New Zealand policymakers had been quite content to rely on the more general principles of competition law embedded in the Commerce Act; they had felt no need to create a new regulatory body. As competition is burgeoning in New Zealand, however, pressures are growing for more specialized mechanisms for resolving the inevitable disputes that arise (and that have arisen).

Putting in place adequate regulatory arrangements in Asia does not, however, necessarily mean that great emphasis should be placed on establishing new regulatory institutions. Institution building need not necessarily precede or displace the development of new regulatory procedures and techniques for dispute resolution.

Careful attention must also be paid to the timing of creating new regulatory arrangements. It is by now conventional wisdom that privatization cannot be implemented successfully without clarifying the basic regulatory framework. In the most successful recent privatizations in the telecommunications sector, all the details of a future regulatory scheme have not been spelled out in detail. This was certainly true in Malaysia. In Mexico as well, the government shied away from immediately creating a new regulatory body.

Some of the major lines of policy must, of course, clearly be identified in the privatization process. Investors must know what the future ground rules for the sector will be. Clarity and transparency are critically important in privatizing.

Nonetheless, all this is not to say that a successful privatization requires a guaranteed fixed term of exclusivity for the existing operator. Potential investors may
ask for such exclusivity to shore up their investment, the government's outside
advisers may find it in their own and their client's interests to advocate such
protection to enhance the price at which shares in a to-be-privatized entity can be
sold. Granting excessively long periods of exclusivity to an operator—or, arguably,
any period of exclusivity—may not represent sound sectoral policy.

Perhaps more important than delineating every last element of a regulatory scheme
is creating a predictable process for the evolution of future regulations. Thus, one
could question whether countries now beginning to explore options for privatization,
Pakistan being one example, are well advised in seeking to create, at the outset, an
entirely new and complete regulatory entity as an essential component of the
privatization strategy.

Conclusion

From a telecommunications point of view, Asia certainly is full of promise and
great diversity. There are, most obviously, considerable differences among the
economies of Asia. Some have robust economies. Others are among the poorest on
earth. Some have modern and rapidly expanding telecommunications infrastruc-
tures. Others have extremely low rates of penetration.

The most advanced economies will continue to become fully integrated into the
global economy. As such, they will face increasingly strong pressure to allow ever
more liberal arrangements for service-based as well as facilities-based competition.

Elsewhere in the region, pressures to keep pace with the Four Tigers—and to the
economies in close pursuit—will create a climate that could be quite favorable to
innovative techniques for attracting new investment into the sector. In this regard,
Asia could well become a dynamic testing ground for new approaches to privatiza-
tion. Although there will be top-down privatizations in Asia, such as Malaysia and,
potentially, Pakistan, Asian countries are unlikely to follow blindly the models that
have been used in Latin America.

Means of encouraging new actual or potential competitors in the sector will be
important to accelerate development. At the same time, policymakers will have to
devise appropriate regulatory initiatives for the new financing techniques or ap-
proaches to competitive entry.

Regulatory structures for Asia in the 1990s cannot be lifted from a hornbook based
on the experience of the United States or other Western countries that have taken steps
to introduce competition. Innovation and creativity in developing new regulatory and
institutional arrangements will be essential to the success of sectoral reform in Asia.

At the end of the day, Asia will develop its own techniques for and unique
approaches to sectoral reform. What was done in Latin America, Europe, or North
America in recent years will not be the only models for the region. Rather, in Asia
the emergence of an extraordinarily diverse set of economies will test the mettle of
government officials, existing operators, would-be and new entrants and investors
throughout the coming decade.
Telecommunications Reform in Australia

Michael J. Hutchinson

It is an accepted fact that telecommunications are now an essential component of any country's infrastructure as well as an important contributor to economic growth and well-being in both developing and industrial countries. This is true both for the domestic economy and in relation to international competitiveness. There is also a common perception that national access to basic voice telephony is not so much a privilege, or even a discretionary commercial service, but a right. Finally, telecommunications is an important and growing service and equipment industry in itself. All countries of the Asia-Pacific region, including Australia, have these issues in common.

In Australia, far-reaching and major decisions on the future structure of the telecommunications sector have recently been made and are currently being implemented. These are the latest in a series of structural reforms in telecommunications designed to bring price and service benefits to both business and residential users as well as to increase Australia's capacity for participation in regional and global telecommunications activity.

This chapter explains what these reforms are and why Australia has made such significant changes at this time. Its perspective is that of a policy adviser to the government.

Telecommunications in Australia: Background

Until 1975, domestic telecommunications services were provided in Australia by a traditional PTT, the Postmaster-General's Department. International services were provided by a separate government-owned authority, the Overseas Telecommunications Commission (later OTC Ltd.), which had been formed in 1946 through the government's acquiring the overseas-controlled entities that had previously provided the service.

Postal and telecommunications functions were separated in 1975. Two statutory authorities, Australia Post and Telecom Australia (Telecom), were established in recognition of the need to manage separately the distinctly different requirements of the two sectors for capital, labor, and technology. Both organizations were placed outside the direct administrative structure of the government. At this time, and for some time subsequently, the principal telecommunications policy focus was exten-
Implementing Reforms in the Telecommunications Sector

The provision of universal service. This posed particular problems for Australia outside the major urban centers. Population is sparse, distances are vast, and climate and terrain can be unfriendly.

The next major structural change occurred in 1983, with the establishment of an independent, government-owned national satellite system, AUSSAT. For the first time, many residents in rural and remote areas of Australia gained access to radio and television broadcasting services. Telecom faced limited competition on its trunk telephone and data services from the private network services now made possible by AUSSAT which also had the scope to operate internationally within and between third countries.

At the time of these institutional and structural changes, in the mid-1970s and early 1980s, the need and scope for anything more than limited competition in telecommunications did not appear great. Recommendations in the Davidson Report of 1982 for limited competition were not proceeded with.

Since then, however, the perceptions of all industry participants—government, carriers, users, private service providers, manufacturers—have changed significantly. This has been due to rapid changes in technology, an increase in quantity and diversity of demand (essentially a shift from a seller’s to a buyer’s market), the increasingly international nature of the industry, and the rapid economic growth of the Asia-Pacific region.

Since 1983, the Australian government has placed the highest priority on restructuring key areas of the economy, including financial markets, manufacturing, transport, and communications. In general, the approach to economic reform has involved:

- Institutional reform of government business enterprises through:
  - Corporatization
  - Changes to incentives
  - Changes to performance measures

- Structural or policy reform through:
  - Regulatory changes
  - Changes to the competitive environment

- Industry policy.

The Department of Transport and Communications has policy responsibility for a significant part of the economic reform agenda, including telecommunications and postal policy, broadcasting, aviation, as well as maritime and land transport.

234
Telecommunications Reform in Australia


By 1987, basic telephone access had been achieved on a near Australia-wide basis, and the domestic and international networks were well developed in terms of facilities. Policy change focused on the broader significance of telecommunications was (and is) still a key concern of the government. Some of these newer issues were referred to by the managing director of Telecom Australia, Mr. Mel Ward, at the World Bank Seminar on Restructuring and Managing the Telecommunications Sector, held in Kuala Lumpur in 1987.1 At that time Australia had just embarked on a major review of telecommunications policy. The outcome of this review in 1988 was a series of measures to:

* Clarify government policy objectives for the sector
* Separate the policy, regulatory, and operational functions, and place them with the Department of Transport and Communications, a new independent regulatory authority, and the carriers, respectively
* Increase the commercial focus of the carriers through new accountability measures and removal of unnecessary constraints
* Provide for competition in value added services and customer equipment, but not, at this time, in network infrastructure or basic services.

Regulatory arrangements at this point were largely concerned with clarifying and maintaining the boundary between monopoly services reserved to the carriers and other services. Central to these arrangements was the establishment of the Australian Telecommunications Authority (AUSTEL) as an independent regulatory. AUSTEL commenced operations on July 1, 1989. It has a chairman and two members, all government appointees. AUSTEL operates under the general policy direction of the minister for transport and communications, but is otherwise an independent authority.

The major functions of AUSTEL at present are: technical regulation, particularly in relation to customer equipment and cabling; policing of the boundary between monopoly and competitive services; protection of competitors from any unfair practices of carriers; consumer protection; and promotion of carrier efficiency. AUSTEL has also undertaken, at the direction of the government, a number of specific investigations into areas of possible policy change, including third-party resale and public mobile telecommunications services.

Overall, the existence and activities of AUSTEL have received industry support, and have helped to keep telecommunications reform an issue of general interest.
Implementing Reforms in the Telecommunications Sector

New Export Focus

In parallel with this more commercial emphasis, both major carriers and the private sector had begun to increase export and offshore activities. Telecom and OTC established international marketing arms as subsidiary companies: Telecom Australia (International) in 1986, and OTC International in 1987. These subsidiaries were established to concentrate on export of world-class telecommunications services and facilities from or through Australia. They operate on a fully commercial basis, but their activities have also had a significant positive impact on technology transfer for developing countries. This occurred outside the traditional aid framework and is operating to the mutual benefit of Australia and other countries in the Asia-Pacific region.

Telecom Australia (International) is active in major facilities installation and management projects in Saudi Arabia and Pakistan, the latter in conjunction with Australian manufacturers. OTC International participates in projects ranging from network management, equity investment and development (for example, the Pacific Area Cooperative Telecommunications Network and a ten-year development program in Vietnam) to joint venture participation in major markets such as Thailand (digital satellite data) and Hong Kong (telepoint services). These activities have been complemented by the regionally-oriented export work of Australian manufacturers. Close relationships have been established with telecommunications enterprises throughout the world, but especially in the Asia-Pacific region.

Telecommunications Reform: 1990–91

It was never envisaged that the reforms of 1987–89 would mean a fixed regulatory environment. In particular, the 1987–89 package recognized that the separation of satellite and terrestrial telecommunications facilities, as well as that of domestic and international, in separate enterprises would be increasingly unsustainable in the face of technological developments and market demands. The pressures for change continued, and the government initiated a comprehensive review of structural arrangements. Australia was mindful of the increasing investment requirements of the telecommunications sector and need to remove barriers to participating in the growing regional and global markets. It has become evident over the last two years or so that many other Asia-Pacific countries have also moved to address these issues, although of course each country has different needs and circumstances and hence will tailor its approach to these.

As Australia sought lessons from the experiences of other countries, it became clear that concepts such as deregulation and privatization had relevance only as elements of a comprehensive set of policy measures—in particular, the appropriate change mechanisms for an entrenched market structure. The acceleration of efficiency gains and sustaining of ongoing modernization on a commercial basis would not occur without genuine scope for competition, hence the need for stringent safeguards and requirements for equal access, at least in the initial phase. The interests of ordinary consumers would also require special regulatory attention.
In November 1990 the Australian government announced its intention to introduce wide-ranging network competition into the telecommunications industry. There are several important elements in the move to full competition by 1997:

- To establish, by the end of 1991, a transitional facilities duopoly based on a merged Telecom/OTC (known initially as AOTC and now as Telstra) and a privatized AUSSAT (now known as Optus).

- To provide procompetitive safeguards, including equal access and interconnection between the carriers.

- To issue three public mobile telephone service licenses, one each to Telecom/OTC and the second carrier, and a third to be issued by the end of 1992.

- To remove restrictions on third-party resale.

- To introduce full competition in the provision of public access cordless telephone (telepoint) services.

**Reasons for Australia's Policy Changes**

A number of factors were taken into account by the Australian government before the changes described above were taken.

**Universal Service**

Considerations of universal service and equity remain very important. Australia was fortunate enough to achieve a high level of basic telephony coverage at a time when the monopoly operator could concentrate on that task and ordinary telephony services were overwhelmingly dominant in the service repertoire. The continued provision of such services to all users remains a key government policy, so that some noncommercial element will continue to be involved for the carriers. This noncommercial element comprises the community service obligations (CSOs), which must now be managed in a competitive environment. The annual cost of such CSOs in Australia is estimated at A$250 million. This compares with total annual telecommunications revenue of A$9.4 billion.

Australia has explicitly recognized and accepted the economic costs of continuing universal service policies through cross-subsidy funding. Although we have determined that this is affordable and sustainable within a competitive industry at our established high level of telephone ownership, such conclusions may differ depending on the geographic structure and national development level in other countries. Burdening commercially viable customers with unduly onerous charges to sustain disproportionate cross-subsidy costs in extending universal service from a lower basis or at higher costs...
Implementing Reforms in the Telecommunications Sector

might actually serve to inhibit overall network development by retarding the achievement of economies of scale among economically viable connections.

Australia has examined several possible approaches to funding the delivery of the various types of CSOs (universal service, concessions to disadvantaged groups, and emergency services). With regard to universal service, the government decided that Telecom/OTC would be obligated to continue providing a standard telephone service (including pay phones) between places within Australia. The cost of universal service would be met by the carriers, with the second carrier being required to pay Telecom/OTC a fee which covers an equitable pro rata share of the cost of fulfilling the universal service obligation.

This is an area where Australia has carried out a considerable volume of research and analysis, including a 1990 Bureau of Transport and Communications Economics study on the funding of Telecom's CSOs. Some further background material on a related decision is attached (see the Annex included in this chapter).

Investment Sourcing and Resource Allocation

Like many countries in the Asia-Pacific region (both developing and industrial), Australia recognizes that the requirements of the telecommunications sector are now so great, and the global market so influenced by very large-scale players, that previous approaches to funding of expansion must change. Australia's liberalization of its policy regime is aimed in large part at attracting world-class expertise and capital to ensure continued growth in services and facilities. Although Telecom/OTC is and will remain a world-class operation, it needs a competitive domestic commercial environment to stimulate expansion. The task is to keep pace with a global market increasingly dominated by large carriers, some of the largest of which, according to recent reports, are examining further strategic alliances for the purpose of attracting outsourcing of international corporate networks.

The resource allocation issues involved in an industry of the size and complexity of telecommunications are, in the Australian case, only capable of resolution through competitive market mechanisms. This represents a logical evolution of the industry and is consistent with international and regional trends.

Put simply, the capital needs of a modern telecommunications system are now such that prudent allocation from public sector sources requires augmentation from equity capital raised in the private sector. Such sources are available from both domestic and international capital markets. If they are not tapped to develop public, common carrier, networks, they will be tapped to develop private networks to meet business needs. Australia's policy allows for appropriate access to such capital through the privatization of AUSSAT as the seedbed for the second network provider. It welcomes international investment, while retaining the incumbent carrier in public sector ownership and assuming eventual majority national ownership of the second carrier.
Development of Australian Manufacturing

Government policy aims at developing an Australian telecommunications manufacturing industry which is world competitive. We already have a sound manufacturing base covering transmission and switching equipment (including optical-fiber cable) and terminal equipment. Development of the value added services sector, where Australia has established comparative advantages in software applications and network management, is a complementary priority. The export activities of the carriers have been referred to previously. A competitive environment which removes any restrictions on access to the world's best technology will ensure that the current trend in the Australian industry to increased exports, as well as research and development, continues on the scale (qualitative as much as quantitative) necessary to be internationally viable.

Acceleration through Trade

There is growing international recognition that the main barriers to increased trade in telecommunications services and goods are the telecommunications policy regimes that apply. Australia is conscious of being a part of the fastest-growing telecommunications market in the world, the Asia-Pacific region, and is approaching the issue at several levels.

First, we are mindful of the potential benefits which would flow from a successful outcome to the current GATT Uruguay Round negotiations. Australia is prepared to work toward an appropriate international framework for telecommunications market access within this context, but such a framework will clearly depend on progress within the Uruguay Round as a whole.

Second, Australia will continue to pursue regional and bilateral policy consultations with a focus on the benefits of liberalization.

Finally, from the perspective of Australia as exporter, we believe that the unilateral policy liberalization undertaken will mean that the benefits of a competitive domestic market flow on to Australia's export activity in terms of pricing and product innovation. To this end, Australia supports liberalization in both the bilateral and multilateral contexts.

The public debate that preceded the government's recent major decisions was extensive and focused on a wide range of factors. Inevitably, the question of telecommunications reform became a sensitive political issue. Although the nature of the debate may have reflected Australia's unique political, social, and institutional structure, its intensity also reflected the importance of telecommunications to the whole community in a situation of near-universal availability of service.

Implementation Issues

The implementation of the major reforms announced in 1990 is proceeding according to plan. The first stage, involving legislation to put in place the new regulatory framework
Implementing Reforms in the Telecommunications Sector

and to merge Telecom and OTC (AOTC), was completed on July 1, 1991. The second stage, involving the sale of AUSSAT and licensing of the second carrier, Optus Communications, was decided on November 22, 1991, and finalized on February 2, 1992. Some particular issues of implementation are noted below.

Strengthening the Independent Regulator

AUSTEL was established in 1989 as an independent statutory authority with overall responsibility for economic and technical regulation of Australia's telecommunications industry. The chairman and members are government appointees. AUSTEL currently has a staff of approximately 140. Its major functions to date have been technical regulation, promotion of fair and efficient market conduct, and consumer protection. The general industry perception is that the independent regulator model has worked successfully in Australia to date.

AUSTEL has a specific mandate to promote competition within the regulatory framework established by the government. This includes a detailed monitoring role and arbitration between the carriers where commercial negotiation is unsuccessful. AUSTEL will ensure that arrangements for interconnection, access to network and customer information, billing practices, and other level-playing-field practicalities are equitable between the carriers, and that the incumbent carrier does not derive unfair market advantage from its dominant position.

AUSTEL has recently assumed primary responsibility for managing Australia's input to the setting of international telecommunications standards and will have the role of preventing the misuse of market power by international carriers supplying services to and from Australia.

Interconnection and Equal Access

AOTC is required to provide the second carrier with interconnection on a directly attributable incremental cost and equal access basis. AUSTEL, at government direction, is currently inquiring into the economic, commercial, and technical considerations of this requirement. The importance of this part of the reform package is evident from the fact that the merger of Telecom and OTC was not permitted to proceed until AUSTEL had certified that interconnection and equal access arrangements were fully in place in all capital cities and that there was an agreed timetable for finalizing such arrangements in provincial cities.

There appears to be general agreement that charges for the use of network facilities should be separated from those for actual interconnection; that charges should reflect underlying costs; and that pricing principles should encourage the second carrier to invest in new facilities where such facilities could be provided at costs which are lower than those presently being achieved. The basis for assessing directly attributable incremental costs and cost categories to be included have been set out in the Telecommunications (Interconnection and Related Charging Principles) Determination No. 1 of 25 November 1991.
Telecommunications Reform in Australia

Australia is determined that experience elsewhere, where effective competition has been delayed by legal and commercial disputes about efficient equal access and interconnection arrangements, will not be repeated. Much effort was therefore devoted toward having fair and efficient equal access arrangements in place, ready for the second carrier to take up in accordance with its proposed network rollout program. On January 14, 1992, AUSTEL certified to the minister for transport and communications that interconnection and equal access were either in place or sufficiently advanced. The AOTC network was conditioned to allow Optus to provide competitive dial code access using the "1" prefix. Network modernization is being implemented to provide for universal equal access and preselection. AOTC and Optus have made substantial progress in developing an access agreement, and AOTC has been instructed to resolve remaining issues in a timeframe suited to Optus' plans to provide services.

Powers and Immunities

Government-owned monopoly carriers generally have a range of legal powers and immunities that have been granted to them in recognition of their public service role and the need to install facilities expeditiously. Although in principle having as few special provisions as possible applying to telecommunications, it can be argued that specific powers and immunities are needed in the short term to facilitate the building of a network by the second carrier and to enable AOTC to adjust to the new environment. Significant issues include application of planning, development, and environmental laws; limitations on liability in tort; and powers of land acquisition and access. In the transition to competition, the question arose of whether to remove or modify such powers and immunities or whether to extend some or all of them to the second and subsequent carriers. This is particularly relevant in Australia with respect to state and local government laws and immunity from suit. Australia has now adopted a unique approach to these issues, by balancing the carriers' immunities from state and local planning laws with a national planning code. This is intended to ensure that carriers give appropriate consideration to environmental and other factors when engaging in network rollout activity. The government has also removed the wide immunities that the carriers enjoyed with respect to the general tort and contract law. This has been replaced with a simple cap on tort liability to be determined by AUSTEL.

Selection of the Second Carrier

The process of selecting the second carrier began in earnest during the first quarter of 1991. A preliminary stocktaking of expressions of interest during November 1990 to January 1991 allowed the government to take into account interested parties' views before finalizing the policy framework. The list of interested parties included some of the world's leading telecommunications companies as well as some enterprises new to the industry.
Implementing Reforms in the Telecommunications Sector

The government then issued an information memorandum and an invitation to submit detailed proposals. Following assessment of these, shortlisted parties were invited to negotiate contracts and submit tenders for the acquisition of AUSSAT and the right to operate the second carrier. This process was finalized on January 31, 1992, with the winning consortium, Optus Communications, taking control of AUSSAT and beginning to offer services shortly thereafter.

The Optus consortium, which has been guaranteed a duopoly environment for noncellular services until mid-1997, consists of BellSouth (24.5 percent), Cable & Wireless (24.5 percent), and Optus Pty Ltd. (51 percent), in which the principal shareholder is Australia's Mayne Nickless Ltd.

The consortium paid the government an up-front amount of US$395 million, with payment of US$120 million due in 1995 and 1996. Optus has also estimated a total expenditure of A$3 billion over the next five years to build and operate a domestic and international telecommunications network to compete with AOTC. Optus has planned to offer initial service in the Sydney-to-Melbourne corridor, with nationwide coverage promised by 1996. Optus will also offer resale cellular services in 1992 and then move to its own network in 1993.

Australia and the Asia-Pacific Region

The Australian approach to telecommunications reform must be seen in its regional context. The Asia-Pacific region is an area of significant real and potential growth. This is a region where the total telecommunications market is expected to grow to US$178 billion by 1995, with an annual growth rate of nearly 10 percent. It is a region where international call traffic within the region and to other parts of the world is expected to grow by more than 25 percent per annum over the next few years. Total traffic growth is estimated to be in the order of 33 percent per annum at present.

What are the policy implications of this for governments? At a recent conference in Bangkok organized by the Asian Development Bank and the Asia-Pacific Telecommunity, it was apparent that many Asia-Pacific countries, some at widely differing stages of economic development, are focusing on similar policy issues. Australia sees itself as integrally involved in this regional movement.

It can be argued that the more traditional approach to telecommunications development—first building up basic telephone services and only then moving on to more sophisticated infrastructure, boosted by development assistance and differential accounting rates for international calls—is no longer a sufficient model. On this view, the financial and human capital needs of the sector are so great in both quantitative and qualitative terms that government policy measures will increasingly need to focus on the benefits of a competitive regulatory environment and scope for private sector development, but always tailored to specific country needs. Complementary to this would be a continuing need for targeted aid to assist sectoral restructuring, of the type currently provided so successfully by the Asian Develop-
The key to maximizing the region’s growth potential in telecommunications is greater trade in services and equipment through policy liberalization as well as the freer flow of capital and management skills which will follow. The countries of the Asia-Pacific region are moving to develop their own approaches. Some current examples of this might include the Philippine approach to private sector participation; Indonesia’s provision for cooperative ventures in basic services; and the managed transition to competition in the Republic of Korea.

As part of this process, Australia is involved with its neighbors in the region in mutually developing this industry, both government-to-government and at the commercial level. Telecommunications policy issues are increasingly on the agenda of regional forums such as the Asia Pacific Telecommunity (APT), the Asia Pacific Economic Cooperation forum (APEC), and the ASEAN-Australia Forum. Australia has taken a significant role in structural reforms of the APT to ensure that its activities are of value to developing countries within the region.

The recent visit of the Australian minister for transport and communications to Japan and the Republic of Korea emphasizes the complementary role of bilateral policy relationships in this area. Telecommunications policy issues will be an important agenda item for the forthcoming Australia-Japan Ministerial Council.

The objective of both multilateral and bilateral policy consultations is discussion and analysis of common issues and exploration of the areas in which growth can be encouraged through the ongoing policy change in which all countries are engaged.

Annex: Main Findings of the Interdepartmental Committee on CSOs in Telecommunications

The main findings of the committee were as follows:

1. In a number of public policy statements during 1990, the government reaffirmed its commitment to delivering the present level of delivery of community service obligations (CSOs), particularly to rural and remote areas, to pensioners and to people with disabilities.

2. The government’s decision on the continued application of price caps to Telecom Australia (Telecom) provides the means of ensuring that connections and call charges continue to be available at generally affordable levels. To the extent that there are groups within the community which the government believes should receive additional financial assistance for their telephone costs, these can be most effectively and appropriately assisted through the welfare system.

3. CSOs provided by Telecom can be divided into three broad groups: universal service (that is, access to a standard telephone service, including pay phones); emergency services; and concessions (to the disabled and charitable organiza-
Implementing Reforms in the Telecommunications Sector

tions). Government-provided CSOs involve telephone rental concessions to pensioners and a telephone interpreter service.

4. There are four broad approaches to ensuring the future delivery of CSOs:

- Imposing a requirement on carriers to fulfil obligations as a condition of license without compensation
- Imposing a requirement on carriers to fulfill obligations as a condition of license with compensation
- Competitive tendering for the provision of CSOs
- Allowing carriers to charge for all services, including CSOs, on a full cost recovery basis, and compensating subscribers through the provision of direct or indirect financial assistance.

These options are not mutually exclusive.

5. It is not axiomatic that Telecom would discontinue the provision of loss-making CSOs in a competitive duopoly market. There are sound commercial reasons for supplying loss-making services (provided the losses can be absorbed):

- To support a good corporate citizen image
- As a "loss leader," that is, for strategic marketing reasons.

6. The committee, however, took the view that, to ensure delivery of CSOs that government felt were vital for national policy reasons, it would be necessary to provide a general authority in legislation with detailed requirements specified in carrier licenses.

7. The concessions currently provided by Telecom to people with disabilities and charitable organizations may be continued by Telecom in the new competitive environment, either to support a good corporate citizen image or because of clear marketing advantages. The continuation of specific concessions, however, could be ensured by government through legislative provision or license conditions or through directly targeted assistance via, for example, welfare or social programs. Action to make them an obligation on Telecom may then require the recognition of direct or indirect compensation for those concessions specified.

8. Given that Telecom may choose to continue to provide many of the currently available concessions without any explicit obligations, it is preferable that the
specification of concessions as a condition of license be minimized in the first instance. Further concessions could be specified as obligations should Telecom choose to drop those regarded as socially important by the government, or alternative means of provision investigated (for example, through social welfare programs).

9. Telecom and the second carrier should both have obligations placed on them as part of their license conditions to ensure that emergency-service-related activities continue. Compensation should not be provided to either carrier for this activity, it should be regarded as a standard function of a carrier.

10. With respect to the universal service obligation, the committee noted that, should a carrier not be compensated for loss-making services, it will seek to cross-subsidize those services. It recognized that there are drawbacks to continued funding of CSOs by cross-subsidy.

11. The best available information indicates that the annual net cost of continuing to maintain obligations currently provided by Telecom would be around A$250 million (A$237 million for loss-making services [that is, access to the standard telephone service], A$8 million to A$10 million for concessions, A$4.5 million for emergency services). Considerably more work needs to be done by Telecom, however, to properly identify loss-making services and their actual net costs.

12. Two broad options for funding CSOs, which are not mutually exclusive, are largely independent of the delivery options:

- Funding from general revenues, and

- Industry funding (carrier levy, user levy, or cross-subsidy).

13. Some form of carrier levy is the most obvious mechanism for ensuring that the second carrier contributes directly to the cost of CSOs on a pro rata basis (as required by the government's decisions). Imposing a levy on interconnection from trunk routes to customer access networks is one practical alternative. A levy based on revenue from each carrier's reserved areas may constitute a more competitively neutral form of funding. Adoption of the broadest possible base would also minimize distortions to the pricing of particular services.

14. A carrier levy imposed by the government would be considered a tax and may therefore need to be paid into consolidated revenue in the first instance, with subsidies to Telecom/OTC then being provided through appropriation of consolidated revenue funds. As a consequence, budget revenues and expenditure would be increased.
15. In the longer term there may be a need to review delivery and funding arrangements for CSOs adopted by the government during this phase of implementing carrier competition, in light of the impact of competition on consumer prices and carrier behavior. This would ensure that the arrangements remain consistent with the government’s social and economic policy objectives.

16. Before any compensation is given, Telecom must be required to specifically identify any loss-making services. The onus of proof must be placed on Telecom, and the costing procedure would need to be consistent with the long-term avoidable cost approach which has been adopted by government as the best measure of costs. The option for the government to put the provision of any individual or combination of services to competitive contract should be explicitly kept open in order to give Telecom an incentive to minimize costs. The timing and implementation of such contracting should be decided by government, following advice from AUSTEL. Although competitive contracting may not be practical until significantly more information is available and the second carrier is established, equivalent information should still be required from Telecom before any compensation is paid.

17. The introduction of carrier competition will not affect the Telephone Rental Concession Scheme, which is funded on budget (A$48 million per annum). This scheme should continue to be funded in this way.

Endnotes


2. In April 1993 AOTC changed its name to Telstra.

3. The legislative basis for the regulatory framework, which came into operation on 1 July 1991, comprises seven Acts of Parliament. These are the:
   - Telecommunications Act 1991
   - Australian and Overseas Telecommunications Corporations Act 1991
   - Telecommunications (Carrier Licence Fees) Act 1991
   - Telecommunications (Applications Fees) Act 1991
   - Telecommunications (Number Fees) Act 1991
   - Telecommunications (Universal Service Levy) Act 1991

   Subsequently, a range of subordinate legislation was also made, including the carrier licenses and ministerial determination on interconnect pricing principles.

An Alternative View of Australian Telecommunications Reforms

Henry Ergas

There are many similarities between the path taken in Australia and that taken by other countries engaged in telecommunications reform. But there are also important differences, and while learning from the mistakes of others, we have made mistakes of our own. It is worthwhile to try to draw out the pattern of our experience and place against the context it defines the issues and choices which are still open.

One feature dominates this pattern, and that is the progressive disengagement of the Commonwealth of Australia from responsibility for providing telecommunications service. The Commonwealth, while retaining ownership of the telecommunications carriers, has sought to distance operating responsibility for these entities from direct ministerial and departmental control. This process of disengagement has operated at three fundamental levels.

A first step in this respect was taken in the mid-1970s, with the creation of Telecom Australia and of Australia Post as statutory authorities out of what had been the Postmaster-General's Department. Since then attempts have been made to replace ex ante administrative controls over individual decisions taken by the carriers with ex post accountability for performance, judged in terms of the objectives set down by legislation and the commitments entered into between the Commonwealth and the carriers' boards. Second, while shifting from controls over the carriers' day-to-day decisions to controls over their outputs, the Commonwealth has increasingly viewed competitive markets as the best judge of what these outputs should be and as the best gauge of the carriers' efficiency. Here too, the process began well before the latest round of reform, with the liberalization of several terminal equipment markets in the early 1980s. Lastly, as the carriers have been thrust into competitive markets, the Commonwealth has acted to strip them of responsibility for market regulation, largely by transferring the relevant powers to independent regulatory agencies, most notably AUSTEL.

Though analytically distinct, these three layers have in practice been interdependent, and it is their interaction which has most powerfully shaped the change process. Four factors have been at work. The first is that the Commonwealth, by distancing itself from the carriers, made it easier to expose them to the disciplines of competition. Once these
entities were separated from the central machinery of public administration, the commercial elements in their charter gained greater prominence, reducing any claim they might have on exclusive access to consumers. The Commonwealth could, after all, hardly stress that the carriers were and would be judged as businesses, while at the same time denying their consumers the freedom to choose. The decentralizing impetus of developments in telecommunications technology therefore found a receptive environment.

Second, competition, once allowed, developed a momentum of its own, straining at the boundaries initially imposed upon it. In retrospect, it is difficult to see how it could have been otherwise. The technology was steadily blurring the regulatory distinctions between service classes and making a nonsense of the fine lines drawn between public and private networks, while its impact was reinforced by a normal commercial dynamic in which firms, struggling to establish themselves in the difficult markets open to competition, sought the comfort of those larger and more lucrative markets still reserved to the established carriers.

Third, these pressures to further liberalization were more readily accommodated because of the change in regulatory arrangements, notably the setting up of AUSTEL as an independent authority. This, in effect, made it more difficult for the carriers to stop the market-opening process (and it is certain that they would otherwise have come under intense pressure from the unions to do so), while also placing at least a bit of distance between the government and the sometimes difficult choices which needed to be made. And there were, here too, important elements of mutual reinforcement: each successive liberalizing step increased the desirability and legitimacy of truly independent regulation, strengthened the constituency for further change, and though perhaps too slowly, boosted the confidence of the regulators in the change process.

Fourth and lastly, and closing our feedback loop, liberalization made it all the more urgent for the government to review, and where possible relax those remaining direct controls which limited the carriers’ flexibility and hence their ability to survive and prosper in a competitive environment; in equal measure, liberalization also seemed to reduce the need for these controls, since the carriers’ decisions would be tested by performance in the market, surely a better standard than that set by administrative fiat.

The interaction of these forces has created powerful pressures, but from the outset, the response has hardly been smooth or continuous. Governments have, in particular, found it difficult to strike a balance between a genuine intellectual commitment to standing back from the carriers’ day-to-day decisionmaking on the one hand, and their desire to retain a significant degree of control over the carriers on the other.

Three factors largely explain this discrepancy. The first is what Professor Max Corden, a distinguished Australian economist, has described as the “conservative social welfare function.” This phenomenon, hardly specific either to Australia or to telecommunications, refers to the reluctance of communities to accept changes which, though they may increase aggregate or total welfare, will make, or threaten to make, some individuals absolutely worse off. In the specific circumstances of Australia’s telecommunications system, the desire to avoid these changes, or to assure the community that they will be avoided, has led governments to intervene in management decisions, notably as regards pricing, which appeared justified on commercial grounds.
The second factor underpinning the Australian government's difficulty is conflict in policy objectives. This involves differences both between the government's macroeconomic and microeconomic goals, and among its microeconomic goals. The macro/micro conflict is straightforward and centers on access to resources: the government faces continuing pressure to reduce its call on national savings and to moderate the growth of labor costs; it wants to ensure that the states discipline the behavior of their statutory authorities in these respects; and it believes that the states will only curb their authorities if the Commonwealth does the same. The Commonwealth has therefore retained a high degree of control over the carriers' borrowing levels and labor practices and has, in a number of instances, used these controls to impose outcomes quite different from those which the carriers, acting freely, would have chosen. At the heart of the micro/macro economic conflict lies the tension between promoting competition on the one hand, and protecting individual competitors on the other. Established carriers enter competitive markets with considerable advantages which only a long period as an incumbent monopolist can confer, most notably control over the essential facilities associated with the customer access network. The normal protections which trade practices legislation provide to competitors may well seem too weak to avoid the misuse of this market power so that special safeguards, and associated regulatory mechanisms, are required to allow competition to develop. This, in turn, implies a network of controls which primarily limit the behavior of the established carriers, controls which at best sit uneasily, and at worst conflict, with the goal of encouraging the carriers to act in a robustly competitive way. The strains this creates have, most recently, been accentuated by the specific manner in which competition is being introduced. The decision to link the selection of a second carrier with the privatization of AUSSAT forces difficult choices about how the government's continuing role as owner of Telecom and OTC, and the powers and responsibilities inherent in that role, can be reconciled with the understandable desire to see this privatization succeed. These are, inevitably, troubled waters, and though they will doubtless settle once the process is complete, they have great potential to damage the goal of statutory independence and board accountability highlighted above. In short, the government has retained elements of its hands-on role both so as to protect itself from community backlash, and because it has proved useful in advancing its sometimes conflicting policy goals; but there is also a third factor at work.

This third factor is the natural reluctance of government to relax administrative controls before competitive forces are sufficiently well established to act as an effective alternative source of discipline. The perceived risk is that management, freed from any real constraints, could waste the community's resources in capacity expansion schemes which, though superficially appealing, would, at best, fail to cover their opportunity costs and might, at worst, make it more difficult for competition to establish itself in the market.

Taken on its own, each of these factors involves a good deal of common sense, and their interaction creates formidable obstacles to advancing toward greater real independence for the established carriers. Yet progress in this respect is both possible and desirable; indeed, it could be argued that it is central to the next stage in our telecommunications evolution.
Further progress is indeed possible. Competition is likely to establish itself relatively quickly in significant parts of the Australian market, thus reducing the rationale for continuing controls over the established carriers. This is for three primary reasons. The first is that the government has put in place a framework of competitive safeguards which anticipates and solves in advance many of the difficulties which have hindered the establishment of competition in the other markets where liberalization has been attempted. Taken together with the strongly liberalizing provisions of the legislation, notably the requirement on the carriers to unbundle a broad range of the services they provide, this framework should significantly reduce the lead time involved in the transition to competition and allow an early move to a fully commercial market. A second reason has to do with the selection of the competing carrier. In the United Kingdom and the United States, the transition to competition involved entry by players with little experience of major common carrier markets and whose financial resources were slight relative to the task they were taking on. In contrast, the winning consortium in Australia involves major foreign carriers, which, though they are generally monopolists in their own markets, have similar or even greater technical resources than the incumbent carrier and (partly thanks to their monopoly cash flows) ready access to finance. It is only natural to expect that this will be reflected in a more rapid erosion of the incumbents' bottleneck control, an erosion made all the surer by the government's decision to allow full and unrestricted resale, at least in the domestic market. Finally, the fact is that the Australian market involves relatively powerful and sophisticated major customers, well aware of the range of services and service options available in competitive markets overseas, and who are already gearing up to shift suppliers should this prove worthwhile. And though Australia's own carriers have significantly improved their performance in recent years, there remains considerable scope for a new provider to offer attractive packages to these customers and hence gain a solid foothold in the market.

Taken together, these factors mean that the development of workable competition in Australian telecommunications will be measured in years rather than, as in the United Kingdom and the United States, decades. The discipline this provides will, in turn, erode the three primary grounds for retaining direct controls, namely the desire to avoid a community backlash, the need to check the abuse of market power, and the concern about possible wasteful use of resources by the carriers.

All of this makes a further move away from direct government involvement in the industry not only possible, but also increasingly desirable. This is primarily because the greatest benefits of liberalization come not from the inroads made by the entrants but from the improved performance by the incumbent. In no country have the entrants secured more than 15 to 20 percent of the market as a whole, and even in the Australian circumstances they are unlikely to secure much more. What really counts for improved economic performance are, consequently, the efficiency gains made in the remaining 80 percent, that is, in the market held by the established carrier. Securing these gains requires not only effective competitive pressures but also that the incumbent carriers be free to respond to the incentives competition creates. This is hardly possible in an environment of extensive regulation and of direct government controls.
How, then, should the government respond to this changing environment? What are the priority areas for action and the concrete implications for policy? Any realistic answer to these questions must distinguish two levels of government involvement, namely as regulator and as owner. As regulator, the government should exercise restraint, regulating only where competitive forces are too weak to provide the disciplines needed. This principle is well reflected in our new telecommunications legislation; it needs to be fully built into the regulatory arrangements now being devised. The goal should be to move as quickly as possible from a regime of special regulation for telecommunications to reliance on the general, economywide protection of competition policy.

Inevitably, the government’s role as owner is more controversial. The logic of the argument above implies a need for a more hands-off stance, one closer to that which generally characterizes the governance of large corporations. Yet it is appropriate to ask whether the government as owner can or legitimately should act in that way. Doubts as to whether it can are consistent with our experience. It is not to be cynical to recognize that governments will use all the policy levers at their disposal to achieve their dominant objectives and that the enterprises they own inevitably form part of the armory on which they can rely. Even when they recognize the long-run costs this entails, these costs often seem outweighed by the stakes which immediately confront them.

But there are also broader issues involved, issues which will increasingly come to the fore as the industry’s environment evolves. The commanding factor here is the changing nature of the carriers’ capital requirements. Two elements are fundamental. To begin with, the arrangements now being defined, notably for the financing of community service obligations (CSOs), socialize the supply of the capital needed for the noncommercial parts of the infrastructure, transferring the primary funding burden from the Commonwealth to the users. Thus, even in this extreme area, the argument that provision of the social infrastructure requires continued public ownership will therefore lose the force it may once have had.

At the same time, it will prove increasingly difficult to justify relying on taxpayer-provided equity for many of the investments the carriers will quite rightly want to carry out. Competition will increase the risk these investments entail, and it is by no means obvious that these risks should be borne by taxpayers rather than by investors freely choosing to take them on. Nowhere is this dilemma likely to be greater than in the international sphere. It is clearly desirable for our carriers to invest overseas, just as we are welcoming foreign investment into the Australian market. But can taxpayers be asked to supply the equity needed for the carriers to do so? As the industry globalizes, these questions will inevitably become more pressing.

Conclusion

It is no easy task to try to look at the picture of our telecommunications environment as a whole. The processes I have described are still under way, and as complex and uncertain as ever. But I would venture one lesson and one forecast.

251
Implementing Reforms in the Telecommunications Sector

The lesson is that in the longer run, the market, like love, laughs at locksmiths. In Australia, as elsewhere, much time and effort was devoted to trying to delineate sharp boundaries between areas open to competition and those reserved to the carriers. Far more quickly than any of us could have imagined, those graphite fine lines proved as fragile as they were elegant, a fate which, I would suggest, history reserves for those who follow in our ways.

The forecast is that the next five years of our telecommunications policy will be dominated by the need to allow our carriers the freedom to compete and the resources required to do so. Unless this issue is resolved, we will not reap the full benefits of the competitive environment we have labored so hard to obtain.

Endnotes

1. This chapter is an edited version of a paper, “Australian Telecommunications: Four Years On,” presented by the author at the July 1991 International Institute of Communications Telecommunications Forum in Sydney.

2. Much remains to be done in the field of community service obligations, most urgently to continue and extend the efforts Telecom has already made to ensure an acceptable level of service provision to the Aboriginal community.
Telecommunications Liberalization and Privatization: The New Zealand Experience

Hunter Donaldson

During the last few years, New Zealand has undertaken a major program of regulatory reform of its telecommunications sector. The objective of this program has been to promote economic efficiency by exposing the telecommunications sector to increased competition. Although implementation of reform has not been without its difficulties, there is clear evidence of benefits being gained by both residential and business consumers.

Economic Environment

During the 1960s and 1970s, the New Zealand economy was characterized by a wide range of controls, regulations, and interventions. The effect of these was to encourage investment by the private sector in areas that were not always the most valuable from a national perspective. In addition, direct government involvement in the economy had increased to unprecedented levels. The performance of the state trading activities, which included such diverse activities as coal mining, banking, forestry, and postal and telecommunications services, was in general very poor. In particular, the 1986 Mason/Morris Report found that the New Zealand Post Office, which provided postal, telecommunications, and banking services, had an inefficient operating structure, inadequate information systems, and a tendency for tariffs to be influenced by political considerations. In 1986, the net return to the government on its NZ$20 billion investment in all productive sectors was zero. Given the size of the government sector, increased efficiency was necessary if the state of the economy as a whole was to be improved.

In 1986, the government announced plans to corporatize a number of government trading departments. The new corporations, known as state-owned enterprises, were set up with independent boards of directors, adequate capital structures, and a proper level of indebtedness. Most importantly, they were required to operate on a fully commercial basis, capable of earning profits and of paying dividends and tax to the government. Social considerations became the direct responsibility of the government, not the enterprises; where appropriate, the government paid explicit
Implementing Reforms in the Telecommunications Sector

subsidiaries to the enterprises to maintain a social service. At the same time, regulatory and commercial functions were separated.

The largest department affected, the Post Office, was split into three state-owned enterprises: New Zealand Post Limited, Telecom Corporation of New Zealand Limited (TCNZ), and Post Office Bank Limited. Policy and regulatory functions, previously handled by the Post Office, were transferred to the newly established Communications Division of the Department of Trade and Industry (now Ministry of Commerce).

Following corporatization and a major sectoral review by consultants, in December 1987 the government announced the progressive and full deregulation of the New Zealand telecommunications sector. This process, which had begun in October 1987 with the liberalization of residential wiring and continued with that of telephone sets in May 1988, culminated in April 1989 with the abolition of the statutory telecommunications monopoly. In 1989 the possibility of privatizing TCGN was examined and the regulatory regime was revised. TCGN was fully privatized in 1990.

Regulatory Reform

In order to maximize the efficiency of the telecommunications sector, an environment was created that would facilitate fair and open competition throughout this sector. To this end the telecommunications sector has been fully deregulated.

Prior to 1987, the Post Office enjoyed a statutory monopoly for the provision of all telecommunications services. The Telecommunications Act 1987 provided that from April 1, 1987, the telecommunications sector would be subject to progressive and extensive deregulation, including the market for customer premises equipment. To ensure that equipment connected to the TCGN network will not interfere with the performance of the network, TCGN requires users to obtain a TCGN permit. Equipment is independently tested in accordance with a series of Comité Consultatif International Téléphonique-based standards (CCITT Recommendations) before a permit is issued.

The Telecommunications Amendment Act 1988 removed the statutory monopoly held by TCGN for the provision of public-switched network services from April 1, 1991. Competition is now permitted in the provision of all telecommunications services. There are no restrictions on the number of entrants to the market. With the exception of specific provisions relating to TCGN, there are no specific controls on foreign shareholding in telecommunications entities in New Zealand.

The Telecommunications Act 1987, as amended, provides designated network operators with certain rights of access to land, and in particular the road reserve, to lay or construct lines where this is required to commence and carry on a telecommunications business. Companies are declared network operators by means of a statutory process, once they have met the criteria specified in the Act. The Broadcasting Act 1989 extended the scope of the network operator designation to include cable broadcasting operations.

New Zealand does not have a telecommunications regulatory body. The approach is rather to rely on general competition law, the Commerce Act 1986, the consumer.
The protection provisions of the Fair Trading Act 1986, and two industry-specific measures established by the Telecommunications Act 1987 to promote competition. These measures are the Telecommunications (International Services) Regulations 1989 and the Telecommunications (Disclosure) Regulations 1990. The Commerce Commission has the responsibility for the enforcement of the Commerce and Fair Trading acts. Both acts also provide for private legal action.

Under the Telecommunications (Disclosure) Regulations 1990, TCNZ is required to disclose information relating to prices, terms, and conditions of the provision of certain specified services, and is also required to publish financial accounts for its regional operating companies as if they were separate and unrelated companies. The purpose of the regulations is to provide potential and actual competitors with the level of information that is generally available in a competitive market and that is necessary to make a decision about entry into the market. This information also assists the monitoring of TCNZ's conduct.

The Telecommunications (International Services) Regulations 1989, which apply to operators providing international services in New Zealand, require uniform accounting and proportional returns of traffic. In this way, the regulations ensure that overseas operators with monopoly privileges in their own domestic markets do not play off one New Zealand carrier against another to the detriment of New Zealand customers (also known as whipsawing).

The government's involvement as the main provider of telecommunications services ended on September 12, 1990, when it sold TCNZ to a consortium of New Zealand and American buyers for NZ$4.25 billion. Bell Atlantic and Ameritech were the American partners in this consortium. The two U.S. companies which purchased 100 percent of TCNZ were joined in the consortium by Freightways Limited and private interests associated with Fay, Richwhite Limited undertook to purchase nearly 9.70 percent of TCNZ by September 1993. At the time of the sale the government established two specific conditions on the future shareholding in the corporation. These conditions were:

- A ceiling of 49.9 percent on the shareholding of any foreign buyer (although provision was made for a larger shareholding to be acquired, provided it was reduced to 49.9 percent within three years, with allowance for an extension of one additional year. This extension was agreed upon in 1993).

- A requirement that at least NZ$500 million worth of shares must be made available by public offering on the New Zealand market.

In July 1991, a large parcel of TCNZ stock was released on the New York, London, Sydney, and New Zealand markets. Interest was high and the stock issue was substantially oversubscribed. In the period July to August 1991, the TCNZ shares, which had a New Zealand issue price of NZ$2.00 per share, were traded in the range of NZ$2.25 to NZ$2.37. By the beginning of February 1992 their price had risen to NZ$2.64.
In March 1993, Bell Atlantic reduced its shareholding from 34.17 to 29.56 percent with the sale of 108.9 million shares to the sharebroking firm Barclays de Zoete Wedd (BZW) for NZ$2.56 per share. BZW undertook to sell a portion of these shares on the New Zealand share market. Bell Atlantic was required to reduce its shareholding to 24.95 percent by September 12, 1994. The sale of the remaining 4.61 percent shareholding necessary to achieve this, was accomplished when Fay, Richwhite and Freightways took up their remaining shareholdings in September 1993, as agreed at the time of privatization.

BZW undertook to offer at least NZ$17 million worth of the shares on the New Zealand stock market. In fact, it offered NZ$29 million worth thereby fulfilling the condition established by the New Zealand government at the time of privatization that at least NZ$500 million worth of stock had to be publicly offered on the New Zealand stock market. At the time of the public float in 1991, NZ$483 million worth had been offered in New Zealand. Thus, total New Zealand stock market sales exceeded NZ$500 million.

In March 1993, Ameritech's shareholding remained at 34.17 percent and it had until September 12, 1994 to reduce its shareholding to 24.95 percent. In July 1993, it sold 4.61 percent, or $108.9 million shares, to U.S. interests (the Capital Group) at NZ$2.86 per share. In September 1993, a further 4.61 percent was sold to Freightways and Fay Richwhite which in turn sold a significant portion of their shareholding in the same month at NZ$3.82 per share to institutional buyers including the American fund manager, the Capital Group, which now owns more than 5 percent of TCNZ.

The resulting shareholdings in TCNZ were as follows:

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<th>Percentage</th>
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<td>24.95%</td>
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<td>24.95%</td>
<td>Bell Atlantic</td>
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<td>2.06%</td>
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<td>46.80%</td>
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Although the New Zealand government is no longer a shareholder in TCNZ as such, it has retained a "Kiwi" or golden share. This has special voting rights enabling the government to control the maximum shareholding of any single foreign party and to ensure that TCNZ's Articles of Association obligations relating to residential services remain in place. Under its Articles of Association, TCNZ is required to ensure that:

- Free local calls (that is, included in the fixed rental) remain a tariff option available to all residential callers
- Standard residential line rentals do not rise faster than the rate of the consumer price index, unless the profits of the Telecom regional operating companies are unreasonably impaired
The New Zealand Experience

- Line rentals to residential customers in rural areas will not be higher than in city areas.
- The residential service will be as widely available as it is at present.

In order to facilitate competitive entry in telecommunications and broadcasting, and to promote efficiency in spectrum use, the government has established a new regime for the management of the radio spectrum. The Radiocommunications Act 1989 provides for market-based allocation of spectrum management rights of up to twenty years, and for the transfer and subdivision of such rights. It is the government's general policy that where the demand for such rights or licenses exists, supply of these rights will be tendered. The Ministry of Commerce is responsible for the planning and creation of these rights and, where necessary, for the tendering process. The Ministry of Commerce recently tendered the spectrum bands available for cellular telephony and is planning to tender frequencies suitable for land mobile services.

Effects of Deregulation

The benefits of competition to the consumer are evident in terms of lower prices and a greater variety and better quality of service. The impact of competition can be seen in the increased level of productivity by TCNZ, in the emergence of a number of entrants into the telecommunications markets, and in the overall increase in the level of economic activity in this sector. The government itself has benefitted in terms of dividends and taxes paid by TCNZ as well as from the proceeds of the sale of what is now a modern and efficient company.

Effects on Consumers

Overall, consumer's telephone bills have markedly declined in real terms. In accordance with TCNZ's policy of aligning its charges to cost, TCNZ has in the period since deregulation increased the standard residential rental while reducing domestic long-distance charges. According to the Department of Statistics telecommunications price index, between December 1986 and March 1991 residential telephone rentals (including purchase and connection fees) have risen in real terms by 23 percent, while residential call charges have fallen by 43 percent. At the same time, greater flexibility in charging has been introduced by replacing the three-minute minimum charge for toll calls with a one-minute minimum charge with one-second rounding for subsequent time periods; offering greater discounts for off-peak toll calls; basing tariffs on traffic volumes rather than on distances; and introducing off-peak rates for a number of international destinations.

Businesses in most areas now face charges for local calls on a timed basis and this is to be extended to remaining areas. Local call charging may also be introduced as an option for residential calls. However, under the terms of the sale, free local calls must remain an option for residential customers. TCNZ is also to begin a concessional service for the elderly.
Implementing Reforms in the Telecommunications Sector

Consumer benefits have also been derived from a better performance by TCNZ in the maintenance and repair of the network. Fault rates in Wellington are down from 1.1 faults per 100 circuits per month to 4. Directory assistance answering times are down from an average of several minutes to an average of 17 seconds, while handling times have also dropped from several minutes to 30 seconds or less.

Installation times are another factor in customer satisfaction. In 1985, an average of 15,000 customers were waiting, at any one time, for a new connection, and the average waiting period was six weeks. Today, there is virtually no queue and the average waiting time is usually three working days.

Effects on TCNZ

The formation of TCNZ as a state-owned enterprise had an initial significant impact. TCNZ was established with commercial objectives quite different from those prevailing in the old Post Office. Accordingly, TCNZ was restructured with a modern and accountable corporate structure. To this end four regional telephone companies were formed as well as an international company and a number of new venture companies. TCNZ became a holding company for these new operating companies.

The likelihood of increased competition in the initial phase of the deregulation process, and latterly with the emergence of real competition, prompted TCNZ to undertake a program to lower its costs, rebalance its tariffs, and improve its quality of service.

In order to reduce costs, TCNZ embarked on streamlining the company's operations. Staff levels have been reduced from nearly 26,000 in the old Post Office days to the current level of less than 12,700. TCNZ announced at the beginning of 1993 that it will reduce staff levels further, down to 7,500 by 1997. Many of the maintenance and support services which TCNZ previously provided in-house are now supplied by contractors (many of them former employees). The inventory levels have also been greatly reduced.

TCNZ has undertaken a heavy program of investment in new cabling and equipment to upgrade its network, including in provincial and rural areas. Between 1987 and 1993, NZ$3.5 billion has been spent on this program, with the result that a very high proportion of the network is now digital and the overall service performance has risen dramatically. This program has also resulted in the introduction of new services, including an 800 toll-free direct dialing service, cellular services, and electronic paging. TCNZ now operates one of the most modern telecommunications networks in the world.

Competition in Customer Premises Equipment

The number of suppliers of telecommunications equipment has grown rapidly, which has resulted in an increase in the variety of models available and a substantial decline in prices. In 1986, the Post Office was the sole purchaser of telecommunications equipment in New Zealand, and the range of equipment made available to
consumers was extremely limited. Following deregulation on April 1, 1987, the customer premises equipment market has developed into a very competitive sector. The price of a basic handset has more than halved since early 1988. Car phones have fallen in price dramatically since 1988, to levels which are at least 10 to 15 percent cheaper than similar equipment available in Australia and the United Kingdom.

Network Competition

Currently four companies have been designated as network operators under the provisions of the Telecommunications Act of 1987, as amended. Of these, Clear Communications has emerged as the leading competitor for the provision of network services. Clear Communications, a consortium of local and two North American companies (MCI and Bell Canada International), commenced its business of providing national and international telephone service in early 1991. The company utilizes facilities owned by New Zealand Rail Limited and Broadcast Communications Limited (BCL), two of the local owners, and is investing in its own facilities. It expects to gain a substantial market share of both residential and business customers from TCNZ, due to its more flexible charging systems and its price discounts. Securing interconnection to the TCNZ network is a test of the effectiveness of the regulatory environment. To this end, a Memorandum of Agreement, signed between TCNZ and Clear Communications setting out the broad principles of interconnection to TCNZ's network, has been working effectively in practice.

Competitive pressure is also emerging from the providers of a number of other telecommunications services. For instance a number of suppliers are offering packet-switched services, data services, and electronic mail, using both TCNZ's and their own facilities.

Cellular Services

At present TCNZ is the sole provider of cellular services. Despite this, the market for the provision of mobile services is strong because TCNZ sells radio spectrum utilization time to a number of wholesalers who in turn sell it to their customers. As of February 1993, 97,000 subscribers were connected to this network, which has been growing at the rate of 1500 per month.

A further development has been the interest shown by potential competitors in the cellular telephone market. The recent tender of cellular spectrum resulted in Bell South's acquiring the TACS A band, with which it intends to provide a digital GSM (Groupe Speciale Mobile) system when the technology becomes available. TCNZ is currently providing analog services on the AMPS A and B bands, and it has recently also introduced a digital AMPS service. In accordance with the provisions of the Radiocommunications Act 1989, TCNZ holds the management rights over these bands. The Ministry of Commerce is currently tendering the management rights for the TACS B Band.
Implementing Reforms in the Telecommunications Sector

Effects on Telecommunications Manufacturing

Faced with reductions in the level of tariff protection as part of general industry deregulation and the end of compulsory local purchasing by TCNZ, domestic telecommunications manufacturing has been substantially reoriented. This has resulted in a leaner, more efficient, competitive export-oriented industry. The value of telecommunications equipment exports in 1990–91 was three times as high as in the preceding year.

Conclusion

Overall, the New Zealand experience with regulatory reform of its telecommunications sector has been positive and, with the emergence of real competition, this is expected to continue. The program of regulatory reforms in telecommunications undertaken in New Zealand has provided significant benefits to consumers and to the economy in general. Although the process is complete in terms of legislation, not all of its impact has been felt as yet. To date the major effect has been through the improved efficiency of TCNZ due to the prospect of competition. Now, with the sale of TCNZ and the emergence of competition in network services as well as other areas, other improvements in price and quality of service can be expected.

Although the reform process has clearly provided positive gains, there have been certain costs. Jobs have been lost as TCNZ rapidly streamlined its operation, although other jobs have been opened up in competing companies and within the industry, but to a lesser degree. Also, many consumers feared a loss of services, such as free residential local calls and universal access to the telephone network. Undertakings such as those provided in TCNZ's Articles of Association have to a large part allayed such fears, and consumers overall now enjoy a cheaper telephone service than they did prior to reform. Businesses are enjoying benefits in terms of lower prices, a more reliable service, and the introduction of advanced telecommunications services.

Endnotes

2. The Commerce Act 1986 is New Zealand's general competition law. Part II of this act prohibits (a) contracts, arrangements, and understandings that substantially lessen competition; (b) exclusionary provisions and price fixing; and (c) use of a dominant position for the purpose of restricting, preventing, or deterring or eliminating a person from a market.
3. This method was chosen to bring in market forces in determining the most valuable use of radio frequencies as well as to allow rapid response to changes in technology and consumer demand.

Vernon Watson

The restructuring of the telecommunications sector in Sri Lanka has been under way since 1985, following the recommendations of a Presidential Commission of Inquiry to report on the reorganization of the Sri Lanka Department of Telecommunications (SLTD) to meet the demand for improved and expanded services. The principal recommendations of the commission were to reorganize the operating functions of SLTD into an autonomous enterprise, establish a regulatory body for telecommunications, and permit other operators to offer services to the public under license by the regulatory body.

Initial Steps toward Sector Reform (1985–89)

In 1986 the government decided to proceed along these lines and pass responsibility for providing telecommunications services on to the private sector. In early 1986 it established the Telecommunications Board of Sri Lanka to implement these decisions. After extensive analysis of various options, the board recommended setting up a company wholly owned by the state, with the possibility of foreign private participation at a later date. This was to allow the company to develop on its own and be better positioned for seeking foreign partners. The board also recommended preparing new legislation, as required for restructuring a government department into a company, instead of amending the existing Telecommunications Ordinance. A draft act, approved by the cabinet in early 1987, provided for the divestiture of SLTD's operating functions and the transfer of its assets and liabilities to the new company. It also provided for setting up a National Telecommunications Commission (NTC) as an independent regulatory body. NTC was to oversee and regulate all operators, ensuring that they perform in accordance with the act and within the terms of their licenses. Licenses to operate telecommunications networks and services were to be issued to the new company and others by the minister of communications on recommendation of the NTC. To ensure the autonomy of the NTC, its chairman and other members were to be appointed by the head of state.
Implementing Reforms in the Telecommunications Sector

International experts assisted the board throughout this process, supported by several multilateral and bilateral development agencies. Subsequent events, however, brought the reform process to a standstill. In mid-1988, the dialogue between the board, SLTD management, and the trade unions broke down. SLTD management was particularly concerned that with privatization, senior posts would be filled from outside the organization. The trade unions were opposed to privatization; despite financial and other benefits that would accrue to their members, they worried that privatization would result in retrenchment and deprive workers of existing rights and privileges. There was also some political opposition to privatization in general and to the possible foreign ownership of national assets. Concurrently, internal security conditions in parts of the country deteriorated, and a new government was elected in December 1988. The new government abandoned the proposal for privatization, and the board was dissolved in March 1989.

During this period, however, a degree of liberalization had already been introduced. Subscribers were authorized to obtain their own terminal equipment, including telephone sets, telex and facsimile machines, and PABXs, from private suppliers. Private companies also introduced some new services, such as cellular telephones and radio paging, which previously were provided exclusively by SLTD. This trend continued under the new government, which has already issued licenses for two data networks and an additional cellular network. As a result the successor of SLTD will be competing with the private providers in all these new markets. Liberalization, however, has not found favor with the staff of SLTD and the trade unions, who see the gradual erosion of the government's monopoly in the provision of telecommunications services and networks as leading to a reduction in the strategic importance of the organization. Yet competition should have the effect of promoting and stimulating efficiency.

Revised Restructuring Proposal—1990

In July 1989 the government, having abandoned its earlier proposal to privatize the main network and introduce foreign participation, decided to transfer SLTD's operating functions to a fully government-owned corporation, Sri Lanka Telecom (SLT). The main objective was to provide the autonomy required for telecommunications services to be run efficiently on a commercial basis, while retaining overall government control over the enterprise. In February 1990, SLT was legally established under the State Industrial Corporations Act and the board of directors was appointed. In July 1991 a new Telecommunications Act was passed by Parliament, transferring the operating assets and liabilities of SLTD to SLT, giving staff the option of joining SLT, and establishing a regulatory authority.

SLT Corporate Structure

SLT has been structured as a large commercial business. This gives it greater financial and administrative autonomy than was the case of SLTD, but not to the
same degree as would have been exercised by the company that was proposed under the Companies Act in 1988. The overall objectives of SLT are to expand access to telecommunications throughout the country, improve service quality, satisfy 80 percent of demand for services by 1995, introduce new services, and increase productivity and efficiency.

As a step toward transforming SLTD into a commercial organization, a new management structure had been defined, with a managing director as chief executive supported by three directors (one each for operations, finance, and corporate affairs) and a general manager for human resources. The managing director is responsible to the board of directors. The new organization took over operations on September 1, 1991.

Greater importance has been given to the disciplines of finance, human resources development, marketing and materials management than in the previously existing SLTD organization. Key posts in those disciplines were accordingly advertised to attract the best available talent in the market, and selections were made from qualified candidates with wide experience. The need to open these posts to candidates from outside the organization was made known to the senior staff of SLTD, who were eligible to apply if they had the qualifications and experience. Appointments to all senior engineering management positions were made from the existing staff of SLTD. For all other levels and grades the existing structure was retained at the time of the changeover. Changes are being introduced gradually as part of a general reorganization exercise to be undertaken. At the operational level, the regional offices are being reorganized and upgraded, with a larger measure of delegated authority than at present with respect to technical, financial, and administrative functions. This is intended to provide better customer services. Furthermore, the regional centers are becoming cost centers for the purpose of monitoring performance, based on which annual bonuses for staff in the region will be determined. With increased wages and welfare benefits, SLT expects to increase staff productivity and efficiency. The present cadre will not be increased over the next five years, while the total number of subscribers will be nearly tripled. This will improve the staffing ratio from about 75 per 1,000 lines at present to about 20.

Addressing Labor Issues

As a major public organization, labor issues have loomed large in the restructuring of SLTD. The original policy decision for privatization of the telecommunications sector had to be modified largely because of serious opposition encountered from the workforce at all levels. The consequent delay in implementing the amended policy of corporatization gave time for a fruitful dialogue with the staff and union leaders which led to fairly widespread acceptance of the changes proposed. The main concerns of staff and the trade unions were:

Security of Employment. The unions feared that commercialization, and especially privatization, would lead to massive layoffs.
Implementing Reforms in the Telecommunications Sector

PERFORMANCE AND COMPENSATION. Stricter discipline and higher productivity would be expected from staff in a commercial organization, including promotions based on efficiency and merit rather than the established seniority system.

PENSION RIGHTS. There was a potential loss of government pension privileges, including those of widows.

STATUS. There was to be a loss of social standing and prestige traditionally associated in Sri Lanka with employment in the public service.

Following the decision to convert SLTD into a corporation, the government discussed with the unions how the revised structural changes being proposed would deal with these issues. In particular, assurances were given for the continued employment of all existing staff. According to the provisions regarding employment security and compensation, the new act gave SLTD employees the choice of three options. These were:

- To continue to work for SLT and opt to continue as public officers under the existing terms and conditions regarding salaries and wages, benefits, pensions, and disciplinary procedures
- To join SLT on its new terms and conditions of service. These terms provided for enhanced salaries, new allowances and welfare benefits, and staff participation in the Employees Provident Fund instead of the government pension scheme
- To retire and draw their pension.

If at the time of joining SLT they held a pensionable post and had completed ten years of public service on the date of transfer, their pension would have been frozen and become payable on reaching retirement age. If they had between eight and ten years of service, they could have opted to continue as public officers until they completed ten years and then opted to join SLT, the pension so earned becoming payable on retirement.

Staff were invited to participate in the process of formulating the package of salaries, benefits, and allowances that will apply in SLT. In so doing, the SLT board took into consideration the need to attract and retain qualified staff and, accordingly, while increasing salaries across the board by one-third, it granted increases of up to 40 percent for middle-level technical staff, engineers, and accountants.

Developing Human Resources

It is recognized that at middle and top management levels, training is required to prepare staff for the change from a government organization to a commercial business. SLT will need to develop a different work culture than that of SLTD, including new objectives and operating standards and procedures to meet the needs.
Telecommunications in Sri Lanka

of a modern commercial telecommunications service. New management skills must be acquired. These requirements are to be initially addressed through two management training projects, one for senior management staff and the other for middle management staff, funded by the United Nations Development Program (UNDP) and executed by the International Telecommunication Union (ITU). In particular, the firm of consultants engaged to develop the accounting system will also train staff to use the system. SLT also will be placing considerable emphasis on the training and retraining of nonmanagement staff at all levels and in all disciplines. Comprehensive training facilities have been established by SLTD under a UNDP-ITU project. As incentive, SLT proposes to pay a training allowance for attendance. Satisfactory completion of specified training programs will also be made a mandatory requirement for promotion.

Post-Corporatization Experience

As a corporation Sri Lanka Telecom has the autonomy to utilize its financial resources; however, its capital expenditure is governed by a finance act and other financial controls of the Ministry of Finance, resulting in many bottlenecks in executing its upgrading and expansion program. Similar constraints apply to administrative matters such as the recruitment of personnel.

During the first year of operations it was very clear to the management that further autonomy was necessary to enable SLT to accelerate the pace of growth and development, and several representations were made to the government seeking this increased autonomy. As a solution the government decided that Sri Lanka Telecom should set up a subsidiary company which will be given the autonomy, free of controls, required for executing major projects and undertaking procurement on behalf of SLT. The subsidiary company should be established by June 1993.

The alternative of inviting foreign investors to undertake the development of the network, on a BOT basis as a parallel operator, was also pursued by government in 1992. This was abandoned after the government analyzed the offers received.

Developing Regulation

With some liberalization of the telecommunications business and the conversion of SLTD to a corporation run on commercial lines, the regulatory responsibility of the state increases. This function is to be undertaken by the Telecommunications Authority, the regulatory authority established under the Telecommunications Act of 1991 and headed by a director general appointed by and accountable to the minister of posts and telecommunications. The Telecommunications Authority has similar powers and responsibilities as proposed in 1983 for the NTC; however, it is a somewhat less independent agency than originally envisaged. The general objectives to be achieved by the Authority are to ensure the provision of reliable and efficient national and international telecommunications services meeting all reasonable demand; to ensure that the operators have adequate technical, financial, and
Implementing Reforms in the Telecommunications Sector

managerial resources to provide the services specified in their license; to protect the interests of all parties; and to promote rapid development and competition. For these purposes, the Authority has been vested with wide-ranging powers and duties. Licenses to operate telecommunications services and networks will be issued by the minister on application by an operator, subject to recommendation by the Authority based on an assessment of the applicant's financial and technical capabilities, and under terms and conditions set by the Authority. Complaints by the public regarding telecommunications services will be investigated by the Authority, which will stipulate remedial measures and financial redress where appropriate. The Authority was appointed on July 3, 1991, the date on which the new Telecommunications Act became effective.3

The Authority has the powers and duties to establish methods for determining telecommunications tariffs, taking into account government policy and the requirements of the operators concerning the telecommunications services provided by them. The operators will propose changes in tariffs which in their commercial judgment are best suited to promote their business objectives while fulfilling the conditions of the license. The proposed changes in tariffs must be supported by documenting actual investment, maintenance, and operating costs, and shall be subject to the approval of the Authority.

Endnotes

2. Only about 17 percent of SLTD employees opted to remain as public officers; less than 3 percent retired, and the remaining 80 percent joined the new corporation under the new terms and conditions which were offered. Those who opted to remain as public officers have the option to join the corporation under the new terms and conditions at a later date. The corporation has received several applications from this category of employees who have seen the benefit of being a corporation employee.
3. The Authority had to be in place before SLT took over because it had to issue the license to SLT to operate the telecommunications service.
Corporatization and Partial Privatization of Telecommunications in Malaysia

Syed Hussein Mohamed

In the 1980s, driven by the need to turn the private sector into the engine of economic growth, the Malaysian government decided to transfer a number of government-run activities to private ownership. Two of the largest early privatizations were those of Malaysian International Shipping Corporation (MISC), in 1985, and Malaysian Airlines System (MAS), in 1986, both of which are now traded on the Kuala Lumpur Stock Exchange. In 1987, Syarikat Telekom Malaysia Berhad (STM), a fully state-owned corporation established under private company law, took over the telecommunications services formerly provided by Jabatan Telekom Malaysia (JTM), the government's telecommunications department. In November 1990, less than four years later, STM made its debut in the Kuala Lumpur Stock Exchange, becoming the largest listed company with a capitalization of over US$5 billion, more than twice the value of the next largest listed company.

The decision to corporatize and gradually privatize telecommunications operations largely followed from the need to mobilize new sources of financing for the sector's rapidly growing capital requirements. JTM's annual telecommunications investments had grown from an average of Malaysian $0.4 billion in 1976–80 to M$1.1 billion in 1981–85, exceeding total operating revenues. The long-term debt swelled to M$4.6 billion, or 2.3 times equity, well above prudent limits. The decline of the domestic economy in 1985–86 made it impossible for the government to sustain this level of investment and borrowing.

Privatizing telecommunications, however, was a more complex affair than that of MISC or MAS. Whereas the latter had been run as profit-oriented corporations for years, telecommunications had to be transformed first from a government department into a corporation and then establish itself as a profitable business before it could successfully attract private capital.

Corporatization

In order to shift the responsibility of providing telecommunications services from JTM to a company, a series of changes in legislation were required. The Telecommu-
Implementing Reforms in the Telecommunications Sector

Implementing Reforms in the Telecommunications Sector

Communications Services (Successor Company) Act of 1985 was the centerpiece. Among other things, the act provided for the transfer of telecommunications operating assets and liabilities from JTM to STM, under the authority of the minister for finance. It also provided for the transfer of JTM staff "... on terms and conditions of service not less favorable than ... [those prevailing] ... before the transfer date ... " Other important legislation was amended: the Telecommunications Act of 1950, to enable setting up a regulatory body; the Pensions Act of 1980, to enable pensionable civil servants to be transferred to the private sector without loss of rights; and the Malaysian Constitution, to allow the disposal of state land and assets to a private company.

Restructuring JTM operations as a company also involved important internal changes. Following a study by international consultants, a major reorganization was launched. This involved refocusing management and staff efforts toward marketing, customer service, and more effective network management. The terms of employment were reviewed, bringing them into line with those of comparable businesses. Most of STM's 28,000 staff are former JTM employees who, despite initial reluctance to focus on profits and customer service, chose to join the new company. The commercial approach also demanded a new company philosophy and work culture as well as new skills and practices, all of which take time to develop. New work standards were set. Closer accountability was established. Time for decisions was cut down and individuals were given greater decision-making power to replace the slow, collective processes of the past. Crash training programs were put in place. Some new talent was externally recruited, carefully balanced with internal reassignments as needed to maintain staff morale.

Lastly, as responsibility for telecommunications operations shifted to STM, the government's regulatory activities were reorganized. A much reduced JTM, with about 200 staff under a director general answerable to the minister for telecommunications, is now responsible only for regulatory matters. This mainly comprises issuing of operating licenses, setting of network standards, type approval of equipment for connection to the public network, and management of the radio spectrum. Legal changes are being made to strengthen JTM in monitoring compliance with regulations and with the terms and conditions of licenses. JTM issued a license to STM giving it the right to operate the basic telecommunications network for twenty years from 1987. Licenses have also been granted to other companies to operate mobile, public pay phone, and paging services in competition with STM. Increasing competition is expected to develop, but not in basic telephone services and networks, in the near future.

Performance Improvements from Corporatization

Corporatization led to rapid improvements in service access and quality. Growth in telephone subscriber lines accelerated from less than 10 percent per annum in 1984–87 to 11 percent in 1988, 12 percent in 1989, and 14 percent in 1990. In 1987 a total of 1.4 million customer complaints were received, or 1.2 complaints per line per annum; two years later, despite rapid growth in connected lines, the number of complaints decreased, in absolute terms to 1.2 million and in relative terms to 0.8 per
line per annum. Likewise, the proportion of telephone faults cleared in 24 hours rose from 84 percent in 1987 to 93 percent in 1989. Operator response also improved markedly; for example, the proportion of directory assistance calls answered within 20 seconds rose from 85 percent in 1987 to 99 percent in 1989, and the standard was then changed to 10 seconds.

Financial performance also improved markedly. Operating revenues increased by 12 percent in 1988, 13 percent in 1989, and 17 percent in 1990. In 1988 STM made US$180 million profit before tax, which rose to US$360 million in 1989, and US$560 million in 1990. The latter figure was equivalent to 17 percent of revenue and resulted in a 14 percent return on assets; as illustrated in Table 13-1, these ratios are comparable to those of telecommunications companies in industrial countries. At the same time, the long-term debt-to-equity ratio improved from a high 2.3 in 1987 to 1.5 in 1989, which was at the high end of the range considered normal elsewhere.

Labor productivity increased at about 13 percent per annum. As the number of lines in service as well as revenues expanded by more than 40 percent from 1987 to 1990 while the number of staff remained roughly constant, the ratio of staff per 1,000 lines decreased from 25 to 18.

Partial Privatization

Although initially it appeared that it would take at least five years before STM could be publicly listed, rapid improvement of performance and a favorable econom-

<table>
<thead>
<tr>
<th>Category</th>
<th>NTT (Japan)</th>
<th>BT (U.K.)</th>
<th>TCNZ (New Zealand)</th>
<th>STM (Malaysia)</th>
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<tr>
<td>Financial (in US$ MM)</td>
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<td>Revenue</td>
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<td>1.5</td>
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<tr>
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<tr>
<td>PBT/Revenue</td>
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<td>0.20</td>
<td>0.17</td>
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<td>Penetration (telephones/100 population)</td>
<td>42</td>
<td>43</td>
<td>44</td>
<td>8</td>
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</table>
Implementing Reforms in the Telecommunications Sector

A favorable climate led the board of directors to move this stage forward. A prospectus for the sale of 25 percent of STM stock was published in September 1990, and receipt of offers closed two weeks later. The shares were listed on November 7, 1990.

The issue netted the company over M$2 billion. Despite the Gulf War and a nervous equity market, on the first day of listing STM’s shares were priced 20 percent above the offering price of M$5; six months later, in March 1991, they traded at around M$10. By May 1993 they had risen to M$15. By 1991 STM’s market capitalization reached about US$7 billion, making STM the largest listed company in the Association of South East Asian Nations (ASEAN). STM accounts for 12 percent of the total value of the Kuala Lumpur Stock Exchange; in February 1991, STM was included in the stock exchange composite index, of which it accounts for 20 percent.

The government still owns 75 percent of STM’s stock which, at M$10 per share had a market value of more than US$7 billion, five times the net value of assets transferred to STM in 1987.

Conclusion

Corporatization and partial privatization of telecommunications in Malaysia has been a win-win situation for all stakeholders. The customers have more and better services at about the same prices. The value of the government’s equity increased fivefold even as its share decreased by 25 percent. Through the sale of shares, the company raised a large amount of capital which it credited against STM debt; combined with increased market value, STM’s long-term debt-to-equity ratio is now at only 0.3, which gives management ample margin to incur new debt in the future if desired—a major turnaround from excessive indebtedness only five years ago. The employees benefit from better remunerations and a forthcoming employee stock option plan. Accelerated network expansion and modernization have increased contractor and supplier business volume at an unprecedented pace. And lastly, STM has added to the prestige and renewed interest of investors in the Malaysian capital market.

Endnote

Part IV

Recent Experiences

in Western, Central, and

Eastern Europe
The European Situation: An Overview

Herbert Ungerer

Against a background of worldwide dramatic reform of telecommunications structures, Europe is entering a decade of fundamental change. Since these changes are mirrored on a worldwide scale, Europe provides a window on recent telecommunications development. The main trend in telecommunications reform across the European Community's (EC) 340 million inhabitants continues to be strongly influenced by the blueprint for future market structures sketched out in the European Community's 1987 EC Green Paper on the Development of the Common Market for Telecommunications and Services (the "The EC Green Paper") and subsequent Community legislation. Member states have continued or initiated moves toward liberalization and reform of the sector. Liberalization and privatization have accelerated in the United Kingdom following the Duopoly White Paper and may turn the United Kingdom into the most liberal and competitive market in the world. There have been the profound reforms in Germany and France, and changes are under way or planned in all other member states.

A number of factors continue to add dynamics to the evolution of telecommunications in Europe. These include:

- The increasing role of European telecommunications operators in the international arena, especially their growing involvement in the developing parts of the world such as Latin America, adding to the worldwide orientation which has been characteristic of the European telecommunications manufacturing industry

- The inclusion of telecommunications as an important element in the current discussions between the EC and the European Free Trade Association (EFTA) on a common European Economic Area (EEA)

- The new needs in Central and Eastern Europe (CEE) to rapidly build up the networks starting from a disastrously low level, underlining the importance of telecommunications for Europe as a whole
Implementing Reforms in the Telecommunications Sector

- The EC Green Paper on satellite telecommunications (Satellite Green Paper) which articulates, for the first time, the promise of true Europe-wide service across the whole region.

Given its diversified structure, its very different national characteristics, and its aim of building one single harmonized area of fundamental unity, Europe can be looked upon as an indicator of possible development lines of future regulatory reform in the sector. It is therefore worthwhile to look at European development at the level of both the European Community and the individual countries. Major country developments are reviewed in the following chapters. This overview concentrates on the developments concerning European Community policy and on issues characteristic of the evolution in the European region as a whole.

The Impact of the European Single Market Objective of 1992

The Community's telecommunications policy is meant as part of the wider process of building the single European Community market of 1992 which, in fact, exerts a strong unifying effect well beyond the frontiers of the EC members, particularly with regard to the countries of the European Free Trade Association and, more recently, Central and Eastern Europe. It is worth recalling the major goals set by this wider task and examining their impact on telecommunications in Europe.

The reform of the Treaty of Rome, the so-called Single European Act, means that achieving a Europe-wide market by the end of 1992 is now a legally binding obligation on all twelve EC member state governments. The Europe-wide market in 1992 will mean free movement of people, capital, goods, and services throughout Europe. In particular, among the many profound changes which these goals imply, the common market will be fully implemented for some sectors which have been the most regulated and protected at the national level in the European economy: financial and insurance markets, transport, and telecommunications. Within this broad range of services, which represents a large share of the potential for the future growth of the European services economy, telecommunications plays, in a more and more communications-based society, a key supportive role. Free circulation of services in the European Community will mean more trade. Trade in services means more freedom of choice for the user. More freedom of choice for the user requires the liberalization of structures.

Building a single market will, therefore, inevitably expose telecommunications in Europe to a new competitive environment and will introduce new demands for a reorganization of telecommunications. Europe's industrial and service enterprises will depend critically on the Europe-wide telecommunications infrastructure for their international operations. This represents a major political and economic spur for current telecommunications reform in Europe.
The European Situation: An Overview

The European Commission's Green Paper on Telecommunications

In the context of the single market plan but based on the analysis of worldwide technical and market facts as well as telecommunications reforms, the Green Paper on the development of telecommunications in the European Community, issued in June 1987, launched a broad discussion on the future of telecommunications in the Community. In February 1988, after an in-depth public debate, the Commission published a schedule for the implementation of the EC Green Paper, which has since developed into the common reference point for Europe-wide telecommunications reform.

The EC Green Paper sets out a common framework for the future development of open market conditions in Europe, while accepting that telecommunications networks will continue to develop in Europe under different forms of ownership and national regimes. Although recognizing continuing diversity, the EC Green Paper insists on the commonality of a number of fundamental goals, critical to the development of cross-border, free, open markets in the European Community. These goals are:

- An open Community-wide market for terminal equipment
- An open Community-wide market for value added services and progressive liberalization for data services, while accepting, subject to political review in 1992–93, national choice with regard to exclusive rights in the field of the public network infrastructure and the public voice telephony service
- Separation of regulation and operation
- The development of European standards and the mutual recognition of type approval to permit a single terminal market to emerge
- The mutual recognition of service licensing, to allow a single services market to emerge
- The definition of Open Network Provision (ONP), to give new service providers fair access to the facilities of the network infrastructure and basic services.

The broad consensus achieved in the Europe-wide discussion around the EC Green Paper was reflected in the unanimous support given by the EC Council of Ministers in their Resolution of 30 June 1988 to the proposals of the EC Green Paper and its overall policy approach.

The regulatory actions at European Community level since that time can best be summed up as the implementation of this program. This complex process has involved terminal equipment, services, standards, procurement and type approval, and regulatory structures. It culminated in December 1989 with a unanimous agreement between the
Implementing Reforms in the Telecommunications Sector

Commission and the EC Council of Ministers on how to proceed in the liberalization of the services market, the most important market in telecommunications.

Fundamentals of the Concept

Three key areas are driving action at EC level (and across the whole of the European region) as well as driving the national reform debates in all the member states.

LIBERALIZATION OF USE. Europe-wide, and indeed worldwide, all countries are confronted with enormous new technological possibilities offering a broad range of new activities for users and the public telecommunications operators, in both the terminals and the services field. Clear regulatory answers are required as to whether those involved should be restricted in the use of this vast new potential, or whether they should be allowed to make full use of it for economic and social growth. In accordance with the general trend in the European debate on this basic issue, the EC Green Paper clearly favors liberalization of the market for terminal equipment, far-reaching liberalization of the services market, and participation of both the new private operators and the traditional telecommunications organizations in the new markets without restrictions regarding lines of business.

SEPARATION OF REGULATION AND OPERATIONS. The creation of genuine competition requires a full separation between the functions of regulation and operation, on the one hand, and the building up of effective regulatory procedures, independent of the network operator, on the other. As competition emerges, the national telecommunications administrations that now compete with new service providers cannot at the same time set the rules of these new competitive markets. They cannot set mandatory standards, allocate frequencies, or define conditions for access to services, as has been the case in the past. The creation of transparent market rules calls for a full separation of regulation from operations, which in turn generally requires the establishment of new regulatory functions or bodies.

TRANSBOUNDARY PROVISION. Although the first two fundamentals apply worldwide, the emphasis on transborder provision is explained by the particular situation of the European Community of 340 million people, or in the wider European context, a region of more than 500 million moving rapidly toward close economic and political integration. The aim of producing one single market means that allowing competitors to enter the twelve markets of the different member states is not enough. New service providers and equipment vendors must be free to supply across the whole of the Community.

National Reforms in Europe

National reforms are moving in parallel and in close relation with Europe-wide reforms, discussed in detail later. Some major events can be highlighted:
• In the Netherlands a new law broadly liberalizing the telecommunications sector entered into force at the beginning of 1989.

• In the Federal Republic of Germany reform of the sector was adopted in July 1989, with the reorganization of the Deutsche Bundespost and extensive introduction of competition as well as the liberalization of mobile communications. In July 1990, satellite liberalization was implemented, and the procedures for further licensing of mobile systems are proceeding currently.

• France adopted its regulatory reform in December 1990, and new legislation with regard to the organization of the sector in June 1990, giving full independence to France Télécom and separating the operations and regulatory functions.

• In March 1991, a new law was adopted in Belgium and greater autonomy extended to Belgacom, the newly-named national telecommunications operator.

• Spain is currently adjusting its telecommunications law, and in Italy and Portugal the reform legislation is proceeding.

• Denmark has recently liberalized mobile communications.

• In March 1991, the Secretary of State for Trade and Industry presented to parliament a white paper entitled, Competition and Choice: Telecommunications Policy for the 1990s. This white paper, also known as the Duopoly White Paper, announced broad competition in all areas of network activity, satellite, and mobile communications. Subsequently, a number of other companies have been issued licenses to compete with BT and Mercury. The white paper also clearly sets out the major regulatory issues, all of which also have a substantial international perspective, such as the future regulation of interconnection, coordination, as well as equal opportunity in numbering and frequency planning.  

Other countries of the region have also initiated important telecommunications reforms, including Switzerland, Sweden, Norway, and Finland, and with the revolutionary events in Central and Eastern Europe since 1989, the countries of the former central state economies.

The Current Status of EC Legislation

Implementation of the framework described in the EC Green Paper required certain EC legislation. The status of this legislation with respect to terminal equipment, liberalization of services, ONP and procurement can be summarized as follows:
Implementing Reforms in the Telecommunications Sector

Open Market for Terminals

In May 1988 the EC Commission issued a directive (a law binding on all EC member states) to open up Community-wide competition in the market for terminal equipment within its mandate under EC competition law. On March 19, 1991, the European Court of Justice rendered a historic ruling which fully confirmed the approach adopted, that is, the principle of eliminating all monopoly rights in the sector, the legal instruments used, and the principle of separation of the operating and regulatory functions, while requesting modifications on some minor points. The court ruling gives a firm legal basis to much of European telecommunications policy. By now over 95 percent in value of the EC market for terminal equipment, including PABXs, is open to competition. With the court giving full backing to the directive, the remaining difficulties are likely to be overcome very rapidly.

In April 1991, the EC Council of Ministers adopted a directive concerning the next major step needed in this area: Europe-wide type approval. The full mutual recognition of type approval for terminal equipment is the necessary complement of liberalization of terminal equipment to ensure that equipment, once approved according to European standards, can then be freely sold across the Community.

Open Market for Services

The Commission's directive on competition in the markets for telecommunications services, adopted on the same basis as the terminal liberalization directive, follows an agreement reached in December 1989 by the EC Council of Ministers and the Commission on the approach to be taken to the introduction of competition into this market. It is based on a differentiated approach to three categories of services: value added services, data, and voice. Competition will be introduced across the whole of the Community rapidly and fully for all value added services. Data communications services will be progressively liberalized with simple resale of capacity being allowed from January 1, 1993. This deadline may be extended up to the beginning of 1996 for those member states that have underdeveloped public data networks. For public voice telephony to the general public and network infrastructure, it is up to each country to decide whether or not to introduce competition. The directive called for the Commission to conduct a review of remaining monopoly positions in 1992. This is further discussed below.

The immediate impact of the directive is substantial. It lifts a large number of current restrictions. In particular, the market for value added services such as electronic data interchange and electronic funds transfer is being fully liberalized, with a substantial impact on the service sectors of the economy at large. The ruling of the European Court of Justice on the terminal case was endorsed by its subsequent ruling on the services directive case in November 1992. The court upheld the abolition of exclusive rights granted by member states for the provision of so-called nonreserved telecommunications services, while annulling the directive's references to special rights.
Open Network Provision—Interconnection Issues

In Europe, access issues are covered by the principle of ONP and a related program. A key element of the ONP program, the ONP framework directive, was adopted by the EC Council of Ministers in July 1990. ONP must be seen in the context of the open network concepts which seem currently to be developing worldwide into a core issue of future telecommunications regulation. The basic principles of ONP are to open and to harmonize the conditions of access to the network infrastructure for new service providers and for users across the European Community.

The ONP framework directive is now being followed by specific implementation directives. The conditions for the remaining, very limited, number of access regulations are set by the so-called essential requirements related to various aspects of public interest, namely, network security, network integrity, interoperability, confidentiality of communications and protection of privacy. The ONP framework directive includes specific provisions for participation of industry and users in the process, in order to ensure that access and interconnection conditions are worked out in an open way. The directive states that the advisory committee assisting the Commission, “shall, in particular, consult the representatives of the telecommunications organizations, the users, the consumers, the manufacturers, and the service providers.”

In the meantime, major progress has been made in the implementation of the ONP program. In June 1992, the ONP directive for the provision of leased lines was adopted by the EC Council. The directive reforms profoundly the provision of leased lines in Europe. It guarantees, among other things, the provision of a basic set of voice grade and digital circuits up to 2 Mbps. Provisions for higher bandwidths will be incorporated as demand develops. Also ONP Recommendations are now in force; one of these is for the application of ONP to the integrated services digital network (ISDN) and the other, for packet-switched data services. Together with the ONP leased-line directive, these initiatives give a new basis for competitive service operations in Europe.

Opening of Procurement

In October 1990, the EC Council adopted a directive on the procurement procedures of entities operating in the water, energy, transport, and telecommunications sectors. For telecommunications this implied opening of procurement by the telecommunications organizations to bidders from other EC member states from January 1, 1993 onwards.

GATT Uruguay Round Negotiations

The current Uruguay Round negotiations will set, together with the reforms going on in the context of the International Telecommunication Union (ITU), the future conditions for worldwide telecommunications and international relations between countries in this area. The EC negotiating position on telecommunications services
Implementing Reforms in the Telecommunications Sector

and market access is based on the open network concept. It is hoped that, in spite of
the current difficulties, a stable open environment for worldwide telecommunications development will emerge from the current negotiations and the telecommunications annex to the agreement, which sets guidelines relating to access to and use of the network for the provision of services.

Future Challenge

A number of issues raised in the European region clearly will have a wider impact on future telecommunications reform:

Satellite Communications

In November 1990 the Commission adopted a new green paper on satellite communications. The paper aims at a fundamental reform and liberalization of the sector in Europe and, in fact, of the worldwide satellite system. Following an extensive period of public consultation, the Telecommunications Council adopted a resolution which defines as major objectives:

- Harmonization and liberalization of the earth segment, including where applicable the abolition of all exclusive and special rights in this area in Europe.

- In the future, removal of restrictions on procurement and use of satellite terminal dishes for direct reception across Europe, as well as two-way satellite terminals, subject to type approval and licensing procedures, in order to avoid, in particular, harmful interference and to ensure frequency coordination.

- Improved access to space segment capacity, subject to adequate licensing procedures. In conformity with these procedures, service providers will be able to obtain the transmission capacity they need through contracts with satellite providers, and these service providers will themselves be able to transmit signals via satellite.

- Commercial freedom for space segment providers. The objective is to move toward the direct sale of satellite transmission capacity to service providers and users by satellite providers, in particular, the European Telecommunications Satellite Organisation (EUTELSAT), International Telecommunications Satellite Organization (INTELSAT), and International Maritime Satellite Organization (INMARSAT), while taking full account also of the interests of the developing countries.

- Adoption of harmonization measures, as required to facilitate the provision of Europe-wide services. This concerns, in particular, the mutual recognition of licensing and type approval procedures, frequency coordination, and matters related to the coordination of services provided to and from countries outside the
European Community, as well as the definition of standards to ensure compatibility of equipment and techniques.

Specific legislation will follow to implement these principles, thus allowing full use of the satellite medium in the European region and, in fact, beyond and, at the same time, creating an appropriate framework for liberalization of the sector. Satellites have a particularly vital role in meeting the needs of areas currently underserved by network infrastructure. It is to be hoped, therefore, that rapid progress can be made in realizing their potential worldwide.

Pricing

For the EC Commission, interest concentrates naturally on international tariffs in Europe, a first priority for efficient Europe-wide services.

In Europe, international telephone tariffs are still on average 2.5 times more expensive than the highest national long-distance calls, even though some countries have narrowed this gap substantially or even eliminated it. In some cases, tariffs from country A to country B are still three times higher than those from B to A. These anomalies are, of course, not restricted to the European region but are characteristic of the international telecommunications tariffs. Current accounting rules and the rapid changes of the underlying cost structures are leading to broad divergences and imbalance which have now stirred a worldwide debate. In July 1992 the EC Commission produced a communication outlining the nature of the tariff problem, which was taken up in the Services Review.

Frequency Coordination and Numbering Plans

As mobile communications now enter the center stage of telecommunications with the development of personal communications systems, a common Europe-wide perspective is essential in order to respond to the important regulatory questions which are emerging.

The major regulatory involvement of the EC Commission in mobile communications up to now has been in designating frequency bands, underpinning with binding EC law the recommendations of the Conference of European Postal and Telecommunications Administrations (CEPT) in key areas within the framework of ITU international frequency coordination. A directive on the reservation of radio frequencies for the new pan-European digital mobile system, GSM, has provided the firm basis for the development of the system. Other initiatives are addressing the new pan-European digital radiopaging system and the introduction of the Digital European Cordless Telecommunications Standard (DECT).

With their rapid development and with the Europe-wide dimension inherent in mobile systems, European coordination in this area will develop substantially further. A profound reform of radio frequency coordination has started. A European Radiocommunications Committee (ERC) has been created, and a European Radiocommu-
Implementing Reforms in the Telecommunications Sector

The Telecommunications Office (ERO) has been established in Copenhagen. In 1992, the ERO's announcement on detailed spectrum investigations marked the beginning of the development of a common European Table of Frequency Allocations. These reforms should make frequency coordination in Europe more effective and make radio frequency planning an open process, with consultation of users, industry, and service providers.

Besides the growing role of the radio spectrum and its planning as a key regulatory activity, another major resource is now entering the center stage: fair sharing of numbering plans is becoming a key element of efficient operation and fair competition. Therefore, the management of numbering plans will now become a major regulatory task for the future, in Europe as elsewhere. In November 1992, the EC Council adopted a resolution on the promotion of Europe-wide cooperation on numbering of telecommunication services and proposing the creation of a European numbering office to be known as European Telecommunications Office-Numbering (ETO-N), under the auspices of the CEPT, along the lines of the ERO. Given the requirement for global mobility in future telecommunications, this area will need substantial development both in the European region as well as worldwide.

Central and Eastern Europe

Due to forty-five years of neglect of the communications infrastructure of the industrial and civil sectors, the investment requirements in the countries now transforming into market economies are enormous. Globally speaking, telecommunications development in the countries of Central and Eastern Europe is twenty to thirty years behind that in the western part of Europe. One estimate suggests that ECU 55 billion (approximately US$74 billion) must be invested in Poland, Czechoslovakia, Hungary, Romania, and Bulgaria for these countries to reach a level of telecommunications by the year 2000 equivalent to the current level in Spain, and this excludes requirements in the former U.S.S.R., which are substantially larger.

The EC Commission has published a communication on the role of telecommunications and the Community's relations with the countries in Central and Eastern Europe. This communication sets out the instruments available to help in the current change in Central and Eastern Europe, including coordinated assistance by the Community and the Organization for Economic Cooperation and Development (OECD), the World Bank, the European Investment Bank (EIB), and the European Bank for Reconstruction and Development (EBRD) financing; and joint ventures and other kinds of access to private capital.

In the face of these enormous investment requirements, it is not surprising that thinking has started again across Europe on the best way to attract the vast amounts of capital needed for this development, including the future sharing of responsibility in this regard between the public and private sector. It seems obvious that new imaginative ways are needed in order to provide for rapid satisfaction of the requirements emerging in the east of the continent. It is likely that the experiences made in this context will also be of high interest for the developing countries.
The European Situation: An Overview

Outlook

The new experience in Central and Eastern Europe, and the reforms in European countries such as the United Kingdom, Germany, France, and the Netherlands, have set forth a vision of the future regulation of telecommunications in a competitive environment which without doubt will have substantial impact beyond Europe. At the same time, EC telecommunications policy aims at creating a telecommunications market which may become the world's largest during this decade, and which may lead development worldwide in key fields of technologies such as mobile communications.

European countries face very different situations in the difficult process of reform. Although in a number of Community member states the main topic of reform was to extend the usage of the existing, already built, telephone network, in others the main focus was, and still is, on building up the network. The Commission has set in motion programs such as STAR, which make an important contribution to network buildup in the less developed regions of these countries.

A major objective of EC telecommunications policy is to provide for an even telecommunications development across the Community and the region as a whole. It is the management of this diversity which gives originality to the European approach and which makes it a unique example of the creation of a common liberal market in telecommunications across a whole region, without imposing any particular national model. It is this creation of a common market across the entire Community that is at the heart of the Services Review which began in 1992. In a communication adopted in October of that year, a number of remaining bottlenecks were identified, including the surcharge associated with telephone services between member states. The communication put forward four options for the future these involved varying degrees of further liberalization or more extensive regulatory control on tariffs. The options formed the basis of an extensive public consultation, and the results of this are now forming the basis of proposals which the Commission will submit to the EC Council.

This decade will be one of challenge for the telecommunications sector in Europe. Large numbers of new market entries and new regulatory schemes at work are likely. Mobile and satellite communications will become major leaders of development. Intense cooperation must be further developed on key issues such as interconnection, frequency management, and numbering plans. True Europe-wide services must further develop to support the 1992 single market. A number of European countries, particularly in the central and eastern part of the continent, will have to build up their networks. Others will have to manage the fundamental transformation of their network resource, as telecommunications moves into the age of intelligent networks. But Europe can, and must, provide a sound market base for this time of change. With the rapidly expanding mobile and satellite communications markets as well as growing capital needs for network development and transformation, discussion on the regulation of future network infrastructure and the merits of different ownership schemes as the best way to attract capital will be reopened.
Implementing Reforms in the Telecommunications Sector

In this phase of broad expansion undertaken on a common basis, the European region can be expected to be a pacesetter of telecommunications reform during the decade. Telecommunications reforms are underway worldwide and particularly now in the developing countries. Institutions such as the International Telecommunication Union, the World Bank, the Commonwealth Telecommunications Organization, and others are furthering this transformation. European telecommunications operators, as they turn into full-scale international operators and investors, are more and more playing a direct key role in this process.

From the European experience, worldwide telecommunications projects can be assessed according to some of the following key criteria:

- Are free-market reforms being undertaken to ensure long-term viability? In the European Community the EC Green Paper has developed into a key point of reference in this respect.

- Are standards being implemented to ensure easy interconnection in a future multi-actor international environment?

- Are the telecommunications plans viable by themselves? This includes, in particular, developing efficient management methods, separation of regulatory and operational interest, sound financial structures, and realistic tariff policies.

Given its current exposure to regulatory changes, Europe will be able to offer valuable experience from its own reforms in the area.

Endnotes


7. STAR is an EC development program (1987–1991) to promote the use of advanced telecommunications in the developing regions of the European Community. The second phase will be launched in 1993. Another program, Telematique, will bridge the two phases.
NO BRIEF ACCOUNT OF POLICY DEVELOPMENTS in telecommunications can fail to be highly selective. This chapter, therefore, examines two principal themes drawn from the U.K. experience which serve to illustrate the evolution of telecommunications sector policy in the United Kingdom over the last ten years:

- Restructuring of the telecommunications sector has multiple objectives, which should ideally be ordered in time and in priority. The practical difficulty in so doing is that the objectives may conflict; the resolution of such conflict is almost bound to disturb the smooth evolution of policy.

- Restructuring involves the government in choosing a commercial partner or partners with whom jointly to achieve policy objectives. Once chosen, these partners help policy formulation as well as implementation. The incumbent network operator is obviously one such partner; a key issue is whether it is to be the only one and, if not, who else will be chosen?

The prospects for success in restructuring will be improved if these issues are recognized.

Commercialization

At the outset of the 1980s, the newly elected Conservative government changed the priorities of policy in the telecommunications sector. From 1968 to 1980, there had been bipartisan agreement on the need to commercialize the activities of the national network operator. To this end, the Post Office had been separated from the civil service and, within the new corporation, postal and telecommunications services were separated into distinct business units, up to managing director level.

The pace of change was slow, but the ultimate intention was to divest the Post Office of its telecommunications business. In 1981, this was achieved with the creation of
Implementing Reforms in the Telecommunications Sector

British Telecommunications plc (BT) which, for convenience, is here referred to as BT even for what was initially the Telecommunications Division of the Post Office.

Liberalization

The change of policy priority in 1980 was to liberalize the telecommunications market, that is, to offer it to private sector competitors. To an extent, the shift took place in response to complaints from customers that BT was being restrictive in neither providing the latest subscriber apparatus itself nor allowing importation; however, on the more fundamental level, the policy was driven by an ideological conviction that a nationalized industry with a monopoly would be inefficient.

The policy shift had important implications:

- Whereas commercialization had been largely under the control of, and was proceeding at a pace largely dictated by, senior managers in BT, liberalization was from the outset led by the sector ministry (the Department of Industry, which later became the Department of Trade and Industry, or DTI). The government wanted quick results and was in the position to ensure that it got them.

- The domestic manufacturing industry had been geared increasingly to meeting BT's requirements in a cartel-like arrangement. Liberalization meant dismantling the sponsorship of the domestic industry by BT and its replacement by a formal system of standards and type approval. This in turn gave increased opportunities to importers.

A modest element of liberalization of the subscriber apparatus market had been considered by the previous Labour government but not pursued in the face of trade union opposition. The main innovation, at least in a European context, was that the scope for liberalization was not limited a priori to subscriber apparatus or value added services. From the outset, the government set up a Network Liberalisation Study Group to consider the potential for opening up the operation of networks. The willingness to allow commercial interests to determine as far as possible the scope for market entry in network operation has led the United Kingdom toward a unique sector structure. Three main events followed.

First, Cable & Wireless (C&W) reappeared on the scene, putting itself forward as a potential partner that could help deliver competition in the operation of public telephone networks. C&W, although British, did not operate in the United Kingdom; its main interests were in operating international networks and cable routes overseas. Together with British Petroleum (BP) and Barclays Merchant Bank, C&W proposed to lay a digital transmission network, with right of access in principle to BT's public-switched telephone network, connecting the main business centers in England (the Mercury project). Their proposal was accepted in 1981, marking the start of the government's duopoly policy (discussed below). From that
date, C&WW has played a central role in policy on voice telephony—particularly on
the timing of developments.
Second, in addition to licensing Mercury Communications to compete with BT's
telephone network, the government decided to establish cellular radio services on a
competitive basis from the outset. In this market, Racal was selected as the vehicle
for developing a mobile radio network operation to rival BT's (called Cellnet and run
in conjunction with Securicor). It was considered that the spectrum available would
permit the development of only two national cellular radio networks. Recognizing
that licensing two networks was insufficient in itself to ensure competition rather
than tacit collusion, the DTI devised a regulatory regime in which the network
operators were barred from retailing both the handsets and the connection to a
network ("airtime"). As might have been predicted, free entry into airtime reselling
produced intense rivalry, reflected in steep discounts on handset prices and connec-
tion charges. On the other hand, the price of calls to and from cellular handsets
remained high. This price structure was reinforced by the failure of the regulatory
authorities to insist on interoperability of the two networks, which meant that
customers were effectively tied into the network they first joined. The overall
effectiveness of the policy may be judged from the fact that Racal now operates the
largest single cellular radio network in the world.
The third area where the U.K. government experimented with a competitive
market structure in network operation concerned cable television. From the outset,
policy toward cable television was driven by the idea that such networks might
develop an interactive (that is, a telecommunications) capability. In general, these
hopes have not been realized, although it has been demonstrated that the sharing
of facilities between telephony and TV distribution can be the basis for competitive
entry into local networks. At this time, only four local TV networks offer a
telecommunications service, and these on a small scale. Among the many reasons
for the slow development of cable TV is the fact that the effort has until recently
been fragmented among a large number of commercial interests. None were able
to deal effectively with the government to secure the regulatory provisions
necessary for success, in the way that C&WW and Racal did. In part, this failure
resulted from a lack of understanding on the part of the licensing authorities; in
part the fragmentation was deliberately arranged as part of the duopoly policy. As
explained below, the ending of the duopoly and the recent concentration of
ownership of cable TV interests in the hands of North American telephone
companies appear to have corrected this deficiency.

Privatization

The decision of the U.K. government to privatize BT, announced in July 1982,
may be explained as part of the same ideological predisposition as underlay the drive
to liberalize the telecommunications market. After all, C&WW itself had been
privatized in 1980, and it was soon clear that the company was prospering under new
management; however, the BT privatization was an unexpected turn in government
Implementing Reforms in the Telecommunications Sector

policy which virtually no one, not even the closest observers of developments in the U.K. telecommunications scene nor most of BT's management, expected. This sudden change in policy required specific explanation.

The problem to which privatization was put forward as a solution was how to finance BT's massive investment program to modernize its network while maintaining strict controls over public sector spending. The DTI tried to find a way of securing private sector finance for BT's investment, but the effort foundered on the refusal of the Treasury to provide a guarantee. The government then gave BT a limited exemption to the general controls on borrowings by nationalized industries. It was probably the subsequent failure of BT's management actually to spend the sums set aside, at great political costs, for its modernization program which led directly to the decision in favor of privatization.

It was clear from the outset that the decision to privatize BT would have profound implications for the liberalization policy. First, the market entrants were not yet sufficiently well established to provide by themselves a bulwark against abuse by BT of its monopoly position. A strong regulatory framework was needed. On the other hand, if regulatory restraint was too tight, the expected benefits from privatization might not emerge. Second, the potential investors in BT would require assurance of policy stability in the period following privatization. These conflicting considerations resulted in an acceleration in liberalization in the year after the decision to privatize, from which C&W was the main beneficiary, followed by a relatively long period in which no new licenses were issued.

Whether privatization itself produced a significant improvement in BT's performance still remains moot. The clearest gains appear to have been the absence of Treasury interference with the pace of modernization and the avoidance of any major strategic errors in investment or diversification (at least in the United Kingdom, since BT's investments in North America have not looked very clever). The productivity performance has improved, but only at about the same rate as was being achieved before privatization. Not until 1990 did BT begin seriously to tackle its overstaffing; by that date, it is reasonable to infer that the prospect of intensifying competition was the motivating factor.

The Duopoly Policy

At the time the decision to privatize BT was made, it was still not clear which of the experiments in network liberalization were going to be successful. The government took the view that Mercury needed to be given a boost so that it could take on the role of second national network. By stimulating competition from that source, it was hoped that it would become feasible to design a framework of relatively light regulatory controls for BT; however, the commercial risk being taken by C&W (which by 1984 had become the sole owner of Mercury) was thereby greatly increased. C&W as much as the investors in BT, now urged caution in licensing policy.

The outcome of these pressures was the duopoly policy. Broadly, Mercury was given the chance to develop its challenge to BT in whatever direction it felt best,
supported by the assurance that the government would not license any other competitor until 1990 at the earliest. As part of this, resale opportunities were also deferred. In effect, Mercury was given the task of carrying through the experiment in network liberalization initiated by the government.

What Mercury did with this responsibility can best be summarized by saying that it focused on providing digital communications for business customers. For this purpose, Mercury constructed local optical-fiber networks in business districts as well as a long-distance network to connect major cities. It also sought direct international links to countries with major telecommunications traffic flows with the United Kingdom. Mercury also introduced services for single-exchange line customers, directly and via the cable television networks, but these were not a priority. Mercury established a tariff with relatively high fixed charges but an average discount on BT's call charges of around 20 percent.

Gradually, Mercury's service has become available virtually throughout England as well as in the more populated parts of Scotland and Wales. Mercury has also been able to acquire a position in mobile radio services, being granted a personal communications networks license in 1989. Rather more slowly than the government had hoped, Mercury has established itself as a second national network.

Predictably, Mercury's business focus induced in BT the response of reorienting its service offerings more toward the perceived needs of business. The price controls on BT restricted the pace but did not prevent the rebalancing of tariffs. Long-distance charges fell and rental and local call charges rose. Similarly, BT's network modernization strategy shifted so that those areas more exposed to competition from Mercury were modernized first.

Initial Terms of Interconnection

The key to Mercury's entry into public network operation was the terms it could secure for interconnection with the BT network. This was understood from an early stage; BT was unwilling to accept its new license without a clear basis for interconnection. Heads of Agreement were signed by BT and Mercury in June 1984, just before the BT privatization. In the event, this agreement did not last, and Mercury sought and obtained better terms from the new regulatory body, the Office of Telecommunications (OFTEL). With all this maneuvering, however, Mercury's entry into switched voice services was delayed until May 1986.

The principles on which OFTEL settled the interconnection issue have never been made explicit, and disputes have continued ever since. It would appear that the terms initially determined by OFTEL were not so much related to BT's costs but rather set to ensure that Mercury could operate profitably with discounted call charges. In this respect, Professor Bryan Carsberg, at the time the head of OFTEL, essentially made a commercial judgment in negotiation with C&W and then imposed these terms on BT.


Implementing Reforms in the Telecommunications Sector

The Duopoly Review

Despite the accelerating pace of change in telecommunications, the government stuck to its original timetable and allowed the duopoly period to run its course. In November 1990 it reviewed the policy and concluded that although market entry was feasible in all aspects of network operation, much more needed to be done to make competition a reality. The slow pace of evolution of competition under the duopoly had led to a gradual tightening of controls on BT, a tendency with which the government was clearly unhappy. The strategy that emerged in the review was to:

- Open fully the domestic telecommunications market, while restraining competition in international services
- Maintain price controls on BT for a further period
- Revise interconnection terms to establish a level playing field among competitors.

Opening the domestic market would mean reducing restrictions on entry into long-distance and local networks as well as licensing new mobile services such as personal communications networks (PCN) on terms that would enable them in due course to become competitive with fixed services. In the light of the remarks above, it may be noted that merely removing regulatory restrictions is insufficient to ensure entry. For commercial interests to undertake the risks of network construction in the face of the established monopoly enjoyed by BT probably requires positive encouragement and the promise of protection from retaliation. Moreover, with so many opportunities now on offer, it is possible that the efforts of entrants will be dissipated.

It is notable that no one entrant has been singled out for favorable attention in the way C&W was. Apparently, the government did not receive any offers. Many companies have indicated an intention to invest in new networks, but the experience of Mercury in taking on the burden of demonstrating the feasibility of competition has been discouraging. Although now profitable, and producing additional benefits for all telephone users through the impact on BT, the Mercury project cannot be regarded as a successful commercial investment.

OFTEL, though not the government, has stated that benefits for the consumer would be maximized if further market entry were concentrated at local level; however, little is being done to achieve this, beyond the decision to go slow on opening up international services. The reluctance to liberalize international services where prices charged are well above cost, is rationalized as being due to the difficulty of securing bilateral agreements; however, the basic reason appears to be to give Mercury some residual protection during the transition to full domestic competition since Mercury's profits come disproportionately from its international services.

Maintaining price controls on BT is essential so long as its market share remains so high (about 95 percent in voice telephony). Although the price-cap method of regulation has the merit of allowing flexibility in setting individual tariff elements,
in the United Kingdom, as elsewhere, the residential rental charge is a matter of critical importance. A separate limit is being maintained on the rate at which residential rental charges can increase as part of tariff rebalancing.

Revised Interconnection Terms

The revision of interconnection terms is explicitly linked to this control on residential rentals. While BT's costs have not been made public, competitors and others have argued that the prices that BT charges for residential exchange connections are below their cost. To subsidize these below cost prices BT must, it is therefore argued, charge above cost for local, long distance or international calls. If competitors who do not need to charge above cost for such calls were able to connect into BT's residential exchanges at cost, they would obtain an unfair advantage over BT. This argument was at first accepted by OFTEL, which, in March 1991, proposed a system of supplementary interconnection payments per call, termed "contributions to the access deficit," to remove this imbalance.

Although formally correct, these arrangements had a fatal flaw. If required to pay the contributions, new entrants might well be deterred from entering altogether and the new competitive policy would be stillborn. In the face of a chorus of opposition, OFTEL's proposals have been revised effectively to postpone the idea of contributions indefinitely. However, BT will still receive more per call minute in interconnection payments in future than in the past from Mercury. This is because payments will be explicitly based on fully allocated costs, rather than on an ex cathedra judgment by OFTEL.

Another major proposal to revise interconnection terms has been to allow equal access for customers of competitive long-distance networks. Although the principle is clear from U.S. practice, in application in the United Kingdom there are two practical difficulties. First, neither BT's nor Mercury's local and long-distance networks are under separate management, so there must be doubts as to whether equal access could be implemented satisfactorily. Second, ensuring long-distance competitors access to established local networks on equal terms may act to the commercial disadvantage of new local networks. For this reason, OFTEL has conceded that it will undertake a cost-benefit study of the effects of equal access before allowing it to be introduced.

In short, equal access raises in acute form the problem of conflicting policy priorities. There is no desire in government to divest BT of its local networks, even though this measure, more than any other, would encourage competition. To do so would mean postponing once again the sale of the government's remaining shareholdings in BT. It now seems clear that equal access was proposed mainly at the urging of Mercury. Mercury has since had a change of heart, presumably realizing that specialist long-distance competitors might gain relatively more than it would. The cable TV interests have been flatly opposed throughout the policy review. The most likely outcome of these conflicting priorities and interests is that equal access, while remaining a theoretical possibility, will not be taken up on a wide scale in the United Kingdom.
Conclusion

Because the policy review is still continuing, it is too early to draw conclusions as to whether or not it will result in further market entry on a significant scale. The relatively open nature of the U.K. market in European terms has attracted many North American telephone and cable TV companies to take strategic positions. Which of them will stay the course and what exactly they will choose to do are not known. The future structure of the industry is genuinely uncertain. This uncertainty may be claimed to be a measure of the success of sector policy. More than in any other country, the United Kingdom has avoided letting regulatory bodies determine sector structure; instead, this task is shared with commercial interests.
Restructuring Telecommunications: 
The French Experience

Eric Huret

Three questions would seem appropriate in this review of France’s experience of restructuring its telecommunications sector. One is obvious: What did we do? In the most complete yet concise way possible this chapter endeavors to outline a reform that constituted a cultural revolution of sorts in a sector that has a long history, that is associated with very high expectations from the public, and in which the economic stakes are considerable. Another important question must, however, be answered: Why did we do it? This chapter underscores why a thorough reform of the sector was indispensable, given the escalating rate of technological development over the past fifteen or twenty years, the increasing convergence of data processing and telecommunications, and the worldwide movement toward deregulation, an important issue in the move toward a single European market. Finally, the question that this chapter will concentrate on most, as it involves the most innovative part of our experience in France: How did we do it?

The success of this sort of restructuring process presupposes the involvement of all the parties concerned at all levels; however, that involvement was by no means self-evident at the outset.

Why Was the Restructuring of Telecommunications Essential?

The last fifteen years have been marked by profound changes of various sorts that have led to structured reforms in the telecommunications industry. Three of these are:

New Technology. Technological development supported by the development of microprocessors brought telecommunications and data processing much closer; telephone exchanges have become powerful computers specialized for one specific function. Also, telecommunications networks are particularly important, and complex, data processing networks. This technological convergence opened the way to a real boom in the telecommunications-based services market, including radiocommunications services, airline reservation and management services, stock ordering and inventory management, invoicing and payment services, and, more generally, the huge area of electronic data interchange (EDI) and value added services.
Implementing Reforms in the Telecommunications Sector

Obviously monopolies were not the most appropriate structures for the rapid exploitation of these new markets.

LIBERAL IDEOLOGY. At the same time, since the beginning of the eighties, through the impetus of President Reagan and Mrs. Thatcher, deregulation and privatization appeared to many as the solution to all the problems resulting from inefficiency. This concerned every sector: banks, air transport, health, and telecommunications.

GLOBALIZATION OF MARKETS. Large-scale customers, and more particularly multinationals—for which networks had progressively become the nervous system on which their decision making, production management, and competitiveness are dependent—increased pressure on operators for international services which are as coherent, homogeneous, well adapted to their needs, and economical as the services provided by the best domestic operators. The telecommunications market was destined to burst its national frontiers and become globalized.

The convergence of these three impulses—data transport and data processing technologies, the triumph of the liberal ideology, and the globalization of the market—resulted in the opening of new markets to be exploited. These same impulses are also the three main reasons an administration or a monopoly cannot be a satisfactory regulator of the telecommunications sector.

The decisive milestone in this development was the dismantling of AT&T, which took place on January 1, 1984, after a long process that had begun ten years earlier within the framework of U.S. antitrust legislation. That decision, known as the Modified Final Judgment (MFJ), had a considerable snowball effect.

AT&T, which could no longer operate local U.S. networks (responsibility for which had been turned over to the Regional Bell Operating Companies, or RBOCs) and was no longer obliged to restrict its activities to telephone services, was now able to turn toward international markets. On the other hand, the relative opening of the U.S. equipment market favored the start of foreign competition (essentially Canadian and Asian), which resulted in a shift from a trade surplus of US$800 million in 1981 to a deficit of US$2.5 billion in 1987. This led the U.S. to launch a strategy to regain the market and push for the opening of foreign service and equipment markets through bilateral discussions and multilateral forums such as the GATT. All the necessary conditions were met for the globalization of telecommunications (which, until then, had been characterized by a very rigid partitioning of national markets, centered on traditional operators and their suppliers) and a change in regulatory structures in most industrial countries (Japan and the United Kingdom were the first to adopt reforms).

Another important and determining factor was the move toward a single European market. The need to create an inter-European telecommunications market led to the publication of the EC Commission’s Green Paper on the Development of the Common Market for Telecommunications and Services (EC Green Paper) in 1987, the overall objective of which was to provide European users with the largest possible range of
Restructuring Telecommunications: The French Experience

services under the most favorable conditions possible while maintaining coherence and uniformity among the networks and services provided in member countries. The EC Green Paper articulated ten proposals to attain this objective:

- The possibility of maintaining exclusive or special rights over network infrastructures
- The possibility of maintaining exclusive or special rights over the supply of a limited number of basic services (telephone and telex)
- Unrestricted offering of all other services within and among member countries
- Stringent standards pertaining to network infrastructure and primary services in order to preserve or allow for interconnectivity throughout Europe
- Uniform conditions imposed on network users and services providers
- Unrestricted offering of terminal equipment within and among member countries, subject to the approval and agreement procedures stipulated in the Treaty of Rome
- Separation of regulatory and operating activities
- Application of Treaty of Rome articles that pertain to competition guidelines and the limitation of cross-subsidization by public telecommunications operating companies
- Application of Treaty of Rome articles that pertain to competition guidelines and the abuse of a dominant position over private telecommunications service providers
- Application of the European Community's common trade policy to the telecommunications sector.

The EC Green Paper thus established a general framework which took into account the unquestionable specificity of telecommunications and, in a sense, brought it into the realm of the common law regulating the exchange of services, while also recognizing the globalization of the sector and putting an end to the protectionist context in which it had developed.

This evolution was confirmed in multilateral discussions outside the Community. Telecommunications were introduced into the GATT forum as negotiations began in 1986 under the Uruguay Round to liberalize trade in services. Moreover, the ITU recognized the reality of this upheaval when, in December 1988 at the World Administrative Telegraph and Telephone Conference (WATTC-88) in Melbourne, it adopted international regulations which liberalized the exchange of international telecommunications services.
Implementing Reforms in the Telecommunications Sector

Main Elements of the French Posts and Telecommunications Reform

Technological development, the evolution of ideas, globalization, and competition were all new and important challenges to be faced. Yet the concept of public service, which is intrinsically linked to the telecommunications sector, had, at the same time, to be preserved. Such was the international and EC context under which the process of reform began in France in 1989.

Three principal issues were raised:

- What regulatory framework should be established?
- What status should the public operating company be given?
- How can a monopoly be made competitive (a question that may initially appear paradoxical)?

The new legislative and regulatory framework of telecommunications in France is based on two texts: the first is the Law of July 2, 1990 (Loi du 2 juillet 1990), which took effect on January 1, 1991, and which defines a new statutory framework for the French postal and telecommunications services (Postes et Télancements). This law modified the status of France Télécom, granting it the means to become a competitive public service (service public entreprenant). We shall return to the statutory issue later. The second is the Law of December 29, 1990 (Loi du 29 décembre 1990), which defines the regulatory control over telecommunications in France by stipulating how networks and services may be established and operated.

Law on the Regulation of Telecommunications

France was the first EC country to bring its national regulatory structure in line with the EC Green Paper. Although the Law of December 29, 1990 conforms to the provisions of the Green Paper and the various EC guidelines and directives already adopted, it further reflects the original approach adopted by the French administration, which wanted, above all, to find an appropriate balance between government regulatory control and the law of supply and demand, on the one hand, and between public service and competition, on the other.

Table 1 shows how the Law of December 29, 1990, divides the provision of telecommunications services into three areas: monopoly; structured and controlled competition; and full competition.

The new law, therefore, provides for competition within a public service framework within the three areas, ranging from the conservation of a monopoly, in the case of activities or resources that are unquestionably strategic or decisive in the establishment of structures (for terrestrial infrastructures, voice telephone services, public telephone services, etc.), to open competition (for value added services and termi-
Restructuring Telecommunications: The French Experience

A thriving market has developed in the value added service sector, which has been open to competition since 1987. Conversely, the objective of maintaining a monopoly over the network and voice telephony is to preserve a basic framework for the French national infrastructure and to ensure optimal efficiency at both the economic and technical levels, while guaranteeing a concern for public service and the fundamental interests of the state.

The New Status of France Télécom

Under the Law of July 2, 1990, which took effect on January 1, 1991, France Télécom severed its traditional ties with the French administration and became an independent operating company, established as a public corporation.

France Télécom, like all other telecommunications service providers in France, must follow the guidelines set out by the Ministry of Posts and Telecommunications (Ministère des Postes et Télécommunications), now the Ministry of Industry, Posts and Telecommunications and Foreign Trade (Ministère de l'Industrie, des Postes et Télécommunications et du Commerce Extérieur); however, it is no longer required to submit its budgets for government approval. The management of France Télécom is responsible to its board of directors, president, and chief executive officer.

France Télécom's financial autonomy, which is comparable to that of similar organizations in neighboring countries, is essential if it is to continue to progress in


<table>
<thead>
<tr>
<th>Regime</th>
<th>Domain</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monopoly</td>
<td>Public terrestrial</td>
<td>Public Service</td>
</tr>
<tr>
<td></td>
<td>infrastructures</td>
<td>Strategic resource</td>
</tr>
<tr>
<td></td>
<td>Telephone</td>
<td>Cost optimization</td>
</tr>
<tr>
<td></td>
<td>Telex</td>
<td>Coherence of basic networks</td>
</tr>
<tr>
<td>Structured and</td>
<td>Bearer services(^a)</td>
<td>Dynamic market</td>
</tr>
<tr>
<td>controlled competition</td>
<td>Radio services</td>
<td>Not to harm public service provision</td>
</tr>
<tr>
<td></td>
<td>Independent networks(^b)</td>
<td></td>
</tr>
<tr>
<td>Full competition</td>
<td>Valued added services</td>
<td>To create a dynamic force in multifarious markets</td>
</tr>
<tr>
<td></td>
<td>Terminals</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Data transmission services which do not include processing other than that necessary to transport data

\(^b\) Telecommunications infrastructures reserved for private or shared use as, for example, a cable linking two sites of the same company or the network belonging to the French national railway company (SNCF)
Implementing Reforms in the Telecommunications Sector

times of rapid technological development and to meet the increasingly complex needs of its clientele, both in France and abroad, whether alone or in partnerships. It must therefore be able to quickly adapt to the dynamic conditions of the market. Its status as a state-owned public corporation guarantees that its public service responsibilities will continue to be taken into account and that its concerns for defense, security, and research are maintained, as are its efforts to provide technical assistance to foreign countries, especially in the developing world.

The corporation’s relationship with the Ministère des Postes et Télécommunications also reflects a duality and a balance. In areas where it does not have exclusive rights, France Télécom is subject to the same regulations that the Direction de la Réglementation Générale (DRG) has established for all other telecommunications service providers. For areas open to competition, the corporation, as a public operating company, is subject to the same regulations as its competitors except in the case of data transmission services. The Direction du Service Public (DSP) has a supervisory role over the corporation which is characterized by proprietary functions (notably the approval of its strategy) and by the protection of specific state interests. The relationship between France Télécom and the state is defined contractually in a plan implementation agreement (known as a “contrat de plan”). The current agreement, the first, covers the period from 1991 to 1994.

Supervisory Authority and Monopoly Efficiency

The new status of France Télécom and La Poste, the postal service, required restructuring of the Ministry of Posts and Telecommunications as well as the definition of a new framework for the relationship between the state and these operators. The new ministry has two directorates:

- **Direction de la Réglementation Générale** (Directorate of General Regulatory Affairs, or DRG) is responsible for defining the regulatory framework for the activities of France Télécom and the other telecommunications service operators. This framework is defined in accordance with EC directives.

- **Direction du Service Public** (Public Service Directorate, or DSP) is responsible for exercising state supervision over France Télécom and La Poste. In this respect, it participates in the definition of their main strategic choices and defines, in cooperation with the other ministries concerned, the main economic and financial objectives which the operators must reach.

These economic and financial guiding principles are reflected in the contrat de plan, which, as mentioned, is a genuine contract between the operator and the state. France Télécom’s contractual plan for 1991–1994 stipulates that:

- Its prices can only increase by an amount which is 3 percent lower than the yearly general increase of consumer prices.
Restoring Telecommunications: The French Experience

- Its investments over the period may reach an amount to FF 150 billion.
- The level of its debt over the period must be significantly reduced.
- Personnel productivity should increase by at least 4.6 percent per year.

In addition to these economic objectives there are a certain number of quality service objectives.

The contractual plan reflects the supervisory role of the state, the owner of France Télécom, by recognizing the role of the state in:

- Exercising the necessary control over France Télécom in all areas not regulated naturally by market forces
- At the same time, vigorously protecting the operator's management autonomy from the unavoidable and powerful, long-standing and ingrained temptations of the state
- Ensuring that the operator continues to take into account the public service requirements and specific interests of the state with respect to defense, civil security, research, and cooperation with other countries.

This is a difficult task given this complex relationship between the state and the operators; it is, nevertheless, an essential prerequisite for the establishment and development of a public operator that is responsible and efficient.

How Did We Do It?

As important as the results of the reform and the reason for having undertaken it, is the process which the government chose to follow.

Dialogue as a Means of Carrying Out a Restructuring Process

Even though most factors such as technological developments, worldwide movement toward deregulation, and globalization of the telecommunications markets underlined the need for a profound restructuring of the sector, the proposed changes were perceived as a veritable cultural revolution. Also, in view of the very close link between the French postal service and France Télécom, it appeared impossible to deal with changes in the status of France Télécom without considering that of the postal service. Reform of the sector, therefore, concerned not 150,000 but 450,000 civil servants, those most opposed to change. Discussions between the government and the civil service unions did not advance beyond each side's fixed positions for a long time. It was necessary to find a way out of this stalemate and bring public opinion, customers, and all the personnel to discuss the problems of the sector and to engage in the most open reflections on the possible future directions.
Implementing Reforms in the Telecommunications Sector

Moreover, rather than trying to explain and sell a completely finalized reform package after the fact, Paul Quilès, the minister of posts and telecommunications, decided to conduct a large-scale nationwide public debate on the future of the postal and telecommunications services in France. This debate, referred to as “Le Débat Public,” was unique in terms of its purpose and scope.

In December 1988, Paul Quilès invited Hubert Prévet, former general commissioner of national plans (Commissaire Général du Plan) and former secretary of one of the three most important French unions, to conduct Le Débat Public. The debate was to involve both internal and external stakeholders in the most open and participatory way possible.

During the first phase, from December 1988 to March 1989, Prévet held private meetings with those most directly involved from both within the sector and outside. On the basis of these initial meetings, an interim report was prepared that included a list of the major issues to be dealt with during the second phase, the public debate.

* Principles of the Public Debate*

In order to successfully carry out this exceptional initiative, certain fundamental principles had to be respected. These included:

**TRANSPARENCY.** The complete interim report was distributed to all civil servants in the sector to allow them to familiarize themselves with the issues of the upcoming debate and to express their points of view. Throughout the debate, internal and external communication channels were used extensively.

**THE NEED FOR INTERNAL AND EXTERNAL DEBATE.** To allow for participation of everyone involved, simultaneous debates were held both inside and outside the sector. All participants were kept informed through Le journal du débat public, a bulletin created especially for the occasion. Six issues, with a distribution of over 500,000, were published.

**A DEMOCRATIC APPROACH.** Everyone, whether individually or collectively, was able to address Prévet, the chairman of the public debate. The unions were also able to take full part in the debate and voice their opinions and make suggestions.

*The Topics of the Public Debate*

The debate, which ran from April to the end of June 1989, covered the following subjects:

- *The Role and Mandate of a Public Service* from the point of view of users and from the perspective of economic modernization and competitiveness of companies.

- *Competition, Monopoly, and Regulatory Control* for both the postal and the telecommunications services. The debate examined the conditions for a public
Restructuring Telecommunications: The French Experience

corporation as well as the status of civil servants and the reevaluation of their careers and qualifications. Another consideration was the need to conduct a debate on autonomous management and the form it should take.

How the Public Debate Was Conducted

The Internal Debate: Presentations, Debates, and Video Broadcasts. Most civil servants responded by mail (6,400 sent their responses to a special post office box), by videotex, or by means of a detailed questionnaire. In addition, 8,000 meetings were organized in all postal and telecommunications departments. In total, more than 200,000 civil servants from the postal and telecommunications services were able to participate in the debate at their workplace on the future of their public service.

An internal video network was used to conduct five live debates from a broadcast center in Paris to six interactive centers and 150 television monitors throughout France and in overseas French territories. The average number of participants in each of these videoconference debates was 15,000. The same network was used to organize a number of meetings with union representatives.

The External Debate: Presentations, National Conferences and Public Hearings. Ten million questionnaires were made available to the public through post offices and the commercial outlets of France Télécom. Seven national conferences were organized with public service representatives, allowing numerous participants throughout the country to debate the issues that concerned them. These conferences debated issues such as “The Expectations of the Business Sector,” “The Stakes in Europe,” “What Are the Expectations of the French People?” and “Instruments of Decentralization.”

At the same time, a hundred or so public hearings provided a means for discovering the opinions of all parties involved in the debate, including the political view of parliamentary groups, representatives of industry and finance, banks, professional federations, heads of companies, the views of consumer and user organizations, and of prominent figures from university and research sectors.

In sum there was an unprecedented effort to involve as many participants as possible in reflection on the restructuring to be done.

The debate led to a number of clear conclusions, specifically, that:

- On the whole, the public (the customers) was satisfied with the services provided by France Télécom and La Poste.
- It wanted to have the concept of public service, which it deemed essential, maintained.
- There was general hostility to privatization.
Implementing Reforms in the Telecommunications Sector

- Most of the personnel wanted to retain the status of civil servant.

On the basis of these conclusions, Paul Quilès carried out a new phase of direct consultations with the union, at the end of which he proposed to the government a reform in three points:

- A restructuring leading to the creation of two public corporations (La Poste and France Télécom) with the status of civil servant for the personnel being maintained
- The introduction of either free or regulated competition compatible with a strong public service
- The adoption of a package of social measures for the personnel of the two new public corporations resulting in a reduction in the number of categories of P&T civil servants from 45 to 6, and the number of grades from 111 to 11.

Conclusions

This is the essence of the reform carried out in the French postal and telecommunications sector between 1988 and 1990. Its success is due first to the strong determination of the politicians in charge, namely, the minister of posts and telecommunications and the whole government, including the personal commitment of the prime minister. It is also due to the method adopted, which consisted in talking frankly with all the stakeholders, listening to them, and taking their views into account. Yet this reform is not a model; rather it was adapted to the actual situation in France at that time and carried out in an atmosphere of social peace. It corresponds to a phase of much broader developments; the rapid changes which affect the sector will undoubtedly require further reform and adaptations where each must find the way which best suits its situation and history. The best reform is one that is successful!
PTT Telecom Netherlands: Civil Servant or Entrepreneur?

Gerard J. van Velzen

Apart from natural decay and purely random processes, most changes are reactions, that is, adaptations to other changes in the corporate or social environment. Let us turn first to these external factors and then to our reactions and responses. An example from the air transport industry will illustrate the point. It is well known that most airlines operate similar types of aircraft on the same routes to the same destinations, that they use the same type of fuel from the same suppliers, and that they charge about the same fare. And yet most people have a preference. Service—measured in terms of reliability and punctuality, friendliness, and the ability to improvise in unusual situations—makes the difference. Probably the biggest change in modern business—and this is especially relevant to the telecommunications and information sectors—is the current shift away from pure technology to the service business. But that is not all.

Markets and suppliers are going global at an increasingly rapid rate for several reasons. Economies of scale imply a minimum level of production, leading often to a need to expand beyond the limitations of a domestic market. Specific know-how and specialization fit well with international demand. Combining the product and service activities of two or more companies often yields a more complete package that is better suited to a discerning market and to the apparent need for one-stop shopping. Economic internationalization is also reflected in and stimulated by international cooperation at a structural level and within alliances such as the European Community. The synergistic effects may even transcend the sphere of economics; those who trade, do not fight wars!

Increasingly firms are going international by launching joint ventures or other forms of cooperation. The trend toward globalization applies to an increasing number of commodities and services, and especially to the information and telecommunications sectors. The role of information has changed dramatically over the last centuries. The invention of the printing press ushered in the end of the Middle Ages. Today we find ourselves in the middle of a comparable information revolution. The use of computer and telecommunications technologies has become widespread, becoming an integral part of almost all production processes and increasingly influential in our daily lives.
Importance of Information and Telecommunications to Other Sectors

Information, and therefore its transmission, has become essential for all transport flows of goods around the world and is, indeed, a crucial factor of production. This is illustrated by the percentage of the total work force employed in the information sector, the percentage of information costs in total corporate expenditure, and the fact that some specialized firms and sectors deal in information and information only. These factors, which cannot generally be influenced by the market players, will largely determine the environment within which the suppliers and transmitters of information operate; there are, however, other important determinants over which suppliers and transporters of information can exert considerable influence. These are quality, price, and added value, and it is in these areas that companies will seek a high profile and where they will compete. It is here, too, where the customers' priorities lie.

Changing regulations within the different markets are also of great significance to the information sector. The deregulation of the telecommunications industry has increasingly gained momentum over the last few years and shows no sign of abating. Indeed, one could go so far as to predict that the process of legislative change will be ongoing, reflecting not only the changes in market forces and technology but also the customers' constantly changing needs and desires.

The reasons for deregulation are varied. In the first place, we are faced with a mature market encompassing today's hardware, clients, and operators. The regulation of this market requires a structure other than that of the traditional monopoly. Allied to this, the performance of a telecommunications operator—or rather the price-to-performance ratio—may prompt a government to allow or encourage competition by opening up the market as a whole or in part. Taking the view that telecommunications are essential to the functioning of a modern economy, the government may also wish to create the essential production factors.

The Dutch Experience

The latter, positive approach lies at the heart of the deregulation of the Dutch telecommunications market. The Dutch economy is characterized by a high degree of specialization in the trade, transport, and service sectors, where information and the transmission of information are of special importance. More than half of all Dutch companies are active in these sectors. In addition, the Netherlands has traditionally been an open, internationally-oriented society situated at the crossroads of major trade routes and international connections. Although the country is home to just 5 percent of Europe's population, its accounts for over 25 percent of intra-European Community road transport. The Netherlands fulfills its function as gateway to Europe in various ways at the port of Rotterdam, one of the busiest in the world, at Amsterdam's Schiphol Airport, and in its role in the international transport of information. This background to the Netherlands' service-oriented economic
structure was a decisive influence in the far-reaching deregulation of the telecommunications sector in 1989 and the broad consensus that supported it.

More and more companies are internationalizing their business, a trend that will be reinforced by the lifting of most trade barriers within Europe. The quality and reliability of the services offered in the Netherlands will reflect the growing importance of moving information from country to country.

Deregulation in Europe will start with data transport and mobile communications. Views and developments in the Netherlands are in keeping with the open market approach. Regulatory changes are expected in the near future as part of the overall aim of broadening and deepening the choice of services available to customers. In the Netherlands a second mobile operator will enter the market in 1994. Most satellite services are already offered in a competitive environment, and the market for data transport services were opened up in 1993.

The government announced that it will sell up to two-thirds of its shares in Royal PTT Nederland NV (KPN), the parent of PTT Telecom Netherlands; the first tranche, about 30 percent of the two-thirds will be sold during the first half of 1994. KPN was turned into a wholly government-owned joint stock company at the time of the 1989 reform.

**The New PTT Telecom Netherlands**

On the face of it, the current situation as envisaged in the legislation has resulted in an optimal business environment for the information industry. More than that, the current order offers PTT Telecom Netherlands an optimal sphere of operations. This can be illustrated with reference to some important corporate parameters, including corporate culture, capital, flexibility, organization (personnel), and quality.

**Corporate Culture**

The question of corporate culture pertains particularly to the strategic base of business operations and the obvious long-term aspects. One can compare an old-style civil service organization with a leading company by reference to specific points that illustrate the change: from political satisfaction to satisfied customers, from the avoidance of political problems to the prevention of corporate problems, and from occasionally nonexplicit to clearly delineated standards of output. The system is no longer leading the population but is controlled by it. Corporate decisions are made without regard to political timetables. Risk avoidance has been replaced by entrepreneurial behavior that weighs the risks and is service-oriented. And finally, employees are no longer exclusively regarded as a cost factor but first and foremost as an asset.

**Capital**

As to capital formation the new situation offers far greater freedom than that permitted by a state budget. The implementation of new technologies, the expansion
Implementing Reforms in the Telecommunications Sector

of traffic capacity, and the continued rise in the level of quality, all require additional funds. Therefore in recent years PTT Telecom has roughly doubled its scale of investment, from some 1.5 billion guilders to around 3 billion guilders a year. Changes in PTT Telecom Netherlands' performance and investment levels are shown in Table 17–1 and Figure 17–1.

Organization

To achieve the necessary organization to enable PTT Telecom Netherlands to operate in today's and tomorrow's telecommunications service market required a clear external reorientation of the company and a concomitant internal regrouping of resources. Improved market orientation was achieved through the creation of five so-called business areas which ensure that the services and products are closely attuned to the needs of their particular markets (coherent product-market combinations). The managers of these business areas and the managers of the Netherlands' thirteen telecommunications districts are personally responsible for the operating profit. By 1992 a new accounting scheme had to be introduced. Clear goals with regard to investments, returns, quality, profit, and market share are formulated on a contract basis. The basic structure of PTT Telecom Netherlands is illustrated in Figure 17–2. At present PTT Telecom Netherlands is further subdividing its structure of districts with the introduction of some thirty regional units which will provide integrated services to customers in their areas. These will form the cutting edge of the organization and will be able to enlist the assistance of support units when necessary. Each telecommunications district will have some of these regional units, while some districts will share a support unit. The planning, construction, and management of the infrastructure will be rearranged to enable a flexible response to changing capacity requirements.

Table 17–1. PTT Telecom Netherlands, Key Performance Figures, 1990 and 1992

<table>
<thead>
<tr>
<th>Parameter</th>
<th>1990</th>
<th>1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net turnover (billion guilders)</td>
<td>9.6</td>
<td>11.1</td>
</tr>
<tr>
<td>Operating result (billion guilders)</td>
<td>2.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Operating profit (billion guilders)</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Total investment (billion guilders)</td>
<td>2.7</td>
<td>2.9</td>
</tr>
<tr>
<td>Employees</td>
<td>29,000</td>
<td>31,000</td>
</tr>
<tr>
<td>Total lines (millions)</td>
<td>7</td>
<td>7.4</td>
</tr>
<tr>
<td>Penetration (lines)</td>
<td>46</td>
<td>48</td>
</tr>
</tbody>
</table>

306
Quality

The most important factor in the entire operation and in the current management of the business has turned out to be quality. Quality stands for a customer-oriented approach and flexibility; quality affects the culture and organization mentioned earlier and, in relation to the price, quality is a decisive factor in the service business. The overall importance of quality to an organization is best illustrated by comparing the profile of a normal business with that of a quality company as illustrated in Table 17-2.

An active response to the changing business environment entails more than optimal performance in individual cases. The company must be geared structurally to the market as a whole and be prepared for future developments. PTT Telecom Netherlands strategy therefore includes a sweeping quality improvement program, intensified cooperation with other companies, reinforcement of its international position, and further streamlining of the organization.

PTT Telecom Netherlands has set itself some of the highest performance targets in the world and is on course to meeting them within a few years. Independent customer surveys are conducted every three months to determine performance in a number of key areas, including directory assistance, the time taken to respond to customer requests, the condition of pay phones, and other items that customers indicate as being crucial to their perception of good service. The comprehensive total quality management program, started in 1989, continues. All parts of the company have since become involved in the program, and the entire workforce is receiving training in quality.

A series of measures produced noticeable improvements in directory assistance, pay phones, the response to complaints, and the provision of information to customers about their telephone bills and other matters. PTT Telecom Netherlands obtained an International Standards Organization (ISO) quality of service certificate in 1992 for efficient and economic provision of telephone shops, other outlets, and
Figure 17-2. PTT Telecom Netherlands Organization Structure

General Management

Central Support

Policy Units

National Networks

International Telecom

Residential Market

Business Communications

Telematic Systems and Services

13 Telecom Districts

Cable and Radio Transmissions
Table 17-2. Importance of Quality to an Organization: Normal vs. Quality Company

<table>
<thead>
<tr>
<th>Normal Company</th>
<th>Quality Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>First profit, then satisfied customers</td>
<td>Profit results from satisfied customers</td>
</tr>
<tr>
<td>Problem tracking</td>
<td>Problem prevention</td>
</tr>
<tr>
<td>Cost control by limitation</td>
<td>Cost control through the coordination of activities and supplies</td>
</tr>
<tr>
<td>Limited training budget</td>
<td>Large training budget</td>
</tr>
<tr>
<td>No clear goals, roles, or style</td>
<td>Clear view on goals, own role, and style at all levels</td>
</tr>
<tr>
<td>Complaints are a nuisance</td>
<td>One can learn from complaints</td>
</tr>
<tr>
<td>Emphasis on technology</td>
<td>Selectively applied technology under management supervision</td>
</tr>
<tr>
<td>Controlled by systems</td>
<td>Controlled by cooperative people</td>
</tr>
<tr>
<td>Quality, productivity, cost control</td>
<td>Managed simultaneous improvement</td>
</tr>
<tr>
<td>are separate items</td>
<td></td>
</tr>
</tbody>
</table>

production units. This international approval of quality and reliability confirms for PTT Telecom Netherlands—and, consequently, for its customers—the efficiency and effectiveness of its vital, nationwide distribution network. More customer-oriented processes in the core business are now under review and will be certified in the near future. ISO-certificates fit into PTT Telecom Netherlands customer-oriented marketing strategy.

PTT Telecom Netherlands international telecommunications position follows naturally from the Dutch economic position and specialization in the service industry, the relatively small size of our home market, and the large number of multinational companies operating in the Netherlands. To offer them and others a high-quality international access port, one-stop shopping, and a complete range of services, PTT Telecom Netherlands is establishing its own international telecommunications circuits, setting up its own network of foreign offices, and maintaining a highly favorable price-to-performance ratio that is one of the best in Europe. For purposes of comparison, independent data such as those illustrated in Figures 17-3 to 17-6 show that both business and private customers consistently spend less in the Netherlands than almost anywhere else in Europe for comparable services and products.

Considerations of size, core activities, and a rapidly changing market mean that suppliers are unable to provide a total package of services single-handedly. As
privatized company, PTT Telecom can respond more quickly to market opportunities, since only business aspects need to be taken into account in the decision-making process.

Cooperation and Joint Ventures

PTT Telecom Netherlands is actively seeking forms of cooperation with other operators and companies. It has acquired interests in both domestic and foreign companies and has set up forms of cooperation in those areas requiring specialized knowledge of the market or where new services and products must be marketed with exceptional speed. In addition, partnerships are regarded as both necessary and desirable for the provision of services on a European or worldwide scale. PTT Telecom Netherlands specializes in the networks field.

PTT Telecom Netherlands has interests in more than twenty companies, including: Surfnet which develops and operates a value added network for universities and research centers; INTIS, an electronic data interchange services for the port of Rotterdam; Satellite Business Television; and Infonet, a worldwide supplier of network services. In addition, PTT Telecom participates in: Dutch Videotex; Transponet, a value added services and electronic data interchange for the European road haulage sector; and Medimatica which provides networks and services for the health sector.

A strategic alliance with our Swedish partner Televerket (transformed on July 1, 1993, from a government agency into a limited liability company called Telia AB), in a joint venture called Unisource, took shape in 1992. In 1993 the company welcomed the Swiss telecommunications operator as a new partner. Unisource
Figure 17-4. Charges for Outgoing Calls from the Netherlands

- Japan, Hong Kong, Singapore
- U.S., Canada
- U.K., Germany, France


Gilders Per Minute
Figure 17-5. Residential Telephone Costs (February 1, 1993)

Source: Tarifica Service, Intelidata Ltd
Figure 17-6. Business Telephone Costs (February 1, 1993)

Source: Tarifica Service, Intelix Ltd
Implementing Reforms in the Telecommunications Sector

Business Networks (UBN) and Unisource Satellite Services (USS) are now ready to provide their customers with a wide range of services and products. Unisource is establishing subsidiaries in several countries.

PTT Telecom Netherlands launched a joint venture with the Czech and Slovak telecommunications operators and is looking into acquiring a Caribbean interest.

Business activities have been developed in Eastern Europe, notably in the Ukraine, with the Ukrainian Telecom (UTE) and Ukrainian Mobile Communications (UMC) joint ventures. In UTEL PTT Telecom Netherlands joined forces with Deutsche Bundespost Telekom (DBP Telekom) of Germany, AT&T of the United States, and the Ukrainian government. This cooperation is aimed at establishing, modernizing, and operating Ukraine's international telecommunications services as well as installing and managing a long-haul trunk network.

UMC, which has a twenty-year license, is a joint venture of the Ukrainian government, DBP Telekom, Telecom Denmark, and PTT Telecom Netherlands. In the coming seven years, UMC will install a mobile telecommunications network for the twenty-one largest cities in the Ukraine. It will be ready for use in the five principal cities within three years.

Using satellite links PTT Telecom Netherlands is handling some of Bulgaria’s international traffic and examining the scope for modernizing and expanding local facilities. PTT Telecom Netherlands has entered into a cooperative venture with US Sprint, Cable & Wireless, Unitel, and Teleglobe Canada to provide worldwide private company networks using the public-switched international network, known as virtual private networks (VPNs). Through Nepostel, PTT Telecom Netherlands contributes know-how and assistance to developing countries. In addition to cooperation with established international organizations, PTT Telecom Netherlands has intensified its contacts and cooperation with individual telecommunications companies all over the world.

Conclusion

Having redefined its core activities, changed its corporate culture, reconfigured its organization, established partnerships, and emphasized the international context of its operations, PTT Telecom Netherlands must ask how all this affects the customer, the company’s raison d’être.

The discerning client is now able to choose from a wider range of services and products. This is true not only of peripherals but applies equally to new services and tailor-made service contracts. Increasing competition is putting pressure on prices, as for instance, international traffic. In addition, the customer has more points of access to PTT Telecom Netherlands via the countrywide chain of Primafone shops, business centers, and, of course, improved telephone access.

Service is improving. Customers who are being connected more quickly and the rapidly growing number of telephone booths are but two examples of this. In addition, PTT Telecom Netherlands maintains close ties with business user groups and consumer organizations and regularly conducts customer surveys.
These changes are also of interest to other, highly important market players, and particularly the telecommunications operators beyond the Netherlands' borders. These are PTT Telecom Netherlands' natural partners. After all, their basic service is seamlessly compatible with PTT Telecom Netherlands', which is why the international telecommunications community became one of the first organizations to encompass the entire world. Against this background of globalizing services and the ever-more important role of information and its transportation, cross-border cooperation is increasingly in the common and general interest. In addition, foreign operators' areas of expertise hold out interesting possibilities for the combination of complementary skills and the provision of tailor-made services and products for a differentiated market.

PTT Telecom Netherlands' relations with other operators are characterized by a more businesslike but also more open approach than in the past. In many respects these relations are more differentiated. On the one hand, they offer possibilities for cooperation at a number of levels, from joint ventures for single projects to preferred partnerships; on the other, it has become clear that within an otherwise good relationship there may be several opposing points of contact which need not be mutually exclusive. One's partner in one area may be a rival in another. The demarcation of such areas is subject to change over time and, naturally, always open to discussion; however, a lasting relationship requires mutual investment in terms of time, attention, and the exchange of know-how, and it should be based on a clear foundation of trust. PTT Telecom Netherlands adopts an open attitude in these matters.
Reform and Unification of Telecommunications in Germany

Karl-Heinz Neumann and Thomas Schnöring

Telecommunications, like the postal service, developed in Germany in a stable PTT environment managed by the government under the Ministry of Posts and Telecommunications. The Deutsche Bundespost (DBP), which offered postal, telecommunications, and postal banking services, was endowed with far-reaching monopoly rights. Interestingly enough, the scope of reserved services was much broader for telecommunications than for the posts, and there was no regulation in an economic sense of the dominant supplier. The DBP itself was responsible for regulation of private service providers and users.

The old structure, however, started to become inefficient, and conflicts of interest began to appear. By the early 1980s it became evident that this structure could not meet the challenges of market forces and technological developments and, therefore, that it could not be expected to survive. Reform models were discussed in the mid-1980s, and a final political and parliamentary decision to restructure the telecommunications system was made in the first half of 1989. On January 1, 1990 the telecommunications, post, and postal banking functions of the Deutsche Bundespost were split into three separate state entities. Deutsche Bundespost Telekom (DBP Telekom) is the entity responsible for telecommunications. The first part of this chapter discusses the outcome of this reform process.

By late 1989 discussion of German unification dominated the political debate. It also became the major event in the telecommunications sector, and the merger of the East and the West German PTTs occurred just as DBP Telekom, the restructured public telecommunications service provider, was beginning operation in a new organizational environment. Developing telecommunications in East Germany became the most important challenge in German telecommunications. A large part of this chapter deals with the policies and strategies of meeting this challenge.

Telecommunications Reform in Germany

Reform of the German telecommunications sector began with a governmental commission which developed a new telecommunications policy model. Table 18-1
## Implementing Reforms in the Telecommunications Sector

### Table 18-1. Time Table of the German Telecommunications Sector Reform Process

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>First decision of the government to reform the structure and policy of the telecommunications sector.</td>
</tr>
<tr>
<td>September 1987</td>
<td>Report presented by the commission to the government.</td>
</tr>
<tr>
<td>July 1, 1989</td>
<td>Enactment of the new law (Poststrukturgesetz).</td>
</tr>
<tr>
<td>July 1989–December 1989</td>
<td>Separation of the DBP from the Ministry of Posts and Telecommunications; separation of the three DBP enterprises (post, telecommunications, banking).</td>
</tr>
<tr>
<td>January 1, 1990</td>
<td>New organizational structure becomes effective.</td>
</tr>
<tr>
<td>July 1, 1990</td>
<td>Liberalization of the telephone equipment market.</td>
</tr>
<tr>
<td>October 3, 1990</td>
<td>Merger of East and West German PTTs.</td>
</tr>
<tr>
<td>July 1, 1991</td>
<td>Change in the legal relationship between the three DBP enterprises and their customers. This is now subject to private rather than public law.</td>
</tr>
</tbody>
</table>

Indicates the key milestones in the reform process, which extended over several years. Although Germany was a latecomer among major countries to reform, the rather lengthy time schedule should not be a surprise since the political reform package in Germany was larger than that in other Western countries. This was because of two major steps that had to be taken. The first (in many countries, the only) step was the formulation and implementation of a competitive environment in the telecommunications markets. The second involved putting into place a new regulatory structure and the organizational restructuring of the major supplier.

The reform process consisted of four major elements:

1. Separation of the regulatory from the business functions in the sector
2. Separation of posts from telecommunications

3. Definition of regulatory models, instruments, and policies

4. Establishment of a new managerial structure within the Deutsche Bundespost to improve internal efficiency.

The new legislation produced an organizational structure where the Ministry of Posts and Telecommunications no longer has the managerial authority but maintains the regulatory function for the sector (see Figure 18-1).

The German Parliament did not open all segments of the telecommunications market to competition. Major areas of reserved services remain. DBP Telekom, for example, remains the only provider of transmission facilities (network monopoly) and of voice telephony. All other services, including data communications and value-added services, are open to unregulated competition. There are two major and significant exemptions from the general network monopoly. These are all segments of mobile communications and the whole satellite communications area, which are open to competition. Market access is possible on the basis of licensing. Free and unrestricted competition exists in all aspects of the customer premises equipment market.

DBP Telekom, the dominant supplier in the German market, is now subject to regulatory measures to ensure a fair and efficient competitive environment in services.

Unification and the Challenge to Develop Telecommunications in East Germany

The rest of this chapter deals with the poor state of the telecommunications sector in East Germany and the undertaking to integrate it into DBP Telekom's West German network following unification in October 1990.

The Organizational Structure of East German Telecommunications before Unification

In the German Democratic Republic (GDR), as in West Germany before restructuring in 1989, the Ministry of Posts and Telecommunications (Ministerium für Post- und Fernmeldewesen, or MPF) was in charge of postal and telecommunications services. These were provided by the East German PTT which also distributed all newspapers and journals. This involved not only physical delivery but also billing and marketing functions, which usually represent a publisher's main economic risk. In addition, the MPF was responsible for manufacturing all telecommunications equipment through the Kombinat Nachrichtenelektronik, the parent organization of fourteen production units or firms (VEBs). Cabling and installation of switching equipment was carried out by the VEB Fernmeldebau, a subsidiary of the PTT.

The telecommunications industry, which had previously been under the control of one of the manufacturing industry ministries, came under the control of the
Figure 18-1. The New Regulatory Framework of German Posts and Telecommunications

- **Political objectives**
- **Regulatory body**
- **Coordination tasks and institution to ensure the unity of the Deutsche Bundespost**

**Report submitted to Parliament every legislative period**

**Formulation of infrastructural obligations**

**Parliament**

**Telecom Report**

**Federal Cabinet**

**Federal Minister of Posts and Telecommunications**

**Infrastructural Council**

**Deutsche Bundespost Board of Directors**

**Private Competitors**

- Deutsche Bundespost Postdienst (Postal Service)
- Deutsche Bundespost Postbank (Postal Banking Service)
- Deutsche Bundespost Telekom (Telecommunications)

**Board of Directors**

**Supervisory Board**

**Deutsche Bundespost (Federal Special Funds)**

**Customers**

**Separate public enterprises operating as profit centers (cross subsidization possible)**
MPF in 1989. This change, seen as one of the last attempts of the PTT management to improve the poor economic performance of the telecommunications system within the old organizational and political framework, was controversial. In the planned economic system of the GDR, the PTT could not expand the telecommunications system on the basis of its own financial viability. It had to report its investment needs to a central planning bureaucracy which made investment decisions based on its own priorities rather than the economic needs and financial performance of the sector. Foremost among these was the export of telecommunications equipment, mainly to other East European countries. In 1987, 80 percent of the national production of switching equipment was exported, 13 percent went to other national users, and just 7 percent to the East German PTT. In an industry where, on average, 40 percent of all production was for export, the threat that a PTT in charge of its own investment decisions would divert consumption to national use was obvious. The merger of the East German PTT with DBP Telekom has resulted in a complete separation of service provision from manufacturing, along the lines of the arrangement in the Federal Republic.

Broadcast and television matters had a high priority in the East German political system and, therefore, in the East German telecommunications system. The East German PTT had an influential department for broadcast and television with far-reaching responsibilities. Not only did the East German PTT operate all receiver and transmitter stations, it also controlled and ran all studio aspects. If, for instance, a private citizen, wanted to use a microphone for public purposes, he had to rent it from the PTT, which was in all respects a comprehensive communications company. For obvious political reasons, broadcasting and television have now, like manufacturing, been separated from the telecommunications services business and put under the control of a totally reorganized broadcasting and television system.

Structurally, the East German PTT had a rather broad monopoly. In 1985 the Law on Posts and Telecommunications gave the state the sovereign right to operate posts and telecommunications traffic. This right was exercised by the MPF and the PTT, with the minister responsible for ensuring uniformity of control, management, and planning. The government as a whole decided on basic policy matters. The law distinguished between public and nonpublic telecommunications. The PTT operated all public telecommunications systems and services. Nonpublic telecommunications was defined as traffic within a private telecommunications system and within a leased-line network; leased lines, however, could be rented only from the PTT, which had a comprehensive services and network monopoly. Only other state institutions such as the armed forces and the police were allowed to run their own telecommunications networks.

The minister of posts and telecommunications was head of a government commission responsible for coordinating the various state-owned telecommunications networks and for controlling their integration with the public telecommunications network. The East German PTT provided leased lines to business users to run their own private networks. Operating private networks, however, required a waiver by the MPF. Private networks were one way out of the poor public network performance.
Implementing Reforms in the Telecommunications Sector

Sectors which had a high priority on the political agenda could claim investment funds for telecommunications equipment in the central budgeting process, and the East German PTT had to provide leased lines for these private networks. Roughly 20 percent of the lines at the upper level of the telecommunications network were leased lines. This led, as one can imagine, to a substantial waste of network capacity.

The state regulated the use of the radio frequency spectrum through a public frequency commission headed by the MPF.

Generally, any private operation of a telecommunications service or equipment required authorization by the MPF. There was no private market for telecommunications equipment. All terminals were provided by the PTT. The few exceptions concerned some private PABXs where the PTT had to authorize their connection to the public network.

The Situation and Performance of the East German Telecommunications System

The telecommunications system in East Germany provided only basic services consisting of telephony, telex, and, to a very limited extent, data communications and leased lines. Mobile communications and value added services were virtually unknown.

There were 1.8 million main exchange lines before unification. This was about double that in 1969 (see Figure 18-2) and represented an installed base of about 4 million telephones. Approximately 1.1 million, or 60 percent of main stations, belonged to private households, the majority of whom had to rely on party lines. Only one out of seven private households could make use of a telephone. On average, there were 11 main lines per 100 population.

The telephone network exhibited enormous regional differences in density. While in East Berlin nearly every second household was connected to the network, in cities such as Dresden and Rostock only every ninth household was connected. These differences were due only in very small part to differences in income and demand. Political priorities were determinate.

The level of telephone penetration obviously did not reflect the demand for telephones in East Germany. In 1990 there was a waiting list for main exchange lines of 1.2 million. Nearly as many private households wanted access to the network as were connected to it. Given that the delay in obtaining a telephone connection was ten to twenty years, the official waiting list probably represented only a fraction of total demand. During the last years before unification, the size of the waiting list increased twice as fast as the number of newly installed main stations (Figure 18-2).

Nearly all main exchange lines were connected to automatic exchanges, but only about 20 percent had access to international direct dialing. The East German network consisted of 1,500 local networks and 2,700 local switching centers, and the two-level trunking network consisted of 182 switching centers. All local and trunk switches were analog and electromechanical and only 25 percent of these were crossbar. Table 18-2 shows the age distribution of local switches. Trunk switches exhibited a similar age structure. Most switches were, in fact, totally depreciated, some more than twice.
Figure 18-2. East German Main Lines and Waiting Lists, 1963-88
Implementing Reforms in the Telecommunications Sector

Table 18-2. Age Distribution of Local Switches in East Germany

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Percent of all Local Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922 to 1934</td>
<td>23.1</td>
</tr>
<tr>
<td>1935 to 1950</td>
<td>42.6</td>
</tr>
<tr>
<td>1953 to 1958</td>
<td>6.1</td>
</tr>
<tr>
<td>1963 to 1965</td>
<td>28.1</td>
</tr>
</tbody>
</table>

The situation and performance of the transmission network was better. Pulse Code Modulation (PCM) systems had been implemented since the mid-seventies, but a large part of all transmission systems was still analog. Less than 1 percent of all cables used optical-fiber technology, which was mainly introduced in larger local networks.

The poor technical performance of the telephone network did not permit facsimile or data communications. Only a few hundred facsimile machines and data modems with very low transmission rates were connected to the network.

The East German PTT operated neither a circuit-switched nor a packet-switched data communications network. It had 3,000 leased-line subscribers for data communications and another 1,500 subscribers connected to an operator-handled data communications network. The waiting list for data connections exceeded 10,000.

There had been plans since the mid-eighties to set up a packet-switched data network based on Western technology. A contract signed with Siemens, however, could not be realized because of the restrictions on the export of high technology equipment to the former Soviet block countries, the so-called CoCom restrictions. The telex network, with about 20,000 subscribers, also consisted mainly of technology of the fifties. Only one international switching center was digital.

Services in general and telecommunications in particular had a rather low priority in the political budgeting process of the East German economic system. The East German government had for a very long time underestimated the importance of a modern telecommunications infrastructure for economic and social development. The share of telecommunications investments during the seventies and eighties was around 0.7 percent—1.3 percent of the total national investment—and the percentage of depreciated equipment increased from 50 percent in 1971 to 57 percent in 1989.

Figure 18-3 illustrates the poor performance and underdevelopment of East German telecommunications with respect to other countries. East Germany's telephone penetration of 10.6 was one of the lowest in Europe. Table 18-3 compares the situation in East and West Germany before unification.

East Germany was, in fact, underprovided in telecommunications services relative to other goods and services. This was neither rational nor justified even under the economic system of the former East Germany, where not even the centrally planned economic system could explain the poor performance in the sector. Underdevelopment in telecommunications must, therefore, have been due to political rather than economic factors.
Figure 18-3. Main Lines per 100 Inhabitants 1989

- Sweden: 66.4
- Canada: 53.78
- United States: 52.66
- Germany, F.R.: 46.43
- France: 45.56
- Australia: 44.89
- New Zealand: 44.13
- Netherlands: 43.81
- United Kingdom: 42.75
- Japan: 41.7
- Italy: 34.98
- Cyprus: 30.61
- Taiwan: 28.19
- Spain: 28.1
- Korea, Republic of: 24.98
- Ireland: 23.56
- Portugal: 17.76
- Kuwait: 14.68
- Yugoslavia: 13.87
- Czechoslovakia: 13.6
- Uruguay: 11.29
- German D.R.: 10.57
- U.S.S.R.: 10.53
- Argentina: 9.94
- Turkey: 9.36
- Hungary: 8.1
- Poland: 7.8
- Brazil: 5.84
- Mexico: 5.15

Source: UIT
Implementing Reforms in the Telecommunications Sector

Table 18-3. Telecommunications in East and West Germany 1989: The Starting Point

<table>
<thead>
<tr>
<th>Category</th>
<th>East</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main telephone lines (millions)</td>
<td>1.8</td>
<td>28.4</td>
</tr>
<tr>
<td>Waiting list (millions)</td>
<td>1.2</td>
<td>-0</td>
</tr>
<tr>
<td>Main lines per 100 inhabitants</td>
<td>11</td>
<td>47</td>
</tr>
<tr>
<td>Fax subscribers</td>
<td>2,500</td>
<td>500,000</td>
</tr>
<tr>
<td>Packet-switching users</td>
<td>0</td>
<td>50,000</td>
</tr>
<tr>
<td>Telex subscribers</td>
<td>20,000</td>
<td>133,000</td>
</tr>
<tr>
<td>Telephone lines between East and West</td>
<td></td>
<td>1,461</td>
</tr>
<tr>
<td>Germany (international lines)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population (millions)</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>GNP per capita</td>
<td>DM 18,200</td>
<td>DM 38,500</td>
</tr>
</tbody>
</table>

One such political factor was the need for the totalitarian regime to control communications and information flow among its citizens, a task made more difficult when the telecommunications system is well developed and widespread. The fewer the phone calls, the easier to monitor and control communications. In addition, from an economic point of view there was the economic doctrine of socialist governments, which generally regard the services sector as less productive and consequently assign it a lower priority in the central investment planning. This argument is fortified, in particular, in sectors which, like telecommunications, are not able to earn foreign exchange.

The poor performance and status of telecommunications are two of many factors which explain the generally poor overall economic performance in Eastern Europe. Underdevelopment of the sector has caused and continues to cause significant overall economic losses.

The role of telecommunications in providing a basic infrastructure of successful economies stands out in this situation. In East Germany, as in other Central and Eastern European countries, it became obvious that telecommunications is a prerequisite for private and public investment in many instances. Therefore, a fast improvement of the East German telecommunications infrastructure became a top-level political issue in the unification process and thereafter.

Transitional Organization and Policy

Development up to the Unification

The process of unification of the two German states began in November 1989 and ended on October 3, 1990, when the federal states of the former German Democratic Republic joined the Federal Republic of Germany and became part of the political and legal system of West Germany.
The new cooperation between the East and the West German PTTs began at the end of 1989, with short-term measures to increase communications capacity for the enormously growing telephone demand between East and West Germany. This was followed by requests from the East German PTT to support the development of telecommunications in its territory. Starting in December 1989 a joint commission of the East and West German governments dealt with all questions and aspects of telecommunications of mutual interest.

By early 1990 the MPF had concluded that the only feasible way to develop and to get the necessary support was to adopt West German structures in both posts and telecommunications. The (East German) Modrow government had already decided in favor of a financially independent PTT ("Sondervermögen") and consequently to transform it into a public enterprise. Initial plans to restructure it into a private company had been dropped.

The new (and last) East German government, elected in March 1990, then made far-reaching posts and telecommunications organizational decisions, including the decision to separate the Deutsche Post from the ministry and posts from telecommunications; the original plans, however, still maintained the concept of a unified PTT. To facilitate the future merger of the PTTs, the West German three-public-enterprises structure for posts, telecommunications, and postal banking was adopted.

While the two governments were negotiating a basic contract for economic and currency union (Staatsvertrag), the two ministers of posts and telecommunications dealt with the unification of posts and telecommunications. Their Joint Declaration of May 17, 1990, was the result of these negotiations. Basically, this document defined how the West German organizational and regulatory structure, in place since the reform of 1989–90, was to be introduced in East Germany. The aim was to adopt West Germany’s telecommunications legislation step by step.

Cooperation between both sides was thereafter separated at the ministry and the management levels. The Joint Government Commission, in its various working groups, dealt with all policy and regulatory aspects of telecommunications, while the Joint Management Committee of the DBP Telekom and Deutsche Post discussed and drafted a shared management and business policy. As mentioned, the basic policy decision in the Joint Declaration was the gradual introduction of West German legislation into East Germany in anticipation of unification, which occurred on October 3, 1990.

The basic objective and consequent business policy decision was the creation of a common market for telecommunications in Germany through the integration of services, network planning, and business policy. DBP Telekom was to provide the financial support necessary to realize the agreed investment program by way of loans prior to the merger and subsequently through direct investments.

Telecommunications Modernization in East Germany

Modernization of the East German telecommunications network and its integration into the existing network of West Germany has raised a number of important policy, infrastructure development, financing, tariff and other issues.
Implementing Reforms in the Telecommunications Sector

Telecommunications Policy. The basic policy decision of German unification was the introduction of West German legislation into East Germany. In telecommunications this meant the adoption of the West German organizational and regulatory structure in place since the reform of 1989–90. The public debate about the appropriateness of this approach focused on the question of whether DBP Telekom as a state-owned monopoly would be able to achieve substantial improvements of the telecommunications infrastructure fast enough or whether the introduction of some kind of network competition with private competitors would achieve better results. The German Monopolkommission (monopolies and merger commission) argued strongly in favor of more competition and private investment, but overall the adoption of the West German regulatory structure was widely accepted. In the meantime it became obvious that any private network operator would have had great problems and disadvantages in building a telecommunications network in East Germany. The numerous locations of the Deutsche Post and special rights of way of DBP Telekom put the latter in a much better position to do the job faster than any private competitor.

The Ministry of Posts and Telecommunications decided to extend satellite licenses for voice communication between East and West Germany as well as within East Germany up to 1997. The license of the private mobile communications carrier Mannesmann Mobilfunk was extended to East Germany, with the obligation to reach 90 percent coverage by the end of 1994. In 1991 the ministry issued four licenses for private trunk mobile radio networks within four regions of the East. In 1992 four more licenses were issued for East Germany.

Unification has had an enormous impact on the state budget. The net financial transfer from the West to the East for 1991 is estimated to be in the order of DM 150 billion. In face of these financial burdens the Ministry of Finance forced the Ministry of Posts and Telecommunications to levy an extra tax on DBP Telekom and telecommunications users. In 1991–92 DBP Telekom paid DM 2 billion extra to the state. Unification, therefore, put pressure on DBP Telekom’s financial situation, through not only the supplementary tax but also the huge investment program, TELEKOM 2000.

Plans and Actions for Improving Telecommunications Infrastructure. Unification was significant in two ways for DBP Telekom. First, the company took over full responsibility for the telecommunications infrastructure in the new federal states and, second, it involved the merger of two big telecommunications operators with totally different backgrounds and corporate cultures.

There were high expectations on the speed of the integration of the East and West German networks and the improvement of the telecommunications infrastructure in the new federal states. Private investors in particular compared the poor situation in the East with that in the West. Therefore time was, and still is, the critical factor for DBP Telekom.

The time available to prepare for the merger of the two PTTs and for the huge investment program was rather short. Until July 1990, it was thought that the merger
Telecommunications in Germany

would not take place until 1993, yet, it occurred only three months later. The planning process for the infrastructure modernization program started in the spring of 1990, under a joint project of the two companies known as TELEKOM 2000. By the middle of 1990 DBP Telekom provided a loan of DM 2 billion to the Deutsche Post to allow it to procure and install modern digital equipment. With unification in October of that year, the framework of TELEKOM 2000 changed. Plans had to be accelerated.

TELEKOM 2000 is a strategic plan, announced in May 1990, covering DBP Telekom’s activities in Eastern Germany in the eight-year period from 1990 and 1997. Its goal is to raise the level of telecommunications performance in the five new federal states to that currently found in West Germany. This is very much a political, rather than a purely commercial goal. From an economic perspective it is very doubtful that the demand for telecommunications services will increase rapidly in the new states, so that DBP Telekom clearly runs the risk of building up overcapacity. Figure 18–4 shows some objectives and investment figures of the original TELEKOM 2000.

Shortly after unification DBP Telekom came under public pressure, in particular from the business community, to accelerate the development of the network in the new federal states. It was suggested that private investors could not wait until 1997 to get a telephone, even though the original TELEKOM 2000 program would have gradually improved the situation. DBP Telekom therefore sought ways to speed up development. Because of the bottlenecks due to shortages of planning and managerial resources, it was decided to award turnkey contracts to private enterprises. These were to be aimed at business customers and entailed comprehensive projects involving construction of a whole local network, including cabling, switching equipment, and building, with projects being handed over to DBP Telekom on completion in a fully operational state. In order to ensure technical interoperability and to minimize transaction costs, DBP Telekom decided to limit the number of contractors to four companies which were

Figure 18–4. Objectives of the TELEKOM 2000 Program

<table>
<thead>
<tr>
<th>TELEKOM 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>.... for the new installation of</td>
</tr>
<tr>
<td>- 7.2 Million Telephone Lines</td>
</tr>
<tr>
<td>- 68,000 Public Phone Boxes</td>
</tr>
<tr>
<td>- 360,000 Telefax Lines</td>
</tr>
<tr>
<td>- 50,000 Datex-P Lines</td>
</tr>
<tr>
<td>- 5 Million Cable TV Lines</td>
</tr>
<tr>
<td>- 300,000 Cellular Users</td>
</tr>
</tbody>
</table>

Source: DBP Telekom

329
Implementing Reforms in the Telecommunications Sector

already supplying the company with switching and transmission systems. The risk of bringing new technology into the network and of working with companies not familiar with DBP Telekom’s procedures was felt to be too high compared with the potential benefits of bringing in new suppliers.

Overall, therefore, the very tight schedule favored well-known technologies, network structures, and suppliers. This increased costs and may be a burden for the future. There were, for example, those who believed that DBP Telekom should have taken a chance and implemented only optical fiber for the local network; however, the risk of installing new, untried technology such as fiber to the home was judged to be too high. Instead, DBP Telekom decided to run some field trials and in December 1991 announced plans to connect 1.2 million homes and businesses in Eastern Germany with optical fiber. For some observers this was in itself a bold move. In July 1992 DBP Telekom invited its four suppliers to build the world’s first commercial local optical-fiber telecommunications networks, and thereby took a major network initiative.

The original TELEKOM 2000 program of May 1990 planned to increase the number of main telephone lines by 300,000 during 1991. With the additional turnkey projects this goal was raised to 500,000, ten times the number of new lines the Deutsche Post had installed in recent years. Figure 18-5 shows the objectives announced in the spring of 1991 for telephone lines for the coming years. After one year the objective for 1992 was increased further, to 600,000 new lines, of which 400,000 were to be installed by DBP Telekom and 200,000 by means of turnkey projects.

The investment budget for the TELEKOM 2000 program up to 1997 was originally estimated at DM 55 billion, of which about DM 35 billion was for equipment and DM 20 billion for construction. In 1991 the estimated investment was increased to DM 60 billion.

At the beginning of the unification process DBP Telekom was the largest single investor in East Germany. This investment was having a positive effect on the tumbling economic situation in the new federal states. In 1991, roughly 8 percent of the total investment in East Germany was due to DBP Telekom.

WHAT HAS BEEN ACHIEVED SINCE 1989? Prior to unification there were only 1500 international circuits connected between East and West Germany. This resulted in a major bottleneck. Demand had been increasing significantly, and customers sometimes had to wait and redial for hours to get a connection. This became an important political issue. By the end of 1990 the capacity of East-West German communications increased by a factor of four. Switches on both sides of the old East-West border were connected directly to each other; however, initially technical adjustments had to be made because the two networks used different signaling systems, which made a direct integration impossible.

Satellite capacity is being used to give customers from East Germany direct access to the western network for voice and data communication and vice versa. Licenses have been awarded for private voice communications services, even though these would not normally be allowed under current German regulation. Despite all this, the number of private competitors and customers remained surprisingly small. By
Figure 18-5. Projected Telephone Main Lines in East Germany

<table>
<thead>
<tr>
<th>Year</th>
<th>Turn-key TELEKOM 2000</th>
<th>Growth per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>1994</td>
<td>4.9</td>
<td>1.2</td>
</tr>
<tr>
<td>1995</td>
<td>6.3</td>
<td>1.4</td>
</tr>
<tr>
<td>1996</td>
<td>7.7</td>
<td>1.4</td>
</tr>
<tr>
<td>1997</td>
<td>9.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Telephone Main Lines in Millions

0 1 2 3 4 5 6 7 8 9

Implementing Reforms in the Telecommunications Sector

the summer of 1991 DBP Telekom's DIVA (Direkte Verbindungen über Ausnahmehauptanschlüsse) service for satellite voice communications had only about 280 customers, with the number of customers of the private systems estimated to be even smaller. The market for VSAT data communications services seems to be influenced to a greater extent by the poor terrestrial network in eastern Germany. It is estimated that 80 to 90 percent of the VSAT stations installed in Germany are located in the East. The number of VSAT stations is increasing but remains relatively small. By the summer of 1991 there were about 1,000 VSAT stations.

One of the key projects under the TELEKOM 2000 program is the installation, over existing analog network, of a digital overlay network which will form the backbone of the future digitized network (Figure 18-6). The first stage of this overlay network went into operation in July 1991. Built in nine months it uses optical-fiber cable, copper cable with PCM, and digital radio links. It brought 70,000 additional lines for telephone calls within East Germany and increased the number of lines between West and East from 8,000 to 34,000.

Completion of the first stage of the overlay network resulted in a significant improvement in quality of service. The era of the constant busy signal and redialing was over. The effect of the overlay network on customer satisfaction is evident in the results of various polls (Figure 18-7).

Given the exceptionally difficult structural situation in East Germany, the TELEKOM 2000 program set ambitious objectives for the development of the telecommunications infrastructure. Taking into account the various elements of this situation—namely, the merger of Deutsche Post and DBP Telekom, the organizational restructuring of the company, the need to educate and train 40,000 former Deutsche Post employees, and the severe bottlenecks in almost every type of infrastructure, the results appear quite good, despite a continuing large excess demand for telecommunications services within the new federal states.

The number of telephone lines increased substantially, increasing by 80,000 main lines in 1990, by 450,000 main lines in 1991, and by 760,000 main lines in 1992. DBP Telekom's objective for 1993 was an increase to 850,000 main lines. The total number of telephone main lines has increased from 1.9 million in 1990 to 3.1 million in 1992. Despite these achievements, the waiting list has continued to increase and was well above 2 million at the beginning of 1993. DBP Telekom's vision is to normalize the waiting list by 1994, a very ambitious objective indeed.

BUSINESS CUSTOMERS. TELEKOM 2000 was designed as a comprehensive program for all telecommunications services, including cable TV. While this reflects the broad responsibility of DBP Telekom, it also indicates one of its major problems, namely, how to set priorities. As mentioned, the business community began in late 1990 and early 1991 to take a very active interest in the reform process. This led to DBP Telekom's setting a clear priority for business customers and the development of the telephone network. Polls have indicated that this priority has been widely accepted by private customers in the East.
Figure 18-6. Development of Digital Overlay Network in East Germany to 1993

Source: DBP Telekom
Priority must be given to construction of the terrestrial local network in order to overcome a bottleneck because free access lines in one local loop cannot be transferred to another. Under this strategy business customers are served first in areas with free access capacity, through connections to neighboring local switching centers if possible. The density of potential business customers is, therefore, a major criterion for the allocation of construction work in the local loop. All 1991 turnkey projects were targeted at areas with a high share of business customers. In the spring of 1991 DBP Telekom started to procure radio-based systems for the connection of business customers to distant local switching centers. These systems will be used in areas where the terrestrial network cannot be developed immediately. They provide telephony, facsimile, and data communication services, and came into operation during the first half of 1992. Even though these radio-based connections involve higher costs to DBP Telekom than conventional terrestrial connections, all customers are charged the same tariffs.

Under strong public pressure, the board of DBP Telekom announced its goal that every business customer should have a telephone by the end of 1991; however, given the structural problems and the nature of telephone networks, this goal was not realistic from the beginning. At that time, in the spring of 1991, the company had no computer-based information about its customers. The old waiting lists had been handwritten and were totally out of date, especially with respect to businesses. Furthermore, the business sector had changed dramatically and many new businesses had been established. As a consequence, even though it provided telephones to 153,000 businesses during 1991, DBP Telekom could not meet its objective of satisfying all business customers in 1991. At the beginning of 1992 very many business customers were still on the waiting list;
however, questionnaires showed that already more than 95 percent of all businesses of the manufacturing and the building sectors had at least one main telephone line. Overall the business community in the new federal states was reasonably satisfied with the development of the telecommunications infrastructure (Figure 18–8). At the beginning of 1993 there were still business customers waiting for a telephone due to shortages in the local network, but ongoing surveys showed that almost all businesses had one telephone and more than 70 percent had facsimile. Customer satisfaction was increasing despite ongoing shortages for additional telephone lines.

In this transitional phase, mobile services have become particularly important for business customers. Since they can be used as substitutes for nonexistent terrestrial lines, the development of DBP Telekom's C-network was given a high priority. By the end of 1991 this network was available in all major cities and on all major highways, covering 60 percent of the area of the new federal states and 80 percent of the population. The number of subscribers from East Germany increased dramatically and network capacity was being used heavily all day long. By the end of 1992 the C-network was available over 80 percent of the territory and to 90 percent of the population.

The number of data communications access points increased from 3,400 to 27,000 in 1992. It was expected to increase by an additional 30,000 in 1993.

**Tariff Policy.** From the beginning, DBP Telekom's policy was to adopt the same tariff for the same service in East and West Germany as quickly as possible. Although this was easy to implement for installation and rental charges, it required technical
Implementing Reforms in the Telecommunications Sector

adjustments in the network for call charges and could therefore not be realized immediately. Major tariff elements were harmonized in mid-1991, with remaining differences to disappear by 1994.

From an economic point of view, harmonization of tariffs between East and West is inefficient because the market situation in the East is very different from that in the West. Given the huge excess demand in Eastern Germany, tariffs should be used to allocate scarce supply capacities and, therefore, should be orientated toward demand. In West Germany where supply more or less equals demand, tariffs should be more cost-oriented. The lowering of East German tariffs to the West German level increased demand in Eastern Germany and created additional bottlenecks. This argument is especially valid for installation and rental charges and less so for call charges, where reverse calling is always possible.

In Germany, a large element of politics is still involved in the setting of prices for the telephone services. It would have been politically difficult, if not impossible, to convince the general public that installation and rental charges should be higher in the East than in the West. DBP Telekom, therefore, established administrative rules indicating that, for example, business customers should be served first. Such rules create many problems and do not necessarily result in those customers who could best use the lines being served first. Such a policy gives private customers the incentive to be classified as business customers and, furthermore, removes from DBP Telekom the economic incentive to invest in more expensive temporary solutions such as radio-connected lines. With higher and differentiated rental charges, the number of radio-connected lines probably would be higher than what is now planned. The tariff policy chosen is just one of many examples which illustrates the strong political influence in the transformation of the former centrally planned East German economy to a market-driven economy. Although this is necessary in many cases, it is a problem and burden in others.

Conclusion

The unification of East and West Germany just two years after the reform of the telecommunications sector in the Federal Republic of Germany heavily burdened the process of restructuring the telecommunications sector in Germany. The merger of DBP Telekom and Deutsche Post and the massive infrastructure development program for Eastern Germany have been absorbing a substantial share of scarce managerial and financial resources within DBP Telekom. This has slowed down the necessary transformation process of the organization from a national public administration to an internationally-oriented company. This is a disadvantage for DBP Telekom, at least in the short run. On the other hand, DBP Telekom is building up experience and a reputation for modernizing the telecommunications infrastructure in Eastern Europe, and this clearly is giving it a competitive advantage in those markets.

The modernization of the telecommunications infrastructure in the new federal states is well under way. Improvements are faster than in many other parts of the public infrastructure, such as roads and public administration. A rapid and massive
Telecommunications in Germany

transfer of financial resources and know-how from the western to the eastern part of the country stimulates the development and makes the situation in the former German Democratic Republic in many respects much different from the development in the rest of Central and Eastern Europe.

Endnotes

Challenges and Issues in Central and Eastern European Telecommunications

Timothy E. Nulty

The countries of Central and Eastern Europe (CEE),1 handicapped by peculiarities of their unique history and the need to transform their economies, must confront simultaneously three difficult challenges to their telecommunications sectors: they have to develop their networks at an accelerated pace; they must implement the newest technology; and they have to adapt to the new competitive commercial environment. Although many other middle-income developing countries face one or two of these challenges, none faces all three on such a magnitude or with such urgency. Together, they make the overall circumstances and problems of CEE telecommunications quite different from those found elsewhere in the world. Yet despite the extent of the difficulties and the short time which has elapsed since the revolutions of 1989 and 1990, a consensus is beginning to emerge on the most appropriate strategies to pursue, and progress is already being made on execution of these strategies. Obviously, not all have followed the same policy nor achieved the same degree of progress. Nevertheless, a substantial beginning has been made, which augurs well for the future of the telecommunications sectors in these countries, the political situation willing.

The Need for Accelerated Growth of the Networks

Telecommunications was relatively neglected by CEE governments until well into the 1980s. Overall investment was low and the little new investment that was forthcoming was used to connect new lines rather than maintain, replace, and strengthen the underlying infrastructure. As a result, countries of the region have inherited underdeveloped, worn out, and unbalanced networks.

CEE has about 100 million inhabitants and approximately 11 million connected direct exchange lines, giving an average penetration of 11 lines per 100 population. Poland, Romania, Hungary, and Czechoslovakia are fairly similar in this regard: penetrations range from 8 to 13 in the order listed. Bulgaria is something of an
Implementing Reforms in the Telecommunications Sector

exception; having started to increase investment in telecommunications some time ago, it now has a penetration of over 25.

This is far below what their economies need. The GNP per capita for the CEE countries averages about US$2500 (official government figures reconciled with international methods by the World Bank). If we assume that during the next decade CEE economies move strongly toward mixed market structures similar to those of Western Europe, that GNP levels become progressively more comparable, and that real growth averages around 1.5 percent to 2 percent per annum over the decade, then GNP per capita can be expected to rise to about US$6000 (in today's dollars) by the year 2000. Historical experience in the West suggests that telephone penetration associated with this level of development should at the very least be 25 lines per 100 inhabitants to support a comparable level of economic activity.

The foregoing analysis does not, however, take into account that telecommunications services play a far greater role in modern economies than they did when today's industrialized countries had GNPs per capita of around US$6000. Taking account of this additional importance of telecommunications in modern economies, CEE governments and PTTs are aiming to reach penetrations around 30 per 100 by the year 2000 (and 40 by 2010). Assuming the current low rates of population growth continue, this implies a stock of 31 to 32 million connected lines by the year 2000, requiring an annual growth rate of 11 percent. This is a major acceleration in the growth of telecommunications networks in countries which have seen rates in the order of 3 percent over the last thirty years and have only reached 6 percent per annum during the second half of the 1980s. Again, Bulgaria is something of an exception. It grew faster than the others in the 1980s and may not need to increase the overall growth rate in the 1990s.

Achieving such growth will be difficult and costly, but failing to achieve it will perpetuate the environment of acute shortage and poor service which in turn imposes even higher costs on the economy as a whole.

The Need to Introduce New Technology

All CEE networks are overwhelmingly analog. Although there is some early-vintage digital equipment, some electronic PBXs, and some very recently installed modern equipment, all forms of digital electronic equipment account for less than 5 percent of all facilities. Many switches are of very old step-by-step technology which is not only inflexible and ill-suited to modern demands but also worn out and unreliable.

The economics and technology of modern telecommunications dictate that virtually all new equipment must be digital and that existing equipment should be replaced as rapidly as economically possible. This requires massive implementation of a technology with which telecommunications operators in CEE have little experience and which is very different from that currently in place. All Western countries, even the relatively less developed, have many years of experience implementing digital technology. CEE countries have practically none, having been effectively locked out until very recently by Western export restrictions and the failure to develop digital technology in
the former Eastern bloc. Their telecommunications sectors must now be developed more rapidly than any has ever been before in order to catch up with the digitalization process which has been in progress in the West over the past fifteen years.

The Need to Adapt to the New Commercial Competitive Environment

Demand is increasing rapidly, especially from business users (including highly desired foreign investors), for better telephone service than is generally available, for data and other new services, for more and better dedicated facilities, and for discounted bulk rates. As in Western countries, aggressive demand from major users will become a major force which will drive the sector in the near and medium term. It already manifests itself in intense pressure on CEE telecommunications operators and governments to redirect operators' resources away from traditional balanced network development toward targeted investment for special user groups, and to permit alternative providers to enter the market.

At the same time that operators are being pressured to provide target services for special groups, there is a desperate need and intense political pressure to build a general, nationwide public network. But doing this requires (especially in an era of severe stringency on government budgets) the ability to utilize surpluses from profitable services and customer groups to finance extension of the network, since the latter is costly up front and only yields returns slowly.

These sometimes conflicting challenges have created a new and exceedingly difficult climate for the telecommunications operators in these countries. It will require them to change their attitudes and modus operandi from traditional state public utilities to commercial, cost- and customer-sensitive, enterprises.

Special Complications Facing CEE Telecommunications

Complicating these challenges are some special conditions which arise from the region's unique history and which make the CEE predicament quite unlike that found elsewhere in the world. Foremost among these are:

CoCOM Restrictions. These restrictions on the export of high technology equipment to the former Soviet block are being relaxed but have not yet disappeared. The spirit of euphoria which dominated 1990 cooled following the events in the Gulf in early 1991 and the dramatic events in the former U.S.S.R. Although the eventual disappearance of export controls to CEE is virtually certain, the nuts-and-bolts reality of CoCom restrictions will continue to complicate investment and modernization for some time yet.

Telecommunications Manufacturing Industries. Most developing countries have little or no telecommunications manufacturing industry. Of those that do, several have built them recently and, therefore, with modern technology. CEE countries have telecommunications manufacturing industries which are unusually
Implementing Reforms in the Telecommunications Sector

large relative to their traditional domestic markets (partly due to exports to the former U.S.S.R.). All of these industries are based on outmoded technology. Although CoCom restrictions prevented them from acquiring new technology, they also protected them. Hidden from competition behind the CoCom barrier, they were slow to adopt or develop new technology or to improve efficiency. Now, suddenly, they are faced with a dramatic increase in competition from much more advanced and efficient Western companies. Many are in danger of going under completely. On the other hand, faced with rapid contraction in many other sectors, CEE governments are loath to see their telecommunications manufacturing industries collapse as well. Their reluctance stems not only from potential employment and output loss but also, faced with the necessity of expanding telecommunications networks, they know there will be a large demand for manufacturing output and a shortage of foreign exchange with which to purchase Western equipment. Therefore, one can already observe substantial pressure on telecommunications operators to purchase as much as they can from domestic manufacturers; however, if the operators are forced to purchase equipment which is inferior, overly expensive, or antiquated, their network development plans will be affected, resulting in a drag on the economy.

All CEE countries want to short-circuit this dilemma by joint ventures or licensing arrangements with Western firms. In principle, this can yield good solutions; there is, however, also a danger that these arrangements could saddle countries with (relatively) obsolete equipment, tied procurement, and high costs. This is particularly so if each country insists on maintaining its entire line of equipment production and isolates itself from neighboring countries which face the same dilemma by dealing solely with one or two Western firms. Much depends on the details of the strategies and arrangements adopted.

Unpopularity of Telecommunications Enterprises. Although telephone companies are rarely loved anywhere, those of CEE are particularly unpopular. Working, universal telephone service is seen as a hallmark of advanced democracies and, conversely, its absence in the region is seen by most as a symbol of the failure of the old regime. Telecommunications operators suffer from some of the stigma of the previous governments, and opposition to them carries an overtone of opposition to the entire previous political and economic system. Consequently, there is more widespread popular political support for liberalization and competition in the sector than is typical in the West, where such pressure comes primarily from large users and where popular sentiment is ambivalent because of the fear of increased residential prices and lost jobs.

Absence of Financial and Commercial Infrastructure and Skills. Virtually all middle-income Western countries have long experience with market systems and well-developed infrastructures to support them, including accounting systems and professionals, laws dealing with contracts, property, corporate structure, behavior, fraud, and antitrust, as well as courts to enforce the laws. Furthermore, most such countries have a sizable cadre of people who are knowledgeable and skillful in commercial management and enterprise. Indeed, these are so necessary for a market system and so ubiquitous that
they are often taken for granted; in CEE, however, they are extremely scarce. The infrastructure, knowledge, and experience which took decades, even centuries, to build up elsewhere, are having to be created in the CEE almost overnight.

**Strategy for Meeting the Challenges**

Despite the enormous challenges facing CEE telecommunications, much has been accomplished in the short time since the revolutions of 1989 and 1990. Despite a good deal of fluidity and confusion in the overall political and economic climate, the picture in the sector is beginning to clarify and, more specifically, the leadership structure is starting to be better defined. Also, a consensus is beginning to emerge throughout the region on the best direction and strategy for reforming the sector. This strategy is composed of several elements:

**NETWORK STRATEGY.** In the long term, all CEE countries are aiming to double or treble the rate of investment and network growth with a view to achieving a penetration of about 30 lines per 100 inhabitants by the year 2000. Second, all countries plan to start installing digital equipment immediately and to cease all new installations of analog equipment within two or three years.

In the short term, a combination of actions is contemplated to provide rapid relief. These include (a) installing new digital international switches to decongest a critical bottleneck and generate income; (b) constructing overlay digital networks to relieve congestion in the trunk networks, provide high-quality services to large users, and build the skeleton for long-term network modernization; (c) licensing one or more cellular operators to provide service quickly to those willing and able to pay (and generate income via the franchise fee); and (d) licensing or building packet-switched data networks for large data users.

**TELECOMMUNICATIONS ENTERPRISE INTERNAL REORGANIZATION.** This generally involves separating telecommunications from posts and other activities, reorganizing of internal operations to focus on reducing costs, increasing quality of service, marketing and customer service, and measurement and accountability of management.

**TELECOMMUNICATIONS ENTERPRISE CORPORATE GOVERNANCE.** Governmental regulatory and policy functions are being separated from telecommunications operations and being vested in the ministry. Telecommunications operations are being recognized as independent, financially self-supporting, commercial companies which neither give nor receive any government subsidies, and will eventually be transformed into joint-stock companies.

**SECTOR STRUCTURE AND COMPETITION.** The CEE countries intend to broadly follow the framework outlined in the EC Green Paper, but with some differences among countries. In general, they will (a) completely liberalize terminal equipment and value added services provision; (b) continue to maintain monopoly over some
core definition of basic facilities; (c) allow a gradual opening of markets for a variety of other network facilities which both the PTT and other companies may operate (chiefly in peripheral networks such as cellular and private networks); and (d) allow foreign participation at a minority level in some areas and unrestricted in others.

**Telecommunications Manufacturing Industry.** All CEE countries appear to have decided to promote their domestic telecommunications manufacturing industries mainly through joint ventures with Western firms and to link at least part of their telecommunications purchases to these firms.

These elements of an overall strategy seem to have gained broad acceptance. They represent a rational and realistic approach framework for effective action. As such, to have gotten this far in so short a time and in difficult circumstances is a considerable accomplishment for telecommunications authorities in these countries.

**Implementation of the Telecommunications Strategy**

Implementation of this strategy has barely begun. Relatively few elements have been put into detailed plans, and few concrete actions have been taken. This is, of course, not surprising given the short time period. Nevertheless, it is important to keep up the momentum. A sensible set of broad principles and objectives has been reasonably well agreed on in CEE, and now the more difficult task of concrete implementation must be accelerated. To do so requires addressing the problems discussed below.

**Liberalization and Privatization**

The explosion of demand for telecommunications services of all kinds is so great that it is virtually impossible for the traditional telecommunications operators to meet all of it alone. Hence, there is large and growing pressure to permit new enterprises into the market. In response, numerous enterprises, foreign and domestic, are pushing to set up business in the telecommunications market in countries of CEE. Examples include plans for MAV, the Hungarian railroad, to build a fiber-optic network whose spare capacity could be made available to provide telecommunications facilities and services; the Cable & Wireless franchise in Gdansk; proposals for a fiber-based network to offer data and electronic mail in Poland; joint ventures for cellular networks in Czechoslovakia and Hungary as well as efforts in that direction in the other countries; the joint venture for a packet-switched network in Czechoslovakia; efforts to set up independent local telephone companies in Hungary and Poland; and the banking network in Poland which will be able to offer service to a limited number of large subscribers.

In principle, although such liberalization is beneficial and can lead to faster growth, new and better services, and competitive discipline on costs and quality, it also raises a number of serious issues. For example, how will it be done? Who can enter which markets and under what terms and conditions? How should the telecommunications
operators respond? Central to these issues are questions of PTT joint ventures with other enterprises (especially foreign) and awarding of franchises (concessions) to enterprises other than the telecommunications operators. As many have discovered already, it is much easier to agree in principle that these are good ideas than it is to put them into practice. For example: What should be the scope and duration of a franchise? How does one organize fair and efficient bidding for a franchise? How does one select a joint venture partner? How does one arrive at a good deal with partners who are far more expert?

In part these are business decisions to be made by the new telecommunications entrants and by the PTT, after it has been restructured as an independent commercial entity without government interference except via the overall regulatory framework which sets the rules of the game and referees them.

**Regulation**

The process of liberalization makes it increasingly clear how critical a well-structured regulatory framework is. First, liberalization cannot and should not be permitted to proceed completely unchecked and unregulated. The telecommunications sector is not like restaurants or textile factories; it cannot be completely unregulated. The liberalization process in telecommunications must be managed in a coherent fashion or it will not work at all. Second, a regulatory framework must ensure that social values, such as universal service provision, and scarce natural resources such as the radio spectrum, are protected. Third, regulation must prevent monopoly abuse of prices and service quality. Lastly, regulation must ensure fair competition via nondiscriminatory interconnection, signaling systems, and protocols. Such regulation is, properly and preeminently, the work of the government. Although very important, regulation is not the same as running the telecommunications enterprise, the only function which governments in CEE have experience performing.

There is significant danger if key questions are not handled well. For instance, most new applicants, including foreigners, often want an exclusive franchise (which would eliminate competition); the freedom not to have to pay taxes or other concessions, which are expensive to the government; and minimal (if any) regulation of tariffs, service, or performance. In addition, new entrants usually seek only the most profitable markets and prefer not to serve the others, while at the same time undermining the profits of the PTT which it needs to extend service to underserved areas. If granted in full, such conditions could lead to monopoly abuse, distorted investment, and drain on government treasuries, which would be inimical to sectoral and national development.

On the other hand, in the face of competition, the main telecommunications operator typically seeks to control all protocols, set interconnection tariffs so as to disadvantage competitors, overcharge those customers who have no choice, and undercharge those customers who have competitive alternatives. Clearly a difficult balance must be struck between the assurances and protection which telecommunications businesses legitimately want if they are to make large investments, and national goals of fiscal responsibility, efficiency, competition, and economic reform.
Implementing Reforms in the Telecommunications Sector

Striking this balance is a complex and difficult political task. Rules of the game covering franchising arrangements, interconnection, tariffs, taxation, standardization, frequency allocation, enforcement, and dispute resolution must all be clarified in law, regulation, and administrative responsibility. This is one of the most urgent tasks facing those in charge of policy and sector reform. Little or no development—except traditional (and inadequate) forms of investment—will be possible until significant progress is made on these key issues. This is what governments, especially telecommunications ministries, should be focusing their attention on, rather than choosing switching systems or entering joint venture deals with foreign companies, which in any case should be the business of these companies and PTTs.

None of the CEE governments has gotten far in this crucial area. Hungary has done the most work on devising a serious, modern regulatory scheme and has recently enacted a telecommunications law to put the scheme into effect (see chapter 21). In Poland a new law which permits liberalization but provides very few details was passed in 1991. Serious work on the details of a regulatory framework to implement liberalization has begun. Czechoslovakia has only started to think about these matters and to draft a law. In Romania the government appears to have formulated a broad policy, but little work has been done on the details either of a law or of the regulatory scheme to implement it. In the other countries the issue has barely been raised.

Relations with Equipment Suppliers (Foreign and Domestic)

Traditionally telecommunications operators had no choice but to take whatever the domestic telecommunications manufacturing industries had to offer, regardless of quality, price, delivery delays, or technology. Now that these operators are being told to be businesslike, that is, to improve quality, to cut costs, to accelerate investment using their own finance by making a profit, and to respond to increasing competition, they can no longer afford to be slaves to the domestic telecommunications manufacturing industries. They must get the best, cheapest, state of the art equipment possible.

At the same time, CEE governments are faced with increasing unemployment and collapsing industries. Their telecommunications manufacturing industries, while far below world level, are not their worst industries. Indeed, unlike most regional industries, telecommunications manufacturers face a rising domestic demand from accelerating telecommunications investment. Together these provide strong reasons for governments to try to save them. This, in turn, depends on finding foreign partners or licensers from which modern technology and know-how can be obtained and also on the domestic telecommunications enterprises’ buying from domestic manufacturers.

The interests of all three players in this process differ. The telecommunications operator wants the best, cheapest, and most reliable equipment. The government wants jobs, added value, and technology. The manufacturer (especially the foreign manufacturer) wants to charge the highest possible price and put the least possible number of jobs, investment, and technology into another country because these undermine and compete with his home factories.
Although none of these three interested groups can get its way completely, none can be ignored either; however, reconciling them in a manner which gives all three a reasonable deal is difficult. Several countries in the region have made some progress; others have barely begun to think about it. The problem is made even more difficult because each country is talking independently to the same few foreign suppliers, who, in contrast, know the situation in all countries of the region. This points to the need for CEE governments to consult with each other on common problems in order to be able to confront potential foreign suppliers and domestic manufacturers with more and better information about the whole regional situation.

**Financing**

Although now the most difficult issue of all, financing did not cause serious problems in the past for telecommunications authorities because politicians set the goals and, having done so, were obliged to provide the financing and the necessary inputs. Telecommunications managers themselves had little responsibility. They merely translated the targets delivered from the top into a detailed program for installation and a list of inputs required. It was the government’s responsibility to ensure that the necessary goods and financing were available. If it failed, the government and the suppliers, not the telecommunications managers, took the blame for not fulfilling the plan. In the future, telecommunications operators will have to stand on their own. The government may set ostentatious public targets, but it will definitely not be able to pay for them. PTTs will have to find the financing for their own investments and will have to set only those targets which they can realistically hope to finance. Already it is clear that financing the stated targets of achieving penetration levels of 30 lines per 100 inhabitants by the year 2000 will be very difficult on several counts.

**Volume of Financing.** A number of countries (mostly the ambitious newly industrialized countries, or NICs, such as Korea, Singapore, Taiwan, Malaysia) have, for sustained periods, achieved telecommunications network growth rates as high as CEE countries would need to attain; however, this was usually accomplished in the context of faster overall economic growth rates than are likely for the countries of CEE, and without having to contend with massive simultaneous restructuring of the entire economy. For CEE countries to finance 10 to 12 percent per annum growth in telecommunications while their real GNP’s are growing by 1 to 2 percent will be difficult. To illustrate, assume that the countries of the region are able to get the cost of an added line down to something in the order of US$2000, from the current level of about US$2500 to US$2600 (at world market prices). Achieving a penetration of around 30 lines per 100 (including replacement of 5 percent per annum) will then cost in the range of US$5.5 billion to US$6.0 billion in 1990 dollars over the next decade, or US$5.5 billion to US$6.0 billion per year. This is approximately three to four times what these countries have spent over the last decade, even after adjusting for previous,
Implementing Reforms in the Telecommunications Sector

unrealistic prices of equipment. If real GNP growth is 1.5 to 2.0 percent p.a., such a rate of investment would absorb around 2.0 percent of GNP over the decade.

**SHORTAGE OF CONVERTIBLE CURRENCY.** A much higher proportion of investment will have to be paid for in convertible currency than in the past. Previously about 90 to 95 percent of CEE telecommunications investment was with domestic or soft currencies. About half of this was for construction and civil works, and the rest for locally produced equipment. Even with optimistic assumptions about modernization of domestic telecommunications manufacturing industries, the proportion of equipment purchased with hard currency will rise to 40 to 50 percent in the next five years and probably remain at 30 percent for the rest of the decade. This implies a hard currency bill for telecommunications equipment in the region of at least US$5 billion to US$6 billion over each of the coming five years and US$4 billion to US$5 billion in the following five years. If domestic manufacturers fail to modernize, reduce costs, and improve quality, these countries will have to spend an even higher amount of hard currency or curtail their telecommunications investments or both. This will be doubly difficult for those countries with large hard currency debt burdens. Even countries with low debt have limited ability to earn hard currency. The difficulty of financing the large amount of imported telecommunications equipment which will be needed by these countries will make them vulnerable to disadvantageous terms and conditions.

**UNDERDEVELOPED CAPITAL MARKETS.** Traditionally, the government financed any expansion which it authorized. In the future, severe budget constraints will prevent this. CEE telecommunications operators can rely on their own revenues for a large part of the domestic currency financing they need, but only if they get costs down, increase efficiency, increase traffic, and maintain economic tariffs. These are difficult tasks, and even if they are successful, they will still need substantial outside domestic financing in order to meet their investment targets. Normal financing sources such as banks and the stock and bond markets, are extremely rudimentary in all countries of the region, if they exist at all.

**Sources of Finance**

Traditionally, financial considerations were secondary in the decision schemes of CEE telecommunications operators. Financial planning consisted primarily of negotiations over the share of the government budget to be allocated to the sector. Tactics were those of bureaucracies the world around and included (a) overstating needs and overdesigning systems in anticipation of blanket cutbacks by budget authorities; (b) overbuilding whenever possible, since the government could often be forced to pay after the fact, and having capacity in reserve whenever possible; (c) if forced to cut, threatening to cut the most valuable or politically sensitive parts of the network in order to apply leverage to the budget bargaining process; (d) resisting any genuine exploration of alternatives, since that might undermine one's bargaining
position; (c) spending all allocated funds in an allotted period, regardless of economic justification, in order to avoid turning the money back to the treasury.

These traditions are deeply embedded and must now be radically altered. In relatively short order telecommunications operators must become fully responsible for their own financing. At the same time they must accelerate investment. The two imperatives will require radical reorientation of institutional attitudes toward financing. Development of financial strategies which closely integrate physical and technical planning with financial planning are top priorities.

Chief among the financial resources to which Central and Eastern European telecommunications operators must look are the following options.

**Internal Generation**

This will necessarily be the main source of funds for the foreseeable future because of the weakness in the capital markets, national macroeconomic limits on overall credit creation, uncertainty, and riskiness of the overall economy. Internal generation of a large percentage of required investment (at least 50 percent on average during the period 1990–95, rising to 85 to 90 percent by the end of the decade) should, in principle, be possible. These entities are actually, or potentially, profitable. Demand for telecommunications and willingness to pay (and ability to collect bills) are high, and telecommunications entities are relatively strong institutions; however, this level of internal generation requires a thorough reevaluation of tariff policy, investment priorities, cost reduction, and marketing.

**Domestic Outside Finance**

In the current environment of extreme excess demand coupled with rudimentary development of normal Western capital market mechanisms (that is, stock markets, commercial and investment banking), promising sources of domestic outside finance are instruments which are tied in some way to service connection, such as subscriber bonds, subscriber subscriptions, and telecommunications associations. The conceptual line between subscriber subscriptions, subscriber bonds, and connection charges can be blurred at times; however, in all of them, a preferential place in the queue for connection is exchanged for or associated with the purchase by the subscriber of a financial asset. A potential subscriber may pay for this by a straight subscription or deposit (which may or may not be repaid by discounting his monthly bill after connection), or he may be issued a bond of some sort which may or may not be transferrable.

The Hungarian telecommunications operator, MTV, has experimented with various forms of this type of financing for several years with considerable success. From 1986 through 1989 subscriber deposits raised approximately 7.9 percent of the total amount of capital expenditure during that period. Municipal contributions, which are somewhat similar in that municipalities would contribute to the cost of network construction in their localities on behalf of their citizens, raised 9 percent,
Implementing Reforms in the Telecommunications Sector

and the sale of bonds, 8 percent. Recent and imminent changes in the law will make it possible to expand the scope of these mechanisms into equity instruments (both general and attached to service hookup) and more general debt instruments. If MTV proceeds with its current intention to build a digital overlay network to provide high-quality service to business customers (and, simultaneously, to unblock the national long-distance network), it would have the opportunity to expand this mechanism still further by charging these business customers a substantial initial hookup fee. In addition, it would have substantial scope for financing development from connection-related financial instruments.

Foreign Outside Finance

So far the only significant foreign sources have been the World Bank and a certain amount of supplier credit. It is desirable and likely that this will change, although the speed and magnitude of new sources is unlikely to match the more sanguine hopes of potential recipients.

INTERNATIONAL INSTITUTIONS. Institutions such as the World Bank, the European Investment Bank (EIB), and the European Bank for Reconstruction and Development (EBRD), will remain central players for the foreseeable future, both on their own accounts and as catalysts for other sources through co-financing arrangements. It is not possible to say with any precision how much the international institutions will be able to commit during the next ten years. Much depends on imponderables but the amount will be based on the likely size of available resources, concerns about exposure, and the many demands from other sectors which will be made on these institutions; however, it is unlikely that they can contribute more than 40 to 50 percent of the total foreign exchange financing required. More likely they will be able to contribute less. This leaves roughly US$3 billion to US$6 billion of hard currency imports for the region to be financed from other sources.

DIRECT FOREIGN INVESTMENT. Direct foreign investment is desirable both because it is equity and also because it may bring foreign management expertise. Direct foreign investment can come in many forms, including foreign purchase of share equity in existing telecommunications entities after their transformation into joint-stock companies, equity (or quasi-equity) participation in new ventures with CEE telecommunications enterprises, direct purchase of specified subunits of the networks (for example, local or rural networks), and construction of entirely new wholly or partially owned enterprises to provide packet-switched data, private, or mobile networks. Although Western companies have expressed considerable interest in all of these, and there appears to be a great deal of opportunity, little concrete progress has been made to date. In large part, this is due to the lack of legal (and political) clarity regarding ownership of existing entities; assets and mechanisms for transferring them; and of regulatory frameworks governing franchises, tariffs, service obligations, frequency allocation, and interconnection. There is also considerable
ambivalence in CEE (as elsewhere), despite the professed desire for Western management expertise, about granting ownership control of telecommunications networks to foreigners.

COMMERCIAL BANKS AND SIMILAR LENDERS. These have been a relatively small source of telecommunications financing in the past, but this may change if opportunities expand for co-financing, either with international agencies or as syndicated packages put together in the context of direct foreign investment.

TIRED BILATERAL AND SUPPLIER FINANCING. More promising in terms of potential volume are various forms of tied and semi-tied financing, bilateral government grants and credits, and supplier or contractor credits. The current political pressure to help CEE, and the highly competitive nature of the telecommunications equipment market, virtually guarantee that financing of this sort will be available. Under the right terms and conditions these sources are highly beneficial. The right terms and conditions are, however, an important caveat. Financing of this sort often carries limitations in choosing technologies which can deflect the recipients from their own optimal development strategies. Furthermore, apparently attractive terms are often balanced by higher equipment prices and servicing costs. Also too many different systems may get installed, which complicates (and increases the cost of) maintenance and operations.

Currently, the sheer magnitude of Western interest is a problem. Large numbers of companies, consultants, investment bankers, and government officials are inundating CEE governments and telecommunications operators, which have little experience in dealing with such a flood. Currently, clear, orderly, and enforceable frameworks for considering and comparing offers, awarding franchises, and allocating frequency are rare. Establishing such frameworks is a critical priority if the situation is to remain under control, in the sense that excessive entry takes place without any order or process, contrary to national interests, and possibly with considerable corruption—which in turn can lead to a backlash against foreign participation per se. Alternatively, a number of qualified potential entrants will be so discouraged as to be unwilling to come back for some time to come, resulting in important opportunities lost.

In conclusion, therefore, financing will become a central problem in the coming years. CEE telecommunications sectors should, in theory, be able to find the necessary domestic and foreign financing to accomplish their development goals without having to rely on government budget contributions. Success, however, will not be easy. It will depend on the performance of the overall economy, the government’s ability to implement a stable regulatory regime (including ownership, corporate structure, franchise, and tariff policy), and finally, the performance of the telecommunications operators themselves.

Regarding the latter, CEE telecommunications operators must begin serious financial planning to have any chance of meeting the ambitious goals they are setting for themselves. These goals are just barely feasible, and this only if operators use every means available to reduce costs, increase revenues, attract outside debt and equity, and
Implementing Reforms in the Telecommunications Sector

tightly control financial planning. In April 1991 the World Bank conducted a course in Czechoslovakia on financial analysis and management of telecommunications for strategic planners from all CEE countries. That was only the very beginning. In May 1991 at a roundtable in Badacsonytomaj, Hungary, telecommunications policymakers and government officials discussed concrete options for raising finance. The World Bank has no particular view as to the best method of raising finance. All have their advantages and disadvantages, and it is up to each country to critically examine each option and pick those that best fit their own situation.

Endnotes

1. Central and Eastern Europe (CEE) comprises the former Warsaw Pact countries excluding the former Soviet republics, the former Yugoslavia, and Albania.

2. Official CEE GNP figures have well-known flaws. Efforts to correct for these have their own deficiencies and produce results which differ widely, from low estimates of about double to high estimates of four times the official numbers.

3. CoCom restrictions continue to apply to transmission equipment operating at 565 Mbps and higher.

Closing the Capacity and Technology Gaps in Central and Eastern European Telecommunications

Jürgen Müller and Emilia Nyevrikel

For forty years the countries of Central and Eastern Europe (CEE) neglected investment in infrastructure, including telecommunications. Only on rare occasions did they attempt to bring their telecommunications systems up to Western European levels. (Even the relatively high telephone penetration of 17 DELs (direct exchange lines) per 100 population in Bulgaria is low in comparison with other West European countries; Table 20-1.)

The Capacity, Technology, and Quality Gaps in Telecommunications

It is very difficult to estimate the extent of the current capacity gap and the pent-up demand for telephone connections in CEE. In most of these countries, waiting lists which, if fulfilled, would double the number of current lines may in fact understate pent-up demand. Until the end of 1989, telephones and the telephone services in these countries were primarily meant for the commercial sector, the government, and the ruling cadre rather than for the general population. Available waiting lists from the private sector therefore did not always represent the total demand. Often those who got their names on them were in the party or had bribed officials. Also telephone usage, especially for private households, was very low, even at unrealistically low prices.

Before World War II Czechoslovakia, East Germany, and Hungary were among the richest regions of Central Europe. A considerable neglect of public infrastructure, including telecommunications, resulted from the destruction of the war and the socialist reconstruction afterwards. (The railways were something of an exception.) The development of the telecommunications infrastructure in CEE, therefore, fell behind that of Western Europe. Average growth rates for expansion also remained relatively low, thereby widening the capacity gap. Often, the telephone network was more developed in the major cities and administrative centers than in the outlying regions, which had much lower telephone penetration rates than suggested by the national average figures. Only a very few outlying regions had direct dialing.
Table 20-1. Comparison of Eastern European Telecommunications Performance, 1989

<table>
<thead>
<tr>
<th>Country</th>
<th>Inhabitants (in mill.)</th>
<th>Main lines (in mill.)</th>
<th>ML penetration/100 pers.</th>
<th>Waiting list (in 1,000)</th>
<th>Waiting list per 100 pers.</th>
<th>Direct dialing (in percent)</th>
<th>Public phones (in 1,000)</th>
<th>Telex connections (in 1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>10.6</td>
<td>0.9</td>
<td>8.7</td>
<td>552 (85)</td>
<td>5.2</td>
<td>85.6</td>
<td>24.4</td>
<td>13.5</td>
</tr>
<tr>
<td>Poland</td>
<td>38.0</td>
<td>3.0</td>
<td>7.9</td>
<td>2000</td>
<td>5.2</td>
<td>91.5</td>
<td>25.6</td>
<td>33.5</td>
</tr>
<tr>
<td>Former Yugoslavia</td>
<td>23.9</td>
<td>3.2</td>
<td>13.6</td>
<td>142</td>
<td>0.6</td>
<td>(88.0)</td>
<td>7.9</td>
<td>13.0</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>8.9</td>
<td>1.5</td>
<td>17.0</td>
<td>168</td>
<td>7.9</td>
<td>99.7</td>
<td>9.7</td>
<td>6.0</td>
</tr>
<tr>
<td>Former CSFR</td>
<td>15.6</td>
<td>2.1</td>
<td>13.6</td>
<td>372</td>
<td>2.4</td>
<td>(96.0)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Romania</td>
<td>23.0</td>
<td>2.6</td>
<td>10.4</td>
<td>800</td>
<td>3.5</td>
<td>67.5</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total</td>
<td>120.0</td>
<td>13.2</td>
<td>12.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC (1987)</td>
<td>320.0</td>
<td>122.7</td>
<td>37.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFTA (1987)</td>
<td>32.0</td>
<td>16.3</td>
<td>51.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n.a. Not applicable.

Source: MDIS, World Bank
Closing the Capacity and Technology Gaps

facilities, making the gap between the city and the countryside in terms of technology and availability even larger.²

The telecommunications systems in all of CEE are, in sum, substantially underdeveloped. They are characterized by exponentially increasing waiting lists, a growing technology gap, obsolete equipment, few if any nationwide dialing facilities (and even fewer international), low service quality with a high proportion of failed calls, slow fault clearance, high noise and distortion ratios, and frequent disconnections.

The technology gap between Eastern and Western Europe increased substantially during the late seventies and eighties, due to the advances in digital technology which Western economies (and many developing countries) used to modernize and digitalize their networks but which was, to a large extent, unavailable in Eastern Europe. This was partially due to the CoCom restrictions on the export of certain high-technology equipment with potential military use to the countries of the former Soviet block but also to the insistence on autarkic production and the lack of competition in the supply of equipment. In the fall of 1989 the CoCom restrictions were somewhat eased. Pre-1984 digital equipment (except common channel signaling no. 7, packet switching, and high-speed—above 45 Mbps—transmission equipment) could now be imported. Integrated services digital network (ISDN) techniques, 1350-nanometer optical fiber, and radio transmission equipment using the sophisticated 16-QAM modulation technique continue to be restricted and will likely only be available after further easing of CoCom restrictions.

The reasons for the large gap between Eastern and Western European technology in telecommunications can be summarized as follows:

• Although firms and public enterprises had a workable level of telecommunications infrastructure (except, of course, for a lack of new services), telecommunications were not seen as a necessary basic household need.

• Public investment funds were always scarce, so that the telephone companies were severely stretched, both for extension and replacement investment.

• The rapid technological changes in the sector over the last two decades has widened the gap as Eastern European countries have fallen further and further behind. CoCom restrictions extended and enlarged this gap.

• Equipment markets were largely protected. As a consequence production costs in terms of resource needs were relatively high, exhausting investment funds earlier than would have been the case under a more competitive situation.

Isolated Attempts to Decrease the Capacity Gap

The recent economic and political changes in Eastern Europe have led the authorities to realize that the problems facing the telecommunications sectors are more complex than
Implementing Reforms in the Telecommunications Sector

just closing the capacity and technology gaps. The experience in the West showed that the widening of telecommunications applications and the emerging new service needs not only were adding to demand in the sector, but also making the institutional implementation of this demand more complex. Policies of liberalization and deregulation are therefore being considered in a number of these countries. Given the dissatisfaction with centrally planned solutions and excessive state intervention, there is now a greater willingness in Eastern Europe to experiment with alternative institutional arrangements. At the same time, however, the level of discussion and the problems of implementation are evidence of an additional gap, namely that of institutional knowledge and administrative flexibility in dealing with these issues. As many of these countries are currently also confronted with a period of fundamentally changing economies and political restructuring, of which telecommunications is only a small part, the enormous task of restructuring the sector should not be underestimated.

Bulgaria

While Hungary undertook to boost its telecommunications infrastructure on several occasions in the seventies and eighties, but not as part of an integrated, ambitious plan, Bulgaria implemented an accelerated development program which could, however, not be sustained. The Bulgarian example is interesting because it illustrates what could be achieved even with the limited resources and institutional constraints described above. In 1973 the government announced a nationwide program to improve service industries and put special emphasis on telecommunications. In a ten-year period it was able to triple its main line penetration through annual growth rates of 10 to 20 percent, during a period in which Hungary and Poland were only able to double theirs (Tables 20–2 and 20–3).

Financing of this program was achieved through the operational income of the PTT, which had been the main source of investment in the past as well as an increasing amount of credit, accounting for 20 to 22 percent of total investment. The PTT also enlisted the

<table>
<thead>
<tr>
<th>Year</th>
<th>Total exchange capacity</th>
<th>Increase in percent</th>
<th>Automated exchange capacity</th>
<th>Increase in percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>387,768</td>
<td>—</td>
<td>295,156</td>
<td>—</td>
</tr>
<tr>
<td>1975</td>
<td>617,532</td>
<td>59.3</td>
<td>522,838</td>
<td>77.0</td>
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<tr>
<td>1980</td>
<td>1,181,656</td>
<td>91.4</td>
<td>1,121,603</td>
<td>114.5</td>
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<tr>
<td>1983</td>
<td>1,524,285</td>
<td>29.0</td>
<td>1,481,056</td>
<td>32.0</td>
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— Not available.
Source: Nyevrikel
<table>
<thead>
<tr>
<th>Year</th>
<th>Bulgaria</th>
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<th>Hungary</th>
<th></th>
<th>Poland</th>
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<tr>
<td>1974</td>
<td>5.8*</td>
<td>—</td>
<td>4.7</td>
<td>—</td>
<td>3.8</td>
<td>—</td>
</tr>
<tr>
<td>1975</td>
<td>6.4*</td>
<td>10.3</td>
<td>4.8</td>
<td>2.2</td>
<td>4.1</td>
<td>7.8</td>
</tr>
<tr>
<td>1976</td>
<td>6.9*</td>
<td>7.8</td>
<td>4.9</td>
<td>2.1</td>
<td>4.3</td>
<td>4.9</td>
</tr>
<tr>
<td>1977</td>
<td>7.8*</td>
<td>13.0</td>
<td>4.9</td>
<td>0.0</td>
<td>4.6</td>
<td>7.0</td>
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<tr>
<td>1978</td>
<td>8.5*</td>
<td>9.0</td>
<td>5.0</td>
<td>2.0</td>
<td>4.8</td>
<td>4.3</td>
</tr>
<tr>
<td>1979</td>
<td>9.3*</td>
<td>9.1</td>
<td>5.2</td>
<td>4.0</td>
<td>5.0</td>
<td>4.2</td>
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<tr>
<td>1980</td>
<td>10.3*</td>
<td>10.8</td>
<td>5.8</td>
<td>11.5</td>
<td>5.2</td>
<td>4.0</td>
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<td>1981</td>
<td>10.3</td>
<td>0.0</td>
<td>6.0</td>
<td>3.4</td>
<td>5.5</td>
<td>5.8</td>
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<td>1982</td>
<td>12.7</td>
<td>24.2</td>
<td>6.1</td>
<td>1.7</td>
<td>5.8</td>
<td>5.5</td>
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<td>15.1</td>
<td>18.7</td>
<td>6.3</td>
<td>4.9</td>
<td>6.0</td>
<td>3.5</td>
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<td>1984</td>
<td>16.9*</td>
<td>11.7</td>
<td>6.6</td>
<td>4.8</td>
<td>6.3</td>
<td>5.0</td>
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<tr>
<td>1985</td>
<td>17.4</td>
<td>3.3</td>
<td>7.0</td>
<td>6.1</td>
<td>6.7</td>
<td>6.3</td>
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<td>1986</td>
<td>n.a.</td>
<td>—</td>
<td>7.3</td>
<td>4.3</td>
<td>7.0</td>
<td>4.5</td>
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<td>1987</td>
<td>n.a.</td>
<td>—</td>
<td>7.7</td>
<td>3.5</td>
<td>7.4</td>
<td>5.7</td>
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<tr>
<td>1988</td>
<td>21.0</td>
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<td>8.1</td>
<td>5.2</td>
<td>7.3</td>
<td>5.4</td>
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<tr>
<td>1989</td>
<td>22.2</td>
<td>5.7</td>
<td>8.7</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* estimate from telephone density and extensions/main lines ratio
n.a. Not applicable.
— Not available.

Source: Poland: ITU Statistical Yearbook
Hungary: Statistical Yearbook of the Hungarian PTT
help of local municipalities, agriculture cooperatives, and enterprises which helped in the
construction of the local networks. Once completed, the local networks, buildings, and
land became the property of the PTT; the local organizations, however, benefitted from
an early access to a more developed and denser national telephone network.

Also, the Bulgarian program was associated with increased technology transfer
and a general upgrading of the Bulgarian telecommunications industry. Siemens A-
29 cross-point quasi-electronic exchanges were initially imported and later produced
under a license. In 1976 this license was amended to also cover cross-point electronic
telephone exchanges, mainly for the trunk-switching centers. In 1981, a digitalization
program was implemented, with the objective of installing eleven digital trunk
exchanges by 1990 and reducing the network hierarchies from four to three levels;
however, problems in technology transfer and cutbacks in funds diminished the
growth potential of the program by 1983. Nevertheless, the push up to 1983 gave
Bulgaria a large infrastructure jump to put it ahead of all the other Eastern European
countries. The total cost for the program was estimated at Leva 1.607 billion.

In the 1980s the Hungarians pursued a similar but less ambitious program.
Given the ever-increasing waiting list and the limited funds available from
internal sources, the PTT sought new ways of increasing telecommunications
investment. One form of financing was a "partnership with local communities,"
similar to that which had been implemented earlier in Bulgaria but much more
formalized. Another was the issuing of telephone bonds, complemented by
increased borrowing, essentially through access to funds from the World Bank.
These new funding mechanisms permitted more than a doubling of the number
of main lines being connected per year in Hungary, from between 15,000 to
20,000 in 1981–82 to 43,000 by 1989.

The other CEE countries were unable to deviate from a long-term network
expansion rate of 2 to 3 percent per annum, a very unsatisfactory rate given
increasing telecommunications applications and the low level of basic infrastruc-
ture investment.

**East Germany**

The impact of the capacity and technology gaps was particularly felt in Eastern
Germany, which was left with an outdated, old-fashioned network, 60 percent of
which had already been written off. The age structure of the switches was particularly
bad. Almost two-thirds of the switches were of the prewar Strowger type; the most
recent were only 1963–65 models. Seventy percent of switching equipment, 60
percent of underground cables, and a full 98 percent of outside cables had already
been written off. Yet, given the past rate of replacement, some of these outside cables
(38,000 kilometers in 1989) will still be in use in 2050.3

In 1989 there were only about 950 kilometers of fiber-optical cable in use and some
133,000 kilometers of digital trunks.4 There was no digital microwave system.

Data transmission could be provided only through the normal telephone network,
which had only 700 data connections. An additional 226 data connections were
Closing the Capacity and Technology Gaps

provided via the telex network. A manual-switched data network operating at 2400 Hz provided 8000 connections, and there were 2,900 leased lines operating at 48 Kbps. In 1989 there were between 10,000 and 12,000 unfulfilled requests for data connections. There was no packet-switched network and no line-switched data network available. Facsimile transmission was not possible because of the bad transmission quality. Mobile communications was not publicly available, even though they were used to a large extent on a private basis and in large manufacturing and public utility firms.

Hungary

The Hungarian network resembled the one in Eastern Germany. It had equally low penetration with very large regional imbalances. Budapest, with only 20 percent of the population, had 50 percent of the country's telephones. Its 35 lines per 100 population compared with 9 for the rest of the country. Only 89 percent of local exchanges were automated (100 percent in Budapest and 77 percent elsewhere). The long-distance network had a lower degree of automation. While 90 percent of exchange lines in Budapest had subscriber trunk dialing (STD), only 61 percent had it elsewhere, giving a nationwide average of 79 percent. Only one in three towns and villages was connected to the STD network; the rest, with manual trunk exchanges, accounted for 32 percent of the traffic in 1985. International direct dialing (IDD) was available to eighty-four countries by 1985.

A 1985 report from the Hungarian Ministry of Post and Telecommunications showed that 28 percent of exchanges and 20 percent of outside facilities required immediate replacement. Call completion rates were 45 percent for local calls, 50 percent for long-distance, and 35 percent for subscriber-dialed international calls. To reduce overload of the network the ministry introduced partial or complete restrictions on new connections in more than 100 of 344 exchanges.

There was almost a complete absence of modem business services such as data transmission services, fiber-optical networks, and modern multifunctional terminal equipment, all of which were becoming increasingly important for business.

The Increased Importance of the Telecommunications Sector

The political changes and restructuring efforts in CEE countries, from centrally planned to market economies, have also changed the priority for the telecommunications sector. The number of business firms is growing as a result of this restructuring and the special emphasis on creating small and medium-size enterprises. As a result the number of business access lines being demanded is increasing significantly. In addition, there is a growth in private households demanding access to the telephone network.

Foreign trade is also receiving a higher priority. Many of these countries are trying to reorient their trading patterns, which in the past relied to a large extent on the trading relations with the West and the member countries of the U.S.S.R.-based Council for Mutual Economic Assistance (CMEA) or Comecon. Furthermore, to
Implementing Reforms in the Telecommunications Sector

upgrade the outdated capital infrastructure in the manufacturing sector, increased foreign investment and technology transfer are needed. All this requires a functioning telecommunications system, an aspect which is giving further importance to a properly functioning telecommunications infrastructure.

Not only are telecommunications being given increasing priority these days, but given the financial constraints of these countries and the disappointing performance of centrally planned systems, there is also an increasing willingness to experiment with new institutional structures. Telephone companies are being moved out of government departments into separate public companies. In some instances, privatization is envisaged, in whole or in part. This is being done not only to reduce political influence on the telephone companies but also to increase performance and to attract foreign capital to meet the investment needs of the 1990s. A reorganization of the telecommunications sector, including the possibilities of direct foreign investment, is increasingly being considered not only as a means of transfer of capital but also as a method for the transfer of technology and organizational know-how.

Short-Term Solutions

These increasing demands on the telecommunications network cannot be easily met, and especially not in the short term. As a consequence, administrations' main priorities are to try to keep the existing network working, to replace outdated equipment in major bottleneck areas, and to improve quality of service. Only in the medium term is a larger capacity increase achievable. Nevertheless, a number of short-term measures can be taken immediately, including:

- More realistic pricing of telephone services
- Relieving of bottlenecks in the network
- Improved efficiency in the operation of the network.

Longer-term goals, to which we will turn later, involve both institutional and financial reform.

Tariff Reform

Most telephone companies in CEE were not allowed to raise tariffs even though their costs rose. It should not be forgotten that in these planned economies, no one spoke about inflation. The result is that current tariffs often do not cover costs. An increase in tariffs, perhaps with a move toward some form of peak load pricing, is therefore inevitable. Although experience in countries with high excess demand indicates that demand for telecommunications services remains relatively price inelastic until penetration rates rise very much above current CEE levels, some
rationing of demand through higher tariffs might still be expected. Poland has recently increased the prices for its infrastructure goods (mainly transportation) by more than 100 percent. A price rise of similar magnitude could certainly be envisaged for telecommunications services, at least for local and trunk calls. If such a price rise were coupled with a less pronounced increase during the off-peak period, some of the social tensions related to increases in telephone prices could be reduced along with demand on the network.

In addition, an increase in connection charges should be envisaged to reduce access to the limited telecommunications network in the short term, since such access has high opportunity cost. Such a policy could be coupled with new financing instruments, such as the issuing of telecommunications bonds in Hungary. An access charge in the order of DM 2,000 (US$1,400), which would indicate to existing telephone subscribers the opportunity cost of their own access, could be envisaged. This might in some cases even lead to a market for access.

Relief of Network Congestion

A second priority of telecommunications operators should be to relieve some of the current network congestion, to reduce the high fault rates, and speed up fault clearance. This would not only improve the usefulness of the present network but also help to raise more revenues. Such a network improvement program implies more investment in fault-monitoring, traffic-measuring, and traffic-engineering activities, as well as investments in the short term to relieve some of the bottlenecks in the long-distance network. Given the expected reduction in network congestion and the associated revenue growth, increased automation, especially in the long-distance network, could be an important and profitable area for such short-term investment.

Our discussions with some officials suggest that small investments for improving traffic-handling capacity in the network, especially in bottleneck areas, would help to relieve the most urgent needs of customers and yield relatively high rates of return. At the same time such a policy would help to better fulfill demand of old and new business customers, who are pressing hardest for capacity expansion.

Intermediate solutions

There are a number of additional measures which are somewhat slower to implement than immediate relief but play critical roles bridging the gap to long-term sustained development. Of particular interest are measures to improve efficiency of the incumbent operator and construction of overlay networks.

Improving Efficiency of the Telecommunications Operators

Telecommunications operators in CEE did not generally see themselves as service providers, namely, businesses which provide a functioning telecommunications infrastructure quickly and reliably at cost-effective prices. They had little interest in
utilizing their capacity better, to reduce costs, or to respond to wishes of customers. Productivity in the network was low, as the number of main lines per employee in comparison to Western European standards indicates (Table 20–4) and, as previously indicated, tariffs were not usually used as a rationing or financing instrument. Demand management tools and network optimization techniques were and are still missing, resulting in relatively high-cost organizations.

In many cases the operator has already been separated out of the ministries and set up as a separate organization, with increased responsibilities and a clearer objective. The old telecommunications ministries, on the other hand, have had to learn how to regulate and oversee the sector. Given the increasing emphasis on telecommunications as a crucial tool in the restructuring of the economy, this reorganization of the sector is often being planned in consultation with foreign administrations and advisers. Hungary has already proceeded quite far in this process. Poland and the Czech and Slovak Republics will follow.7

If this reorganization is effective, productivity should improve and there should be higher capacity utilization of the existing network in the intermediate term. Although this will not solve the capacity and technology gaps, it is an attempt to reduce some of its shortcomings.

**Overlay Networks**

Short-term solutions can only help to better administer shortages and temporarily relieve some bottlenecks. Longer-term solutions to upgrade the networks to required standards take time and enormous financial resources. As a result, many administrations are seeking to install modern overlay networks, mainly for business users as an intermediate solution. Some of these are based on short-term measures, like VSAT technology to quickly upgrade certain communications islands; in the intermediate term, however, all major business centers should be connected with a modern network, either through an fiber-optical overlay network, as is currently being planned in Poland and Hungary, or with modern microwave technology. These overlay networks help link the major business centers among themselves and to the international networks, thereby upgrading service quality and access to modern services.8

The introduction of modern mobile services is a further intermediate step. In most countries of CEE, mobile services were available almost exclusively for military and some business applications. Now some of these countries are moving to a rapid introduction of mobile services as a way of coping with the telephone shortage. In 1990 Hungary (within the Budapest area) and Croatia (for the Zagreb area) implemented modern analog mobile systems. Other systems were implemented in 1991 in Ljubljana, Slovenia, in Prague, Brno, and Bratislava in the Slovak Republic, as well as Warsaw in Poland (Table 20–5). Over the next two to three years, these systems will be extended to most of the important business centers in each country. Mobile services have, therefore, become an important means of access to the overlay networks.

The introduction of overlay networks is not only a practical way to solve the technology and capacity shortages in the short term; it also allows for a degree of tariff
Table 20-4. Telecommunications Labor Productivity
Main Lines per Employee, 1974–1988/89

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>89</td>
<td>99</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Canada</td>
<td>89</td>
<td>94</td>
<td>113</td>
<td>135</td>
</tr>
<tr>
<td>Finland</td>
<td>n.a.</td>
<td>83</td>
<td>101</td>
<td>125</td>
</tr>
<tr>
<td>Denmark</td>
<td>109</td>
<td>114</td>
<td>141</td>
<td>158</td>
</tr>
<tr>
<td>Italy</td>
<td>93</td>
<td>133</td>
<td>152</td>
<td>?</td>
</tr>
<tr>
<td>Spain</td>
<td>67</td>
<td>107</td>
<td>124</td>
<td>136</td>
</tr>
<tr>
<td>Sweden</td>
<td>107</td>
<td>122</td>
<td>127&lt;sup&gt;1&lt;/sup&gt;</td>
<td>136</td>
</tr>
<tr>
<td>Great Britain</td>
<td>50</td>
<td>75</td>
<td>83</td>
<td>99&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>France</td>
<td>70&lt;sup&gt;2&lt;/sup&gt;</td>
<td>109</td>
<td>132</td>
<td>171</td>
</tr>
<tr>
<td>West Germany</td>
<td>64</td>
<td>110</td>
<td>118</td>
<td>130</td>
</tr>
<tr>
<td>Netherlands</td>
<td>122</td>
<td>182</td>
<td>203</td>
<td>222</td>
</tr>
<tr>
<td>Belgium</td>
<td>60</td>
<td>89</td>
<td>104</td>
<td>148</td>
</tr>
<tr>
<td>Austria</td>
<td>87</td>
<td>130</td>
<td>145</td>
<td>169</td>
</tr>
<tr>
<td>Norway</td>
<td>56</td>
<td>70</td>
<td>93</td>
<td>127</td>
</tr>
<tr>
<td>Hungary*</td>
<td>24</td>
<td>28</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td>Former CSFR</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Poland</td>
<td>23</td>
<td>33</td>
<td>38</td>
<td>46</td>
</tr>
<tr>
<td>Former Yugoslavia</td>
<td>37</td>
<td>56</td>
<td>67&lt;sup&gt;1&lt;/sup&gt;</td>
<td>100</td>
</tr>
<tr>
<td>GDR</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

<sup>1</sup>1983, <sup>2</sup>1977, <sup>3</sup>1987; Source: ITU Statistics, Hungarian Post Statistics
n.a. Not applicable.
<table>
<thead>
<tr>
<th>Country</th>
<th>System</th>
<th>Operator</th>
<th>Coverage</th>
<th>Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>NMT 450MHz</td>
<td>WESTEL</td>
<td>Budapest</td>
<td>October 1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hungarian 51%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S. West 49%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>890–898 MHz</td>
<td>HTC</td>
<td>Budapest</td>
<td>Postponed because of license dispute</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hungarian 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contel Cellular 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>NMT 410 MHz</td>
<td>Croatian PTT</td>
<td>Zagreb</td>
<td>August 1990</td>
</tr>
<tr>
<td>Slovenia</td>
<td>NMT 410 MHz</td>
<td>Slovenian PTT</td>
<td>Ljubljana</td>
<td>1991</td>
</tr>
<tr>
<td>Czech &amp; Slovak Republics</td>
<td>NMT 450 MHz</td>
<td>FMPT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Czech &amp; Slovak Rep. 51%</td>
<td>Prague</td>
<td>1991</td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S. West/Bell 49%</td>
<td>Brno</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Atlantic</td>
<td>Bratislava</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>NMT 450 MHz</td>
<td>Polish PTT 51%</td>
<td>Warsaw</td>
<td>1991/92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>France Telecom 49%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ameritech</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>NMT 450 MHz</td>
<td>WESTEL</td>
<td>Lake Balaton</td>
<td>August 1991</td>
</tr>
</tbody>
</table>

Source: Pyramid Research, 1991, internal data
Closin the Capacity and Technology Gaps

differentiation which is not possible in most other countries. Ideally, given the capacity shortage on the traditional network, access and usage tariffs should be increased throughout the network. Instead, higher charges are being demanded only for use and access to qualitatively better overlay networks as, for example, via mobile services. Although this policy may be a way of delaying the necessary tariff reform on the regular network, it gives business customers quicker access to modern and qualitatively superior communications products. Tariff differentiation violates the principle of uniform national tariffs, but it is a price most administrations seem to be willing to pay.

Longer-Term Solutions

In the long term, if the countries of Central and Eastern Europe wish to bring telephone services to a level comparable to that in Western European, they will have to implement a more integrated planning approach and carry out a number of more radical institutional changes. Table 20-6 shows the order of magnitude of investment needed if these countries are to attain half the Western European levels. It is based on some preliminary data and calculations of the investment required over the next decade to bring telecommunications penetration up to 27 lines per 100 inhabitants in six countries of the region (equivalent to the present level of telephone penetration in Spain), based on a full-cost-per-main-line figure of US$2,000. According to these calculations US$3.5 billion per year (at 1991 prices) would be needed, most of it in Poland and Romania.

Investment Needs

An examination of the resources involved puts these figures into perspective. Most CEE countries have official GNPs per capita in the order of US$2,000 to US$2,500. If, optimistically, GNP grows at a rate of 2 to 2.5 percent per year, it would reach US$2,800 to US$3,200 (in 1991 dollars) by the end of the decade. (This is similar to Portugal's 1990 GNP and Austria's 1960 GNP.) To achieve the present level of the Spanish telephone penetration by the year 2000, these countries would have to divert a significant amount of resources to the telecommunications sector or seek a substantial increase in outside financing. To reach a higher growth level would require investments in the neighborhood of 2 to 2.5 percent of GNP. Yet in most of these countries past growth rates were only about a third of that which would be required (Table 20-6). These would, therefore, have to increase significantly. To achieve this without outside help is an unrealistic proposition, especially given the higher foreign currency content required to overcome the technology gap.

Examples

Current Hungarian and Polish development plans illustrate the investment problem. The Hungarian Telecommunications Company (HTC) completed a ten-year development plan, according to which penetration should reach 28 DELs per 100 population by
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>1.5</td>
<td>2.4</td>
<td>4.5</td>
<td>9.7</td>
<td>1.8</td>
<td>169</td>
</tr>
<tr>
<td>Former CSFR</td>
<td>2.1</td>
<td>4.2</td>
<td>6.5</td>
<td>4.2</td>
<td>382</td>
<td></td>
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<tr>
<td>Hungary</td>
<td>0.8</td>
<td>2.9</td>
<td>12.3</td>
<td>3.8</td>
<td>4.1</td>
<td>375</td>
</tr>
<tr>
<td>Poland</td>
<td>3.0</td>
<td>10.2</td>
<td>11.8</td>
<td>4.4</td>
<td>14.4</td>
<td>1,311</td>
</tr>
<tr>
<td>Romania</td>
<td>2.6</td>
<td>6.2</td>
<td>8.2</td>
<td>2.8</td>
<td>7.2</td>
<td>651</td>
</tr>
<tr>
<td>Former Yugoslavia</td>
<td>3.2</td>
<td>6.3</td>
<td>6.4</td>
<td>6.2</td>
<td>567</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13.2</strong></td>
<td><strong>32.2</strong></td>
<td><strong>38.0</strong></td>
<td><strong>3,455</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ITU, authors own research
the year 2000. This implies an investment of up to US$4.5 billion for 2.5 million to 3 million new subscriber lines (one-third of which would be for replacement of the present network). This plan is to be supplemented by a three-year crash program in which an overlay network is to be built to decongest the present network and to satisfy the needs of the business community, especially with respect to international links. This overlay network is to be interconnected with the existing analog network in which some old electromechanical local exchanges are also to be replaced with digital switches. According to a preliminary estimate for the three-year crash program there is an investment need of US$1 billion, with one-third of this to be financed by foreign exchange lending through the World Bank.

Poland is planning a similar type of crash program but even more oriented toward overcoming short-term bottlenecks. Its current emergency program consists of measures to decongest the international, long-distance, and local telephone networks; to install an international digital exchange; to lay a fiber-optic undersea cable to Denmark; and to link Poland to the West with a new EUTELSAT satellite earth station. Simultaneously, a digital overlay network is being planned to connect the major urban centers. Some local exchanges are also to be digitalized. A separate overlay network with local tandem exchanges interconnected by fiber-optic transmission systems are also to be constructed in Warsaw to improve traffic flow. The Polish program, like the Hungarian short-term crash program, is being co-financed by the World Bank, at least for the foreign exchange component.

A somewhat different picture (in terms of finance and speed) is presented by East Germany as a result of unification. In addition to a crash program, which is aimed mainly at relieving network congestion between East and West Germany, there is an intermediate plan to establish a digital overlay trunk network, on which 95,000 digital connections were already available by the end of 1991. This overlay network should be fully available throughout East Germany by 1995. In addition data networks and mobile services are to be introduced and network penetration is to be increased by a factor of four. The quantum increase in investment in East Germany (with only 20 percent of West Germany's population) shown in Tables 20-7 and 20-8 results in a one-third increase in investment volume in telecommunications in the unified Germany.11

Table 20–7. Forecast Telecommunications Investment in East Germany 1990–1995

<table>
<thead>
<tr>
<th>Period</th>
<th>Past Investment (Mark billion)</th>
<th>Investment for 3 Scenarios (DM billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1971-1975</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>1976-1980</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>1981-1985</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>1986-1990</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>1991-1995</td>
<td>15.6</td>
<td>30.0</td>
</tr>
</tbody>
</table>

Source: Jahn, 1990
Implementing Reforms in the Telecommunications Sector

Table 20-8. East German Investment Goals to 1995

<table>
<thead>
<tr>
<th>Service</th>
<th>Current Demand</th>
<th>Expected Increase and Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Main lines</td>
<td>1,200,000</td>
<td>1,100,000</td>
</tr>
<tr>
<td>Public phones</td>
<td>10,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Telefax</td>
<td>1,200</td>
<td>15,000</td>
</tr>
<tr>
<td>Data connection</td>
<td>13,000</td>
<td>19,000</td>
</tr>
<tr>
<td>Telex</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Videotex</td>
<td>5,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Mobile radio</td>
<td></td>
<td>15,000</td>
</tr>
</tbody>
</table>

Source: Jahn, 1990

Can the Equipment Manufacturing Sector Overcome the Technology and Productivity Lags?

For telecommunications operators, current “world market” investment costs per DEL are in the order of US$1,600 to US$2,000. Given local manufacturing conditions and present exchange rates, operators in CEE sometimes have higher investment costs. This is due partly to the technology gap, since much of the equipment is still of the electromechanical type, and partly to a lack of competitive pressure. Open procurement policy was unheard of in the past and even today is not often favored because of the lack of foreign exchange and the need to use large public investments in telecommunications to stimulate the restructuring of an important manufacturing sector. At present, the large CEE telecommunications equipment exporters, such as East Germany, Bulgaria, and Hungary, are facing a declining market in the former Comecon countries, due to payment difficulties and economic reorganization. As a result some of these countries have adopted protectionist policies for domestic industries as, for example, in Hungary where manufacturers can obtain a 10 to 15 percent price advantage on tenders in international bids. Given their technology and productivity lags this may not, however, be enough for domestic firms to obtain orders.

The case of Germany illustrates the problem created by the backwardness of the Eastern European equipment manufacturing sector. Here, in spite of increased demand, inefficient East German firms with their old products cannot compete with their EC counterparts. Instead, these firms have had to close most of their plants and seek extended production orders from the West. Of the 35,000 employees in East German telecommunications manufacturing in 1989, no more than 10,000 will probably remain, even in spite of the short-term new production and assembly capacity which is being built up. Difficulties arise not only because of the lower labor
requirement for electronic equipment but also because of the cheaper source of switching, microwave transmission, and fiber-optical equipment from existing equipment manufacturing plants in the West.

Other CEE manufacturers may be spared such a rude shock because of their often undervalued currencies as well as the foreign exchange and borrowing constraints of their governments (unless of course this constraint is broken through foreign direct investment); they must, however, rationalize and improve production and product technology. If the process of technology transfer is successful, much of the equipment needed in these countries could continue to be met through domestic production. At present, only 20 percent of telecommunications procurement of the Hungarian PTT is made up of imports (Table 20-9). With a move to more modern exchanges, fiber optics, and mobile equipment, this ratio is expected to increase to 40 percent; however, given the expected expansion in the Hungarian network this increased import share should still leave enough demand for the domestic manufacturing sector, even though it is facing smaller markets in its traditional Comecon export area. How can one ensure that these firms are able to quickly reduce the present technology gap? Nulty and Holcer have estimated that with the exception of ordinary metallic cable, the domestic

<table>
<thead>
<tr>
<th>Category</th>
<th>1989 (current)</th>
<th>2000 (estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic</td>
<td>Imported*</td>
</tr>
<tr>
<td>Switching</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Transmission Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wire</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>microwave (analog)</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>microwave (digital)</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Cables</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Telephone sets</td>
<td>100%</td>
<td>0</td>
</tr>
<tr>
<td>Power Supplies and Batteries</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Average</td>
<td>80%</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Note: The "Import" category is made up of: (1) MP expenditures on finished equipment, and (2) industry expenditures on imported inputs. It excludes industry investment in imported machinery and capital goods. All figures are estimated.

Source: Nulty and Holcer (1990)
Implementing Reforms in the Telecommunications Sector

industry in these countries is anywhere from five to fifteen years or one to three equipment generations behind its Western counterparts. The relaxation of CoCom restrictions should make the task of catching up easier, but this will probably not be possible without joint ventures or direct technology licensing.

This analysis indicates that a viable procurement policy related to the long-term policy of network expansion cannot be carried out without a long-term industrial policy, developed in close consultation with the governments and possibly the old Comecon trading partners. Which companies will in the long run maintain a competitive advantage as trade flows are redirected? Who are the obvious losers? How fast can the necessary restructuring be carried out? What financial and technical support programs are necessary? These questions must be answered before the telecommunications equipment manufacturing sector can be made competitive in terms of product quality and price. Otherwise its long-term viability is in serious doubt, even in spite of the pent-up demand confronting service providers in all CEE countries.

Institutional Change

As users are demanding increased infrastructure availability, a broader range of service offerings, as well as more innovation and responsiveness in service provision, the pressure on the operators is growing to abandon the traditional monopoly service provision policies and to allow for alternative provisions of network services. This pressure has increased with the concurrent economic reform, which is characterized by moves away from the old form of state-planned activities.

Joint Ventures and Private Networks

Initially, as mentioned, telecommunications administrations are being separated from the old PTT ministries and transformed into public corporations. This allows them to participate in joint ventures at least on subsections of the networks such as mobile, international, and overlay, or to be at least partially privatized, or both. There are a number of institutional options being considered at present.

The implications of these institutional changes on performance and financial viability should not be overlooked. The ability to attract direct foreign investment in this way relieves the government of an important foreign exchange constraint. At the same time joint ventures with foreign partners facilitate technology transfer in the form of human capital as well as the important organizational know-how to deliver new telecommunication services, an area in which these PTTs have little experience.

Although the carving out of parts of the market for new entrants or joint ventures can be positive in increasing the availability of scarce foreign resources and expertise, such a policy deprives the traditional PTT of its ability to cross-subsidize low-density, high-cost areas of the network. Deregulation in the telecommunications sector in the highly industrialized Western economies such as Japan, USA, and the U.K. is taking place, with these countries already having attained high penetration.
levels with marginal regions well served. In CEE, on the other hand, institutional reform and deregulation must be implemented in conjunction with an accelerated development of the basic network. This means that if regional imbalances are to be avoided, significant policy changes (that is, explicit regional subsidies) must take place alongside the implementation of new telecommunication policies.

These policies have to answer the following question:

- Given the associated financial and organizational needs, what new institutional structure best fits an accelerated infrastructure development program?
- How is this development to be financed?
- How can extreme regional imbalances be avoided?
- What technology strategy should the accelerated infrastructure development follow?
- What is the best procurement and technology policy for supplying the service provider with the required equipment and installation capacity?

The Hungarian Case

In Hungary in 1989, the regulatory function was transferred from the PTT to the Ministry of Transport, Communication and Watermanagement. As of January 1, 1990, telecommunications operation have been separated from the postal and broadcasting functions. The new telephone company, MTV, is to become a joint-stock company, opening the possibility to seek private (including foreign) equity participation. The state will, however, retain majority ownership.

Development of the future Hungarian telecommunications policy led to two institutional alternatives concerning the technical strategy to be pursued. Under the first, the so-called island strategy, a given area was to be targeted for large-scale expansion, thereby reducing investment costs per area and access line while allowing the operator to increase access lines rapidly and maintain the network economically because of the uniform technology that each chosen priority area would have obtained. The drawbacks of this alternative were the lower revenue-generating capability in a given area (because a proportionally larger number of private households would have been included right away) and an uneven regional development, since other, nonpriority areas may not have been served for a long time. The strategy could therefore not provide an efficient nationwide infrastructure quickly for all those who wanted it, nor could it provide access to trunk transmission for the new services like mobile telecommunications.

The alternative technical strategy considered was that of an overlay network similar to that being implemented in East Germany and Poland. This option would generate more revenue by concentrating on new business subscribers and pent-up demand, while at the same time freeing up access line for households in the old
Implementing Reforms in the Telecommunications Sector

Implementing Reforms in the Telecommunications Sector

network. This strategy was also preferable from a rate-of-return point of view, even if the speed of increasing nationwide residential connections was slower.

The current Hungarian ten-year telecommunications program is based on the second alternative; however, to overcome the associated infrastructure expansion problem, especially in the rural areas, this program is to be complemented by one of regional liberalization. Local franchise areas or "telephone development partnerships," which can run local networks policy, are to be created. This is a change from the past practice of using local development partnerships only to construct the network and then hand it over to the PTT. Experience with the first of such local companies shows, however, that the revenues in a given partnership region may not be enough to cover costs, so that some averaging across companies and regions will be necessary to avoid large differences in local telephone rates.

This institutional change is similar in ways to those in the West; however, it also highlights the need for a proper regulatory structure to ensure that a proper balance can be achieved between uneven development, on the one hand, and optimal resource use, on the other, while attracting a maximum amount of private investment.

Preliminary Conclusions

Although this analysis is based on preliminary data, it does nevertheless permit drawing some initial conclusions:

- CEE is recognizing the growing importance of telecommunications for economic development.

- To upgrade the CEE networks to at least half the typical level of Western European penetration levels requires a large resource transfer to the sector and to the countries concerned. Institutional structures must be found in which this transfer can be brought about effectively; it cannot be achieved without significant financial help from the West.

- With the (untypical) exception of East Germany, the institutional changes necessary to bring about more effective resource transfer are being pursued rather slowly. On the other hand, more radical solutions are being considered, including privatization and large-scale liberalization.

- An important issue in this process is the restructuring of the telecommunications equipment sector, which could become a crucial strategic industry for most of these countries.

- As a consequence an integrated approach must be sought, with appropriate trade-offs between short-term gain, long-term growth potential, and macroeconomic implications.
This difficult adjustment process must be coupled with Western help at several levels. More room for private incentive must be found, since successful restructuring of the networks also provides an entry for foreign participants into what may be a very lucrative market and service area in the next century.

Endnotes

1. For example, in Hungary 20 percent of the population has access to 50 percent of the available telephones.
2. In Poland 7,500 villages have no telephones, while 65 percent of villages with telephones have manual switching. In Hungary 86 percent of 2,226 local exchanges still have manual switching. For international switching, the level of manual switching is sometimes even higher (90 percent in Romania).
4. This was on the basis of PCM 30 and PCM 120. The use of PCM 480 started only in 1989.
6. Most of this business demand is still being met by an equally deteriorating telex network.
7. Ignoring for the moment that East Germany, after unification, adopted the administrative structure of West Germany.
8. Many of these countries had in the past actually used some kind of separate overlay network for business users. In East Germany, for example, a number of private networks within the major conglomerates were used to facilitate communication within. These private networks could reach up to 36,000 connections. In Poland, there is a separate network which can reach 4,000 customers. Neither of these networks are, however, linked to the PSTN network.
9. This is especially possible with mobile services which are introduced as a higher-grade, more expensive access service.
11. Based on a current investment level for West Germany of about DM 18 billion to DM 20 billion per annum.
Restructuring in Hungary

Krisztina Heller

By the end of 1992, the Hungarian Parliament passed a Telecommunications Act and a number of other pieces of legislation which will lead to reforms in the sector through privatization, introduction of competition, and liberalization of markets. Transformation of telecommunications in Hungary has been closely tied to the political situation of the times. A highly structured sectoral regime which was in place from after the war until the late 1960s was replaced with a somewhat more liberal regime which coincided with the cautious political and economic opening that the Kadar government began in the early 1970s. The level and quality of service which Hungarian telecommunications could provide can virtually be correlated with the extent to which the sector itself began to open. The most substantial steps in reform have taken place since 1988. This chapter describes the evolution of the telecommunications sector in Hungary since the war. Although the process has generally been in the direction of greater liberalization, there have been reversals along the way. This chapter shows how these have been related to political realities of the time.

The Pre- and Immediate Postwar Years

During the early part of this century and up to the Second World War, telephone penetration in Hungary—where the world's first telephone exchange was installed, in Budapest, before the turn of the century—was comparable to that of most European countries. Although there was no shortage of telephones in the years immediately after the war, this changed with the advent of a communist regime in 1948. With it came a very hierarchically organized society, with a strong political dictatorship and a "planned economy" in which all resources were directed to serve the political needs of those in power and to maintain them. This was the period of "hard" communism, which in Hungary lasted from 1948 to 1968.

Telecommunications, postal, and broadcast signal transmission services were provided by Magyar Posta, a single entity with an ambiguous legal status: it was both a state-owned enterprise like others in the planned economy and a department of the Ministry of Transport and Communication which was reorganized in 1989 into the Ministry of Transport, Communication, and Construction and in 1990 into the Ministry of Transport, Communication and Watermanagement. Prices of telecom-
Implementing Reforms in the Telecommunications Sector

Communications services, like those of other goods and services, were set by the state, and funds for investment were "awarded" or distributed by the National Planning Office, which also determined the number of new lines to be built.

In 1964 the government enacted a Post Law which gave the state the legal basis to allocate frequencies as well as to operate the postal and telecommunications services and the networks on an exclusive basis. Telephones, however, like other resources, continued to be distributed through a centrally controlled mechanism. There was a separate world of various closed and dedicated networks serving strategic industries and constituencies such as water, energy supply, railways, mining, network, and the political corps. The total combined size of these networks was almost as large as the public network. Political preferences prevailed even in the distribution of residential telephones. People with key positions in the political apparatus, in the basic industries, and those with political merit decorations were put high on the priority list. Telephone penetration in the basic industries was much higher than in others. State and party administrations were also well equipped while the agricultural sector was essentially deprived. As a result, the overall telephone penetration rate at the end of the period of hard communism in 1968 was only 3.5 main lines per 100 population.

The Period of Soft Communism, 1968–87

Around 1968, which was characterized by student demonstrations in Europe and North America as well as the Prague Spring, there emerged in Hungary a new economic liberalism which attempted to create a real marketplace. Although Soviet policy at the time put an end to this liberalism, specific markets were allowed to remain open. Limited private undertakings became legal. Foreign trade increased. This period of soft communism was, however, unable to overcome previous shortcomings since there was neither capital nor a labor market. There was no unemployment until 1990. The distribution channels for resources (that is, material, investment, and labor) were governed by the so-called planned economy and remained close to what could be considered one-directional. Nevertheless, some newly emerging companies and industries such as financial services became wealthy and politically powerful, while traditional industries began to lose an increasing amount of their resources due to their inefficiency.

During the first half of the 1980s the relationship between the United States and the U.S.S.R. cooled, and CoCom restrictions prevented Hungary from buying electronic exchanges. Burdened with a gap between economy and policy, Hungary began to take cautious political steps toward the West. This was contrary to Soviet policy, but the political credibility of Hungary increased in Western eyes. This opened new lending possibilities, but because internal policy remained unchanged these loans were used not to implement new infrastructure but to maintain the old economic structure with the dominance of primary industry. By the mid–1980s Hungary's debt had increased to a level which would later lead to an economic crisis, and subsequently, to political changes. Toward 1968 growing discrepancies between supply and demand in the
Restructuring in Hungary

telecommunications sector became apparent. Studies to determine the negative impact on the economy resulting from shortages in the sector were inconclusive.

The Hungarian PTT continued in its dual role as a state-owned enterprise and a government department until 1985, when it was separated from the Ministry of Transport and Communication and transformed into a stand-alone government entity which, however, retained its dual role. Under its new status it was expected to have greater freedom in pursuing its telecommunications interests, and it was expected to modernize its structure as well as to separate its regulatory and operating functions. It survived four years in this state with mixed results. The separation of regulatory and operating functions proved impossible, due to the lack of an appropriate legislative framework.

In an attempt to reduce the level of unsatisfied demand, various new types of financing methods, including the issuing of subscriber bonds, were tried. Communities which were keen to develop their telephone networks were allowed to fund their construction. They were the source of a quarter of all telecommunications investment during this period. In 1987 the Hungarian government signed a loan agreement with the World Bank for US$70 million to expand the telecommunications network. As a result, telephone density, which had been increasing at a rate of 3.8 percent between 1980 and 1986, began to accelerate. By 1988 the penetration rate had reached 8. Yet one-third of all villages continued to have outdated manual switches with only eight hours of service a day. The network was overloaded and the quality of service was very poor.

The loan agreement with the World Bank had far-reaching organizational and administrative consequences for the modernization of the Hungarian PTT. Telecommunications began to be accounted separately from the other lines of business, and the government began to give the PTT a subsidy equivalent to that by which telecommunications had been cross-subsidizing the postal services. As a result of the World Bank loan agreement, Hungarian telecommunications have had audited financial statements since 1988. Procurement has been put on a public bidding basis. Western consultant firms were hired to advise on tariff policy, network management, and other matters. The principle of tariff increases, especially to keep pace with inflation, was accepted by the government.

The Removal of Communism

The process of liberalizing the economy was irreversible. The growing indebtedness of the economy affected central distribution because there were fewer and fewer resources to be distributed.

Important steps were taken to modernize the economy from 1988 to early 1990: a two-tier banking system was established, with commercial banks separated from the central bank; some securities became legal and a small stock exchange was established; a value added tax regime was adopted; a newly enacted company law opened the way for creating limited companies under legal circumstances similar to those in Western countries; privatization became legally possible and an independent Privatization
Agency was created; a newly enacted law on foreign investments proved to be one of the most liberal in the world; and borders were opened to most foreign trade.

In 1989 a law was passed giving Hungary a multiparty policy system, and an agreement was concluded on the departure of Soviet troops.

During these years the government also began reforming the telecommunications sector, making Hungary the first Central and Eastern European country to modernize its telecommunications institutional structure. In 1989 the regulatory and operational functions were separated, with regulation moving to the Ministry of Transport, Communication and Construction. The Post Law of 1964 was amended to allow private investors to take a minority stake in the telecommunications company which was established in 1990 as the Hungarian Telecommunications Company (HTC), with the separation of the postal, telecommunications, and broadcast signal transmission functions into three different companies. Activities not directly related to telecommunications, such as building, installation, and others, were assigned to subsidiary companies.

In 1990 two regulatory bodies were established: one for spectrum management and one for regulating technical aspects of posts and telecommunications (such as standardization and type approval). A further amendment in the Post Law provided for liberalization of wireless telecommunications such as paging, VSAT, and mobile telephones; however, licenses could be given only to companies in which the state had a majority holding. As a result Westel, a joint venture between HTC and the U.S. regional Bell operating company US West, was given a license to provide cellular services in the 450 MHz band. The venture proved quite successful. At the same time, a license was awarded on a trial basis to a state-owned company to build and operate a telephone network consisting of some 1,000 lines in a village near Budapest.

Growing liberalism in economy led to similar tendencies in political life, where advocates of major reform gained momentum. Privatization of HTC and elaboration of a regulatory framework were put on the political agenda; rapid political changes, however, temporarily halted the process.

The Newly Emerging Democracy

Free elections in May 1990 gave Hungary a right-wing government which continued the general policies of the previous government. The task of the new government was very complex: it had not only to construct a democratic society and a market economy but also remove the old monolithic ones. The Russian troops left in 1991, and Hungary was struck from the CoCom list in 1992. In 1991 Hungary, along with Poland and Czechoslovakia, signed an Association Agreement with the European Community with a view to their joining the Community around 2000. Ratification of this agreement is pending.

In order to build up a private economy, the government had as an objective the reduction of its assets holdings by one-half in the medium term. In order to allow the market economy to develop, much legislation needed to be replaced or, at least, substantially amended. This could not be achieved overnight. The Parliament has
Restructuring in Hungary

been creating and amending more than a hundred laws a year, including basic laws such as the Constitution and the civil code; these were, however, no substitute for having a telecommunications act which could stand the test of time.

The new democratic legislation emerged slower than expected because of unrealistic expectations, untrained politicians, and the lack of well-formed political and professional views about which way and how to proceed. Old practices were difficult to change. Recession set in, due in part to the breakup of the Comecon, an almost totally liberalized foreign trade, and a reduction in government subsidies. Unemployment reached 10 percent. The national budget became exhausted. Inflation climbed to 30 percent but started to decrease in 1992.

During this period, foreign debt decreased, the volume of hard currency reserves increased, the balance of payments became positive, and after more than a decade the balance of foreign trade turned positive.

Between the spring of 1990 and the end of 1992 the government created and passed some very important pieces of legislation. Among these were a Western-type competition law which provides for an independent Competition Office to report directly to Parliament; a price law which liberalizes almost all prices, except those of public utilities; a budget law which modernizes the national budget; an amendment to the civil code which spells out the equality of the state and private ownership; and a concession law which establishes rules for running activities where the state retains special rights (specifically in public utilities and energy supply). Also, the government established the independence of the courts and redefined the rights and duties of local governments. New laws for banking and financial activities were created, and a new accounting law, which provides for internationally accepted financial statements and a legal framework for state property management and privatization, was created.

There was consensus that neither democracy nor the marketplace can function properly without telecommunications. The shortage in telephones became critical as it had never been before, as did the need for new enhanced services due to the emergence of joint ventures with foreign investors. The public was impatient and keen to see continued reforms in the telecommunications sector. It became strongly opposed to all types of monopolies and state intervention. The change in mood was also felt at the HTC, where younger managers replaced some of the older. The monopolistic position of HTC started to erode, but the government still did not have adequate regulatory tools in place for regulating the sector. Domestic entrepreneurs, looking for new investment opportunities in the midst of a recession, supported by promises of foreign would-be investors, called for the opening of investment possibilities in telecommunications.

As a result the government began to prepare the terrain for privatization and to create a telecommunications regulatory framework in conjunction with the underlying Telecommunications Act. This turned out to be quite a lengthy process because of the ever-changing political and legislative environment.

In the meantime HTC, almost free from regulation, attempted to develop and expand the network as quickly as possible in order to strengthen its position. Further loans were obtained from the World Bank, EIB, EBRD, as well as other international institutions, and HTC was able to raise a total of US$40 million. It also issued
Implementing Reforms in the Telecommunications Sector

bonds on domestic money markets. This initiative proved to be quite successful, and since these loans reduced the self-financing ratio of its investments to 50 percent, HTC was able to formulate a policy of creating subsidiaries with domestic partners to construct local networks. The largest of these will construct 100,000 main lines by 1993.

As a result the telecommunications network has been expanding at rates never seen before. The rate of increase in telephone lines reached 13 percent in 1991, bringing the penetration rate up to 11 main lines per 100 population. Waiting time for telephone lines dropped from twelve years to five years. Construction of a digital overlay network was expected to be completed in 1993.

Due to extended projects for the modernization of operation and organization, labor productivity improved considerably (by 9 percent in 1991 alone). The profit of the HTC in 1991 reached Ft 10 billion (US$135 million). A nationwide, high-performance packet-switched data transmission system was launched, and together with VSAT connections, data transmission demand can now be met everywhere in the country. These, like other noncore activities, are provided by subsidiaries of HTC.

HTC, whose assets were now being valued by an internationally renowned auditing firm, was being prepared for privatization. New injection of money was needed. Investment plans were drawn up and being implemented, taking into account additional external financing in the form of equity.

The draft Telecommunications Act was submitted to Parliament in January 1992. After long debate the government resubmitted a modified, more liberalized version and gave municipalities and domestic investors a greater role. The new act, which supplements the Post and Frequency Acts as well as existing and new regulations and which entered into force in mid-1993, was approved by Parliament in November 1992 by an outstanding 75 percent majority. As a result and immediately upon its approval, a tender was issued for two GSM licenses. These were awarded in October 1993 to Pannon GSM, a consortium of operators from the Netherlands, Denmark, Sweden and Finland and to the consortium of US West and HTC. Also the first stage of the privatization of HTC was completed in December 1993 with the government’s selling of an initial 30 percent of HTC’s shares to DBP Telekom and the U.S. RBOC Ameritech for US$875 million. The government will retain 51 percent. The 1992 Law also provides for the creation of 56 local regions, each of which is to be handled by an operating concession to be awarded by end-1994, potentially in competition with HTC. Local or regional telephone companies covering one or more of the 56 primary areas have to be awarded concessions based on a public tendering process. Of these, 25 have been offered in such a process closed on December 29, 1993.

The New Regulatory Framework of Telecommunications

The regulatory framework for telecommunications in Hungary is designed to be as consistent as possible with the policy of the European Community.
According to the Telecommunications Act, as of April 1994 the provision of public-switched telephone, mobile telephone, nationwide paging, and broadcast signal transmission services will require a concession from the state. All other services have been liberalized. It will be possible to provide them subject only to a technical license based on objective criteria having been issued. Concessions are not required for closed user group networks or network construction. If a new entity has constructed a network under more favorable economic and technical conditions than the existing organization, the latter must conclude a commercial contract including terms, price, and other conditions of the usage of this network. This will promote network construction but it will also make maintaining of network integrity and interoperability more difficult.

A concession is a civil-type agreement between the state and the concessioner. It can be awarded in a public bidding where the state is represented by the minister of Transport, Communication and Watermanagement. Concurrent concessions can be issued provided that nonexclusivity is included in the first concession agreement. A privatization agreement can be regarded as a concession agreement. Service obligations and quality-of-service targets will also be included in the concession agreements and related regulations.

If local governments are not satisfied with the service provided, municipalities have the right to initiate a public bidding for concessions. The minister is obliged to go along if more than half the municipalities in a given primary area join such an action and if they are ready to cover the costs of an unsuccessful tendering.

Details of the industry structure and the principles of privatization are contained in a telecommunications policy statement which was to be submitted to the Parliament in early 1993. (A policy statement was submitted to Parliament in January 1993, but then withdrawn by the new minister in March.) International, long-distance, and local telephone services were expected to remain a monopoly for about five years, by which time near-universal coverage was expected to be achieved. Local and regional telecommunications companies covering one or more of fifty-six primary areas must be awarded concessions based on a tendering process. Given the level of demand and the general state of the economy, near-universal coverage will require a doubling or tripling of the existing number of telephones. This would result in a telephone density of 25 to 35 main lines per 100 population, a figure equal to that in Western Europe ten or twenty years ago.

The 1992 law on the property of the state provides for the state's ownership in telecommunications to be held by the State Property Management Holding Company. The state, through this company, will retain a 51 percent majority stake in HTC. The Ministry of Transport Communication and Watermanagement will regulate the sector.

Tariffs will be subject to price-cap regulation. There will be no other form of economic and financial regulation. The Telecommunications Act establishes a Telecommunications Fund for subsidizing underprivileged areas. Terms-and-conditions contracts between operators and users of networks as well as for interconnection will be specified in a government decree.
Implementing Reforms in the Telecommunications Sector

Next Steps and Lessons

The transition from a state-owned to a privatized sector began about five years ago and should soon be finalized. Two lessons can be learned from early experience in telecommunications sector restructuring in Hungary. The first is that the appropriate political, economic and legal conditions have to be in place. The second is that, governments of new democracies like the one in Hungary have to develop the necessary political skills to implement such ambitious national modernization programs whether they are initiated "from the top down" or "from the bottom up"—the latter through appropriate consensus building among opposing factions. Arriving at a viable compromise requires the government's time and effort.
Part V

Privatizations: Foreign Operators' Perspectives
Privatization of Telecommunications Enterprises: The Viewpoints of Foreign Operators

Judith D. O'Neill

Privatization is a very big business. It was estimated that privatizations in all sectors in Latin America alone would reach a potential of US$50 billion in 1991. In Eastern Europe, in Czechoslovakia it was estimated in 1992 that there would be at least 70,000 privatizations. In the Pacific Rim in the telecommunications sector already we have seen successful transactions worth billions of dollars in Malaysia and New Zealand, and opportunities are emerging in multiples of that value in Singapore, Thailand, Hungary, the Netherlands, Germany and possibly France.

Privatizations of state telecommunications enterprises are business deals and service opportunities from the point of view of the foreign operating companies who participate in them. The norms and analyses that apply to the pursuit of international investment opportunities in general apply as well to telecommunications privatizations. Similarly, telecommunications, like any other economic sector, has its sectoral peculiarities which must be evaluated within the specific set of applicable national attributes and incorporated into the risk-reward formula. In essence, the process and the concepts of how a potential foreign operator analyzes an opportunity are neither esoteric nor unpredictable. Common business sense prevails, together with the desire to be in an environment which allows the foreign operator the realistic opportunity to have a positive impact on service.

Foreign telecommunications operators are mostly concerned with three categories of features of prospective privatizations. Whether these items are classified in sets of deal attributes, as the bankers tend to do, or as a package of revenue-operational-environmental-procedural features, as operating companies tend to do, the ultimate information needed to make a sound business decision rarely changes. These categories are:

National Attributes. The extent to which the history as well as the economic and political situation of the country add to or detract from the privatization opportunity.

Legal-Regulatory Environment. The articulation by the government of how it plans to restructure its telecommunications sector, and what it is doing through legislative and regulatory efforts to accomplish its objectives.

385
MANAGEMENT OF THE PROCESS. Whether a perceptible organization and deliberate plan for a transparent process is implemented through an organized government team and a small but expert group of outside advisers.

National Attributes

The state of the national economy, stability and convertibility of its currency, perceived and real stability of the political system, demography, history, and culture are all attributes of great interest to a foreign operator-investor. Nevertheless, other than to make the information available at the time of the privatization and articulate whatever commitments it has made to improve any negative elements, the government has little control over these factors during the investment opportunity analysis period.

The government does have control, however, over another factor in this category: its demonstrated commitment to the privatization. This factor is potentially very important to help propel the foreign operator-investor's pursuit of the opportunity. This commitment often includes governmental salesmanship of the concept before and during the process. In Venezuela, for example, industry surveys were conducted before the privatization of CANTV commenced, polling selected user groups and lending an air of openness and demonstration of government sensitivity to the desires of the end users.

Other aspect of national attributes is the government's handling of labor issues. The government must strike a balance between the desires of the labor market and the economic realities of the foreign operator-investor. In Puerto Rico, for example, the government issued a decree at the outset of the first privatization attempt of PRTC, announcing that telephone company employees could not be discharged for two years. The combination of a legislated purchase price (US$3 billion) and employee mandates caused all interested purchasers to abandon the opportunity. Later a more relaxed environment allowed the successful sale of the long-distance company Telefónica Larga Distancia de Puerto Rico (TLD) to Telefónica de España.

Finally, as with the sale of any property, the more it is put in order and improved before the sale, the more likely it is to sell and the higher the price will be. From the point of view of the investor, therefore, the recent corporate history of the telecommunications company is meaningful. The ideal opportunity, from a foreign operator's point of view, is a company which has been corporatized before its sale. That is, to prepare for privatization, the government has dedicated some period of time to restructuring the telecommunications sector and the telephone company. Preprivatization corporatization is beneficial to the potential purchaser in that it allows a more accurate evaluation of cost, revenue, and market projections than may otherwise be possible. This, in turn, is beneficial to the government, since it enhances the value of the company and is a clear indicator of government resolve.

In the United Kingdom, the government began the restructuring process by separating the telecommunications services from the British Post Office and creating British Telecom in 1981, and then in 1984 establishing the Office of Telecommunications (OFTEL) as an independent regulator. In 1982, it licensed Mercury as a second carrier. In 1983 it granted a seven-year duopoly to the pair, and in 1984 it
privatized British Telecom. In Chile, a similar, though longer process, occurred which began with a telecommunications policy decree in 1978, followed by a new law in 1982 and an amendment in 1987, then the privatization of the two dominant carriers Compañía de Teléfonos de Chile (CTC) and Empresa Nacional de Telecomunicaciones (ENTEL) in 1988. In Mexico, TELMEX was restructured in 1987 into three regional (North, South, and Mexico City) and two service (large user and long-distance) divisions designed to monitor costs and revenues and to control cross-subsidies. In November 1990, the Department of Transportation and Communications (Secretaría de Comunicaciones y Transportes) was relieved of its operating responsibilities and given the job of full-time regulator, and on January 1, 1990, Telecomunicaciones de Mexico (TELECOMM), an autonomous state enterprise, began operating the government’s satellite and microwave services as an autonomous state enterprise. In August 1991 the privatization of TELMEX formally began. In New Zealand, the government spent approximately two years corporatizing the Telecom Corporation of New Zealand (TCNZ) before its privatization in 1990.

In some countries, however, for a variety of reasons, this preparation for privatization may not be possible. Argentina, and Venezuela are cases in point. The state enterprises were sold with minimal restructuring about one year after reforms began.

**Legal and Regulatory Structure**

Some form of government intervention into commercial enterprise is often necessary to direct sector growth and protect the interests of the population at large; however, where there is government intervention, it necessarily will impact on the structure and profitability of the commercial enterprise. In the micro sense, its impact will be on the day-to-day cost to the company of compliance with whatever policy and regulatory obligations the government imposes. In the macro sense, its impact will be from the type and timing of market entry of any potential competitors which the government permits, as well as from whatever fiscal control the government is inclined to impose on the business, such as tariff controls, investment-performance obligations, and partnering-consortia rules.

The government’s decisions will be based on commercial and political dynamics. Ideally, the government will be knowledgeable regarding what decisions are optimum for the commercial success of the privatization and will accommodate those optimum commercial desires to national goals and needs as well as to political realities. The result should be reached in an expeditious, thorough, deliberate manner, based on organized and experienced input, and published as quickly as feasible. Accurate, reliable information which industry can use is crucial.

A balance which serves the needs of both government and private operator-investors is best for both and maximizes the value of the investment opportunity.

Where any form of a multioperator system (including cellular or value added services) is contemplated in the short or long run, the relevant legal and regulatory bases are as follows:

- Drafting and enacting of legislation necessary to allow for the restructuring
Implementing Reforms in the Telecommunications Sector

- Creation of an independent regulatory body, with enabling legislation and a structural-functional description

- Drafting and enacting the rules of the game:

  1. A new telecommunications law, if necessary, to pursue the government's objectives and to assure purchasers of the government's commitment

  2. As much of a base of specific sector regulations as is feasible

- A regulatory design oriented toward carriers (rather than services) so as to give potential investors a clear picture of the intended structure of the sector so as to allow reliable financial projections and so as to give the government the ability to control the speed with which the sector opens up.

Regulatory Infrastructure

In most countries undergoing restructuring, particularly in the developing world, the regulatory scheme is either nonexistent or loosely managed by the dominant or monopoly carrier itself. This creates insecurity for potential foreign operators because certain future market factors cannot be evaluated.

Passive regulation is logical and even efficient when the sector and the law of the country allow for only one carrier owned by the government. Also, regulation is not important where fiscal accountability is not a major concern of the telecommunications provider, and where broad social issues rather than corporate profit or efficiency in the management of the telecommunications system are the main responsibility of the government.

With privatization, roles have changed dramatically. Generally, governments have relieved themselves of the responsibility to provide telecommunications service. Private or corporatized government operators have assumed the responsibility of profitability and service improvement. The government or a specialized agency has stepped into the role of regulator.

When telecommunications become commercialized and responsibilities change, that process needs to be regulated. Government has a public welfare interest in regulating dominant carriers who can otherwise control their own market, and potential foreign operators need to know in advance what the rules of the game will be in the environment in which their investment is sought.\(^1\)

The regulatory cliché that one should fully regulate monopolies and not fully regulate competitive services is often sound, but most countries do not find themselves in such clear extremes, particularly in the developing world. Thus, it is in everyone's interest to make and publicize decisions about the kind and amount of regulation appropriate to achieve the government's goals and the potential investor's aspirations.

In general, when a regulatory scheme focuses on the carrier rather than the service, a government is better able to encourage healthy economic growth of the telecommuni-
The Viewpoints of Foreign Operators

cations sector in a developing economy, and an investor is better able to evaluate when and where competition will be imposed; however, there are no absolutes in telecommunications policy and there is always some need for regulatory regimes to address specific services, such as cellular. Nevertheless, in conceiving and drafting the guidelines of a macroregulatory scheme for the sector, a developing economy is more likely to achieve the customary government and operator goals of universality and quality of service, variety of offerings, and reasonable price, through a scheme where the carrier is the focus of regulation. Similarly, the investor is likely to be better able to predict his future.

Corporate Structure

On the corporate side of the legal issues, investors naturally will be interested in the capital structure established by the government. This will provide critical input to the risk-reward formula, such as how much investment will be required, when, and in what form, what amount of control the investors will have over the operation of the company, and how the balance of the company's stock will be distributed. In this area, there are perhaps as many models as there are privatizations. The chapters by Hector A. Mairal (5) and Carlos Casasús (6) discuss the capital structures following privatization in Argentina and Mexico, respectively.

Management of the Privatization Process

An exchange between speakers at a conference on telecommunications privatization in Latin America illustrates the complexity of the privatization process. Following the speech by a U.S. lawyer who proposed a logical, orderly set of steps for a privatization process, the next speaker, one of the last employees of ENTel Argentina and a key participant in its privatization, praised the tidy steps articulated by that lawyer. He added, however, that such a process would be possible only if governments in general, and human beings in particular, were not involved.

Indeed, to the outside viewer, and particularly to the potential investor pressured by a sometimes multibillion dollar decision, the privatization often seems more like a fire drill than a business school exercise. Nevertheless, as much order as is reasonably possible should be a priority of the government to attract and keep foreign operator interest.

The Privatization Team

The investor wants as much information as possible, in as much detail as possible, as quickly as possible, about the privatization attributes. There is, indeed, a delicate balance in timing a privatization. Political, labor union, economic, and service pressures require a rapid announcement of the privatization decision. Once it has been made by the government the announcement attracts a series of private sector inquiries which government often is not prepared to answer. If wrong answers are given, or answers change as the governmental decisionmaking process matures, potential investors may lose interest.
Implementing Reforms in the Telecommunications Sector

It is not in the investor's interest to provoke ill-contemplated, rapid replies to long-term issues. Nor is it in the government's interest to discourage foreign operators by excessive delay or the inability to make the necessary decisions reasonably expeditiously once the decisionmaking tools are in place.

As to the latter, in most privatizations the government looks to outside experts to provide the input and experience it needs to make its decisions. Organizing and coordinating the efforts of outside assistance is important to the stability and efficiency of the privatization process. From the investor's point of view, it is best to have one continuous source of information from the government. From the government's point of view, too many assistants, or groups with overlapping responsibilities, could generate inefficiencies or even conflicting conclusions.

In general, outside assistance serving in privatizations mainly includes technical consultants, accountants-appraisers, lawyers, and bankers. A small, well-organized government team should be in place to work with these experts and coordinate their activities.

Process Transparency

The conduct of the privatization process must be, and must appear to be, free of inappropriate influences, free of corruption, and dedicated exclusively to the articulated objectives of the government. Proper procedures must be established and announced for all activities in the privatization, from the invitation to prequalify to the ultimate selection of an operator, where a new operator is a contemplated element of the privatization.

Although all processes vary slightly, they share many attributes in common, and certain norms have come to be expected by investors. These include, by way of example, provision of sufficient data room information and analyses; corporate debt instrument review; analysis of the salient laws of the country; reasonable timetables and articulated requirements for prequalification; a regulatory "house in order"; the issuance of a statement of terms and conditions of the sale which define the elements of the risk-reward formula; an offering statement; the requirement of a deadline; bidder selection, negotiation, and execution of a concession agreement.

The chapters that follow expand on these and related issues from the viewpoints of some of the main operating companies from developed countries that have already established a presence in the developing world.

Endnote

1. In some regions where the economy has been controlled substantially by the government via a system of government-owned parastatal corporations, broad-based price controls, and the like, a review of the entire legal structure as it impacts entry into and exist from the marketplace may be appropriate. For example, in Kenya, as part of a program to privatize nonstrategic parastatal corporations and restructure strategic ones (like the telecommunications company), an entire legal review has been done with suggested changes in parts of the commercial legal-regulatory infrastructure to facilitate the achievement of the move toward a market-driven private commercial sector within the framework of the government's goals.
Evaluating Investment Opportunities:  
Bell Atlantic’s Approach  
and the New Zealand Experience

Hyde Tucker

There are more telecommunications investment opportunities today than there is global investment capacity. Examples include corporatization, privatization, joint ventures for the development of landline infrastructure, second and third licenses for cellular and other wireless systems, and the licensing of alternative full-service carriers.

We know of more than twenty telecommunications privatizations under way or being considered. Right behind them, corporatizations are creating opportunities for management and consulting contracts to help streamline operations, improve service, and modernize assets to fetch a higher price if the telecommunications enterprises are eventually privatized. At least a dozen countries are already in or about to start the tender process for second and third licenses for cellular mobile telephone or other wireless systems. Democracy and market reform in Eastern Europe and the strong economies in South Asia are creating exciting investment opportunities in infrastructure development.

This wealth of opportunities is good news for Bell Atlantic1 and other foreign operators pursuing a global vision, because it will result in downward pressure on the current price of opportunities and lead governments to create more favorable terms and conditions surrounding foreign investment in telecommunications projects in order to attract interested parties and spur aggressive competition among them. Bell Atlantic evaluates each and every privatization opportunity. We are more likely to participate and compete aggressively when foreign governments put in place the right set of conditions to help us improve the value of the asset.

In the process, Bell Atlantic companies have been consultants as well as software and systems integrators for leading telephone administrations in Western Europe and in the Asia-Pacific region; partners in cellular consortia, with projects under way in the Czech and Slovak Republics, and agreements announced in Norway, Poland, and the former U.S.S.R.; exploring ventures for infrastructure development in several countries in Asia, Latin America, and Eastern Europe; a partner in a consortium that may bid for the second carrier’s license in Australia; and participants in two telecommunications privatizations. In 1990, the company acquired Telecom
Implementing Reforms in the Telecommunications Sector

New Zealand in a partnership with Ameritech and two New Zealand firms. In Argentina, we would have managed a new regional telephone company under contract, as part of a consortium that ultimately was disqualified because it could not obtain the financing necessary to close the transaction. From these experiences, we have developed rigorous screening criteria to evaluate privatizations and other investment opportunities created by telecommunications sector reforms.

Value Added Analysis

When considering investment opportunities, we ask two fundamental questions: Can we add value to the investment? In doing so, can we increase Bell Atlantic shareholder value? The specific analyses we undertake to determine if and how we will participate in an international telecommunications investment opportunity fall into four broad areas. We will apply them here to the case of privatization of state enterprises.

Revenue Opportunities

When evaluating the country's economy—as it is today and as it is likely to be tomorrow. Our investment threshold certainly does not require economies as robust as Germany or Japan, but we do look at trends and developments, including the opportunity the telecommunications sector has to influence economic growth.

The overall environment surrounding the privatization also affects revenue generation:

- Is there pricing freedom or price regulation?
- What are the competitive dynamics in the country's telecommunications sector?
- What is the country's tax structure? Are there limitations on foreign ownership and dividend treatment?
- Are there opportunities to improve existing products or introduce new ones?

Bell Atlantic fully subscribes to the benefits of competitive markets and has, indeed, prospered in them. Each country must evaluate, however, whether the managed introduction of competition would better meet its early stage objectives of sector reform, to allow the foreign operator to implement changes that will lead to long-term efficiencies. The greater the degree of competition on high-margin products and services, the slower the development of basic services because the telephone company will have fewer resources to apply to access line penetration.

Throughout the analysis, we carefully balance the opportunities against the risks. For example, low telephone penetration could mean significant future revenue streams. On the other hand, major network modernization or expansion represents enormous capital costs and earnings requirements.
Productivity Improvement Opportunities

Second, we evaluate the prospects for adding value by increasing productivity:

* Can we streamline operations through consolidation and restructuring?
* Will the government and labor unions allow reduction of the telephone company workforce?
* Will we be permitted to develop incentive pay plans that tie compensation to performance?
* What are the opportunities to deploy new technology in switching and transmission as well as software-based operating support systems?

Political Environment

Next, we look at political, monetary, and other environmental conditions:

* Is there stability in the current government and in the national political system?
* Will our employees and assets be safe?
* Will there be calls or other pressures on our investment, as in a nationalization of foreign-owned assets?
* Is the currency convertible?
* Is the procurement process free from corruption or other pressures? Will we be permitted to make independent decisions on product sourcing and vendor selection?

Transaction Features

Finally, we identify and evaluate a host of other considerations—internal and external—tied directly to the bid process or the transaction:

* The expected size of the transaction against our investment capacity
* The strengths and goals of our joint venture partners, if any
* The structure of the transaction, including requirements and opportunities to sell shares
Implementing Reforms in the Telecommunications Sector

- Language or other cultural barriers and the costs of overcoming them

- Legal matters, including property titles, assumed liabilities and, in our case, restrictions imposed on Bell Atlantic's participation in certain lines of business by the 1982 Consent Decree which resulted in the divestiture of AT&T and the creation of seven regional Bell operating companies including Bell Atlantic.

The New Zealand Experience

As we applied our value added analysis to the privatization of Telecom Corporation of New Zealand Limited (TCNZ), we were attracted to the stability of the government and the political system, the long-term economic prospects, and our belief that telecommunications could give New Zealand an important competitive edge in attracting service industries.

TCNZ is the principal supplier of domestic and international telecommunications services in that country, serving approximately 1.5 million access lines. The company also provides its customers with a full range of other services: cellular mobile communications and radio paging, leased circuits, data communications and information services, telephone equipment sales and repair, and telephone directories.

In 1990 Bell Atlantic, Ameritech, and two New Zealand companies, Fay Richwhite and Freightways, purchased 100 percent of TCNZ from the New Zealand government for NZ$4.25 billion (approximately US$2.4 billion). It was a cash transaction, funded entirely by the investment team.

TCNZ was already a modern, well-capitalized company. Today, its network is 87 percent digital, with wide-scale deployment of fiber-optic systems. Future capital expenditures, therefore, will be more focused on business development opportunities than on core network modernization requirements. Another important element in determining revenue potential was that New Zealand is a largely untapped market for enhanced services such as Yellow Pages and international toll, cellular, and other wireless systems such as intelligent network services.

On the productivity improvement issues, TCNZ was acquired under the terms of New Zealand's ongoing privatization of state-owned enterprises. It had been corporatized two years earlier to begin its transition to a competitive, market-driven telecommunications company. For example, TCNZ's workforce decreased from nearly 26,000 employees in 1987 to fewer than 15,000 today. The company is committed to cost performance leadership, and we anticipate a force reduction of several thousand more over the next few years. Today, Bell Atlantic and Ameritech have a small team in New Zealand working with TCNZ management to identify opportunities to add value through the transfer of technology, operating support, and management systems as well as through marketing and other programs.

The absence of rate-of-return regulation in New Zealand means that cost reductions and revenue stimulation directly affect the company's bottom line and, therefore, its return to its owners.
Apart from the financial advantages, our position in TCNZ enables us to participate in the international services market, and it is a platform from which we can monitor and participate in other regional investment opportunities. One such opportunity is our recent purchase of a 51 percent interest in a pay television company in New Zealand, in a partnership with Ameritech, Time Warner, and Tele-Communications, Inc.

**Benefits to Government and Customers**

In deciding to sell TCNZ, the government had two key objectives:

- To obtain the best possible price in order to reduce public debt and debt servicing costs
- To give New Zealand the best possible telecommunications system in the world to help improve that nation's ability to compete effectively worldwide.

To meet those objectives the government set certain conditions for the sale:

- A ceiling of 49.9 percent ownership by any foreign strategic buyer or buyers
- A requirement that a public stock offering worth at least NZ$500 million be made to the New Zealand public
- The government would retain a “Kiwi share,” which included service and rate pledges to residential customers.

The proceeds from the sale alone reduced New Zealand's public debt by nearly 12 percent in one hit and lowered annual debt service charges by NZ$430 million. A side benefit was that, unlike most other privatizations in New Zealand, most of the money came from overseas. The economy received an injection of about 7 percent of its gross domestic product (GDP) of approximately NZ$60 billion.

Our 100 percent purchase of TCNZ also relieved New Zealand taxpayers of the cost and risk of a public stock offering. The sale also relieved government of the responsibility and distraction of running a large complex company, and it was an outward and visible sign that New Zealand was moving to a market-based economy.

Bell Atlantic and Ameritech have three years to reduce their combined position in TCNZ to the 49.9 percent ceiling. We expect the ultimate ownership structure will have investors in New Zealand, in the United States, and in other markets owning 40 percent; Bell Atlantic and Ameritech each owning just under 25 percent; and the present New Zealand partners owning 10 percent.

Although the benefits to the government were obvious, the benefits to TCNZ customers were less so, at least at first. Just weeks before the final bids for TCNZ were due, a national poll indicated that some 90 percent of the public opposed the sale.
Implementing Reforms in the Telecommunications Sector

The dissatisfaction centered on two issues: foreign ownership and fear of increased prices. When we agreed to the terms of the Kiwi share, residential customers benefitted from our commitments to rate stability, uniform pricing, and the continued availability of phone service. Specifically, we agreed to maintain an option for flat rate local calling for residential customers, limit residential line rate increases to that of the cost of living, maintain uniform residential line rental rates for rural and urban customers, and not withdraw from any areas that TCNZ already served. It was important that we agreed to these service and rate pledges against the backdrop of a fully competitive telecommunications market. In New Zealand, an alternative telecommunications company has begun operations, and there are few regulatory barriers there for others to enter the telecommunications market.

On the foreign ownership issue, we helped the public understand that we would attempt to maximize New Zealand ownership of TCNZ through a public stock offering, and that through Bell Atlantic and Ameritech, TCNZ was gaining the skills and experience of two of the world's top performing telephone companies.

In the end, our commitment to the Kiwi share provisions and the foreign operators' records of innovation, efficiency, and customer service helped reassure the public. Immediately following the bid award, opposition to new ownership dropped to 53 percent, and it is only 39 percent today.

The Promise and Challenge of Privatization

In closing, we believe privatization holds enormous promise—for the foreign operator and its shareholders, for government, and for telephone customers. Our experience in New Zealand supports that proposition. But for all its promise, privatizations also present enormous challenges:

- For companies like Bell Atlantic, to select wisely from the range of international telecommunications investment opportunities available
- For governments, to create the right conditions and climate for privatization in order to spur aggressive competition to purchase the asset
- And finally, for owners, customers, and public policymakers alike, the biggest challenge is turning the long-term promise of information technology into a strategic competitive advantage in a global marketplace.

Endnote

1. Bell Atlantic is one of the seven regional U.S. telephone companies that resulted from the restructuring of the telecommunications industry in the 1980s. It serves 17.5 million telephone access lines in the six mid-Atlantic states of the United States and in Washington, D.C. With a population of 28.4 million, this economically vital
and communications-intensive region of the country also is home to the U.S. federal government and headquarters for eighty of the Fortune 500 companies.

Bell Atlantic meets the communications needs of residence, business, and government customers in this region with an intelligent network that is the most efficient in the United States (256 access lines per employee) and one of the most advanced in the world. Besides telephony, the company offers its customers high-quality cellular, mobile, and other wireless communications services, and provides a range of support services for computers and other business systems as well as leasing and financial services throughout North America and in selected overseas markets. Outside the United States, Bell Atlantic actively markets its core telephone business and related skills and technologies, and it has been exploring investment opportunities with a view to reaching its strategic goal of being a leading international communications and information management company.
The Point of View of a Global Operator: Cable & Wireless

Joseph E. Pilcher

About $150 billion of telecommunications assets are reputed to be in line for privatization worldwide. A sound appreciation by governments of the operating companies to which these vital assets will be entrusted, and of the global telecommunications environment, is essential for charting the course of privatization and ensuring success.

Cable & Wireless plc (C&W) has over one hundred years' experience in investing in the developing world and existing operations in forty countries. After thirty-five years as a nationalized British company, C&W was privatized in 1981. It thus became the world's first private basic services telecommunications company with worldwide operations. As a private operating company, C&W's commercial freedom is firmly linked to accountability. No excuses can be advanced to our shareholders if our investment strategies are not coherent and based on sound financial principles. C&W seeks to maximize the return on its investments. To this end, four factors are critically important as C&W examines potential participation in new privatizations.

A carefully structured privatization process with adequate time given for preselected operators to carry out a proper risk assessment

The large investments associated with privatizations, and the fact that often it is not politically acceptable to carry out large tariff corrections overnight, result in cash flows which are invariably back-loaded. The long periods needed to recover the investment costs accentuate the risk of political and economic disruption, for example, renationalizations, devaluations, exchange controls, and shortage of hard currencies. It is therefore important for multinational operators to be given sufficient time during the privatization process to research these risks so that these can be properly factored into the decisionmaking process and associated risk premiums.
Implementing Reforms in the Telecommunications Sector

Suitable time during the due diligence process given to establishing the terms and conditions, as required by both governments and operators

A factor of concern from recent experiences is the absence of a pre-bid negotiation to establish suitable terms and conditions. The due diligence processes we have encountered are more geared to the operator's establishing a price and placing a bid than to recognizing the issues most likely to result in the development of a prosperous company, a necessity if the country is to avoid possibly facing renationalization after privatization. C&W would like to see suitable time being given during the privatization process to the government's reaching agreement with a shortlist of operators on such important issues as pricing denominated in hard currencies, government guarantees on foreign exchange, tax holidays on reinvested profits, and management of debtors. These are but some of the issues that require consideration. No one will gain if the operator bids for the business on false pretenses or due to unclear understanding of what can be really achieved.

Majority voting control vested in the operator

A contributing factor to an investment by C&W is the ownership structure sought by the government. C&W is a telecommunications operating company, not a financial investor. It brings to the developing world unmatched experience in the operation of telecommunications companies outside our own frontiers. If the objective of the privatization process is to ensure that the country's telecommunications networks and services reach the highest standards, then control must be with the operator(s). They must have the right to manage operations as well as to control its board of directors. This is imperative so as to drive through investment strategies and management structures. Any shareholding structure that reduces C&W's ownership below 51 percent of the voting shares rapidly reduces our interest in the project. There are a number of ways of ensuring control while still keeping ownership of the voting shares below 51 percent. Some of these structures have necessitated joint ventures with local partners which are purely marriages of convenience and do not necessarily bring partnership strength to the consortium. The question is whether these arrangements with local partners will benefit the single-mindedness that is required to engineer the change of these nationalized entities into profitable companies capable of facing competition in the future. Furthermore, due to the accounting treatment in the United Kingdom for associated companies, any equity position below 20 percent would again reduce our potential interest in the project.

A clearly defined regulatory scheme

Finally, there is the thorny issue of establishing the regulatory framework not normally in place at the time of privatization. It is our experience that telecommunications companies in line for privatization in developing countries are not well managed, profitable concerns and are, furthermore, suffering from years of gross
underinvestment. No operator of sound logic will be prepared to take on such onerous responsibilities as investing in these companies, having to honor labor contractual obligations as well as not being able to rationalize the workforce if, at the same time, it is having to confront new competitors that are not subject to such constraints or to universal service obligations.

With long-distance revenues a less prominent proportion of local revenues in the developing world than in the industrial world, and with international tariffs under pressure, the often-stated political need of keeping local charges down through cross-subsidization is clearly a dangerous road to travel. If this problem is compounded by introducing competition in the long-distance and international areas, the market distortion instituted by the cross-subsidy will weigh heavily against the privatized operator as it seeks to implement a large investment program geared to the development of the network to the nonurban population. C&W would, therefore, seek a period during which competition would be limited to domestic value added services. Governments, therefore, need to decide on a strategy to either introduce competition in long-distance and international services or to maintain the cross-subsidy. Whatever the answer, the objective must be clearly visible to those who may seek to invest.
Internationalizing Telecommunications Operations: STET and the Argentina Experience

Francesco Massari

What do foreign operators expect when they take part in a process of privatization? STET's answer is, in the end, consistent with the direction being taken by most international operators: to participate in meeting the rising demand for increasingly sophisticated services in the context of deregulation, and to benefit from the opportunities offered by the privatization processes now under way in many countries around the world. These opportunities prompt the more enterprising companies to step outside their national boundaries and extend their range of action. This maneuver is at once an onslaught and a defense (a defense to the extent that expansion into the international market tends to compensate a possible redimensioning of the former standing income offered by their own home market). Elaborating on this general theme, this chapter attempts to formulate several more specific considerations on the basis of the experiences of the STET Group, a group which is active across the whole telecommunications sector, not only in services but also in the manufacturing industry. A good starting point is STET's new project in Argentina, its first experience in an overseas venture in the field of basic telephone service management.

The Argentina Experience

To understand the rationale of our recent move into Argentina, we must answer two questions. First, why Argentina? and, second, why team up with another operator and with Argentine partners?

Italy has close ties with Argentina. Suffice it to recall that nearly 60 percent of Argentina's population is of Italian origin and that many Argentineans of Italian extraction still retain dual nationality. This close link means heavy two-way traffic in telecommunications. Italy ranks second in Argentina's international traffic (after the United States). STET's international carrier, Italcable, originally was an Argentine company formed after World War I by Italians living in Argentina to secure direct links with their native land. STET looked upon the Argentinean project as a way to protect and promote the position Italcable holds in that country. We also felt
that it would be an advantage if our first major experience as managers of a public service abroad were to take place in a country with which we are naturally so familiar. This situation definitely simplifies our approach to the problems of relationship with the local environment.

With respect to the second question, STET now helps manage the northern part of the former ENTel together with France Télécom, the Argentine group Pérez Companc, and the J. P. Morgan Bank (the latter was our consortium's financial adviser, and in the end decided to take a stake in the investment, evidently convinced of its prospect of success). Our decision to join forces with another leading telephone company, France Télécom, was motivated by our wish to share the financial and other burdens of the undertaking; we prefer not to commit too great a share of our resources to one single operation. France Télécom seems to us an ideal associate, because we are both European companies and because more and more integration is developing in Europe; we are both convinced that this shared experience in the international field will also serve to increase our capacity for teamwork within Europe. Then, the fact that we are both European appeared to play an important role in Argentina, a country conscious of a certain nostalgia for Europe at every turn. The local partner, finally, is very important, not only because it is a financially solid company, but particularly because this company's knowledge of the operating conditions of the Argentine market makes a fundamental contribution to the success of our initiative.

Turning to the organizational aspect, our objective is to transfer our know-how as quickly as possible to the Argentine personnel, to share knowledge which will enable them to make the most of their own valuable professional skills. The reports arriving from the technical team which STET and France Télécom sent to the site are, in this regard, very encouraging.

At the operational level, the situation five months after the takeover was even more complex than it appeared at the outset. Countless things needed to be done, on the organizational, technical, and commercial sides, to restart an enterprise that had been on hold for several years and to reshape it into a modern, efficient company. This was to be a long and arduous task which had to be done in the context of great expectations for renewal under the privatization process. This is why the consortium asked, and continues to ask its new Argentine clients for trust, patience, and understanding.

Moreover, the problems associated with getting the project off the ground have been compounded by others deriving from the new economic laws passed by the government of Argentina. At the beginning of April 1991, the minister of economy issued a strong anti-inflationary law which eliminated all forms of indexation of regulated prices, including telecommunications, while the prices of products traded on the free market could fluctuate without any constraint.

STET, of course, is sympathetic toward energetic, disciplined strategies to normalize the economic situation. But our presence in Argentina and the price paid for the acquisition of the telecommunications company were based on economic estimates dependent on a set of mutual obligations. These obligations cannot be unilaterally modified: they are the rules of the game, on the basis of which the
efficiency and reliability of each party is gauged. Maintaining tariffs in real terms is one of these rules, as is our commitment to carry out investments up to a certain amount. If the rules change, the players are entitled to review their position. If we are not allowed to adjust tariffs to keep up with general price inflation, as agreed at the time of purchase, a hard blow would be inflicted on our investment in Argentina, and the entire privatization process initiated by the government would lose credibility. We are confident, however, that a solution can be found. In the entire world, the principles underlying telecommunications tariffs are rapidly evolving toward greater autonomy for the carriers while also complying with the users' interests. Within the context of this conviction we intend to search for a rational solution with the Argentine government.

**Toward a Generalized Model**

These considerations regarding Argentina provide a basis for outlining what may be a general framework for STET's overseas initiatives.

The scene of contemporary telecommunications business is largely set by two particularly significant events: the integration of national markets into broader aggregates virtually on a global scale and the increasing use of telecommunications networks to provide computer-based services to the public or telematics in a wide range of economic activities. National telecommunications systems, however, differ considerably with regard to efficiency and quality of service. Moreover, until only a few years ago they have evolved in an atmosphere of natural monopoly and isolation.

**Demand for Experienced Operator Assistance**

One focal point in the revolution we are considering is the gap between the demand for services posed by the most qualified and internationalized business users, on the one hand, and many telecommunications companies' insufficient supply, on the other. This gap is leading the companies to seek external assistance from more efficient carriers in order to improve performance. The requirement for assistance is the more urgent the larger the gap between the supply and demand for services, and as technology increasingly enables users to satisfy their requirements by themselves. Thus, one of the first reasons for STET's foreign initiatives comes to light: to meet a new type of market demand which originates from the contrast between modern and advanced business users, on the one hand, and less developed national carriers, on the other.

Business users, however, are not the only force driving the carriers' demand for assistance; after all, problems of this type could be solved by private networks. More generally, the role of basic services and the public network in promoting development is recognized. Efficiency gaps thus trigger government interest in foreign assistance. Moreover, broader macroeconomic considerations also come into play. In particular, the problem of foreign debt and the desire to obtain public funds through the sale of state property are especially strong motives. The whole world manifests this trend,
Implementing Reforms in the Telecommunications Sector

which has practical as well as neoliberal ideological dimensions and follows a long
period of public planning and state intervention in economic affairs.

In summary, operating companies of countries with economic difficulties seek
foreign operators to assist in managing their telecommunications networks,
attempting thus to solve the problem of the efficiency gap, which is dramatically
worsened by the globalization of economic systems and the wider use of
telematics. Through these initiatives the countries also aim to help solve
financial problems and move along neoliberal economic paths. In a way, these
operators are doing what those of the more industrialized countries have already
done or are in the process of doing: privatizing and liberalizing their telecommu-
nications systems.

Objectives of Foreign Operators

The foreign carriers invited to share management responsibilities in other coun-
tries are themselves involved, to varying degrees, in a process of liberalization and
privatization in their home countries. Therefore, some competition, actual or
prospective, is pervading their systems. Parts of their market, either at present or in
the future, are wearing away. Their tariff structures are being adjusted on the basis
of the individual services' costs. Moreover, the majority of these telecommunications
systems are approaching saturation levels as far as basic services are concerned.

In general, these carriers are tending to respond with competitive strategies (such
as described in the works of Professor Michael Porter of the Harvard Business
School) consisting of moves and countermoves to ensure their survival and growth
in the face of aggressive strategies from competitors. Obviously not all of the
industrial countries are at this stage; some are merely concerned with future
possibilities, which, however, already have a bearing on present strategies. In any
case, telecommunications carriers are starting to behave as if they were firms
operating in free markets, somehow replicating the latter's strategic behavior.

An initial tentative interpretation can therefore be outlined: operators in the
industrial countries are reacting to the liberalization, actual or prospective, of their
own markets, like free economic agents in a competitive environment, gaining
elsewhere the space which is being worn away at home. STET, like the carriers of
other industrial countries, is seizing the strategic opportunities offered, with a logic
of both defense and development in a competitive environment. The objective is to
protect and enhance economic margins where possible, to ensure the most appropri-
ate use of resources, both human and otherwise, and to realize, eventually,
economies of scale.  

Conflict between Global and Domestic Strategies

As might reasonably have been expected, this internationalization strategy was
initially met with lively discussion within the STET Group.
One of the objections concerned possible inconsistencies with our priority internal objectives of growth and completion of the national network. It was eventually decided to proceed with the envisaged strategy, mainly for two reasons. First, the financial and human resources to be diverted toward foreign countries would be relatively small and unlikely to slow down STET's domestic development. This does not mean that we would have held back the means and energies needed to properly carry out our foreign initiatives; on the contrary, our managers and specialists were to be first-rate and our investments, financially sound. Second, these external operations were to involve mainly the transfer of know-how, management techniques, and control methods. This sharing of knowledge would not diminish resources at the home operation but merely extend them to our new partners abroad.

**The Main Constraint: Human Resources**

It would be a great mistake, however, to underestimate the importance of human resources in this type of initiative. After all, transfer of knowledge consists, essentially, in assigning the appropriate managers to key positions. It is this kind of resource which allows objectives to be reached, abroad as well as in the country of origin. The mix of qualities of a successful senior manager (for example, experience, personality, discipline) alongside particular features necessary to operate internationally is rare; moreover, not everybody is willing to move to a foreign country for a long period. This is a considerable problem to which the top management of the large carriers of industrialized countries must apply their creativity. A standard solution is not at hand. Probably, both time and increasing familiarity with these initiatives will play an important role in developing effective ways of dealing with the question of human resources.

**Long-Term Perspectives of These Initiatives**

We can, and indeed we must ask ourselves the question: What will happen when the objectives of these initiatives abroad have been reached? In other words, what will happen when the gap between telecommunications systems has been closed? Very probably, the past tendency of countries to maintain control over their own telecommunications network will reassert itself. This would be consistent with the behavior of industries that operate in a competitive framework. For example, when transferring know-how, a manufacturing company knows that the receiving end will attempt, when possible and convenient, to become self-reliant in research and development. The reappropriation of control of telecommunications networks is part of the risk posed by our overseas initiatives. But, in the world of economics and business, nothing is eternal and immutable; it is, indeed, a changing world. It is essential, however, that enough time be allowed to reach the institutional and financial objectives of these initiatives.
Endnotes

1. STET, Società Finanziaria Telefonica Spa, is the 70 percent IRI held and controlled provider and manufacturer of telecommunications facilities and services. While STET focuses on telephone and telex, its subsidiaries SIP and Italcable focus on local and long-distance and on intercontinental services, respectively. Its industrial activities (production of installation of telecommunications and distributing systems) are mainly the concern of Italcable and SIRTI. STET is also active in publishing and communications through its subsidiary SEAT. Instituto Ricostruzione Industriale Spa, (IRI) is Italy's largest industrial and financial holding company which is fully controlled by the Italian State.

2. Economies of scale are at stake when the managing of a foreign network entails the transfer of methods, software, know-how with more advanced research, introduction and maintenance costs.
Part VI

Mobilizing Capital

for Privatization
**Privatization of Telecommunications Enterprises: The Viewpoints of Investors**

François J. Grossas

**During the Past Ten Years, a Number of Industrial and Developing Countries**

have transferred the ownership of dominant telecommunications enterprises from the state to private hands. Many more privatizations are under way or being considered. Not all privatizations, however, are viable and attractive to private investors. In order to succeed, a privatization must offer a good deal to all parties. In particular, it must respond to the concerns and selection criteria of the investor community. This chapter provides an overview of the considerations of investors as they assess how attractive a particular privatization opportunity is for them.

**Different Classes of Investors**

The examples of privatization discussed in this book illustrate the differences between two main types of investors, namely strategic investors and market investors.

**Strategic Investors**

In several countries, privatization has revolved around selling a controlling interest in the company to one or more multinational operating companies. That was the case, for example, in Argentina, Mexico, New Zealand, and Venezuela. Ownership of the privatized company becomes closely held by hands-on operating investors. This arrangement is preferred particularly when the company to be privatized is in poor shape and requires remedial management by an experienced, committed, and responsible shareholder group (for example, in Argentina, Venezuela). For the multinational companies, acquiring controlling interests in formerly state-owned enterprises in a number of key countries is a means to implement long-term telecommunications business development strategies, such as building up a regional or global market presence. This theme is explored from the viewpoint of the multinational operators in more detail in Part V of this book.
Implementing Reforms in the Telecommunications Sector

Market Investors

Other countries, including Chile (initially), Japan, Malaysia, and the United Kingdom, sold shares of their telecommunications companies only to equity market investors, both domestic and foreign. Market investors also provided a substantial part of the financing for privatizations involving multinational operators. Companies privatized in this way are generally strong, professionally managed entities which do not require the intervention of a particular shareholder group. Market investors include banks and institutional investors such as pension funds, equity mutual funds, and individuals. Ownership, in this case, is widely dispersed among investors that are essentially looking for opportunities to earn a stable return on their assets, often have a shorter time horizon than strategic investors, and are not interested in the telecommunications business per se.

Objectives of Privatization

Governments privatize state-owned telecommunications and other utilities mainly for financial, economic, and developmental reasons. Although often differing in priority, these objectives are common to most privatizations.

Financial objectives essentially consist of raising government revenues and reducing future government outlays. Privatization revenues can be considerable. In the United Kingdom, for example, thirteen privatizations between 1982 and 1989 generated over £26 billion in governmental proceeds. In Argentina, the sale of ENTel in 1990 helped the government reduce its foreign debt by over US$5 billion.

Economic objectives relate to the improved efficiency, innovation, and performance which can result when privatized companies are freed from political constraints and exposed to the discipline and competitive pressures of the market. Empirical evidence suggests that privatizations can indeed contribute to these objectives. Since its privatization in 1984, British Telecom has expanded services and products considerably while at the same time showing increased dividends and profits. Nonetheless, the privatization of monopolies without a corresponding introduction of competitive pressures and regulation will not necessarily optimize or result in desired efficiencies. The Argentine government, aware of this, divided ENTel into two regional companies before selling it, thereby creating opportunities to compare performances and a credible competitive threat by the end of an exclusivity period which was limited to seven to ten years.

Developmental objectives relate to enhancing the domestic capital markets and encouraging widespread company ownership among the public at large. These objectives include expanding the retail ownership of shares and contributing to the depth and liquidity of the local market. Fostering foreign investor interest in the local market is often an equally desired goal. Privatized companies, often large, have traditionally been ideal vehicles for promoting these objectives. In the United Kingdom, only 2 percent of the population (1.4 million individuals) owned securities in 1984; the British Telecom issue alone resulted in 2.3 million new shareholders. In Spain, the flotations of Empresa Nacional de Electricidad S.A. (ENDESA) and Telefónica on international markets
The Viewpoints of Investors

(United States, Europe, Japan) led to virtually continuous trading in these shares, a first for the Spanish securities market; in addition, these listings contributed to a surge of foreign investor interest in the Spanish market.

Investment Opportunities in Telecommunications Privatizations

The telecommunications industry in developing countries should offer increasing investment opportunities throughout the 1990s. After years of pent-up demand, the need to expand and modernize telephone networks has created such an enormous appetite for capital that governments, struggling with budgetary constraints, are opening their telecommunications industry to private investment. In most developing countries, however, the need for capital exceeds the domestic resources available, and many governments are now encouraging foreign private investment.

Government interest in foreign capital has been paralleled by the development of equity markets. In a number of developing countries, particularly in Latin America and Asia, local stock exchanges have come to play a significant role in mobilizing capital for the local economies. These emerging markets, which essentially developed from the mid-1980s, have been attracting foreign investors in substantial numbers. This contrasts with the deteriorating debt situation which continues to result in negative net transfers to developing countries. Several factors account for the success of emerging markets. First, in an effort to reduce the volatility of their returns and increase profitability, fund managers for large institutional investors are increasingly looking for diversification across national borders. Most emerging markets do not follow closely the variations of the major world stock markets, and therefore offer good choices for portfolio diversification. Second, both the information available on stock markets and government attitudes toward the private sector have improved in developing countries, and investors feel generally more comfortable than in the past dealing with emerging markets. Third, as investment opportunities in industrialized countries, and especially in the United States, became somewhat scarce in the 1980s, investors began to turn to the newer, less developed markets. Lastly, investors are attracted to emerging markets because they perceive them to be undervalued relative to industrial country markets, with many companies showing strong fundamentals and excellent growth prospects.

Most telecommunications companies are potentially attractive investments. With appropriate tariffs, returns are usually above the average for investments of comparable risk. Domestic and international traffic growth in most countries is consistently higher than GNP growth. And because the industry is treated as a utility, telecommunications companies typically retain a monopoly, if only temporarily. This allows investors to enjoy downside protection while making investments with high-growth potential. For many investors, these advantages outweigh the political risk associated with developing countries. Current trends in strategic and market investment in telecommunications are further discussed by Harland (chapter 27). The main mechanisms for selling shares of a telecommunications company, and some of their
Implementing Reforms in the Telecommunications Sector

relative merits, are discussed by Lewis (chapter 28). The sale through the public issue of shares is further discussed by Vallimarescu (chapter 29). Alternative ways of attracting private capital to telecommunications enterprises are explored by Bruce and others. (chapter 31).

Prospective investors assess particular telecommunications privatization opportunities from enterprise- and sector-specific viewpoints as well as in terms of broader country considerations. Privatizations in developing countries present investors with a different set of issues than in industrialized countries, with which they may have greater familiarity. For example, accounts often do not conform to internationally accepted standards, technical and particularly management expertise may be in scarce supply, and the governments' objectives and attitudes may be unclear or unreliable.

Enterprise and Sector Considerations

Investors look at prospective privatizations from a number of (interrelated) viewpoints. The main ones are the prospects for turning the company into a viable business, the conditions under which the company will operate in the future, the price at which it will be sold, and the likely returns on investment. These are briefly outlined below.

Company Viability

Investors look closely into the financial condition and outlook of the enterprise. State-owned telecommunications enterprises in developing countries, however, often are undercapitalized, perform poorly, and are both overstaffed and lacking specific skills. Most of them must be reorganized as companies under commercial law and their capital restructured before they are offered to investors. Debt may have to be rescheduled or assumed by the government. This also happens in industrial countries—for example, some of the debt from loans made by the British government to British Telecom prior to privatization was not transferred so as to improve the company's capital structure.

It is the company's potential for cash flow generation that will ultimately determine how attractive the company is to prospective investors. In many cases the enterprises perform poorly and need major internal improvements to render them profitable. Some governments may postpone public offerings until the privatization candidate starts showing steady profits. This, however, may not be necessary; some investors may be attracted by the opportunity to buy into a loss-making enterprise with turnaround potential.

The investors attach great importance to securing peaceful relations with labor. Company viability will depend to a large extent on the support of employees and trade unions. State telecommunications enterprises are usually overstaffed (while lacking specific skills). Most privatizations have initially been opposed by labor, primarily because of fears of layoffs. Offering employees a stake in the company's future through employee stock ownership plans is one of the tools successfully used to bring labor on board the privatization initiative.
Future Operating Conditions

Investors look closely at the conditions under which the newly privatized company will operate. They are likely to be particularly concerned with the quality of management, the potential for competitive entry, the future service requirements imposed on the company by the government as part of the privatization, and regulatory restrictions that may affect profitability.

Investors will want experienced and efficient management able to operate a complex telecommunications company in a market environment. Foreign operators that have bought a controlling interest in a newly privatized company will need to demonstrate that they can succeed in an environment that may be very different from that in their own country.

The potential for competitive entry is also important. A continuation of certain monopoly privileges, which reduce investment risk by guaranteeing a stable flow of revenues, is generally sought by investors. This, however, presents developing countries with a dilemma: on the one hand, governments want to provide incentives for new investment, as foreign investors will demand high returns to compensate for country risks; on the other, liberalization and competition may be essential to promote efficiency and introduce high-quality services. One possible solution is to guarantee exclusivity for a limited number of years, as has been done in most Latin American countries so far (with the main exception of Chile, where the incumbents do not have statutory monopoly).

Investors also need to know how much growth and what scope of services will be required from the newly privatized company. For example, committing the company to an ambitious capital investment program to rapidly increase the number of telephone lines may create a drain on cash flow.

Investors feel more secure when national telecommunications policy is clearly defined, allowing for the orderly growth of the industry. Simple and transparent industry regulations are important to investors. The treatment of tariffs is of singular importance. Profitability of the privatized company will depend critically on the level and structure of tariffs. To the extent that in most cases the company will retain a legal or de facto market dominance or exclusivity for at least some time, it will not be wholly free to set and change the prices it charges for its services. The applicable regulatory rules and procedures are therefore of the greatest interest to the investor. The company must be able to negotiate objectively with the regulators, and this process must be protected by law and free from contingent political considerations.

Company Valuation

Establishing a fair and competitive valuation for the telecommunications entity is critical to the success of a public offering. Price is one of the principal factors determining whether the privatization is attractive to potential investors. It also plays an important role in making the proposed privatization politically acceptable. Determining a fair price is a difficult task in industrial countries, and far more so in
Implementing Reforms in the Telecommunications Sector

developing countries. Expected revenue growth is the main determinant, but a number of other factors also intervene (for example, level of technology in use, investment cost per additional telephone line). The privatization process must allow enough time for both market and strategic investors to closely examine the company being offered as well as its potential market.

Return on Investment

A crucial consideration for investors is the expected return on their investment. This is an area where market and strategic investors may have quite different objectives. Market investors mainly seek stable, competitive, risk-adjusted returns. To attract market investors, governments may need to underprice the initial public offering. Strategic investors have a long-term interest in the telecommunications sector. They may be prepared to pay a higher price, and accept lower initial returns on their investments and less stable earnings, in exchange for building up a regional or global market presence.

Debt exchanges (or "swaps") have been used in connection with privatizations in a number of countries as a way to improve returns and attract foreign investors. Enterprise or government debt can be exchanged at a discount for equity in the privatized company. The investors get a financially unencumbered enterprise at a lower price, and the government reduces total outstanding debt. Watkins discusses three successful debt swap systems, including one used in conjunction with the privatization of the Argentine telecommunications companies (chapter 30).

Country Considerations

However viable and promising the investment may look, successful privatization of the telecommunications enterprise will also depend on features of the country as a whole. Local capital markets are expected to play important roles. Investors, especially market investors, are sensitive to how their money will be treated, especially regarding taxation of profits and dividends, and repatriation of capital. General political conditions also have an impact on investors' decisions.

Capital Markets

The success of a public offering depends to a large extent on how well organized the local capital markets are. Adequate and accurate information on financial markets and on potential investments must be readily available. Authorities must ensure the openness and transparency of market transactions by requiring appropriate disclosure standards and accounting systems for publicly quoted companies and by strictly prohibiting malpractices such as insider trading.

The availability of professional investment advice and facilities, such as brokerage houses for processing orders, is also an important factor influencing market inves-
The Viewpoints of Investors

tors. Also the existence of a strong secondary market may be critical to the success of a public offering, since investors will want to be able to trade their shares quickly and inexpensively. The larger the initial offering the more liquid the secondary market is likely to be. In general, the weaker the local financial markets, the more intensive the information campaign must be for public offerings to succeed.

One way to attract foreign investors is to list the securities in the investors' home country. U.S. investors, for example, have shown considerable interest in American Depositary Receipts (ADRs), which represent ownership of securities in non-U.S. companies. ADRs are listed and traded in the United States. Compared with the alternative of directly purchasing equities in foreign markets, ADRs provide a convenient and cost-effective means of investing in non-U.S. securities. Vallimarescu discusses the experience of Chile's main telecommunications company and others in placing new share issues in the U.S. market through ADRs (chapter 29).

The growing reliance of telecommunications companies in developing countries on market investors to finance modernization and growth should bring additional benefits to the local economy, such as the development of modern capital markets. In addition the market discipline that results from the public listing of a company's shares, through continuous valuation of the share price, should make a positive contribution to the growth and performance of the companies themselves.

Taxation and Repatriation

Investors tend to shy away from countries where their money is not well treated or is overtaxed. They favor countries with neutral tax systems that treat all financial instruments equally. In particular, taxing capital gains and dividend income more heavily than other income, still common practice in many countries, discourages investors.

Governments must also guarantee repatriation of dividends. Not surprisingly, equity financing has taken off in countries that have lifted restrictions on repatriation. For example, Mexico's 1989 tax reforms and its favorable treatment of dividends have helped reduce foreign reluctance to invest and encouraged the return of Mexican flight capital.

Political Environment

The government must show a clear, unequivocal commitment to privatization and remove the telecommunications company from the national political process. Privatization should be led by a politically secure leader and be written into law. The legal framework must provide a favorable climate for private investment and protect the interests of both domestic and foreign investors. If the government retains a stake in the company, it must clearly define the terms of its shareholding.
Endnotes

1. This section, and some statements in the next section, were originally in the draft of the chapter by Dan Vallimarescu and in material originally contributed by Vallimarescu and Teng-Hong Cheah.

2. In 1985, foreigners invested about US$200 million in emerging stock markets; this figure grew to about US$8.2 billion in 1989. In 1991 total foreign portfolio investment in emerging stock markets exceeded US$20 billion, accounting for roughly 3.3 percent of capitalization in those markets. It is estimated that such investments could grow to US$170 billion by the year 2000, which would represent 4 percent of the expected capitalization of emerging markets and 5 percent of all internationally invested funds. While representing a substantial increase, that amount would remain low relative to the percentage of worldwide GNP which those markets represent. Data for Latin America are perhaps more striking: Mexico, Venezuela, and Chile attracted US$5 billion of international capital market financing between 1989 and 1991. There were close to thirty international public and private sector bond issues from Latin America during that period, and fourteen in just the last six months of the same period. Yields on these debt issues have dropped from about 17 percent per year initially to between 11.5 percent to 14.5 percent per year. These developments would have been virtually inconceivable just a few years ago.

3. Investment returns from emerging markets can be very—often spectacularly—high. For example, in 1990, as measured in U.S. dollar terms, eight of the ten best-performing stock markets in the world were from emerging markets. The best performer, Venezuela, was up by over 550 percent, followed by 91 percent from Zimbabwe, 90 percent for Greece, 31 percent for Chile, and 27 percent for Colombia. Four of the five worst-performing markets in 1990, however, were also from the emerging world, with, for example, Brazil down almost 70 percent, the Philippines down 52 percent, and Argentina down 38 percent.
Trends in Strategic and Market Equity Investments

Christopher M. Harland

This chapter discusses current trends in the demand for investment opportunities in telecommunications. It distinguishes between strategic and public equity market investors. The viewpoint is that of an investment banker.

Strategic Investors

Strategic investors have played a leading role in the privatization of telecommunications companies in recent years, in both industrial and developing countries. They have mainly been North American and European telecommunications operating companies, including the Southwestern Bell and France Télécom investment in TELMEX; Bell Atlantic and Ameritech's acquisition of Telecom Corporation of New Zealand (TCNZ); Telefónica de España's investments in Chile (CTC and ENTEL) and Argentina (Telefónica de Argentina); STET and France Télécom's investment in Argentina (Telecom Argentina); BellSouth and Cable & Wireless's investment in AUSSAT, Australia's second operator; and GTE, AT&T, and Telefónica de España's investment in Venezuela (CANTV).

We foresee a continued interest on the part of the major strategic investors in telecommunications privatizations. This interest is driven by, among other factors, a desire to:

- Achieve more rapid access line growth than what is available in their mature home markets
- Participate in a more favorable regulatory environment than that which exists in their home markets
- Achieve earnings leverage from the significant productivity gains that can be realized in many of these situations
- Utilize surplus skilled manpower that increasingly is available within their own companies.
Implementing Reforms in the Telecommunications Sector

Although we believe these factors will continue to prompt strategic investors to look at international telecommunications privatization opportunities, we sense that the leverage in these operations is shifting toward the buyers and that the possibility of a failed auction is increasing. For example, because some of the more aggressive strategic buyers have recently completed transactions, they may not be as eager to take on additional projects, given the finite management and capital resources as well as limited international experience. A bunching of opportunities is also taking place which could negatively impact availability of investors interested in a particular operation. This becomes apparent when we look at forthcoming privatizations: the Netherlands, Germany, France, Singapore, the Czech Republic, Ecuador, Hungary, Pakistan, Peru, and Portugal, among others, are all considering, or rumored to be considering, selling stakes in their state telecommunications operations to strategic investors. Investor interest in new privatizations could also be constrained by the fact that a number of potential investors believe they are better off investing in a second or third cellular license rather than in existing telephone operations because of the lower capital required and reduced risk.

As strategic investors become increasingly selective, they are likely to attach importance to:

- Having a clear understanding of what the required investment will be
- Ensuring that any capital required beyond the initial investment can be financed on a stand-alone basis
- Teaming up with strong local investors who can, among other things, share in the investment and provide guidance on the political and regulatory front
- Teaming up with other international telecommunications companies (most of the examples cited earlier already manifest this trend).

Public Market Investors

The overall market for U.S. and international equities is very robust, and market investors have already found good opportunities in established telecommunications companies. For example, although U.S. telecommunications service stocks have not always kept pace with the broad market average, they are very attractively valued from an investor's perspective. For example, in mid-1991 the regional Bell operating companies (RBOCs) traded at an estimated price/earnings multiple of 14.2x, compared with 23.4x for the Standard & Poor (S&P) 500 average. Many non-U.S. telecommunications service companies trade at a premium to their U.S. counterparts due to their more attractive growth prospects. In 1991 Cable & Wireless traded at 16.3x estimated earnings.
In recent years we have seen a large volume of new equity issue activity by telecommunications service companies. For example, in March 1991 Morgan Stanley, together with Rashed Hussein Securities, lead-managed a US$110 million issue of sovereign bonds for the government of Malaysia exchangeable into Telekom Malaysia common stock. Also in 1991, the British government sold more than half of its remaining 49 percent stake in British Telecom. This represented one of the largest equity offerings ever attempted, aggregating approximately US$9.5 billion. Bell Atlantic and Ameritech sold 40 percent of TCI and then a further 11 percent in 1992. In December 1991, Telefónica de Argentina sold 3.5 billion shares, representing 30 percent of its capitalization in a global competitive offering. These companies subsequently did very well, their share overall appreciating substantially, as shown in Figure 27-1. In addition, several telecommunications privatizations that may take place in the near future are rumored to involve an equity flotation, including Singapore Telecom, Swedish Telecom, Telecom Eireann, and TELEBRAS.

So, as with privatizations directed at strategic investors, the argument could be made that there is some risk that abundant supply of investment opportunities could adversely affect investors' demand over time. Nevertheless, in the near term we are confident that there is strong demand for high-quality new stock offerings by international telecommunications service companies.

International equity flotations, however, are clearly not a viable source of capital for all government-owned telecommunications service companies. In particular, the absence of a vibrant local equity market, the presence of significant political risk, the existence of restrictions on foreign ownership of common stock, and a poor operating track record are all factors that could impede a successful international offering from a developing country. As with strategic investors, public market investors are attracted to countries where the overall economic situation and the regulatory, political, and competitive environments are favorable, significant potential for access line growth and margin/earnings improvement exist, and, perhaps most important, the valuation is attractive. TELMEX was an excellent example of an opportunity that met all of these criteria.

When analyzing an opportunity, public market investors also seek stability of earnings and cash flow. Inconsistent earnings performance penalize the companies in terms of their relative price/earnings multiples. In contrast, a strategic investor's focus with regard to the value of his investment may be longer-term in nature; the strategic investor, therefore, may be more willing to sacrifice near-term earnings in order to build the long-term value of the enterprise. Therefore, in planning for international public offerings, government-owned telecommunications companies should seek to develop the systems required to project and manage their earnings growth over time.

Public market equity investors need to be distinguished between institutional and retail investors. In the United States, institutional investors currently account for approximately 60 percent of the total available pool of equity. U.S. telecommunications companies, however, tend to have a much higher retail ownership profile. For example, the average RBOC ownership is 33 percent institutional and 67 percent retail.
a. Price indexed to 12/20/90, date that consortium received voting control. Secondary public offering took place 5/14/91.
When one decides to access the public equity market it is important to consider each of these constituencies. Although elements of the institutional equity community are so-called yield-motivated buyers, the dividend rate set by an entity contemplating a privatization has particularly important ramifications for the retail buyers and, hence, is an important factor governing the investment decision. The average dividend yield for the RBOCs is 5.4 percent, whereas for non-U.S. telecommunications companies yields range from 0.1 percent (TELMEX) to 5.2 percent (Bell Canada).

Another important consideration for public market investors is the liquidity of their investment. The public market investor is typically adding to a broader portfolio and will want to have the flexibility to change weightings within that portfolio at his/her discretion. The ideal equity flotation from an international investor's viewpoint is one that is large enough to ensure adequate aftermarket trading and thereby a healthy level of liquidity.

Conclusion

The best managed telecommunications service companies, no matter how tough the overall equity market environment, will probably be able to access these markets. Companies that do not have strong service reputations and operate in countries lacking a developed local equity market, however, will most likely have to seek out strategic partners for outside investment and operational assistance. Once these companies have developed a reasonable track record, the public markets will be receptive investors. Historically, telecommunications service companies have been a major component of the total equity market capitalization. This situation will no doubt continue to be the case, given the size of these companies, their importance to the economy and everyday life, and their ability to generate consistent earnings over time.
Options for Selling a Telecommunications Company

Dean Lewis

This chapter discusses five options for selling all or part of a major state-owned telecommunications enterprise. How the enterprise is sold will be determined largely by the government's objectives for the privatization program and by the commercial and policy constraints surrounding the transaction. An important set of objectives consists of maximizing proceeds, limiting exposure to the impediments of the sale, and keeping the execution as simple as possible. The five basic options are examined in terms of the extent to which each of these three objectives is likely to be met. There often are also other objectives, which may conflict with maximizing sale proceeds. The method of analysis used in this chapter can be extended to include other objectives.

Sale Options and Assessment Criteria

The five options are:

- Negotiated sale of 100 percent of the company to a single buyer
- Sale of a minority stake to a single buyer or group of buyers
- Public offerings in the domestic market or international markets or both
- Sale of a minority stake to a single purchaser combined with a public offering
- Breakup and sale of components.

Each is examined in terms of three criteria:

Maximizing Proceeds. How likely is the sale to maximize the net proceeds of the transaction to the government? This criterion incorporates judgments about the likely maximum size of the transaction, the price obtained, and the transaction costs.

Minimizing Exposure to Known Impediments to Sale. How sensitive is the sale to known impediments such as the availability of financial information,
Implementing Reforms in the Telecommunications Sector

economic and market factors, board and management preferences, and the government’s policy on foreign ownership of key economic activities?

MINIMIZING COMPLEXITY OF EXECUTION. How complex is the sale from a legal and logistical point of view, including the time required to complete the transaction? Although these considerations are, to a large degree, reflected in the transaction costs taken into account in the assessment of the maximization of net proceeds, for some options the logistical complexities are significant. Given the limited amount of historical financial information available and the commercial sensitivity of releasing profit projections, this criterion evaluates the options in terms of the amount of financial information which would need to be disclosed as part of the sales process and reviews other factors that will add to the complexity of the transaction.

Option 1—Negotiated Sale of 100 Percent to a Single Buyer

In all likelihood, the negotiated sale of 100 percent of a telecommunications operating company to a single purchaser will result in proceeds significantly higher than any other option; however, it is unlikely that any domestic company will be large enough to buy the company outright. Thus, if prospective overseas purchasers are not prepared to put in a bid, outright sale may not be realistic.

The sale price will be influenced substantially by the buyers’ perceptions of the certainty of the regulatory regime. Buyers will need to be comfortable that the regulatory environment will not be subject to arbitrary review which adversely affects the expected financial performance of the telecommunications company. In addition, the imposition of restrictions on the company’s operation, such as any noncommercial service obligations, will detract from the value achieved.

Typically, the realization of value under a negotiated sale will be driven by the generation of buyer interest. This will be influenced both by the process adopted and the ability to create a competitive environment. It is generally preferable to undertake a controlled auction process rather than an exclusive negotiation with a selected party. The auction process creates competition and provides alternative potential buyers.

Given the inability of domestic entities to undertake such a large transaction, in order to reach a maximum price the universe of buyers would need to include international parties. The likely buyers primarily include the major international telephone companies. These entities are familiar with the auction process and should be able to react relatively quickly. The auction process needs to be well managed to maximize value, and prospective buyers need to have confidence in the integrity of the process.

An impediment to sale that often arises in an exclusive sales process is management’s or the company board’s own preference as to the buyer. Many buyers, particularly foreign, will be reluctant to purchase a business unless they feel satisfied that management will be supportive.

A negotiated sales process is usually relatively straightforward to execute. The process involves an initial valuation by the advisers, preparation of a sales memorandum, selection of and approach to interested parties, buyer due diligence, and
negotiation of a final contract of sale. Government involvement tends to be less than in the other options due to the controlled nature of the process. Issues do tend to arise relating to the preservation of confidentiality as against disclosure, which must be managed carefully in order to protect the company's business.

Normally a negotiated sale can be completed within six months once the regulatory environment is established. The most time-consuming aspect of the sale is initial buyer evaluation and due diligence.

Option 2—Sale of Minority Stake (to a Single Buyer or Group of Buyers)

The sale of a minority stake in a telecommunications operating company, although still requiring a significant outlay, would probably result in a greater number of interested parties participating in the auction process. This option reduces control concerns and, depending on the proportion of the equity sold, is consistent with government policy restricting the level of foreign ownership by a single investor. It enables the government to structure a transaction that involves a domestic—international and active—passive investor mix. This could enhance the business. The universe of investors could include domestic conglomerates and large domestic companies.

This option requires a determination to be made of the maximum level of participation by any one investor. There is generally a correlation between the size of the stake sold and the control premium that would be captured by the sale. A sale of, say, five 5 percent stakes is likely to be more complicated and result in significantly lower proceeds than a sale of one 25 percent stake. Value will be enhanced by the absence of limitations imposed on the investor and flexibility of an investor to further increase or dispose of his investment. It is expected that investor interest would be greater if there were a prospect of achieving influence, board representation, or eventual control of the company. Related to this is the need for the government to provide some indication of its intentions with respect to its remaining shares. By selling a minority stake to a single purchaser, the government potentially limits its options in dealing with its remaining interest.

Overall, the price received for the sale of a significant minority shareholding should achieve a premium over the price obtained by a public offering. In ideal circumstances this premium could approach that of the 100 percent sale option. The sale of multiple but smaller minority stakes is likely to result in a price comparable to the public market value, due to the lack of control.

The impediments to sale under this option are broadly similar to those discussed under option 1 but are potentially less severe, depending on the size of the minority stake. For example, if a small stake were sold to a number of different buyers, it could be expected that management would be supportive. As with any partial sale, ongoing government monitoring may present problems.

The process and timetable for the execution of a minority sale to a single buyer is similar to option 1, although possibly slightly more complicated due to the necessary resolution of the factors highlighted above. Such issues would include whether a right of first refusal
Implementing Reforms in the Telecommunications Sector

is granted on the sale of the stake to third parties and the extent of operating influence or board representation granted to a shareholder. The maintenance of majority government ownership, however, does potentially simplify the regulatory issues, as government would still have ultimate control over the company's actions. In conclusion, the complexity of this option is likely to be neutral although the sale of multiple stakes to parties with different objectives could complicate the process significantly.

Option 3—Public Offerings in Domestic or International Markets

The critical factor in maximizing proceeds under a public offering is the capacity of, and the valuation ascribed by, the local market and the degree to which this value can be enhanced through international markets.

Under this option, an aggressive marketing strategy would need to be developed to maximize sales revenue. This could be supplemented by the issue of vouchers to retail investors, providing price reductions on telephone services, or other incentives to encourage interest from individual investors in the domestic market.

The transaction costs related to a public offering will exceed those of the other options because of the additional marketing needed to develop the market.

Given the likelihood of a limited domestic public market and the likely attractiveness to foreign investors, an international offering in conjunction with a domestic offering could be pursued. Recent U.K., French, Spanish, and U.S. privatizations of significant size have involved some form of simultaneous international offering to increase the offering size and to maximize value. British privatizations have targeted investors in the United States and Europe, and have resulted in stable, long-term shareholdings being developed in such areas. The choice of international markets to access depends on both likely potential demand and registration requirements. The United States has a well-developed and highly educated telecommunications sector investor base but requires complex Securities and Exchange Commission (SEC) registration prior to accessing the public market. The European markets have less restrictive issuing requirements and a more developed interest in emerging market stocks.

The allocation among various international markets depends on the relative demand that could be developed and would need to be carefully coordinated to ensure minimal flow-back and a high level of liquidity. The benefits to the overall value of a company to be privatized results from accessing a potentially more sophisticated investor base and by encouraging international comparisons and analyst following. Again, structural issues, such as simultaneous or sequential access and single or multiple tranches, would need to be reviewed in light of government's objectives and market conditions, both public and private, at the time of the offering.

An impediment to this option is the limited capacity of the domestic market to underwrite and absorb any large public equity offering.

If combined with an international public offering, the degree of complexity increases considerably. The conformity of disclosure, underwriting conditions, marketing, execution, and structural considerations need to be carefully coordinated. As such, the timetable would need to allow sufficient time to resolve such issues and
Options for Selling a Telecommunications Company

to develop the marketing program. Once the company is publicly listed, additional ongoing information requirements and investor programs are required.

Option 4—Sale of a Minority Stake to a Single Purchaser Combined with a Public Offering

In addition to the issues outlined in options 2 and 3 above, a number of issues are inherent in a combination of these options.

Care is required in executing this option, which if successful, could result in the sale of 100 percent of a telecommunications operating company, if so desired. Given the probable size of the sale, it is likely that each transaction would need to be carried out sequentially. Proceeds would be maximized by the initial sale of a minority stake to a strategic buyer at a premium to the anticipated public offering value. In addition, by placing the shares with a single purchaser prior to the public offering, the government can enhance the public offering price by giving an increased degree of comfort and leadership to public investors. Alternatively, a placement of shares with a single purchaser after the public offering could provide stability in the market and encourage competitive bidding among financial buyers looking to build a significant stake.

Option 4 has no real disadvantages apart from a minor increase in complexity, yet it could lead to the realization of greater proceeds. On balance, depending on the size of the shareholding purchased, some degree of control premium could be obtained. This should achieve higher overall proceeds than a public issue in isolation.

Similar impediments could arise to those outlined under options 2 and 3 but, because of the involvement of a new major shareholder, the success of a public offering could be enhanced. It is, however, likely that the new major shareholder will want board representation and possible management involvement.

Overall, the execution of this option is more complicated than those already discussed, primarily due to the coordination required between the two separate sale processes. The time required to complete both transactions could be in the order of six to nine months.

Option 5—Breakup and Sale of Components

The sale of a telecommunications operating company following a breakup of its core businesses would generally result in a lower value for the business as a whole because of the additional overheads of the individual operations and the loss of operating synergies. In addition, the breaking up of the core business would likely lead to lower value due to reduced international investor interest and result in a reduction in the proceeds from sale due to the negative impact on aggregate profitability.

In terms of public benefit, however, there is a trade-off between the loss of operational efficiency caused by the breakup and the potential benefits flowing from the development of rivalry and competition. (This is an example of some other conflicting objectives of privatization, which this chapter generally does not cover.) It could be possible to sell off certain noncore businesses, such as the cellular service, without the loss of operational efficiencies, but the resulting impact on aggregate value is likely to be immaterial.
Implementing Reforms in the Telecommunications Sector

The breakup could be time-consuming and strongly opposed by the company's board and management. The breaking up of the core activities could also significantly reduce investor appeal. The separate sale of certain noncore businesses could be more readily achieved on satisfactory terms, probably by way of a sale in the private market.

Given the complexity of trying to identify and separate the boundaries of the various businesses as well as to differentiate the assets and liabilities, this option could be the most difficult and time-consuming to execute if core activities were split up. Equally, the legislative requirements required to implement this alternative could, quite possibly, be the most complex. By comparison, divestment of noncore activities could be handled relatively easily.

Conclusion

Table 28-1 summarizes ratings of the five possible options against the three assessment criteria.
Options for Selling a Telecommunications Company

Table 28-1. The Five Possible Options Rated Against Assessment Criteria

<table>
<thead>
<tr>
<th>Option</th>
<th>Maximization of proceeds</th>
<th>Minimization of sensitivity to known impediments</th>
<th>Minimization of complexity of execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sale of 100% of a single buyer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sale of minority stake</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Public offerings domestic/international</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Combination of 2 and 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Break-up sale</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compliance with criteria

- Best
- Good
- Average
- Fair
- Worst
Privatization through Public Issue of Shares

Dan Vallimarescu

This chapter explores the use of public share issues in the privatization process. It examines a sample of six European utility companies (including two telecommunications companies) which have been privatized in this way, focusing on the international component of these public offerings. It then discusses the flotation of Compañía de Teléfonos de Chile (CTC) in the U.S. security market.

Main Flotation Methods

When privatizing via the public issuance of shares, governments often access the domestic and international markets simultaneously, as shown in Table 29-1. This is common when issues are deemed too large for the domestic market, the domestic market is of interest to foreign investors, and the privatized entity is itself demonstrably attractive from an international perspective. Such integrated offerings can help reduce the cost of capital, establish a diversified and stable investor base, and enhance the recognition and prestige of the issuer and its domestic market.

These elements were evident in the 1984 landmark privatization of British Telecom, which was achieved through a domestic and international public issuance of shares. The privatization was, at the time, the largest equity offering ever in the London market. The market value of that offering represented, by some estimates, a full 20 percent of funds budgeted for portfolio investment that year by institutions in the United Kingdom. In light of the potential difficulties in placing all of the shares on the domestic market and given foreign investor interest, an international tranche was deemed realistic and advisable. The British Telecom issue was indeed successfully placed largely with institutional investors in the United States, Europe, and Japan.

Purely domestic issues are usually employed when the offering is too small for an international offering, nationalistic concerns preclude foreign involvement, or the country or company is not yet positioned to attract significant foreign interest. For example, due to its relatively small size, the privatization of the British Airports Authority was accomplished through a domestic-only public offering. In most of Latin America, until several years ago, international offerings would generally not have elicited sufficient foreign investor interest, although this would no longer necessarily be the case today. In Japan, NTT was privatized through a domestic-only private issue. Although a foreign
Implementing Reforms in the Telecommunications Sector

offering has been promised, some analysts believe the Japanese authorities prefer minimizing foreign investment and trading in such a nationally sensitive concern.

Some governments have opted to issue shares internationally only after an initial domestic issue. This is meant to satisfy the domestic market's initial appetite for shares, as well as to establish a domestic market price from which to value the international flotation. The public issuance of shares in TELMEX is a good example.

Structural Considerations

The following discussion focuses on privatizations implemented through widely distributed integrated domestic and foreign public offerings. The analysis, based mainly on the six company privatizations listed in Table 29-1, reveals a number of important considerations in the privatization process.

Legal and Corporate Framework

Significant legal and corporate restructuring is often required to transform a government entity into a privatizable company. Investors must be assured they are purchasing shares of legally and operationally autonomous entities. This restructuring need is particularly acute today in Central and Eastern Europe. Companies targeted for privatization have, in several Central and Eastern European countries, been transformed into joint-stock entities via governmental decree; however, lingering concerns remain in some of these countries as to the clear and unencumbered ownership of privatized assets.

An important consideration which governments face is whether to privatize the enterprise as a whole or segment it for sale into smaller entities. British Telecom was sold as a vertically integrated whole; this was deemed preferable in light of economies of scale, the value of maintaining a nationwide franchise, and lingering benefits of cross-subsidization. In contrast the National Bus Company was splintered into

<table>
<thead>
<tr>
<th>Company</th>
<th>Total offering</th>
<th>International Tranche (% of total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Telecom (U.K.), 1984</td>
<td>4,855</td>
<td>670 (13.8%)</td>
</tr>
<tr>
<td>British Gas (U.K.), 1987</td>
<td>8,746</td>
<td>1,618 (18.5%)</td>
</tr>
<tr>
<td>Telefónica (Spain), 1987</td>
<td>591</td>
<td>136 (23.0%)</td>
</tr>
<tr>
<td>Endesa (Spain), 1988</td>
<td>453</td>
<td>172 (38.0%)</td>
</tr>
<tr>
<td>Verbund (Austria)</td>
<td>115</td>
<td>15 (13.0%)</td>
</tr>
<tr>
<td>British Water Authority (U.K.)</td>
<td>5,103</td>
<td>944 (18.5%)</td>
</tr>
</tbody>
</table>
seventy separate companies, since economies of scale were deemed less important than the potential benefits of competition. Furthermore, the value of the parts was arguably greater than the whole: the government raised £325 million by privatizing the company in this way, considerably more than might have been raised by privatizing it intact. Argentine's ENTel was divided into two regional companies, a jointly owned international, and several value-added services companies.

Governments must also decide whether to undertake necessary operational reforms prior to privatization or, alternatively, leave this task to the new shareholders and competitive forces of the market. Some analysts argue that by implementing difficult operational restructuring when necessary—such as reducing payroll and closing unprofitable lines—the government will attract more investors at a substantially enhanced price. Other privatization analysts argue that governments privatize precisely because they cannot efficiently implement substantive change on their own. They believe that market forces should be relied on to adequately value and implement operational change. In our sample, privatized companies were often restructured from a legal or corporate standpoint prior to sale; however, wholesale operational changes were not made. In Argentina, in the case of ENTel, virtually all agreed that the company required major operational restructuring to reduce costs and improve service; nonetheless, the government left this task—under its general supervision—to the acquiring shareholders.

**Residual State Ownership**

Governments must equally decide how much, if any, ownership stake they wish to retain in the privatized company. As shown in Table 29-2, government ownership initially retained in our sample of companies ranged from zero, for the British Water Authority, to 75 percent for Endesa, the Spanish electricity company.

Various considerations impact the percentage of governmental ownership retained. These include investor preference and expectations, the market's ability to absorb

<table>
<thead>
<tr>
<th>Company</th>
<th>Percent government ownership retained</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Telecom</td>
<td>49.8% plus golden share</td>
</tr>
<tr>
<td>British Gas</td>
<td>3.0% plus golden share</td>
</tr>
<tr>
<td>Telefónica de España</td>
<td>36.0%</td>
</tr>
<tr>
<td>Endesa</td>
<td>75.6%</td>
</tr>
<tr>
<td>Verbund</td>
<td>51.0%</td>
</tr>
<tr>
<td>British Water Authority</td>
<td>0%</td>
</tr>
</tbody>
</table>

a. Reduced to 22 percent at the end of 1991 after a subsequent sale of an additional 27 percent of the company. The government's remaining 22 percent of the shares were sold in mid-1993.
Implementing Reforms in the Telecommunications Sector

shares, and the profit potential of maintaining shares for resale at a what could eventually be a higher price. The most critical factor, however, is often the perceived need to safeguard the independence and viability of activities deemed to be of national interest. British Telecom and British Gas are good examples. U.K. authorities sold the majority of shares for both vitally important companies in the open market. Nonetheless, by retaining so-called golden shares, the government maintained ultimate authority as regards the independence and integrity of both companies.

Golden shares enable the government to prevent changes in a company's articles of association, limit the percentage of foreign ownership, limit the percentage of total ownership by any one individual or group, restrict the liquidation of assets, and prevent a potentially disruptive concentration of voting rights. These shares can eventually be used to recapture control should a company's autonomy be at risk. As opposed to cumbersome legislation, golden shares can be flexibly used to privatize a nationally sensitive entity without fully abdicating control. The shares, valid indefinitely or for a predetermined amount of time, are essentially passive instruments triggered only by clearly defined developments and acts. Consequently, investor concerns regarding arbitrary government involvement are minimized.

Rate Regulation

Rate regulation is perhaps the key determinant of success for a utility company. Along with country risk and share price, it is a critical element in any investor's decision to buy shares. Investors must believe that the rate-setting process is predictable, disciplined, and fair. A good regulatory framework achieves this, while at the same time ensuring that consumers receive satisfactory service at competitive rates. In order to attain this balance, some degree of continued governmental involvement appears inevitable. Regardless of the methods used, investors must be confident that the rate-setting mechanism will enable the company to prosper relatively free from arbitrary political involvement. In the international community, perceptions as regards country risk obviously influence this degree of confidence. At the time of Telefónica's privatization, international concerns regarding the rate-setting mechanism appeared to be more prevalent than for British Telecom. This reflected the relative unfamiliarity with and increased wariness which investors felt as regards Spain's country risk. Similar elements of concern often influence investor perceptions of privatizations in Latin America and elsewhere.

Size of the Issue

Investors generally prefer large public issues which offer liquidity, equity research, and ample trading. Foreign investors, in particular, can be comforted by an issue's size. As evidenced by the continuous trading of Telefónica shares through American Depositary Receipts (ADRs), the international component can itself contribute to an issue's liquidity and trading success. In general, an international tranche in excess
of US$100 million to US$150 million, with a total issue several times that size, appears to be an optimal structure for a major securities issue.

**Investors**

An important aspect of the privatization process is determining which investors, both domestically and internationally, the equity offering should target. Factors which influence this choice are the offering's size, the underlying company's fundamentals, and investor perception of risk in the privatized company's home market. Furthermore, governmental objectives such as development of the retail market or the fostering of foreign investment play an important role. Finally, financial imperatives—placing the requisite number of shares, maximizing the share price, establishing a diversified and stable investor base—contribute to determining the most appropriate investor mix.

Domestic investors can be broadly segmented into institutional and retail buyers. In our sample, indeed in most privatizations, developmental issues influence the allotment of shares between the two. The British government's privatization program to promote the acquisition of shares by retail buyers, such as households and employees. The government’s deliberate appeal to the retail market was particularly evident in the privatization of British Telecom. Mass market publicity, acquisition financing, pricing incentives, and limitations on the bulk purchase of shares were all used to encourage household investment. The campaign was a success; domestic retail buyers purchased 40 percent of the total issue, as indicated in Table 29-3.

Internationally, investor segmentation is somewhat more complex. The government's intent in accessing these foreign buyers is to augment demand, encourage investment by a diversified and stable base of relatively passive long-term investors, and generate overall foreign investor interest in the domestic market.

As in the case of the domestic market, the most fundamental distinction among international investors is between institutional and retail investors. In the United States, institutional investors account for roughly 40 percent of share ownership; however, they account for a full 70 percent of share trading, over 50 percent of which is in large block trades. In contrast, in Japan, although 70 percent of shares are owned

| Table 29-3. Privatization of British Telecom, 1984: Initial Distribution of Shareholders |
|---------------------------------|----------------|
| **Buyer type**                  | **Amount purchased** |
| Domestic retail                 | 30%               |
| Domestic employees              | 10%               |
| Domestic institutional investors | 45%               |
| International                   | 13%               |
| Other                           | 2%                |
by corporations and institutional investors, approximately 40 percent of secondary
market trading is done by individuals. In Europe, principal investors are typically
banks, insurance companies, and investment trusts. When dealing with foreign
securities, a further distinction must be made between investors who usually, occasion-
ally, or never, purchase foreign shares or shares from a particular foreign market. Some
institutional investors invest predetermined percentages of their portfolio in foreign
equities. Others, including so-called country funds, dedicate the entirety of their
investments to one or several specific foreign markets. Individuals are usually much less
of a factor in the purchase of foreign shares. Nonetheless flight capital (offshore funds
held by residents of the issuer’s home country) can be an important source of financing
for certain emerging market issues. Finally, for utility stocks, a distinction can be made
between traditional utility investors, who examine the company’s fundamentals on a
comparative basis, and country-play investors, who consider the foreign utility a proxy
for the underlying country’s economy as a whole.

By and large, institutional investors—due to their experience and resources—
account for the bulk of foreign investment in the international issuance of shares.
These investors purchase shares internationally in an effort to diversify risk and
maximize returns. They invest in utility shares specifically because of the relatively
high yields and insulation from recession which these securities can provide. Some
investors apply a bottom-up approach to investment in foreign shares. They examine
the company’s fundamentals on an internationally comparative basis first and then,
second, consider the issuer’s domestic market environment. Others apply a top-
down approach, first determining their interest in the issuer’s domestic market and
if comfortable, investing in the most prominent or obvious equity plays in that
market. Shares of utility companies are deemed to be highly correlated to the
economic and market evolution of their domestic market. Consequently, an investor’s
decision to buy into a country almost always leads, at least initially, to the utilities
sector. For example, by investing in utility stocks of certain emerging markets,
investors are often hoping to purchase high growth, recession-resistant stock.

The international issuance of shares of two telecommunications companies, Com-
pañía de Teléfonos de Chile (CTC) and TELMEX, offer interesting perspectives on
the approach to foreign markets. CTC issued a US$100 million share offering in 1991
on the New York Stock Exchange (discussed below in more detail). Buyers were largely
emerging market investors as well as more traditional utility and generalist fund
managers who allocate a portion of their holdings to international shares. Roughly 75
percent of the shares were placed in the United States, with the remainder purchased
by investors in Europe and Asia. TELMEX launched a several-billion-dollar issue.
That amount greatly exceeded the investment capacity of specialist Latin American or
emerging market buyers. The mainstream investor community had to be made
comfortable with Mexican country risk for the issue to succeed.

A final note of importance in targeting foreign investors is the ease with which the
investment decision and implementation can be made. The preparation of comprehen-
sive, understandable financial statements is of obvious importance. Financial statements
prepared in conformity with international accounting standards will, clearly, attract a
wider range of investor interest than those presented using purely local accounting practice. Country- or industry-specific investors will make the effort to understand foreign financial statements; the majority of generalist investors probably will not. Furthermore, the investment decision—once made—should be easy to implement. Generalist investors are often reluctant to purchase shares of a foreign company directly abroad. Brokerage fees, communication barriers, and timing constraints all contribute to this reluctance. On the other hand, a listing in the investor's own market—or, alternatively, on a readily accessible worldwide exchange—will considerably facilitate the investment decision and expand the universe of foreign buyers. In the United States, for example, investors undoubtedly prefer foreign shares issued in the form of ADRs and listed on one of the major U.S. exchanges. Established to facilitate foreign portfolio investment by U.S. companies, ADRs are negotiable certificates, traded in U.S. dollars, which entitle the holder to a specific number of shares in a foreign company. The actual shares are held in the issuer's home market by a custodian bank. ADRs and their international equivalent IDRs remove much of the complexity which U.S. or other international investors face in accessing the shares of a company in a foreign market.

Share Price Valuation

Perhaps one of the most difficult considerations is how to price the offered shares. For a de novo listing, for which a market price does not exist, the valuation process can be complex. Several methods are used to establish a share price in any listing: discounted cash flow, book value, and comparative price/earnings and other ratios. Investors will examine the offered price for a new listing with other comparable investment opportunities; that price must clearly incorporate a relative discount or premium as a function of investor perceptions of the issuer's country risk.

In light of the importance and complexity of correctly pricing an initial public offering, it is important for the government and issuer to assemble a coordinated syndicate of domestic and international underwriting banks. This syndicate should structure, price, promote, and place the issue as well as provide adequate trading support. Furthermore, it is often advisable for the government and issuer to have separate advisers, to incorporate the legitimate if sometimes conflicting concerns of both parties.

In general, initial public offerings are deliberately underpriced to ensure sufficient investor interest at and following the issue date. This discount can be relatively substantial in privatizations. Initial public offerings in the private sector are often underpriced by between 5 percent and 10 percent. In the privatization of state companies, discounts have often been much higher, particularly in the early stages of a privatization program. For example, the shares of British Telecom traded at an 85 percent premium from the offer price on the issue date. Clearly, the pricing of shares is an imprecise science; the price at which shares will just clear the market is often exceedingly difficult to predict. Nonetheless, deliberate underpricing by governments is often evident in order to successfully encourage retail investor interest and to create a success dynamic for the privatization program as a whole.
Implementing Reforms in the Telecommunications Sector

Table 29-4 compares the current and listing share price of some of the New York Stock Exchange-listed ADRs in our sample. The comparative pricing information is somewhat misleading in light of the time elapsed and currency fluctuations since issue date. Nonetheless, more comprehensive data indicate that the price performance of privatized utility companies has generally been good. This success is attributable to relative underpricing at issue date, the attractiveness of candidates chosen, and, in many respects, the privatization methods used.

Domestic National Interests

Finally, national interests, as defined by public opinion and the governmental authorities, must be secured in any privatization. Most privatizations seek to ensure that domestic investors are privileged in the purchase of shares and that foreign investors do not unduly influence or control the privatization process. These concerns can be well addressed by an appropriate structuring of the offering. The offering can be structured to include clawback provisions, restrictions on foreign ownership and voting rights, a so-called loyalty bonus to encourage employee purchases, and installment payments or discounts to help domestic retail investors finance the purchase of shares.

Clawback provisions allow the issuer, through its underwriting-placement banks, to recall part of the international share offering for resale in the domestic market should the domestic offering be oversubscribed; such provisions can equally be used for "clawing back" from institutional to individual buyers or from any one investor group to another in order of priority. Individual investor or employee investment schemes or both are used to facilitate the purchase of shares by retail investors; employee incentives, such as shares reserved for employees at a discounted price, are often used to encourage employee participation; finally, discounts and related benefits are often given to utility consumers to encourage them to buy utility shares.

Table 29-4. Trading Performance of Shares

<table>
<thead>
<tr>
<th>Category</th>
<th>British Telecom</th>
<th>British Gas</th>
<th>Telefónica</th>
<th>Endesa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue price</td>
<td>$15.50</td>
<td>$19.18</td>
<td>$19.62</td>
<td>$12.29</td>
</tr>
<tr>
<td>Recent Pricea</td>
<td>$62.86</td>
<td>$43.50</td>
<td>$29.50</td>
<td>$28.13</td>
</tr>
<tr>
<td>Year high/lowa</td>
<td>$68/$40</td>
<td>$49/$30</td>
<td>$30/$22</td>
<td>$26/$18</td>
</tr>
<tr>
<td>P/E Ratioa</td>
<td>12</td>
<td>11</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Dividend Yielda</td>
<td>5.0%</td>
<td>5.5%</td>
<td>6.1%</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

a. Data for the period ending April 14, 1991
The Experience of Compañía de Teléfonos de Chile

Compañía de Teléfonos de Chile (CTC), the largest Chilean telephone company, placed a public issue of shares worth almost US$100 million on the New York Stock Exchange in July 1990. This transaction was the first internationally listed equity issue for a Latin American company since 1963. The oversubscribed issue was a success.

CTC was privatized by the Chilean government in 1988. Following a competitive bidding process, the Australian financier Alan Bond acquired 49 percent and, via special “B” shares, majority voting rights of the company. The remainder of the shares were, at the time, held by institutional investors and individuals and were publicly traded on the Chilean stock exchange. In light of his financial difficulties outside of Chile, Mr. Bond sold the entirety of his holdings in CTC to Telefónica de España, the Spanish telephone company, in April 1990. Mr. Bond had initiated the idea of issuing CTC shares on the international capital markets; the Telefónica acquisition delayed but did not stop that process.

CTC chose to access the international capital markets for two reasons. First, a consent agreement with the government stipulated that Bond—and his successor Telefónica—could not own more than 45 percent of the shares of CTC; dilution was thus required. Second, the company was engaged in a US$1.7 billion long-term expansion program which the domestic markets alone could not finance.

In July 1990, CTC issued approximately US$100 million in American Depositary Shares (ADS), evidenced by American Depositary Receipts (ADRs) publicly listed on the New York Stock Exchange. Salomon Brothers and the International Finance Corporation (IFC) led a syndicate which underwrote and placed the securities issue. The ADRs were issued at a price of US$15.125 per share, a roughly 1.4 percent premium to the underlying share price on the Chilean stock market on the issue date. The share issue represented about 12 percent of the capital structure of CTC and raised almost US$85 million in net proceeds for the company.

In almost every respect, the CTC share issue was a success. It was the first international public offering of shares for a Latin American company since 1963; it raised substantial and much needed financing for the company; it established CTC as a recognized name in the international capital markets. Furthermore, investors have done well. Ten months after the issue, CTC shares were trading at roughly US$26 a share, up almost 75 percent from the issue price (see Figure 29-1).

The CTC issue was substantially oversubscribed. Buyers comprised emerging market investors as well as traditional utility investors and generalist fund managers. Approximately 75 percent of the shares were placed in the United States, with the remainder purchased by investors in Europe and Asia.

Why was the CTC share offering a success? More generally, what do investors look for when they invest in emerging markets? An initial answer appears easy. Investors look for profitable, well-managed growth companies in markets where the political risk is low, economic prospects are high, and the stock market is liquid and transparent. The reality, however, is more complex. When investing in emerging markets, investors will sacrifice one or more of these criteria in the expectation of a substantial upside gain.
Implementing Reforms in the Telecommunications Sector

Emerging market investors use a combination of two conceptual approaches. Top-down investors examine the economic fundamentals of a country first. If they conceptually buy into a country (in other words, if they believe the political, economic, and market prospects of a country are good, yet the stock market is undervalued), they will invest in shares which are most likely to prosper should expectations of country and market growth be realized. Utility companies, which offer protection from the downside but are highly leveraged to economic growth, are probably the first place such investors look. Alternatively, bottom-up investors examine the fundamentals of a company first, usually on an internationally comparable basis, and consider the country environment on a secondary basis only.

CTC was attractive from both perspectives. As regards country risk, Chile, in 1990 and today, was and is perceived by investors as being an attractive growth market. Three basic elements were particularly appealing:

- Investors were cautiously optimistic that the political environment would remain stable and, in any case, that a political consensus as regards free markets and foreign investment would continue to exist.

- Chile was perceived as having a well-managed growth economy; the country's GNP, driven by export-oriented sectors, had grown by an average of around 6.0 percent per annum since 1984.

- Almost all indicators suggested the Chilean stock market was undervalued on an internationally comparable basis. As shown in Figures 29-2 through 29-5, the market had grown rapidly over the past few years and had comparatively high average dividend yields.

Figure 29-1. Value of CTC Shares on the New York Stock Exchange

Latest share price: April 23, 1991
Figure 29-2. Comparative Price/Earnings Ratios

Price/earnings reflect each country’s accounting standards
Source: IFC, as of December 31, 1989
### Table 29-5. Operating Results Comparisons (Percent)

<table>
<thead>
<tr>
<th>Category</th>
<th>CTC</th>
<th>TELMEX</th>
<th>Telefónica de España</th>
<th>British Telecom</th>
<th>U.S. Regional Bells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating margin</td>
<td>43</td>
<td>33</td>
<td>33</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>Net margin</td>
<td>45</td>
<td>21</td>
<td>21</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Return on operations</td>
<td>15</td>
<td>12</td>
<td>19</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>Return on equity</td>
<td>21</td>
<td>11</td>
<td>15</td>
<td>18</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: Annual reports

### Figure 29-3. Santiago Stock Exchange: Market Index Performance in US$ Terms

Source: Bolsa de Comercio de Santiago
Figure 29-4. Comparative Stock Markets Performance

Korea Hong Kong Spain Japan U.K. Brazil U.S. Portugal West Germany Chile Mexico

1.4 6.6 8.4 12.2 19.9 20.5 27.3 36.8 39.2 50.6 71.2

U.S. is based on the S&P 500 Index.
Source: IFC, index performance in US$ terms in 1989
Figure 29-5. Comparative Dividend Yields

Source: IFC, as of December 31, 1989
Privatization through Public Issue of Shares

• In addition, investor confidence in the CTC offering was boosted by the Central Bank, which explicitly granted CTC shareholders access to the official foreign exchange market. Although this did not eliminate foreign exchange risk, it went a long way toward demonstrating the government's commitment to the repatriation of funds by foreign investors.

As regards company risk, CTC was itself viewed positively because of the following key corporate attributes:

• From a profitability and financial standpoint, the company compared favorably with its international telecommunications peer group (see Table 29-5).

• The company presented its financial statements using internationally recognized accounting standards.

• Management was viewed as competent.

• Relations with the skilled work force were relatively good.

• CTC shares were already listed on the Chilean market and were one of the most actively traded shares in Chile; liquidity was relatively high.

• CTC shares were attractively priced on a comparative price/earnings basis (see Figure 29-6).

• CTC's dividend yield was high (see Figure 29-7). Historically the company had paid 100 percent of profits in dividends. This was to be reduced to 80 percent; however, this reduction, rather than disillusioning investors, was viewed as a positive sign of the company's commitment to financing growth.

• The company's growth prospects, in line with the projected growth of the Chilean economy as a whole, were extremely high; perhaps the single most telling statistic, used by some international investors as an investment "mantra," was the lines-per-capita comparison (see Figure 29-8). This was viewed by some investors as an assurance that, even if the company did almost everything wrong, growth in the subscriber base and revenues was inevitable.

• Competition for CTC in its core local telecommunications business was expected to be slight.

• CTC had an ambitious but detailed and realistic US$1.7 billion modernization and expansion plan. This entailed potentially significant cost savings and, more important, substantial subscriber growth.
Figure 29-6. Comparative Price/Earnings Ratios: March 30, 1990

Source: IFC, December 31, 1989; company annual reports and March 30, 1990 market data
Figure 29-7. Dividend Yield Comparisons (Percent)

CTC Teledesic BellSouth Southwestern Bell British Telecom TELMEX

Dividend yield to U.S. holder after withholding tax
Based on 1989 financial results and March 30, 1990 price.

Figure 29-8. Comparison of Telephone Penetration: Lines in Service per 100 Inhabitants

Chile Mexico Brazil Venezuela Argentina Spain U.S.

Source: The World's Telephones, 1988
Implementing Reforms in the Telecommunications Sector

- As important, investors believed CTC would be able to finance that plan through internally generated funds and via the domestic and international capital markets. As part of this financing, IFC had itself made a US$80 million financing commitment.

- Although scheduled for periodic review, CTC's operating concessions were viewed as essentially secure.

- Finally, and perhaps most important, the Chilean tariff structure and rate-setting mechanism were perceived as being fair and relatively safe from unpredictable political influence. We come back, in this key component of investor confidence, to the generally positive view taken by investors as regards Chilean country risk.

There was one additional element of importance to investors. Even if they are comfortable with the investment fundamentals of a company, most international investors will not buy a company's shares unless the shares are readily accessible. CTC's ADRs were available on the New York Stock Exchange. ADRs are negotiable certificates, traded in dollars and settled in the United States, which entitle the holder to a specific number of shares in a foreign company. The actual shares are held in by a custodian bank in the issuer's home market. ADRs, very commonly used, make the purchase and ownership of foreign shares extremely easy. Furthermore, CTC issued its ADRs on the New York Stock Exchange, perhaps the most visible and liquid stock market in the world. Listing requirements, imposed by the exchange and by the U.S. Securities and Exchange Commission, were a comforting stamp of approval to most investors.

Although CTC went through a time-consuming, expensive, and complex process, it raised much-needed financing and created new financing options by establishing itself as a credible name in the international capital markets.

There is a strong demand for international telecommunications issues from emerging markets. Upcoming issues, some valued at several billion dollars, will test just how deep that interest is.

Conclusion

Many of the objectives of the flotations examined above appear to have been met. Financial objectives as regards the raising of funds and cessation of government expenditures occurred. The privatizations helped deepen and broaden domestic capital markets. Financial results and service generally improved. Foreign investor interest was sparked. And domestic national interests were preserved.

In light of the above, what are the implications for the privatization of telecommunications companies through the public issuance of shares, particularly in emerging markets? A larger foreign tranche than in the examples given above might be desirable should the domestic market be too small to absorb the privatization. Clawback provisions can be used to ensure that domestic demand is not frustrated by an international overallocation. For an ongoing privatization program, flotation
of the most attractive companies first, at a somewhat discounted price to expected market value, can help create a success dynamic. Establishing a predictable and fair legal and regulatory environment is critical for international investor interest. To encourage the retail ownership of shares, incentive schemes such as installment plans, loyalty bonuses, discounts, and employee stock offers should be used. Finally, concerns about protecting the national interest can be satisfactorily addressed through an appropriate structuring of the share issue.

Endnotes

1. The experience of CTC was written by Vallimarescu. The rest of this chapter is by Vallimarescu and Cheah. Introductory sections on the objectives and modalities of privatization, originally in Vallimarescu and Cheah’s paper, were merged by the editors into the chapter by Grossas to reduce duplication.

2. Bond acquired 35 percent of existing CTC stock from the government, and undertook the obligation to bring in new investment as a capital expansion that took his holding to a total of 45 percent.

3. The IFC’s mandate is to foster private sector economic growth in the developing world. This has traditionally involved making loans and equity investments to the private sector as well as encouraging financial and operating partners to co-invest in projects with IFC. On the average, for every dollar invested in a project by the IFC, another five dollars are raised from operating and financial partners. More recently, the IFC has tried to expand that resource mobilization role by encouraging international portfolio investors to purchase private sector securities from emerging markets.

4. By the end of May 1993 the share’s value had risen to over US$65 (more than four times the July 1990 issue price).
Debt Exchange: Financing Privatization and Reducing Country Debt

Desmond Watkins

DEBT EXCHANGE INCLUDES BOTH SPECTACULAR success stories and disappointments. In this chapter we examine the rationale for, and features of, successful debt exchange programs from the viewpoint of a commercial banker. Three examples are discussed. Venezuela's program has illustrative value for the readers of this book even if it was not actually used in the privatization of CANTV. The second example explains debt exchange in the privatization of Argentina's state telecommunications enterprise in 1991. Lastly, some features of the Chilean debt exchange program, a leader in its class, provide additional insights of general applicability.

The Government's Rationale for Debt Exchange

Privatizations may be financed from essentially four types of sources: local equity, foreign equity, local debt, and foreign debt. Developing countries, however, often have difficulty in drawing on these sources.

LOCAL EQUITY. Stock markets in developing countries are usually small or nonexistent. There is no significant pool of small savers through insurance companies, pension funds, and others. In some developing countries a limited number of wealthy private individuals or companies are prepared to take local equity. In general, investors are few and they require a significant premium or high rate of return to be persuaded to invest. Also, many such potential investors prefer to diversify their political and currency risk by investing their funds in other havens, even at substantially lower returns.

FOREIGN EQUITY. Political risk, absence of free currency convertibility, and foreign exchange exposure cause most foreign firms to minimize their equity investment in developing countries. Very large multinationals may invest in their own business subsidiaries but usually only in some (lesser) proportion of the size of that business to their worldwide portfolio. Foreign portfolio investment is extremely limited.
Implementing Reforms in the Telecommunications Sector

LOCAL DEBT. The local markets for debt instruments (if they exist) are extremely narrow and the private sector is crowded out. Almost invariably a large public sector debt problem makes the whole situation highly unstable. Long-term debt is usually not available and short-term debt is unreliable and expensive.

FOREIGN DEBT. Bank lending involves foreign exchange and cross-border exposure and is now rarely available without parent guarantee or cross-border political risk insurance. Most developing countries are already struggling or failing to service a sizable foreign debt.

Given these constraints, a number of developing countries have established some form of voluntary mechanisms involving exchange of sovereign debt for equity, assets, or private sector debt, as a means to attract foreign investment and at the same time reduce government foreign debt. Debt exchange usually takes place in one of two forms:

DEBT-TO-EQUITY. The foreign commercial banks are given local currency for their foreign-denominated debt which they then invest in a local project. Governments usually set limits on eligible projects and the repatriation of dividends and principal.

DEBT-FOR-DEBT. The foreign commercial bank exchanges a government debt for a debt owed to the government by a private sector or a government corporation (this could be part of a privatization). The private sector or government corporation then undergoes a capital restructuring so that the debt becomes common equity.

Countries where the debt exchange programs have succeeded in attracting additional investment exhibit two features. First, government policy places emphasis on creating a successful private sector, particularly for export-driven growth projects. Beyond divesting government of a poorly run business, privatization is used to create a sector of the economy which is viable and well run, and which, through managerial and technical skills as well as investment, provides a service or a product that is internationally competitive and upon which the society can rely. Second, beyond debt exchange as an opportunity to reduce external debt, successful governments pursue export-driven growth by developing world-class industries and do so by attracting both international capital and expertise.

The key to good debt exchange projects of a significant size is the involvement of foreign banks who are debt holders, whereby the banks provide capital for projects in developing countries against some form of partnership interest in these projects. Many international banks are overexposed to the governments of developing countries, and the governments have difficulty in providing the foreign exchange to service those debts. Unable to reduce their exposure, short of selling their debt at a very deep discount, some banks are prepared to redeploy this exposure toward private sector risks.

Governments sometimes stay away from offering debt-to-equity programs, arguing that they are inflationary. Indeed, such programs must be accompanied by fiscal discipline—governments should not simply print the extra local currency required. Countries such as Chile have successfully developed debt-to-equity programs. One
route followed has been for the government to exchange the debt for its own local currency—denominated debt, which the banks then sell in the market to raise the local currency, thereby taking the local currency out of the existing system. Inflationary impact is not an issue in the case of debt-for-debt programs since there is no monetary transaction. The companies' balance sheets, however, can be transformed, giving them a stronger equity base, freeing them from the burden of high local interest rates on their debt, and opening up the possibility of taking on more debt as the equity is increased.

The real argument in favor of developing debt exchange schemes is, however, more subtle: these schemes provide an incentive for the banks to develop a viable and successful private sector. Banks take a lead in structuring and putting projects together. Into their projects they invite capable technical and commercial companies (often their customers elsewhere) who probably would not be able, or would not wish, to take the whole risk of the project itself. These banks obtain political or exchange risk insurance and export credits as well as advise on the financial and legal structure of the company. They make available a whole range of experience and skills from modern management techniques to available export opportunities. They must insist on high ethical, safety, and environmental standards in the project. They will insist on proper accounting and recording of all transactions. They will pay the proper taxes to the government. Furthermore, they will compete for the government's assets and therefore raise their value. They will seek to make the companies they invest in profitable, competitive, and if possible, foreign exchange earners. Acting in their own self-interest they will do much to create a genuine, viable private sector that meets the government's objectives.

The role of a commercial bank such as Citibank as an investor can be crucial, not just because of the financial considerations but because it gives confidence and shares risks with partners who, on their own, would not be prepared to accept the risk of the whole venture, and who may therefore not even consider the opportunity at all—particularly if they do not have experience of the country concerned.

The Commercial Banks' Interest in Telecommunications Privatizations

Commercial banks are not telecommunications companies. In the normal course of business, banks may make investments in telecommunications companies, for example, as part of an overall diversified portfolio. Banks also make venture capital investments in various industries and countries. In general, the central reason for a bank to hold more than a portfolio investment in a foreign telecommunications company being privatized is the opportunity to redeploy some of the sovereign debt it holds.

Although the commercial bank's investment decision is largely driven by the exchange of existing sovereign debt, this does not lead to desperate investments. Exchanging one piece of debt paper with impaired value for another piece of paper of questionable worth is unacceptable. The proposed investment must be attractive

455
Implementing Reforms in the Telecommunications Sector

relative to the alternative of continuing to hold the sovereign debt. The secondary market price of debt is no indication of its value to those who intend to stay in a country and who are being asked to reinvest their funds in another long-term venture, such as a privatization.

The investment, therefore, must stand on its own merits. The bank looks for good management, sound strategy, a country and an industry with favorable potential, investment returns commensurate with risk, a risk suitable to the investor's risk tolerance framework, defined exit mechanism allowing the investor to actually realize capital appreciation, and goal congruence with partners. The bank requires a company which is not encumbered by legal problems or a backlog of unresolved issues such as debt, taxes, or other claims. It needs to be sure that the government has the necessary agreement of other parties or lenders to carry out these transactions. For a bank, there is somewhat less emphasis on sovereign or cross-border risk because the debt conversion does not involve incremental exposure to this risk. In addition, for a bank there is a more indirect emphasis on operational characteristics and a commensurately greater emphasis on a strong technical and commercial partner.

Commercial banks attach great importance to finding the right partners. The banks look not just for technical skills and financial strength, but for parties who have experience in upgrading networks from a state similar to the targeted investment and who have the human resources available to do so effectively, including language and compatibility both with the bank and with the country concerned. That means the bank must share, among many other things, the same standards as regards environmental concerns, safety, and, say, integrity of accounts. The bank looks for the partnership to provide a balance of skills. It does not seek to be the majority partner but neither is it usually a passive investor. It provides help and expertise in the areas of its specialty, such as financial controls, foreign exchange transactions, loans, supplier credits, and guarantees, tasks to which the Citibank has, for example, assigned employees in Telefónica de Argentina in which it is an important shareholder.

A number of other factors contribute to making a particular debt exchange opportunity attractive:

- Opportunity to use a significant proportion of debt in hand

- Attractive discount rate and conditions for the debt conversion. A large fixed discount is a disincentive because the banks must then take an immediate loss on the transaction into their books, which only those banks that wish to exit the country are prepared to do

- Bid in terms of face value of debt to be exchanged for particular assets. This avoids valuing the debt in local currency, gives a transparent market value for the assets sold, and often also results in a discount for the government
Financing Privatization and Reducing Country Debt

- Clearly defined rules of debt exchange financing. Debt exchange on specified terms should be available if the project put together by the bank is approved. A process whereby banks submit their investment projects and subsequently bid for the right to convert debt to finance these investments does not meet this criterion.

- Attractive foreign investment legislation, including dividend and capital repatriation, and fiscal incentives.

- Export or offshore hard currency revenues (for telecommunications companies, net revenue from overseas calls) as the sovereign debt being exchanged is denominated in hard currency.

- Maximum tenor of ten years and defined exit mechanism, consistent with regulations in the banker’s home country and with viewing the investment as part of a time-bound recovery process.

- Upside potential with recovery of 100 percent or more of the value of the paper exchanged.

- Large investment which justifies the high fixed (legal, accounting, regulatory) costs of an equity investment via debt exchange.

- Participating preferred equity with a minimum dividend. This is often more attractive than straight common equity, particularly when the sovereign debt being exchanged is current on interest.

- Equality of treatment with other participating banks and investors, regardless of whether investment is being made via a debt exchange.

Debt-to-Equity Exchange in Venezuela

In the 1980s, the government of Venezuela had a debt-to-equity exchange program based on a set amount of conversion rights being auctioned at regular intervals (approximately US$50 million per month) with a maximum set per project and an approval process for the project allowed to benefit from the program. Although the auctions attracted both foreign and domestic investors, the discounts rapidly became large, with only a limited premium over the market value of the paper. Also, neither banks nor large-scale projects, which the government most wanted to encourage, actually participated. A revised program became effective in late 1990. The discount on the debt was set at a low 15 percent of face value. Only projects with capital cost of $300 million or more were eligible. Up to one-third of the project cost could be financed with debt-to-equity exchange. Another one-third of capital cost had to be financed through equity contributions by the sponsors.
Implementing Reforms in the Telecommunications Sector

A special debt exchange program was created for investments in priority sectors—petrochemicals, aluminum, pulp and paper, tourism, and infrastructure. Projects were individually approved by the President and the cabinet. Minimum eligible capital cost was set at $150 million for petrochemical, aluminum, and pulp and paper projects, $50 million for tourism, and no minimum for infrastructure. The discount was set at 30 percent for one particular sovereign debt issue with a secondary market price approximately 50 percent, and lower for most other issues. The debt/equity exchange funds had to be invested against project expenditure incurred in local currency. Up to 30 percent of the capital cost of the project could be financed with debt/equity exchanges (50 percent for tourism, exceptions granted for infrastructure). Public sector foreign debt exchanged for central bank bonds was converted at 100 percent of face value. Prospective investors were required to deposit a 5 percent surety bond to guarantee that the proceeds from the conversion were invested as planned. During each of the first three years of the foreign investment undertaken through the debt/equity exchange program, the foreign investor was allowed to remit abroad dividends of up to 10 percent of the debt/equity exchange investment; no limits were set for subsequent years, or for dividend payouts in local currency in any year. Capital repatriation was not allowed during the first five years, and limited to 12.5 percent per annum thereafter.

In the first year of operation of this special program, the government selected about a dozen large projects, including aluminum smelters (costing from US$700 million to US$1 billion each), petrochemical projects (US$300 million each), a pulp and paper project, and large integrated tourism projects.

By implementing this program, the government made possible some large and economically beneficial projects that had been talked about but not acted upon for a long time. Lack of sponsors and financing had for years prevented these projects from moving to the implementation stage. The new program turned major international banks into active promoters and committed financiers of these large projects. In the aluminum sector, nine consortia were competing to obtain the available projects, including the major U.S., Japanese, and Korean companies. In the petrochemical area, international chemical companies joined with the banks and with the Venezuelan state-owned company to finance and compete for the projects.

For the banks, the new debt-to-equity program brought the opportunity to convert the existing sovereign debt into common or preferred shares of attractive private sector projects with exporting earning potential, without having to take large amounts of losses into their books. Banks were particularly attracted by four features of the program: large project size; demonstrable commitment of the government to the sectors targeted; debt/equity exchange approved in conjunction with project approval early in the planning stage; and small fixed discount on face value of debt.

Results at the implementation have been mixed. Despite the downturn of the petrochemical markets, the petrochemical projects went ahead successfully. In contrast, two years later the aluminum projects had not yet materialized.
Argentina: Debt Exchange in the Privatization of the Telephone Company

When the government of Argentina made the decision to privatize the telephone company, ENTel, it realized that given the general condition of that company, it was likely that few, if any, experienced telephone companies would bid and that the price offered would be unattractive from a political point of view. To help remedy those problems, the government resorted to the international banks and their large relationship network as the marketing and structuring vehicle.

The basic idea was to accept a large part of the payment for the shares of the company in the form of sovereign debt and to have the bidders (not the government) put a price on that debt. The government decided that the shares of the company would go to the one bidder that offered a set amount in cash and the highest amount of face value of sovereign debt. At the same time, the bid included conditions regarding future capital expenditure levels and the upgrading of the telephone network by the consortium and the commercial partner. The commercial partner, who had to be an established successful telephone operator, accepted responsibility to carry out operations and extensive upgrading of facilities.

In August 1989, the Argentine Congress authorized the President to proceed with the total or partial privatization of government-owned companies operating in a number of areas, including petrochemicals, transportation, communications, and energy. ENTel was among the most substantial entities to be privatized. Subsequently, the Argentine government issued decrees setting the terms of the privatization of ENTel, including a requirement that it be implemented through an international public bid procedure. The equity of the two regional companies into which ENTel was divided was to be placed 60 percent through an international public bid procedure, 25 percent through a public offering in Argentina, 10 percent with employees of ENTel, and 5 percent with private cooperatives which, prior to the bid, provided certain telecommunications services to ENTel. The two regional companies were to assume only specific liabilities of ENTel, such as payments for construction in progress and purchases of equipment and obligations to install telecommunications lines for which payments had been made. Additionally, the southern regional company was to issue a US$202 million promissory note to be paid to ENTel in six semiannual installments commencing three and a half years after the transfer date. The promissory note would bear interest at the six-month London Inter-Bank Offered Rate (LIBOR) plus 0.8125 percent, payable semiannually in arrears. A similar note would be issued by the northern regional company. ENTel was not to transfer to the southern company any outstanding receivables from customers. Both regional companies would be responsible to act as connection agents for ENTel's receivables which were outstanding on the transfer date.

The international public bid procedure to privatize ENTel set minimum prices US$114 million in cash and US$1,865 million of face value of Argentine debt instruments for the southern company, and US$100 million in cash and US$1,500 million of Argentine debt instruments for the northern company. The bidders
submitting the highest bid in Argentine debt instruments were to be awarded 60 percent of the common stock of each company. Interest accruing after June 26, 1990, and the Argentine debt instruments which were tendered would be the property of ENTel and would not be considered in computing the bid in Argentine debt instruments.

The privatization was successfully concluded at a price far above the minimum price for debt paper set by the government. The foreign commercial banks, eager to convert their sovereign debt into securities with a more attractive profile in the private sector, took it upon themselves to identify potential partners, both international operators and local corporations, and bring them together in the bidding. Under the leadership of three major international banks, including Citibank, three consortia were created and participated in the bidding. Bids for the two regional companies topped US$5 billion. Apart from the price paid in debt paper, the new owners paid US$214 million in cash up front and another US$337 million in installments over a six-year period. The takeover was effective on October 8, 1990.

Telefónica de España, teaming up with Citicorp and the local group Techint, took over the southern company, which includes the profitable Buenos Aires financial district. In addition to Telefónica, Citibank brought in a group of Spanish private banks. Telefónica now has an equity interest together with other Spanish investors to ensure their continuing interest in the successful operation of the network. The pressure of the private investors removes the possibility that the Argentine network would be handed over to another government entity. The second major equity partner brought to the venture was Techint, the preeminent local engineering company that will carry out the supervision of much of the engineering and construction of the network. Telefónica and Techint both seconded highly qualified and experienced personnel to the venture, and Citibank itself seconded seventeen highly qualified staff members to help establish the new systems and final arrangements. Local private investors and a syndicate of banks, both local and foreign, also participated in the consortia with both common and preferred shares.

The two regional telephone companies are now managed by operators of international renown, together with major local corporations; the government has canceled more than US$5 billion in sovereign debt; and the banks have been able to exchange their sovereign debt against common equity and preferred shares in the newly privatized telephone company, written into their books at a price agreed with the auditors. The Argentine government intends to follow this model for privatizing other publicly owned companies.

The banks were particularly attracted by the absolute size of the transaction, which was large enough to warrant the interest of international banks and telephone companies; by the minimum bid specification of a large utilization of debt paper; and by the structure of the auction as a direct exchange of debt for assets, providing investors the ability to place their own value on the debt paper.
The Chilean Model

Chile's debt-to-equity conversion program is often acknowledged as a model of success. This is in large part attributable to key structural attributes specific to the country: favorable foreign investment regulations; attractive investment opportunities; a stable economic environment; the existence of a significant portion of private sector debt; relatively high price of the debt on the secondary market; and a well-developed and relatively efficient local capital market. Critical to the formation of the local capital markets was the government's policy to allow individuals to transfer their pensions from state funds to private sector funds, thus creating a body of institutional investors with an appetite for long-term, private investments—in essence, a pool of local capital.

The debt-to-equity exchange program is tailored to these structural conditions. The approval process functions very fast, giving results generally within one to two months of submission. Investments are approved on a case-by-case basis and are most liberal in terms of investments allowed, although the rules target certain industries and restrict some types of investments. To mitigate the inflationary impact, the investor of private sector debt negotiates the conversion rate directly with the debtor, who in turn has the capability to refinance in the local capital markets. An investor exchanging public sector debt with the government receives a note denominated in local currency, which is then sold in the local capital market to raise cash. In both cases, money creation (and therefore, inflation) from the exchange itself is avoided.

Reliance on the well-developed local capital markets is what makes the Chilean program unique, primarily because most developing countries have neither a similar split of private and public sector debt nor a well-developed local capital market. Privatization does not have inflationary, money creation impact; however, for debt exchange programs not associated with privatization, certain stabilizing mechanisms are required, along with continued monitoring of the money creation impact. In many countries, the potential inflationary impact of excess money supply creation is addressed by establishment of quotas. Other approaches need to be considered when quotas are eased or exceeded by larger projects. In successful situations, compensating public sector budgetary adjustments have been made. In addition, investors have been issued local currency—denominated bonds in exchange for the tendered foreign currency bonds. Where there is a very liquid secondary market as in Chile, these bonds may then be resold by the investor to raise the actual local currency with little price risk to the investor. In the absence of a well-developed and liquid secondary market, some price protection mechanism is provided to the investor; in the context of a project financing, this might most appropriately take the form of a series of local currency bonds with maturity dates corresponding to the planned investment schedule.
Implementing Reforms in the Telecommunications Sector

Conclusion

The privatization and large-project debt exchange programs used in Argentina and Venezuela have in general succeeded in accomplishing investment goals of government that otherwise would not have been achieved. They did so because the governments had clear objectives and structured the programs to attract participation by financial institutions; the terms were clear and predictable; the market forces were allowed to work through specific types of competitive bidding; and the amounts of government debt involved were significant. The Chilean experience demonstrates the advantage of a broadly based program available to a wide range of projects to stimulate the development of the private sector. As time has passed we can now see that Argentina and Chile have also reduced their inflation to low levels. Their currencies have been strong so that remittance is now no problem for investors.

What distinguishes privatizations in countries such as Argentina, Chile, and Venezuela (as well as others in Latin America) is the extent to which foreign investors have come not only with capital but also with management, technical, commercial, and other necessary expertise to make such an undertaking successful. This is sadly lacking in many countries, especially those of the former U.S.S.R. and in Central and Eastern Europe, where privatizations are often being attempted by the simple distribution of vouchers or shares to ordinary citizens and foreign ownership has at least initially been limited. This does not, unfortunately, bring in the required expertise on how to set up and run a private company, let alone on how to establish a viable private sector.
Exploring New Ways to Attract Capital for Privatization

Robert R. Bruce, Jeffrey P. Cunard, and Lothar A. Kneifel

Improving the telecommunications infrastructure in countries with underdeveloped infrastructures will consume enormous resources over the next decade. Few countries will be in a position to marshal the necessary funds out of their domestic capital market. Instead, they will have to look to international sources, competing among countries to fashion solutions that will attract investor interest.

A well-accepted approach to attracting new investment capital is to authorize joint ventures between local and foreign telecommunications operators. For example, telecommunications operators in Central and Eastern Europe (CEE) have been actively involved in joint ventures for the provision of cellular services and overlay networks for business users. Joint ventures, however, while useful for new services, may not be particularly well suited for investment in the core telecommunications infrastructure, such as major urban telephone switching and distribution facilities. Another traditional approach to obtaining private investment in the telecommunications area is through corporatization and sale of a significant or controlling equity stake in the operator. There is, however, a large number of such potential offerings in international capital markets; investors, both foreign operators and institutional investors, are likely to be increasingly selective about the nature, size, and risk of the investments they make. Also, the recession in Western industrialized countries, together with other factors, have constricted the supply of capital available for portfolio investment.

Given these limitations, a government might alternatively open up parts of the telecommunications system for development by private investors. Although it would not initially dispose of any of its equity stake in the existing telecommunications operator, it would encourage private entities to invest directly in building additional core infrastructure. The financing options explored below would constitute a sort of bottom-up privatization in which private operators would obtain an equity interest in the infrastructure they construct, but not necessarily in the entity responsible for providing service to the public. Such a notion, which would have been radical a few years ago, raises fewer eyebrows today. In Eastern Germany, for example, DBP Telekom has waived its telephone service monopoly until 1997 to allow private
Implementing Reforms in the Telecommunications Sector

entities to offer voice service via their VSAT links, thus greatly accelerating development. Variants of this approach could be employed elsewhere to mobilize private capital and expertise in response to user needs. An expanding range of new technologies can be used to develop these solutions through unconventional network structures. This chapter discusses two novel approaches for reorganizing and financing the development of the telecommunications sector in emerging market countries. These are asset-based financing and franchising.

Asset-based Financing

Private entities could be engaged to construct and own infrastructure facilities and then lease these assets to telecommunications operators. A variant might be to establish such entities separately for each main line of the telecommunications operator's business (for example, local exchange, national interexchange, and international services). Such separate entities could raise debt or equity in domestic and international markets. The lease arrangement with the telecommunications operator might be structured to relate lease payments to the operating results of the business unit in which the leased assets are deployed. In a sense, investors would thus be offered a de facto equity stake in the telecommunications operator.

If lease payments are based in part on income earned by the telecommunications operator's business in which the new assets are utilized, it may be possible to increase the interest of investors and the marketability of securities of the financing entities. This financing technique was utilized by France Télécom in the mid-1970s when France initiated a major effort to reduce backlogs and improve the quality of service.

The establishment of such new intermediaries that finance and install new telecommunications infrastructure could effectively establish the groundwork for a later effort to sell control or a substantial ownership stake in the telecommunications operator. Investors in such financing entities would require some assurances and guarantees. They might be more interested, for example, in an investment in new facilities utilized in an overlay network where prices for business users—both local and international—are set at international levels. Investors would also need to know in very clear terms the regulatory and legal framework applicable to such facilities' leasing arrangements. The negotiation of these understandings might well accelerate the process of overall sectoral reform.

These efforts to create new investment opportunities in the telecommunications operator would offer an opportunity for investors and the telecommunications operator to gain experience in accessing capital markets. Privatization would thus occur in stages. Investors in packages of assets might, for example, be afforded the option to exchange their interest in such limited investment vehicles for shares in the telecommunications operator once it is privatized.

If new entities are allowed to own infrastructure that can be leased to operators, policymakers will have the option of deciding whether an intermediary could also use its own infrastructure to offer services directly to third parties and, if so, what range of services. Under one approach, an intermediary, such as an electric utility or a
railway company, might retain for its own use all capacity not made available to a telecommunications operator. Alternatively, a facilities provider might have the option of selling off capacity to other large users. A final option would be to permit the lease or resale of unutilized capacity.

An initiative to permit private ownership and operation of core assets might also operate quite successfully in tandem with a franchising initiative, described below. For example, in order to accommodate new traffic loads generated by franchisees, the telecommunications operator might have to construct a ring network to collect traffic generated by franchisees. Such a network might be separately capitalized by private investors or by such investors and a group of franchisees.

Many of the details of such a scheme for attracting new investment need to be refined. They suggest, however, some new and promising avenues for new investment and warrant careful assessment in the context of the experience of different countries.

Franchising

Under a franchising scheme, telecommunications operators might authorize private entities to construct segments of the local network and connect these facilities with the telecommunications operator in accordance with a specific business agreement. This agreement would establish technical standards for franchisees as well as a formula for dividing revenues. The agreement could provide the telecommunications operator with the option of acquiring its franchisees in exchange for stock. This financing technique would permit increased access to capital and foreign exchange resources held by telecommunications users, both residential and business.

For example, telecommunications operators could establish a franchising program to encourage small firms to construct new local telephone plant. These entrepreneurs would not operate as independently licensed local companies. Instead, they would operate utilizing the existing license of the telephone company.

In some rural areas, cooperative associations might be formed to undertake the construction of telephone infrastructure, consisting of small-scale switching systems (possibly radio-based) or of novel new technical configurations, for example, utilizing telepoint technology with handsets designed for use with prepaid telephone cards that would virtually eliminate the need for customer billing. To overcome the fact that telepoint systems might be used only to originate calls, rural subscribers could be equipped with paging equipment to notify them of incoming calls.

Another idea is to implement a franchising program involving small scale VSAT systems with built-in signaling and billing functions, such as those now available for connection to EUTELSAT and other satellite systems. In particular, EUTELSAT will provide satellite capability through duly authorized telecommunications entities even in countries that are not now members of EUTELSAT. Thus, in office or apartment complexes a VSAT terminal could be utilized to provide direct access to the public-switched network in the same country or on a cross-border basis. The use of a VSAT system which could bypass terrestrial networks would not necessarily result in a loss of revenue to the main telecommunications provider if such systems
Implementing Reforms in the Telecommunications Sector

operate as franchisees of such an operator. The originating VSAT terminal could
generate information concerning the called and calling number that would provide
a basis for proper billing of the customer and for a division of revenues between the
originating company and the telecommunications operator-franchiser.

New service providers need not, however, be dependent on new technological
capabilities or systems. A variety of different systems capabilities, ranging from
advanced electronic digital PBXs to small exchanges adapted for use in meeting
needs for limited groups of public subscribers, could be utilized. Indeed, the
emergence of new franchising arrangements might well stimulate equipment
manufacturers to offer cost-effective packages of equipment.

In establishing franchising schemes, policymakers would have the option of
permitting new tariffing schemes to apply to facilities installed by franchisees. It
might be possible to make arrangements through outside suppliers to obtain various
billing or customer information system software capabilities. Enhanced billing
capabilities would also be required to assure the efficient settlement of accounts
between the new service providers and the telecommunications operator. For
example, calls could be billed on an individual basis utilizing calling and called-party
number identification rather than on the basis of pulses. In this way, it might be
possible with new rate structures to better recover the cost of local networks and to
stimulate higher interexchange and international calling volumes. Effective trans-
parent management systems will ultimately be essential if new operators are to be
successful in obtaining new sources of investment capital.

Establishing a demarcation between a telecommunications operator's existing
retail services provided directly to customers and those offered on a wholesale basis
through intermediaries could provide important incentives for the construction of
new networks. Centralized state-run companies have not offered incentive-based
compensation, nor have they developed the marketing and business skills that will
be needed in the future. A web of small-scale, entrepreneurially-oriented firms
might be better than any business school course in training the new managers needed
for the future.

The implementation of a franchising scheme could create attractive opportunities
for new investors—either in establishing the franchising scheme or in running
franchises. These new investments would be on a smaller scale and may be perceived
as less risky than a direct investment in a former state-run company.

The telecommunications operator may also be able to facilitate the financing of
new service providers by establishing payment and settlement mechanisms that
provide adequate security for lenders. Funds payable to new service providers by the
telecommunications operator might be channeled through special trust accounts;
these receivables would provide a financial basis and security for loans by third-party
lenders. The telecommunications operator might be able to establish financing
arrangements for new service providers by financial institutions participating in the
new franchising program.

The new operators might be organized in a variety of different ways. Some might
be owned by individual entrepreneurs. Others might be cooperative associations of
Exploring New Ways to Attract Capital for Privatization

telephone subscribers managed by employees of the cooperative or by a separate management company. In some cases the new service providers would own their own equipment and facilities; in others they might lease such equipment from third parties or even from the telecommunications operator. Foreign investors might be permitted to participate in the new franchising scheme in a variety of different ways—as investors in new operators, in entities established to own assets or facilities needed to provide services, or in service companies offering billing or other logistical capabilities to service providers.

Giving the telecommunications operator an option to acquire its franchisees in the future minimizes the risk that the operator would be balkanized and reduced to a group of uncooperative and contentious small-scale companies. The telecommunications operator—or an outside firm brought in to establish such a franchising company—would have responsibility for setting standards and assuring the smooth provision of service on an integrated basis. It would also retain control over the billing mechanisms within the franchising scheme.

It is conceivable, of course, that new service providers could be set up as separate carriers with their own licenses rather than as companies operating under the umbrella of a telecommunications operator's license. Policymakers should, however, recognize the significant differences between franchising new business units and licensing new independent operators with their own licenses. Licensing new local carriers certainly adds a layer of complexity to any regulatory process that might be in the process of being established. A franchising program, by contrast, would result in certain potential disputes between the telecommunications operator and local companies in being treated as business contract questions, not regulatory questions requiring independent adjudication. Policymakers would anyhow retain the option to license new carriers.

In establishing a franchising program, there is no reason for new local companies to be limited to rural areas. Underserved parts of an urban area could become a target for a well-focused marketing campaign coordinated by new service providers. The new companies would, in fact, take on responsibility from the telecommunications operator for selling services and dealing with customer service concerns.

Utilizing new entities to meet unmet demand would appear to have many advantages:

- Many existing telecommunications operators are not merely limited in the amount of capital to meet unmet customer demand, but also in the managerial resources required to install and oversee new systems.

- New entities might well become vehicles for developing managerial and entrepreneurial talent necessary for the future development of a telecommunications operator. Large centralized organizations, in particular, those that have operated in centrally directed economies, have not generally been able to produce managers prepared for the rigors of a profit-and-loss-oriented, market-driven environment.
Implementing Reforms in the Telecommunications Sector

- A decentralized approach to building up local infrastructure might actually facilitate the process of raising investment capital, since the risk and scale of necessary loans are well within the capabilities of traditional commercial lending organizations.

- New service providers might become a vehicle for the development and deployment of new sophisticated billing or other software-based logistical capabilities. These entities could become a proving ground for new management capabilities and systems that might eventually be deployed in the telecommunications operator itself.

These new entities that are intended to build out the ends of the operator’s network need not always remain small-scale and entrepreneurially separate from the telecommunications operator. It might be feasible, after a transition period, to merge separate new local companies into larger business units or to consolidate new entities with parts of the telecommunications operator’s local exchange businesses that have been decentralized into separate business units.

One particularly attractive option might be to provide in a franchise agreement for downstream consolidation, involving the exchange of an ownership interest in new local companies for stock in a telecommunications operator that is to undergo privatization. In this way, managers who expand the telecommunications operator’s base of subscribers would be rewarded in proportion to their contribution to the operator’s profitability. The development of new local cooperative companies would thus become an important mechanism for preparing a telecommunications operator for privatization.

A franchising initiative would produce a group of indigenous entrepreneurs who, in exchanging the stock of franchisees for stock in the telecommunications operator, could become a significant part of the governance structure of a restructured telecommunications operator. This plan could be an avenue for rewarding a telecommunications operator’s employees not for their past years of service with the company, but for their future contributions to its growth.

More important, by stimulating the growth of new connections and revenues, the implementation of a franchising scheme would improve the prospects of the telecommunications operator to attract investment. Investors will ultimately prefer to base their decisions on trends concerning emerging new income streams than on evaluations of the great enigma that telecommunications operators’ current accounts now generally represent.

Conclusion

Both the utilization of separate financing mechanisms and initiatives to encourage new investment on the peripheries of the telecommunications operator’s network could help establish the necessary groundwork for a telecommunications operator to privatize. They would constitute significant and useful steps by investors and increase the likelihood of success of the privatization process.
It makes little sense to rush toward privatization without addressing a number of threshold problems, including most of the issues that must be confronted when corporatizing a state enterprise. Certainly among the most important concerns are reassessing the structure of government-held debt, defining dividend expectations of the government with respect to shares retained, and delineating the ongoing control relationships between the telecommunications operator and the state (including board representation and mechanisms for holding and voting shares).

The timing and sequence of privatization thus become matters of crucial importance. The incumbent management of the telecommunications operator and the state may not be ideally suited to undertake the important initial steps involved in privatization; however, interim steps toward introducing private investment into the telecommunications sector buy time to undertake the tough institutional and regulatory reforms necessary to assure the success of any privatization initiative. Moving too quickly to privatize a telecommunications operator on a top-down basis may ultimately diminish the value of the government's stake in the telecommunications operator. It may leave few options other than replacing government control with control by one or more outside investors.

Endnotes

1. A good discussion of the types of financing techniques which were used in France to catch up can be found in J. C. Deniaud, “Le rôle prioritaire des investissements en télécommunications pour le développement socio-économique,” presented at the European Regional Telecommunications Development Conference, Prague, November 19–23, 1991.

2. Cooperative telephone companies have long had an important role in the Finnish telecommunications sector, which provides an interesting case study concerning how private telephone companies can coexist in a dynamic way with a traditional PTT. The Finnish cooperative movement is strong and influential; the Finnish cooperative form of organization may provide an interesting model for countries seeking to diversify the organizational structure of their telecommunications sectors and to create new opportunities for small-scale, market-driven enterprises. Such new enterprises might prod the traditional telecommunications organization into performing more efficiently; they might also provide a breeding ground for new cadres of entrepreneurially minded telecommunications managers. See also J. Taurianinen, “Cooperative Movement in Finland,” Fin Coop Pellervo, 1990.
Part VII

Issues of Regulation
Regulation and Telecommunications Reform: Exploring the Alternatives

Richard J. Schultz

Policymakers contemplating telecommunications sector reform must consider at least three distinct but interrelated and increasingly complex processes, namely, corporatization of a state enterprise; privatization; and establishing of a regulatory framework. Although not a prerequisite for restructuring that entails only corporatization, creating some form of regulatory system is unavoidable if privatization is undertaken, regardless of the extent or nature of competition, if any, that is to be permitted. No country to date has been prepared to transfer a public corporation into the private sector without imposing some degree of continuing public or social control over its activities.

The introduction or transformation of regulation is the most complex, and consequently controversial, of the reform processes because of the wide range of interrelated issues that must be resolved. These involve: fundamental questions about the nature of the regulatory role for the state in telecommunications; the objectives or purposes of that role; the specific regulatory instruments to be employed to perform that role; and, finally, questions about the appropriate public institutions and their interrelationships, both within the state and between the state and the private sector. This chapter presents a survey of the conceptual and analytical issues involved and describes some of the major alternative approaches employed by the countries which have undertaken the reform of their telecommunications sectors and which are discussed in this volume. No attempt is made either to evaluate these reforms or to offer particular prescriptions based on the experience of individual countries.

The Regulatory Role of the State

All economic systems, except perhaps the most primitive, require some regime for the social control of economic decisionmaking. The range of such regimes can be conceptualized as a continuum with markets at one end and public ownership at the other. Such a continuum is relevant to economic systems generally or to individual sectors of economic activity such as telecommunications. Our concern in this chapter is with the latter.
Implementing Reforms in the Telecommunications Sector

For markets, the social control regime is highly decentralized and dependent on voluntary private relations between buyers and sellers to determine which goods and services are produced and at what price and quality they are made available. There is no presumption that markets are derived from some state of economic "grace" or that the market is anything but a regime highly dependent on very sophisticated state or public initiatives, such as contract and patent law, to ensure that market control can operate effectively.¹

Public ownership of the means of production of goods and services is a vastly different social control regime. Public ownership entails public, centralized, compulsory relations directed by the state, which determines the production of goods and services, the prices to be charged, and the quality of the specific transactions.

For most of the world, telecommunications services have traditionally been provided through public instruments, normally state monopolies. The assumption has been that, for a variety of reasons ranging from the high capital cost to the fundamental economic and social importance of the sector as one of society's infrastructures, telecommunications—like other comparable sectors such as transportation, broadcasting, and energy—is too important to rely on market or private forces, even if such forces could work effectively.

In North America, especially the United States, there has been much greater, indeed almost exclusive, reliance on markets as an economic social control system. The United States and Canada, however, confronted problems common to the rest of the world, namely, that markets could not effectively control some economic activities, such as telecommunications, because of the presumption that certain sectors were "natural monopolies" where it did not make economic sense to have more than one firm providing the service in a specific geographical area. Although North Americans had the choice of public ownership available to them (three Canadian provinces availed themselves of this option), an alternative to public ownership in the face of "market failure" had to be devised. This option was public regulation, wherein public authorities did not own the services but subjected private owners to detailed public scrutiny and surveillance. Private decisions on price, quality, and availability were regulated or subject to public approval.

Nations that are restructuring their telecommunications sectors, particularly if that involves privatization or the introduction of some competition, must come to grips with the complex world of regulation. It is complex because, despite all the discussion of regulation and deregulation, the basic concepts and issues are often not clearly understood even by those familiar with regulation as an instrument for social control.²

Evidence of the underlying confusion can be found in the commonplace description of regulation as "a substitute for competition where competition cannot presumably work" or alternatively as a "halfway house" between markets and public ownership; however, regulation has been both more and less than both these phrases suggest. It is vitally important that nations introducing regulation understand the multiple objectives, some at fundamental cross-purposes, that have been or can be pursued through regulatory controls. Failure to do so can frustrate or undermine the restructuring or reform process.
In the conventional North American view, regulation was introduced because markets could not work to discipline the economic actors—the telephone companies—providing telecommunications services. According to this perspective, absent regulation, privately owned telephone companies would be able to exploit their customers to earn monopoly profits and to engage in socially unacceptable forms of discrimination. Where the rest of the world generally opted for public ownership to address such problems, North American governments opted instead for the creation of an "economic policeman" to protect the interests of society. This, however, assigns regulation a much lesser role than that assumed by the phrase "substitute for competition."

Competition is expected to play a more comprehensive role, particularly with respect to promoting static and dynamic efficiency. From this perspective regulation was expected to act at best as a very partial, limited substitute for competition, inasmuch as it was really only supposed to prevent the more egregious abuses of monopoly power. Regulation's failure or intrinsic inability to perform a more positive role vis-à-vis productivity and efficiency has been a focus for attention in North America in recent years. This has resulted in a search for improvements or, increasingly, alternatives to replace regulation to compensate for this shortcoming.

If economic policing were the only objective of the regulatory system, introduction of regulation in other countries which opt for privatization would be relatively straightforward. Unfortunately, neither the North American regulatory tradition nor the contemporary circumstances within which most countries are contemplating the creation of a regulatory regime allow for such a one-dimensional appreciation of the nature of regulatory objectives. In particular, two issues are germane to any discussion of the regulatory role of the state in any restructured telecommunications sector. The first is an appreciation of the multiple objectives of traditional economic regulation. The second is an understanding of the need to adapt such regulation to the complex policy and economic environment confronting contemporary telecommunications, most notably the mix of monopoly and varying degrees of competitive provisioning of telecommunications services.

Turning to the first issue, although it is true that originally telecommunications regulation was introduced in both Canada and the United States, when it was presumed that competitive markets could not work, for the essentially negative reason of policing the behavior of the private companies, subsequently regulation was employed for more positive reasons—for promoting certain economic and social objectives. In particular, as a result of technological factors that dramatically lowered the cost of long-distance service, regulation became a central, if not the primary, instrument for the attainment of social policy objectives, notably universal service and subsidized local rates. Regulation in effect became the instrument for the taxation of some subscribers in order to confer benefits on others. Where other countries used public ownership to accomplish this and other public policies, North America used economic regulation. This fact helps explain why reform of such regulation has been such a complex political undertaking. An appreciation of the multifaceted objectives pursued through regulatory means shows that regulation is
neither neutral, impartial, nor even nonpolitical. Regulation in North America, to paraphrase von Clausewitz, has always been “politics by other means.”

Notwithstanding the perspective of many economists who believe that regulation should be used only where competition cannot work, in Canada and the United States regulation in a number of sectors, most notably transportation, has historically been used because political actors did not want competition to work. Consequently they used regulation to promote the interests of particular producers or consumers. Perhaps the clearest and most extensive example of this is found in Canadian regulation of the broadcasting sector where—in combination with public ownership of the largest broadcaster, the Canadian Broadcasting Corporation—the Canadian state has for more than six decades attempted to plan the roles and relationships for broadcasting to promote, among other things, national unity and, more recently, so-called cultural sovereignty.

The significance of the foregoing discussion in the context of contemporary debates about introducing regulation to other countries is that one should be wary of overly simplistic descriptions of regulation, and particularly prescriptions about its supposedly nonpolitical, impartial, limited role in those economies where regulation has been a cornerstone of the state’s role in the telecommunications sector.

The multifaceted role of regulation as a primary instrument for achieving economic and social objectives in North America is especially relevant in current debates about reforming national telecommunications sectors worldwide. Most countries today face simultaneously a complex set of interrelated problems and issues that North American governments were able to address individually over a prolonged period of time.

The first is how to discipline or police the market power of dominant firms, especially those that have been or are in the process of being privatized. The second is how to provide for or encourage the widespread availability of telecommunications services. The third problem arises from the now conventional perspective that telecommunications is the modern railroad or “nervous system” of the economy and society at large. No society, even the most advanced, if the current American administration’s concern about promoting the “economic telecommunications highway” is an indication, is prepared to rely solely or even primarily on market forces to produce economic results deemed to be so crucial to economic modernization.

Finally, to the extent that competition is permitted as part of a set of telecommunications reforms, states must come to grips with the complications resulting from the mix of monopoly and competitive services, particularly when the dominant firm provides both. In such a situation the objectives of regulation are particularly complicated. One problem is how to prevent the incumbent firm from exploiting its market position to cross-subsidize from its monopoly to its competitive services and thereby undermine the introduction and spread of competition. A related problem is how to prevent the regulator from being drawn into the competitive battle by new entrants who want to exploit what in North America is known as “the regulation game” so as to strategically handicap the incumbent from effectively competing. Because of their fear that such circumstances might hamper competition, some
countries, most notably the United Kingdom and Australia, have legislatively imposed a positive function on their newly created regulatory agencies to promote competition.

OFTEL, for example, in the United Kingdom is required, in regulating telecommunications firms subject to its jurisdiction, to take due regard to “the desirability of maintaining and promoting competition...” This will inevitably lead to charges and countercharges of regulatory preference and partisanship, as it has in the United Kingdom among British Telecom, Mercury, and OFTEL. More important, it imposes on the regulator the complex task, even if it wishes to be neutral with respect to individual firms, of considering and seeking to balance a wide range of social, economic, and, unavoidably, political factors in its decisionmaking.

The purpose of the preceding survey of the complexities of regulation is not to be definitive nor to argue that regulation is the most appropriate governmental instrument to accomplish the wide-ranging objectives that have been and increasingly are asked of it. The most important point is to establish a recognition that regulation is far more complex than many assume. Policymakers should be cautioned against a too-easy acceptance of recommendations that presume that regulation is automatically or intrinsically nonpolitical, objective, or impartial. Although these are laudable goals, the record of regulation suggests that the purity some would advocate for regulatory regimes as instruments for the control of economic decisionmaking may be more apparent than real.

Alternative Regulatory Instruments

Choosing regulatory objectives and establishing some degree of balance or rank among them are only the first regulatory stages in reforming the telecommunications structure. The next stages are selecting the appropriate regulatory instruments and then establishing the desired institutional mix to pursue those regulatory objectives. In this section we address the former set of concerns.

When regulation had as its primary, if not sole, objective the control of monopoly abuses, the selection of regulatory instruments was relatively straightforward. Public authorities sought to control against abuse in three ways. Overall profit levels were established through the use of detailed scrutiny of the firm’s rate or cost base. The instrument was some variant of rate-of-return, rate-base regulation where regulators examined the expenses of the firm, including a specified profit level, and then set a revenue requirement for the firm. The next stage was the approval of individual categories of rates to be charged the firm’s customers to ensure that they were “just and reasonable” and did not involve any “undue discrimination.” The third method was to permit customers of the monopoly firm to file complaints; the regulator would investigate these and issue a decision.

Although a few analysts maintain that monopoly regulation does not and cannot protect consumers from abuse, this is distinctly a minority position. From the perspective of availability, reliability, and affordability, rate-of-return regulation appears to have served customers reasonably well. In addition to the lack of persuasive
evidence that telephone companies in North America have earned excessive monopoly profits, a further measure of reasonable effectiveness is the fact that local residential rates, if the Canadian experience is any measure, have consistently increased more slowly than the inflation rate.

If traditional regulatory instruments have performed as a satisfactory constraint against corporate abuse, there is less persuasive evidence that they have adequately served as a "substitute for competition." As S.C. Littlechild noted in his report on possible forms of regulation for a privatized British Telecom (which led to the most significant innovation in regulatory instruments, namely price caps), regulation "is essentially a means for preventing the worst excesses of monopoly; it is not a substitute for competition."

In particular, regulatory instruments have performed very badly in providing checks or incentives for regulated firms to be efficient, innovative, or improve their productivity. The central criticism of rate-of-return regulatory instruments has been that they are wholly inadequate for such tasks, in part because they are essentially negative in character. More important, they rest on "heroic assumptions" about the capacity of external actors, who have limited resources and are dependent on the regulated firm for information, to determine where and in what measure the firm could be induced to become more productive.

It is important to emphasize that negative assessments of regulatory instruments from the perspective of corporate productivity performance coincided over the past two decades with the introduction and extension of competition in traditionally monopolistic telecommunications markets. This resulted in the complex mix of objectives or public policy purposes discussed above and the search for means to reconcile conflicts among such objectives. Consequently, the search for alternative regulatory instruments has become intertwined with the larger questions of how to improve regulatory performance and how to design and implement new techniques for mixed monopoly-competitive sectors.

In particular, public policymakers have had to address the question of how to regulate telecommunications firms which have some monopoly markets and are active simultaneously in competitive markets. The issues involved are twofold. In the first place, the concern is how to protect monopoly subscribers from being forced to cross-subsidize competitive services. The second issue flows from the first, namely, how to protect competitors from anticompetitive conduct which will undermine the emerging competitive markets. Simultaneously, of course, the traditionally constrained regulated monopolist must be allowed to engage in legitimate competitive responses and not be handicapped by regulation.

A number of alternatives have been introduced in various jurisdictions in North America with varying success. For our purposes here, no attempt can be made to assess their success, and we will limit ourselves to providing a brief survey of some of the major instrumental responses. One has been outright prohibitions imposed on the incumbent firms from participating in specific markets. The most notable example of this was the line-of-business restrictions placed on AT&T after the 1956 antitrust settlement as well as those which followed the 1982 Consent Decree. In
Canada, for example, telephone companies have been prohibited from holding broadcasting licenses, including those for cable television.

Two other instruments have been structural separation and cost allocation systems. The former allows a traditional monopolist to enter competitive markets, but only through completely separate subsidiaries or separate corporate divisions within the firm. The use of such separation has been common in equipment sales as well as in the provision of cellular services by the telephone companies. Cost allocation systems have been developed in both Canada and the United States as an alternative to structural separations. These systems are designed to allocate costs among and between service categories as a means of ensuring that competitive services are not being subsidized by monopoly services.

Another new regulatory instrument is forbearance. Although traditionally all companies providing telecommunications services have been subject to detailed regulatory surveillance, in some markets there has been a recognition that new entrants may possess no market power. Consequently regulators have opted to forbear or, at a minimum, place only the lightest of regulatory controls on these firms. This has subsequently led to the extension in some instances of light-handed regulation, even to the incumbent firms, when it is concluded that market forces offer an effective regulatory alternative to protect customers and competitors. Such forbearance is usually introduced in association with other instruments, such as separation and especially cost allocation systems.

Over the last twenty years, an attempt has been made to address the failure of traditional regulatory instruments to provide appropriate incentives for regulated firms to be as efficient as possible. The criticism is that since rate-of-return regulation is cost-plus regulation, firms have no incentive to reduce their costs or to use their available resources as productively as possible. Such regulation is said to send the wrong signals and encourages firms to overinvest in order to inflate their rate base.

Concerns over regulated firm productivity have been aggravated by privatizations because of the widespread perception that public sector firms are notoriously inefficient and that subjecting them to traditional regulation would only exacerbate the problems. Certainly this was a primary consideration in the U.K. government's rejection of traditional regulation for British Telecom and the search for new regulatory instruments. More recently, with the introduction of long-distance competition, even new entrants have argued that regulation must address the productivity of incumbents. The reason for their concern is straightforward. As long as the local telephone service remains a monopoly and new entrants must pay for interconnection to this service, they want their payments to be as low as possible. Encouraging the reduction of local service costs through productivity gains reduces the amount they must pay, especially when their interconnection costs include some element of cross-subsidy to keep local telephone rates at levels below their costs.

To respond to the productivity issues as well as to the recognition that traditional profit regulation may no longer be necessary to protect residential telephone customers from monopoly exploitation, a variety of so-called incentive regulatory instruments have been introduced. These normally involve some degree of rate freeze
Implementing Reforms in the Telecommunications Sector

or moratorium to protect local subscribers with the firms allowed pricing flexibility on competitive services. The assumption is that if the firms can keep all or most of the benefits from cost cutting and efficiency gains, then they will seek to be as efficient as possible. These instruments have the added attraction of removing both the incentive and the opportunity of cross-subsidizing competitive services from monopoly service revenues.

The most imaginative new instrument to address the productivity issue is the price-cap mechanism, originally introduced for British Telecom and subsequently adapted for American and other telecommunications companies. Unlike other incentive schemes, which simply provide an incentive for productivity improvements, price caps make such improvements a mandatory part of the regulatory system.11

Although oversimplified, the essential features of any price-cap system are fourfold. First, services are divided into regulated and unregulated categories, with the latter not subject to regulatory control. Second, regulated services are subdivided into individual baskets according to some established criteria, such as relatedness and degree of competition. Third, the firm is given considerable but not necessarily complete freedom to price the services within individual baskets subject to an overall cap or maximum annual increase on the average price of the services in the basket. The fourth characteristic is the most significant: any increase is limited to the rate of increase in the designated rate of inflation, less a specified annual productivity adjustment to reflect the gains in productivity expected for the telecommunications sector over a period of time.

Regulatory Institutions

The third major area of telecommunications reform has been in the design of regulatory institutions. The growth and complexity of regulatory objectives and the experimentation with regulatory instruments have arisen at a time of continuing political saliency as a result of privatization and especially the introduction of varying degrees of competition in the provision of telecommunications. This has meant that what were once mundane concerns of regulatory structure have become hotly contested issues.

In North America, where regulation was the chosen instrument of public control, a standard institutional framework has been employed. This framework involves a courtlike, collegial, or collective agency whose members are to act impartially in balancing the interests of the regulated firm and its customers. Given the original limited public objectives, this framework worked reasonably satisfactorily in meeting the demands for transparent, nonpolitical, and, most important for private firms, stable and predictable regulation.

The independent regulatory agency continues to be the instrument of choice for North America, although subject to increasing political scrutiny and involvement as a result of the growing politicization of the telecommunications sector. Two particular innovations have been debated. One, reflecting the compound set of
policies to be pursued through regulatory initiatives, has been the political directive. This instrument, which was introduced in Canada, enables political authorities such as the cabinet to issue instructions to the regulatory agency not on individual cases but on the interpretation or ranking of the broad set of legislative objectives. The other innovation is to transfer actual licensing decisions to political authorities such as the minister of communications and to confine the regulatory body to an advisory role. Both adjustments in the relationship between traditionally independent regulators and their political masters have been controversial because of the fear of partiality and political interference which may ensue. On the other hand, it should be noted that ministerial regulation has continued to be the arrangement for countries such as Germany, France, and Japan.

Three major institutional innovations in regulation in other countries are worth noting insofar as they represent alternatives to addressing the problems of multiple objectives and the need for experimentation in regulatory instruments. The first is the British model where a single regulator, OFTEL, has been appointed to oversee the sector. In the British case a government minister continues to have licensing authority but the director general of telecommunications has advisory and enforcement powers. Of particular significance in the British approach is that the North American quasi-judicial public model has given way to a private or confidential negotiating role for the regulator. The significance of this, especially combined with OFTEL’s statutory duty to promote competition, is that it has led to charges and countercharges that OFTEL is partisan and prone to interfering in corporate activities.

The United Kingdom has also introduced another modification in the regulatory structure by establishing what has been described as competition between regulators. In the British case, not only is regulatory authority shared between a minister and OFTEL, but if the latter wishes to amend a condition of license for British Telecom, the company may lodge an appeal with the Monopolies and Mergers Commission. This is one check against arbitrary behavior on the part of OFTEL.

Australia has introduced a variant of the British model, employing a more collegial independent regulatory agency similar to that found in North America to directly oversee its telecommunications sector. Instead of competition between different agencies, Australia has sought to impose a more collaborative approach by making cross-appointments between AUSTEL, its telecommunications regulatory body, and the Trade Practices Commission, the agency responsible for enforcing its competition policies. This model seeks to have a specialized telecommunications regulator, but one that is institutionally required to give appropriate emphasis to the promotion and protection of competition in telecommunications.

The third institutional approach is that adopted by New Zealand following the privatization of its telecommunications company and opening up the sector to competitive entry. New Zealand rejected both the North American independent agency and the British single regulator models and opted to rely solely on its competition authorities, in this case the Commerce Commission, to regulate the emerging marketplace. Recently this approach has been criticized by both new
Implementing Reforms in the Telecommunications Sector

entrants and by the Commerce Commission itself on the grounds that both the competition law and the commission are inadequate.

Conclusion

Reforms to the telecommunications sector of any country that include privatization or the introduction of competition to segments of the sector inevitably lead to regulatory issues. These are complex and controversial and involve not only the most basic questions about the purposes and roles of the state but also about the most appropriate instruments and institutional arrangements to pursue those roles. Although some commentators have suggested that the resolution of these issues can be relatively straightforward, namely that governments must create objective, impartial, transparent regulatory regimes, the experience of countries familiar with regulatory forms of economic control argues against assumptions that these objectives are easily attained. Regulatory forms and processes operative in one country may not be easily transferred to others with different institutional, political, and economic histories.

Governments that seek or are compelled to adopt regulatory control systems must come to appreciate that the determination of regulatory objectives is now much more complex than when regulation was introduced in North America. Many of the contemporary objectives are in conflict with one another, and the first task is to develop some means to reconcile such conflicts and establish an appropriate ranking. Similarly, traditional regulatory instruments must be subject to a critical assessment to determine their relevance to contemporary regulatory needs. Finally, the classic North American regulatory institution, the quasi-judicial collective regulatory agency, is not the only alternative available as countries experiment with new institutional designs.

The diversity of circumstances facing the multitude of countries attempting to reform their telecommunications sectors to confront contemporary issues and realities argues against single, and especially simple, solutions. The complexity of the problems of telecommunications reform and restructuring, combined with an acceptance of the imperfections associated with any form of social control, should encourage caution. In searching for regulatory reforms that can meet the needs of diverse national circumstances, those who seek to introduce reform, and those who would urge specific courses on them, should heed the following advice from an experienced and perceptive observer of the regulatory process:

The right mix of regulation and competition is not easily determined. . . . Good policy decisions turn more on common sense than on the unthinking transference of precedents. Certainly emotional attachments to either free markets or to regulatory processes stand in the way of good policy decisions. The most sagacious of us will err, and it is well that we occasionally acknowledge mistakes and plot new courses.13
Endnotes


2. For a discussion of some of the conceptual ambiguities and conflicts surrounding even basic terms such as privatization and deregulation, see Richard J. Schultz, “Privatization, Deregulation and the Changing Role of the State,” *Business in the Contemporary World*, autumn 1990, pp. 25–32.


Regulation: Reconciling Policy Objectives

Nicholas P. Miller

Telecommunications restructuring in the 1990s is a worldwide phenomenon. Faced with serious consumer and competitive demands on telephone enterprises, governments are struggling to find answers. The traditional government-operated telephone utility has not performed well in the face of rapidly changing technology, rapidly changing prices for competitive alternatives, and a revolution of increasing consumer and private sector demands for new, better, and faster telecommunications services. Under this pressure, many governments are restructuring their telecommunications sectors. Developing countries are examining a range of alternatives to improve incentives for efficiency and consumer responsiveness in their telecommunications sectors. The restructuring actions fall within two broad categories: opening the sector to additional participants besides the traditional monopoly telephone company; and reorganizing the traditional telephone company itself to make it more commercial in character. It is the thesis of this chapter that whatever the form of restructuring, the government must implement appropriate regulatory oversight of the restructured sector and company.

Restructuring Alone Is Insufficient

Restructuring the telecommunications sector, including commercializing the telephone enterprise, addresses only half the problem. The other half is to maintain appropriate government controls over the telecommunications sector to ensure that the new structure achieves the purposes intended by the government.

In general, privatization of government-owned enterprises and withdrawal of government intervention in an economic sector has worked well in sectors and industries traditionally operated by nongovernmental entities and subject to normal marketplace competitive forces. Telecommunications are different. Competition does not exist in the local telephone distribution facility. This is true whether the telephone enterprise is privately or publicly owned, whether it holds a legally mandated monopoly or is legally subject to competition. A law opening a sector to competition does not create competition. It only permits competition if the economics of the marketplace will sustain more than one operator. No one today seriously argues that any local telephone company is threatened by a competitor's building a
duplicate local switching and wire distribution network. In other words, there is no evidence that the local exchange distribution facilities are subject to effective competition, no matter how much government policymakers might wish otherwise.

This lack of effective competition in the local telephone distribution network may change in time, but effective competition for basic local telephone service remains a hope for the future, not a reality of the present. As long as full and fair competition with open market entry and exit for local exchange distribution remains a hope for the future, there is no alternative to continued government intervention in the market for telephony. The marketplace alone cannot drive the local exchange telephone company to provide fair competition, fair prices, and high-quality service. As an economist would say, the local telephone network is still a natural monopoly with declining marginal costs to provide additional services. Therefore, there are no marketplace incentives forcing the company toward economically efficient allocation of resources.

Restructuring Requires Regulation External to the Company

The country seriously considering restructuring will typically display a set of common characteristics. The government-owned telephone company will have generally poor operating characteristics (in the form of unresponsive service, undercapitalized investment, and an inefficient work force). Its pricing structure for services will be badly distorted by political considerations to favor certain users, equipment manufacturers, or labor groups. Normally, the central economic planners will have identified the underdevelopment of the telecommunications sector as a major drag on general economic development, and the business community and local subscribers will have expressed high levels of frustration with the inadequate service.

This set of circumstances leads to the real need to commercialize the company—to restructure so it operates like a business, not a government bureaucracy. Not every alternative will be better than the status quo. Restructuring is pointless unless it holds the prospect of better serving several important and simultaneous goals. The country has a right to expect the following benefits from commercialization:

- Improved management and operational efficiency in the company resulting in reduced operating costs
- Improved strategic business planning and implementation of new technologies
- Accelerated investment in high-capacity, high-revenue services, and improved services to business users
- Maintaining and expanding the asset value of the company
- Removing day-to-day operations from the national political process
Regulation: Reconciling Policy Objectives

- Reducing financial demands on the company to support the national budget.

The country has additional expectations for its telephone service. Presumably, most countries will want:

- Aggressive reinvestment of earned capital to expand the geographical reach and quality of the basic network

- Individual service prices to reflect the cost of that service

- Limited and occasional explicit subsidies to particular user groups, such as low-density rural areas, where necessary to achieve an important national developmental or social equity goal

- Stable or reduced prices to all classes of customers

- Expansion of competition throughout the telecommunications sector wherever possible to assure economically efficient allocation of resources by the sector.

This list is interesting because each item, including the expansion of competition, promises to reduce the profitability of the operating monopoly. One would assume that a well-managed, strategically minded company would not voluntarily undertake such actions which promise to reduce its net cash flow and its value to its owners. Adding efficiencies to the internal operations of the company by itself will not remove the monopoly power of the local exchange operator. Commercialization may provide the company the ability to generate greater profits. But the company has no incentive to apply those profits to broadly improved service or to reduce its prices to levels reflected by the cost of serving monopoly customers. As a result, commercialization without outside incentives to the company to be socially responsible can turn an inefficient operation into a politically intolerable one.

This dilemma must be acknowledged and addressed in telecommunications restructuring. Otherwise a country is doomed to swing between the pendulum extremes of socially unresponsive private operators and nationalized services. Governments must create a system of dual incentives. The company must be commercialized and given internal incentives to improve its operating efficiency as a business enterprise. The government must accept its responsibility to set appropriate limits and guidelines for the company through external incentives which force actions by the company that will reduce the company's overall potential profitability as a monopoly. In other words, the company must be regulated on two fronts—internally through profit maximization incentives, and externally through government-imposed restrictions wherever internal profit maximization incentives do not correspond with the country's or the telecommunications sector's overall interests.
Implementing Reforms in the Telecommunications Sector

External Regulation Comes in Two Forms

The best form of regulation of any business enterprise is the threat of effective competition in the marketplace. But an essential portion of the telecommunications sector, the local telephone distribution facility, is not subject to effective competition. Where the marketplace cannot establish and enforce social equity and economically efficient resource allocation, the only alternative is for the government to establish the rules directly and then resolve complaints of violations of those rules. This substitutes, albeit imperfectly, for the discipline of competition.

Expressed in these terms, government regulation sounds like normal governmental action: adopt the law and then enforce it. But government, in the form of legislatures and courts, are slow moving, unable to draw narrow distinctions, and reactive to the loudest and most powerful political forces in the society. This is not a formula likely to be a close substitute for competition in compelling economically efficient behavior in the high-technology, fast-moving, consumer-driven world of telecommunications.

Telecommunications regulation requires a new, lighter-handed government agent to exercise the traditional governmental powers of rule making and adjudication. The agent should:

- Be independent of day-to-day government political pressure
- Be independent of the telephone company and the users of the telephone company's services (including the government)
- Provide a transparent, open, honest, and accessible process for considering new rules and resolving disputes
- Perform competent analysis of all the relevant facts
- Be subject to the discipline of the national goals as expressed in statutes
- Give quick decisions consistent with the fast-changing nature of the telecommunications sector
- Engage in consistent and predictable behavior that removes unnecessary risk and uncertainty from the sector.

Every nation that currently has a serious and credible independent regulatory agency overseeing the telecommunications sector, such as Great Britain, the United States, Canada, and Australia, has chosen somewhat different ways for achieving these goals.

The successes, however, show significant common denominators. The successful countries have created agencies that have a professional, politically independent staff.
who are paid adequate salaries, are given adequate training, and hold to the highest
standards of civil service integrity and efficiency. The agencies are fully competent
in the necessary disciplines of policy analysis, financial and accounting analysis, and
economic, legal, and engineering analysis. These agencies have created processes for
receiving public comment and resolving complaints which both are fair and appear
to be fair to the carriers and to the user community. These agencies have complete
access to the information required to reach sound decisions and have mechanisms to
assure this information is presented to the decisionmaker in a manner that does not
give unfair advantage to the economically most powerful parties in the dispute.

However, the best laboratories and computer analyses, the best salaries and
working circumstances do not always guarantee quality results. Only quality deci-
sionmakers, given quality support, will perform reasonably well. As personnel
change, even the best agencies ebb and flow in quality. Therefore, ultimately, the sine
qua non of good regulation is a political commitment by the national government to
appoint good people to run the regulatory agency and then to stay out of the way.

Crucial Organization and Decision Elements
Necessary for Successful Regulation

Several crucial organization and decision elements are necessary for successful
regulation. First, the agency must be properly staffed and funded. It must be given
strong, independent leadership by a credible and politically secure leader of national
stature. Regulation of a national telephone company is a very complex political
problem, and progressive decisions are impossible unless properly equipped persons
of integrity and stature make the tough decisions independent of day-to-day political
pressures.

Second, the agency must be given a definite legal mandate with stated national
goals. This mandate should define the basic objectives for the telecommunications
sector, the general sector framework, and the scope of discretion allowed the agency.
The law should empower the agency to enforce its decisions and should command
the fairest of procedures and processes.

Third, there are difficult decisions as to the scope of monopoly and competition
to be implemented as part of any restructuring. The typical developing country has
significant problems associated with inadequate capitalization and an underdeveloped
basic network. The policy dilemma is how to get high-quality, business-oriented
services up and operating quickly, relying on the forces of competition, while leaving
enough of the core business available to the new telephone company to be able to
generate the capital to expand and develop the entire network. In other words, a
bright line between monopoly and competitive services is not self-evident. The
regulator must be given discretion to move this line as needed to take advantage of
the benefits of competition, consistent with network development.

Fourth, specific devices should be created to prevent the agency from being
captured by the interests of the telephone company, which will push for less
regulation and less competition to achieve higher cash flows and a higher telephone
Implementing Reforms in the Telecommunications Sector

company value. The regulation process has to balance this pressure with the need to truly protect consumers and to protect competitors of the telephone company from unfair business practices.

And finally, countries setting up new regulatory agencies should use the advice and experience of others. Countries with regulatory experience can help an interested country avoid most of the typical mistakes. The problems are common to all. The solutions will be unique to each country, its political culture, its legal processes, its size and level of telecommunications development, and the scope of activities it assigns the agency. For example, an agency responsible for broadcasting and electronic media regulations as well as frequency management will require a different organization and skill mix than one looking solely at telephone issues. Annexes A and B to this chapter provide useful examples of two United States regulatory agencies. The Federal Communications Commission (FCC) operates on a budget of about US$70 million and regulates all electronic media, telecommunications licenses, and equipment certifications in the United States. It has created relatively efficient and transparent decisionmaking processes to handle the most complex telecommunications regulatory questions in the world. The much smaller Public Service Commission of the District of Columbia regulates all the public utilities (electric, gas, and telephone) serving the city of Washington, DC, with a resident population of 350,000. Its telephone responsibilities are exclusively to oversee the rates and service of a single local exchange company of annual revenues of US$500 million. Annex B describes the level of detail and types of actions this commission finds necessary to execute on its responsibilities.

The Task of Regulation

Effective regulation is a daunting task. The following is a sample and partial listing of necessary projects a country will face in organizing and starting up a new telecommunications regulatory agency:

- Prepare the proposed telecommunications sector rules with respect to:
  - Pricing of services
  - Quality and conditions of service
  - Network interconnection
  - Provision of leased lines for resale
  - Approval of network facilities
  - Approval of resellers
- Application of technical standards

- Sale of terminal equipment.

- Identify the procedures, activities, functions, and information necessary to undertake the above regulatory tasks.

- Build a minimum core of expertise in four areas, namely: regulatory policy; price, cost, and financial analysis; quality of service, investment program, technical equipment; and administrative, legal, and information systems.

- Build a capability to develop and implement regulatory policies with respect to:
  - Licensing of telecommunications networks facilities
  - Licensing of resellers and other competitive service providers
  - Provision of leased lines
  - Anticompetitive or unduly discriminatory behavior by facilities-based service providers
  - Network interconnection and revenue settlement arrangements
  - Other regulatory issues.

- Build a financial analytical capability to:
  - Monitor, analyze, and approve or reject tariff proposals
  - Review financial projections of service providers and develop a financial model of the operating companies to forecast rates of return and other financial indicators; and review methodologies and estimate the costs of providing telecommunications services.

- Build a capability to set criteria for service, investment program, technical standards, and terminal equipment:
  - Establish performance indicators and systems to monitor results
  - Assess the operating companies' investment program, depreciation, and procurement policies
Implementing Reforms in the Telecommunications Sector

- Establish, monitor, and enforce technical standards for networks (including national fundamental technical plans) and terminal equipment.

- Build the necessary administrative, legal, and information systems:
  - Operate modern administrative systems for both externally-oriented needs (for example, processing of license applications, regulatory proceedings) and internal requirements (such as personnel, finance, supplies)
  - Provide in-house legal advice and undertake legal actions in support of agency operations
  - Establish and maintain information systems to support the agency's operations.

Conclusion

Restructuring requires creating internal and external incentives for improving service in the telecommunications sector. Commercialization, and possibly privatization, promises substantial managerial improvements in a telephone company. Expansion of competition wherever possible in the telecommunications sector promises additional economic efficiency by the sector's service providers; however, important facilities are, and will probably remain, a monopoly for the relevant future regardless of government action to expand competition. This requires government regulation as a substitute for the discipline of competition. Industrial countries have had successful experiences with telecommunications sector regulation. No single model is perfect, but integrity, skill, adequate resources, specific national goals, reasonable regulatory discretion, and unbiased decision-making processes are common denominators of success. These are the principles to measure a country's success in restructuring its telecommunications sector.

In the words of one U.S. regulator:

It is no secret to any of us that regulation is not glamorous... Organizational effectiveness is concerned with doing the right things. ... Regulators need to be taking steps now to build an effective organization, one that is responsive to the changes coming in the next decade. Regulators must create an organizational vision and structure that will enrich and sustain the organization throughout the next decade. The process of organizational development is slow; results take time to generate. Steps which are taken now may not pay off for five or six years. However, if those steps are not taken, there will be a price to pay.
Annex A: The Federal Communications Commission

Composition and Functions

The Federal Communications Commission (FCC) is an independent federal administrative agency created by the U.S. Congress, and empowered under the Communications Act of 1934 to regulate U.S. interstate and international telecommunications. Prior to 1934, U.S. telecommunications was regulated by the Interstate Commerce Commission. The FCC consists of five commissioners, four divisional bureaus (Common Carrier, Mass Media, Private Radio, and Field Operations), eight offices and a Review Board. It has a staff of about 1,800. FCC commissioners are appointed to five-year terms by the President of the United States, subject to Senate approval. No more than three commissioners may be from a single political party. While the President also designates the chairman, the agency is not bound to support administration positions and occasionally refuses to do so.

FCC commissioners may raise issues on their own initiative, while other policies are suggested by studies of the Office of Plans and Policy, or by the main bureaus often in response to stakeholders' requests. The commissioners may act through Rule Making, Notices of Inquiry (NOIs), Notices of Proposed Rule Makings (NPRMs), adjudication, or even speeches. The primary sources of policy are the Policy and Program Planning Division within the Common Carrier Bureau, the Policy and Rules Division within the Mass Media Bureau, and the Office of International Communications. The commissioners and their bureaus and offices also serve as enforcers and adjudicators of rules and regulations.

Because they can be overruled by Congressional legislation and, more important, because they depend on Congressional funding, FCC commissioners have traditionally been very sensitive to the wishes of Congress. Nevertheless, they have opposed Congressional will on occasion when they believed that the President or the courts would support their decisions.

Many have complained that the FCC has been captured by the industries it regulates. However, this may only reflect the superior quantity and quality of information that industries are able to present to it to justify their positions. Despite the existence of the Office of Plans and Policy, some complain that the agency does not have the funding to carry out the necessary long-range policy planning. Another criticism is that the predominance of legal and administrative backgrounds of the FCC commissioners leads the FCC to view regulatory activities in a legal and administrative way, rather than in broader social and economic terms.

Figure 33-1. Federal Communications Commission Organization Chart

COMMISSIONERS
Four Commissioners plus a Chairman

OFFICE OF INSPECTOR GENERAL

PRIVATE RADIO BUREAU
Land Mobile & Microwave Division Licensing Division Special Services Division Administration & Management Staff

MASS MEDIA BUREAU
Audio Services Division Enforcement Division Policy & Rules Division Video Services Division Administrative & Management Staff Cable Services Division

OFFICE OF MANAGING DIRECTOR
Director, Small Business Activities Human Resources Management Equal Employment Opportunity Staff Labor Relations & Workforce Effectiveness Division Personnel Resources Division Information Management Computer Applications Division Customer Solutions Division Network Products Division Operations Financial Management Division Operations Support Division Program Analysis Public Information & Reference Services Public Service Division Records Management Division Reference Operations Division The Secretary

COMMON CARRIER BUREAU
Operations Accounting & Audits Division Domestic Facilities Division Industry Analysis Division International Facilities Division International Policy Division Mobile Services Division Policy Enforcement Division Policy & Program Planning Division Tariff Division Management Staff

FIELD OPERATIONS BUREAU
Enforcement Division Engineering Division Field Offices Regional Offices

OFFICE OF INTERNATIONAL COMMUNICATIONS

OFFICE OF ADMINISTRATIVE LAW JUDGES

OFFICE OF PLANS AND POLICY

OFFICE OF ENGINEERING AND TECHNOLOGY
Authorisation & Evaluation Division Spectrum Engineering Division Program Management Staff

OFFICE OF GENERAL COUNSEL
Adjudication Division Administrative Law Division Litigation Division

OFFICE OF LEGISLATIVE AFFAIRS

Lines of policy & judicial authority
Lines of management & administrative authority
How Rules are Made at the FCC

Suggestions for changes to the FCC rules and regulations can come from sources outside of the Commission either by formal petition, legislation, court decision, or informal suggestion. In addition, a bureau or office within the FCC can initiate a rule making proceeding on its own.

When a petition for rule making is received, it is sent to the appropriate bureau(s) or office(s) for evaluation. If a bureau or office decides a particular petition is meritorious, it can request that Dockets assign a rule making number to the petition. A similar request is made when a bureau or office decides to initiate a rule making procedure on its own. A weekly notice is issued listing all accepted petitions for rule making: the public has thirty days to submit comments. The bureau or office then has the option of generating an agenda item requesting one of four actions by the Commission. If a Notice of Inquiry (NOI) or a Notice of Proposed Rule Making (NPRM) is issued, a Docket is instituted, and a Docket number is assigned.

Major changes to the rules are presented to the public as either an NOI or an NPRM. The Commission will issue an NOI when it is simply asking for information on a broad subject or trying to generate ideas on a given topic: an NPRM is issued when a specific change to the rules is being proposed. If an NOI is issued, it must be followed by either an NPRM or a Memorandum Order & Opinion (MO&O) concluding the inquiry.

When an NOI or NPRM has been issued, the public is given the opportunity to present comments and then to reply to the comments made by others. If the Commission does not receive sufficient comments to make a decision, a further NOI or NPRM may be issued, again calling for comments and replies. On rare occasions the Commission conducts an open en banc hearing on a major issue.

After the Commission has issued an Order the proceeding may be terminated. Petitions for reconsideration may be filed by the public within thirty days after an Order is released. These petitions are reviewed by the appropriate bureau(s)/office(s) and/or by the Commission. As a result of its review of a petition for reconsideration, the Commission may issue a MO&O modifying its initial decision or denying the petition for reconsideration. The Commission may, on its own initiative, also issue additional Orders in the Docket.
Functions of the Commission

The District of Columbia Public Service Commission is an independent regulatory agency established by Congress in 1913. By law, the Commission has ratemaking and other regulatory authority over the electric, natural gas, and telephone companies. It also regulates tour vehicles for hire, all securities transactions taking place in the District of Columbia, and customer-owned coin-operated telephones.

The Commission is headed by three full-time commissioners appointed to four-year terms by the mayor, with the advice and consent of the Council of the District of Columbia. The commissioners sit as a body in hearings upon applications for rate and service changes proposed by the utility companies. A support staff of over seventy technical, legal, professional, and clerical employees assists the commissioners in conducting research and investigations and in analyzing financial and operating data.

The primary responsibility of the Commission is to ensure safe, reliable, and quality utility service at the lowest possible cost. It conducts hearings and investigations into utility company charges and operations in order to determine just and reasonable rates in accordance with the needs of District utility consumers.

In order to carry out its responsibilities the Commission performs three types of functions—legislative, judicial, and administrative. First, the Commission legislates or authorizes utility rates and sets rules and guidelines for the regulated companies. Second, the Commission acts in a quasi-judicial capacity, deciding whether existing rates are no longer adequate, by conducting formal rate and investigatory cases, and by holding hearings on consumer complaints. Third, the Commission’s administrative functions include analyzing regularly filed utility company reports and implementing Commission orders.

The bulk of the Commission’s work relates to formal matters such as rate cases, utility bond and stock offerings, construction plans of the utilities, civil proceedings on the licensing of securities broker-dealers and agents in the District of Columbia, and investigatory cases such as management and conservation audits.

Informal consumer complaint cases also account for an important part of the Commission’s dockets. These cases usually arise from consumer grievances regarding the quality of service or billing problems. In 1979, the Commission instituted a Consumer Bill of Rights. This Bill of Rights expanded consumers’ rights and set up a model for the relationship between the utility company and the ratepayer. The Commission also promulgated uniform rules which govern the standards of conduct and billing practices of the gas, electric, and telephone companies in the provision of residential and commercial utility service in the District of Columbia.
Departmental Responsibilities

The executive director plans, directs, coordinates, and manages the internal affairs of the Commission on a day-to-day basis under the broad direction of the chairman. This office coordinates and supervises staff activities in rate cases and generic proceedings; plans and implements policies and directives of the Commission; prepares budgets to the mayor, Council of the District of Columbia, and United States Congress; and is responsible for personnel and fiscal operations.

The Office of the General Council consists of the general counsel, staff counsels, and support staff. It serves as the legal adviser to the Commission, which entails many functions. It represents the Commission staff in formal cases (those proceedings involving major utility ratemaking, financial, and other investigatory issues), and tariff proceedings (such as filings by the Chesapeake and Potomac Telephone Company, the single local exchange company that the Commission regulates, to amend certain aspects of telephone service); represents the Commission before federal agencies, including the Federal Energy Regulatory Commission and the Federal Communications Commission, and the federal courts; advises and makes recommendations to the Commission with respect to proposed legislation in the U.S. Congress and the Council of the District of Columbia; interprets federal statutes and regulations affecting the Commission; prepares notices of proposed and final rule making for the Commission; and performs all other legal functions.

The Office of the Commission Secretary has the responsibility of maintaining the formal case system for the Commission. This includes the receipt and distribution of Commission orders, notices and press releases, and maintenance of an up-to-date information referral system.

The Commission relies on the Office of Accounting and Finance for professional accounting and financial expertise. The responsibilities of this office include the examination and audits of the books, records, financial statements, and other information filed by the following three jurisdictional utility companies: The Chesapeake and Potomac Telephone Company (C&P); District of Columbia Natural Gas, a division of Washington Gas Light Company (DCNG); and the Potomac Electric Power Company (PEPCO).

The Office of Accounting and Finance is required to verify and attest to the accuracy and the compliance of all accounting and financial filings with the respective Uniform System of Accounts, the Generally Accepted Accounting Principles (GAAP), the District of Columbia Public Utilities Municipal Regulations, and the directives of the Commission. The routine financial reports filed by the three jurisdictional utility companies include (a) monthly and annual financial statements, (b) depreciation studies, (c) cost allocation studies, and (d) special studies requested by the Commission.

One of the most time-consuming tasks of this office is the review and analysis of financial data submitted by the utility companies when requesting changes in jurisdictional utility rates. Staff perform detailed reviews of all accounting and financial data in the company's application for rate changes. A report of staff's
findings, conclusions, and recommendations is submitted to the Commission when
staff are advisers in a case, or incorporated in staff's direct testimony and exhibits filed
as a part of such rate case proceedings on those issues in which the Commission
orders staff participation. As a case witness, staff prepare data requests on the direct
testimony filed by the jurisdictional companies and other parties and submits data
responses to the data requests on its direct testimony. Staff also assist legal counsel
in the preparation of cross-examination questions for the accounting and financial
witnesses testifying on behalf of other parties to the case. Rebuttal testimony is
written and filed, when necessary. During the rate case hearings, staff are cross-
examined on the direct and rebuttal testimony filed by all the accounting and
financial witnesses.

The auditing activities of this office include a detailed audit of the monthly Fuel
Adjustment Clause (FAC) filed by PEPCO and the monthly Purchased Gas
Adjustment (PGA) filed by DCNG. These Commission-authorized fuel clauses
adjust the base charge for each unit of electric or gas service billed to DC customers
to reflect the current, actual costs of the fuel purchased by the utility company. Upon
recommendation of this office, the Commission approves each of the proposed
adjustment factors calculated by the company.

Staff are required to analyze each telephone tariff, attend data conferences, file data
requests, review data responses, and provide legal counsel with technical information
which is used in staff's comments filed on the record. Another area of responsibility
is the monitoring of the customer-owned coin-operated telephones. Staff continu-
ounly review and submit comments to the Commission on the customer-owned
coin-operated telephone applications, the annual reports, and reports on the connec-
tions and disconnections of such telephones.

In addition to the duties outlined above, the accounting and financial staff are involved
in the ongoing process of monitoring the utility companies' operations, construction
programs, management efficiency programs, transactions with affiliated companies, etc.

The Office of Consumer Services, serving as the public relations arm of the Public
Service Commission, provides complaint and informational services to utility
consumers. It investigates, adjudicates, and negotiates customer complaints and
disputes that cannot be resolved informally between the customer and the utility
company. Office staff is responsible for providing public information and education
regarding utility consumers' rights and responsibilities as well as other Commission
matters.

Office staff inform the Commission of local and national utility-related trends and
provide the Commission with information on how well the utility companies serve
the customers. This office participates in the consumer hearing process by collecting
data, providing the consumer with information, and coordinating the hearing
schedule. A quarterly newsletter is published by the Office of Consumer Services,
covering utility-related matters and activities at the Commission. Office staff
implement a community outreach project for the Commission which includes a
speaker's bureau and the development and distribution of informational literature
(that is, the Consumer Bill of Rights and an energy conservation booklet).
Implementing Reforms in the Telecommunications Sector

The primary duties and responsibilities of the Office of Economics are to represent Commission staff on economics issues in formal cases that are being litigated actively and those that are in the postlitigation stage. These duties involve critiquing studies and reports filed by the three utility companies and conducting independent studies. This office also advises the Commission on economics issues, conducts Commission-sponsored studies, and prepares papers and articles for presentation at economics and regulatory conferences as well as for publication in economics and regulatory journals and periodicals.

The responsibilities of the Office of Engineering center on participation in formal cases which have a technical dimension and the administration of the Natural Gas Pipeline Safety Program. The Office of Engineering is responsible for providing engineering review and analysis in (a) formal rate cases, investigations, and rule making; (b) informal studies and investigations; (c) matters related to customer service; and (d) gas pipeline safety.

Special Programs Authorized by the Public Service Commission to Customers of the Chesapeake and Potomac Telephone Company

- **Link Up America**: Helps make telephone service available to people who cannot afford all the costs. Persons who are eligible for public assistance are eligible for Link Up America, if there has been no telephone in the home for at least three months; if the individual has not been claimed as a dependent for federal income tax purposes; or if the individual meets certain DC Energy Office criteria.

- **Audiotex Blocking**: Customers may elect to receive or block the audiotex (976) calls from their telephone lines.

- **Economy I**: A service available to all C&P residential customers who are charged a flat 6.8 cents per outgoing call and have unlimited incoming calls.

- **Economy II**: A low-cost telephone service to residents of the District of Columbia who meet specific eligibility requirements. Customers must be sixty-five years of age or older and qualify for DC energy assistance. The service permits the customer to make 60 calls per month in the DC area (Maryland and Virginia) for a flat monthly fee of $4.00. Any additional calls cost 7 cents each.

Endnotes

1. There is confusion in the literature and in professional discussions over the terms commercialization, restructuring, and privatization. The author uses the term restructuring to refer to any reorganization of either the monopoly telephone...
enterprise or the telecommunications sector. Commercialization refers to any reorganization of a monopoly telephone enterprise intended to improve its responsiveness to consumer preferences. Privatization is used only when a restructuring includes the transfer of government property to the control and ownership of private individuals or enterprises. Restructuring alternatives range from the government's separating the post office function from the telephone enterprise to redefining the scope of the monopoly of the telephone enterprise and permitting other entities to enter telecommunications businesses. Commercialization can range from creating a separate government-owned company, hiring private individuals as consultants and contract managers, sharing profits with a foreign telephone company to manage the system, to selling part ownership of the company to raise capital or to selling controlling interest and management responsibility for the company to a foreign operator while retaining partial ownership for the benefit of employees and other domestic interests. Only these latter two examples can be properly referred to as privatizations.

2. Again, careful terminology is essential. The author does not argue that telephone companies are free from competition, nor that all telecommunications services are monopolies. In fact, much of the business of telephone companies is subject to substantial competition. The problem is that the essential facility which most telecommunications services must use is available only from the local telephone company and is not subject to effective competition. That element is the local switch and local distribution wire pair. This local telephone distribution facility is an essential bottleneck facility which most telecommunications services and service providers who compete with the telephone company must use to reach their customers. See, for example, Order, Civil Action No. 82-0192, U.S. District Court, District of Columbia (September 10, 1987). In that opinion reviewing the effect of the divestiture of AT&T, Judge Harold Greene rejected the Bell operating companies' (BOCs') claim that competitors were bypassing the local telephone distribution facility to a significant extent. The judge concluded that the local telephone facility remained a bottleneck monopoly whose control gave the BOCs the ability to manipulate and monopolize the entire telecommunications sector:

The complete lack of merit of arguments that economic, technological, or legal changes have substantially eroded or impaired the Regional Company bottleneck monopoly power is demonstrated by the fact that only one-tenth of one percent of interLATA [author's note: non-local] traffic volume, generated by one customer out of one million, is carried through non-Regional Company facilities to reach an inter-exchange carrier. . . . The Department of Justice found only twenty-four customers in the entire United States who managed to deliver their interexchange traffic directly to their interexchange carriers, bypassing the Regional Companies. . . . It is clear, therefore, and the Court finds, that no substantial competition exists at the present time in the local

501
exchange service, and that the Regional Companies have retained control of the local bottlenecks.

Use of this bottleneck facility and the price paid for that access is subject to the discretion of the local telephone company. If the would-be service provider is unhappy with the terms of access or the price imposed by the telephone company, there is no alternative competitor ready and able to provide equivalent access at an equivalent price to the customer's premises. The local loop is very different from long distance facilities in the United States, or packet-switched networks in Europe, or database services in Japan. Each of these is a competitive service offering or facility. But each must use the local telephone distribution facility to reach its customers.

3. The literature is full of speculation that new technologies may soon become effective economic substitutes for the local telephone distribution facility. If this develops, policymakers will enjoy the luxury of seeing the breakdown of the de facto telephone monopoly. Broadband fiber networks serving homes and businesses, microcellular digital radio systems, and even high-capacity digital cellular systems may, in time, offer substitute two-way, switched, point-to-point transmission alternatives to bypass the local telephone distribution facility at prices competitive with the marginal costs of operating those facilities. But this remains to develop. Until proven otherwise, government policymakers must assume the local telephone distribution facility will remain a bottleneck monopoly which must be used by all telecommunications services, whether competitive or monopoly offering.

Policymakers must adopt a wait-and-see attitude as to whether the local telephone distribution facility will remain an unchallenged monopoly for two reasons. First, none of these potential sources of competition are projected to be widely available before the turn of the century. And second, the experience to date with so-called competitive or bypass alternatives to local exchange service is disquieting. Analog cellular radio systems, coaxial cable television systems, two-way VSAT satellite services, and high-capacity private line business networks which connect directly to a long-distance carrier, were each expected to challenge the local telephone bottleneck monopoly in the United States. Each, in turn, has failed this prediction. Without question, each of these technologies has found a profitable market niche and is offering a new, special service that was not previously available on the traditional telephone network. But they have not challenged the local telephone company's core business. Even the most avid VSAT customer or private network multinational company has kept its local telephone service and remains connected to the local telephone network. And overall revenues, and profits, of local telephone companies have continued to grow. This evidence suggests the marginal costs for new technologies may never equal the extremely low marginal costs of an in-place wire telephone facility to provide universal, switched, point-to-point interconnectivity.

4. This point was graphically illustrated at an early point in the Argentine effort to privatize its national telephone company, ENTel. Originally the government had
intended only to sell the company and did not intend to provide for effective continued regulation of the company after the sale. The government assumed its continued presence on the board of directors of the new company would assure compliance with the national interest in telecommunications sector development. In particular, all decisions on revisions of the new company's strategic plan, reinvestment, and profit distribution, were to be at the sole discretion of its board, making the board responsible for reconciling the company and national interests, a direct conflict with the board's main obligation of managing the company. Nobly independent of the company was to be given authority to restrain the company's overall profitability. Even the accounting system, particularly regarding depreciation and cost allocation among services, was to be the sole discretion of the company, allowing it to play enormous games with tariffs and book values. Fortunately, the government, accepting the advice of consultants, corrected this deficiency before announcing the eventual terms of sale. Today, Argentina is moving to establish a strong, independent regulatory agency overseeing the restructured telecommunications sector and the two new privatized telephone companies formed out of ENTel.

5. Increasing the company's internal efficiency does not ensure the company will share these benefits with the customers. Left to its own devices, the company will maximize profits through monopoly-pricing behavior. It will invest limited capital to improve service to the small percentage of its customers, such as business users, willing to pay premium prices for quality facilities in the local exchange. It will avoid further investment and attempt to reduce operating expenditures associated with other customers less willing or able to pay these premium prices. The result can be a dramatic increase in the rate of return on the limited amount of company-invested capital. A few valued customers will get greatly improved service if they are willing to pay an extremely high price. But this price will not be economically efficient, that is, it will be well above the actual costs of providing the service, and these inflated rates of return will not induce competitive entry because of the monopoly characteristics of the local exchange. All other customers will experience deteriorating service as the company refuses to invest capital that will not earn the same inflated rate of return. See Bolter, McConnaughey, *Telecommunications Policy for the 1990s and Beyond: New Markets, Technology & Global Competitive Trends*, 1990, Armonk, New York: M.E. Sharpe. pp. 15–16. The obvious social and economic inequities illustrate the problem. It is this monopolistic service and pricing behavior that created the pressure in the 1930s to nationalize public utilities, including telephone companies. It is important that countries avoid repeating the same mistake.

6. This chapter takes this statement as a proven theorem that is broadly accepted throughout the marketplace economies of the world. The reader is referred to a wide selection of economic literature explaining price theory. See Bolter, pp. 8–45, for an excellent summary of the economic literature and a compilation of market theories and their weaknesses.

7. The economist and Nobel laureate George Stigler developed a theory of regulatory capture, where regulators end up serving the interests of the regulated firms because those firms overwhelm opposing interests in the regulatory process.
Implementing Reforms in the Telecommunications Sector

with superior resources, familiarity with the process, and political power. The major defense against the threat of capture is to protect the agency's independence rigorously and to equip all sides in a dispute with equivalent ability to argue before the agency. Then the agency will retain its power to decide hard cases critically and independently.

8. This list is the product of extensive work performed by Peter Smith and others at the World Bank. It provides the reader a sense of the complexity and range of activity even the smallest regulatory agency will face, but it is not a complete checklist.


10. This brief account of how rules are made at the FCC merely highlights the major components of the process.
The Vital Role of Regulation in the Telecommunications Sector

David N. Townsend

The drive to reform the telecommunications sector in many countries throughout the world is motivated by a conviction that telecommunications can and ought to contribute much more to national prosperity than the sector currently does. Low penetration rates, poor quality of service, large operating and management inefficiencies, and imbalanced development are the norm in a majority of developing countries. Even where telecommunications technology and services have made strong advances recently, the industry's performance tends to fall far short of its potential.

Typically, the blame for these failings is laid upon the fact that telecommunications remain in the control of the government bureaucracy, interwoven with the postal services as part of a PTT or otherwise operated according to public sector incentives, restrictions, and goals. Among the often misdirected and inconsistent motivations influencing operating decisions are political pressures to maintain artificially low local tariffs; cross-subsidies of the posts and other areas; civil service commitments to telephone company staff; employee rewards and incentives unrelated to performance; and shifting mandates and obligations tied to changes in administrations and political alliances.

The increasing consensus for a solution points toward removing the government from the business of running the telephone company, either entirely, by means of privatization, or in principle, through some type of commercialization that allows the operator to act according to private market standards. Among the key anticipated effects of such reforms are a rebalancing of prices for telephone services, bringing down above-cost long-haul and international tariffs, and raising subsidized local charges. Such a policy, in an environment of high unserved demand, promises to increase overall revenues, generating new capital which can be used to finance network expansion. The theory is that, in a private market, the operator will naturally move toward such a rebalancing since the profit motive will imply revenue maximizing prices. Indeed, in practice, such tariff changes are often explicitly mandated as part of the reform process.
Implementing Reforms in the Telecommunications Sector

This picture is not complete, however. There is a risk that, in the rush to introduce market forces into the telecommunications sector, reformers may leap to the conclusion that government involvement in telephone service operation and policy is inherently counterproductive and should be minimized. Such an extreme swing of the pendulum should be avoided. An active public role in the telecommunications sector should in fact be a central element of any reform effort if the overriding objectives of economic development and social justice are to be maintained. The key is to define the appropriate parameters of public versus private responsibility.

Regulation, in the literal sense of the word, implies maintaining a steady balance or flow, preventing disruptions or extremes, or diversion from a preferred path of activity. This function, the regulatory function, becomes the new challenge of the government when direct operation of the telecommunications utility is transferred from public to private or semiprivate hands. In many cases, where operation has been very centrally controlled, the notion of indirect regulation may be a comparatively new one, requiring a different perspective and a new set of skills. Indeed, overregulation can be almost as stifling as central management; however, these concerns do not take away from the importance of maintaining government involvement in the industry. This is especially the case for those major segments of the industry that operate as monopolies, such as the local communications access infrastructure. But even where some degree of competition may be introduced, such as in long-distance or value added markets, the government must regulate that competition. The consequences of ignoring this critical element of telecommunications sector reform could be grave, especially given the stakes involved in large-scale privatization.

In this context, it is worth recalling the classic case for government regulation of a monopoly: telecommunications, like other utilities that rely upon a ubiquitous and interconnected infrastructure, exhibits declining marginal (and average) supply costs over nearly all potential volumes of service output; this is especially true of the basic local network infrastructure. At the same time, demand for telecommunications services tends to be extremely inelastic, which is one reason the industry is classified as a utility in the first place. Thus, at a given level of service, price increases will not tend to drive down demand; similarly, it is not necessary to decrease prices while expanding the network in order to attract a large volume of new customers—the demand is out there, waiting to be served even at higher prices. In this situation, a pure monopolist will establish service levels and prices that maximize profits, the margin of total revenues above total costs. In theory, this price-production point will occur at the point at which marginal revenue (price) equals marginal cost; beyond that point, each new customer would cause the company to lose money, since his willingness to pay would be less than the cost to serve him; however, this profit-maximizing supply point will not typically be the social welfare-maximizing point. Prices will tend to be higher and output lower than society as a whole would prefer. A lower average price would allow additional customers to subscribe and would increase the consumer surplus of all customers.

As abstract concepts, consumer surplus and social welfare may not be easy to visualize. But in the real world, in an underdeveloped rural area, these concepts could
take the form of the ability to use a public telephone to call a doctor in a medical emergency, a timely early warning system in the event of natural disasters, or the ability of low-income and illiterate citizens to learn about and participate in democratic politics. If monopoly pricing and investment practices were to prevail, these forms of consumer benefits would be transferred largely to producer surplus, that is, to greater retained profits for the new private (and often foreign) owners of the telephone company.

In addition to the objective of preserving social equity, there may be more fundamental long-run net economic gains (that is, accruing to the economy as a whole) to be achieved through telecommunications development that a monopolist, focusing on pecuniary short-run profits, would not pursue. In the theoretical model, the loss of such concrete economic benefits is known as deadweight loss. As a practical matter, deadweight loss translates into slower growth and the potential reversal of progress in many sectors. Consider the example of a farmer who harvests a particular crop and then must transport his produce by cart some fifty kilometers over bad roads to sell or trade in the nearest village. With no access to modern communications, the farmer can have no advance knowledge if, for whatever reason, demand for his crop will not materialize in the village: perhaps another farmer has already been there selling the same crop; perhaps needs are changing; perhaps a flood has washed out the only bridge and he will be unable to reach the village before the crop spoils. With access to a telephone, at least in theory, the farmer could learn of these problems in advance and either travel to another village or make other contingency plans; however, it is often unlikely that the farmer could afford to pay up front the capital cost of installing telephone service or even that a community would collectively be able to anticipate these types of benefits enough to gather the resources to create their own access connections.

The difference in concrete economic value between the two scenarios is obvious, and quite large. By extension, the effects of telecommunications development in rural areas is likely to have a very important direct economic impact upon those areas; over time these gains could certainly contribute to national growth, and thus (at least indirectly) could support the costs of the network investment itself. Yet since these types of gains will not show up in villagers' short-term ability to pay for telephone services themselves, the prospect of rural investments will not seem appealing to a private carrier operating entirely on its own. Instead, it will choose to invest only where short-run demand is capable of paying the cost of network expansion and to charge prices that will prevent most rural and poor citizens from subscribing, even where service is made available.

Still, it might be argued that these are long-run, theoretical considerations, since in the short run, price increases for local service are what are most necessary to support the development of the network, whether in rural or urban areas, and the private monopolist will surely agree to higher prices, even in exchange for specific commitments to investment in unprofitable areas. Simply increasing prices to generate revenue to support expansion, however, is not an end in itself; even achieving this goal successfully only means that the relatively wealthy can get access,
but the poor will still be shut out. Eventually, the government must come to grips with the affordability of service for the bulk of the population that is to be served by the expanding network.

In the long run, therefore, some form of price regulation will always be required, as increasing volumes of investment allow the carrier to achieve greater economies of scale. Returning to the classic declining cost model of the monopoly utility, this suggests that a pure price-cap model, for example, for a newly privatized carrier, would allow permanent and increasing margins above costs, since while prices would increase with inflation, unit costs would actually be declining. A price-cap model with offsets for productivity would be more appropriate, but it is important that the productivity measures be based upon actual experience. In the United States and the United Kingdom, productivity offsets to price caps have hovered in the low single digits; however, those networks are near full development and further scale economies will be relatively slight. In a severely underdeveloped network, on the other hand, the carrier will begin expansion at the most steep portion of the cost curve and productivity gains in just a few short years could be of a magnitude of 50 percent to 75 percent or more. A U.K.-style productivity offset of 6 to 7 percent in such an environment would be entirely inappropriate and lead to outrageous profit margins before long, thereby frustrating the goal of making service affordable to the majority of the population.

Beyond price regulation, the regulator must play an active role in monitoring and promoting compliance with network expansion agreements. Left alone, carriers will invariably find means of meeting the most minimal obligations for unprofitable expansion, while avoiding the most high-cost investments. For example, in Mexico, the recent TELMEX concession requires expansion to rural areas and remote villages according to certain general parameters. One requirement is that TELMEX must install service, through a manual or electronic exchange, in any village with 2,500 or more inhabitants whenever at least one hundred applications for service are received from such a village. Think of the regulatory questions this requirement raises:

- What constitutes an application for service?
- Who monitors, and counts, such requests?
- Will the government take the initiative to inform villagers of these provisions and encourage them to submit applications and facilitate the application process?
- How will the scope and timing of TELMEX’s response be overseen?

Finally, and most important, consider the interaction of expansion obligations with pricing decisions. According to the concession, an application for service requires a deposit payment of three months’ service fees for the application to be officially processed and the applicant to be placed on the waiting list. How much impact, then, will a substantial increase in the prices of local services have upon
The Vital Role of Regulation in the Telecommunications Sector

villagers’ ability to make such deposits and thus to apply formally for service? If the ninety-ninth or hundredth person in the village cannot afford the deposit, the village may not get service for several more years.

The point is that only the regulatory authority is in the position to assure that telephone network resources are adequately and fairly distributed. The impact of tariff increases will always have two conflicting sides: on the one hand, more capital for expansion will be available; on the other, the affordability of service will be increasingly shifted toward the wealthier segments of the population. A private telephone company, naturally seeking profits and efficiency according to the laws of the marketplace, can help maximize the potential resources available within the sector, but it cannot be expected to strike the balance between growth and allocation, in effect, between market efficiency and distributional justice. This is the role, the vital role, of the regulator.

Thus, in the process of reforming the telecommunications sector, the function of regulation must not only be maintained, and maintained at the center of the industry, but must typically be strengthened as well. At present, most developing country telecommunications administrations or PTT operators (and many of those in industrialized countries as well) do not even have enough basic knowledge of their own national industry to begin assessing realistic policy choices. The questions of how much to invest, how much to cross-subsidize, how efficient is the sector, cannot be answered until more fundamental information gaps are closed. Especially in a situation of planned privatization, these types of data are vital before any reliable concession agreement can be achieved. For example, in order to consider cross-subsidies, it is necessary to know the levels of current costs and related revenues on a service-by-service basis. Many administrations, indeed many carriers, do not maintain or study this information except in the most aggregated form. Such considerations as long-run incremental costs, scale economies, demand elasticities, and the like, should all be central to public policymaking as well as private investment planning.

It is therefore apparent that the greatest emphasis in the area of regulatory sector reform should be on developing the basic tools and information sources necessary to begin considering alternative development policies. Ideally, these types of programs should precede any large-scale privatization effort, so that the cooperation of the government-controlled PTT can be assured, before the lure of market forces begins to conflict with public regulation of the telecommunications utility.


Regulation and Competition Policy

Paul Waterschoot

The influence of United States antitrust legislation in shaping the structure of telecommunications cannot be questioned. Divestiture of AT&T, rather than control over rates applied by the dominant carriers, was the main regulatory feature leading to increased competition in long-distance telecommunications services. The antitrust suit brought by the Justice Department, based on the Sherman Act, has been more determining than decades of regulation by the Federal Communications Commission (FCC) based on the 1934 Telecommunications Act. Antitrust law was a predominant factor in the process of regulating the United States telecommunications industry, overshadowing the work of the designated regulator.

But even in the United States, antitrust legislation does not generally have such an important role in regulating utilities. It is commonly accepted that the Sherman Act does not apply to the United States Postal Service (USPS), although it has a dominant position in several postal services provided to the public in competition with private operators. One of the main tasks of the Postal Rate Commission (PRC) is to avoid cross-subsidies between the monopoly services and the services provided in competition with the private operators; however, the PRC clearly lacks the impetus provided by the antitrust legislation.

In the electric power sector there seems to be, at least in theory, some scope for the application of the antitrust laws to utilities, but in practice this has hardly been of any relevance. It is a paradox that the Federal Energy Regulatory Commission (FERC) is more concerned with the dominant position of the generators of electricity than by the considerable market power retained by the owners of the transmission grid. The Ottor Tail case1 was hardly of any future relevance for regulation of the industry, and the electricity brotherhood largely continued to restrict access to the transmission grid as before. The leverage provided by the legislation implemented by the FERC2 in the context of wholesale transactions has mainly led to increased transmission among utilities but not to any real competition in providing electricity to the users.

In the EC context the situation is likely to develop differently in the sense that, under the Treaty of Rome, competition law applies to utilities in a similar way as to any other provider of goods or services. The behavior of a monopoly is submitted to scrutiny under the competition rules and as such can be challenged when the monopoly abuses its dominant position in extending the scope of the monopoly to new services, for
example, or when it distorts competition in services also provided by private operators. The European Court of Justice has ruled that, even in a case where a monopoly has a legal franchise but where the designated service is not all provided by the monopoly or only provided in an unsatisfactory manner, the application of the EC competition rules allow private operators to challenge the monopoly services. The implementation of competition rules has in several instances proved to constitute an extremely powerful tool to challenge franchised monopolies more effectively than does the regulatory framework established to regulate the state monopoly. In some instances it has, however, occurred that the implementation of a new regulatory framework for a specific monopoly has led to protecting it from the direct application of antitrust rules. This process is often prompted by the legislative framework within which the regulator is operating because his primary task is to ensure that the relevant service is provided in a satisfactory manner. The objective of antitrust rules, on the other hand, is mainly to ensure that competition is not distorted and is less concerned with the protection of the monopoly service. A question of utmost importance for the public at large and for private business operating at the fringes of the monopoly service is to what extent the legislation regulating a franchised monopoly leaves scope for the implementation of antitrust rules as regards the behavior of the monopoly operator.

The complex nature of the relationship between regulation of a public utility and application of antitrust rules often stems from the issue of responsibility for the contested action. On some occasions the franchised monopoly operator acts on the instigation of the legislator within the framework of the monopoly service. But often this operator has a rather large scope of discretionary power within this framework and can on its own behalf discriminate against certain categories of users of the monopoly service or against private competitors in the liberalized parts of the market.

In the latter case there seems to be no reason to protect the monopoly operator from the full application of the relevant antitrust rules because in this case it acts on its own behalf. In the first case, however, the responsibility of the contested action lies with the state, which has instructed the monopoly operator to act in a certain way, leaving no scope for any choice. Such a case falls outside the possible action of the regulator because he will not be able to overtly challenge the framework within which he also operates; however, it is the regulator's task to deal with the frequent cases regarding the limits of the monopoly franchise. Moreover, in a federal structure the central regulator can apply antitrust principles to the behavior of the decentralized regulatory instances. Examples are issues of preemption of the state's legal prerogative in the United States.

Although in most countries the legislation establishing the tasks of the regulator is the result of a political compromise and often only specifies the objectives of such regulation in a rather general way, it is possible, at least theoretically, to consider some of the main tasks involved in regulating the telecommunications industry. This chapter examines the borderlines of such regulation and the link with competition policy.
Competition Principles as They Relate to the Tasks of the Regulator

The main task of a regulator can be summarized as avoiding monopoly profits, ensuring that satisfactory service is provided, avoiding discrimination between users of the monopoly service, and preventing the operator from using its monopoly power in related activities. In each of these tasks competition principles are relevant. We shall now examine how the task of the regulator can be influenced by such considerations.

It is important to stress from the outset that in all of the above tasks the regulator acts as arbitrator among conflicting interests involving the role of the monopoly operator. It would therefore not be acceptable that the regulator form part of the monopoly administration. If this were the case, it would be impossible for the regulator to have a balanced view between diverging interests. Thus, one of the main concerns of competition policy in the area of utility regulation generally, and more particularly in the telecommunications sector, is that the regulator should be an independent entity at least as regards the monopoly operator. In the United States, the FCC is not directly linked to other parts of the federal administration. In other countries, however, the regulator often falls under the direct responsibility of a government department. This structure can in some cases lead to a strong procompetitive behavior of the regulator as he is liable to be less concerned with a totally neutral stand.

Monopoly Profits

We come now to the first task of the regulator—avoiding monopoly profits. This is directly linked to the market protection given to the franchised monopoly. It is generally considered that the monopoly operator has to fulfill a task of providing a service of general economic interest. In the case of a telecommunications monopoly this obligation is to provide adequate telecommunications services to all citizens over the whole of the national territory; however, this is often not possible if some market protection is not provided through restraining market entry of other potential service providers. The reason generally given is that the monopoly must provide the designated service by applying averaged tariffs, thus allowing all citizens to have access to this service for the same price. The cost of providing such a service can, however, vary substantially in the telecommunications sector, say between high-density routes and those in rural areas. Allowing market entry by other operators would make cream-skimming of the more profitable high-density routes possible and would probably require increasing the price of the monopoly service in rural areas. A monopoly service is often a way to cross-subsidize the provision of such services in rural areas. A franchised monopoly benefits from an exemption from the competition rules as it is granted total market protection. Such a situation may however only be granted as far as such a large exemption from competition is justified by the provision of a public service which could not be provided in competition with other operators. Market protection given to the franchised monopoly should, however, not go beyond what is demonstrably strictly necessary to provide the designated public service.
Implementing Reforms in the Telecommunications Sector

The market protection given to the monopoly is liable to give rise to monopoly profits as the relevant market cannot be contested by other operators. Higher tariffs for the monopoly service would be to the detriment of the users of the service and would lead to a less than optimum allocation of the productive resources at the national level. In the case of telecommunications services, for example, higher tariffs for such services increase the communications bill for industry and service providers in general and lead to a lower level of use of technologically advanced services; as such, they reduce the competitiveness of industry and the service sector.

Price-cap and rate-of-return regulation are instruments applied by the regulator to contain monopoly profits. They are generally a poor substitute for market forces as they often lead to distorting effects of their own. For example, rate-of-return regulation, which is generally linked to artificial cost allocation methods between different monopoly services, influences investment decisions by the monopoly operator, who emphasizes investments in traditional services (gold-plating) to the detriment of new, more risky services.

Service Quality

Avoiding monopoly profits is also linked to the second task of the regulator, namely, to ensure that the monopoly service is provided in an adequate manner to the users. Service price is but one element of quality of service as a whole. The absence of market pressure leading to low-quality service and long waiting time for installing new telephone connections is a well-known example in many countries. It is a rather difficult task for the regulator to prompt the franchised monopoly to provide a high-quality service. Regulatory action is generally insufficient, and in some instances the most efficient sanction is to allow the relevant service to be provided under competition. This is the means envisaged by the European Court of Justice whereby an inefficient monopoly can be legally challenged by private operators.

Discrimination

The third task of the regulator is to ensure that the monopoly operator does not discriminate among different users of the service. Tariffs applied to different categories of users should reflect the relevant costs. This concept is, however, rather difficult to implement in practice, and some degree of cross-subsidy (as between urban and rural areas) is often considered part of providing public service. On the other hand, cross-subsidies between households and business users of telecommunications services should normally not occur. In this context tariffs for international calls, which were estimated to be too high in the EC, have been challenged, even if to some extent the additional revenues had allowed for lower tariffs for domestic calls. The full implementation of this concept is rendered difficult because of the problem of cost allocation among services using the shared equipment for a large number of services (for example, allocation of fixed costs related to local loops in the United States).
The regulatory task of ensuring that the franchised monopoly does not discriminate among users of the monopoly service is closely linked to ensuring that the monopoly does not abuse its market power flowing from the monopoly sector by distorting competition in other markets. This is also an area where the task of the regulator is more directly related to competition policy.

It is often considered acceptable that the monopoly operator is allowed to provide goods and services outside the designated monopoly. This can be explained by the fact that common investments can be used or that the nonmonopoly services can contribute to pay the costs for the public service provided under monopoly. Recently Judge Greene allowed the U.S. regional Bell operating companies (RBOCs) to provide information services in competition with private service providers. In another context, the United States Postal Service provides parcel services in competition with private operators such as United Parcel Service (UPS). It is the task of the regulator to ensure that the franchised monopoly does not use resources coming from the monopoly market in the competitive part of the market. This concept was central in the second antitrust case against AT&T, in which Judge Greene decided that AT&T used its market power in local monopoly telecommunications services to distort the market in long-distance services and the supply of telecommunications equipment.

The problem of the possible transfer of resources from the monopolized area to the competitive sector is mainly dealt with through rate regulation. Rates should be determined such that the services provided by the monopoly operator in the areas subject to competition reflect all the relevant costs and are not subsidized by the monopoly services. Rate regulation is, however, extremely complex as the allocation of the relevant costs is very difficult in the context of a multiproduct operator. Moreover, the allocation of institutional costs leads to protracted debates. The importance of this issue can be illustrated by the problem of access charges for the interconnection between telecommunications networks, where considerable costs are involved. In the United States, one-third of long-distance carrier revenues (US$15 billion) are transferred to the local network operators annually. Only a fraction of this amount is justified by additional costs of delivering or initiating long-distance calls. In the United Kingdom the problem of rebalancing local charges and rates for leased lines, mainly used by the business community, is at the center of debates on the future, more competitive structure of the industry. The relevance of this issue in the context of the application of competition rules is evident. The FCC was to a large extent involved in regulating AT&T's long-distance rates, although this was never a franchised monopoly. Moreover, after divestiture, AT&T's long-distance services were no longer part of the same entities providing local monopoly telecommunications services. FCC, in regulating AT&T's local operations, was not involved in regulating a franchised monopoly but implemented competition principles to a dominant operator in the long-distance telecommunications market.
Regulation vs. Antitrust Policies

Although antitrust policies can be implemented by the designated regulator of the franchised monopoly, it has to be stressed that the legal context and the procedures will be drastically different from the situation where such rules are applied by the courts. A regulator will generally act on an a priori basis, systematically scrutinizing all the new action the monopoly intends to undertake. This leads to a very heavy regulatory burden for all parties involved, including a large number of submissions and hearings. The regulated enterprise has to provide, on a permanent basis, information allowing the regulator to have a constant view of the monopoly's operations. The implementation of antitrust rules by the courts is, on the contrary, generally done on a case-by-case basis as problems occur and complaints are filed. This often leads to a lesser regulatory burden for the parties concerned.

It can be argued that an essential task of the regulator of a monopoly should be to ensure efficiency gains by the relevant operator. In this instance regulation should be seen as a substitute for market forces not sanctioning inefficient behavior of the managers of the franchised monopoly. The choice of regulatory tools is very important in this context, as well as the degree of competition allowed in some areas where the monopoly also provides its services.

The regulator's task is complicated by the fact that he is often at a disadvantage acquiring information from the regulated enterprise. Generally the managers of the monopoly have access to all the relevant information and are reluctant to give the regulator access to data which might make his activities more efficient. A solution might be to break up the monopoly into several parts so as to allow the regulator to compare data for different parts of the monopoly. In the telecommunications area, for example, it is easier for the FCC to assess some of the activities exercised by the RBOCs, because data is comparable for local monopoly operators, than to evaluate some of AT&T's activities, since this is the only long-distance carrier whose rates are regulated. In this case, it is not the antitrust principles themselves which give rise to better information and more efficient regulation, but the existence of several comparable monopolies, which can lead to an incentive for more transparent behavior by the monopoly operators.

Endnotes

1. The refusal, in the early 1970s, by a public utility (Ottor Tail) to wheel power to municipalities which had formerly been served by it. United States v. Ottor Tail, Co 331 F Supp 54 60-61. The Supreme Court upheld the conclusion that an abuse of monopoly power had occurred. Ottor Tail Power v. United States, 410 US 366 (1973).
4. Ibid.
The Strategic Role of Regulation in France

Dominique Garier

The vast movement towards deregulation that began in the United States in the 1970s has gradually spread to all industrialized nations over the past decade. As far as Europe is concerned, the 1987 Green Paper of the European Commission (EC Green Paper) broadly outlined an ambitious EC policy, which has been applied in the form of a number of very important guidelines, essentially contained in two texts adopted in December 1989, while the Commission was chaired by France: the ONP Framework and the Services Directives. The two documents strike a balance between two factors:

- A harmonization of European networks (because the development of heterogeneous national systems was seen as a hindrance to building a single European market).

- The progressive liberalization of the telecommunications services market (because the growing diversification of the demand among users created a need for a more flexible market).^{1}

France, however, had already introduced greater competition into the telecommunications industry before the EC directives were drafted. The sale of terminal equipment was liberalized as early as the mid-1980s, and value added services, paging, and radiocommunications services were opened to competition in 1987. The largely discretionary character of the minister's powers over the licensing of telecommunications networks and services, however, by virtue of the Code des Postes et Télécommunications (essentially based on legislation dating back to 1837, the period of King Louis-Philippe), was not particularly well suited to a liberalization policy. Therefore, it was decided that a major regulatory reform would be undertaken as soon as an EC policy was adopted.

The reform, legislated in 1990 following a lengthy consultation period, consists of two essential facets that comprise a coherent whole:

- On the institutional level, it provides a restructuring, and a change in the relationships among organizational levels.
Implementing Reforms in the Telecommunications Sector

- On the regulatory level, it adopts a totally new framework that was directly inspired by the EC documents.

This brief overview is intended to present the essential features of both facets of the reform, as well as the primary reasons behind the choices that were ultimately made.

Institutional and Organizational Reforms

The principle of the separation of regulatory and operating functions, outlined in the 1987 EC Green Paper, was implemented in France in several stages. It might be useful to review briefly the factors that led the European Commission to make this issue a priority in the various member countries.

The Separation of Regulatory and Operating Functions

It was essentially the introduction of new players in the terminal-equipment-and-services market that made the separation of functions absolutely essential. Until quite recently, public carriers in most EC member countries were fully state-run; the government's decisionmaking role in the telecommunications sector was therefore fused with its role as carrier, in which it was responsible for supplying telecommunications networks and services (formerly limited exclusively to telephone and telex).

Furthermore, in most cases, it was the public carrier that authorized the connection of terminal equipment to its network. Although the carrier was generally not the manufacturer of the terminal equipment, it was often the exclusive distributor and the only source of telephone equipment for the user.

France was one of the first European countries to liberalize the distribution of telephone equipment in the mid-1980s; however, the responsibility of approving telephone equipment for sale remained in the hands of the Direction Générale des Télécommunications (DGT), as it was called at the time—a situation not fully compatible with the concept of true freedom of choice where public carriers were concerned.

Moreover, the proliferation of players on the telecommunications scene no longer allowed the dominant carrier (which in most countries enjoyed a monopoly over a good portion of the services) to have full rein and set the ground rules for its own competitors. That is why the Direction de la Réglementation Générale (DRG) was created in France in May 1989, under the Ministère des Postes et Télécommunications (changed in 1993 to Ministère de l'Industrie, des Postes et Télécommunications, et du Commerce Extérieur). Its mission is twofold: to approve terminal equipment and to define the ground rules for the telecommunications industry on a case-by-case basis.

The next step was the reform legislated in the statute of July 2, 1990, which declared France Télécom a legal entity by making it separate from the government administration of which it had been a part until then. France Télécom's new status, which took effect January 1, 1991, made it a type of public institution, with full
The strategic role of regulation in France

administrative autonomy, its own assets, and a board of directors in charge of defining policy.

It was at that point that the separation of functions took full effect, as France Télécom and the Direction de la Réglementation Générale became separate entities—not only functionally, as had been the case, but legally as well.

The role of the state as shareholder was, at the same time, delegated to another section within the Ministère des Postes et Télécommunications: the Direction du Service Public, which is responsible for overseeing France Télécom's activities.

The Organization and Status of the DRG

During parliamentary discussions on the new law, the question of the status of the regulatory body was raised. Certain parties wanted the regulatory function to be entrusted to an independent authority, like OFTEL in Britain or the FCC in the United States, because they were afraid there might be some confusion between the state's concurrent roles of owner of the public carrier and the party responsible for defining the guidelines for competition between the carrier and the new entrants into the market.

This type of independent authority is not unique in France—notably in the audiovisual sector, with the Conseil Supérieur de l'Audiovisuel (CSA); however, the parliamentary debates raised a number of arguments for dealing with the audiovisual and telecommunications sectors differently:

- In the audiovisual sector, regulatory matters pertain essentially to program content; the preservation of freedom and plurality of information fully justifies the idea of an independent regulatory body.

- Conversely, in the case of telecommunications, regulatory matters are often directly linked to issues of national sovereignty and autonomy, the development of public infrastructures, and territorial planning, all aspects that largely stem from the state's decisionmaking role.

Furthermore, it should be noted that almost all European countries (except the United Kingdom with OFTEL and Portugal with the ICP) have chosen to delegate regulatory authority to a government department—either a department exclusively in charge of postal and telecommunications services, or a department such as the Ministry of Transport and Public Works in the Netherlands or Spain's Ministry of Public Works and Transportation.

One of the great advantages of giving responsibility to a government department is that the national regulatory body serves as an international representative. This aspect is particularly important for EC countries, since it enables the national regulatory bodies to participate in establishing regulatory guidelines in the telecommunications sector, whereas independent authorities generally do not fully participate in international talks.
The Law of December 29, 1990, was an important milestone in the history of the regulation of telecommunications in France, as it involved a complete restructuring of an embryonic regulatory system. The restructuring was based on four main principles:

- Separation of regulatory and operating functions (as noted previously)
- Establishment of conditions that ensure fair competition within a framework of stability and objectivity
- Transparency of decisions (publications, etc.)
- Ongoing consultation among all telecommunications professionals and users.

The law clearly distinguishes between regulatory matters pertaining to networks, services, and terminal equipment, and clarifies the distribution of responsibilities between the DRG and the CSA in cases in which the growing convergence of telecommunications and audiovisual activities might lead to an overlapping of responsibilities.

**Network Infrastructures**

The law defines a network infrastructure as the physical elements of a network. The regulatory framework makes an important distinction between networks that are open to the general public and independent networks.

**Networks Open to the General Public**

In accordance with the EC guidelines adopted in 1989, the establishment and operation of an open network remains the exclusive responsibility of the public...
carrier, as a general rule, as part of the carrier's obligations to ensure universal and nondiscriminatory service.

The high cost of such infrastructures, as well as the lengthy period preceding return on investments and the recognized importance of economies of scale, would suggest that the duplication of basic networks would definitely generate more secondary costs for society than benefits resulting from competition. Therefore, the issue at hand—as parliamentary consensus has demonstrated—is the result of a pragmatic rather than an ideological approach to the problem. Moreover, it has been concluded that excellent quality and a high level of development in a public carrier's network does not justify the introduction of a competitive stimulus.

Conversely, the same reasoning has led to a departure from the monopoly, as provided for in the law, over radiocommunications networks such as car telephone service, paging, and new mobile services. The infrastructures required for such networks are, in effect, less cumbersome, with fewer physical constraints than wireline networks, lower civil engineering costs, etc. It was thought that competition would foster the development of such services—an area in which France has not been in the forefront.

Permission to set up and operate such networks is granted subject to the conditions of a public telecommunications operating license or *abrier des charges*. These conditions ensure fair competition and maximum benefit for the public interest. The approval granted for the new GSM service (a digital cellular radio service that conforms to EC standards) meets both concerns, as the two competitors involved, France Télécom and the Société Française du Radiotéléphone (SFR), were chosen according to their technical expertise and were subject to strictly identical conditions in terms of the granting of frequency bands and commercial and technical obligations. France Télécom is thus required to keep separate accounts for this line of products and to submit to the same conditions as its competitor with respect to interconnection with its own network and the payment of user fees for leased lines.

**Independent Networks**

Independent networks, which can be reserved for private use (for example, by a company) or shared by a closed user group, must be licensed by the Ministère des Postes et Télécommunications.

Among the independent networks in France, there are currently approximately 60,000 private radiocommunications networks, which connect some 450,000 mobile telephones. In addition, there are wireline networks, which are essentially private, linking a company with its subsidiaries, or units with common interests; a certain number of independent satellite networks (VSAT or mobile satellite service) exist as well.

Although independent networks are, by definition, not primarily designed to be connected to the public-switched telephone network, they can be in exceptional cases, according to stipulations contained in the specific licensing agreements issued by the DRG.
Unregulated Independent Networks

Unregulated independent networks are generally internal wireline networks which use neither public facilities nor those of a third party. Government licensing is not required in order to set up an independent network, as long as it is low-power and short-range.

Services

In France, only services that are available to the general public are regulated. Those limited to closed user groups are totally unregulated. The exclusive rights of the public carrier over services available to the public are limited to telephone service between fixed points, telex, and public telephones on state property. The restrictions to competition are motivated, as in the case of basic network infrastructures, only by the requirements of universal and nondiscriminatory service to all users. The monopoly is, in effect, considered a balance to the obligations imposed on the public carrier by the regulator.

Bearer Services

The law defines a bearer service as "... the commercial provision to the public of a simple data transmission, meaning a service including either the transmission, or the transmission and routing, of signals between telecommunications network terminals without these data being subject to any processing other than that required to ensure their transmission and the routing and processing associated with the control of these functions." In concrete terms, bearer services essentially involve the provision of leased lines and basic data transmission service (for example, when a customer who leases lines from a public carrier installs his own switching equipment and provides services made possible by such an interconnection to third parties) as well as resale of capacity on leased lines from the public carrier.

In conformity with the Services Directive, the provision of bearer services was opened to competition by January 1, 1993. Providers of bearer services are subject to the conditions contained in a "cabier des charges". These conditions are intended to protect the public service mandate of the public carrier, that is, to provide such services in a universal and nondiscriminatory manner. It is clear, however, that a general license is in no way intended to hinder competition and that the conditions stipulated in the general license will be strictly proportionate to the requirement of preserving the carrier's public service mandate.

Telecommunications Services on Cable Networks

The provision of telecommunications services on a cable network requires a license, as such services involve a modification in the initial destination of such
networks. The licensing procedure for setting up cable networks, however, remains unchanged: licensing is still the responsibility of the commune (that is, the local administrative body).

Other Services

The provision of services other than those outlined previously is unregulated. The minister needs to be notified of such services (generally referred to as value added services) only if lines are leased from the public carrier, and a class license is required only if the user capacity exceeds 5 Mbps. A consultative committee, which advises the Directeur de la Réglementation Générale, may be consulted, if necessary, to interpret the notion of value added.

Terminal Equipment

The market for terminal equipment is open to free competition. Approval is required, however, if the equipment is intended for connection to a public network, and approval is required for all radiocommunications equipment. The approval is intended to ensure that the essential requirements are met—particularly the safety of users and representatives of the public carrier as well as protection of the public network.

One of the EC directives contains a provision for mutual recognition of approved equipment, which allows for a single approval procedure for all EC countries for equipment that meets standardized European technical specifications. The EC directive has been carried over to French law, in the statute of February 4, 1992, in keeping with the deadline of November 6, 1992, stipulated in the directive.

Practical Implications of Regulation

The role of the regulatory body is twofold. First, it must ensure the proper application of the current legislative and regulatory guidelines. Second, it must ensure a dynamic adaptation of those guidelines to current situations and technical developments in the telecommunications industry.

Transparent Application of Regulatory Guidelines

On behalf of the minister, the Direction de la Réglementation Générale is responsible for licensing various networks and services according to the guidelines stipulated in the law and the prescribed means of applying them.

All licenses granted must be listed in the Journal Officiel de la République Française (official gazette of the French government). For each type of network or service, a standard set of licensing conditions is established and is identical for all competing carriers. This procedure is therefore a transparent means of ensuring fair competition among all the parties involved.
Implementing Reforms in the Telecommunications Sector

Calls for tenders are published regularly, especially for the establishment of independent radiocommunications networks, such as trunked radio networks (such as 3RP) and dedicated data radio networks (such as 3RD), or public networks, such as Pointel (the French term for telepoint [CT2] service). The objective is to heighten general interest by reaching a broad range of candidates in order to ensure high-quality services and the most efficient use of radio frequencies.

Optimal management of rare resources is yet another primary function of the regulating body. The range of frequencies, in addition to numbering resources, is among the essential elements that require action, or at least careful monitoring of how they are used.

The DRG is also responsible for approving terminal equipment on the basis of testing by the accredited laboratory to determine whether they meet minimum requirements. When necessary, the DRG can also be called upon to arbitrate any disputes between network operators (particularly in the case of problems related to interconnection conditions) or service providers, if the market guidelines do not adequately safeguard the best interests of users and the requirement of fair competition.

The DRG publishes a widely distributed yearly report on its activities which includes appendixes containing its primary decisions.

Dialogue

In view of ongoing developments in the telecommunications sector, regulatory matters cannot remain static. The regulating body must constantly adapt and interpret guidelines according to innovations that come to light.

In order to do so, the French government has implemented a means of dialogue among users and professionals in the telecommunications industry by setting up two consultative committees which advise the Directeur de la réglementation générale. One is responsible for radiocommunications, the other is concerned with telecommunications services. Both committees consist of representatives from three groups—users, service providers, and independent specialists—and are assisted by technical groups that are largely outward looking.

The committees especially allow for a pragmatic, jurisprudential approach to certain topics, such as criteria for distinguishing value added services from bearer services and defining the concept of closed user groups. Moreover, they constitute a forum for reflecting on future developments—an activity that the DRG wanted to promote even further by means of a public consultation procedure for certain topics. The first public consultation, on the introduction of personal communication systems in France, has just been completed. The process reached a large sector, which enabled the DRG to compile a significant number of responses from industrialists, users, and service providers.

Conclusion

The introduction of competition has by no means weakened the role of the regulatory body; on the contrary, it has strengthened it. Regulatory policy, both
present and future, must be guided essentially by a concern for the general interest, in a context in which historically dominant carriers have made it necessary to be especially watchful of fair competition with new entrants on the market, and in which the proliferation of services calls for management that pays ever greater attention to resources, in an environment that is becoming increasingly international.

International cooperation is, in fact, one of the new characteristics of the telecommunications industry. It will be a major factor in the sector's activities over the next few years, not only on the regional level, as has been the European experience, but on a global level as well.

International conferences enable interested parties to observe the growing convergence of policies, in which institutions such as the ITU can play a major role alongside multilateral organizations such as the GATT, while leaving participants the option of what approach to take, according to their own situation and their own analysis of the strategic role that regulation will play over the next few decades.

Endnotes


Telecommunications Regulation in the United Kingdom and the Role of OFTEL

Donald Mason

Telecommunications in the United Kingdom became a legal state monopoly in 1880 and an effective operational monopoly in 1913 under the control of the Post Office, the government department which operated the postal service. In 1965 the Post Office became a state corporation, and British Telecommunications (BT) was created out of it as a separate state corporation in 1981.

Since then the telecommunications sector in the United Kingdom has moved from being one in which all services were provided by a state-owned monopoly (BT) to one in which there is competition in all areas and no significant state ownership: BT and Mercury Communications Ltd. provide fixed national and international services; four new providers of fixed public services are developing plans to enter the market; cable TV companies provide local telephone service in more than twenty areas; two cellular mobile operators are well established; and two PCN (personal communication network, that is to say, microcellular mobile) operators have well-advanced market entry plans.

Originally competition was seen (as it continues to be seen) as the best way of ensuring adequate services, responsiveness on the part of operators to developing technology, and customer choice. The restructuring of BT as a private limited company in 1984 and its immediate privatization was a development which occurred in parallel with the introduction of competition. One of its major aims was to free the company from the constraints of government accounting methods and changeable financial policy so that it would be able to raise, on a commercially rational basis, the capital needed for large-scale investment in digital technology and optical-fiber links.

In the initial privatization the government sold 51 percent of the shares to the general public by way of a stock market issue. As a matter of policy the government has not since exercised the voting rights associated with its remaining shareholding— that is, it has not in any way used its votes as a means of controlling the company. The government has, however, retained a golden share which entitles it to attend and speak at shareholders meetings and to block changes to certain of the company's Articles of Association, including that which limits any shareholder to 15 percent of the shares. The golden share also entitles the government to appoint two directors.
who, when appointed, have no special position or powers. The government has so far appointed only one. The government sold a further 27 percent of BT's shares in 1991 and the remaining 22 percent in 1993.

Privatization and the development of competition both imply the need for independent regulation, the function today of OFTEL, the U.K. regulatory agency.

The Telecommunications Act 1984

Telecommunications in the United Kingdom today is governed by the Telecommunications Act 1984, which was passed at the time of the privatization of BT. It created the post of Director General of Telecommunications, established a coherent and comprehensive licensing system, and gave separate regulatory roles to the Director General and the secretary of state for trade and industry, who also has the title of President of the Board of Trade. The main provisions of the Act have remained unchanged since 1984.

General Duties of the Secretary of State and the Director General

The Act sets out certain policy goals to guide the secretary of state and the Director General in their functions. The most important of these are:

- The provision of telecommunications services throughout the United Kingdom such as to satisfy all reasonable demands for them.

- The promotion of the interests of consumers, purchasers, and other users in respect of the price, quality, and variety of the telecommunications services provided to them.

- The maintenance and promotion of effective competition in telecommunications activities.

Role of the Secretary of State

The Act allows the secretary of state to grant licenses, after consultation with the Director General, and gives guidelines on the content of these licenses; however, the Act does not specify how many licenses should be granted, to whom they should be granted, nor what they should permit. There is no definition of a monopoly area. All these matters are within the discretion of the secretary of state. The granting of licenses, together with the initial determination of their terms and conditions, is the secretary of state's main vehicle for pursuing the policy goals of the Act. As a government minister with telecommunications as one of his responsibilities, the secretary of state is guided by general government policy.
There are both individual and class licenses. The former is granted to a single legal
or natural person as, for example, BT. A class license is granted to persons of a class,
which often means all persons, in which case it functions as a general authorization
for which no individual application or notification is needed. Examples are the
Telecommunication Services Licence, under which the vast majority of value added
and data service providers are licensed, and the Self-Provision Licence, under which
people operate systems for their own use such as domestic telephones and other
private systems, where there are no services provided to third parties.

According to the Act it is an offense, subject to certain exceptions, to run a
telecommunications system in the United Kingdom without a license; that is, almost
all use of telecommunications equipment in the United Kingdom must be covered
by some license or other. Regulation of telecommunications operators has to be
incorporated into the conditions of licenses granted under the Act. New regulations
are imposed through the granting of new licenses by the Secretary of State or the
modification of conditions in existing licenses by the Director General.

**Role of the Director General**

The Act gives the Director General many duties and powers including:

- Advising the Secretary of State on the granting of licenses and on any other matter
  where he considers it expedient or where his advice is requested.

- Taking enforcement action when license conditions are not respected by licensees.

- Allowing him to modify the conditions in licenses. Such license modification is
  the Director General's main vehicle for pursuing the policy goals of the Act.

- Considering any matter which is the subject of a representation. In practice this
  amounts largely to investigating consumer complaints.

Additional powers have been given to the Director General under the Competition
and Service (Utilities) Act 1992 (see below).

**OFTEL**

The Act allows the Director General to appoint staff, subject to the approval of the
Treasury (the government department responsible for finance) with respect to
numbers as well as terms and conditions of service. The staff he appoints assists him
in carrying out his functions under the Act and form the Office of the Director
General of Telecommunications, commonly shortened to Office of Telecommunications,
or OFTEL.
Implementing Reforms in the Telecommunications Sector

The Work of the Director General of Telecommunications and of OFTEL

The post of Director General of Telecommunications embodies the notion of independent regulation. He is totally independent of the telecommunications industry which he regulates and is to a very large extent independent of the government. The Director General is appointed by the secretary of state for a fixed term of up to five years and may be reappointed. He may be removed by the secretary of state on the grounds of "incapacity or misbehaviour." During his term of office he is responsible to Parliament for carrying out his duties under the Act. He does not lose his post on a change of government, nor is he subject to control by the secretary of state except in a small number of well-defined circumstances related to national security and international relations. Historically, this control by the secretary of state has been exercised only in order to assist in the implementation of European Community legislation by giving the Director General new duties.

In addition to direct intervention by Parliament (by act of Parliament) or control by the secretary of state in the limited circumstances in which this is possible, actions of the Director General may be subject to "judicial review," a court procedure which enables the reasonableness of official decisions to be challenged.

The Director General may come to the post from any area of national life, as for example, business, law, the financial world, or academic life. OFTEL's first Director General, Professor Sir Bryan Carsberg, held the office initially from 1984 to 1987, after which he was reappointed for a five-year term. In 1992 he became Director General of Fair Trading, a similar type of post but with broader responsibilities. The current Director General is Mr. Don Cruickshank.

The Director General's staff, that is to say, the staff of OFTEL, are civil servants. They work under the same terms and conditions as in government departments. All OFTEL action is in the name of the Director General, and no action can legally be taken if there is no Director General in post.

Advice to the Secretary of State

New licenses are normally drafted by the Department of Trade and Industry (DTI) and then sent to OFTEL for comment. On occasion the final form of a license is only agreed after lengthy informal discussion at official level. Normally, the Director General becomes personally involved in this process only with respect to its broad lines.

On general issues of policy, on request or on his own initiative, the Director General advises the secretary of state personally, after consultations within OFTEL. Such advice may be published.

Enforcement of License Conditions

The Director General is required to enforce licenses. The Act requires him to issue an order if he is satisfied that a licensee is contravening or has contravened and is
likely again to contravene any of the conditions of his license. Contravention of a license condition is not in itself an offense, but subsequent refusal to comply with an order from the Director General is. The licensee may challenge the validity of an order in court.

It is generally difficult to establish sufficient, legally admissible evidence of a license contravention to meet the conditions for issuing an order laid down in the Act. Since 1984 very few such orders have been issued; this, however, does not mean that the process of license enforcement is ineffective. OFTEL investigates all suspected contraventions. The normal pattern is for the investigation to end when it is clear that no contravention is continuing or likely to occur. Thus, the powers of the Director General ensure in practice that license compliance is achieved effectively and without recourse to legal process.

The Act gives the Director General the important power to require any person to provide information that is relevant to the investigation of a suspected license contravention.

**Modification of License Conditions**

The Director General has the power (which the secretary of state does not) to modify license conditions. This is important mainly in relation to the licenses of the major individual operators, such as those of BT, Mercury, and the mobile and cable operators. The Act lays down the procedure.

The Director General must publish his proposed modifications, allowing a period of at least twenty-eight days in which anyone who reads his published proposals may comment. He must “consider” any representations or objections received. The modifications can then go ahead only if the licensee agrees. In practice this generally means that there is a period of discussion between OFTEL and the licensee in order to establish whether agreement is possible.

If agreement is reached, the license conditions are duly modified. If no agreement is reached, the Director General may simply withdraw his proposals, or he may, according to the Act, refer the matter to the Monopolies and Mergers Commission (MMC), which then conducts an independent and thorough investigation which may take as long as a year. The MMC, whose conclusions are binding on the Director General and on the licensee, is not bound by the preceding discussions between OFTEL and the licensee; its conclusions may be in accord with the Director General’s original proposals, the licensee’s views, or neither.

In practice, agreement on the modification of license conditions is normally reached. In making his proposals, the Director General is governed by the policy goals in the Act which also govern the MMC. Discussions about proposed modifications are therefore guided by an objective measure of reasonableness and legitimacy.

In fact, the Director General has so far referred only one matter, that of certain audiotex services (premium rate services), to the MMC.
Implementing Reforms in the Telecommunications Sector

Regulation for the Provision of Telecommunications Services

BT's license area extends over the whole of the United Kingdom except for the city of Kingston upon Hull and its environs of some 200 square kilometers, in the northeast of the country. Kingston Communications (Hull) plc, which is owned by the municipality, has for historical reasons the license to provide telecommunications services in the Hull district instead of BT. Thus Kingston, in Hull, and BT, elsewhere in the United Kingdom, have similarly dominant positions.

Condition 1 of both BT's and Kingston's licenses requires them to provide voice telephony services everywhere in their license areas. Most services provided under the universal service obligation are subject to price control. In the absence of other provisions, it could be regarded, in a competitive situation, as an unfair burden on BT and Kingston which their competitors do not have to carry. In fact, the licenses allow a fair proportion of the cost of the universal service obligation to be recovered from competitors. Thus, there is no incompatibility between the provision of universal service and a competitive situation in voice telephony. Hitherto BT has not sought to recover these costs.

The licenses of new providers of public telecommunications services also contain service obligations, but which are much more limited in their scope.

Asymmetric Regulation

Although competition is permitted in all telecommunications services in the United Kingdom, BT retains over 90 percent of the market overall and, correspondingly, a considerable degree of market power. As a consequence, regulation for the interests of consumers and regulation for competition mean to a significant extent regulation to prevent the abuse by BT of its dominant position. The regulation expressed in conditions in BT's license has as a broad objective to mimic the results that effective competition would have, were it present.

At the same time, regulation aims at promoting effective competition. This implies at times giving new market entrants assistance in the form of conditions which take account of the difficulties they face in becoming established.

Regulation for the Interests of Consumers

Price Control: RPI minus X. Through an appropriate license condition, modified from time to time, OFTEL exercises control over the general level of BT's prices but not over the prices of other operators. Control is not over individual prices but over the weighted average of a group or 'basket' of prices. The prices in the basket are weighted according to contribution the services make to BT's revenues. The form of the control is a price cap, which is a limit to the annual rate at which the weighted average of the basket of prices may increase. It is expressed by the formula \( RPI \text{ minus } X \) (or \( RPI - X \)), where \( RPI \) stands for 'retail price index,' a measure of inflation which is published monthly, and \( X \) is a preset number.
Telecommunications Regulation in the United Kingdom

The broad principles on which price-cap regulation are based are that, in an situation of effective competition, there would be a limit on the overall return on capital employed that BT could expect. BT would derive benefits, in the form of higher profits, from increases in efficiency beyond what was normal for the industry. According to these principles, the setting of a price cap begins with an assessment of what is a reasonable rate of return on capital employed for BT, based on an analysis of its activities and structure and on relevant comparisons with other industries. There is then an attempt to estimate what improvements in efficiency may reasonably be expected in the light of factors such as BT's unit costs, again based on comparisons with relevant companies in the United Kingdom and elsewhere.

These estimates, combined with BT's actual current rate of return, enable a price cap to be calculated which will bring BT's actual rate of return into line with its allowable rate of return at the end of a price control period, if expected progress is made in improving efficiency. The price cap is set for a period of four or five years. If in that time BT increases its efficiency more quickly than has been predicted, its profits are correspondingly greater. These extra profits are not clawed back. Each year during the period of the price cap, individual price changes in the basket are weighted according to the contribution the service in question made to BT's revenues in the previous year in order to calculate whether the overall cap is being adhered to.

The first price cap, set in 1984 at RPI-3, lasted until the middle of 1989. It covered exchange line rentals as well as local and national call charges. Connection charges were not, and are not, included in the basket of controlled services, but they have been subject to a separate control since 1989. In 1989 the cap was tightened to RPI -4.5. This regime was intended to last until 1993, but concern about the level of international call charges led to the Director General's introducing the latter into the basket in 1991 and at the same time discussed and agreed with BT a corresponding adjustment to the price cap to RPI -6.25. A new level, RPI -7.5, came into force for a four-year period in August 1993.

Outside the main price cap there has since 1989 been, and will continue to be, a cap of RPI -0 on private circuit prices, and within the main price cap there has been subsidiary cap, since 1989, of RPI +2 on domestic line rentals. The same cap was originally applied to business line rentals; since 1990 business multiline rentals have been allowed to increase at RPI +5.

With the low inflation of the early 1990s, the price cap means that BT's prices must fall in monetary as well as in real terms. The overall effect of the price-cap regime in the eight years since 1984 has been a real decrease in BT's prices of some 30 percent. Within this figure business customers have benefited considerably more than residential customers. A new feature of the regime which came into force in 1993 is that, apart from line rentals, no individual price in the basket may increase by more than the RPI. This is expected in the future to increase the benefit of the regime to residential customers.

The price cap which took effect in 1993 assumes a rate of return on BT's capital in the range 16.5 to 18.5 percent (calculated on the basis of BT's method of historical cost accounting) and efficiency increasing at a rate of 3 percent a year on average.
Quality of Service

OFTEL has not in the past set quality-of-service targets but has encouraged BT to do so and to publish quality-of-service information. This was a result of considerable public dissatisfaction with the state of public telephone boxes, of which at one stage only about 75 percent were in working order at any one time, with the proportion in some areas much lower. BT now publishes reports every six months on quality of service covering public telephones (some 95 percent were working in September 1992), speed in meeting orders, speed in dealing with faults, call success rates, speed of operator response, accessibility of the directory assistance service, and speed in providing and repairing private circuits. Mercury publishes a similar report. In addition, an independent survey of the quality of service offered by the cellular networks, commissioned by OFTEL, commenced in 1992.

Also on a voluntary basis after encouragement from OFTEL, BT operates a customer compensation scheme where the quality of service provided does not meet certain levels.

Complaints Handling. The Act requires the Director General to “consider” any matter which is the subject of a “representation,” meaning, in practice, any letter or telephone call to OFTEL on any subject relevant to the Director General’s duties. In line with this requirement, all written representations are investigated, with a view to establishing, in the case of complaints, whether the organization complained of has been at fault.

In 1992 OFTEL handled some 9,500 letters and 33,300 telephone calls. Most of these concerned BT. Telephone callers (if OFTEL is in fact the right organization to deal with them and if the inquiry cannot be dealt with immediately) are asked to put their complaints in writing. The Director General’s duty to consider representations does not depend on the complainant first having approached the operator concerned but, if that has not been done, OFTEL’s first action is to pass the complaint on to the operator and only take it up again if the problem has not been resolved.

OFTEL’s investigation of complaints involves correspondence, sometimes extensive, with the operator and the complainant. In some 35 percent of the cases investigated it becomes reasonably clear that the operator has been at fault. The operator is then usually willing to offer the customer a rebate or other form of compensation. In other cases OFTEL can only advise the complainant that redress for an unsatisfied grievance has to be sought either through arbitration or the courts.

Such complaints handling occupies more than 25 percent of OFTEL staff. It has a value beyond the resolution, where that is possible, in particular disputes, to provide information on the underlying causes of subscriber and customer concern.

The Competition and Service (Utilities) Act 1992 amended the Telecommunications Act 1984 by giving the Director General explicit powers to set standards of service for BT and Kingston and to set compensation if they fail to meet the standards set. The Director General now also has powers to approve BT’s and
Kingston's complaints-handling procedures and deposit-taking criteria and to resolve certain kinds of disputes (that is, those relating to billing, quality of service to the individual, discrimination in charging and deposits) in a legally enforceable way. Procedures under these new provisions are in the course of being set up, including the appointment by the Director General of arbitrators to act on his behalf.

*Regulation for Competition*

OFTEL regulates for competition by ensuring that:

- There is no cross-subsidy between those of BT's services of which provision is required by its license and those services it offers solely on the grounds of their commercial attractiveness.

- BT does not link the provision of services in the latter category in any way to the provision of services in the former category.

- BT does not offer services at prices below cost in such a way as to harm smaller competitors.

- BT does not discriminate unduly.

- All networks have access at fair and reasonable terms to all other networks.

The last two of these deserve some elaboration.

**Nondiscrimination.** The licenses of operators who are obliged to provide services require them not to discriminate unduly in favor of, or against, any person or class of persons; that is, they are required, among other things, to offer a service which is offered at a particular price to one person to every other person on the same terms.

The major practical consequence of this to BT is that its connection charges, line rentals and call charges are the same throughout the United Kingdom. Because costs are not the same across the country, this implies a degree of forced subsidy of rural services by the less costly urban services. Although BT is permitted to charge competitors a fair proportion of this subsidy through the terms of interconnect agreements or otherwise, it has not so far done so.

**Interconnection Arrangements.** Network providers are required in their licenses to agree with other network providers, competitors, or those offering complementary services, on the financial, technical, and information transfer terms of interconnection. If negotiated successfully between the operators, such agreements remain private. If the operators are unable to agree on any aspect of an interconnect agreement, either or both may appeal to Director General for a determination which is then made public.
Implementing Reforms in the Telecommunications Sector

The financial terms of interconnection may include usage charges; charges to reflect the cost to BT of its universal obligation and the forced equalization of urban and rural charges; and access deficit contributions. Technical terms may include the technical interfaces, where they are to be located, and how many there will be. Information transfer terms involve each operator’s providing the other with sufficient information for call routing, billing, and so forth.

Access Deficit Contributions. In common with those of most telephone companies worldwide, BT’s connection charges and line rentals have traditionally not covered the cost of providing the lines; that is, BT’s call charges are, in general, higher than would otherwise be the case since the profits from calls are required to fund the access deficit. The size of the access deficit depends on how it is defined and measured. According to the method of calculation employed, it is in the range £1 billion to £2 billion; however, whatever the exact size, the consequence is that, other things being equal, the price ceiling for competitors is unnaturally high and market entry is thus, in BT’s view, unfairly easy.

Although BT would like to rebalance its charges, by increasing line rentals sharply and making corresponding decreases in its call charges, the Director General is reluctant to permit a rapid rebalancing because of the effect it would have on, in particular, low users of the telephone service. He has therefore agreed only on a gradual rebalancing, under which BT may increase line rentals by RPI +2 within the new overall price cap of RPI -7.5. Over time this will have the effect of eliminating the access deficit.

In the meantime, interconnect agreements may include a fair contribution to the access deficit of BT or, as appropriate, any other operator. In the case of BT, the contribution is calculated for any class of call (local, national, or international) according to the contribution that class of call, when charged by BT, makes to the funding of the access deficit, the contribution being assumed to be proportional to the contribution that that class of call makes to BT’s profits. International calls delivered on BT’s local network attract, in principle, a substantially higher access deficit contribution than national calls, since their profitability to BT is considerably greater, whereas the access deficit contribution attracted by local calls is lower again.

Liability to pay access deficit contributions at the calculated rate would often make it particularly difficult for new competitors, without the advantages of economies of scale, to enter the market. For this reason the Director General has reserved the power to waive contributions in the case of competitors whose share of a particular market is less than 10 percent.

Accounting Separation. OFTEL’s policy on interconnection has evolved since 1984 and continues to evolve. With the abandonment of the duopoly policy for national and local services, the rapid growth in the provision of local services by cable TV companies, the prospect of further local competition through radio-based services, and the emergence of several competitors to BT and Mercury in national services, a much more complex competitive situation has become evident than was imagined some years ago.
It is reasonable to expect that in a few years there will be several major providers of national services, including BT, and a large number of operators providing local services in competition with BT, either on a national or local basis. This has focused attention on the need for the terms on which BT's local business interconnects with BT's national business to be the same, as are available to other national and local operators. With this in view, the Director General has decided that BT's accounts for each business area should be prepared and reported as though each was operating as a separate business.

At the same time the Director General has concluded that future interconnect agreements should be published, whether or not they have been the subject of a determination by him.

**Other Activities**

OFTEL also has several other responsibilities, some of which are technical in nature while others facilitate interaction between OFTEL, the public, and international activities.

**Approvals and Standards.** Although the Act gives responsibility for approvals to the secretary of state, he has delegated this responsibility to the Director General and to the British Approvals Board for Telecommunications (BABT). OFTEL is responsible for policy in general and for general and site-specific approvals. (General approvals cover equipment which does not require type approval testing but is certified as approved by a manufacturer's declaration. Site-specific approvals are approvals that are specific to a particular licensee at a particular location.) Type approval, which covers all other items of apparatus intended for connection to the public network, is handled by BABT.

Standards to which approvals relate are designated by either the Director General or the secretary of state. They may be national standards, or they may be drawn up by BABT for use pending the formal designation of a permanent standard.

**Numbering.** OFTEL is in the process of taking over responsibility for the administration of national numbering from BT, including the development of numbering conventions which will guide the use and allocation of numbers and a numbering scheme which will map out in broad terms the way in which numbers should be used in the United Kingdom both now and in the future.

**International Activities.** Under the Act the Director General is required to keep telecommunications developments outside the United Kingdom under review. This becomes important in the case of European Community (EC) legislation, much of which has implications for OFTEL activity. For this reason OFTEL follows the development of EC legislation very closely and advises the Department of Trade and Industry. OFTEL is then involved with the implementation of EC measures, which may entail new duties being given to the Director General.
Figure 37-1. OFTEL Organization Chart

DIRECTOR GENERAL

DEPUTY DIRECTOR GENERAL

BRANCH 1
- PTO Licensing and Competition
  - A. Licensing Policy and Competition
  - B. Cable and Satellite
  - C. Mobile Operators
  - D. Fixed Link PTOs

BRANCH 2
- Consumer and International Affairs
  - A. Private Networks and International
  - B. Apparatus Approvals and Standards
  - C. Consumer Representation
  - D. Consumer Affairs
  - E. Administration & Procedure
  - F. Dispute Adjudication

BRANCH 3
- Finance and Administration
  - A. Press Relations and Library
  - B. Advisory Committees
  - C. Finance & Administration
  - D. IT Unit

BRANCH 4
- Legal

BRANCH 5
- Technical

BRANCH 6
- Economics Accounting and Statistics
Public Register. The Director General is required under the Act to keep a register, open to public inspection, of all licenses issued and related orders. This is kept in the OFTEL library. In addition there are public registers of approved apparatus and maintainers.

Public Consultation. In carrying out many of its activities OFTEL engages in widespread informal public consultation, beyond that which is required by the Act. This always involves the advisory committees and often includes issuing public consultative documents and inviting comments.

Staffing, Financing and Organization of OFTEL

Like ministerial government departments, OFTEL negotiates the number of staff it requires with the Treasury (the ministry of finance) each year. The staff are then appointed by OFTEL on an individual basis. All staff other than the Director General and a few consultants are civil servants loaned from other government departments. They usually serve from two to four years in OFTEL before returning to their "home" departments. During their time at OFTEL their loyalty is solely to the Director General. Their conditions of service and pay are according to the standard civil service arrangements and are determined largely by grade, seniority, and performance.

The running costs and associated capital expenditure costs of OFTEL are provided by Parliament, but the Treasury receives back from the secretary of state a similar amount each year paid by the operators in license fees. Fee conditions are included in licenses and generally involve an initial fee and a variable annual renewal fee. Initial fees are based on the cost to the Department of Trade and Industry and OFTEL of preparing the licenses. Renewal fees are based on the estimated running costs of OFTEL and are related, broadly, to the turnover of the licensees. Thus, far and away the largest license fee is that of BT. This contributes about three-quarters of OFTEL's running costs which, in 1992–93, amounted to £8.0 million.

OFTEL is organized into six branches, as shown in the structure chart (Figure 37-1).

The 168 staff complement at 1 March 1993 has the following specialization.

1 Deputy Director General
3 Economists
1 Statistician
1 Accountant
10 Technical staff (i.e., electronics engineers)
3 Lawyers
3 Information officers
2 Librarians
22 Senior generalists
54 Middle and junior managers
68 Clerical, secretarial, and office support staff
168 Total
<table>
<thead>
<tr>
<th>OFFICE OR BRANCH</th>
<th>POSITIONS</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director General/Deputy</td>
<td>junior manager</td>
<td>1</td>
</tr>
<tr>
<td>Director General's Offices</td>
<td>clerical/secretarial staff</td>
<td>3</td>
</tr>
<tr>
<td>Branch 1 - PTO Licensing and Competition</td>
<td>senior generalists</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>middle &amp; junior managers</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>clerical/secretarial staff</td>
<td>7</td>
</tr>
<tr>
<td>Branch 2 - Consumer and International Affairs</td>
<td>senior generalists</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>middle &amp; junior managers</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>clerical/secretarial staff</td>
<td>34</td>
</tr>
<tr>
<td>Branch 3 - Finance and Administration</td>
<td>information officers</td>
<td>3</td>
</tr>
<tr>
<td>1. Press Office &amp; Library</td>
<td>librarians</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>clerical staff</td>
<td>4</td>
</tr>
<tr>
<td>2. Advisory Committees Secretariat</td>
<td>senior generalists</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>middle/junior manager</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>clerical</td>
<td>1</td>
</tr>
<tr>
<td>3. Finance, Administration and Information Technology</td>
<td>senior generalists</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>middle/junior managers</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>clerical, secretarial and office support staff</td>
<td>11</td>
</tr>
<tr>
<td>Branch 4 - Legal Advice</td>
<td>lawyers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>secretaries</td>
<td>2</td>
</tr>
<tr>
<td>Branch 5 - Technical Advice</td>
<td>engineers</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>clerical/secretarial staff</td>
<td>3</td>
</tr>
<tr>
<td>Branch 6 - Economics, Accounting and Statistics</td>
<td>economists</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>statistician</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>accountant</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>junior managers/clerical/secretarial staff</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>168</td>
</tr>
</tbody>
</table>
There are in addition four part-time specialist consultants. The senior specialist staff (such as engineers and lawyers) hold appropriate professional qualifications. The majority of senior generalists are career civil servants on loan to OFTEL mainly from the Department of Trade and Industry. The distribution of staff among the branches is shown in Table 37-1.

Branches 1 and 2 are the operational branches which undertake the tasks of advising on new licenses, license modification, and license enforcement in relation to the various categories of licensee. They also assist the Director General in carrying out his specific duties under the Act, for example, dealing with consumer representations. The large staff numbers in Branch 2 reflect this role. The staff in Branches 1 and 2 are general administrators, not specialists.

Branches 4, 5 and 6, respectively, the legal, technical and economic branches, are staffed by relevant specialists. They have an advisory role, directly to the Director General and to Branches 1 and 2. The number of lawyers is small. This is possible because such a high proportion of OFTEL's work is carried out informally rather than by formal legal process. The number of economists is also small, despite the large part economic regulation plays in OFTEL's work. The work of the staff economists is supplemented by considerable use of consultants, generally major accountancy firms, on individual studies.

Conclusion

The U.K. Telecommunications Act, as with most legislation in most countries, attempted to deal with many issues at the same time. Many of its features would not be appropriate for other countries because the latter's immediate circumstances are different. In one general respect, however, the Act can be recommended unreservedly. It provided a clear administrative framework and laid down broad policy goals. Within these there has been considerable and invaluable scope for the exercise of discretion by the secretary of state and the Director General.

This has enabled OFTEL to evolve over the years and to react flexibly to developments in technology, in the economy, and in the competitive environment. Much of the policy work within OFTEL is devoted to the development of new regulatory approaches and new administrative structures to meet the demands of a rapidly changing world. The legal framework of the Act accommodates this process without strain.

The final goal is that competition will develop to such an extent that regulation will be unnecessary, and OFTEL will be able to be disbanded. The tendency hitherto has been for increasing liberalization to require a larger rather than a smaller regulatory apparatus and for OFTEL staff numbers to increase. In those areas which were liberalized first and have been liberalized most completely, for example, private networks licensing, however, staff numbers have been declining for some years and the decline is set to continue. Under the present regime there is little doubt that this will become the dominant tendency before long and, as well as liberalization, telecommunications deregulation in the United Kingdom will genuinely be on the way to being achieved.
Part VIII

Conclusion: Strategic Issues of Implementation
The Allocation of Property Rights and the regulation of competition are fundamental economic and political tasks of the modern state. This is particularly so for the infrastructure of society, including the rationalization and development of transportation and communications networks. Indeed, the oldest international organization, the International Telecommunication Union (ITU), has its roots in the mid-nineteenth-century agreements in Europe to expedite the exchange of telegraph messages between countries. Each national market was largely a monopoly (frequently owned and operated by governments), and national monopolies worked together to invest jointly in the facilities needed to provide international services across national borders. ITU regulations provided a framework for dividing revenues among countries for international services, working out common technical standards and indirectly limiting new entrants into the market. These arrangements presumably exploited the economies of scale and scope possible in the development of a network for universal service. They also made it easier to cross-subsidize consumer households and rural areas.

So powerful is the idea of natural monopoly that history was even largely rewritten to reflect its premises. Supposedly, only national monopoly permitted the extension of local services by virtue of subsidies from money-making long-distance services. But in countries such as the United States and Canada, and many nations in Europe, a careful reexamination of the historical record shows that local telephone companies were thriving under competition prior to the period of monopoly. ¹ In fact, the AT&T system used its patent monopolies for long-distance technology to squeeze local competitors out of business for local telephone service. And many state monopolies were so poorly run that competition might have yielded more service even without optimal economies of scale. The central point is not whether monopoly was the optimal system for telecommunications or not. Rather, the record shows that alternative ways of organizing telephone systems were available. Even if these alternatives to monopoly were not optimal, they would not have collapsed.

Most accounts of telecommunications development and regulation largely ignore the politics of the development of monopoly systems. It is vital, however, to be aware
Implementing Reforms in the Telecommunications Sector

of the ways in which the political roots of the current telecommunications system have been lost from sight. Today, countries are faced by new choices over the organization of their telecommunications system. A simple investigation of the elasticities of supply and demand, the optimal pricing system, or the best plan for the development of new regulations fails to appreciate many of the forces that will decide the next form of organization for national and global communications systems.

This chapter sketches the beginning of a theory of the regulation of telecommunications systems in developing countries. It argues that the structure of political incentives and political institutions in each country powerfully shape how the country will reallocate the property rights and reorganize the regulation of the communications system. Brief examples from Canada, Japan, and Singapore illustrate the argument, and short case studies of Mexico and Argentina spell it out in more detail. The chapter has four parts. First, the common dimensions to the challenges to the current telecommunications systems around the world are noted; technological innovation has made the existing distribution of cost and benefits from traditional monopoly problematic to constituencies that are present in virtually any country of any economic sophistication, including many of the developing countries. Second, the chapter argues that the crises concerning the distribution of cost and benefits have no unique solution. It sketches out several major alternatives available for reformulating telecommunications policy. Third, the chapter suggests how the structure of national political institutions shape countries' preferences concerning reform. Lastly, the argument is developed in relation to Mexico and Argentina.

The Constituency for Change

Developing countries face a double dilemma. They have yet to complete the expensive and logistically difficult task of providing high-quality basic services to large parts of their population, while many are strapped by foreign debt problems that make public financing difficult. At the same time, they have clients demanding even more sophisticated services on new commercial terms. These clients are both multinational firms and domestic commercial enterprises that are starting to become significant global competitors with increasingly sophisticated communication needs. The double challenge of universal service and advanced services makes upgrading the network imperative. But the political story of telecommunications is that large users are highly suspicious of traditional government monopolies.

The growth of digital technology in the telecommunications industry moved one group of players, the large users of telecommunications systems in the business sector, to reexamine the workings of the telecommunications regime. From the viewpoint of these customers, reorganizing monopolies to operate on a commercial basis and introducing some form of competition in the telecommunications system have several virtues. First, in developing countries the users want assurances that operating surpluses from long-distance services are used to upgrade the network overall. Traditional monopolies often spend the money on vested interests without achieving significant modernization. Second, competition provides the large cus-
A third reason an increasing number of major users favor moving away from traditional monopoly supply of telecommunications services is that they want to leverage their own products and services by providing information services as a supplement to their main lines of business. For example, manufacturing pharmaceuticals is one line of business, providing an information service to order, inventory, and handle billing for those pharmaceuticals is a second business. This is more easily done where there is at least some competition in the telecommunication system. In particular, although users may not want to become telephone companies in themselves, they want the freedom to repackage and supplement standard telecommunications services with their own specialized services. This means in turn that they want to be able to buy the basic technological capacities of the telecommunications networks on a competitive basis and without restrictions on the elements from which they may pick and choose. They also know that in many cases they will get better service at lower prices from their own individual perspective if they can pick and choose among competing communications infrastructures.

Lastly, major customers want better accountability from their telecommunications carriers in an age of the technological innovation. No company truly trusts government regulation in itself to provide adequate oversight over increasingly complex telecommunications networks. In the old days simply knowing if a telephone could be installed, whether it would work, and how much it would cost was enough to regulate the industry. Even then, regulation was far from perfect. In an age of information infrastructure, it is hard even to know what the products are or what their cost structure is. Only competition can help sort this out. Moreover, even efforts to streamline regulation, such as price caps for telephone services, have their own dilemmas. Should there, for example, be compulsory reinvestment in modernization of the network if a company earns massive profits by cost savings under price caps? More general competition at least allows customers to know that there will be some competitive incentives to modernize the network.

Indeed, perhaps the most important innovation in the regulation of communications technology since competition—namely, the introduction of open network architecture (ONA) and its equivalent in other countries—is a testimony to the attractiveness of private regulation of the communications network. In one sense ONA allows customers to get involved in the design of the network of the future. This is all the more critical to customers because the very architecture of the network of the future is in question. Although there are many blueprints for the future, of which the integrated services digital network (ISDN) is the most prevalent, new technologies raise fundamental questions about even the delivery of local telephone services. For example, personal communications network (PCN) technology opens the possibility of wireless networks challenging the standard wired telephone network in the future. One can easily imagine that a combination of cable television services with PCN cells might well be a rival to the conventional telephone network.
Implementing Reforms in the Telecommunications Sector

The point is not that users necessarily favor one technology over another. They have such a large stake in the overall telecommunications system that they simply do not want the wrong sort of architectural choice to be made. The special dilemma for public policy is that the right choice from the viewpoint of these large business customers may not be the best choice for the welfare of the country as a whole. Thus, the real moral to the story is that telecommunications carriers and large business users are forcing the series of ever more difficult choices upon public policy. This is reinforced by the growing significance of the drag on the economies of industrialized countries by incomplete universal service.

The Alternatives for Change

There is no unique solution for sorting out the path of change for telecommunications. National policymakers have enormous latitude in how they choose to mix and match policy reforms. But it is useful to have some benchmark by which to compare national policy outcomes. For purposes of simplicity, a fivefold typology of policy alternatives is proposed.

Monopoly Modernization

Countries can elect to modernize the existing monopolies. The model for this strategy is Singapore. Whether the old telecommunications system was a cash cow for the national treasury or a black hole for subsidies from the national treasury, many governments have decided that the financing and upgrading of the national telecommunications network require significant restructuring and rationalization. Investment is significantly stepped up in improving and extending the central public network. Financial benefits are passed through primarily to the users of the system, especially large users. Labor and equipment suppliers are upgraded in quality and efficiency, but they may not be thoroughly rationalized. Some selective competition may be permitted, but the biggest assumption is that the public network will be sufficiently universal and sophisticated to discourage competitive entry.

Modernization requires new devices for introducing innovative management, better regulatory oversight, and raising large amounts of investment capital. But better regulation and innovation are very difficult when fundamental management incentives remain unchanged. Privatization (including foreign ownership) may be one such modernizing device; the creation of independent regulatory agencies may be another. But there are reasons to wonder if they are enough.

Multiple Monopolies

Some countries are implicitly moving toward a multiple monopolies model. This wrinkle on monopoly tries to retain a largely monopolistic system, but it splits up territorial service jurisdictions for the monopoly so as to use the monopolies as yardsticks for checking on each other. Argentina, Hong Kong (until the Cable &
Wireless purchase of Hong Kong Telephone, and Canada illustrate the idea of multiple monopolies. In theory, one might in the same way use new overlay networks, that is networks requiring specialized new infrastructure in addition to the common public infrastructure, as in cellular systems. In practice, however, most countries introducing overlay networks are making them competitive.

**Competitive Enhanced Services**

Some countries endorse the distinction between monopoly of basic services and competitive supply of enhanced services. This is a direct descendant of U.S. regulatory policies until the end of the AT&T monopoly. Presumably this speeds innovation and lowers prices for the most sophisticated users. It also gives the major telephone company an incentive to boost performance in order to claim a stake in these attractive new market segments. The trick to this approach is defining what constitutes enhanced services. In the case of the United States the definition was quite elastic because it said anything that was not part of basic services (however vaguely defined that was) was enhanced. Most countries have entered the realm of this distinction much more cautiously by developing positive lists of enhanced services. Of course, services change so quickly that it is almost impossible to have an adequate positive list of enhanced services, except as a temporary form of protection. Even if the problem of listing is resolved, this approach requires significant new policies concerning the transparency of network architecture and the rights of interconnection, which are very hard to work out.

**Reserved Services**

The problems of maintaining a distinction between basic and enhanced services drove the European Community (EC) to the reserved services model. The EC model turns the tables on the enhanced services model by saying that the only monopolistic services should be those that are explicitly reserved. Thus, it is monopoly (rather than competition) that requires a positive policy decision. This has the virtue of focusing attention on a much more easily defined subset of services which may require monopoly in order to produce sufficient economies of scale and scope. But it is not a panacea.

The European Community has struggled over which services should be reserved. Several member countries would prefer that packet-switching networks be monopolies even though they are treated as enhanced services elsewhere. Others would like new services such as facsimile networks to be reserved. They argue for these reservations in order to maintain a broad range of universal services. The crucial struggle is over what should be the definition of universal services. The Community currently favors a more expansive definition than does the United States. It is interested in developing guarantees of modern information services for households whereas the United States tends to believe that this is best left to the marketplace,
Implementing Reforms in the Telecommunications Sector

with perhaps a small helping hand from government. The real issue then becomes how fast and ambitious must the spread of these new information services be.

In addition, the European Community largely treats overlay services as a separate category. For example, new selective network capabilities such as cellular telephones and personal communications networks will be delivered by a small number of competitive licenses. But some of these specialized new services may start to overlap with the capabilities of either reserved services or nonreserved services. In particular, the growing capabilities of wireless networks raise serious questions about how to evaluate traditional telephone franchises.

Full Competition

Countries such as the United States, Japan, the United Kingdom, New Zealand, and Australia are embracing a model of widespread competition. The basic logic is to allow competition among many providers of network facilities on a full range of network services. These countries differ in how they have at least temporarily reserved some areas of the network for monopoly while providing for general competition. For example, the United States made local telephone services a monopoly while long-distance services were competitive. Britain until recently limited the number of long-distance competitors to two. Japan permits competition in both local telephone services and allows multiple long-distance networks; however, the administrative bureaucracy of Japan carefully oversees the total number of entrants into the market in order to manage total network capacity, which in turn reduces downward pressure on prices and allows the government to manipulate the extension of services by its licensing decisions.

In short, no model is without problems. All approaches to policy change retain significant discretionary power to allocate property rights for entry and operation in the market, even in unregulated market segments.

Developing countries have a wide range of choices when they consider departures from traditional communications policies. The question is not monopoly versus competition, but rather which types of reform of monopoly and competition are best for what purposes. The next section lays out the beginnings of a general theory of why different countries chose different telecommunications sector models.

Political Institutions and Policy Incentives

Political scientists have concluded that the key determinants of the policy outcomes in countries are institutional and electoral. The political institutions and constitutional rules of a country shape and constrain what actors want and what they can get. Many of the problems and special interests concerning telecommunications policy are similar in any moderately advanced country, but how those interests are balanced change enormously according to the nature of the political institution. Electoral incentives refer to the rules for the advancement and retention of power (even if the country is not a democracy).
Institutions alone do not tell us about the everyday preferences and incentives of the political leaders of a country; yet this leadership is important, indeed vital, even in countries with strong and highly professional bureaucracies. Political scientists increasingly agree that bureaucracies operate under a system of elaborate checks, balances, and incentives created by political leaders. A hidden hand of political control exists even where bureaucrats appear to operate largely on their own reckoning. (This is no different than the way in which the chief executive officer of a large corporation shapes the incentives and controls over his many divisions even though he often has no knowledge of their detailed workings.)

Political leaders are responsive to the basic incentives for how they are selected and how they can exercise power. The study of these political incentives is easier in democracies because the ground rules for the competition and control over power are established by electoral systems. It is harder to figure out the structure of incentives for political leadership where elections either do not take place or their meaning is substantially less important because of other political controls. The purpose in this chapter is not to resolve all these questions, but rather to use a few cases to illustrate the variables that shape the choice of telecommunications regulation.

Recognition that political institutions shape policy choices allows us to make judgments about why, for example, permitting a telephone company to remain a monopoly may have a different implication in a country like Singapore than it does in a country like Argentina. The answer is that the types of political structures and incentives differ in the two countries and so the rewards or the incentives for the monopoly may differ, even though the form of ownership is the same.

In short, political leaders understand how their political institutions change the incentives of the owners of their national telecommunications systems. This underlines a fundamental policy lesson: identifying the model of telecommunications regulatory and ownership system prevailing in a country is only a first step; the second step is to understand this model within the context of the political institutions and incentives of that country.

The case of monopoly modernization in Singapore illustrates this point well. Singapore has a parliamentary system with strong centralized leadership, and it is a small country. Thus, we would expect coherent and centralized policy which (paradoxically) can give skilled bureaucracies considerable latitude in policy implementation. Close political oversight and monitoring of major public bureaucracies will not disappear, although extensive overt control will wane. This is precisely what has happened when the Telecommunication Authority of Singapore retained a government operating monopoly as well as policymaker. It modernized with a vengeance to satisfy international business and local constituents. Although the economies of this strategy had unique advantages in Singapore, the real key to the strategy was effective accountability. A careful examination of the board controlling Singapore Telecom shows strong input from the government ministries charged with attracting global businesses, especially the powerful Economic Development Board. Moreover, there was indirectly a second monopoly, Cable & Wireless in Hong Kong, by which to measure its performance, because the
bulk of Singapore's telecommunications revenues were from international operations. Singapore Telecom was under instruction to match Cable & Wireless on service rates and terms for connection to Tokyo irrespective of the greater distances from Singapore. In short, the telephone company had an unambiguous mandate (to please global business) and a degree of informal but effective political monitoring that is hard for most governments to match. Thus, its incentive structure was appropriate because of the political institutions of Singapore.

The general argument about institutions and political incentives can be explored by focusing on three variables. (All of the following propositions, assuming all other things being equal, tell us the incentives for behavior, but the details of the case are always vital.)

Division of Government Power

The first variable is whether the political system is presidential or parliamentary. Parliamentary systems have no division of control over the government. Therefore, the ruling party and its prime minister can effectively control all parts of government. Party discipline in the legislative means that the majority party cannot prevent the political will of the majority (within broad limits). Therefore, we ought to expect that policy in a parliamentary system will be more coordinated and more centralized at the national level than in other types of democratic systems.

In contrast, presidential systems must deal with the division of power between the executive and the legislative. Particularly when the division arises from different parties controlling each branch of government, there can be a pronounced tendency toward political and policy stalemate. In addition, the struggle over power between the legislative and the executive reduces the national bureaucracy's degree of independence of initiative and willingness to take strong leadership. The legislative and the executive seek to check each other's power over the bureaucracy and thereby lead to a bureaucracy that is far more constrained by formal checks and balances than in a parliamentary system.

Voting and Party System

A further variable of importance is the type of voting system. For example, the U.S. Congress features a single member per district in which the majority wins all. Other election systems apportion multiple members per district according to their percentage of the vote. These esoteric differences strongly influence the political reality of surviving and advancing politically in these countries.

For example, the Japanese voting system features what is called the single, nontransferable vote for the election of three to five representatives per district. In practice, this means that each member of the Diet wins by cultivating a very small intense base of voters in his or her district. There is simply no effort to win a majority of voters, and as a result the members of the Diet have almost no interest in establishing broad policy positions on issues. They are far better served by emphasizing very narrow favors for their devoted supporters. This is one reason why
protection of industry is so much more popular among Japanese politicians than pro-consumer policies. If one combines the electoral system with long-standing rule by one party and a parliamentary system one would expect, and one does find, that Japanese telecommunications reform has some distinctive features. Introduction of full competition is less disposed to significantly alter winners and losers than in the United States. (After all, the Liberal Democratic Party (LDP) has the same electoral base—it is only fine-tuning it). Moreover, the policy shows much greater reliance on centralized bureaucratic guidance to fine-tune the results of competition than in a presidential system with rotating party rule as in the United States.

**Degree of Federalism**

Finally, the degree of federalism of the country matters. Some countries are highly federalist, such as the United States, and others have virtually no federal structure. Some countries which formally look federalist, like Mexico, may have much lower degrees of federalism in practice because virtually all key ruling officials at the local level are nominated by the national political party controlled by the President. Nonetheless, we expect a federal structure to have more decentralization of policy than a nonfederal structure.

Canada combines a parliamentary system with a strong form of federalism. The result is a fascinating hybrid in its traditional form of telecommunications regulation. For example, there was virtually no formal regulation of its monopoly long-distance carrier, Stentor. Stentor is jointly operated by the provincial and regional common carriers, and it remained unregulated because there was a de facto unit veto by each individual carrier, which was in return subject to oversight by its province. This peculiar pattern of hidden regulation nicely reflected the priorities of federalist politics in Canada. But, as one might expect in a parliamentary system, the growing national importance of telecommunications policy is leading to a substantial recentralization of decisionmaking.

In summary, the way in which power is divided in the national government, the form of electoral and party system, and the degree of federalism strongly influence the choice of telecommunications policies. The argument can be illustrated in more depth by concentrating on two Latin American countries with presidential systems: Argentina and Mexico.

**Presidential Systems and Telecommunications Reform**

Latin American governments largely have some form of presidential system. The traditions of one-party rule and military intervention have often modified the normal impact of presidentialism. But it can be argued that the differences between the political structures of Mexico and Argentina made for important policy differences in the road to privatizing and permitting foreign ownership of the telecommunications system.
The Case of Mexico

Presidential systems tied to a federalist structure normally have a hard time coordinating policy. They tend toward decentralization both within the central government and from the central government to local governments and the marketplace. But some factors can modify this tendency to fragmentation. If the electoral system and the existing distribution of power among parties does not pose a significant degree of competition for control of the presidency and the legislature, then there will be less fragmentation. If political parties in control of the central government also have effective control over the choice of offices for regional and local governments, then the effect of federal structures will also be less pronounced.

Mexico, in recent years, has seen the apex of the consolidation of presidential power. But this same consolidation of power was tied to an effort to renovate the political base of support for the Partido Revolucionario Institucional (PRI), the controlling political party. This, in the longer term, may lead to a decline in the coordination of policy. In the short term, it has led to policy which is more willing to change the way the benefits from the major regulated sectors of the economy are distributed. In short, Mexican telecommunications policy exhibits strong centralized coordination, a willingness to redistribute who wins and loses from the policy, and a strong mobilization of policy to reinforce the political realignment of the base of support for the PRI.

The privatization of TELMEX, the introduction of some competition for overlay services, and the fundamental redirection of management practices and commercial policies all reflect the strategy of the Salinas government and thePRI. They favor the middle class over traditional labor, and export-led businesses over traditional manufacturing. Above all, the case shows how the political structure of Mexico permitted effective restructuring of the telephone company before privatization.

Structure of the Mexican Government

The presidential system of Mexico is unusual because a single party, the PRI, has ruled continuously since the 1930s. Many terms describe the PRI—authoritarian, populist, mass mobilizing, and mass patronage—but all draw attention to the party's effort to organize the major parts of the Mexican electorate into an elaborate institutional complex and to its highly centralized control over all nominations of candidates for the party. The President of Mexico is the head of the PRI. By constitutional rule, the President and all elected officials in Mexico can serve only one term. The President is chosen for all practical purposes by the previous President in consultation with the senior party leadership. (The Salinas government instituted a formal rule that 150 senior party officials would officially be chosen to consult with the President.) There were absolutely no formal guidelines concerning who and on what terms the President consulted, but presumably, the President could not simply choose randomly or else the normally passive party would fail to ratify the choice of the candidates. In practice, every presidential nominee of recent years has come from
the current cabinet. And because the cabinet ministers represented the political factions of the PRI in their personal bases of power, there was a good deal of infighting at the cabinet level.

Although the last few Presidents have never held a prior elected office, they all were veterans of the PRI internal political system. The emphasis on technocrats in recent years partly reflects the belief of the party elite controlling the presidency that fundamentally new skills are necessary to turn around the Mexican economy and save the PRI's political future. It is probably also true that the emphasis on technical qualifications is one way of showing that the new Presidents are not part of a system often associated with corruption and favoritism. Moreover, the cabinet as a whole is probably more cohesive than in the past as the de la Madrid/Salinas wing of the party tries to solidify control.

The PRI was organized internally around an elaborate system of formal interest groups representing such sources of support as agricultural workers, government employees, and small business. Perhaps first among equals was organized labor. Traditionally, PRI policy was worked out by bargaining among the various interest groups within PRI and the major regional political leaders.

The unusual power of PRI to organize all branches of the government came in part because the power over nomination of candidates was tightly held in closed hands. The PRI at the national level nominated all congressional candidates. The local mayor was nominated for all practical purposes by the senator from the state. As a consequence of being limited to only one term of office and tight central control over nomination, the legislative wing of the PRI is quite passive compared to a normal legislative branch of a presidential system. The implication for existing and future political reforms in Mexico is that the number of opposition legislators will grow. This will lead to an increased role for the legislature and probably more independent behavior by the PRI members inside the legislature (although they still have fewer incentives to act independently because they are not seeking reelection).

The federal structure of Mexico offers some incentives to articulate policies which speak to special regional interests in the federal system. Local governments in Mexico in theory have considerable power. There is some evidence that they have served as sources for independent power bases within the PRI and are the places where the opposition parties will make their first and strongest mark. Although the national government retains the right to dissolve any state government it finds lacking, any sweeping reform of the telecommunications system should reflect regional political calculations.

The final piece of the political story of Mexico is the effort by the PRI to realign its political support. Traditionally, the government relied upon a policy of import-substitution industrialization to win the support of labor unions, heavy industry protected from foreign and local and much of the domestic competition, and small business. Nationalism was a major theme, and the policy of sharp limits on foreign investments in Mexico reflected the salience of nationalism. Heavy government spending on social welfare programs and many large subsidies for state-owned corporations were other measures to win popular support.
The economic crisis caused by the decline of oil revenues and the growth of foreign debt finally forced the PRI to reexamine its priorities. Economic performance was poor and popular discontent was growing. (There had already been a wave of political crises in 1968, but growing oil revenues temporarily saved the PRI. Now oil could not bail out the PRI.)

The PRI responded by fundamentally changing its economic priorities and therefore its political priorities. It decided to emphasize competition, privatization, and an export-based growth strategy for the economy. Tight fiscal and monetary policies to control inflation and stabilize public finances were also part of the package. The government intended to cut spending and boost revenue. This meant ending many subsidies and, just as important, it meant finding new sources of revenues. One important source of revenue was the sale of public assets, particularly the major state-owned enterprises.

The strategy was potentially attractive to a new mix of supporters for the PRI. Agriculture was declining in importance in Mexico. Labor unions could no longer be wooed with traditional subsidies for inefficient enterprises because the costs to the economy were too high. Large businesses could no longer be compensated for the highly constrained regulatory environment of Mexico by simply offering them quasi-monopolies. Instead, the Salinas government decided to make the very rapidly growing number of professional and white-collar workers (many of them the product of the development of the Mexican educational system and the oil boom) major sources of support. It also hoped to gain new support from business by emphasizing the growth of large industry and companies in a freer market in return for fewer forms of protection. This policy was explicitly designed to outmaneuver the Partido de Acción Nacional (PAN), the right-wing opposition party. It was prepared to accept some losses of support from labor in the short run (although the PRI strongly controlled the unions and so the unions themselves were unlikely to defect), in the hopes that sustained economic growth and low inflation would eventually make union workers once again happy with the government. The strategy also explicitly recognized that many of the long-term sources of political challenge to the PRI were coming from the northern states of Mexico closest to the U.S. border. A successful strategy would provide reasons for these states to see the PRI as a champion of their interests instead of being the protector of Mexico City at their expense.

The Choice of Telecommunications Policy

The leadership of TELMEX readily acknowledged that the telephone network needed substantial new investment. During the 1980s the company had cut back its rate of growth from 14 to 6 percent per year, and Mexico had fewer than 5 telephone lines per 100 people. Domestic service reached only 18 percent of the homes, and 10,000 rural communities were without service. The company in 1988 had revenues of about US$3.5 billion and 50,000 employees. Its labor union was one of the strongest in the country. To a large extent the company was being used as a cash cow for the government and its constituents. At the same time, bickering was endemic...
between the telecommunications and transport secretariat and TELMEX. The secretariat controlled, for example, the Morelos domestic satellites and the state-owned microwave network. Thus, in some sense the secretariat was in competition with the company that it regulated.

The Salinas government recognized that it needed new sources of revenue to clean up its budget problems and provide monies for social welfare programs during a general austerity economic policy. It also wanted to find some way to quickly improve performance of a government-regulated sector for the middle class in industry in order to show that its reform policies could bring quick results. Presidents de la Madrid and Salinas chose to make a major effort to privatize TELMEX. Because the President of Mexico controls the PRI and PRI has such extraordinary control over the political leadership of all branches of government, it was possible to move decisively to change communications policy.

The fundamentals of the changes were several. First, there was a process of administrative reform in regulation. The secretariat of communications was taken out of the business of providing services in order to become a more pure regulator. Second, by 1988 the government began a serious restructuring of TELMEX's internal bureaucracy, service priorities, financing, and pricing of its operations. It did so in anticipation of making the company a more attractive asset for sale. Instead of relying upon privatization to remedy TELMEX, the government decided to begin the remedies early on to show that it was serious about allowing TELMEX to grow in an economically efficient manner. Third, the government chose a strategy which combined full privatization involving foreign investment with a strategy of enhanced services and overlay networks.

The sale of TELMEX, on December 20, 1990, involved 20.4 percent of its class AA stock, which, although a minority of total equity, amounted to the majority of all voting stock and thus conferred management control to the purchasers. The price was US$1.758 billion. The majority (51 percent) of the consortium which purchased TELMEX is owned by Grupo Carso (a Mexican company is required by law). The minority is held by a partnership of Southwestern Bell and France Télécom. TELMEX was to remain a national monopoly for basic telecommunications services for six years, including international long-distance services which yield most of its profits. It was given explicit permission to enter into all new forms of advanced telecommunications services through separate subsidiaries. It also holds a national cellular license.

The new ownership has also received major tax concessions which reduced the previous tax rate of 39 percent on local revenues and 40 percent on long-distance revenues. This had already increased income per line from US$425 in 1989 to US$800 in 1990. In addition, the government approved considerable rate rebalancing and introduced something like a price cap which would guarantee a predictable flow of income for the telephone company and price protection for consumers for the next eight years. In return, the new ownership had to undertake a number of pledges. This included increasing the number of new lines by a rate of 12 percent a year, extending service to numerous small communities without
Implementing Reforms in the Telecommunications Sector

telephones, undertaking a massive investment program of US$12 billion, increasing service quality as measured by a set of indicators set down in the contract, and meeting explicit goals for introducing digital switching and optic-fiber networks. In addition, the new owners had to agree to protect labor, including the rights of workers and their economic participation in the new TELMEX, by means of the 4.4 percent of stock allocated to them from the new privatization. (Assuming that TELMEX does well, workers should be able to share in the success.) But much of the labor renegotiation, including a reshuffling of union leadership, had been done prior to privatization.

The structure of competition emphasizes the broad monopoly of the basic public network until 1997. Mexico, however, has granted nine new cellular licenses to competitors of TELMEX and roughly thirty other licenses for paging and other services. Foreign firms may own up to 49 percent of these ventures. As one might expect, many of them are located in industrial regions along the border where there is strong demand for a quick improvement in services from the network and more formidable political opposition locally. It permitted companies to establish private corporate satellite networks over the Mexican national satellite system. Although it has also permitted PanAmSat to establish video services, it has so far rejected two-way digital services.

One last point should be made about the choice of privatization strategies. Because Salinas could take his time in introducing change and make it part of a broader set of policies to revitalize Mexican financial markets, already one of the best developed in Latin America, he was able to reap a special benefit from telecommunications policy. We can call this the "Nippon dividend" in honor of its inventors, the political leaders of Japan's Liberal Democratic Party (LDP), who figured out that properly managing privatization is a financial bonanza for political supporters. It provides the government with funds for specific public works projects (Salinas travels to towns telling people that local projects were paid for by the sale of a state company), and it gives the middle class a big financial dividend through stockholdings. Forty percent of TELMEX stock is reserved for Mexican nationals; the value of the stock has appreciated considerably since privatization. A stock certificate in every household is almost as good as a chicken in every pot when the company is a well-financed monopoly whose new ownership structure assures that its incentives are largely business expansion, not distributive politics.

The Case of Argentina

The Argentine case shows how political dynamics can alter the timing and objectives of reform and possibly compromise some of the normally preferred strategies for restructuring the communications sector. In particular, unlike Mexico, Argentina could not restructure effectively prior to privatization.

Argentina has a presidential system with an independent legislature (a Chamber of Deputies and Senate with relatively equal powers) and a federalist structure: provincial governors are powerful, there is an electoral college for the President, and
presidential nominations are strongly influenced by provincial leaderships. Presidents may serve only a single term (of six years). As a general rule, policy coordination at the national level is more difficult in presidential and federalist systems. Political party structures may make these problems better or worse, and the extraordinary role of Peronism made it worse.

The Peronists won every free election (they were forbidden to participate in some) for some forty years until the 1983 election of the Radical Party candidate, Raul Alfonsin. The Peronist party itself was a vehicle for organizing support for the authoritarian rule of Peron in his initial term in office by creating a corporatist structure of interest groups, especially the labor unions and implicitly import-substitution industries, such as the state firms that were vastly overstaffed and paid well. Corruption was rampant. About 117 state-owned companies represented almost half of the GNP, and 30 percent of their budgets came from budget subsidies. After Peron's personal control declined the corporatist structures and provincial party bosses largely dominated the party, locking it into support for continued patronage and subsidy policies. Their dominance also further reinforced the traditional struggle between agricultural exporters (wheat and cattle) and labor.

Argentina struggled with a multiparty regime subject to frequent bouts of nondemocratic rule. Apparently, the lack of continuity of democratic politics fueled factionalism built around provincial party leaders and made policy innovations difficult to achieve. But the 1983 election (following the end of the fourth period of military rule since 1945) redefined the political landscape. The Radical Party (traditionally a social-welfare party in the European fashion) rallied around Alfonsin's new agenda for the party, the promotion of stable democracy, and won over much of the traditional third-party votes for center-right candidates. This turned Argentina into a two-party democracy for the time being and suggested that voter loyalties were volatile.

A further shift in the electoral system was occurring because of demographic change. The continued decline of Argentina's economy had shrunk the ranks of union workers, left the numbers of the middle class about the same, and greatly increased the numbers of self-employed in the formal and informal sectors. Although analysts disagree on how to categorize the preferences of the self-employed, all agree that labor unions do not represent them and their preferences differ from traditional Peronist policies because traditional industry does not support them. At the same time, the economic crisis had highlighted the declining performance of the public sector on other counts. The poor performance of ENTel, the state telephone company, offended large customers such as banks and everyday consumers in the middle class who could not get telephone service.

The 1983 election made both parties aware that some new mix of policies was necessary to attract the middle class and the self-employed. Because of the dual problems of inflation and foreign debt, almost no policy mix could primarily appeal to both the unions and to these groups. So, winning support from export agriculture and the pro-market wing of the business community seemed more attractive for coalition building. Accordingly, the new focus of electoral competition has come in programs to cut inflation, to emphasize jobs by export-led growth, and to privatize.
Implementing Reforms in the Telecommunications Sector

state industries, making them more efficient, lowering the financial drag on government, and above all slashing the foreign debt.

As electoral competition under democratic guidelines became more routinized, the electoral rules started to open the possibility of somewhat greater party discipline. The provincial leaders are still vital in the struggle for nomination and election to the presidency. But the national party controls who may run for the Chamber of Deputies, a powerful source of central political control. (The Senate may be more fractious because the terms run for six years.) Thus, one should expect more organized party behavior in the legislature than in the past, which means that significant policy changes will almost surely depend on one party’s controlling both branches of the legislature.

All other things being equal there should also be greater sensitivity to regional variations in interest in a federalist system. The political party in power should define many of the secondary characteristics of policy. For example, Peronists should be more pro-labor and more concerned with protecting local industry with the boundaries of the general new program.

The Transformation of ENTel

The Alfonsin administration initially concentrated on normalizing ties with the military and coping with inflation and foreign debt. Its economic stabilization programs failed, and it turned to privatization of state enterprise as a chance for some favorable economic outcome. This was particularly urgent because it lost control of the legislature in the 1987 elections and had to prepare rapidly for the presidential race of 1989. Under the circumstances we should have expected the Radical Party program to put a premium on a quick sale of state properties to slash debt and bring immediate benefits to the middle class and business supporters (such as the banks). It would also have been expected to care less about labor and local and state industrialists than the Peronists.

What the Alfonsin government did not do is significant. Under the 1956 law governing ENTel, the President of Argentina had effective control over ENTel. Not only did he possess official final authority, he also controlled the appointment of the Ministry of Communication subsecretary who served as president of the ENTel board. The company had a debt load of US$2 billion and the government subsidy per new installed line was about 50 percent. So this was a badly financed cash drain with bloated staffing (45,000 employees).

One alternative would have been to entertain monopoly modernization by order of the President. In 1987, seventeen banks joined together to push for new network facilities in Buenos Aires, preferably by a new private operator. The government could have used this as the opening wedge to push for readjusted rates, realigned labor practices (remember that labor mattered less to the Radical Party), and stepped up investment. But this program had several political defects. It cost money just when stabilization and cutting foreign debt were the priorities. Just as vitally, there was no guarantee that continued public ownership would consistently yield reform.
policies precisely because the office of the President controlled the company. A Peronist victory could have reversed monopoly modernization by a simple directive of the President. (In most presidential systems the current ruling government is likely to suboptimize policy in order to lock in its benefits for its supporters.)

In 1988 the Alfonsin government proposed to privatize ENTel. Its chosen vehicle was selling the company as a single entity, to Telefónica de España. Telefónica was to receive management control and 40 percent of the stock, with 9 percent going to employees and 51 percent to the government. Telefónica was to pay US$750 million: US$250 million for foreign debt relief and US$250 million for investment in the system in the first year. The remainder was due to be spent over thirty months. This total figure was about US$250 million less than the estimated net worth of ENTel seemed to justify. Telefónica was to receive an exclusive twenty-five-year license, and was free to realign and rationalize equipment suppliers for ENTel in order to lower costs.

This package had the virtue of delivering a quick investment of money and new services by virtue of its payment schedule. It also promised a decisive administrative reform. The opinion polls indicated that discontent with ENTel was very high, especially among the middle-class and commercial farm regions that were the Radical Party's electoral base. Privatization and sale to a foreign firm also would make it harder for the next administration to reverse its policy.

The package soon stumbled, however, because the Peronists acted coherently to take advantage of the Radical Party's minority position in the national legislature. Peronists appealed to their traditional constituents in the unions, the large equipment suppliers to ENTel, and other state enterprises. Union strikes were called to oppose the plan, for example. The attack emphasized two issues: first, the negotiation with Telefónica had violated the public bidding process required by law and second, the government was hastily awarding a valuable monopoly to a foreign company. The opposition strategy was carefully orchestrated to leave room for privatization at a later time, when the Peronists controlled the government and could fine-tune the terms as well as claim the popular credit. There was no formal rejection of the bill, simply delay until Menem won the election.

In 1989 the Peronists won the presidential and legislative elections. The legislature quickly gave the President virtually carte blanche to privatize all state companies except the petroleum corporation. The only consultation with Congress required was through a bicameral commission which had no specific powers. But party unity in presidential systems is usually imperfect. So, the President had to act early in the term when his political stock in his own party was highest. Menem did so by relying on presidential decrees and a very tight time schedule for privatization (fourteen months in all). This schedule, for example, gave companies contesting the franchise awards only one week to protest!

As one might expect, the President chose a strategy to avoid his own criticisms of the prior policies and to find a new base of political supporters. The highlights of the new policy were an open auction process and the breakup of the single national monopoly. The policy itself was implemented by a key member of one of the third
Implementing Reforms in the Telecommunications Sector

parties most associated with free-market policies. The ENTel privatization became the symbol of the government's effort to attract these swing voters. Above all, Menem wanted to sell the company quickly to reform it. The government secondarily needed cash to meet the huge debts being run up by ENTel. Later, to build political support, it was also critical to show that Menem could make progress on reducing the strain on public finances by easing the servicing of the foreign debt. Therefore, Menem began to push for a high component of debt relief in the purchase package. At the same time, he worked hard to split the unions so that some factions of the union movement endorsed privatization on the (presumably) less stringent terms of his government. He also obtained a new antistrike law and used troops to man the telephone system when a major strike finally came.

The crux of the reform was that it had to be done quickly before the traditional Peronist wing of the party could rebel and before the next round of legislative elections. Thus, unlike Mexico, the government could not undertake substantial administrative and financial reform of ENTel prior to privatization. This in turn increased the risk level for foreign investors and forced less attractive terms for the transaction. There was always a ticking clock. Because ENTel could not be reformed before the sale, it faced the competition of other, more attractive privatizations in the near future that would seek the same scarce investment funds.

The government decided to split the country into two regional monopolies (after a heated debate over the proper number) with five-year exclusive licenses for local voice services.\(^2\) There were numerous provisos to ensure that the worst political case did not occur, the creation of a de facto national monopoly because the same foreign company won the option in both regions. The government was to sell 60 percent of the stock in two new companies to foreign purchasers. Although there was no absolute agreement on the value of ENTel, the new number being quoted commonly was US$3.5 billion, a largely arbitrary number because there had been no audit of ENTel since 1988. The government wanted US$1.807 billion for the 60 percent. The rest of the stock was to go to ENTel employees, publicly traded shares in Argentina, and local telecommunications equipment suppliers.

Before the end of the process the government switched to seven-year licenses with a three-year option to extend, a joint monopoly of the two regional firms for international voice services, and competition permitted only in mobile cellular service (today there are already eight cellular firms), national telex, domestic data services, private satellite systems via PanAmSat.

The plan had to be modified as it progressed because opposition within the Peronist party was strong. In essence, the government boosted the asking price to US$1.9 billion even though the company was losing US$50 million per month. It originally assured the winners that tariffs would be tied to the national inflation rates and guaranteed a rate of return of 16 percent on assets of US$3.2 billion in the first two years. This would have assisted in self-financing the desired US$5 billion in new investment demanded over the next ten years. But the legislature (led by the Radical Party) got the guarantee reduced to cover only the US$1.9 billion purchase price, and it legislated a minimum floor for foreign debt to be covered by the purchase price.
The plan also called for the franchise to cut real prices (that is, after inflation) by 2 percent per year for the next five years (and later by 4 percent). When the consortium of Bell Atlantic and Manufacturers Hanover, the winners of the northern zone, had to bow out, the government further modified the terms by including the price of the dollar as a second element in the rate formula. The telephone company also has the right to book its revenues from installing new lines in U.S. dollars.22

What are the obligations of the new telephone companies? They must meet goals for new numbers of lines per region annually, quality of service, as well as reliability and repair rates for the infrastructure. The new National Telecommunications Commission may sanction the company if it does not meet the goals, including fines, denial of extension of the minimum franchise period, or revocation of the license.23 (The commission has five members with five-year terms, but they are appointed and can be removed by the President.) The franchises also have to provide all value added services by separate subsidiaries. The biggest priorities appear to be capping the rate of price increases, much speedier and reliable offering of services, and limited subsidies to households for new telephone lines. (The telephone company can charge a household only half the cost of a new line.)

The final division of ENTel assets was slightly uneven (55 percent went to the southern company, Telco Sur). The total selling price was worth about US$1.2 billion: US$5.028 billion in redeemed foreign debt (purchased at a discount of about 15 cents on the dollar) including accrued interest, US$214 million in cash, and US$380 million in medium-term loans to cover ENTel debts. France Télécom, STET (Italy), and Morgan Stanley (handling the buying of the deeply discounted debt) combined with the local Argentine financial group of Compañía Naviera Perez Companc, bought the northern company, Telco Norte. The southern company went to Telefónica de España, Citicorp, and Techint.

The speed and shifting terms of the process have led many to suggest that the government botched the process. My perspective suggests that it did about all that was possible given the political structure of Argentina. By far the most interesting feature of the system was the deliberate decision to opt for multiple monopolies, especially for basic services, and foreign ownership. This combination had many advantages politically.

Multiple monopolies mean that each monopoly is a benchmark for the other.24 This is a good check when divisions in the government suggest that regulators may well be limited to their efficacy. Already, the northern company cut rates when demand lagged behind projections, and this put pressure on the southern company to do the same. The regional franchises also permit some measure of responsiveness to variations in regional politics in a federal system.

Foreign ownership has two advantages. On the one hand, the new foreign owners have good incentives to perform well because they are vulnerable to political attack. They cannot play the game of massive pork-barrel politics to anywhere near the same extent as local firms. Improved efficiency is their best card. On the other hand, as long as they perform, it will be harder to reverse policies precisely because their parent
Implementing Reforms in the Telecommunications Sector

governments (and the world financial community in general) are a defensive shield for the new owners.

Conclusion

In summary, Mexico and Argentina are both relatively industrialized countries that needed massive extension of their communications infrastructure. Both chose to privatize and permit foreign ownership. But they split over whether to retain a single company for basic phone services, and the strategy for privatizing differed significantly. Political institutions suggest why the policies diverged. Put differently, economics and technology propose, but politics dispose.

Endnotes


3. The international counterpart to this domestic policy is commitment to international competition. Jonathan Aronson and I have pointed toward the growth of a global “greenbelt” for telecommunications that joins London, New York, and Tokyo under a revised set of international competitive rules. See Peter F. Cowhey, Jonathan David Aronson, and Gabriel Szekely, eds., Changing Networks: Mexico’s Telecommunications Options (San Diego: UC San Diego, Center for U.S-Mexican Studies).

4. Political scientists will recognize that these themes overlap with work in the “statist” tradition. I am not using a statist model.

5. This is true in the United States, long considered an example of uncontrolled bureaucratic fighting. See Matthew D. McCubbins, “The Legislative Design of Regulatory Structure,” American Journal of Political Science, 29 (1985), pp. 721–48.) A significant new body of work is showing that it is also true in such countries as Japan. See Samuel Kernell, ed., Parallel Politics (Washington, DC: Brookings Institution, 1991).

6. For example, Singapore has a parliamentary system, but its leader was so dominant for so long that some questioned whether the parliamentary system election really was a truly meaningful political incentive. I would expect that it was, because the elections were not fraudulent, but some might disagree. A more perplexing case is exemplified by countries like South Korea or Thailand where the political leadership has to contend with frequent military intervention.
7. A dense urban network has the great advantage of little in the way of problems of rural service (and its subsidy). Singapore also has great geographic advantages as a potential communications hub for Asia.

8. This being Canadian federalism, nothing is quite this simple. The federal government directly regulated some provincial carriers (Bell Canada and British Columbia Telecom), but not most provinces. See the works of Richard Schultz and Hudson Janisch; for example, Hudson Janisch, "Telecom 2000: A Glance at Future Trends in Canadian Telecommunications Regulation," Media and Communications Law Review, 1990.

9. My thanks to Professor Wayne Cornelius for sharing unpublished papers with me on the current strategy of the PRI.

10. The legislature always has some influence because the presence of a small opposition within meant that the legislature had to have some role in the policymaking system, especially for interest groups bargaining with the PRI. Certainly the PRI has foreseen the possibilities of a growing minority role because it has written the rules for the organization of the legislature in such a way that the PRI could command a minority vote nationally and still control the legislature.


12. The government clearly wanted to emphasize rapid, clear performance goals. Some critics charged that this would require sacrificing revenues on the sales price, but the government reform of TELMEX and regulatory policy prior to the sale eased this problem.

13. The breakdown of voting rights to Southwestern Bell, is 12.5 percent each for Southwestern Bell and France Telecom, 26 percent for Grupo Carso and 48 percent for the public. Grupo Carso has 10.5 percent of TELMEX equity, France Telecom and Southwestern Bell each have 5.0 percent. The consortium has the option of buying another 5.1 percent equity in TELMEX over the next four years. Southwestern Bell argues that it paid a 2 percent premium over the market price for TELMEX stock.


16. This issue requires more research than I have done so far. General theories of electoral dynamics would suggest that the Peronist opposition parties had their incentives misaligned because of the military's implicit veto over Peronist victories.
Implementing Reforms in the Telecommunications Sector

17. One of the other six seats on the board was reserved for the military. The ENTel general manager was the board vice president. The high rate of turnover of general managers suggest strong outside pressure on a recurring basis.

18. There was even a precedent for raising funds to modernize. A prior program had required customers to put up deposits for new lines to fund the work. Unfortunately, ENTel's chaotic management procedures had lost track of who deposited the monies.


20. I should note that President Menem's brother led the Peronist opposition to the Menem plan and his major ally in the Senate would later become Menem's minister of public works and services.

21. Several small phone companies owned by Ericsson of Sweden (serving rural districts) are exempt from the plan. A study by Coopers & Lybrand said that three regions might be an option. Many in the government liked three regions because it meant smaller territories, which would permit more participation by Argentine companies. This was politically attractive but threatened to make the franchises too small to draw the attention of premium foreign investors.

22. I am told that the final formula assured a rate of return on the US$1.9 billion of over 16 percent. The investors calculated that the new tariff levels plus expected levels of demand would yield a cash flow that would largely (but not fully) cover the US$5 billion investment schedule demanded by the contract.

23. In theory, any pattern of having to wait for new lines for more than six months could yield permission for creation of independent private line networks in the territory with their own private infrastructure. Such rules are fairly idle threats absent other rules about the rights of the new entrants.

24. This follows from the logic of the classic article on regulation by Stigler and Friedlander.
Managing the Process of Sector Reform

John J. Collings

Reform of the telecommunications sector is under way or in prospect in many countries, both industrial and developing. Over the past decade, the convergence of telecommunications and information technologies has had a profound effect on economic activity. As a result, the availability of a modern and efficient telecommunications sector has grown rapidly in importance as a determinant of national competitive advantage across a range of industries. This has made governments increasingly aware of the dangers of maintaining supply structures that may be unable to adapt to rapid technological and market change. New supply structures are therefore being sought which will enhance the contribution of the telecommunications sector to economic and social development.

The Inherited Supply Structure

Traditionally, the provision of telecommunications has been entrusted in most countries to a telecommunications administration operating on a self-regulating basis under exclusive rights and with access to investment capital determined by government decisions on the allocation of public funds. In many cases, the telecommunications administration has been supplied by a local equipment industry manufacturing under license to meet domestic needs and protected by import duties and other local preference measures. This institutional and legal framework for the provision of telecommunications has shielded the sector from competitive forces in both product markets and capital markets.

This traditional monopoly supply structure has evolved for a number of reasons. In particular, there was a belief that economies of scale and scope were so great in the telecommunications sector, relative to the size of the market, that services could be provided most efficiently by one rather than several operators. Furthermore, governments have attached considerable strategic importance to the national communications infrastructure and have therefore been reluctant to leave development of a vital national asset solely to the influence of market forces. Also, integration of network planning standards and operation have been necessary for the provision of national and international long-distance services. These factors have encouraged the adoption of supply structures characterized by monopoly provision and state ownership.
Implementing Reforms in the Telecommunications Sector

In many countries, long-standing ties between the telecommunications and postal sectors reflect the historical development of telegraph services followed by telephone service. In these countries, telecommunications have been provided by a posts and telecommunications administration (PTT). In some other countries, telephone service was developed through one or more concessions granted to foreign companies whose operations were subsequently nationalized. Finally, the United States developed a variant of the traditional supply structure in which pervasive regulation of AT&T as a shareholder-owned monopoly operator replaced direct government control of the sector through ownership.

Pressures for Reform

The traditional supply structure endured for many decades, suggesting that it was well suited to the provision of a limited range of basic telecommunications services by means of a mature analog technology. This structure was, of course, subject to wider concerns about the financial and operational performance of public enterprises (or regulated utilities, in the case of the United States). Nonetheless, widespread challenges to the traditional supply structure have only emerged as technological change has redefined sector boundaries and dramatically increased the interdependencies between telecommunications and other sectors. This rapid technological change has impacted both supply and demand conditions in the sector. On the supply side, technological change has transformed network capital and operating cost structures, permitted a wide array of services to be provided by means of a single integrated network, and enabled processing functions to be embedded in the network or sited at customer premises. On the demand side, completely new applications of telecommunications have been made possible, creating user needs of a kind not seen before.

The increasing diversity of services and markets has led to growing pressures for telecommunications sector reform. The traditional supply structure, designed primarily to meet demand for voice telephony, excludes rivalry between competing suppliers as a mechanism for encouraging responsiveness to changing technologies and markets. Limits on access to investment capital imposed as a consequence of government budgetary targets constrain the pace of network modernization and the introduction of new services. They have also left a legacy of past underinvestment in the network infrastructure in many countries.

A further force for change in the telecommunications sector has come from broader economic policies aimed at reducing the size of the public sector and strengthening market forces in the economy. Telecommunications can be viewed as a sector in which conditions particularly favor a shift from public to private provision. As a rapidly growing, technology-based sector, telecommunications is attractive to both domestic and foreign investors. For this reason, the sector has been used in many countries to spearhead programs of privatization of state-owned enterprises and the removal of statutory monopolies.
Managing the Process of Sector Reform

Policy Instruments

The process of telecommunications sector reform involves four policy variables: competition, regulation, restructuring, and ownership.

Competition

The introduction of competition as a process which encourages innovation and efficiency may be seen as increasingly necessary as the telecommunications sector becomes more dynamic. On the other hand, although it may be desirable to open up the telecommunications sector to market forces, it may be considered inappropriate for the development of the national network infrastructure to be entirely market-led. Furthermore, to the extent that competition drives prices toward costs, it may not be possible to maintain existing pricing structures that incorporate cross-subsidies geared to social policy objectives for affordability and uniformity of charges for basic service.

Regulation

Regulation may be a necessary part of the telecommunications sector reform process in order to achieve political control of market processes. First, the established operating entity is likely to have considerable market power, and regulation may therefore be required to ensure that exploitative or anticompetitive conduct is prevented. Second, regulatory measures may be put in place to secure national coverage of the network infrastructure and uniform tariffs for basic telephone service at affordable levels. Third, regulation may be used to enforce the mandatory provision of certain socially desirable services (such as free emergency service, directory assistance service, and maritime service). Fourth, regulation may be used to prevent undue economic harm to the established operating entity from competition, thereby safeguarding its ability to finance its infrastructural and service obligations.

The regulatory provisions for telecommunications sector reform should replace informal political control of sectoral public policy objectives with enforcement of clearly defined obligations imposed on the established operating entity. This should make the development of the sector less vulnerable to short-term political pressures; however, regulation clearly limits the extent to which sector reform can bring about a shift from monopolistic public provision of services toward a greater reliance on private provision and market forces.

Restructuring

Restructuring of the institutional framework for service provision is an inherent part of the process of telecommunications sector reform. Clear separation of policymaking, regulatory, and operational roles has to be achieved if private enterprise is to be the main driver of sector development rather than government intervention.
Implementing Reforms in the Telecommunications Sector

the same time, it may be necessary to consider restructuring of the established operating entity where the inherited structure appears likely to act as a barrier to increased efficiency or to the introduction of competition. Possible options could include:

- Divestiture of some activities to reduce the level of involvement of the established operating entity in competitive markets
- Separation of long-distance and international service provision from local service provision to remove structural barriers to competition
- Formation of separate regional operating companies to facilitate performance comparisons, thereby creating rivalry in monopoly local service provision
- Merging fragmented local exchange operations to ensure that networks can be reconfigured to take maximum advantage of the replacement of hardwired networks by electronically defined networks.

Ownership

In order to introduce commercial disciplines into the telecommunications sector, it may be necessary to change the relationship between the established operating entity and its owner. Corporatization does this by replacing the existing administrative relationship by one in which the government acts as a shareholder of a telephone company set up on normal private sector lines. Privatization goes beyond this, with the government transferring all or part of its ownership of the established operating entity to the private sector, whether through a public flotation or a trade sale.

Approaches to Sector Reform

The approaches to reform of the telecommunications sector that have been used to date can be broadly classified as either piecemeal, gradualist, goal-oriented, or strategic. Each of these approaches is described below and the choice of approach is then considered.

Piecemeal Approaches

In some countries, institutional factors may take a piecemeal approach to sector reform inevitable. A good example of this is the United States, where the redefinition of telecommunications market structures has been achieved through rule making and adjudication by regulators at both federal and state levels, through frequent court reviews of regulatory action and through court-supervised settlements of antitrust litigation. As a result, regulatory policy development has proceeded through a series of decisions on specific issues with all evidence and reasoning on the public record.
Managing the Process of Sector Reform

The main danger with this approach is that transparency of decisionmaking and procedural fairness will be achieved at the cost of fragmented and issue-driven policy development and protracted regulatory and legal proceedings.

In other countries, piecemeal approaches to sector reform result from different government departments or agencies having responsibility for telecommunications, information technology, broadcasting, radio spectrum management, trade policy, and competition matters. With many departments making decisions which will shape the structure of telecommunications markets, there are clearly great difficulties of policy coordination to be overcome.

Gradualist Approaches

Sector reform by means of a series of incremental steps has obvious attractions for policymakers aware of the political sensitivity of universal service and affordability issues, concerned by possible labor union hostility, and bewildered by the proliferation of choices resulting from technological change and new market demand.

The United Kingdom provides an example of the gradualist approach. In 1977, the government-appointed Post Office Review Committee recommended that the U.K. Post Office’s telecommunications business and data-processing service should be established as a separate telecommunications authority. The committee’s report also noted that technological developments then in progress would result in a wide range of new services becoming available and suggested that this might favor a redefinition of the boundaries of the telecommunications monopoly in the United Kingdom. In 1981, legislation was enacted under which British Telecom was separated from the Post Office and government took over responsibility for licensing other telecommunications operators and for setting technical standards for equipment. Over the following ten years, a series of liberalization and privatization measures led in stages to:

- Withdrawal of government from the sector other than in the role of licensing authority
- Independent regulation by a specialist, single-purpose body (OFTEL)
- Fully competitive domestic markets for customer premises equipment and for value added and data services (with unrestricted resale of leased capacity)
- Duopolistic markets for the national provision of fixed public telecommunications networks, cellular radio networks, and private mobile radio networks.

It was not until the completion of a policy review in 1991, however, that the government decided it would consider applications for operating licenses on their merits as opposed to a general presumption that they should be allowed. It also decided that it would issue class licenses for self-provision of circuits and for the
Implementing Reforms in the Telecommunications Sector

provision of satellite services not requiring connection to the public-switched network. This marked the end of the managed transition to full competition in U.K. telecommunications markets, although restrictions remain on competition in international services to avoid harm to national interests by dominant overseas operators.

The advantages of a gradualist approach are that with proper sequencing of measures, it allows time for:

- Perceptions of sector priorities by stakeholders to evolve as intermediate policy objectives are achieved
- Significant contributions to be made to the sector reform process by research into critical empirical questions
- Regulatory capability to be developed in step with the sector reform process
- Adjustment to competition to be made by the established operating entity.

*Goal-Oriented Approaches*

The pace of reform in the telecommunications sector has been most rapid in those countries where clear political decisions have been made in pursuit of critical policy goals going well beyond the sector itself and demanding immediate attention. Key challenges for the management of the sector reform process under these circumstances are:

- Broadening the scope of the reform process from its initial narrow focus on particular policy goals to ensure that decisions are consistent with a rational strategy for telecommunications sector development
- Quickly identifying the key tasks that have to be undertaken, and mobilizing the necessary resources to do so
- Ensuring that all the critical elements in the reform process are progressing in step.

Argentina provides a good example of rapid reform of the telecommunications sector driven by broader policy goals. In this case, the critical policy goals driving the sector reform process were the privatization and liberalization of the Argentine economy. The result was strong political backing and a tight timetable for the privatization of ENTel and the associated adjustment of the institutional and regulatory framework for the provision of telecommunications in Argentina. The telecommunications sector reform process was initiated by a decree dated September 12, 1989. This specified that the national executive power should approve the terms and conditions for the privatization by the end of the year and established a timetable...
Managing the Process of Sector Reform

for an international public tender leading to the new owners taking possession on
November 8, 1990. Such tight time-scales clearly had major implications for the
management of the process of telecommunications sector reform:

- There was only limited opportunity to overcome information deficiencies and to
  resolve empirical questions.

- It was difficult to adjust underresourcing of particular tasks that became apparent
during the reform process.

- Many of the practicalities of the restructuring of ENTel had to be left for the new
  owners to sort out.

The Argentine experience shows that the process of sector reform can be managed
so as to achieve quick results in terms of privatization without neglecting the need
for measures to secure benefits from improvements in the availability and quality of
basic telephone service; to provide greater customer choice of advanced telecomo-
nications equipment and services; and to control monopoly prices. The effectiveness
of these measures will, however, depend crucially on regulatory capabilities whose
development so far significantly lags behind the rest of the sector or reform process.

Strategic Approaches

To date there have been few examples of telecommunications sector reform
undertaken on the basis of an integrated strategy for sector development. In part this
is due to the many unresolved empirical questions facing policymakers, particularly
regarding the feasibility and desirability of public network competition. Recently,
however, countries such as Panama and Uruguay have commissioned sector strategy
studies which are to provide a blueprint for telecommunications development and
from which a coherent set of objectives and priorities for sector reform will be
identified.

The management of telecommunications sector reform by the European Com-
mission provides one illustration of a strategic approach. The Commission's
primary aim has been to establish the conditions necessary for the development of
a European Community-wide market for telecommunications services and equip-
ment. Through its Green Papers on telecommunications services and equipment
(1987) and on satellite communications (1990), the Commission has established a
blueprint for sector development and has backed this with directives to open up to
competition the markets for terminal equipment as well as for value added services
and data communications. At the same time, the Commission's measures permit
diversity in national approaches to the issue of network competition. An interesting
aspect of the Commission's approach is that it shows how sector reform may be
managed in a federal system. The Commission has succeeded in achieving a
consensus of opinion on general principles for the liberalization and reform of the
Implementing Reforms in the Telecommunications Sector

sector in the European Community. Nonetheless, to secure the necessary action by member states, it has been necessary for the Commission to use the competition rules of the Treaty of Rome. This use of competition rules to achieve a policy aim rather than to deal with specific misconduct is controversial, but it has been upheld by the European Court.

Choice of Approach and Strategy Formulation

The choice of approach to sector reform will clearly depend on particular national circumstances—political, institutional, economic, and sector-specific. Where circumstances permit, however, it seems likely that countries will increasingly choose a strategic approach in which aims, objectives, and constraints are clearly identified and the transition to new market structures takes place over a period through the achievement of clearly defined milestones for market, institutional, and regulatory development. In this way the triggering of particular change mechanisms for market structure takes place in step with measures to put in place the institutional framework and regulatory safeguards that are prerequisites for successful strategy implementation. Properly managed, this approach to sector reform combines the advantages of the gradualist approach with those of the strategic approach. The process of sector reform in Australia illustrates how a phased approach underpinned by a clear strategic intent can be implemented.

To provide a strategic framework for the assessment of options for sector reform, it is necessary to identify and prioritize a comprehensive set of objectives, and to define the measures that will be used to monitor their achievement. To do this requires four tasks: situation analysis, definition of aims, identification of goals and constraints, and objective setting.

Successful completion of these tasks will require significant resources and will depend on access to the necessary data and policy guidance to ensure that the sector reform process is geared to particular national circumstances rather than some generic model of sector development.

Situation Analysis

The situation analysis provides the factual basis for policy development and evaluation and needs to cover both supply and demand conditions. In interpreting the results, extensive use is likely to be made of international comparisons. The range of topics to be covered by the situation analysis includes:

- Market conditions, covering the current and prospective levels of demand, service development, and the scope for new service

- Network capability, covering the current and planned size, technical development, and performance of the network
Managing the Process of Sector Reform

- Financial performance, covering the current financial position and medium-term prospects on current policies for the established provider of infrastructure and telephone service
- Nonfinancial performance, covering key indicators of service quality and efficiency
- Tariff structure, covering the level of tariffs by major service, service profitability, demand elasticity, and the scope for unbundling and de-averaging of the present tariffs.

Definition of Aims

The purpose of this task is to articulate the government's primary policy aims for the sector. This short statement should be derived from and encapsulate the government's vision of market development for telecommunications services and equipment. Depending on national circumstances, the statement of primary aims might be more oriented toward either social policy or economic development. A social policy-based statement of aims would emphasize the achievement of universal availability of basic telephone service at affordable rates and would look to regulatory oversight of prices, service quality, and efficiency to protect the public interest. An economic development-based statement of aims would emphasize the need to enhance national competitive advantage by securing for business users internationally competitive levels of service availability, quality and price, and, possibly, by requiring the telecommunications sector to play a catalytic role in the development of the domestic electronics and information services industries.

Identification of Goals and Constraints

Having identified the primary aims of telecommunications sector policy, it is then possible to identify the critical goals for sector reform and the relevant constraints. The critical goals might include, for example:

- Availability of a modern and efficient network providing services at internationally competitive levels of service availability, quality, and price
- Improvement in access to basic telephone service at the lowest prices consistent with economy and efficiency of use
- Satisfaction of growing demand for innovative services
- Reduction of regional disparities in the availability, quality, and prices of telecommunications services
Implementing Reforms in the Telecommunications Sector

- Strengthening of the government's budgetary position

- Reduction in the size of the public sector and in the extent to which it competes with the private sector.

Relevant constraints on the sector reform process may include, for example:

- Constitutional or political restrictions on privatization of the national telecommunications infrastructure

- Requirements that any privatization proceeds adequately compensate the public for relinquishing ownership of assets which were previously collectively held

- Avoidance of rate shock to residential and small business users as prices are brought into line with costs

- Restrictions on retrenchment of staff

- Need to ensure that service providers undertake community service obligations.

Recent experience in Puerto Rico illustrates the imposition of constraints on the sector reform process in the national interest. Preconditions for the sale of the Puerto Rico Telecommunications Company (PRTC) were:

- That the proceeds should exceed US$3 billion to cover the company's outstanding debt and that funds of US$1 billion each for education and infrastructure projects be set up

- A three-year price freeze

- No retrenchment of staff.

A clear statement of preconditions does assist potential bidders in their evaluation of the investment opportunity, although it reduces the scope for trading off different elements through negotiation.

Objective Setting

Each of the critical goals and constraints identified have to be translated into a set of objectives and associated performance measures. These can then be used as the basis for comparative assessment of options for sector reform. Thus, if one of the critical goals is to have a modern and efficient network, then the relevant objectives and performance measures might relate to improvements in labor productivity,
Managing the Process of Sector Reform

network digitalization, network performance, fault rates and repair times, waiting lists for connections, and procurement costs.

Where critical goals concern the provision of services at internationally competitive levels of availability, quality, and price, or the satisfaction of demand for innovative services, the objectives are likely to relate not only to the achievement of standards set by key comparator countries but also to securing favorable market entry conditions. This is because the threat of market entry should act as a spur to efficiency, economic pricing, innovation, and responsiveness to user needs, while market entry itself will increase customer choice. Performance measures expressed relative to international standards might include waiting times for network connection, call failure rates, fault clearance times, and price levels by service. Other performance measures might include penetration rates for mobile and data communications services as well as the share of new entrants in sector revenues.

Goals for improvement in access to basic telephone service at affordable rates or reduction of regional disparities will be reflected in objectives for network coverage and density, quality of service, and the price of basic service. Relevant performance measures may include the percentage of communities over a given size with local exchange service, the number of exchange lines per 100 households, the number of coin- or card-operated public telephones per 100 population, waiting times for connection, call failure rates, and the cost (in real terms) of the telecommunications services purchased by the average residential customer and by a representative low user.

Goals for strengthening the government's budgetary position may lead to the setting of objectives for increasing tax and dividend receipts from the sector, for the maximization of privatization proceeds, for development of local capital markets through the sale of shares, and for the attraction of foreign investment.

Among the constraints that may be placed on the sector reform process, the avoidance of rate shock to residential and small business users is often of particular importance. In most countries, the inherited rate structure incorporates substantial cross-subsidies from long-distance and international services to local service. This means that any rebalancing of prices toward cost will tend to affect adversely residential and small business users whose telephone bills comprise mainly charges for line rental and local calls. To avoid rate shock it may therefore be necessary to control the pace of rebalancing by putting a cap on the rate of increase in the charges for local service (in real terms).

Another important constraint on the sector reform process involves the imposition of community service obligations on the providers of telecommunications infrastructure and services. Frequently such obligations apply only to the established operating entity, although competing service providers may be required to contribute to their funding. The most important community service obligation is likely to relate to the maintenance or achievement of universal service at uniform rates. Other obligations may cover the mandatory provision of such services as free calls to fire, police, and ambulance, directory assistance, maritime services, and services to the armed forces and emergency organizations.
Feasibility and Assessment of Options

The assessment of options will usually be underpinned by financial modeling of the established operating entity over the medium term. This is because the achievement of sector policy aims is inescapably bound to the financial health of the dominant player. Thus, combinations of policy instruments which put at risk the continued financial viability of the established operating entity may be ruled out even though they score well in terms of the various objectives and constraints that have been identified.

Another key feasibility issue is the adequacy of regulatory capabilities. Achievement of sector policy aims by means of a given combination of policy instruments will usually depend on effective regulation to manage the transition to new technical and economic structures as well as to protect consumer interests where competition fails to do so. The necessary regulatory skills, administrative procedures, and information systems, however, may be hard to establish.

International experience suggests that options for sector reform which depend on effective regulation of structure rather than conduct are likely to present fewest difficulties. The regulation of conduct is most problematic where it requires the detection of exploitative or anticompetitive behavior and the prescription of remedies by the regulatory authority. Such requirements may be minimized by limiting the regulatory authority's areas of discretion as far as possible through the use of rules that are hard to change and predetermined sanctions as the basis for regulation. Not only will this simplify the task of the regulatory authority, but it will reassure investors in the sector that the rules of the game will not be radically changed and also satisfy customers that an explicitly guaranteed outcome will be delivered. On the other hand, a rule-based approach to regulation of conduct may be too inflexible to deal effectively with an environment characterized by rapid technological and market change.

Considerations of financial viability and regulatory capability are particularly likely to affect the timing of market liberalization measures. Some countries decide to delay market liberalization so that the existing monopoly operator has sufficient time to prepare to face competition. Such preparation may involve tariff rebalancing and network modernization over a number of years, together with organizational development and efficiency improvement. To permit competition before this preparation is complete may require elaborate regulatory mechanisms to inhibit selective entry into market segments that are vulnerable as a result of inherited overpricing, poor service quality, or inefficiency. Without such regulatory mechanisms there is a danger that market entry decisions will be based on misleading signals and may undermine the financial viability of the dominant player. For example, in the United Kingdom Mercury Communications, the company licensed as a network competitor to British Telecom, has focused on the overpriced international and long-distance markets rather than on local service where, if the market is contestable rather than a natural monopoly, there might have been greater benefits from competitive pressures. The New Zealand experience illustrates a different
Managing the Process of Sector Reform

approach, a period of about three years having been allowed for the Telecom Corporation of New Zealand to rebalance tariffs, reduce costs, and develop its organization, at the end of which the market was totally deregulated, subject only to the generally applicable competition law.

There may, of course, be pressing reasons for early market liberalization. These may relate to the need to meet customer expectations or to take advantage of a favorable political climate or to act before the dominant player has secured an unassailable market position. In any case, even if it is decided to delay liberalization of the core voice telephony markets, it may be possible to rapidly open up to competition:

- The supply of all customer premises equipment (with the possible exception of the first telephone)
- The installation and maintenance of customer premises equipment, including inside wiring
- The provision of value added and data services
- The operation of mobile communications and specialized satellite communications
- The self-provision of circuits which do not carry third-party traffic.

Under these conditions of partial liberalization, a key regulatory task is defining and policing the boundary between monopoly and competitive services and preventing anticompetitive cross-subsidy by means of transfers across that boundary. With continuing monopoly supply of the national telecommunications infrastructure, regulation must also secure the necessary degree of openness of the network to other service providers. In most cases the regulatory task will be made more difficult by the excessive market share of the infrastructural monopolist in competitive markets.

In some countries, the inherited situation leaves so much scope for performance improvement that sector reform may be capable of delivering benefits to all stakeholders. For example, prices may be high but financial performance may be poor due to inherited inefficiency, past investment undertaken on noncommercial criteria, and overreliance on debt finance. At the same time, there may be unmet demand for both basic and advanced services as well as poor service quality, despite user willingness to pay for improvements. Against this background, measures such as the transfer of all or part of the government's ownership of infrastructure assets to a strong technical partner may deliver affordable prices, improved supply conditions, and higher service quality for customers; enhanced employment opportunities for the work force; satisfactory sale proceeds to government; and adequate returns to investors.

More usually, however, options for sector reform involve a distribution of gains and losses among stakeholders. In this situation, the results of the assessment of options
Implementing Reforms in the Telecommunications Sector may need to be presented to decisionmakers in the form of scenarios. The scenarios should be designed to indicate the range of feasible outcomes and the nature of the trade-offs between stakeholder interests that arise as different weight is given to particular objectives within the policy mix. There may well be an iterative process whereby a particular scenario is selected for further elaboration before it is adopted as the basis for implementation of sector reform.
Toward the Future: 
Highlights and Outstanding Issues

Richard J. Schultz

The other chapters in this volume discuss recent experiences in restructuring, regulation, private sector participation, financing, and other issues as they pertain to the telecommunications sector in various regions of the world. Five very important issues are both highlights, in the sense that many of the chapters address them, and are also outstanding issues, in that the debates continue to rage over their resolution. These are:

- The gospel of globalization
- The negative images of public enterprise
- The exaggerated claims, and corresponding fears, of state telecommunications restructuring
- The multiple policy alternatives available to pursue restructuring
- The foreign ownership problem.

This closing chapter provides some thoughts on each of these issues.

Globalization

Globalization is simultaneously a concept and a process which is often at the cornerstone of the debates over restructuring. For some advocates of restructuring, globalization is a description of the central driving force for the worldwide phenomenon of restructuring. The world economy is becoming so integrated and telecommunications is the crucial link between individual countries and the world economy that the description of this driving force becomes inevitably a prescription. If countries are to respond effectively to reality, so goes the argument, they must
Implementing Reforms in the Telecommunications Sector

structure, or restructure as the case may be, their telecommunications systems so that they can benefit from globalization.

Although I do not want to deny the reality, and concomitant pressures, of globalization, I would suggest that the case may be greatly overstated, particularly with respect to the advocacy of particular policy responses. Globalization is undoubtedly a compelling force in today's interdependent economy, but is it as compelling for all countries as some of its advocates appear to believe? Surely in countries whose telecommunications infrastructure development is at a relatively early stage, priority must be given to the painful, demanding, and difficult process of creating the most basic telecommunications system to serve pressing internal social, economic, and political needs. Demanding that countries where telecommunications is in such a primitive state of development focus on globalization imperatives rather than domestic priorities is surely inappropriate.

Even in countries with advanced telecommunications systems, blanket prescriptions to tailor their telecommunications development to global developments may seriously distort national planning. What is required, it seems, is an appreciation of the forces of globalization that is finely tuned to the needs and imperatives of individual countries. In fact, before we are overwhelmed by the power of the globalization thesis, we need to specify as concretely as possible which particular segments of a country's economy are linked to external components of the global economy. Once we have specified these linkages, we then can address those aspects of the telecommunications system that may require restructuring so as to maximize the linkages.

Several chapters in this book warn about the dangers of imposing universal solutions that ignore local conditions on individual countries. Such an approach, it is recognized, is rife with potential for failure. Notwithstanding the general support for this admonition, in the equivalent discussion of globalization there is less appreciation for a similar problem. There appears to be an implicit yet widely accepted presumption that the issues and options, if not the individual solutions, arising from globalization are fairly universal. It can be argued, however, that one of the continuing pressing issues facing the telecommunications sector in most countries is to establish the explicit and concrete linkages between domestic and global needs before embarking on reform initiatives.

The (Negative) Images of Public Enterprises

For many advocates of reforming national telecommunications structures, public enterprises are grossly inefficient, patronage-ridden, and overstaffed, and must therefore be swept away as a first and most fundamental step in restructuring.

Although such arguments cannot be ruled out, more precision and a more detailed bill of goods attached to such charges would be needed to confirm their validity. Blanket condemnation of public enterprises, particularly coming as it often does from representatives of countries with little experience with them or especially of the
rationales for them, may undercut the efficacy of the argument. There are several problems with the blanket condemnation.

First, such descriptions, even when valid, hardly seem likely to persuade entrenched interests to commit economic suicide. This may apply particularly to the public enterprise labor force, especially where it is unionized. Without addressing the merits of the criticisms, it is important to note that in many countries the public service ethic is deeply ingrained. Indeed, it is an ethic familiar to enterprises such as traditional privately owned telecommunications companies in some countries. Restructuring, particularly one that may involve an attempt to supplant the existing ethic with a private sector ethic in an existing work force, however reduced it may become, is best accomplished by persuasion than denigration.

But what if the claims are not as valid as the proponents claim? Or, alternatively, what if the root problem is not ownership per se but some other aspect of the policy structure of the industry? In North America, for example, in the railroad industry there was ample evidence in the 1970s that productivity deficiencies were not primarily the result of ownership but of state regulation. In the 1970s prior to large-scale American deregulation, Canadian railroads, publicly and privately owned, outperformed their American counterparts when Canadian regulation was relaxed. Similarly, it is important when criticizing public ownership to remember the problems associated with other regulated but privately owned firms. AT&T, for example, although an exemplar of private ownership, was hardly a lean, mean machine prior to divestiture in 1984.

It is important to remember that, notwithstanding profound and fundamental restructuring, much of the existing workforce, including the executives, will remain in place after restructuring. This has been true in the United States and appears to be largely true in such countries as Mexico, Argentina, and Australia, which have privatized their telecommunications companies. Although there are problems with public ownership, the point is that reformers must pinpoint those problems and not rely on general denunciations. Restructuring that involves issues such as ownership or regulation entails changing incentive systems for both executives and the general workforce. The issue is much more complex than simple-minded assumptions about incompetent public enterprise. Failure to address explicitly the incentive system may easily derail reform initiatives.

The (Exaggerated) Fears of Restructuring

For critics of telecommunications restructuring and those still to be persuaded, privatization, particularly if accompanied by deregulation, however that may be defined, constitutes an inevitable and undesirable shrinking of the state. But does restructuring along these lines mean the substitution of the presumed mean market for the equally presumed beneficent state? Obviously, in part to ask the question is to answer it: No.

Opponents of restructuring, particularly privatization, have greatly misread the results of restructuring. Privatization and regulatory reform in most instances have
Implementing Reforms in the Telecommunications Sector

led not to a reduction of the state but, as several chapters in this book have demonstrated, continuing, indeed enhanced and refurbished, roles for the state in the telecommunications sector. Changing the instrument, such as public for private ownership, does not automatically lead to no role for the state. These chapters have described direct and indirect roles for the state through the form of imposed operating conditions, often of a long-term nature, on the privatized firm. Among examples discussed are continued forms of government participation through minority ownership as well as through what is known in the United Kingdom as the "golden share" or in New Zealand as the "Kiwi share." Similarly the chapter by Carlos Casasús on the Mexican privatization refers to the service quality goals and the growth requirements for the extension of service as publicly mandated requirements, while Michael Hutchinson cited the imposition of community service obligations in the case of the Australian restructuring. Although the efficacy of the continuing state role remains to be assessed, the fact that such a role continues to be a major preoccupation of policymakers should assuage some of the critics' concerns.

Restructuring as a Multidimensional Phenomenon

Notwithstanding the preceding two comments, one of the major strengths of many of the chapters in this volume is the appreciation of the fact that whatever the merits of restructuring the ownership or regulatory regimes, both are complex, multidimensional phenomena.

Although many authors argue for privatization, in itself such a measure tells us little about the appropriate telecommunications market structure for individual countries. Peter Cowhey cogently makes this point with his discussion of the fivefold typology of policy alternatives, namely monopoly modernization, multiple (that is, regional) monopolies, competition for so-called enhanced services, reserved services model, and full competition model. He concludes by noting that the question is not monopoly versus competition, but which types of reform of monopoly and competition for what purposes. In other words, privatization is only the first step, and not necessarily the most important, in restructuring a nation's telecommunications sector.

Although regulatory regimes are also complex, they do not get the degree of attention nor are as thoroughly analyzed as other structural issues. Deregulation, for example, is a term often invoked but seldom defined. Deregulation has become something akin to the Loch Ness monster of current policy debates: something often cited but seldom seen. It is important that there be a much more comprehensive discussion of the forms and nature of regulation as fundamental components of telecommunications restructuring. It can be argued that some authors in this book give far too much credit to regulation in developing the American telecommunications system, particularly its high quality. Other analysts are more inclined to suggest that government regulators were more peripheral, at least until the 1960s and early 1970s.

On the other hand, some of the chapters manifest an almost unquestioning belief in the efficacy and appropriateness of the American model of regulation. This is
particularly the case in the papers by representatives of foreign operators seeking entry into other countries as well as by members of the investment community. François Grossas, to cite only one example, states that

simple and transparent industry regulation are important to investors. The treatment of tariffs is of singular importance. Profitability of the privatized company will depend critically on the level and structure of tariffs. To the extent that in most cases the company will retain a legal or de facto market dominance or exclusivity for at least some time, it will not be wholly free to set and change the prices it charges for its services. The applicable regulatory rules and procedures are therefore of the greatest interest to the investor. The company must be able to negotiate objectively with the regulators, and this process must be protected by law and free from contingent political considerations.

Although all the above is desirable, how realistic a prescription is this? More important, how reasonable is it for other countries just introducing regulation after restructuring when it represents an ideal that other countries more experienced with regulation do not attain? Is American or Canadian regulation, for example, free from political considerations? Hardly. Is British regulation transparent? Doubtful. Does the United States or Canada have a clearly defined national telecommunications policy?

Advocates should be careful about insisting on a model of regulation for other countries that is not employed at home. Furthermore, one reason operating telecommunications companies in both the United States and Canada are pursuing offshore opportunities is in part to escape from onerous, capricious, and politically inspired domestic regulatory constraints. Finally, after all the discussion about how to structure the regulatory system in order to protect the interests of the service providers, simply ask whether nontraditional operators, namely, those new to the telecommunications business, insist on the same regulatory conditions, or do they accept the inherent instability of operating in foreign markets that they have encountered in other lines of business activity?

Foreign Ownership: How Much of an Issue?

Many chapters in this volume refer to real or proposed restrictions on foreign ownership that accompany the restructuring of domestic telecommunications systems. Why is foreign ownership the problem that it universally appears to be? Countries with less-developed governmental policy instruments require what is after all a rather blunt tool—bans or limitations on foreign ownership—but it remains to be shown that advanced industrialized countries such as Australia, Canada, or the United States, with their highly developed and varied panoply of public controls such as taxation, regulation, and antitrust, require such controls. Just exactly what is the problem? Given that restructuring is designed in large part to make telecommu-
Implementing Reforms in the Telecommunications Sector

cations systems much more responsive to needs arising from global imperatives, does not the restriction on foreign ownership amount to little more than a continued protection for domestic operators from the full blast of external forces? Or is such a restriction little more than an unconscious remnant from the preglobal era? If globalization is the trend and the imperative so many speakers describe it to be, why the leftover?
Annex

Current Sector Structure and Regulatory Framework in Selected Countries, Economies, and Regions

(Status, January 1994)
## Antigua and Barbuda

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<tr>
<td>The Antigua and Barbuda Public Utilities Authority, a government-owned entity, is the provider of domestic telephone services. Cable &amp; Wireless (C&amp;W) provides the international telephone service. Cellular is provided by BoatPhone Ltd., a subsidiary of C&amp;W.</td>
<td>The domestic and international services are provided on a monopoly basis. Competition is allowed in the provision of value added services (VAS).</td>
<td>Regulations have been recently updated.</td>
<td>Ministry of Public Works and Communications.</td>
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### Argentina

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<td>State-owned telephone company; Empresa Nacional de Telecomunicaciones (ENTel), was privatized in 1990–91 as two separate regional monopolies: Telefónica de Argentina in the south and Telecom Argentina in the north, with Buenos Aires split between the two. Sixty percent of the new companies was sold to new operators (Telefónica de Argentina to Telefónica de España; Telecom Argentina to France Télécom and STET of Italy); 40% was sold in tranches in 1991 and 1992 to employees (10%), and the public (30%). International monopoly operator, Teleintar, is owned by Telefónica de Argentina (50%) and Telecom Argentina (50%). There are some 300 local telephone cooperatives and several private satellite service providers. Two cellular licenses have been granted in the metro Buenos Aires region; two more will be granted by November 1993 in the provinces. They will have a two-year exclusivity clause. There are no foreign ownership restrictions on cellular.</td>
<td>Exclusivity for basic services and networks maintained until 1997 (possible three-year extension depending on performance). Value added services (VAS), data, private networks, cellular, and some satellite services opened to competition.</td>
<td>Telecommunications Law of 1972 still applies, although it has been modified to permit private ownership and competition. Lack of interconnection regulation in 1991–92 created problems for licensed carriers to enter monopoly networks. Price-cap regulation replaced rate-of-return regulation prior to privatization. Tariffs indexed to the U.S. consumer price index. Certain conditions apply pertaining to procurement, equipment manufacturing, sale of more than 49% of company, etc.</td>
<td>Semi-autonomous regulatory agency, Comisión Nacional de Telecomunicaciones (CNT), initially established by decree under Ministry of Public Works and Services. CNT reorganized under telecommunications ministry in 1992. Development plan for CNT is being prepared by international consultants.</td>
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### Australia

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| Sector characterized by a facilities duopoly based on a merged Telecom/OTC (Telstra), and a privatized AUSSAT (Optus) established in 1991. Sale of AUSSAT to BellSouth (24.5%), C&W (24.5%), and Optus Pty Ltd. (51%), was finalized Jan. 1992. Three public mobile telephone licenses were issued by end-1992 to Telstra, Optus, and Arena GSM Pty Ltd. (includes U.K.-based Vodafone and AAP Information Services of Australia). The Australian Associated Press (AAP) is the only major reseller. No legal foreign ownership restriction exists. | Duopoly exists in basic services (local, long-distance and international) with six-year exclusivity (to 1997). Restrictions on third-party resale including international were removed in 1992. There is competition in public access cordless telephone service. A community service obligation (CSO) on Telstra ensures universal service. Optus and licensed public mobile operators contribute to cost of CSO. | Relevant legal documents are:  
- International code of practice.  
- National planning code. | Australian Telecommunications Authority (AUSTEL) is a statutory authority independent of the carriers and subject to ministerial direction only in specific instances. It was established by the Telecommunications Act 1989. |
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<td>Post- und Telegraphenverwaltung (PTV) is organized as an enterprise but is still part of the Austrian government.</td>
<td>PTV has a monopoly on the operation of the public switched telephone network (PSTN) and the provision of basic services. Value added services can be provided by private operators. Users may install their own terminal equipment after the first handset (which must be supplied by PTV). The provision and installation of equipment for connection to the PSTN was fully liberalized in 1988.</td>
<td>The legal and regulatory framework of telecommunications in Austria will be made to conform with EC Directives. Accordingly, a new telecommunications law, which fulfills these requirements, is under elaboration. It will complement a progressive opening of markets to competition which began in the 1980s, on a &quot;no harm to the network&quot; basis. The separation of PTV's regulatory and operational functions was begun in May 1991.</td>
<td>The new regulatory body will be part of the federal Ministry of Public Economy and Transport.</td>
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### Bahamas, The

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<td>Government-owned telephone company, Bahamas Telecommunications Corporation (BATELCO), was established in 1967. BATELCO provides both domestic and international services, which include high-speed data, radio trunking, paging, cellular, Intelsat Business Services (IBS), and Intermediate Data Rate (IDR) Services.</td>
<td>BATELCO has a monopoly on all telecommunications services.</td>
<td>A Telecommunications Act of 1966 is in effect, along with associated regulations which are modified from time to time.</td>
<td>BATELCO is the regulatory agency. The Bahamas legislature is responsible for approving significant rate changes.</td>
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Bangladesh

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<td>The public operator Bangladesh Telegraph and Telephone Board (BTTB) was split in 1990 into an autonomous operating company and a regulatory board. The operating company controls local service networks in the areas not covered by private operators as well as domestic and international long-distance. Licenses were issued in 1990 to four private operators to provide local service in rural areas and international long-distance services. With the change in government of 1991 most of these have been canceled or abandoned. Only Bangladesh Rural Telephone Authority (BRTA) continues to operate, providing rural telephony and data services. Telephone Silpa Sangsta Ltd. (TSS), a wholly government-owned national equipment manufacturer, has been licensed and plans to install a pay phone network on a revenue-sharing basis with BTTB.</td>
<td>There is no policy. BTTB has monopoly for provision of urban domestic and international telecommunications services. BRTA provides telecommunications services in rural areas. BTL, with joint venture partner, Hutchinson Whampoa of Hong Kong, established a limited radio communications services. The license is in dispute.</td>
<td>Under the 1885 Telegraph Act, the Government has the exclusive power to (a) establish and maintain telecommunications apparatus; (b) grant licenses to any other person to establish and maintain apparatus; (c) regulate the sector. Similar provisions were included in the 1933 Wireless Telegraphy Act in relation to wireless telegraphy except that the responsibility for management of frequency spectrum was given to the Director General of the Post Office. By virtue of the 1979 BTTB Ordinance has given BTTB the power to issue licenses for telecommunications and wireless services.</td>
<td>Under the Telegraph Act of 1885, Ministry of Posts and Telecommunications (MOPT) is responsible for regulation of the sector. The 1979 BTTB Ordinance has given BTTB the power to issue licenses for telecommunications and wireless services.</td>
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<td>Barbados Telephone Company (Bartel), the exclusive provider of local services, is 85% owned by C&amp;W and 15% privately via shares. Barbados External Telecommunications (BET), exclusive provider of international services, is 75% owned by C&amp;W and 25% through private shares. Barbados Communications Services (BCS), which is owned 50% by Bartel and 50% by BET, is only cellular mobile service provider allowed to interconnect to the PSTN.</td>
<td>Bartel and BET have exclusive franchises for domestic and international, respectively. Competition is allowed only in paging.</td>
<td>Telecommunications Act.</td>
<td>Bartel is regulated by the Public Utilities Board. BET is regulated by the Ministry of International Transport, Telecommunications and Immigration.</td>
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Belgium

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| Belgacom, an autonomous public enterprise, is a state-owned monopoly. The government has decided to turn Belgacom into a limited company and intends to sell a minority stake (size not decided) in 1994. | Activities reserved exclusively to Belgacom include:  
- Establishment, maintenance, modernization, and operation of public telecommunications infrastructure;  
- Provision of services to third parties, namely: telephone, telex, mobile, and paging services; packet-switched data communications; telegraph services; fixed circuits (leased lines); and establishment, maintenance, and operation of public pay phones. | The Law of 21 March 1991 concerning reform of certain public economic enterprises brings Belgium into compliance with EC Directives on terminal equipment, services, open network provision (ONP), etc. | The Belgium Institute for Postal and Telecommunications Services (BIPT) grants authorizations for services provision and makes declarations of non-reserved services not requiring an authorization. The minister responsible for telecommunications allocates radio frequencies; supervises the BIPT and may annul its decisions. |
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<td>Belize Telecommunications Ltd., 25% owned by British Telecommunications plc, 37% by government, with the rest owned by the public (i.e., pension funds, banks, and other local institutions), is sole service provider.</td>
<td>Belize Telecommunications Ltd. has a monopoly for all services.</td>
<td>Belize Telecommunications Act, 1987, amended in 1993 to stop call-back services.</td>
<td>Ministry of Energy and Communications.</td>
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### Bolivia

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<td>Empresa Nacional de Telecomunicaciones (ENTE</td>
<td>Telecommunications services are provided on a monopoly basis</td>
<td>A liberal foreign investment law (September 1990) accorded foreign investors national treatment and removed restrictions on foreign ownership of equipment suppliers and service providers.</td>
<td>Dirección General de Telecomunicaciones (DGT), part of the Ministry of Transport and Communications. DGT regulates prices and tariffs for all domestic and international telecommunications services, allocates frequencies, and authorizes private telecommunications operators. There are plans to establish a new, autonomous regulatory body, Superintendencia de Telecomunicaciones.</td>
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<td>There are plans to privatize ENTEL. Seventeen cooperatives (Federación de Compañías de Teléfonos, FECOTEL) provide local service in urban centers, most important of which are COTEL in La Paz and COTAS in Santa Cruz. The government is considering consolidation of the cooperatives into a single government-owned entity.</td>
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<td>Telefónicas Celular de Bolivia, TELECEL (joint venture between Millicom [USA], 46%; Comvik [Sweden], 23%; Bolivian investors, 31%) provides cellular services in La Paz, Santa Cruz, and Cochabamba.</td>
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<td>There are no specific restrictions on foreign investment; however, foreign ownership in a privatized ENTEL will be limited to 40%.</td>
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## Brazil

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<td>Telecomunicacoes Brasileiras S.A. (TELEBRAS) is a joint-stock (mainly state-owned) holding of 27 state operating enterprises and Empresa Brasileira de Telecomunicacoes (EMBRATEL, the interstate and international carrier). TELEBRAS accounts for about 98% of Brazil's telephones, the rest being provided by several small independent operators. With about 10 million lines, TELEBRAS is the second largest telecommunications enterprise in developing countries (after China).</td>
<td>TELEBRAS has monopoly of basic voice services. Competition policy has been developing piecemeal since 1990. Some competition and new entry are currently allowed in cellular, leased lines (including satellite, microwave), data services, information services, customer premises equipment, private build-out of telephone infrastructure (e.g., new residential developments, condominiums).</td>
<td>Telecommunications Law No. 4117 of August 27, 1952. Law No. 5792 of June 11, 1972, created TELEBRAS. Presidential decree of 1990 provided for private entry, subject to limitations established in the Constitution of 1988. Presidential decree No. 177 of July 17, 1991, defines &quot;limited services&quot; and establishes conditions for licensing independent operators. Provisional and definitive regulations are issued as Secretaria Nacional de Comunicaciones (SNC) decrees (&quot;portarias&quot;).</td>
<td>Secretaria Nacional de Comunicaciones (SNC) under the Ministry of Infrastructure is the telecommunications policy and regulatory authority. Telecommunications manufacturing policy is partly under SNC, which in the past used TELEBRAS's purchasing power extensively to promote domestic industry.</td>
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<td>Jabatan Telekom Brunei is a wholly government-owned state company operated by the Telecommunications Department.</td>
<td>There is no competition in any telecommunications services and the government has no plans to deregulate or privatize the telecommunications sector.</td>
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<td>Telecommunications Department.</td>
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Bulgaria

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<td>Bulgarian Telecommunications Company (BTC), a wholly government-owned corporation separate from the postal service, was formed in 1992 and provides all basic voice services (local, long-distance, and international). BTC is negotiating joint ventures with Cable &amp; Wireless (cellular) and Sprint (data services).</td>
<td>Competition is permitted in value added services (VAS) terminal equipment.</td>
<td>Licensing regime exists under the Committee for Posts and Telecommunications (CPT), which is equivalent to a ministry for the sector. Its capabilities to develop and administer policy are being strengthened.</td>
<td>The Committee for Posts and Telecommunications (CPT) issues licenses to operate in the telecommunications sector. Its regulatory functions are being strengthened to properly oversee BTC and the new competitive environment.</td>
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**Canada**

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<td>Sector is characterized by private and governmental operators. The Stentor companies (a national consortium of telephone companies which manages interconnection of the regional networks) have a virtual monopoly on local service provision in their operating areas. They also provide domestic and Canada-U.S. long-distance services, as does Unitel, a privately owned national carrier which entered the market in late 1992. Some independent telephone companies also provide local and long-distance services within the provinces in which they are based. In 1993, AT&amp;T bought 20% of Unitel, and MCI invested the equivalent of $209 million in BCE, the main Stentor company. Cellular mobile services are provided on a duopoly basis by Mobility Canada (cellular divisions of the Stentor companies) and Rogers Cantel Mobile Inc. There are many resellers. The 1993 Telecommunications Act restricts foreign ownership of facilities-based carriers to 20%; there are no restrictions on foreign ownership of nonfacilities-based carriers.</td>
<td>Competition in domestic long-distance voice has been permitted since June 1992. Telesat (which is owned by the Stentor member companies) has a monopoly for domestic satellite service. Unitel is now offering (nonsatellite) domestic public long-distance voice services in addition to leased-line, data, etc. Teleglobecanada Inc. has an exclusive mandate for overseas international services until at least 1997. There is a licensed duopoly in each serving area for cellular mobile services. There are no restrictions on competition in the resale of domestic and international long-distance voice.</td>
<td>The crucial regulatory distinction is between Type I (facilities-based) and Type II carriers. CRTC rulings permit resale and sharing of international as well as domestic leased lines for data, fax, voice messaging, interconnected private circuits, and voice services. The 1993 Telecommunications Act replaces the 1908 Railway Act. It allows the CRTC to forbear from regulating where competition levels are sufficient to protect the interests of users; however, the federal Cabinet will be able to &quot;vary or rescind&quot; CRTC decisions. It also places all PSTN operators under the jurisdiction of the CRTC, including those previously owned by provincial governments.</td>
<td>The independent federal regulatory agency is the Canadian Radio-television and Telecommunications Commission (CRTC). Some provincial governments also regulate the independent telephone companies. The federal government has primary responsibility for international telecommunications policy, not the CRTC.</td>
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Chile

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<th>Competition Policy</th>
<th>Legal and Regulatory Framework</th>
<th>Regulatory Agency</th>
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<td>Compañía de Teléfonos de Chile (CTC) is the dominant carrier in local services market. Empresa Nacional de Telecomunicaciones S.A. (ENTEL) is the main domestic and international long-distance service provider. Both are fully private, with Telefónica de España holding 45% of CTC and 20% of ENTEL. There are small local carriers in the southern part of the country. Two small privately held companies have concessions overlapping parts of CTC's service areas. Telex-Chile, a private company provides telex services. There are several other international services license holders in addition to ENTEL which have licenses to provide international services (most prominent are VTR, ChileSat, Cidcom S.A.) which along with CTC (through an affiliate CTC-Mundo), are aggressively trying to enter ENTEL's market as well as other markets (e.g., cellular, information services).</td>
<td>Legal conflicts between CTC and ENTEL have increased dramatically. Government review of telecommunications policy and service conditions initiated in 1991 has resulted in proposals for changes in the law, retaining the basic conditions of liberalization. An April 1993 antitrust tribunal decided that Chile's telecommunications market should not be segmented and that CTC and ENTEL should be permitted to enter each other's markets which are also open to other service providers. The question of whether and on what terms (e.g., separate subsidiaries) CTC and ENTEL should be permitted into each other's markets is a matter of legislative debate. An April 1993 Supreme Court decision requires Telefónica de España to divest itself of its holding in either CTC or ENTEL. There are provisions in the new legislation for an equal access system (multicarrier discard) whereby the subscriber will choose the long distance carrier for each call by dialing a carrier-specific access code.</td>
<td>The 1992 Telecommunications Law includes a classification of services, a system of concessions and licenses, the requirement that all telecommunications operators must comply with basic technical and operational standards, reinforcement of SUBTEL's regulatory powers, and penalties for infringement of the law. The 1987 Additional Telecommunications Law includes procedures for setting monopoly tariffs, service obligations for public telephone companies, and subscriber financing of new investment. There are decrees detailing services and network standards. A significant overhaul of the telecommunications law is wending its way through the National Assembly and will likely be completed by mid-1994.</td>
<td>Subsecretaría de Telecomunicaciones (SUBTEL), a part of the Ministry for Transportation and Telecommunications. Studies are being conducted to redefine characteristics of the regulatory body and its placement in the government.</td>
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<td>The Ministry of Posts and Telecommunications (MPT) coordinates telecommunications services provision, including the operation of inter-provincial and international services. Thirty provincial administrations coordinate investment planning, network implementation, operation, maintenance, training, etc., of intra-provincial long-distance services. At municipal and county levels 2,500 post and telecommunications (P&amp;T) enterprises provide telecommunications services. Some state enterprises and other ministries have separate dedicated networks. There is no direct foreign investment in the sector, although indirect investments with Chinese partners is possible for value added and non-basic services.</td>
<td>Monopoly provision of basic services under the MPT, including local, domestic long-distance and international, telegraph, telex, and facsimile. The MPT also has a monopoly for leased lines, videoconferencing, and low- and mid-speed data. There is increasing decentralization of responsibility to provincial administrations and local P&amp;T enterprises as well as emerging competition in selected wireless (e.g., paging, cellular). Value added services likely soon will be opened to competition.</td>
<td>A basic Telecommunications Law has been drafted and regulations are in preparation. In 1993 or 1994, posts and telecommunications will be separated at the national level. At the same time, the MPT's operational and regulatory functions will be separated into: • The Directorate General of Telecommunications, responsible for operations. • The Departments of Policies and Law, and of Communications, will be responsible for regulation and policy development.</td>
<td>Ministry of Posts and Telecommunications (MPT) at national level; provincial P&amp;T administrations at provincial level.</td>
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Colombia

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<td>Basic services at local level are provided by 26 municipal, district, and departmental enterprises and by Empresa Nacional de Telecomunicaciones (TELECOM). The latter also provides domestic long-distance and international services on an exclusive basis. As a result of a 1992 decree domestic long-distance can be provided by a fully private company, although the state must maintain at least 51% of an international operator. Services in the city of Bogotá will continue to be provided by a state-owned company.</td>
<td>Local and long-distance (domestic and international) basic services are to be provided on a monopoly basis. Value added service provision is open to competition. Cellular mobile services are provided on a duopoly basis in each of three geographic zones. One of the two has to be a wholly or partly state-owned operator. The other can be wholly private.</td>
<td>Decree 1990 (19 August 1990) defines a borderline between basic and value added services and service providers. Value added services can be provided by private companies. Decrees 1901 (1990) and 2122 (1992) restructure the Ministry. Law 37 (6 January 1993) establishes a duopoly for cellular mobile services. Decree 1421 (21 July 1993) provides for public services in the city of Bogotá to continue to be provided by a state-owned company.</td>
<td>Ministry of Communications is the regulator. Tariffs are regulated by the Junta Nacional de Tarifas de Servicios (National Services Tariffs Board).</td>
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Côte d'Ivoire

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<td>Joint stock company, Côte d'Ivoire Telecommunications (CI-Telcom) 98% owned by state and 2% owned by employees, was created on May 14, 1991. It is planned to sell shares in CI-Telcom to private investors.</td>
<td>Monopoly is maintained for the provision of &quot;reserved&quot; (i.e., telephone and telex) services. These are provided by CI-Telcom. Other services, e.g., VAS, terminal equipment, etc., can be provided in association or in competition with CI-Telcom (Ministerial Decision of March 6, 1991).</td>
<td>Decree 91-72 of February 2, 1991, creates a regulatory agency (Direction de la Réglementation Générale), a technical control agency (Inspection Générale), and a planning agency (Direction de la Planification et du Développement). Decision of Council of Ministers of March 6, 1991, defines monopoly and competitive domains.</td>
<td>The regulator is the Direction de la Réglementation Générale (DRG) within the Ministry of Posts and Telecommunications.</td>
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### Denmark

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<td><strong>Including Ownership</strong></td>
<td>Competition is not allowed for telex, telephone, radio-based mobile services, public-switched telephone network (PSTN) infrastructure, and the radio/ television broadcast networks.</td>
<td><strong>The Act to Regulate Certain Aspects of the Telecommunications Sector</strong> (Act No. 743, 14 November 1990), has resulted in a separation of regulatory and operating functions. Also, a concession was granted to Tele Danmark for installation and operation of PSTN transmission routes and exchanges. <strong>The Public Mobile Telecommunications Act</strong> gave the Minister of Communications authority to grant a second mobile license in competition with Tele Danmark. <strong>The Act on TeleTerminal Equipment</strong> gives the Minister of Communications authority to issue directives on telecommunications terminal equipment provision, including rules necessary to apply EC Directives.</td>
<td><strong>Minister of Communications is responsible for telecommunications.</strong> <strong>The National Telecommunications Agency oversees administrative and regulatory activities.</strong> <strong>The General Directorate of the Danish P&amp;T attends to the departmental functions of the sector and is responsible for relations with the concessionary sector, i.e., Tele Danmark.</strong></td>
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<td>Fixed services are provided by Tele Danmark plc, which is 94% owned by the Danish government. There are plans to reduce the government's interest to 51% by mid-1994</td>
<td>Duopoly exists in mobile communications where Tele Danmark and Dansk Mobil Telefon each are licensed to provide mobile services. The terminal equipment market is liberalized.</td>
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<td>C&amp;W, a privately owned company, provides both internal and external telecommunications services.</td>
<td>C&amp;W has exclusive rights to all telecommunications services.</td>
<td>Currently, moves are afoot to implement a Telecommunications Act.</td>
<td>The Telecommunications Department of the Ministry of Communications Works and Housing.</td>
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### Dominican Republic

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<td>The sector is all private. The dominant carrier is CODETEL, a GTE subsidiary. A new second carrier, TRICOM, is licensed for all services.</td>
<td>All services are available for competition, which has, however, been held back for lack of a regulatory structure. Interconnection regulation is lacking. On July 2, 1993, DOMTEL (owned by TRICOM) applied in the USA to provide international telephone, data, video, and private line service between the two countries.</td>
<td></td>
<td>Director General of Telecommunications.</td>
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<td>Estonian Telephone Company Ltd., a joint-venture between the state holding company, Estonian Telecom (51%), Telia AB Sweden (24.5%), and Telecom Finland (24.5%), has a 25-year concession to provide basic services (i.e., local, national, and international switched voice, telex, and telegraph). The same partners run Estonian Mobile Telephone Company Ltd. which operates NMT-450 and NMT-900 cellular systems. Estonian Paging Co. is owned 60% by Estonian telecom and 40% by Telecom Finland. Data services are provided by a subsidiary of Estonia Telecom.</td>
<td>Concession agreement of 1992 grants Estonian Telephone Company Ltd. exclusivity for provision of basic services for 8 years with a possible extension up to 14 years.</td>
<td>Concession agreement, 1992.</td>
<td>Ministry of Transport and Communications.</td>
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### European Community

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<td>N/A</td>
<td>See Legal and Regulatory Framework</td>
<td>Objectives of 1987 Green Paper have been implemented through the adoption of a number of EC Directives. These liberalize all services except public voice, operation of the basic PSTN network, and supply and provision of network and terminal equipment, including mutual recognition of type approval. They ensure open access; interworking and interconnection via ONP, and the separation of regulatory and operating functions. As a result of the 1992 Review, liberalization of all public voice is foreseen for January 1, 1998. The 1998 liberalization does not, however, include facilities-based competition in voice. Spain, Portugal, Greece, and Ireland, which have &quot;lesser developed networks,&quot; will have the right to preserve their monopolies until 2003, while Luxembourg and Belgium, countries with &quot;small&quot; networks, can put off competition until 2000.</td>
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### Finland

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<td>Local services are provided by 49 concessioned operating companies (mainly cooperatives coming together as the Association of Telephone Companies in Finland or Telegroup), covering 25% of the geographical area of the country (67% of population), and Telecom Finland, which covers 75% of the area (33% of population). Telecom Finland also provides long-distance and international services. Since January 1, 1994 Kankoverkkio Oy which is partly owned by the Association has been providing competing public switched domestic long distance services. As of July 1, 1994 Finnet International also owned by TeleGroup will be providing competing international public switched services. There are five national concessions for cellular mobile. Private networks are also operated by railways and others.</td>
<td>Competition is allowed in all services, including infrastructure. Customer premises equipment, data, voice, mobile, intracorporate voice, and value added services are fully liberalized. There are no restrictions on resale. Interconnection is mandated by law.</td>
<td>Telecommunications Law of 1987 (revised in 1988, 1990, and 1992) provides for public telecommunications services to be operated either by Telecom-Finland, or a Finnish entity which has been granted a concession. It also confirms Telecom Finland's monopoly in national and international public long distance, telex and paging. Licences to build infrastructure and operate services can be granted to a Finnish entity, and to an affiliate of a foreign company.</td>
<td>Ministry of Communications supervises public telecommunications. Telecommunication Administration Centre (TAC), established in 1987, carries out technical inspections, type approves equipment, and manages the radio frequency spectrum.</td>
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Telecom Finland is likely to become a public limited liability company in January 1994.
### France

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<td>Law of 2 July 1990 transformed France Télécom into a state-owned public corporation with the state maintaining a supervisory role (e.g., approval of tariffs, compliance with public service obligations) through the Direction du Service Public (DSP) of the Ministry of Posts and Telecommunications. France Télécom may be partially or totally privatized. De facto, no foreign ownership.</td>
<td>France Télécom retains monopoly over network open to the public and voice telephony, but there is open competition in VAS and CPE (customer premises equipment) as well as structured and controlled competition in support and mobile services.</td>
<td>Law of 2 July 1990 modified status of France Télécom, turning it into a public service company. Law of 29 December 1990 stipulated how networks and services may be established and operated, and provided for France Télécom to retain monopoly over the network open to the public and voice telephony.</td>
<td>Direction de la Réglementation Générale (DRG) of the Ministry of Posts and Telecommunications was created in 1989. In 1993 it was turned into Direction Générale des Postes et Télécommunications of the Ministry of Industry, Posts and Telecommunications and Foreign Trade.</td>
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### Germany

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<td>On German unification (October 3, 1990), the East German PTT was merged into DBP Telekom. The German government wants to sell 49% of DBP Telekom (25% in 1996 and 24% in 1998). This requires modification of the German Basic Law or Constitution (Grundgesetz); Article 87(1) states that “the federal postal service ... shall be conducted as matters of direct federal administration with its own administrative substructure.” Change of Constitution requires two-thirds majority approval in the German Parliament (Bundestag). There is no foreign ownership of public enterprises.</td>
<td>1989 Law (Poststrukturgesetz) provides for the separated telecommunications entity, DBP Telekom to retain federal monopoly over network and telephone service. Exceptions include satellite networks for all nonvoice services, mobile services, and cellular. Other services, including third-party resale, are liberalized. On January 1, 1992, DBP Telekom’s monopoly for terminal equipment was ended.</td>
<td>Law Concerning the Restructuring of the Postal and Telecommunications Sector and of the Deutsche Bundespost (Poststrukturgesetz) enacted July 1, 1989, provided for the reorganization of the Deutsche Bundespost (DBP), including separation of regulatory and business functions as well as and separation of postal, banking, and telecommunications functions. An amendment to 1928 Telecommunications Installation Act (Fernmeldeanlagengesetz, or FAG) introduced new regulatory conditions and created a more competitive telecommunications market. The terminal equipment market was liberalized on July 1, 1990. Legal relations of three DBP enterprises (including Telekom) with their customers became subject to private law on July 1, 1991.</td>
<td>Ministry of Posts and Telecommunications.</td>
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### Ghana

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<td>State-owned Ghana Post and Telecommunications Corporation (GPTC) is the monopoly provider of infrastructure as well as basic and enhanced services. Private entrepreneurs provide terminal equipment, enhanced services, cellular (Mobitel), and paging (City Pagers, Anokyema Ventures) services. Government is considering a partial privatization of GPTC.</td>
<td>Ghana Post and Telecommunications Corporation has legal monopoly for all services and infrastructure; however, PABXs, terminal equipment, value added services (e.g., public call offices), cellular mobile, and paging are being provided on an unregulated basis by private operators.</td>
<td>Post and Telecommunications Decree of 1975 grants the state-owned GPTC monopoly over basic and enhanced services and infrastructure.</td>
<td>Ministry of Transport and Communications.</td>
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| Hellenic Telecommunications Organization S.A. (OTE), is a state-owned public utility. Parliament approved plans to sell 49% of OTE in 1993. Of this, a strategic 35% was to be sold to an experienced telecommunications operator. Quali- fied bidders included NTT (Japan), France Télécom, Telefónica de España, STET (Italy), GTE Corp., and Korea Telecom. An additional 10% was to be sold on the stock exchange and 4% was to be offered to OTE employees. The government was to retain 51% and a majority of seats on OTE’s board. The new socialist government canceled the partial privatization on October 13, 1993. | Currently in the process of bringing marketplace in line with EC Directives on competition. | Changes in the last three years, have resulted in:  
- Partial deregulation and strengthening of competition rules (Law 2000/1991)  
- Provision “to remove OTE from the public sector” (PD 361/1991)  
- Requirement for type approval before connection and use of terminal equipment  
- Granting of license to OTE for provision of fixed voice telephony, and an exclusive mandate for installation and development of the public network (LD 1049/1949 and 165/1973)  
- Obligation imposed on OTE to provide interconnection to any other service providers which may be licensed in the future (Law 1892/1990). | Ministry of Transport and Communications exercises regulatory authority. It does not directly audit or intervene, however, in OTE affairs.  
A National Telecommunications Committe was to be created by end-1993, empowered to grant licenses and be responsible for the control and observance of competition rules. |
**Grenada**

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<td>The provider of domestic and external telephone services is the Grenada Telephone Ltd. (GRENTEL). When established in 1989, the government owned 51% of the company, and C&amp;W 49%. Currently the government has 30% shares, having sold 21% to C&amp;W. Prior to 1989, the domestic services operator was state owned, while external communications were provided by C&amp;W.</td>
<td>GRENTEL has a total monopoly on telecommunications.</td>
<td>The Public Telecommunications Act of 1989.</td>
<td>Ministry of Communications and Works.</td>
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Guyana

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<td><strong>Including Ownership</strong></td>
<td>Monopoly exists only on wireline and international telephone and telegraph services.</td>
<td><strong>A Post and Telegraph Act (amended in 1927) regulates all radio-communications, and a Telecommunications Act of 1990 applies to wireline telephony and cable television.</strong></td>
<td>The Guyana Public Utility Commission created in January 1991 approves the rates for GTTC, and in so doing has the authority to look into all the operations of that company. The Ministry of Communications, however, is the overall regulatory agency in Guyana.</td>
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Guyana Telephone and Telegraph Co. Ltd. (GTTC), privatized in January 1991, is owned by Atlantic Tele-Network (ATN) Inc. of the U.S. (80%) and the Guyana government (20%). The purchase contract contains a blueprint for infrastructure development.
Honduras

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<td>State-owned Empresa Hondureña de Telecomunicaciones (HONDUTEL) has monopoly for provision of all telecommunications services in the whole territory. HONDUTEL is also responsible for broadcasting of radio and TV signals.</td>
<td>All services are provided on a monopoly basis. Studies are under way with the objective of liberalizing some services by 1997.</td>
<td>Constitution of Honduras confers on HONDUTEL the exclusive right and obligation to provide all telecommunications services and broadcast transmission in the country.</td>
<td>HONDUTEL is the regulator for all telecommunications services and for frequency spectrum management.</td>
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<td>Hong Kong Telecom Ltd., is the privately owned (by Cable &amp; Wireless) holding company for Hong Kong Telephone Co. (HKTC) and Hong Kong Telecom International (HKTI). HKTC has the exclusive right to provide local and long-distance domestic public telephone service. HKTI has a similar exclusive license to provide public international services (i.e., telephone, telex, telegraph, facsimile, data transmission, and leased circuits). Hong Kong has concluded bilateral agreements to provide international value added network (IVAN) services (which however, specifically exclude basic voice and facsimile) with the USA, U.K., and Japan. There are no foreign ownership restrictions.</td>
<td>Hong Kong Telephone Co. has monopoly on domestic telephone service until 1995. Hong Kong Telecom International has monopoly for international services until 2006. Vigorous competition exists in public nonwired and value added services (VAS): cellular (4 licensees operate 5 networks), paging (31 licenses), CT2 telepoint (3 licenses), and several VAS licenses. HKTC's exclusive license will be replaced in 1995 with a nonexclusive license which will include a universal services obligation. New competitors in local fixed-link voice telephone services market were licensed in 1993.</td>
<td>The Telephone Ordinance requires directors of HKTC to be residents in Hong Kong and the majority to be Commonwealth citizens. The management and staff of HKTI must be British subjects. A price-cap regulatory scheme has been put in place for HKTC, replacing traditional rate-of-return regulation.</td>
<td>New independent regulatory body, Office of the Telecommunications Authority (OFTA), established on July 1, 1993. OFTA assumes responsibility for licensing and regulation from the Telecommunications Branch of the Post Office.</td>
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### Hungary

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<td>State-owned Hungarian Telecommunications Company (HTC) has almost 100% of telephone market. Noncore services are provided by subsidiaries of HTC. Westel, a joint venture of HTC and US West, operates analog mobile services. Newly emerging private companies, with or without HTC stake, are building network infrastructure with or without the intention to operate them. In December 1993 the Hungarian government selected the consortium of DBP Telekom and the U.S. RBOC Ameritech as purchasers of 30% of HTC for US$875 million. The 1992 Law also provides for the creation of 56 local regions, each of which is to be handled by an operating concession to be awarded by end-1994, potentially in competition with HTC. Local or regional telephone companies covering one or more of the 56 primary areas have to be awarded concessions based on a public tendering process. Of these, 25 have been offered in such a process due to close on December 29, 1993. Two GSM licenses (one to Pannon GSM and one to US West/HTC) were awarded in October 1993, with service scheduled to begin in April 1994.</td>
<td>Voice telephony will be subject to monopoly provision until 2002, with several regional, one long-distance, and one international service provider being given monopoly concessions. Building and owning network infrastructure is open to competition, but by law agreement with the service providers is required. Three operators have been awarded concessions for mobile services: one for analog and two for GSM. All other telecommunications services, including data transmission, are open to competition and can be provided by those meeting the licensing requirements.</td>
<td>Post, telecommunications, and broadcast signal transmission were separated in 1990. The Telecommunications Law passed by Parliament in November 1992 provides for exclusive and special rights in telecommunications services. Public telephone, mobile telephone, nationwide paging, and nationwide broadcast signal transmission need concession, which may be either exclusive or concurrent. The 1992 law entered into force with the accompanying regulations in 1993. The industry structure for the public telephone service, along with privatization guidelines, are set out in a telecommunications policy statement approved by the Parliament in 1993.</td>
<td>The Communication Inspectorate, a semiautonomous regulatory body under the Ministry of Transport, Communication and Water-management, were established in 1989. State ownership rights were transferred to State Property Management Company.</td>
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## India

<table>
<thead>
<tr>
<th>Operating Entity(s) Including Ownership</th>
<th>Competition Policy</th>
<th>Legal and Regulatory Framework</th>
<th>Regulatory Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Telecommunications (DOT) provides local network and domestic long-distance services everywhere except in metropolitan Bombay and New Delhi, where Mahanagar Telephone Nigam Ltd. (MTNL) operates the local network. MTNL is 80% government-owned, with the remaining 20% held by institutional investors. International long-distance services are provided by Videsh Sanchar Nigam Ltd. (VSNL), which is 85% government-owned and 15% privately held. Further disinvestment by the government is likely with an international flotation planned in 1994. Eight licenses for cellular have been awarded for four cities, but these are under review following a ruling by the Delhi High Court. In September 1993 the government approved a ten-year joint venture between US West and an Indian partner to install and operate up to 1 million new lines in competition with DOT in the South India town of Tirupur.</td>
<td>There is monopoly provision of basic services (voice telephony, telex, telegraph) in local, domestic, and international long-distance. DOT has expressed interest in private operator offers to provide some corporate services. The government is interested in opening the value added services (VAS) market to competition. Licenses for VAS are subject to open tender, and foreign participation will be permitted where necessary.</td>
<td>The Indian Telegraph Act of 1885 is under review. Recommendations for the creation of a separate regulatory authority are being prepared.</td>
<td>Telecommunications Commission, within the Department of Telecommunications (DOT), is responsible for both planning and operations. Frequency management is the responsibility of the Wireless Planning and Coordination branch of the DOT.</td>
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**Indonesia**

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<thead>
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<th>Competition Policy</th>
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<th>Regulatory Agency</th>
</tr>
</thead>
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<td>PT Telekomunikasi Indonesia (PT Telkom, formerly Perumtel), is 100% government-owned and responsible for providing domestic telecommunications services. PT Indosat, also 100% government-owned, provides international services. The first mobile telephone system was built by PT RHP, a joint venture between Perumtel and a private company; another is operated by PT INTI; PT Elektrindo Nusantara and PT CPS also have been authorized to build additional systems. In 1993, PT Satelindo was formed to operate the Palapa satellite system (from 1995) and to provide cellular, international, and satellite services. It is 60% privately and 40% state-owned (shared between PT Indosat (10%) and PT Telkom (30%)).</td>
<td>Monopoly state-owned enterprises. Emerging competition with the establishment of PT Satelindo and in cellular.</td>
<td>1989 Telecommunications Law (Law No. 3/1989) was passed in order to allow private sector participation in infrastructure development. It permits competition in the provision of non-basic services, but emphasizes that telecommunications must be controlled by government.</td>
<td>The Directorate General of Posts and Telecommunications (DGPT), a department within the Ministry of Tourism, Posts and Telecommunications (Parpostel). DGPT manages policy implementation, regulatory functions, licensing, and use of radio frequencies. Parpostel sets policy guidelines for telecom's development and services provision. The National Telecommunications Board (NTB) is the principal coordinating organization for telecom policy issues involving two or more government and agencies.</td>
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**Ireland**

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<th>Competition Policy</th>
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<th>Regulatory Agency</th>
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<tr>
<td>Bord Telecom Eireanns is 100% state-owned. No foreign ownership is permitted.</td>
<td>Bord Telecom Eireanns has an exclusive right to provide public voice telephony, telex services, mobile radio services, and satellite services. Other telecommunications services can be offered on a competitive basis.</td>
<td>European Communities Telecommunications (services) Regulations 1992 (were adopted) for the purpose of implementing EC Directives.</td>
<td>The Department of Tourism, Transport and Communications. It regulates type approval of equipment intended for connection to the PSTN and licenses providers of third-party telecom services.</td>
</tr>
</tbody>
</table>
### Operating Entity(s) Including Ownership

The process of reorganizing the telecommunications sector is expected to be completed in 1994. The government has approved plans to consolidate five state-owned carriers controlled by IRI (the agency responsible for managing Italian state industries), through STET (holding company), into a single organization, Telecom Italia. They include:

- SIP, local and immediate long-distance, and mobile communications operator
- Irel (formerly ASST), domestic long-distance and European/Mediterranean Basin International operator
- Irelable, operator of non-European international services
- Telespazio, satellite and space communications operator
- SIRM, maritime communications operator.

The new carrier, which eventually will be privatized, will remain under STET (51% owned by IRI; 49% by private shareholders).

### Competition Policy

There is monopoly provision by various state-owned enterprises. Italy has not yet adopted EC Directives to liberalize nonvoice services, although the government is expected to grant a second cellular license in line with EC guidelines. Private networks are technically illegal but, in practice, leased circuits are provided. Interconnection to the PSTN, carriage of third-party traffic, and resale of capacity generally are not allowed, although the carriers have shown some latitude in this area. The terminal equipment market has been liberalized.

### Legal and Regulatory Framework

- Law No. 58 on "Provisions for Reforming the Telecommunications Sector" was adopted in January 1992.
- A restructuring plan has been submitted by IRI to the Treasury, which also allows for privatization.

### Regulatory Agency

- Ministry of Posts and Telecommunications.

Plans are in place to create an independent regulatory body to be responsible for issuing concessions, authorizations, and licenses. It will also supervise competition, in accordance with EC directives.
<table>
<thead>
<tr>
<th>Operating Entity(s) Including Ownership</th>
<th>Competition Policy</th>
<th>Legal and Regulatory Framework</th>
<th>Regulatory Agency</th>
</tr>
</thead>
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<td>The Jamaica Telephone Company (JTC) and JAMINTEL (together form Telecommunications of Jamaica, Ltd. (TOJ)) and have a common board of directors. TOJ is owned by Cable &amp; Wireless (79%) and public shareholders (21%). JTC provides domestic telephone and telex traffic. JAMINTEL provides international services. Jamaica Digipax International (JDI), a joint venture between TOJ (30%), Cable &amp; Wireless (35%), and AT&amp;T (35%), offers international private-line service for Jamaica's free trade zones.</td>
<td>TOJ has a monopoly for all basic and value added services, including provision of leased lines. Exclusive license for provision of all basic public services is for 25 years. In addition TOJ has a right of first refusal on value added services if and when these are opened to competitive provision. Policy is currently under review.</td>
<td>Radio and Telegraphy Act 1972. New legislation is being drafted.</td>
<td>The Telecommunications Branch of the Ministry of Public Utilities and Transport.</td>
</tr>
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</table>
### Operating Entity(s) Including Ownership

| Nippon Telegraph and Telephone Corporation (NTT), Japan's largest domestic carrier, was partially privatized in 1985. As of March 1993, there were 77 new Type I carriers—including 3 long-distance, 3 international, 3 satellite, 8 regional, 25 cellular, and 36 radio paging operators. New entrants in domestic long-distance market are Daini Denden Inc. (DDI), Japan Telecom Co. (HT), and Teleway Japan Corp. (TWJ). International services are provided by Kokusai Denshin Denwa Company Ltd. (KDD), International Telecom Japan, Inc. (ITJ), and International Digital Communications, Inc. (EDC). On March 1, 1993, there were 1,128 Type II carriers, of which 1,092 were General Type II and 36 were Special Type II. Foreign ownership in Type I carriers is limited to 33%, except for NTT and KDD (initially not permitted; but since 1992, 20% foreign ownership allowed). No foreign ownership restrictions exist for Type II carriers. |

### Competition Policy

Since April 1985, all segments of the market, including local service, are open to competition. Because of the absence of tariff rebalancing and huge deficits in the local service market, only a few competitors have emerged in the local market. By contrast, there have been several entries into long-distance and international markets. New long-distance carriers do not have to pay access charges to NTT, but instead can use NTT’s local network at a subsidized price. A universal service obligation is imposed only on NTT. The facilities-based market (Type I) is divided between domestic and international. Domestic and international carriers cannot enter each other’s markets.

### Legal and Regulatory Framework

1985 Telecommunications Business Law introduced competition for facilities-based (Type I) carriers, liberalized circuit usage (Type II), deregulated terminal equipment, and led to the privatization of NTT. Type I carriers can construct and operate telecommunications infrastructure. They need MPT permission to operate and authorization for their tariffs. Type II carriers lease facilities from Type I carriers. Only Special (large-scale) Type II carriers need to notify tariffs to MPT; General Type II need not. Special Type II must register, and General Type II must notify MPT when they enter the market. The status of competition and structure of NTT is currently under review, as is the current lack of transparency in tariff setting.

### Regulatory Agency

Ministry of Post and Telecommunications (MPT).
Jordan

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<th>Operating Entity(s) Including Ownership</th>
<th>Competition Policy</th>
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<th>Regulatory Agency</th>
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<tr>
<td>Telecom Corporation (TCC) is a government-owned public operator of all basic services. The government currently is studying the corporatization of TCC (to be registered under Companies Law). Paging services are provided by a private company. A private company will be granted a mobile cellular license shortly. Customer premises equipment market has been liberalized.</td>
<td>There is no competition in basic services, but competition is allowed in value added services.</td>
<td>The government is studying the possibility of establishing an independent regulatory body.</td>
<td>The Council of Ministers, with support from the public operator (TCC).</td>
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### Korea

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<th>Operating Entity(s) Including Ownership</th>
<th>Competition Policy</th>
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<th>Regulatory Agency</th>
</tr>
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<tbody>
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<td>Korea Telecom, 100% government-owned, was converted from a government authority into a joint-stock company on January 1, 1991. DACOM, created in 1982, is owned by Korea Telecom (33%) and 27 private Korean corporations. Korea Telecom must transfer its share to the government in 1993. Korea Mobile Telecommunications Corp. (KMTC) is designated as an independent common carrier for mobile services. No foreign ownership is allowed for General Service Providers; the 50% foreign ownership limitation on value added services providers is to be lifted by January 1, 1994. There is no restriction on database and network computer value added services (VAS). The government has plans to partially privatize Korea Telecom. An initial 25% will be offered to Korean investors; a further 24% will be offered over two years, and no single shareholder will be allowed to own more than 10%. Foreign ownership will likely not be permitted.</td>
<td>Korea Telecom provides domestic voice service on a monopoly basis. DACOM has been allowed to offer international voice services since 1991. Korea Telecom has been allowed to compete with DACOM in data services since 1992. DACOM is pursuing a license to provide domestic long-distance services by 1995. Competition is developing in mobile services, from which both Korea Telecom and DACOM will be excluded. Private companies and Korea Telecom provide a variety of domestic VAS. Korea has entered into international value added network (IVAN) services arrangements with several countries, including Australia, USA, and Japan.</td>
<td>1991 Telecommunications Law defines three service categories: General Service Providers (basic telephony and data services); Special Service Providers (cellular, paging, and other regional or wireless services); and value added services (VAS) providers. The Law also establishes regulatory framework for authorizing new service providers. Registration is required for providers of certain VAS.</td>
<td>Ministry of Communications (MOC).</td>
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### Kuwait

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<th>Competition Policy</th>
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<th>Regulatory Agency</th>
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<tr>
<td>The state-owned national telecommunications operator has a monopoly for all basic services, domestic and international. The Kuwaiti government has announced plans to privatize the national operator, to create the Kuwait Telecommunications Company (KTC), and to offer shares (51% initially) to the public; later, foreign investors would be allowed to buy another 25%. KTC is to begin operations in 1994, providing domestic and international telephone, fax, and telex services now provided by the government operator. Mobile and paging services are provided by the Mobile Telephone Services Company (MTSC).</td>
<td>There are plans to allow competition in value added but not in mobile initially. Basic services will remain under monopoly provision.</td>
<td>There are plans to establish a regulatory capability within the Ministry of Communications.</td>
<td>Ministry of Communications.</td>
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<td>State-owned Lietuvos Telekomas (Lithuanian Telecom), established on January 1, 1992, is responsible for basic telecommunications services (local, long-distance, and international) and data transmission. International 2 Mb/s (120 channel) link to Western countries is provided by LINTEL a joint venture between Lietuvos Telekomas and US West.</td>
<td>There is monopoly provision of public long-distance and international basic services. Local networks in urban and rural areas are open for provision by alternate (private) operators. Two licenses for GSM operators and two licenses for national radio paging services will be issued in 1994. Licenses for local radio paging services will be not limited.</td>
<td>Telecommunications Law of 1991 describes responsibilities of the Ministry of Communications and Informatics and provides for competition in the local network and the establishment of private networks under certain conditions. Regulators of the Ministry of Communications and Informatics of the Republic of Lithuania were ratified by the government of the Republic of Lithuania on March 12, 1992. Rules of State for local telephone network service were approved by the Ministry of Communications and Informatics on December 12, 1992.</td>
<td>Ministry of Communications and Informatics regulates the sector, allocates frequencies, regulates tariffs, issues licenses, and applies standards.</td>
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<tr>
<td>CITCOM, a joint venture between NERIS of the U.S. and the Lithuanian commodity exchange operates a satellite earth station which provides services to the USA and Canada through Intelsat.</td>
<td>A mobile cellular (NMT 450) service joint venture, COMLIEIET, was established in February 1992. Shareholders are Lietuvos Telekomas, Antena, Millicom, and Telecom Denmark.</td>
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### Madagascar

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<th>Operating Entity(s)</th>
<th>Competition Policy</th>
<th>Legal and Regulatory Framework</th>
<th>Regulatory Agency</th>
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<td>Including Ownership</td>
<td>Madagascar Télécom would have an exclusive mandate for basic services for seven to ten years. Value added services would be open to competition.</td>
<td>A new telecommunications law was passed on December 15, 1993. A detailed regulatory framework and tariff policy are being prepared under a World Bank loan.</td>
<td>Under the new legislation the Ministry of Posts and Telecommunications will become the regulator.</td>
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At present, the monopoly telecommunications service provider for domestic services is the Ministry of Posts and Telecommunications, and for international, the Société Internationale des Télécommunications. A new law foresees the creation of Madagascar Télécom, which would be initially (first two years) owned 85% by the state and 15% by France Cable & Radio (currently partner in Société Internationale des Télécommunications). Later the government would sell all but 34% of its share of Madagascar Télécom. Under the newly proposed legislation...
Malaysia

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<th>Operating Entity(s) Including Ownership</th>
<th>Competition Policy</th>
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<th>Regulatory Agency</th>
</tr>
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<tr>
<td>The main facilities-based operator, Telekom Malaysia Bhd (TMB), was corporatized in 1987 and partially privatized (25%) in 1990. Two private companies, Technology Resource Industries (TRI) and Binariang Sdn Bhd, have been given International gateway licenses. The latter also has licenses to provide local public networks and services as well as to launch Malaysia's geostationary satellite, MEASAT. Time Telecommunications Bhd is seeking licenses to provide long-distance and international services. There are four cellular mobile license holders (Telekom Malaysia, Binariang, TRI, and Mobikom) and 33 regional radio paging licenses. There are no clearly defined foreign ownership restrictions; however, foreign ownership in Telekom Malaysia is limited to 25%.</td>
<td>The policy is not clearly defined, but the government wants to encourage competition. Competition is allowed in cellular and paging. Competition is emerging in facilities-based services, with the government having issued some domestic and international facilities licenses.</td>
<td>The Telecommunications Act (1950) grants the government &quot;exclusive privilege&quot; to provide all domestic and international telecommunications services. &quot;Exclusive privilege&quot; is interpreted as meaning that the government may either provide these services itself or license others to do so.</td>
<td>Jabatan Telekom Malaysia (JTM), the telecommunications department of the Ministry of Energy, Posts and Telecommunications, is the regulator. The Minister grants licenses and approves tariffs. JTM establishes standards, regulates the radio spectrum and use of the geostationary orbit, promotes R&amp;D, protects consumer interests, encourages quality of service, and represents Malaysia in International telecommunications organizations.</td>
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### Malta

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<th>Regulatory Agency</th>
</tr>
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</table>
| Telemalta Corporation is government-owned and has a monopoly for provision of all telecommunications services except cellular mobile, which is provided on a monopoly basis by Telecell Ltd. The latter is owned 80% by Vodafone (U.K.) and 20% by Telemalta Corporation, which has an option to purchase controlling interest after five years. | There is monopoly provision of all basic telecommunications and mobile services. Legislation on value added services (VAS) is unclear as to what services private operators can provide without infringing on Telemalta's monopoly. Such cases currently are decided on an ad hoc basis. | Framework includes:  
- Telemalta Act (1975) Chapter 250  
- Telephone Service Regulation (1972)  
- Telegraphic and Telex Service Tariffs Regulations (1977)  
- Overseas Telephone Service Regulations 911957)  
- Overseas (Cable Service Regulations) (1957)  
- Fixed Electrical Power and Telegraphic Connection System Ordinance (1934) Chapter 01 | Ministry of Transport and Communications is the regulatory agency. Telemalta's capital and operating budgets are subject to parliamentary approval. |
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<th>Operating Entity(s) Including Ownership</th>
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<td>TELMEX was privatized in 1990, with controlling interest held by a consortium consisting of Grupo Carso, Southwestern Bell, and France Télécom.</td>
<td>TELMEX has a monopoly for basic services network until 1996 subject to price-cap regulation as well as network expansion and quality-of-service target obligations. There are regional duopolies in the mobile cellular service. In each region a TELMEX subsidiary competes with a new entrant. Private networks, terminal equipment, value added services, and information services markets are liberalized.</td>
<td>Law of General Means of Communications of 1938 is the basic legal instrument. Telecommunications regulations have been revised.</td>
<td>Secretaría (Ministry) de Comunicaciones y Transportes (SCT).</td>
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Telecomunicaciones de México (TELECOMM) is a semiautonomous government-owned entity which operates the federal satellite network as well as provides telex and telegraph services.

TELCEL (a TELMEX subsidiary) provides cellular services in competition with privately owned operators in nine regions. Numerous foreign firms, such as McCaw, Cantel, Motorola, etc., have interests in the regional cellular operators.
### Montserrat

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<tr>
<th>Operating Entity(s) Including Ownership</th>
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<th>Regulatory Agency</th>
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<tr>
<td>C&amp;W, the sole provider of telecommunications on the domestic and international levels, operates under a 25-year agreement with the government, with five-year revision periods.</td>
<td>Exclusivity for all telecommunications services.</td>
<td>The Telecommunications Ordinance, which is forty years old, is to be revised shortly.</td>
<td>Ministry of Communications and Works.</td>
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### Morocco

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<td>At present the monopoly service provider is the state enterprise, Office National des Postes et Télécommunications (ONPT). A new law being prepared would split ONPT into two separate enterprises, one for telecommunications and one for postal services. For the time being privatization is not envisaged.</td>
<td>Under the proposed legislation the new telecommunications operator (Société des Télécommunications) will have an exclusive mandate for basic services. There is so far no time limit for this mandate. Value added services would be open to competition.</td>
<td>The new telecommunications law is expected to be passed in 1994. At the same time a detailed regulatory framework will be put in place. This is currently being prepared under a World Bank loan. Increases in tariffs for basic services will be tied to the rate of inflation.</td>
<td>Under the proposed legislation the regulatory agency will initially be the Ministry of Posts and Telecommunications.</td>
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Myanmar

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<td>Myanmar Posts and Telecommunications (MPT) is a wholly government-owned carrier and is responsible for all of Myanmar's domestic and international telecommunications.</td>
<td>There is little private sector activity in Myanmar's telecommunications sector and no indication that the government is planning to privatize MPT or liberalize the telecommunications service markets. Given the political situation in Myanmar, there is no reason to expect any substantial service market liberalization in either the near, medium, or long term.</td>
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<td>Ministry of Transport and Communications.</td>
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### Nepal

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<tr>
<td>Nepal Telecommunications Corporation (NTC), wholly government-owned, provides all telecommunications services.</td>
<td>There are no immediate plans for privatization or segmentation of telecommunications services. The opportunity is further limited by the low demand for specialized services.</td>
<td>Communications Corporation Act (1975). NTC requires Ministry of Communications approval for major acquisitions (exceeding $25,000) or tariff changes.</td>
<td>Ministry of Communications.</td>
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**Netherlands**

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<td>PTT Telecom Netherlands provides voice telephony and leased-line services (domestic and international). The Dutch government has announced that it will sell up to two-thirds of its shares in Royal PTT Netherlands NV (KPN), parent of PTT Telecom Netherlands; the first tranche, about 30% of the two-thirds, will be sold during the first half of 1994.</td>
<td>Competition was introduced in packet-switched data services in 1993. Leased-lines resale has been liberalized, and from 1994, licenses for competitive public mobile services will be issued. Competition will be allowed in both services and infrastructure for telephone to closed user groups from January 1, 1995, and for public basic voice on January 1, 1998. There are also plans to license a second fixed network operation in competition with PTT Telecom. This may involve a combination of cable television, electricity utilities, and railway operators' existing infrastructures to allow them to provide leased lines to business customers.</td>
<td>The 1989 Telecommunications Law liberalized customer premises equipment (CPE), value-added services, and simple resale of services. Under proposed legislation, foreign companies will be excluded from the liberalization of the nonmobile sector. Foreign companies will be allowed only to compete for permits to establish a new cellular network.</td>
<td>The Telecommunications and Posts Department (HDTP) of the Ministry of Transport and Public Works. HDPT oversees application of the 1989 Telecommunications Law, type-approves CPE, issues licenses, and manages the radio frequency spectrum.</td>
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New Zealand

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<td>Telecom Corporation of New Zealand (TCNZ) was sold in September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell Atlantic, and Ameritech for US$2.4 billion, under the condition that the American partners reduce their combined share of TCNZ to 49.9% in three years. At the end of 1993, ownership structure was Bell Atlantic and Ameritech (25.95% each), Fay Richwhite (1.24%), Freightways (2.06%), and others (46.8%). The government maintains golden (&quot;Kiwi&quot;) share. On April 1, 1993, TCNZ restructured itself, with its principal operating subsidiary becoming Telecom New Zealand Limited. The main competitor is Clear Communications Ltd. (a consortium involving Bell Canada, MCI, and three NZ companies—the Todd Group, NZ Railway, and NZ Broadcasting; the last two are 100% government-owned). There are no foreign ownership restrictions except for specific provisions pertaining to TCNZ.</td>
<td>Competition permitted in the provision of all services. No market entry restrictions. TCNZ currently is the only provider of cellular services, but BellSouth is establishing a competing service for implementation in 1993, and Telstra has plans to offer service in 1994. TCNZ in its Articles of Association undertook to maintain a) free local calling, b) the price rise of residential rentals within inflation, and c) the price of rural residential rentals the same as in the cities. TCNZ will also publish quality-of-service indicators.</td>
<td>Commerce Act 1986 (antitrust law) and the Fair Trading Act 1986 govern competitive and fair trading behavior in the provision of telecommunications services. The Radiocommunication Act 1989 covers frequency allocation and use. The Telecommunications Act 1987, Telecommunications Amendment Act 1988, and Telecommunications Amendment Act 1990 liberalize the provision of telecommunications services and facilitate competition. The Telecommunications (International Services) Regulations 1989 and Telecommunications (Disclosure) Regulations 1990 pertain to certain registration and disclosure requirements with respect to international services and domestic competition.</td>
<td>The Ministry of Commerce administers the relevant laws and regulations.</td>
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Nicaragua

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<td>Instituto Nicaragüense de Telecomunica-</td>
<td>No competition</td>
<td>At present, regulator is a</td>
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<td>ciones y Correos (TELCOR), a government</td>
<td>is allowed today. There</td>
<td>division of TELCOR, Dirección</td>
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<td>administration operating under the</td>
<td>are plans to allow competition, but</td>
<td>General de Telecomu-</td>
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<td>supervision of a minister-</td>
<td>only in the fringe services.</td>
<td>nicaciones (Digetel). Plans</td>
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<td>director, provides all telecommunications and postal services except cellular mobile. The latter is provided in Managua and region by NICACEL, an affiliate of Motorola. There are plans to privatize TELCOR in 1994, with a sale of 40% to a foreign strategic investor and 10% to employees.</td>
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<td>to set up an independent regulatory body.</td>
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Nigeria

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<th>Competition Policy</th>
<th>Legal and Regulatory Framework</th>
<th>Regulatory Agency</th>
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<tr>
<td>NITEL is an autonomous government-owned company. A joint venture (in which NITEL is a partner) provides mobile cellular service.</td>
<td>Nigerian Telecommunications (NITEL) has a monopoly to provide all basic services, domestic and international. The mobile cellular service is open to competition.</td>
<td>A 1993 law established the Nigeria Communications Commission. A June 1992 law incorporated NITEL as an autonomous, government-owned company.</td>
<td>There is a newly established independent regulatory body, Nigeria Communications Commission (NCC).</td>
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**Norway**

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<th>Regulatory Agency</th>
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<td>Norwegian Telecom, a fully state-owned limited company (since January 1, 1992), retains exclusive right to provide two-way public telecommunications services. It also has monopoly on leased lines. TBK A/S, fully owned by Norwegian Telecom, provides competitive services, including import, sale, and installation of PABXs and CPEs, supply of security systems, operation of local cable television networks, VANs, etc.</td>
<td>There is monopoly provision of two-way public telecommunications services (telephone, telex, and circuit and packet-switched data transmission). The market for terminal equipment, including modems, PABXs, and user networks was fully liberalized in 1988. Mobile and paging services have been liberalized. Resale of capacity for voice is not allowed.</td>
<td>Independent authority under Ministry of Transport and Communications, Norwegian Telecommunications Regulatory Authority (NTRA) is responsible for type approval of user equipment, authorization of equipment suppliers and installation contractors, radio frequency management, and licensing for cable TV.</td>
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Pakistan

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<td>The Pakistan Telephone and Telegraph Department was transformed in 1991 into a wholly state-owned company, the Pakistan Telecommunications Corporation (PTC). It provides basic telecommunications services. Cellular services are provided by several private companies: Paktel (owned 80% by Cable &amp; Wireless; 20% by Hassan Associates), and Pakcom (owned 50% by Millicom Int. Cellular; 50% Africom Int.) were licensed in 1989. A cellular consortium (51% owned by Saif International; 32% by Hutchison; 15% Motorola and 2% British Telecom) also was licensed in 1991, but has not begun network construction. Digitel Communications (privately owned Pakistani corporation) was licensed to provide paging services in 1991. Licenses to provide pay phone services have been issued to 22 private operators. The government had announced its intention to privatize PTC, with foreign participation. The plan was to offer a 51% share to a single foreign investor or consortium and the rest to employees and the public. Political differences have halted the process.</td>
<td>Basic services are provided by PTC on a monopoly basis. The cellular mobile service has been opened to competition.</td>
<td>Legal and regulatory framework is based on a pre-1900 telecommunications law which needs to be updated.</td>
<td>Regulatory is the Pakistan Telecommunications Corporation (PTC) which also issues licenses. There are plans to set up an independent regulator.</td>
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### Panama

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<td>Instituto Nacional de Telecomunicaciones (INTEL) is a private company with shares held by the government. Privatization had been under way but was suspended when the National Assembly rejected the draft law.</td>
<td>Intel is sole provider of wireline local, national, and international services.</td>
<td>A draft telecommunications law has been prepared.</td>
<td>Plans to create a regulatory body (part of the draft telecommunications law) is on hold.</td>
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<td>All services are provided by government-owned Administración Nacional de Telecomunicaciones (ANTELCO). There has been discussion of privatizing many state-owned enterprises, including ANTELCO. A consortium led by Millicom (51%) was awarded a cellular concession in 1991.</td>
<td>ANTELCO is the monopoly provider of all services except cellular mobile.</td>
<td>ANTELCO functions as both an operator and a regulatory agency.</td>
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<td>Compañía Peruana de Teléfonos (CPT) operates local service in Lima. Empresa Nacional de Telecomunicaciones (ENTEL) operates in the rest of Peru and provides long-distance and international services. The government plans to sell its stakes in both ENTEL (100%) and CPT (20%), and has invited international operators to public bidding. Telefónica and CPT provide cellular mobile services in competition with each other in Lima. ENTEL provides cellular mobile services in the rest of the country.</td>
<td>There is a five-year exclusivity for basic services and a duopoly for cellular services. Competition is allowed in all other services.</td>
<td>Law 702 and Decree 26096 promote competition in the telecom sector by private suppliers and operators, regulated by the state.</td>
<td>Regulator is Organismo Superior de Inversión Privada en Telecomunicaciones (OSIPTEL), an autonomous institution, dependent on the President of the Republic.</td>
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## Philippines

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<td>Philippines Long Distance Telephone Company (PLDT) controls 94% of all telephones. Other major carriers are ETPI (subsidiary of Eastern Telecommunications Philippines Inc., 40% owned by Cable &amp; Wireless), Pupteleco, and TELEOF (government network serving rural areas). Seven record carriers provide domestic telex, facsimile and leased-line services; four provide international services. PLDT, ETPI, and Philippines Global Communications Corp. (Philcom) operate international gateways. Philippines Telephone Company (subsidiary of PLDT) and Extelcom provide cellular service. Five companies provide domestic satellite services: DOMSAT, Liberty Broadcasting, Clavecilla, International Communications Corp. (ICC), and IRC Capital Wireless Inc. (CapWire). The Philippines Communications Satellite Corp. (Philcomsat) provides international satellite services.</td>
<td>PLDT had a de facto monopoly for international telephone service until 1990, when ETPI was licensed and installed its own international gateway. Philcom is the third international gateway operator. In 1990, the Department of Transportation and Communications (DOTC) mandated the eventual privatization of all government-owned telecommunications facilities. It also awarded digital authority to operate facilities in Luzon under a lease-buy arrangement, and is selling off local networks under a plan to improve services in each municipality. The government is developing policies aimed at increasing competition for the provision of all services as means of overcoming the demand backlog.</td>
<td>Proposed new legislation to clarify and modernize the roles and responsibilities of the DOTC and the National Telecommunications Commission (NTC) is being reviewed, but progress is slow.</td>
<td>National Telecommunications Commission (NTC), an independent regulatory body, is responsible for licensing and radio spectrum management. The Department of Transportation and Communications (DOTC) establishes telecommunications policy, including the definition of operational and financial arrangements among PLDT and other services providers. The respective roles of the DOTC and NTC are not clearly defined.</td>
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<td>Polish Telecom. (Telekomunikacja Polska, S.A. or TPSA), a 100% government-owned joint-stock company, is expected to be privatized by about 1996. The Ministry of Posts and Telecom (MPT) has issued more than 40 licenses for local, regional, and value added services. There is one cellular mobile operator, which is a joint venture among TPSA, France Télécom and Anritsu. In local (i.e., rural) data and value added service, foreign participation is allowed with no limit on foreign ownership. In intercity network, foreign ownership is allowed up to 49%.</td>
<td>TPSA has a monopoly over international and long-distance trunk networks. The remainder is open to competition. Intercity and local operations are fully liberalized.</td>
<td>Law of 15 January 1991 modified the status of TPSA, turning it into joint-stock public service monopoly. Acts of 28 June 1991 and 9 October 1991 stipulate the use of telecommunications equipment and connection of international services as well as establish a liberalized local environment.</td>
<td>Regulatory agencies are the Ministry of Posts and Telecom (MPT); National Telecom Inspectorate (Panstwowa Inspekcja Telekomunikacji, or PIT); and National Radio Committee (Panstowowa Agencja Radiofonii, or PAR). These agencies together determine overall policies for telecommunications development, granting licenses, and supervising and coordinating activities of telecommunications companies.</td>
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### Portugal

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<td>Telecom Portugal, part of the PTT, provides domestic telecommunications except in Lisbon and Oporto, and international telecommunications to European countries. The 100% state-owned Telefones de Lisboa e Porto (TLP) provides local services in Lisbon and Oporto. Companhia Portuguesa de Rádio Marconi (CPRM) is responsible for intercontinental links. Legislation introduced in 1989 turned these operators into public limited companies under a state-owned holding company, Comunicações Nacionais (CN). Forty-nine percent of the government's shares in Telecom Portugal and TLP are to be sold, with the initial 30% to be sold in late 1994 or early 1995. CPRM is already 49% privately owned. Telcel (in which Pacific Telesis has a stake) is a new provider of cellular services.</td>
<td>Basic network infrastructure, telephone, and data services are provided on a monopoly basis.</td>
<td>1989 legislation separates postal and telecommunications activities and defines the monopoly on basic network infrastructure, telephone service, and data service.</td>
<td>The Portuguese Institute of Communications, Instituto das Comunicações de Portugal (ICP) established in 1989, is responsible for administering competition, issuing licenses, approving equipment, and managing the radio frequency.</td>
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Puerto Rico

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<td>International services provider Telefónica Larga Distancia de Puerto Rico (TLD) was privatized in December 1992, when the FCC approved sale of 79% of TLD to Telefónica de España through a holding company LD Acquisition Corporation (LD). The government retains 19% via the Puerto Rican Telephone Authority (PRTA). Two percent has been placed in an Employee Stock Option Plan. Common carrier radio licenses (subject to U.S. foreign ownership restrictions) have been assigned to PRTA, a public authority of the Commonwealth of Puerto Rico. Domestic services are provided on a monopoly basis by the Puerto Rico Telephone Company (PRTC), which is 100% owned by PRTA.</td>
<td>There is monopoly provision of domestic and international services.</td>
<td>At the local level, the Local Public Utilities Commission (PUC) was recently established. At the federal level, the regulator is the FCC in Washington, DC.</td>
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### Romania

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<td>ROM TELECOM is a separate, wholly government-owned corporation which resulted from the breakup of the old post and telecommunications operator. The company is wholly autonomous. An NMT 450 mobile cellular service is operated as a joint venture between Telefónica de España and two government operators, ROM TELECOM and ROM RADIOCOM.</td>
<td>Competition is permitted in almost every aspect of telecommunications except basic services, which remain a monopoly for ROM TELECOM. Terminal equipment market is open to competition subject only to type approval.</td>
<td>Regulatory framework has generally been made consistent with that in the European Union.</td>
<td>Ministry of Communications.</td>
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## Saint Kitts-Nevis

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<th>Operating Entity(s) Including Ownership</th>
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<td>Saint Kitts-Nevis Telecommunications (SKANTEL) is the operating entity. Ownership is shared between C&amp;W (65%), government (17%), and the public (18%). Cellular services are provided by Boatphone, a separate company which is serviced by SKANTEL.</td>
<td>No competition is permitted.</td>
<td>The Telecommunications Ordinance of 1959, Chapter 203 of the laws of Saint Kitts-Nevis. Regulations pertaining to licenses and fees were revised by Order #10 of 1986.</td>
<td>Ministry of Communications and Works through a telecommunications officer.</td>
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## Saint Vincent and the Grenadines

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<th>Regulatory Agency</th>
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<tr>
<td>C&amp;W is the only operating entity on the island. A subsidiary company, Boatphone Ltd., provides cellular services.</td>
<td>Exclusive rights exist for telecommunications and all basic services on the domestic and international levels.</td>
<td>Telecommunications Act of 1988 covers all telecommunications activities.</td>
<td>Ministry of Communications and Works.</td>
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Singapore

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<td>Singapore Telecom (ST) was corporatized as Singapore Telecommunications Pte Ltd. and Singapore Post Pte Ltd. on April 1, 1992, through a government-owned holding company (MinCom Holdings Pte. Ltd.). About 11% of the government's share in ST was sold in November 1993 in three tranches. Half the shares were reserved for Singaporeans. The government will retain majority control, but plans to sell an additional 25% within five to seven years through public offerings and private placements.</td>
<td>ST has a monopoly for domestic services for an indefinite period, for international services until 2007, and for mobile (paging and cellular) until 1997. Provision of value added services has been liberalized; however, applicants for licenses to provide international value added network (IVAN) services are required to show a substantial “value added” element to the proposed service. Those that would involve resale of any of ST's services are not permitted. The sale of telecommunications Terminal equipment was liberalized on July 1, 1991. ST is subject to a universal service obligation.</td>
<td>The Telecommunications Authority of Singapore Act 1992 defines the regulatory and licensing functions of the Telecommunications Authority of Singapore (TAS), the regulatory authority for both telecommunications and postal services.</td>
<td>Telecommunications Authority of Singapore (TAS).</td>
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### Spain

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<td>Telefonica de Espana, in which the government has a minority share (32%) but maintains financial oversight, is monopoly provider of all basic telephone services. Correos y Telegrafos, part of the Ministry of Transportation, Tourism and Communication, provides telex and telegraph services. Radio paging services are provided by four operators, one of which is a subsidiary of Telefonica.</td>
<td>Monopoly provision of all basic services by Telefonica de Espana and Correos y Telegrafos. Spain has not yet adopted EC Directives to liberalize services markets. Telefonica has discouraged construction of private networks, and digital-leased circuits remain difficult to obtain. Resale of capacity, carriage of third-party traffic, and interconnection to the public-switched network are all prohibited, and no changes are planned. The government has liberalized the provision of data transmission services and will liberalize cellular mobile service in 1994. Following 1993 review of basic telephone services market in the EC, the Council of Ministers has allowed Spain until 2003 to open voice to competition.</td>
<td>Telecommunications Act of 1987 will be amended to give effect to EC Directives.</td>
<td>Ministerio de Transporte, Turismo y Comunicaciones.</td>
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<td>Sri Lanka Telecom (SLT), a wholly government-owned corporation, was created in September 1991. It provides local as well as domestic and international long-distance services. Eventually it will be privatized. Value added services (VAS) are provided by private operators. Cellular licenses have been granted to two private operators (both joint ventures with foreign companies), Celltel and Lanka Cellular Services. Paging licenses have been granted to four private operators: InterCity Paging Service (joint venture with Motorola), Bartleet Electronics Ltd., Wimaladharna Bros Ltd., and Services Trade Ltd.; all operate primarily in the metro Colombo area. Privately owned Lanka Payphones Ltd. was licensed in 1989 to install and operate card and coin pay phones in metropolitan areas.</td>
<td>Basic services (local, long-distance, and international voice) are provided by Sri Lanka Telecom on a monopoly basis. There is competition in cellular and paging services, which are provided by private companies (cellular since 1989, paging since 1982). Private operators also have been licensed to provide store-and-forward fax and trunked mobile radio services.</td>
<td>Relevant legislation is contained in: * Sri Lanka Telecommunications Act No. 25 (1991), which provided for the transfer of assets from the former Sri Lanka Telecommunications Department to the New Sri Lanka Telecom (SLT). It also established the role of Director General of Telecommunications. * Telecommunications Ordinance (1988).</td>
<td>The Director General of Telecommunications (DGT) was appointed in July 1991 by—and is accountable to—the Minister of Posts &amp; Telecommunications (MPT). In 1992, the MPT proposed to convert the functions of the DGT into a commission and give it greater autonomy.</td>
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<td>The fully government-owned, limited liability company, Telia AB (formerly Televerket of Swedish Telecom), has a de facto monopoly. A second operator, Tele2 AB (40% owned by Cable &amp; Wireless), was formed in 1991 and launched an international telephone service in March 1993. Fonotel (owned by U.S. entrepreneur Arne Dunham) also plans to launch a rival public telecommunications service. The government is considering Televerket's partial or full privatization.</td>
<td>Sweden has open competition in telecommunications networks and services. Tele2 has an interconnection agreement with Televerket for international calls, but has failed to reach agreement for domestic service. The terminal equipment market was liberalized in 1988.</td>
<td>Until 1993 Sweden had no telecommunications law. The Telecommunications Act which was passed by Parliament on June 8, 1993, and came into force on July 1, 1993, defines the legal framework for increased competition. It regulates licenses for operators of telephone network services, leased circuits, and mobile communications. It also defines terms of interconnection and tariffs for basic services. A second law passed at the same time as the Telecommunications Act transformed Televerket into a limited liability company fully government-owned (Telia AB). Radio Communications Law (revised July 1, 1993) covers frequency management and the use of radio transmitters.</td>
<td>The National Telecommunications Agency was established July 1, 1992, as the regulatory agency. It administers frequencies, certifies CPEs, licenses operators of basic services, administers numbers, and represents Sweden in international organizations.</td>
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| Entreprise des PTT (Swiss PTT) has been granted monopoly for the establishment of infrastructures and, in principle, is the sole provider of basic services. | Policy is characterized by:  
• Full liberalization of terminal equipment market  
• Resale of basic services under certain conditions, and leased lines and value added services (VAS) fully liberalized (no license or registration required)  
• Licenses may be granted to third parties for radiocommunication and satellite services (except voice telephony)  
• Network and basic service (telephone, telex, data transmission) provision maintained under state-owned monopoly. | The 1991 Telecommunications Law distinguishes between basic (voice, telex, and data transmission) and value added services.  
The 1 May 1992 Order sets out conditions under which basic services other than voice can be provided by third parties through leased lines. | Independent body, Office fédéral de la communication (OFCOM), is attached to the Federal Department of Transport, Communications, and Energy, but managed separately from the Swiss PTT. OFCOM is also responsible for radio frequency management and spectrum allocation. |
## Taiwan

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<td>Domestic and international basic services are provided on a monopoly basis by the Directorate General of Telecommunications (DGT), a part of the Ministry of Transportation and Communications (MOTC). Local services (including cellular and radio paging) are provided by Northern Taiwan Telecommunications Administration, Central Taiwan Telecommunications Administration, and Southern Taiwan Telecommunications Administration. Domestic long-distance is provided by DGT through Long-Distance Telecommunications Administration. International services are provided through International Telecommunications Administration. No foreign investment is allowed in providers of telecommunications services, including value added services (VAS).</td>
<td>Domestic and international basic telecommunications services are provided on a monopoly basis. Certain VAS (e.g., information storage and retrieval, information processing, remote transaction services, electronic mail) can be provided competitively, subject to approval by the MOTC. Steps are being taken to liberalize the use of leased circuits by large users.</td>
<td>Legislation being drafted would create a corporatized government entity, Chinese Telecommunications Company (CTC), to assume DGT's operational functions. It would also create an independent regulatory agency. The law would permit foreign ownership of VAS providers (up to 33%) and would divide carrier services into two categories: Category I (installation of facilities that provide telecom services) would remain a monopoly of DGT's corporate successor; Category II (VAS using the facilities of Category I enterprises) could be provided on a relatively competitive basis. CTC would be permitted to provide both Category I and II services without cross-subsidization. CTC eventually would be privatized under the following conditions: Only Taiwanese entities or nationals could hold CTC shares, but foreigners would be allowed to hold up to one-third of the shares of a Taiwanese entity with an interest in CTC.</td>
<td>The Directorate General of Telecommunications, part of the Ministry of Transportation and Communications (MOTC), is currently both the regulator and operator.</td>
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<td>The Ministry of Communication (MOC) operates all public telecommunications (about 270,000 main telephone lines) and posts as well as TV and wireline audio broadcasting systems (but not contents). The armed forces, electric power, railways, and civil aviation ministries operate own telecommunications facilities (about 24,000 lines).</td>
<td>Liberalized provision of customer premises equipment.</td>
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<td>MOC is a government department responsible for policy and regulation as well as operation.</td>
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Tanzania

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<td>Tanzania Posts &amp; Telecommunications Corp. (TPTC), a statutory body, is the monopoly provider of all telecommunications services and facilities.</td>
<td>No competition is allowed for the time being. It is, however, envisaged that competitive provision of value added services will be allowed shortly.</td>
<td>Law is being prepared.</td>
<td>Establishment of an independent regulatory body is envisaged by end-1994.</td>
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### Thailand

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<td>Telephone Organization of Thailand (TOT) operates the domestic network. International services are provided mostly by the Communications Authority of Thailand (CAT). Both TOT and CAT are wholly owned by the government. The Post and Telegraph Department of the Ministry of Transport and Communications (MOTC) provides telegraph, telex, and packet-switching services. Shinawatra Satellite Co. has a 30-year concession to operate the domestic satellite system (operational in 1994). TOT has sought private (including foreign) financing of domestic infrastructure projects through build-transfer-and-operate (BTO) arrangements for Bangkok (2 million lines) and the provincial areas (1 million lines). There is no direct foreign participation in TOT or CAT. Limited indirect foreign investment is, however, possible, as in TOT's BTO arrangement with NYNEX.</td>
<td>There is no clear policy. There is some overlap (cellular, data, and paging), but CAT increasingly provides business-oriented services while TOT is concentrating on expanding the domestic network. Franchised competition has developed for data communications and cellular telephony.</td>
<td>Relevant legislation is contained in:  * Postal Services Act (1934)  * Telegraph and Telephone Act (1936) stipulates that telecommunications services destined for the general public be government controlled  * Telephone Organization of Thailand Act (1954) established TOT to provide domestic telephone and related services  * Communication Radio Act (1955)  * Communication Authority Act (1976)  * Communications Authority of Thailand Act (1977) established CAT to provide international services and domestic services that are not a monopoly of TOT.</td>
<td>The Ministry of Transport and Communications (MOTC) oversees the operation of TOT and CAT and approves capital investments and tariffs. The Post and Telegraph Dept. (PTC) is responsible for international and regional cooperation in telecommunications on behalf of the Thai government. It also regulates the radio frequency spectrum.</td>
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### Trinidad and Tobago

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<td>Telecommunications Services of Trinidad and Tobago (TSTT), established in 1991, is owned 51% by the government and 49% by C&amp;W. Prior to 1991, the domestic carrier was a 100% government-owned company, TELCO. TEXTEL, a joint venture between C&amp;W and the government, was the external carrier.</td>
<td>There is exclusivity for local and international telephone services and competition in terminal equipment provision.</td>
<td>Telephone Act legislated the telephone company. A Wireless Act, Chapter 36, No. 2 of the Laws of Trinidad and Tobago, applies to all radiocommunications. A 1991 Telecommunications Act has been passed in the legislature but not yet proclaimed.</td>
<td>The Telecommunications Division in the Office of the Prime Minister. The establishment of a telecommunications authority is being planned.</td>
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<td>Turkish PTT is sole provider of telecommunication services. In late 1992, the Turkish government announced plans to sell 20% of the Turkish PTT. Prior to privatization, the postal and telecommunications operations will be split. There is de facto no foreign ownership.</td>
<td>All telecommunications services are provided under the monopoly of the Turkish PTT.</td>
<td>Telegraph and Telephone Law No. 406 contains the provision for the Turkish PTT's monopoly, which includes telecommunications service installation, operation, and regulation.</td>
<td>The Ministry of Transportation has control over the Turkish PTT.</td>
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Ukraine

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<td>National and regional (oblast) trans-</td>
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<td>No framework has yet been de-</td>
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<td>mission and microwave companies were</td>
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<td>inherited from the breakup of the</td>
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<td>former Soviet network. A major joint</td>
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<td>addressing immediate issues,</td>
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<td>venture for international and long-dis-</td>
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<td>tance service, Ukrainian Telecom</td>
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<td>ing of the joint ventures</td>
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<td>(UTEEL), is being introduced with the</td>
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<td>existing Ukrainian service companies,</td>
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<td>AT&amp;T, and the PTT Telecom Nether-</td>
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<td>lands and DBP Telecom as partners.</td>
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<td>A second major joint venture for cell-</td>
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<td>ular, Ukrainian Mobile Communications</td>
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<td>(UMC), involves the Dutch, German, and</td>
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<td>Danish PTTs.</td>
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United Kingdom

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<td>The government's remaining 22% share in British Telecommunications plc (BT) was sold to the public in mid-1993.</td>
<td>Full competition is allowed in all services except international network (where duopoly remains). Liberalization of CPE, mobile, cellular, VAS, data, and resale markets between 1985 and 1990. Interconnection and contribution issues remain.</td>
<td>The Telecommunications Act (1981) split telecommunications from Post Office and allowed government to establish network competition. Telecommunications Act 1984 led to privatization of BT and setting up of independent regulator, OFTEL. Under the 1984 Act, the two primary duties of DTI and OFTEL are to secure the provision of telecom services throughout the U.K. to meet reasonable demand; and to assure that operators are financially qualified. They also must attend to the protection of consumer interests and promotion of competition. 1991 DTI White Paper further opened network and other markets. The domestic long-distance was opened to competition. Government policy is to streamline licensing and issue a class license whenever possible. Systems using radio spectrum require both a Telecommunications Act license and a license under the Wireless Telegraphy Act.</td>
<td>Independent body, Office of Telecommunications (OFTEL).</td>
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<td>Mercury (a wholly owned subsidiary of Cable &amp; Wireless) entered the switched voice market in 1986. It provides international and domestic voice services. A number of cable television companies—many associated with North American telephone companies—are starting to provide local exchange services.</td>
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<td>There are no foreign ownership restrictions.</td>
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<td>Regulation of telecommunications is the ultimate responsibility of the Secretary of State for the Department of Trade and Industry (DTI). The Director General of Telecommunications (DGT), who heads OFTEL, together with DTI is responsible for implementing the regulatory regime prescribed in the 1984 Act. DTI has responsibility for licensing and regulation of the radio spectrum. OFTEL has responsibility for monitoring and enforcing license conditions, investigating complaints, and keeping the sector under review generally.</td>
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### United States

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<td>Most local services are still provided on a monopoly basis. Domestic long-distance and international voice services are provided by AT&amp;T, MCI, Sprint, and others. There is a 20% foreign ownership restriction on radio license holders.</td>
<td>Competition is allowed for all services, with a few restrictions. There is no federal segmentation of markets or carrier restrictions except for regional Bell operating companies (RBOCs) as per the 1982 Modified Final Judgment (MFJ). Competition, however, is in varying stages of development for many services—i.e., local access competition is nascent, and the FCC has limited entry in some markets, such as cellular (two licenses per market).</td>
<td>Communications Act of 1934.</td>
<td>An independent agency, the Federal Communications Commission (FCC), regulates interstate and international communications as well as the radio frequency spectrum for commercial radio and television. State public utilities commissions (PUC) regulate intrastate communications.</td>
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**Uruguay**

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<td>Administración Nacional de Telecomunicaciones (ANTEL) has monopoly for local, domestic long-distance, and international telecommunications and of cable, microwave, and satellite services. Plan was announced in December 1991 to establish a mixed capital corporation with 51% government and 49% private ownership. This was preceded by legislation (September 1991) allowing private ownership of certain public enterprises, including ANTEL. Foreign ownership was to be limited to 49%, according to the State Enterprise Reform Law. Privatization plans had to be canceled in December 1992 when a national referendum rejected the plan by a 71.2% majority.</td>
<td>Competition is allowed for value added services. Private operators offer cellular, rural networks, and data communications. Competition is not allowed for local, domestic long-distance, and international services.</td>
<td>Law 14325 of July 1974 grants ANTEL a monopoly on local, long-distance, and international as well as regulatory functions. An attempt was made in 1991 to reform the telecommunications sector through the State Enterprise Reform Law (September 1991). It was overruled, however, by a national referendum in December 1992.</td>
<td>The regulator is the National Department of Communications, which is controlled by the Ministry of Defense. State Enterprise Reform Law was to have created a Comisión de Telecomunicaciones.</td>
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### Uzbekistan

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<td>National and regional telecommunications service providers have been established. Some of these have been organized separately from the government, and some of these are administered directly by the Ministry of Communications.</td>
<td>No formal arrangements are in place.</td>
<td>The Ministry of Communications is planning to develop a comprehensive regulatory structure soon.</td>
<td>Ministry of Communications.</td>
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**Vanuatu**

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<td>Telecom Vanuatu Ltd., which is owned equally (one-third each) by the Vanuatu government, Cable &amp; Wireless and France Cable et Radio (a branch of France Télécom).</td>
<td>Telecom Vanuatu has an exclusive mandate to provide all domestic and international telecommunications services.</td>
<td>Telecommunications Act of 1990 empowers Telecom Vanuatu to provide all telecommunications services.</td>
<td>Ministry of Communications. The Telecommunications Act (1990) established a telecommunications regulatory authority, but the current government abolished it.</td>
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### Venezuela

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<td>Privatization of CANTV was finalized in December 1991. Forty percent of CANTV sold to consortium of GTE (20.4%); Telefónica de España (6.4%); Electricidad de Caracas (6.4%); Consorcio Inversionista Mercantil Cima (4.8%); and AT&amp;T (2%). The government has retained 49% for later sale and has placed 11% in trust for CANTV employees. The new company has a 35-year concession, renewable for an additional 20 years. It also is authorized to operate a Band B cellular network, under its subsidiary, Movilnet. Telcel operates a Band A cellular network and is owned by a consortium led by BellSouth.</td>
<td>Basic services monopoly has been assured for nine years. In 1991, TELCEL was granted a 20-year concession to compete with CANTV in cellular mobile. Private and public satellite, value added services, VSAT data networks, private line, and certain mobile services also have been liberalized.</td>
<td>The Telecommunications Law of 1940 gives the government the responsibility to provide, either directly or through concession to private parties, telephone and other telecommunications services as well as radio and television broadcast services. The 1940 Law also authorizes the government to promulgate regulations concerning telecommunications and requires the executive branch to approve tariffs. The Constitution adopted in 1965 gives the federal government exclusive authority over telecommunications. In 1991, the government considered a new telecommunications law which would have created an autonomous regulatory body called INATEL as well as a new policy advisory body within the Ministry of Transportation and Communications. The law was not passed, and CONATEL was created by presidential decree.</td>
<td>Regulator is Consejo Nacional de Telecomunicaciones (CONATEL), an autonomous service within the Ministry of Transportation and Communications.</td>
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<td><strong>Zimbabwe Posts and Telecommunications Corporation (ZPTC)</strong> is a statutory body and monopoly provider of all telecommunications services.</td>
<td>No competition is allowed for the time being.</td>
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<td>Regulator and operator is ZPTC.</td>
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access charge. Term used in the United States for the fee imposed by local exchange carriers on interexchange carriers and on end users to defray that portion of the costs of the carriers' facilities that are associated with or otherwise assigned to the provision of interexchange services.

access deficit (U.K.). The annual gap between BT's revenues from providing exchange lines and its attributable or accounting costs which are allocated according to a formula (not in the public domain) which includes profits up to an approved limit (called applicable rate of return).

access deficit (U.S.). The difference between revenues—from connection and rental charges—and the costs of the installation and maintenance of direct exchange lines.

access deficit contribution (U.K.). Supplementary interconnection payments per call proposed by OFTEL, the U.K. regulator, on BT's competitors to help BT subsidize the below-cost price it charges for residential exchange connections.

access line. The wireline or other physical link that connects a customer to a telephone company's central office to allow calls to be made. Also called subscriber line.

Implementing Reforms in the Telecommunications Sector

access tariff. Charges imposed by a telephone company to access its local exchange facilities for the origination or termination of interexchange calls.

act (legislative). Term generally used as an abbreviation for legislative act or act of Parliament, a synonym for law.

American Depositary Receipts (ADRs). Receipts issued by a U.S. bank or trust company against certificates of shares in foreign stock registered in their name and held by them for safekeeping. ADRs are traded in the U.S. like shares, and are subject to U.S. regulatory rules. ADRs facilitate investment in foreign securities by overcoming the complications of directly accessing foreign markets.

Ameritech. One of the seven regional Bell operating companies that resulted from the 1984 breakup of the Bell System. Headquartered in Chicago, Ameritech is the parent of the Bell companies serving 12 million customers in the Great Lakes region (comprising the states of Illinois, Indiana, Michigan, Ohio, and Wisconsin), as well as companies providing mobile communications, directory publishing, voice messaging, lease financing, and audiotex services. 1992 revenues were US$11.2 billion, and total corporate assets exceed US$20 billion.

AMPS (advanced mobile phone service). A public cellular land mobile system developed in North America operating in the 800 MHz frequency band, designed to permit automatic exchange of traffic with the public-switched telephone network. It features high voice quality, high reliability, and relatively low cost, and can be used for both voice and data transmission.

analog technology. The means to process and transmit voice, data, or other information by using electric or electromagnetic signals that provide a continuous replica of the information. As opposed to digital technology.

ANTEL (Administración Nacional de Telecomunicaciones). The state telecommunications operating enterprise of Uruguay.

Antitrust II case. Case brought by the U.S. Department of Justice against AT&T and which was settled in 1982 as the Modified Final Judgment which led to divestiture of the Bell operating companies.

antitrust laws (rules). National legislation (regulation) aimed at enhancing competition. For example, in the European Community's rules concerning competition, Article 85 of the Treaty of Rome deals with agreements between companies, and Article 86 with abuse of dominant position.
AOTC. Name given to the 1991 merged Telecom Australia, Australia's domestic operator, and OTC Ltd., Australia's international operator, now known as Telstra. See also Telstra.

APEC (Asia Pacific Economic Cooperation). A loosely structured intergovernmental consultative forum established in 1989 to increase multilateral cooperation in the Asia-Pacific region in light of the rapid economic growth and increasing interdependence within the region. APEC's founding members were Australia, Canada, Japan, South Korea, New Zealand, and the United States, along with the six members of the Association of South East Asian Nations (ASEAN): Brunei, Indonesia, Malaysia, Philippines, Singapore, and Thailand. Later, China, Hong Kong, Taiwan, Mexico and Papua New Guinea joined. The chairmanship of APEC rotates on an annual basis, as does the executive director of the APEC Secretariat, which was set up in February 1993 in Singapore. APEC has ten working groups covering data in investment and trade, trade promotion, investment and industrial science and technology, human resources development, energy cooperation, marine resource conservation, telecommunications, transport, tourism, and fisheries.

Article of Association. A document that sets forth the objectives and rules for the management of an association. In common-law jurisdictions, the formal document evidencing the incorporation of a company.

ASEAN (Association of South East Asian Nations). Economic association comprising Malaysia, Indonesia, Singapore, Thailand, Brunei, and the Philippines.

Asset Valuation Method. Value of a company determined by its net assets, that is, its assets minus its liabilities.

AT&T (American Telephone & Telegraph Company). The largest U.S. provider of domestic and international long-distance communications services.

Attributable Cost. The share of total costs specifically associated with providing a particular service.

Audiotex. A technique that allows users to access computers through a telephone. Audiotex services range from public announcement services in which the same message is disseminated to all those who dial a given number, to interactive services in which callers access specific information in a database or carry out transactions using their telephone keypad to indicate their choices and enter commands. Examples of audiotex services are financial information, airline flight schedule information, electronic funds transfer, and bill-paying services.
Implementing Reforms in the Telecommunications Sector

AUSSAT (AUSSAT Pty. Ltd.). The operating company of the Australian national satellite system. AUSSAT was sold under provisions of the 1991 Telecommunications Bill and is allowed to compete with the merged Telecom/OTC (now Telstra) as a general carrier. Now called Optus.

AUSTEL (Australian Telecommunications Authority). The independent regulatory body in Australia, established in 1989 under the general policy direction of the Minister for Transport and Communications. AUSTEL is responsible for technical regulation with respect to customer equipment and cabling; setting of technical standards; promotion of competition; ensuring that competitive safeguards are respected; licensing; administering the national numbering plan; protection of public interest and consumers; and administration of universal levy arrangements.

averaged pricing. The regulatory practice of making rates for a regulated service component uniform throughout a nation (or a state) based on average nationwide (statewide) figures for costs and usage. In an averaged rate structure, the rate charged by a specific vendor for a service or service component will be uniform no matter where in the nation (interstate services) or state (intrastate services) a subscriber is located.

Baby Bells. See RBOC.

balanced loading requirement. A former FCC requirement that international record carriers and AT&T use international cable and satellite facilities equally in the North Atlantic region, as a means to support development of satellite service.

bandwidth. The range of frequencies over which a particular communications channel is effective, which determines the maximum rate at which information can be transmitted. Measured in hertz (Hz) and multiples, such as KHz (one thousand Hz), MHz (one million hertz), and GHz (gigahertz, one billion hertz). A single telephone-grade voice signal requires a bandwidth of about 3 KHz, while a color TV picture needs a bandwidth about one thousand times larger.

basic service. A regulatory term in the United States, subsequently adopted by the Canadian Radio-television and Telecommunications Commission and others, for a carrier offering a “pure transmission capability over a communications path that is virtually transparent in terms of its interaction with customer supplied information.”

BCE Inc. (Bell Canada Enterprises Inc.). The parent corporation of the Bell group of companies in Canada since the reorganization of Bell Canada in
1983. It has six principal subsidiaries: Bell Canada; Northern Telecom, a major manufacturer of telecommunications equipment; Bell Northern Research, a telecommunications research establishment; BCE Telecom International, BCE Inc.'s international investment and consulting division; BCE Mobile Communications, a provider of cellular, paging, telephone answering, and shared radio services; and Montreal Trust, a financial services company. Its 1992 revenues were Cdn$19.4 billion and assets Cdn$13.6 billion.

Bell Atlantic. One of the seven U.S. regional Bell operating companies created by the AT&T divestiture in 1984. Bell Atlantic provides telecommunications services to 18 million customers in the mid-Atlantic region of the U.S., which includes the states of New Jersey, Pennsylvania, Maryland, Delaware, Virginia, and West Virginia, as well as the District of Columbia. The company has more than 80,000 employees and provides local telephone, cellular mobile, business systems, and financial services. It is one of the largest cellular telephone providers in the U.S., with over half a million customers. Its 1992 assets and operating revenues were US$28.1 and US$12.6 billion, respectively. In October 1993, Bell Atlantic announced a merger with TCI, the largest owner and operator of cable television systems in the U.S.

Bell Canada. Canada's largest telecommunications operating company, with about 7 million customers in the provinces of Ontario and Quebec and in the eastern Arctic.

BellSouth. One of the seven U.S. regional Bell operating companies created by the AT&T divestiture in 1982. Its subsidiaries offer local telephone service in nine southeastern states of the U.S. and mobile communications services; they also market and maintain stand-alone and fully integrated communications systems.

Binariang Sdn Bhd. A privately held Malaysian company with diverse interests which, in 1993, obtained licenses to provide local and international services, a nationwide GSM mobile cellular service, and a geostationary domestic satellite, MEASAT.

bit rate. The rate at which digital information is processed or transmitted. Expressed in bits per second (b/s) or multiples thereof, such as Kb/s (one thousand bits per second) or Mb/s (one million bits per second).

BOC (Bell operating company). Each of the pre-divestiture 22 U.S. telephone companies wholly owned by the AT&T Bell System providing local and intrastate telephone service. Under the terms of the AT&T 1982 Consent
Decree, these 22 companies and their local exchange service and exchange access functions were divested from the Bell System and reorganized into seven regional holding companies (Ameritech, Bell Atlantic, Bell South, NYNEX, Pacific Telesis, Southwestern Bell Corporation, and US West). The seven regional holding companies each own a one-seventh interest in Bell Communications Research (Bellcore), whose major functions are to furnish technical assistance and serve as a central contact point for national security, emergency preparedness, and natural disaster functions. See also RBOC.

**bond.** A certificate evidencing a debt on which the issuer promises to pay the holder a specified amount of interest for a specified length of time and to repay the loan on its maturity. Strictly speaking, assets are pledged as security for a bond issue, except in the case of government bonds, but the term is often loosely used to describe any funded debt issue.

**book value.** The value of a share of common stock calculated by subtracting all liabilities from total assets and dividing the result by the number of outstanding common shares. Also the current value of equipment and other capital assets after deducting from their acquisition cost all accumulated depreciation. Book value may be very different from market value, i.e., the price that may be obtained for a share or a capital asset.

**British Approvals Board for Telecommunications (BABT).** An independent private company appointed by the U.K. Secretary of State to approve telecommunications equipment for connection to the public network. BABT is responsible for evaluating apparatus against published standards and, after testing at one of a number of contracted laboratories, granting type approval where appropriate. BABT also operates a scheme to assess applicants' production facilities. With the emergence of the single European market, the emphasis has shifted from British standards to European standards.

**BT.** Formerly British Telecommunications plc or British Telecom. The major provider of domestic and international telecommunications services in the United Kingdom. BT operates the fourth largest telecommunications system in the world. In mid-1993 BT announced a strategic alliance with MCI whereby BT would buy 20% of the latter's shares for US$4.3 billion and receive three seats on MCI's 15-member board of directors.

**BTTB (Bangladesh Telegraph and Telephone Board).** An agency of the government that operates the public telecommunications services in Bangladesh.
build-lease-transfer (BLT). A variant of BOT in which the telecommunications entity, rather than the investor, has responsibility for operating the equipment supplied during the period of the agreement. The revenues are divided between the parties to recognize their respective contributions to service.

build-operate-transfer (BOT). A form of investment financing whereby a private contractor (usually a manufacturer of equipment, an investor group, a foreign operating company, or a consortium of all three) finances and builds a telecommunications facility in exchange for permission to operate the facility for a fixed period, charges customers for use of these facilities, and retains revenues to cover the cost of investment (build) and service operation (operate). On an agreed date, the contractor transfers title and operational responsibility of the facilities to the telecommunications entity, thereby completing the arrangement between the two parties. The contractor is entitled to keep any revenues in excess of costs but also assumes the risk that revenues will not cover costs.

build-own-operate (BOO). A variant of BOT in which there is no provision to transfer the assets to the telecommunications operating entity at the end of the agreement period. Under such a scheme, ownership is conceded to the private contractor on a more or less permanent basis. The scheme may be regarded as a form of licensing or franchising.

build-own-operate-transfer (BOOT). A variant of BOT which emphasizes that the investment is owned by the private investors until paid for and transferred to the operating entity.

build-transfer-operate (BTO). A variant of BOT in which a contractor finances and builds a telecommunications facility in exchange for permission to operate the facility for a fixed period of time; however, the contractor agrees to transfer title of the facilities to the telecommunications entity upon having completed their construction and installation.

Bumiputera institutions. Institutions in Malaysia designated to hold Bumiputera interests in trust or to cater specifically to the interests of Bumiputera members (these include companies where Bumiputera hold the controlling stake). Bumiputera literally means "son of the earth" and in the Malaysian context refers to the indigenous people of Malaysia. Certain conditions must be met for a public listed company to be designated a Bumiputera Controlled Public Listed Company. These pertain to percentage of voting shares held by an identified Bumiputera group; the percentage of members of the board that must be Bumiputera; the percentage of management, professional, and supervisor staff that must be Bumiputera; and to the requirement that the chief executive officer be Bumiputera.
Implementing Reforms in the Telecommunications Sector

bypass. Arrangements or facilities whereby a customer can access long-distance, international, or other services without using the local operating company's switched network, thus avoiding payment of access charges. More generally, any means whereby customers avoid usage of a monopoly service or facility.

C&W (Cable & Wireless plc). A private company based in London that invests in and operates public telecommunications facilities and services in over 40 countries worldwide. C&W was a state-owned company until 1981 when it was privatized. C&W's two largest subsidiaries are Mercury, with about 10% of the U.K. market in competition with BT, and Hong Kong Telephone Company. Other operations comprise national monopoly telecommunications companies (e.g., Jamaica) as well as participation in competitive markets (e.g., one of Pakistan's three cellular companies).

cable television (CATV). A service that distributes a wide range of television programs to the homes of subscribers from a central facility through own networks of optical fiber and coaxial cable. The programs originate in many sources, including national broadcasting networks, a large and growing number of companies producing material (e.g., news, sports, documentaries, movies) especially for cable, and community interest groups (e.g., local government, universities, community colleges). Most cable television networks are unidirectional, but with new technologies they are evolving toward facilities capable of offering increasingly interactive services.

cahier des charges. In France, a set of universal service obligations which are imposed on a public telecommunications operator in its license. At present only France Télécom, the public telecommunications operator, and Société Francaise du Radiotéléphone (SFR), the mobile cellular operator, have such obligations imposed on them.

CANTV (Compañía Anónima Nacional de Teléfonos de Venezuela). The local, long-distance, and international telecommunications operator in Venezuela, formerly a state enterprise but which is now 40% owned by a consortium led by GTE of the U.S. and Telefónica de España.

capital asset. An asset with a life of more than a specified period of time (say one year) that is not bought and sold in the ordinary course of business.

capital gain (or loss). Income from the sale of a capital asset. The price at which the asset is sold, less the price paid to acquire it, including buying and selling expenses. Capital gains are sometimes treated differently from earned income for purposes of taxation, for example, to encourage investment.
capital market. A market where securities with long-term maturities (generally in excess of one year) are traded. These securities (e.g., most corporate and government bonds, mortgages, some preferred stocks) ultimately represent claims against capital assets.

capital stock. The total value of all shares representing ownership of a company, including preferred as well as common.

capitalization, capital structure. Term used (mostly in North America) to designate the total dollar amount of all debt, preferred and common stock, contributed surplus, and retained earnings of a company.

carrier. Any individual, partnership, association, joint-stock company, trust, or corporation engaged in providing telecommunications facilities or services in exchange for payment.

cartel. A group of firms which enter into an agreement to set mutually acceptable prices for their products, often accompanied by output and investment quotas. The rules of the cartel may be embodied in a formal document, which may be legally enforceable, and penalties will be laid down for firms which violate it. The essence of a cartel is that it is a formal system of collusion, as opposed to a set of informal or tacit agreements to follow certain pricing policies. Cartels are illegal in many countries.

cash flow. A company's net income for a stated period plus any deductions from revenue that are not paid out in actual cash, such as depreciation, deferred income taxes, minority interests, and amortization.

CAT (Communications Authority of Thailand). A state entity established in 1976 to provide international public telecommunications services (except to neighboring countries) as well as telex, telegraph, packet switching, cellular mobile, paging, domestic satellite, and postal services. See also TOT.

CATV. See cable television.

CCITT (Comité Consultatif International Télégraphique et Téléphonique, or in English International Telegraph and Telephone Consultative Committee). The permanent organ of the International Telecommunication Union (ITU) responsible for the development of voluntary international standards for telecommunications. Periodically the CCITT published recommended technical and administrative practices relating to international telecommunications. These generally have the effect of voluntary international telecommunications standards to which most manufacturers and operators
Implementing Reforms in the Telecommunications Sector

adhere. Under the restructured ITU this work is now being carried on by the Standards Sector.

C-DOT (Centre for Development of Telematics). Established by the government of India in 1984 to locally design, develop, and transfer to Indian industries the technology for manufacturing a range of digital switching systems with a capacity of up to 40,000 lines and transmission equipment.

CEE (Central and Eastern Europe). A term generally used to refer to the former Warsaw Pact countries excluding the former U.S.S.R., the former Yugoslavia, and Albania.

Cellnet (U.K.). A company providing cellular telephone services in the United Kingdom, of which BT is the majority shareholder.

cellular service. A terrestrial radio-based service providing two-way communications by dividing the serving area into a regular pattern of sub-areas or cells, each with a base station having a low-power transmitter and receiver. Although cellular radio is primarily a means of providing public mobile telephone service in urban areas, it is also used to provide data services and private voice services, and as an alternative to fixed wired telephone service where this is scarce, such as in developing countries.

central office. Term used in the U.S. to denote a telephone exchange or switch.

CEPT (Conférence Européenne des Administrations des Postes et des Télécommunications, or in English, European Conference of Posts and Telecommunications). An organization formed by the European PTTs to coordinate relevant policies among its members; prepare technical specifications regarding equipment used by its members or connected to their telecommunications networks; and harmonize European positions vis-à-vis international standardization.

chaebol. In Korea, a very large, highly diversified business conglomerate under a common controlling ownership. As a group, chaebols account for a large part of the economy, especially industry.

Chilesat. A competing domestic long-distance and international telecommunications operator in Chile, leasing both satellite and fiber-optic cable facilities. Since 1992 Chilesat has competed with ENTEL and VTR Telecomunicaciones.

CITIC (China International Trust and Investment Corporation). An agency of the government of China that undertakes investments abroad on behalf of
the state. It is, for example, a minority shareholder in the parent of Hong Kong Telephone Company.

civil law. A system of law based on a comprehensive written code (as in France, Mexico, and the Canadian province of Quebec, for example), in contrast with a common-law system built up through precedent set by individual judicial decisions (as in the U.K. and U.S.).

clawback provision. In a privatization, the provision whereby a certain number of shares sold in or destined for foreign markets can be brought back for sale in the domestic markets.

Clear Communications. A joint venture of BCE Inc. of Canada, MCI International of the U.S., Television New Zealand Ltd., Todd Corporation of New Zealand, and New Zealand Rail Ltd., formed in 1990 to compete with Telecom Corporation of New Zealand in the provision of the full range of telecommunications services in New Zealand. By 1993 Clear had a staff of about 450, had invested more than NZ$120 million in building an all-digital network, had achieved about 15% market share in domestic and international long-distance service, had connected about 112,000 customers to its network, and could be accessed by over 80% of the New Zealand population.

CMEA. Council for Mutual Economic Assistance. See Comecon.

CNT (Compañía Nacional de Teléfonos). Private holding company owned 73% by VTR Inversiones providing local telephone services in southern Chile (Telefónica del Sur), long-distance and international (VTR Telecomunicaciones), and cellular services (VTR Celular).

CoCom (Coordinating Committee on Multilateral Export Controls). An informal Paris-based organization of NATO, Japan, and Australia which has controlled export of high technology with potential military uses, primarily to the former U.S.S.R., China, and Central and Eastern Europe. CoCom is now focusing its attention on countries such as Iraq, Iran, North Korea, Cuba, and Libya and may invite Russia and China to join a transformed organization.

COCOT (customer owned coin-operated telephone). A type of pay telephone that may be connected to an ordinary telephone line. The distinction between a COCOT and a regular coin telephone is that the calculation and assignment of charges is performed by a microprocessor inside the COCOT apparatus, whereas with other coin-operated telephones these functions are performed at the telephone company's central office. COCOT's
are also referred to as instrument-implemented phones or private pay phones.

code conversion. The conversion from one representation of coded information to another representation of the same information in another code.

Comecon (Council for Mutual Economic Assistance (CMEA)). Organization founded in 1949 by Bulgaria, the former Czechoslovakia, Hungary, Poland, Romania, and the former U.S.S.R. to improve and extend mutual cooperation in the economic, technological, and industrial development of member countries as well as in the improvement of their labor productivity and the social well-being of their citizens in accordance with socialist economic principles. Later Albania, the German Democratic Republic, Mongolia, Cuba, and Vietnam joined and then Albania withdrew. North Korea, Angola, Ethiopia, Laos, Mozambique, Nicaragua, and Yemen participated as observers at one time or other.

commercialization. Introduction of commercial objectives into the management and operations of a state-owned enterprise. Commercialization does usually not imply a change in legal status. See also corporatization.

Commission. See Commission of the European Communities.

Commission of the European Communities. The executive organ of the European Union. The Commission has 17 members who are appointed by their governments for four years. The main role of the Commission is to initiate European Union (EU) law, to propose EU action to the Council of Ministers, and to ensure that decisions are implemented. Also referred to as EC Commission or the Commission.

common carrier. A carrier that provides telecommunications services to the public at large and is generally subject to nondiscrimination requirements. Common carriage is the regulatory status describing any common carrier service.

common stock. Securities which represent ownership in a company and usually carry voting rights and residual claim to the assets and profits of the company.

Community. See European Community.

community service obligation (CSO). Term used in Australia and some other countries to indicate the requirement imposed upon a carrier by public policy to provide services which it would choose not to provide on purely
commercial grounds. Also sometimes referred to as universal service obligation.

company. A legal entity created by stockholders (whether individuals, companies, or other legal entities) to carry on business activities, which exists independent of such stockholders.

company law. A body of law covering the formation, registration, and operation of companies and setting out legal requirements. Normally, all privately owned businesses in a country are incorporated under such a law.

competitive access provider (CAP). A term in the U.S. which is applied to a provider of local exchange (or access) services in the form of transport services either (a) from an end user to the facilities of a long-distance carrier; (b) from an end user to another end user, or (c) between facilities of long-distance carriers, generally over fiber-optic links or microwave facilities.

Computer I decision (U.S.). An FCC decision which recognized the confluence of telecommunications (regulated) and computer services (not regulated). At the time it allowed AT&T to provide some computer services through a separate subsidiary, even though provision of such services had been generally barred under the 1956 Consent Decree. Computer I clearly indicated that computer services were not regulated. Hybrid services were to be regulated or unregulated depending on the service characteristics and service provider. The vagueness of hybrid services forced the FCC to establish a clear demarcation line in its Computer II decision.

Computer II decision (U.S.). An FCC decision that distinguished between basic and enhanced services and determined that enhanced services should not be regulated. The FCC also determined that customer premises equipment should be deregulated. Computer II permitted AT&T to offer enhanced services and customer premises equipment through a subsidiary separate from AT&T's communications services.

Computer III decision (U.S.). An FCC decision that permitted the Bell operating companies to offer enhanced and basic services on an unseparated basis, provided that comparably efficient interconnection procedures are followed pending FCC approval of Bell operating companies' open network architecture plans.

CONATEL (Consejo Nacional de Telecomunicaciones). An autonomous agency, created within the Venezuelan Ministry of Transportation and Communications in 1991, which is responsible for regulating and overseeing telecommunications services. It is also responsible for recommending and
granting concessions, permits, and other authorizations; promoting investment and technological innovation; enforcing technical and service regulations; coordinating with national and international organizations on technical aspects of telecommunications, administering the radio frequency spectrum, and developing criteria for the administration of tariffs.

concentrator. A switching system that connects a number of lines to a smaller number of transmission circuits, thereby allowing a few transmission channels to carry traffic from many sources. A wide variety of concentrators is used in telecommunications, including voice concentrators (which take advantage of the silent periods in telephone conversations to increase the capacity of submarine cable or satellite systems) and data concentrators (which permit a common high-speed channel to handle traffic from several low-speed terminals). In telephone switching, however, the term usually refers to a line concentrator or to a line or trunk module that can be remotely located from its host switch.

concession. A form of legal authorization given to an operator to provide a service, including the terms and conditions under which the service is to be provided. A contractual arrangement between the state (or other public entity) and a private operator (called a concessionaire) requiring the latter to build (and finance the construction of) public works, such as a telecommunications network, a road, or water supply system, in the general interest. In exchange, the state grants the concessionaire the right to operate the infrastructure for a specified period time and at its own risk as well as to charge users. A concession of this type is similar to a BOT agreement. Other forms of concessions include concessions to provide a public service on the basis of existing infrastructure and mining concessions.

connection charge. A single payment made by a customer for becoming connected to a communications service provided by an operator. Connection charges (typically around US$50) are expected to cover the nonrecoverable plant and administrative costs of connection. In presence of excess demand, however, higher connection charges (sometimes as high as several thousand U.S. dollars) may be levied to generate additional funds for investment and allocate scarce supply.

Conseil Supérieur de l'Audiovisuel (CSA). Regulatory body responsible for licensing and regulating radio and television (including cable) broadcasting in France. It has nine members appointed in equal shares by the President of the Republic, the Parliament, and the Senate.

consent decree. A form of court settlement utilized by some U.S. federal regulatory agencies and the U.S. Department of Justice to resolve antitrust suits. Under
**Consent Decree (1956).** A judicial settlement between AT&T and the U.S. federal government ending a seven-year antitrust case. It generally limited the Bell System to providing communications services, subject to price regulation, and to manufacturing equipment used to provide such services. Among certain exceptions, it permitted the Bell System to perform any kind of work for the U.S. government and to engage in business incidental to the provision of common carrier communications services. In 1982 the U.S. Department of Justice and AT&T agreed to vacate the 1956 Consent Decree in its entirety and replace it with the new Consent Decree (1982).

**Consent Decree (1982).** Agreed to by AT&T and the U.S. Department of Justice in 1982 and approved by U.S. District Court Judge Harold Greene, it required that AT&T divest sufficient facilities, personnel, systems, and rights to technical information within Bell operating companies (BOCs) to permit them to perform local telecommunications, local exchange access, and printed Yellow Pages directory functions independent of AT&T. AT&T retained Western Electric (manufacturing), Bell Labs (R&D), and Long Lines (long-distance facilities), and assumed the interLATA long-distance operations of the BOCs as well as their embedded customer premises equipment. License and standard supply contracts with the BOCs, Southern New England Telephone, and Cincinnati Bell were terminated. After AT&T's reorganization, the BOCs were prohibited from discriminating in favor of AT&T and its products and services with respect to local exchange and information access, procurement, dissemination of technical information and standards, interconnection and use of BOC facilities, and in the planning for new services and facilities.

**Consumer surplus.** The difference between the total benefit an individual derives from consuming a particular quantity of a good or service (usually expressed in terms of the amount he is prepared to pay for it) and the amount he actually pays for that good or service (tariffs charged by the operating company as well as any taxes, surcharges, or other levies).

**Contract.** A legally enforceable agreement, either written or oral, between two or more persons or entities, to exchange something of value such as services, goods, money, or legal rights. Contract law is the legal regime that applies to contracts.

**CORFO (Corporación de Fomento de la Producción).** The Chilean state development corporation. CORFO held the state-owned shares in Com-
Implementing Reforms in the Telecommunications Sector

paísia de Teléfonos de Chile (CTC) and Empresa Nacional de Telecomunicaciones (ENTEL), the two main telecommunications operating companies, before they were privatized.

corporation. A legal entity created by or under the laws of a state. Normally classified either as a public corporation, created and owned by the state or another public body, or as a private corporation, created by private persons for private purposes.

corporatization. The transformation of a state-owned enterprise or business asset into a public corporation organized under company law. Also, term loosely used to designate changes in a state enterprise's corporate structure, internal organization and management, and rules linking it to the government, with the objective of providing management with the freedoms and incentives needed to run the enterprise along commercial lines. Corporatization is often the first step in the privatization of a state-owned enterprise.

cost-based pricing. The general principle of charging for services in relation to the cost of providing these services.

cost-benefit analysis. A technique of economic analysis used to compare the cost of carrying out a particular investment with the benefits to be derived from it, both costs and benefits being assessed over the life of the investment. It is used in connection with deciding whether an investment is worth undertaking, or to compare alternative investments. Results are commonly expressed in terms of net present value or of rate of return, and vary depending on whose viewpoint is adopted. In particular, private returns (the balance of costs and benefits to a firm) may be considerably different from social returns (to the economy as a whole).

COTAS (Bolivia). The telephone operating company of Santa Cruz de la Sierra, a city in the highlands of Bolivia. It is fully owned by its subscribers and has a reputation as a well-run operating company.

coupon. A portion of a bond certificate entitling the holder to an interest payment of a specified amount on a specified date when clipped and presented at a bank on or after its due date.

CPE (customer premises equipment). Term used in North America to designate terminal equipment, supplied by either the telephone common carrier or by a competitive supplier, which is connected by the user to the telephone network. Includes, for example, telephone sets, fax and teleprinter machines, data terminals, PBXs, and PABXs.
CPT (Compañía Peruana de Teléfonos). The mainly subscriber-owned local telephone company in Lima, Peru.

cream-skimming. Refers to the concern of traditional carriers, policymakers, or regulators that service providers without broad service obligations may choose to compete in only the most lucrative market segments and will thereby reduce the income which the traditional carrier would normally have used to meet other service obligations, such as in rural and remote high-cost areas.

cross-bar exchange. A common-control electromechanical analog switching system introduced in the 1950s and superseded by electronic technologies in the late 1970s.

cross-subsidization. The practice of using profits generated from one product or service to support another provided by the same operating entity.

CRTC (Canadian Radio-television and Telecommunications Commission). The Canadian federal regulatory authority for commercial radio and television broadcasters, cable system operators, and telecommunications common carriers.

CSFR. The former Czech and Slovak Federal Republic.

CT 2. A cordless telephone technology developed in the United Kingdom. Also known as telepoint.

CTC (Compañía de Teléfonos de Chile). The largest Chilean local telephone company, now privately owned. As of end 1993 it had about 1.2 million telephone customers throughout most of the country, as well as subsidiaries providing cellular and other services in the main cities. CTC also operates some domestic long-distance facilities and plans to build a modern optical-fiber and satellite network once given regulatory approval to compete with ENTEL, the dominant long-distance and international carrier, also private.

CTO (Commonwealth Telecommunication Organisation). An intergovernmental collaborative organization of twenty-nine British Commonwealth countries, which promotes the efficient exploitation and development of the Commonwealth's external telecommunications system through consultation and collaboration on all aspects of Commonwealth international telecommunications policies and practices.

DACOM (Data Communications Corporation of Korea). A provider of data communications services in Korea, created in 1982, which is partially
Implementing Reforms in the Telecommunications Sector

owned by the government of Korea (33%) and a number of Korea's major (private) firms. Since December 1991, DACOM has been allowed to compete with Korea Telecom in international voice services. DACOM's monopoly with respect to data services ended in 1992.

data networking. A term used to describe an assembly of functional units that establishes data circuits among different pieces of data terminal equipment at data stations. More generally, the term describes a network that facilitates the transfer of data among interconnected stations.

data-processing services. Term which refers to processing functions such as (a) general purpose programming and program execution, usually under user control; (b) special purpose numerical data processing for accounting and other business applications; (c) word processing; (d) proprietary information retrieval services; (e) automatic type setting; (f) systems design and programming; and (g) programming turnkey or integrated systems, which combine all of the above.

Datatie Oy. Organization of the independent private operating telephone companies of Finland offering a national data transmission service using their own interconnected facilities in competition with the data services offered by Telecom Finland, the state-owned long-distance company.

DBP Telekom (Deutsche Bundespost Telekom). The public enterprise in Germany responsible for telecommunications. Under the July 1, 1989 Law Concerning the Restructuring of the Postal and Telecommunications Sector and of the Deutsche Bundespost (Poststrukturgesetz), the Deutsche Bundespost (DBP), the public administration previously responsible for posts, telecommunications, and postal banking services, was reorganized into separate regulatory and business functions, with the latter subdivided into three public enterprises corresponding to the post, postal banking, and telecommunications functions. Each is managed by a board of directors and a supervisory board. The 1989 Law gives DBP Telekom a monopoly over transmission facilities and voice telephony. Upon German unification in 1990 the East German PTT was merged into DBP Telekom. The German government is planning partial privatization of DBP Telekom.

DDD (direct distance dialing). See STD.

debenture. A certificate of indebtedness of a government or company backed only by the general credit of the issuer and unsecured by mortgage or lien on any specific asset.
debt financing. The long-term borrowing of money by a business, usually in exchange for debt securities or a note, to obtain working capital or other funds necessary for investment or operations or to retire other debts.

debt-for-debt (swaps). Exchange of foreign debt against local currency debt.

debt-to-equity (swaps). Exchange of foreign debt against equity denominated in local currency.

decree. An executive order, which is usually subordinated to a law. Secondary or derived legislation, as opposed to primary legislation (i.e., law enacted by the legislature). Depending on the legal regime, decrees may be issued by the President, the Council of Ministers, the Prime Minister, or another Cabinet member.

DECT (Digital European Cordless Telecommunications). The standard adopted by European countries for digital cordless telephones.

DEL (direct exchange line). Term used in the U.K. to denote the physical connection between a customer and the local telephone exchange. See main line.

demonopolization. The process of undoing or breaking up a monopoly. See monopoly.

demand elasticity. The change in the demand for a good or service resulting from a change in one of its determining factors, usually price or income. A highly elastic demand is one which is very sensitive to changes of the factors. Demand is said to be inelastic when it changes less than proportionally to the factor. Usually measured by an elasticity coefficient which is approximately equal to the percent change in demand divided by the percent change of the factor. For most goods and services the price elasticity coefficient of demand is negative (i.e., an increase in price results in a drop in demand) while the income elasticity is positive.

demonopolization. The process of undoing or breaking up a monopoly. See monopoly.

denovo listing. Listing on a stock exchange of a new issue of shares of stock in a company.

deregulation. Removal of a regulation or regulations governing a service or provider. The deregulated service or provider is principally subject to the rules and practices of the competitive markets. In most countries, costs of a deregulated service may not be covered by profits from regulated operations. Profits from a deregulated service are usually not included in the
Implementing Reforms in the Telecommunications Sector

calculations when figuring the appropriate profit margin to be allowed on a firm's regulated operations.

determination (U.K.). A ruling by the Director General of Telecommunications (OFTEL), the regulatory authority in the United Kingdom.

developed country. Refers to an industrialized nation, most of which are members of the Organization for Economic Cooperation and Development (OECD). The World Bank avoids this term, which is considered value-laden, preferring industrial country instead.

developing countries. A broad range of countries that generally lack a high degree of industrialization, infrastructure, and other capital investment or advanced living standards among their populations as a whole. The poorest of such countries are sometimes referred to as the least-developed countries.

DFI (direct foreign investment). Active investment directly in companies (as opposed to commercial loans, indirect purchase of shares purely for financial investment, etc.).

DGT (Directorate General for Telecommunications). Taiwan's monopoly telecommunications service provider, which is part of the Ministry of Transportation and Communications.

dial code access (U.K.). A three-digit code by which a competitive long-distance network can be reached by customers of another network.


digital technology. Means to process and transmit information by sampling and coding it at discrete intervals by a digital code, usually binary. It is the basis of all contemporary telecommunications and information technology systems.

discount. The amount by which a preferred stock or bond sells below its par or stated value. In the case of a promissory note or bond, the lower price relative to face value at which it is traded before the maturity date. More generally, to take into account the present value of a sum of money or other asset having a known value at a given future time.

disinvestment. Process inverse to the act of investing; action leading to the end or winding up of an investment. See also divestiture.
divestiture. Transfer of public or state-owned property (including state-owned enterprises) to the private sector. In the U.S. divestiture generally refers to the breakup of AT&T mandated by the U.S. District Court for the District of Columbia. See Consent Decree (1982).

dividend. An amount distributed out of a company's profits to its shareholders in proportion to the number of shares they hold. Over the years a preferred dividend will remain at a fixed annual amount. Common dividend payout over the years may fluctuate with the company's ability to earn profits.

division of revenues. The allocation of the revenues from jointly used facilities among various kinds of services (such as trunk and local calls) and among the entities providing those services.


dominant carrier. A regulatory classification for the telecommunications provider that has the predominant market share or is otherwise able to exercise market power.

DOT (Department of Telecommunications). Regulator and the main domestic telecommunications service provider in India.

Dow Jones Industrial Average (DJIA). Daily average closing prices of a selected number of U.S. industrial stocks, prepared by Dow Jones & Co. and published in the Wall Street Journal and other publications which subscribe to this service.

DRG (Direction de la Réglementation Générale). Department of the French Ministry of Industry, Post and Telecommunications and Foreign Trade that regulates the telecommunications sector. The DRG is responsible for licensing networks and services, frequency management, approving terminal equipment, and representing France in international organizations such as the ITU, INTELSAT, and EUTELSAT.

D Series Recommendations. Recommendations of the CCITT concerning general tariff principles, charging, and accounting in international telecommunications services.

DSP (Direction du Service Public). Department of the French Ministry of Industry Post and Telecommunications and Foreign Trade responsible for supervising and protecting the state's interest in France Télécom.

DTI (Department of Trade and Industry). In the U.K., DTI, under the Secretary of State and in accordance with the Telecommunications Act of 1984, is
Implementing Reforms in the Telecommunications Sector

responsible for issuing licenses to operate telecommunications systems. DTI's Telecommunications and Posts Division considers such applications in consultation with OFTEL, the U.K. regulator. In addition, DTI is responsible for the U.K.'s policy on telecommunications regulatory and technical matters at the international level, in particular, within the European Community, ETSI, CEPT, the ITU, and the CTO. DTI also acts as a sponsorship focus for the manufacturing and service sectors of the telecommunications, radiocommunications, and broadcasting industries.

due diligence. A term used to describe the reasonable investigations to be made by officers of a company in order to obtain sufficiently accurate and complete information as needed to undertake a securities offering or other corporate transaction.

duopoly. The market situation in which there are only two sellers of a particular good or service.

duopoly review (U.K.). Review initiated in November 1990 by the Department of Trade and Industry (DTI) and OFTEL, the regulator in the United Kingdom, in the form of a consultative document proposing to open up the U.K. telecommunications market to increased competition and consumer choice. The review culminated in March 1991 with the publication by DTI of Competition and Choice: Telecommunications Policy for the 1990s which ended the duopoly policy. This document also allows cable television companies to provide telecommunications services, allows BT and Mercury to apply for franchises to provide entertainment services in local areas only, further reduces BT's prices, and provides for equal access. It allows international simple resale but does not foresee the granting of any new international operator licenses.

earnings per share (EPS). Net income of a company, less preferred share dividends, divided by the average number of common shares outstanding for the period.

earth station. Ground-based equipment used to control or provide communication through a satellite. Transmit/receive earth stations can send and receive signals and may be used in two-way communications such as telephony.

EBDIT. Earnings before depreciation, interest, and taxes.

EBIT. Earnings before interest and taxes.

EBRD. See European Bank for Reconstruction and Development.

EC. See European Community.
EC Commission. See Commission of the European Communities.

EC Council of Ministers. One of the institutions of the EC assembling the relevant ministers of the member states dealing with a particular subject. It decides upon proposals from the Commission of the European Communities (the executive body) and shares its legislative powers with the European Parliament, which can amend proposals for legislation. EC telecommunications matters are, for example, dealt with by ministers responsible for telecommunications in their own states.

EC Directive. A form of EC legislation. Directives are binding as to the results to be achieved but leave the form and method to the national authorities. EC Directives cannot take effect until they are transferred into national law.

EC Green Paper. The 1987 document, Towards a Dynamic European Economy: Green Paper on the Development of the Common Market for Telecommunications Services and Equipment, published by the Commission of the European Communities, which analyzes the trends in telecommunications policy in the EC and proposes an EC-wide telecommunications policy. It led to EC legislation which is binding on EC members and is generally followed by countries aiming to become members of the EC.

EC Official Journal. A publication of the EC. Legislation is usually published in the “L” (Law) series. Proposals and communications are published in the “C” series.

economic rate of return (ERR). The discount rate that makes equal to zero the present value of project benefits, net of costs, when all costs and benefits are valued to reflect true scarcities in the economy. Economic rate of return differs from internal rate of return in that financial costs are corrected to remove pure transfer payments (such as import duties) and major price distortions (of capital, foreign exchange, or unskilled labor, for example), and benefits are corrected to include payments excluded from the revenue stream (such as taxes on the bills), and sometimes also to include conservative estimates of consumer surplus. Used as a test against investments that are wasteful of scarce national (as opposed to company) resources.

economies of scale. Reductions in the unit cost of production achieved in certain industries when an increase in the volume of production is accompanied by a less than proportional increase in total production costs. Economies of scale may result from sharing fixed costs among a growing number of units produced or from increased efficiency of utilization of plant at higher output volumes.
Implementing Reforms in the Telecommunications Sector

Economies of scope. Reduction in production costs that can be achieved in some industries when the production of a combination of two or more distinct services or products within a single firm results in lower costs than the production of each one separately by individual firms. Economies of scope result from the sharing of facilities, marketing, labor, and/or management between two or more products or services.

ECU (European currency unit). Basket of a majority of the EC currencies. ECU is used to indicate a million ECU.

EDI (electronic data interchange). The transmission, in a standard syntax, of specific information of business or strategic significance, between computers of independent companies or organizations.

EEC (European Economic Community). See European Community.

Efficiency prices. Prices that, according to economic theory, maximize welfare for the economy as a whole. In perfect markets, it is the price that results from the competitive interplay of supply and demand. In imperfect markets, such as in the presence of monopoly or dominant suppliers, as is commonly the case in telecommunications, approximations to efficiency prices are sought through public regulation. In practice, deviations from efficiency prices are often necessary to reconcile economic efficiency with other objectives, such as meeting the financial requirements of the firm.

EFTA. See European Free Trade Association.

Electronic banking. See telebanking.

Electronic funds transfer (EFT). The process through which the banking industry utilizes computer and telecommunications technology to move funds from one banking location and/or account to another.

Electronic mail. A means for electronic transmission of text, usually utilizing computers. A system for entering a document and transmitting it by electronic means either to its ultimate destination or to a point near the destination for delivery by post, courier, or some other means.

Electronic messaging. The creation, transfer, storage, and retrieval of text, graphics, images, voice, or messages of any nature entirely by electronic means. Messaging implies retrieval at the recipient's discretion, and facilities are generally provided for filing, redirecting, and replying to messages received.
EMBRATEL (Empresa Brasileira de Telecomunicações). The state-owned Brazilian interstate and international telecommunications company. See also TELEBRÁS.

emerging markets database (EMD). Data maintained and sold by the International Finance Corporation (IFC) containing information on emerging stock markets around the world.

EMETEL (Empresa Estatal de Telecomunicaciones). The state-owned telecommunications operating enterprise in Ecuador.

employee stock ownership plan (ESOP). One of any number of schemes in which employees acquire a share in the stock of the company where they work. ESOPs are sometimes used to create an interest from organized labor in the privatization of a state enterprise.

ENDESA (Empresa Nacional de Electricidad S.A.). The state-controlled, partially privatized, national electric power producer and distributor in Spain. INI, the Spanish state holding company, owns 67% of ENDESA. Also refers to electric power utilities in several other countries, such as in Chile.

enhanced services. See VAS (value added services).

ENTEL or ENTel (Empresa Nacional de Telecomunicaciones). The name used in various Latin American countries and Spain for a state telecommunications enterprise, as for example, Argentina’s state telecommunications monopoly before privatization, and Chile’s dominant long-distance and international carrier.

equal access. A principle of interconnection designed to ensure nondiscrimination in the provision of services. For the customer of a public telecommunications network, equal access means that a particular service can be reached in the same way and on the same terms, whether provided by other networks or by the network to which he is connected. For a public telecommunications network operator, equal access means that it has the right to use the facilities of, and services provided by, another network operator on nondiscriminatory terms. In the U.S., equal access refers to a requirement of the Modified Final Judgment (MFJ) in the AT&T case that the divested Bell operating companies offer switched access and other interconnections to all interexchange carriers of a type equivalent to that furnished to AT&T.

equity or shareholders’ equity. Ownership interest of common and preferred stockholders in a company. The difference between the assets and liabilities of a company.
equity financing. Raising capital through the issuance of equity shares. In particular, equity flotation is the act of raising equity by selling shares in stock markets.

ESOP. See employee stock ownership plan.

ESPRIT (European Strategic Programme for Research and Development in Information Technology). A European research and development program, launched in 1984, which works in collaboration with universities, research institutes, and businesses. It combines projects in micro-electronic and related technologies, information-processing systems, software programming, and industrial automation.

ETPI (Eastern Telecommunications Philippines Inc.). A Philippine international telecommunications service provider which is 40% owned by Cable & Wireless and Philippine Global Communications Corporation.

ETSI (European Telecommunications Standards Institute). An association charged with producing technical specifications relating to telecommunications networks and services and associated terminal equipment. Adoption of these specifications as European Telecommunications Standards is the prerogative of an independent committee of the CEPT called the Technical Recommendations Applications Committee. Similarly, application of the European standards is a matter of national concern. ETSI's permanent secretariat is located in France and is governed by French law.

EU. See European Union.

EUREKA. A European program of technical cooperation launched in 1985 with the aim of defining joint projects among European firms and their public counterparts in order to improve the competitiveness of European businesses on a world-scale through technical and commercial alliances.


European Commission. See Commission of the European Communities.

European Community (EC). An association of Western European countries established by the Treaty of Rome in 1957 to facilitate the removal of trade barriers and promote the free movement of goods, labor services, and capital
between member nations. Formerly known as the European Economic Community (EEC), the EC has grown from its six original members (Belgium, France, Italy, Luxembourg, the Netherlands, and the Federal Republic of Germany) to twelve nations (now also including Denmark, Greece, Ireland, Portugal, Spain, and the United Kingdom). The EC resulted from the merger of the EEC, EURATOM, and the Coal and Steel Community. The main institutions of the EC are the Council of Ministers, the Commission of the European Communities, the Parliament, and the Court of Justice. See European Union.

European Council. see EC Council of Ministers.

European Court of Justice. The judiciary institution of the EC which interprets community law. It is composed of 13 judges and six advocates general, who are appointed for a period of six years. There is also a Court of First Instance, which deals with competition.

European Economic Area (EEA). Free trade area between the EC and EFTA countries which involves the freedom of movement of goods, services, capital, and persons. The 1991 EEA Agreement extends this to cooperation in competition, research, and standardization policies.

European Free Trade Association (EFTA). Free trade association consisting of Austria, Finland, Iceland, Norway, Sweden, and Switzerland.

European Investment Bank (EIB). Financial institution within the EC created by the Treaty of Rome. It provides loans and guarantees within and outside the Community to finance investment projects.

European Parliament. Directly elected EC institution of 518 members with supervisory powers over the European Commission and Council. It participates in the legislative process (right of amendment) and has budgetary powers.

European Radiocommunications Committee (ERC). The principal regulatory committee on radiocommunications within the Conférence Européenne des Administrations des Postes et des Télécommunications (CEPT) dealing, on a European level, with all regulatory matters concerning radiocommunications and all services requiring the use of the frequency spectrum.

European Radiocommunications Office (ERO). A permanent body of the European Radiocommunications Committee (ERC) which assists the ERC in harmonizing, as far as is necessary, radio regulatory, frequency
management, and spectrum engineering activities in consultation with industry, users, operators, administrations, and other organizations.

European Union (EU). Union of the 12 member countries of the European Community (EC) created on November 1, 1993, by the entry into force of the Maastricht Treaty, which strengthens the European Parliament and provides for greater cooperation on foreign and security policy, a move toward a single European currency by 1999, and citizenship of the Union for all citizens of the EC.

EUTELSAT (European Telecommunications Satellite Organization). Organization provisionally established in 1977 by 17 member countries of CEPT to provide the space segment required for international domestic public telecommunications services in Europe. The definitive organization came into force in 1985 with 26 member countries. Thirteen more countries from Central and Eastern Europe joined in 1986–92. By 1992, EUTELSAT had eight satellites, offering around 90 Ku-band transponders providing telephony, business, TV and radio distribution, and land mobile services. Headquarters are in Paris, and its turnover in 1992 was ECU 230 million.

externality. Any benefit from or cost of an action that accrues to persons (or firms) other than those directly involved in the action. For example, when new customers are connected to the telephone network, all existing customers benefit because they can reach a larger number of people (say, customers). In a congested network, when one user makes a call, he imposes a cost on all others whose call attempts are defeated.

facilities. The ensemble of equipment, sites, lines, circuits, software, and other plant used to provide telecommunications services. Also referred to as networks.

facilities-based carrier. A carrier owning, as opposed to leasing, networks used to provide telecommunications services.

facsimile. The communications process in which graphics or text documents are scanned, transmitted via a (typically dial-up) telephone line, and reproduced on paper by a receiver. Facsimile device operation typically follows one of the CCITT standards for information representation and transmission: Group 1, analog, with page transmission in four or six minutes; Group 2, analog, with page transmission in two or three minutes; Group 3, digital, with page transmission in less than one minute; and Group 4, digital, defined for operation in conjunction with teletex.
Federal Communications Commission (FCC). The U.S. federal administrative agency within the executive branch of the U.S. government established under the Communications Act of 1934 to regulate U.S. interstate and international telecommunications.

Federal Energy Regulatory Commission (FERC). A federal regulatory agency of the U.S. established in 1977 by the Department of Energy Organization Act. FERC's primary goal is to ensure that U.S. consumers have adequate energy supplies at just and reasonable rates, while providing incentives for increased productivity, efficiency, and competition. Its primary functions are to regulate certain aspects of the natural gas, electric utility, hydroelectric power, and oil pipeline industries. FERC is composed of five members appointed by the President of the United States with the advice and consent of the Senate. One member is chosen by the President to serve as chairman, and all commissioners serve four-year terms.

fiber-optic cable. A communication cable containing one or more low-loss, highly transparent silica, glass, or plastic fibers used to transmit information in the form of light, that is, using electromagnetic signals in the visible or nearly visible region of the frequency spectrum. Also called optical-fiber cable.

flat rate. Method of pricing local service by which customers pay a regular charge each month for remaining connected to the telephone network, including an unlimited number of local calls or of call pulses.

forbearance. Discretionary authority granted to the regulator to refrain selectively from regulating.

Foreign Corrupt Practices Act (FCPA). A law enacted in the United States in 1977 that makes it a criminal offense for publicly held U.S. firms to offer a bribe to a foreign official, political party, or candidate for foreign political office for the purpose of obtaining preferential treatment in a commercial dealing. The law requires that every company create and maintain a system of internal accounting sufficient to assure that these objectives are achieved.

foreign exchange convertibility. Ability of a certain currency to be freely exchanged for (i.e., converted into) other currencies.

foreign exchange repatriation. The return by a foreign investor of his capital and/or profits out of the country of investment.

Fortune 500 company. Refers to a listing of the 500 largest U.S. corporations compiled annually by Fortune magazine. The companies are ranked in
franchise. Authorization given to a company by a regulatory agency to provide a public service, such as a cable or telecommunications service. It usually specifies the geographic area of service and other obligations and privileges.

frequency spectrum. The spectrum or range of radio frequencies available for communication, industrial, and other uses. Frequency bands or segments are assigned to various categories of users for specific purposes, such as commercial radio and television, terrestrial microwave links, satellites, and police. At the international level this is done by the International Frequency Registration Board (IFRB) of the International Telecommunication Union (ITU). Individual national regulatory agencies monitor the occupancy of the radio spectrum and allocate frequencies to individual users or a groups of users so as to enable a large number of services to operate within specified limits of interference. This is also referred to as spectrum management.

fully allocated cost. The result of allocating the total costs of a network among each service provided.

fundamentals. A general term used by the investment community to indicate the basic strengths and weaknesses of a company whose shares are traded.

gateway. A facility that provides a link between two or more networks, as for example the international switching center which links a country's domestic network to the international network.

GATS (General Agreement on Trade in Services). A sub-agreement to the General Agreement on Tariffs and Trade, comprising a series of protocols and agreements which signatory governments agree to respect with regard to the treatment of international trade in services (as opposed to goods), first developed during the Uruguay Round negotiations (1986–93).

GATT (General Agreement on Tariffs and Trade). A set of successive international trade agreements that seeks to promote world trade by abolishing import quotas and other discriminatory constraints on trade and by reducing import duties among the signatory nations. The GATT was first concluded in 1947 in Geneva, Switzerland. The current round of negotiations toward a new agreement is referred to as the Uruguay Round, the first meeting of which took place in Uruguay. GATT also refers to the permanent organization that negotiates and oversees compliance with the agreements. The GATT organization is based in Geneva and comprises a Secretariat, a Council of Representatives (which meets several times a year),
an Annual Assembly (called the Sessions), and an International Trade Centre. More than 85 countries are members of the GATT.

GDP (gross domestic product). The money value of the sum of all goods and services produced in a given country in a given year, excluding net income from abroad.

GEN (Global European Network). A project by France, Germany, and others to provide switched broadband services.

GNP (gross national product). The money value of the sum of all goods and services produced in a given country in a given year, including net income from abroad.

golden share. A single share held by the government in a privatized company which conveys controlling voting rights (veto) in a limited number of specified circumstances, such as when selling a large or controlling interest in the company. Referred to as "Kiwi share" in New Zealand.

goodwill. An intangible asset appearing on a company's balance sheet representing nonphysical value such as trademarks, patents, copyrights, and prestige of the company.


gross profit margin. The difference between revenues and costs, before taking account of interest and taxation, expressed as a percentage of revenues.

gross revenue. The total amount of sales revenue, before deductions for returns and allowances but after deductions for trade discounts, sales taxes, excise taxes based on sales, and cash discounts.

Grupo Carso. A diversified private business conglomerate in Mexico which leads the consortium that owns a controlling interest in Teléfonos de México.

GSM (Global System for Mobile Communications or Groupe Spécial Mobile). A pan-European digital cellular mobile communications system which can be utilized in all of the CEPT countries. Loosely used as a generic for the technology and standards used in this system.

GTE. The largest U.S.-based local telephone company, providing telephone service through more than 21 million access lines in 40 states, British Columbia, Quebec, Venezuela, as well as the Dominican Republic, and the second largest cellular service provider in the United States. GTE also provides government and defense communications systems and equipment,
Implementing Reforms in the Telecommunications Sector

satellite and aircraft passenger telecommunications, directories, as well as telecommunications-based services and systems; markets telecommunications products and services; and supplies computer software and data processing. It is based in Irving, Texas, and has about 104,000 employees worldwide. Its 1992 revenues were US$20 billion.

head of agreement. Term used in the U.K. to designate a document setting out the principles of an agreement which the signatories intend to enter into at a future date. Generally referred to as a memorandum of understanding (MOU) in North America.

holding company. A company that controls one or more other companies through ownership of stock in those companies, usually without direct participation in their productive activities.

HONDUTEL (Empresa Hondureña de Telecomunicaciones). The state-owned telecommunications enterprise in Honduras.

Hong Kong Telecom. Holding company of Hong Kong Telephone Company and Hong Kong Telecom International, majority owned by Cable & Wireless. Hong Kong Telephone Company is the domestic telecommunications services provider, with a monopoly until 1995. Hong Kong Telecom International is the international operating company, with a monopoly until 2006.

HTC (Hungarian Telecommunications Company). The state telecommunications operating company of Hungary, established in 1990 with the separation of the postal, telecommunications, and broadcasting functions of Magyar Posta, the former Hungarian PTT.

Hutchison Whampoa. A Hong Kong-based diversified multinational corporation. Through its subsidiary Hutchison Telecommunications, the conglomerate has extensive interests in telecommunications, particularly cellular mobile communications, personal communications, and paging networks. Hutchison operates three paging networks in Australia, a joint venture paging network in Thailand, is a member of a consortium operating a paging network in Malaysia, operates a cellular network in the Philippines, and is attempting to become involved in cellular and paging services in India and Korea.

IBS (INTELSAT Business Service). A digital international or domestic private network communications service offered through the INTELSAT system.
IDC (International Digital Communications). One of two new Japanese Type I international telecommunications carriers. It competes with KDD and IT and is owned by Japanese and foreign private interests.

IDD (international direct dialing). A telephone service that allows subscribers to make international calls without going through the operator, also referred to as international direct distance dialing (IDDD), international subscriber dialing (ISD), and international trunk dialing.

IDR (Intermediate Data Rate). A digital satellite-based carrier system designed primarily to provide international regional or domestic public-switched telephone and ISDN services.

IFC (International Finance Corporation). The member organization of the World Bank Group that finances investments in private companies for projects of development interest. It is the largest source of direct project financing for private investment in the developing world. The IFC brings together entrepreneurship and investment capital, both foreign and domestic, when conventional financing and technical resources are insufficient to meet the needs of a business venture. On its own account and for others, it has funded nearly 1,000 private enterprises in more than 90 countries. The IFC’s business and political-risk-management skills, developed through long experience of international investments and its affiliation with the World Bank, contribute to its success.

industrial country. See developed country.

Infonet (Infonet Services Corporation). A consortium established in 1970 which provides international communications services to multinational enterprises in approximately 50 countries. Services provided include international value added network (IVAN), end-to-end data encryption and managed networks. Infonet is owned by France Télécom Transpac (21.6%), Deutsche Bundespost Telekom (21.6%), PTT Telecom Netherlands (7.2%), Telefónica International (7.2%), Belgacom (7.2%), Sweden’s Telia International (7.2%), Swiss PTT (7.2%), Kokusai Denshin Denwa (KDD) Co. Ltd. (6.8%), Singapore Telecom International (7.2%), and Australia’s Telstra (7.2%). In December 1993 MCI which had a 24.8% share of Infonet agreed to sell its ownership share to the existing shareholders as a consequence of its proposed joint venture with BT.

initial offering. First offering of shares of a company on the market.

INMARSAT (International Maritime Satellite Organization). A commercial nonprofit cooperative of 65 member states (end 1993) that leases, owns, and
Implementing Reforms in the Telecommunications Sector

operates a global telecommunications satellite system that provides maritime, aeronautical, and land mobile satellite services. Headquarters are in London.

insider. All directors and senior officers of a corporation and those who may also be presumed to have access to internal information concerning the company. Also anyone owning more than 10% of the voting shares in a corporation. Insider trading is the purchase or sale of stock or other securities by individuals making use of information not available to the public.

institutional investor. A large investor that pools savings from numerous individuals, such as a pension fund or insurance company, and seeks to invest these funds in low-risk instruments that provide a steady revenue stream.

INTELSAT (International Telecommunications Satellite Organization). A commercial nonprofit cooperative of 129 member states (end 1993) that owns and operates the global communications satellite system used by countries around the world for international communications and by more than 35 countries for domestic communications. Headquarters are in Washington, DC.

interconnection charge. A charge levied by network operators on other service providers to recover the costs of the interconnection facilities (including the hardware and software for routing, signaling, and other basic service functions) provided by the network operators.

interest. The cost of borrowing money; amount paid by the borrower to the lender for using his or her money. Also, ownership participation of an investor in a company.

interexchange (U.S.). Services and channels between or among two or more exchanges, rate centers, or LATAs, or to carriers providing such services and channels. An interexchange carrier is a carrier authorized by the FCC or a state public utility commission to provide long-distance telecommunications services between local access and transport areas (LATAs). Interexchange rates are the rates charged for measured and flat-rate interexchange services based on the distance between rate centers.

interLATA (U.S.). Interexchange service between or among the 161 local telephone serving LATAs in the United States. The 1982 Consent Decree that led to the divestiture in 1984 of AT&T prevents RBOCs from providing interLATA services.

internal rate of return (IRR). The discount rate that makes equal to zero the present value of future revenues resulting from an investment project, net of the costs incurred to produce these revenues. IRR is derived from comparing
financial projections with and without the project, and provides a measure
of the desirability of the project from the viewpoint of the investor.
Sometimes also called financial rate of return (FRR) or internal financial
rate of return. See also economic rate of return (ERR).

International Electrotechnical Commission (IEC). Geneva-based international
commission representing national governments, manufacturers, users, indi-
viduals, and trade associations, whose purpose is to coordinate and unify
electric and electronic standards.

International Finance Corporation. See IFC.

International Securities Group (ISG). Unit within the capital markets department
of the International Finance Corporation (IFC) that is involved in the
underwriting and placement of emerging market securities.

INTUG (International Telecommunications Users Group). An organization
formed in Brussels in 1974 to promote internationally the interests of
telecommunications users.

IRI (Instituto Ricostruzione Industriale Spa). Italy's largest industrial and
financial holding company which is fully controlled by the Italian state. IRI
owns the majority of shares in the following companies: Finmeccanica
(high-tech industries), STET (telecommunications), Finmare (shipping),
ILVA (steel), Iritecna (civil works), Fincantieri (shipbuilding), Alitalia (air
transport), RAI (TV producer and broadcaster), Banca Commerciale
Italiana e Credito Italiano (banking). Other companies are in the food
(SME) and industrial restructuring (SPI) sectors. The IRI Group employs
about 385,000 people, and the total 1992 value of gross production was
82,988 billion lire.

ISDN (integrated services digital network). A switched network providing end-
to-end digital connectivity for simultaneous transmission of voice and/or
data over multiple communications channels and employing transmission
and out-of-band signaling protocols that conform to internationally de-
fined standards. ISDN is considered by many to be the basis for a future
universal network that can support almost any conceivable type of commu-
ications device or service, but so far ISDN has been used only to a limited
extent in any country. Broader band ISDN standards are being developed.

ISO (International Standards Organization). An international organization that
brings together national institutes of standardization from more than 80
countries. The activities of the ISO are aimed at obtaining worldwide
agreement on international standards in order to develop trade, improve
Implementing Reforms in the Telecommunications Sector

quality, and reduce costs. The work of the ISO touches every aspect of standardization with the exception of electronic and electrical technology, which is handled by the Commission Electrotechnique Internationale (International Electrotechnical Commission).

Italcable. Company that provides telephone, telex, telegraph, data, and other telecommunications services, including international value added services, between Italy and non-European countries. Italcable is 49% owned by STET and has 3,300 employees. Its 1989 turnover was 664 billion lire.

ITJ (International Telecom Japan Inc.). A new Type I international carrier in Japan that competes with KDD and IDC; it is owned by private interests.

ITU (International Telecommunication Union). The specialized agency of the United Nations responsible for international telecommunications matters. Founded in 1865, it is the oldest existing intergovernmental organization. At the end of 1988 it had 166 members. Its functions include establishing equipment and systems-operating standards, coordinating and disseminating information required for planning and operating telecommunications services, coordinating use of the radio spectrum, and promoting telecommunications growth and modernization in developing countries. The ITU Convention is the basic treaty instrument and addresses, among other things, the composition, purposes, and structure of the ITU. The Plenipotentiary Conference is the fundamental organic meeting of the ITU.

IVAN (international value added network). Facilities used to provide value added services (VAS) on an international basis.

Jabatan Telekom Malaysia. See JTM.

joint-stock company. A company having a joint stock or capital which is divided into units of ownership interest, such as shares which may be transferred without consent of the other shareholders. Equivalent to the French Société Anonyme or the German Aktiengesellschaft (AG). See company, corporation.

joint venture. An association of persons or entities jointly undertaking a commercial undertaking. A joint venture may or may not be incorporated. The participants accept duties to one another to act in good faith. A joint venture agreement will often define their business relationships. Joint venture is sometimes also used to refer to a company established jointly by the state and private partners, or by domestic and foreign partners.
**Glossary**

**JTM (Jabatan Telekom Malaysia)**. The telecommunications department of the Ministry of Energy, Posts, and Telecommunications, which is responsible for telecommunications regulation in Malaysia. Before 1987 it was also responsible for operating Malaysia's telecommunications network.

**KDD (Kokusai Denshin Denwa Co. Ltd.)**. Japan's only international telecommunications carrier until 1985. KDD now faces competition from two other Type I international carriers: ITJ and IDC.

**Kiwi share.** See golden share.

**KMTC (Korea Mobile Telecommunications Corporation)**. The Korean mobile cellular operator.

**Kombinat.** The trustlike organization structure which combined and administered all firms in a given industry in the former German Democratic Republic.

**KTA (Korea Telecommunications Authority)**. The Korean government's domestic and international telecommunications operating entity which was reorganized in 1991 into a government-owned joint-stock company, Korea Telecom.

**Ku-band.** A set of frequencies between 10 and 14 gigahertz used for a variety of fixed and broadcast satellite services. These frequencies enable very small aperture terminal (VSAT) earth stations to be used. Ku-band communications are more affected by weather than C-band communications (which use frequencies between 4 and 6 gigahertz).

**La Poste.** The public agency in France which provides the postal service in France and which, like France Télécom, comes under the supervision of the Ministry of Industry, Posts and Telecommunications and Foreign Trade.

**LAN (local area network)**. A privately owned digital communications system that provides a high-speed link among a variety of devices (generally computer terminals, microcomputers, or minicomputers) on a single shared medium, usually over a distance of up to two kilometers on the user's premises.

**LATA (local access and transport area, U.S.)**. One of 161 local geographical areas established as a result of the 1984 divestiture of AT&T and within which a local exchange carrier is authorized to provide service. With minor exceptions for urban areas crossing a LATA boundary, local exchange carriers may not provide services between different LATAs.

**LDP (Liberal Democratic Party)**. The former ruling political party in Japan.
Implementing Reforms in the Telecommunications Sector

lead manager. In an underwritten offering of shares, the managing underwriter responsible for initiating the transaction with the issuer and for organizing (or designating another to organize) the successful syndication and placement of the issue in the primary market.

lease. The conveyance of the right to use an asset by one person (the lessor) to another (the lessee) for a specified period of time in return for rent.

leased line. A permanent connection between two customer premises, provided by a telecommunications carrier—usually for a flat monthly charge—for the exclusive use by a customer. This service may be provided using terrestrial or satellite facilities and generally does not involve central office switching operations. Also called a private line.

least-developed countries. Some 36 of the world's poorest countries, as defined by the United Nations. Sometimes abbreviated LDC, but this is also used by others for less-developed countries as synonym of developing countries, a much larger group.

legislation. Used in a narrow sense, this term refers to laws, i.e., acts of the legislature. In a broad sense, and in particular in civil-law countries, it refers to laws as well as derived or secondary legal instruments (e.g., decrees, executive orders).

leverage. Use of borrowed funds, margin accounts, or securities which require payment of only a fraction of the underlying security's value (such as rights, warrants, or options) to increase the return from one's own investments. It is also the effect of fixed charges (debt interest, preferred dividends, or both) on per-share earnings of common stock.

liabilities. Debts of a company, usually divided into current liabilities (due and payable within the accounting year) and long-term liabilities (those payable in later years).

LIBOR (London Inter-Bank Offered Rate). The interest rate at which first-class banks in London are prepared to offer deposits to other first-class banks. Different LIBOR rates are applied for different currencies (e.g., US$, £) and repayment periods (e.g., daily, six months).

license. Authorization or permit to carry out a function or use a scarce natural resource, as required by law. For example, licenses are often required to provide certain types of public telecommunications services and for using any part of the radio spectrum. See also franchise.
licensee. The party being awarded a license, such as a telecommunications
operating company (to provide a public service) or a user building its own
microwave link (to use a particular radio frequency).

licensor. Authority that awards a license. Telecommunications licenses are usually
granted by a ministry or separate regulatory agency, but in some countries
by the cabinet, parliament, or other.

lifeline rates. In the U.S., subsidized telephone rates for selected subscriber groups,
c.g., low-income or elderly.

limited liability company. A company in which the owners (stockholders) are liable
for the debts of the company only up to the amount of capital contributed
by them into the company. In some countries, this term refers to a type of
company that has fewer incorporation and legal requirements than joint-
stock companies (equivalent in this sense to the French SARL or the
German GmbH).

line-of-business restrictions (U.S.). Lines of business from which regional Bell
operating companies (RBOCs) are barred under the 1982 Consent Decree
because of their local monopoly position. Includes manufacturing (so that
the RBOCs would purchase the best and cheapest and not necessarily their
own-made equipment), long-distance (so that RBOCs could not discrim-
inate against competitors in providing access), and information services.

line of credit. An agreement by a creditor, lender, or bank to extend credit or to
make a loan up to a maximum specified amount, drawn down when needed
by a customer.

Link Up America (U.S.). A program established by the Federal Communica-
tions Commission (FCC) and the state public utilities commissions to
increase penetration rates by reducing installation and monthly charges
for telephone service.

LMS (local measured service). A method for charging customers for local calls on
the basis of usage. A charge is made for at least some calls and may be
determined on the basis of duration, time of day, and distance of the call.
A call allowance may be included in the monthly subscription charge.

local access and transport area (U.S.). See LATA.

local exchange carrier (LEC). In the U.S., the telephone company that provides
local service to connect individual business and residential subscribers
within its local serving area (LATA). It also provides switched access
Implementing Reforms in the Telecommunications Sector

collections between its subscribers and interexchange carriers as well as long-distance service within each LATA (i.e., intralATA) that it serves.

**Local exchange line.** A term used to describe the communication channel established between a switching center and a customer, subscriber, or user instrument. Normally established between distribution frames and data terminals, telephone and facsimile units, they consist of a single connection between either a switching center or an individual message distribution point and the user equipment (e.g., telephone). A unique dialing number is associated with each local exchange line. The connection can be maintained by numerous means, such as radio, wire loop, or fiber-optic cable. Called direct exchange line (DEL) in the U.K. and former colonies. Since more than one telephone set may be connected to one line (e.g., in parallel or through a PBX or PABX), the number of telephones is generally higher than the number of lines. The number of lines connected to customers is usually less than the capacity of the exchanges, since the capacity is used up only gradually and some reserve is needed for technical reasons. Both the costs and the benefits of an expansion program are more directly linked to the number of connected lines than to exchange capacity or number of telephones, so the former is preferred when specifying growth targets. Also referred to as main telephone, main line, or line.

**Local loop.** That part of a telecommunications circuit between the customer’s location and the nearest central office.

**Local network.** The network of cables and radio links over which local circuits are provided.

**Long-distance.** Loosely used to denote any telecommunications transmission service, such as telephone service, that connects locations which cannot be reached with a local call, i.e., which lie outside of each other’s local exchange area. The locations may be within the same state (intrastate) or in different states (interstate). A long-distance network is any network involved in long-distance communication. Often called toll (North America) and trunk (United Kingdom) networks.

**Maastricht Treaty.** Treaty signed at Maastricht, the Netherlands, in 1992 among the members of the EC, creating a European Union (EU) with the objective to promote economic and social progress through creating an area without internal frontiers, strengthening economic and social cohesion, establishing economic and monetary union ultimately including a single currency, implementing a common foreign and security policy leading to an eventual common defense policy, introducing a citizenship of the Union, and
developing close cooperation on justice and home affairs. The treaty entered into force on November 1, 1993.

Magyar Posta. See HTC.

marginal cost. The increment in total production costs needed to produce one additional unit of output. There are several ways of defining marginal cost, depending on the time horizon used. Long-run marginal cost includes concentrated ("lumpy") investments needed from time to time, as in individual telecommunications facilities.

marginal cost pricing. The principle of setting prices equal to marginal cost. According to economic theory, marginal cost pricing maximizes economic efficiency when there are no supply constraints. See efficiency prices.

marginal price. A term used to describe the price a person is willing to pay to obtain an additional increment of a commodity. Because the marginal utility of a product diminishes with increased availability of the product or an acceptable substitute, the marginal price will diminish proportionately with increased supply.

marginal revenue. The change in a firm's total revenue resulting from the sale of an additional unit of output.

Mason/Morris Report. A study conducted in New Zealand in 1985 on the telecommunications, postal, and agency services of the then-Post Office. The report highlighted the inadequacies of the Post Office's organizational structure, recommended that it be reorganized into specific business units, and recommended that authority and responsibility for day-to-day operations be decentralized within each enterprise in order to ensure quick response to market conditions. The report drew a distinction between basic network telecommunications services and enhanced services, and recognized the need to open the latter to market competition. It also recommended the eventual deregulation of the customer premises equipment market and identified the need for greater flexibility in pricing and access to sources of capital. Following this report, the government decided to establish Telecom New Zealand as a corporation.

Matav (Magyar Tavkoslesi Vallalat). Hungarian name for Hungarian Telecommunications Company. See HTC.

MCI (MCI Communications Corporation). The second largest interexchange carrier in the United States, which provides domestic long-distance and international public and private telecommunications services. MCI em-
Implementing Reforms in the Telecommunications Sector

ploys the most advanced fiber-optic and microwave technologies to provide an all-digital network of nearly 3.5 billion-capacity circuit miles, representing an investment of over US$10 billion. It has developed a number of long-distance and international service offerings to compete effectively with other long-distance carriers in the U.S. such as AT&T and Sprint. These include a number of cost-saving packages for users and value added services. MCI was founded in 1968, is incorporated in the state of Delaware, and is headquartered in Washington, DC, with divisional offices in New York, Atlanta, and Arlington, Va., as well as more than 65 overseas offices in 55 countries and territories. It has over 35,000 employees worldwide. In mid-1993 it announced a strategic alliance with British Telecommunications plc, whereby the latter would buy about 20% of MCI’s shares for US$4.3 billion and receive 3 seats on MCI’s 15-member board of directors.

MECU. See ECU.

Mercury (Mercury Communications Limited). The United Kingdom’s second network operator, a subsidiary of Cable & Wireless plc.

MFJ (Modified Final Judgment). The judicial decree that ended the U.S. Department of Justice’s antitrust suit against AT&T in 1982. See also Consent Decree (1982).

MFN (most favored nation). Principle of the General Agreement on Tariffs and Trade (GATT), North American Free Trade Agreement (NAFTA), and other similar agreements whereby each party to the agreement accords providers of goods and services of another party treatment no less favorable than that it accords, in like circumstances, to providers of goods and services of another party or nonparty. The principle of MFN which is contained in Article 1 of the GATT has been the cornerstone of the world trading system since 1947.

microwave link. A radio transmission system operating in the range above 1 gigahertz (GHz) capable of carrying large numbers of telecommunications circuits using line-of-sight beams relayed by means of highly directive antennas.

MIGA (Multilateral Investment Guarantee Agency). The member of the World Bank Group that is dedicated to helping developing countries attract productive foreign investment through (1) guarantees against specified noncommercial risks perceived by investors in economically sound projects in developing member countries, and (b) consultative and advisory services to members on means of improving their attractiveness to foreign investment. Both these facilities complement the work of the World Bank, the IFC, and other agencies in encouraging and facilitating investment in developing countries. MIGA was inaugurated in 1988 by an initial group
of 42 member countries that subscribed 63% of the agency's authorized capital of US$1.08 billion. Since then, membership has grown to over 60 and is expected to continue to expand.

MITI. Ministry of International Trade and Industry, in Japan.

MMC. Monopolies and Mergers Commission, U.K.

Mobile services. Radiocommunications services between ships, aircraft, road vehicles, or other stations for use while in motion or between such stations and fixed points on land.

Modified Final Judgment. See MFJ or Consent Decree (1982).

Money market. That part of the capital market in which short-term financial obligations are bought and sold. These include Treasury bills and other government securities maturing in three years or less as well as commercial paper, banker's acceptances, trust company guaranteed investment certificates, and other instruments with a year or less left to maturity. Longer-term securities, when their term shortens to the limits mentioned, are also traded in the money markets.

Monopolies and Mergers Commission (MMC). A statutory body in the U.K. set up to inquire into and report on questions relating to specific mergers, monopolies, anticompetitive practices, the performance of public sector bodies, and the regulation of certain privatized industries including telecommunications. Such references generally are made by the Secretary of State for Trade and Industry, the Director General of Fair Trading or, in the case of the privatized industries, by the appropriate regulator. MMC is independent of the government and other reference-making bodies in both its conduct of inquiries and in its conclusions. Its reports are all published.

Monopoly. A market structure with only one firm selling a given good or service and no other firms selling closely related goods or services. Natural monopoly is a service or facility which, because of large economies of scale and/or scope, is produced at the lowest cost when provided by a single supplier. Most public utilities, including telecommunications, were traditionally considered to be natural monopolies. With rapid technological innovation, however, telecommunications is no longer a natural monopoly, except perhaps for the wired local network which, in turn, is being challenged by the decreasing cost of new radio technologies. The natural monopoly concept is also questioned in terms of dynamic efficiency gains resulting from competition offsetting the losses in scale or scope.
Implementing Reforms in the Telecommunications Sector

MPF (Ministerium für Post- und Fernmeldewesen). The Ministry of Posts and Telecommunications in the former German Democratic Republic.

MPT. Ministry of Posts and Telecommunications in various countries.

MTNL (Mahanagar Telephone Nigam Ltd.). A wholly-owned corporation of the government of India which provides the telecommunications services in Bombay and Delhi.

MTV (Magyar Tavkosesi Vallalat). Hungarian name and initials for Hungarian Telecommunications Company. See HTC.

Multilateral Investment Guarantee Agency. See MIGA.

multiplexer. A device that combines two or more signals for transmission over a shared path by allocating to each a distinctive frequency range or time slot in a common spectrum or bit stream.

NAFIN (Nacional Financiera S.A.). The Mexican federal government's state development bank.

NAFTA. See North American Free Trade Agreement.

national treatment. Principle of the General Agreement on Tariffs and Trade (GATT), North American Free Trade Agreement (NAFTA), Canada-U.S. Free Trade Agreement and similar agreements whereby each party to the agreement accords providers of goods and services of another party treatment no less favorable than that it accords, in like circumstances, to its own providers of such goods and services.

net asset value. Total assets of a company less its liabilities.

net earnings. That part of a company's profits remaining after all expenses and taxes have been paid and out of which dividends may be paid.

net present value (NPV). The value today of all future benefits resulting from a specific investment or business activity, net of all initial and future costs incurred to produce these benefits, discounted at the appropriate rate.

network. A combination of switches, terminals, and circuits in which transmission facilities interconnect user stations, usually by means of a single switching or service center.
network architecture. The overall structure of a network; it details the format the data must take, specific operating procedures, the design principles followed, the physical structure, and the functional organization utilized.

NIC (newly industrialized country). One of a group of countries (such as the Republic of Korea and Singapore) that have experienced accelerated economic growth and modernization in recent years, reaching levels of income, industrialization, and other indicators that rank them somewhere between the typical developing country and the economies of OECD member countries. The number of NICs is growing, and countries such as Brazil, Indonesia, Malaysia, Mexico, and Thailand are increasingly included. Alternatively, NICs are sometimes referred to as *newly industrialized economies* (NIE) to include territories (such as Hong Kong and Taiwan) for which the term country is sometimes politically sensitive.

NIE (newly industrialized economy). See NIC.

NMT (Nordic Mobile Telephone System). An international public land mobile system developed jointly by Denmark, Finland, Norway, and Sweden, operating in the 450 MHz (NMT-450) and 900 MHz (NMT-900) frequency bands. It features roaming between countries and full access to the international public-switched telephone network and its services.

NOI (Notice of Inquiry). Refers to a public notice issued by the U.S. Federal Communications Commission (FCC) or National Telecommunications and Information Administration (NTIA) soliciting information and comment from interested parties with respect to policy options, rule modifications, or new rules being considered.

noncommon carrier (U.S.). A carrier in the U.S. that offers telecommunications services on a highly individualistic basis.

nondiscrimination. In trade terms, nondiscrimination means that parties to a trade agreement (e.g., GATT) shall accord to providers of goods and services of any other party treatment that is no less favorable than that accorded to the provider of goods and services of any other party.

nondominant carrier (U.S.). A telecommunications carrier in the U.S. that does not have market power, that is, does not have the ability to restrict output or increase prices.

non-tariff-based circuits. Telecommunications transmission capacity obtained by negotiation between an international telecommunications operator and the
Implementing Reforms in the Telecommunications Sector

operator of an IVAN; used to distinguish the terms and conditions of such circuits from tariff-based (usually leased-line) circuits.

non-traffic-sensitive costs. Investment and operating costs (including depreciation and return on investment) associated with telephone company facilities which do not vary with the aggregate level of usage (number of calls, minutes of use) of the telephone system. The principal component is the subscriber line connecting each customer's home or business premise with the local telephone company's central office.

North American Free Trade Agreement (NAFTA). A trade liberalization agreement among Canada, the United States, and Mexico signed in December 1992 and which went into effect on January 1, 1994. NAFTA aims to eliminate barriers to trade in, and facilitate the cross-border movement of, goods and services between the territories of the parties; promote conditions of fair competition in the free trade area; increase substantially investment opportunities in the territories of the parties; provide adequate and effective protection and enforcement of intellectual property rights in each party's territory; create effective procedures for the implementation and application of this agreement, for its joint administration, and for the resolution of disputes; and establish a framework for further trilateral, regional, and multilateral cooperation to expand and enhance the benefits of the agreement, in a manner consistent with article XXIV (Territorial Application-Frontier Traffic-Customs Unions and Free-Trade Areas) of the General Agreement on Tariffs and Trade (GATT).

NPRM (Notice of Proposed Rule Making). A public notice issued by the Federal Communications Commission (FCC) in the U.S. inviting comment from interested parties on a proposed new regulatory policy or modification to an existing one.

NTC. National Telecommunications Commission, the regulatory body in the Philippines.

NTIA (National Telecommunications and Information Administration). Established in the U.S. in 1978 to replace the President's Office of Telecommunications Policy (OTP), the NTIA is responsible for fostering the development and growth of communications industries and their customers. It also has primary responsibility for managing the use of the electromagnetic spectrum by the U.S. government and acts as chief telecommunications policy adviser to the President. NTIA makes studies of both broad and narrow communications policy topics. It occasionally makes proposals to the FCC on specific issues, comments on most FCC proceedings, and provides testimony on such issues to Congress.
Glossary

NTT (Nippon Telegraph and Telephone Corporation). Formerly Japan's only domestic carrier, NTT was privatized in 1985 and now competes as a Type I domestic carrier.

NYNEX. One of the seven regional Bell operating companies resulting from the 1984 breakup of the Bell System, NYNEX is a leading provider of information networks and telecommunications services, with 1992 operating revenues of US$13.2 billion and total assets of US$27.5 billion. In NYNEX's domestic markets, its two operating telephone companies—New York Telephone and New England Telephone—provide telephone services to more than 12 million customers in the northeastern United States. Through their computers and switching facilities, NYNEX's operating telephone companies handle 185 million calls daily. In addition, NYNEX offers telecommunications services in selected markets around the world. Through NYNEX's Worldwide Services Group of companies, a full range of services, such as integrated voice and data services, cellular mobile telephone service, telephone directory publishing, database management, and software and consulting services, are provided to NYNEX's diverse and competitive markets. These global business initiatives include international activities in Australia, Belgium, Canada, Czech Republic, Gibraltar, Greece, Hong Kong, Indonesia, Ireland, Japan, Korea, Malaysia, Mexico, Poland, the Philippines, Taiwan, Thailand, and the United Kingdom.

OECD (Organization for Economic Cooperation and Development). A forum for the highly industrialized countries whose aims are to encourage economic growth and high employment with financial stability among member countries, as well as to contribute to the economic development of the less advanced member and nonmember countries and the expansion of world multilateral trade. The OECD has provided an important forum for the discussion of international monetary problems and for promoting aid to developing countries.

Offering. Offering of securities for sale to the public or a restricted group.

Office of Fair Trading (OFT). The U.K. agency responsible for protecting consumers by monitoring unfair and uncompetitive business practices as well as taking steps to correct them. OFT keeps watch on the effects of trading practices and may suggest changes to the law in problem areas. In certain circumstances, it can take legal action against businesses that cause problems for consumers. As lack of competition in business may act against the public interest, OFT also keeps a watch on monopolies, mergers, and trade practices which may be restrictive or anticompetitive. In some cases, the issue may be referred to the MMC for deeper investigation.
Implementing Reforms in the Telecommunications Sector

OFTA (Office of the Telecommunications Authority). The telecommunications regulatory body of Hong Kong, established in 1993.

OFTEL (Office of Telecommunications). The regulatory body set up to supervise the implementation of telecommunications policies, competition, and licenses in the United Kingdom.

ONA (open network architecture). A telecommunications network configuration and regulatory scheme adopted by the Federal Communications Commission (FCC) in the United States. Upon approval of the Bell operating companies' ONA plans by the FCC, the BOCs may provide both basic and enhanced services on condition that they offer certain basic network functions on an unbundled, equivalent basis to all affiliated and unaffiliated enhanced service providers. Cross-subsidization between monopoly (basic) and enhanced services is prohibited, and accounting and reporting schemes are to be implemented.

Online database services. The provision of electronically published machine-readable information that can be accessed directly by the researcher over a telecommunications network.

ONP. See open network provision.

Open network provision (ONP). Proposal by the Commission of the European Communities for standardizing telecommunications transport service offerings, network interfaces, and access arrangements among member states. Basic principles include nondiscriminatory access to networks, transparent network configuration, and the prohibition of cross-subsidization.

OPIC (Overseas Private Investment Corporation). A self-sustaining U.S. government agency established in 1969 to promote economic growth in developing countries by encouraging U.S. private investment in those nations. OPIC assists U.S. investors by financing investment projects through direct loans and/or loan guarantees, and by insuring investment projects against a broad range of political risks. All of OPIC's guaranty and insurance obligations are backed by the U.S. government as well as by OPIC's own substantial financial reserves. OPIC will not provide assistance for any project that adversely affects the U.S. economy or domestic employment, is financially unsound, or does not promise significant benefits to the social and economic development of the host country. It is structured like a private corporation and does not receive government funds.

Opportunity cost. The cost of a good or service measured in terms of benefits forgone by others. The opportunity cost may be very different from the
actual price charged for the good or service. For example, the opportunity cost of scarce investment funds can be measured by the returns from the best alternative project in which these funds could be invested. This cost could be much higher than the interest rate charged (or paid) for funds by banks. The opportunity cost of labor may be lower than the salaries and wages paid, when there is a combination of minimum wages mandated by law and unemployment.

Optus. See AUSSAT.

OTC (Overseas Telecommunications Commission). The former state-owned Australian international telecommunications carrier, which was merged with Telecom Australia under the 1991 Telecommunications Bill and is now known as Telstra.

Overlay network. A separate network for a particular service or market segment covering most or part of the same geographical locations as an existing basic network. Increasingly used in Central and Eastern Europe, the Commonwealth of Independent States, and other countries where there is urgent need to overcome critical communication shortages while the overall network is expanded and modernized at a slower pace consistent with modest capital and management capabilities.

PABX (private automatic branch exchange). A PBX which makes possible some or all connections from extensions without the services of an attendant or operator.

Packet switching. A data communications service in which a data stream is divided into units called packets (typically composed of approximately 200 characters) that are separately routed to a destination where the original message is then reconstituted.

Paging. See radio paging service.

PAN (Partido de Acción Nacional). Right-wing opposition party in Mexico.

PanAmSat. The first privately owned international satellite system, PanAmSat launched its first satellite, PAS-1, in June 1988 and currently offers a range of specialized broadcast and data services to the Western Hemisphere and Europe. PAS-2 will offer similar services to the Asia-Pacific region and is scheduled for launch in May 1994; PAS-3 will cover the Atlantic Ocean region and is scheduled for launch in late 1994; PAS-4 will cover the Indian Ocean region and is scheduled for launch in early 1995, completing PanAmSat's global coverage.
Implementing Reforms in the Telecommunications Sector

Pannon GSM. The consortium of national telecommunications operators from the Netherlands, Denmark, Sweden, and Finland which was awarded one of two (the other going to a consortium of US West and the Hungarian Telecommunications Company) 15-year, pan-European standard GSM licenses in Hungary in October 1993.

par value. The stated face value of a bond or stock expressed as a currency (e.g., dollar) amount. The par value of a common stock usually has little relationship to the current market value and so no par value stock is now more common. The par value of a preferred stock is significant because it indicates the dollar amount of assets each preferred share would be entitled to in the event of liquidating the company.

PBX (private branch exchange). A manually operated switching system owned or leased by a customer and generally installed on its premises, which provides lines for internal communication between local extensions and provides a smaller number of trunk lines that give access to the public network.

PCN (personal communications network). The generic term to describe a digital cellular radio service that is universally available, working indoors as well as while on the move.

PCO (public call office). A telephone station available for the use of the public, generally on payment of a fee to an attendant or a coin box.

penetration level. The percentage of households with local telephone service, a widely used measure of telephone service accessibility. (A national penetration level of 100% would indicate that every household in the country had telephone service.) Alternatively, telephone density, or number of main telephone lines per 100 inhabitants, is a common measure of a country or region’s telecommunications development.

PEPCO (Potomac Electric Power Company). The electric power generation and distribution utility serving the District of Columbia and most of Prince Georges County and Montgomery County in Maryland.

Philcomsat (Philippines Communications Satellite Corporation). Wholesale provider of domestic satellite services in the Philippines.

plc or Plc (public limited company, U.K.). A limited company with broad share ownership to which higher standards of financial reporting apply.

PLDT (Philippines Long Distance Telephone Company). The privately owned dominant provider of domestic telecommunications services in the Philip-
pines. PLDT operates more than 94% of the telephones in the Philippines, mainly in urban areas.

**portfolio investment.** Passive investment in securities by fund managers.

**Postal Rate Commission (PRC).** A federal government commission in the U.S. which, along with a board of governors, manages the U.S. Postal Service (USPS). The President appoints all five members of the PRC, which recommends rates and classifications for approval by the board of governors. The President also appoints nine members of the board who select a Postmaster General as the tenth member. These ten board members then appoint the Deputy Postmaster General as an eleventh member. In addition to regulating postal rates, the board also sets policy for USPS entry into or out of new services, such as electronic mail, and the permissible areas of entry by private delivery services. The Postal Rate Commission and board of governors were established by the 1971 Postal Reorganization Act, which transformed the USPS from a Cabinet-level department to an independent agency.

**predatory pricing.** The setting of prices so far below costs that competitors will be driven out of business.

**presubscription.** In the U.S., an arrangement whereby an individual telephone customer may designate one long-distance carrier over whose facilities interLATA calls normally will be routed. Under the terms of the MFJ, BOCs are required to offer presubscription choices in all central offices equipped for equal access.

**PRI (Partido Revolucionario Institucional).** The dominant political party which has been in power in Mexico since the 1930s.

**price-cap regulation.** A method of regulating the tariffs charged by a monopoly or dominant telecommunications operator, whereby a cap is placed by the regulator or by contract (e.g., license) on the prices of a basket of services, with annual increases usually tied to a measure of inflation. Under certain conditions, price-cap regulation provides an incentive for the operators to cut costs and is relatively simple to administer. The method was first used extensively in telecommunications in the U.K. to regulate BT. In the U.S., the FCC similarly has proposed price-cap regulation of AT&T and the BOCs, to replace rate-of-return regulation.

**price/earning ratio (P/E ratio).** A common stock's current market price divided by its annual per-share earnings.
Implementing Reforms in the Telecommunications Sector

Primafoon shop. Telephone and subscription outlet for PTT Telecom Netherlands which offers various telecommunications customer services.

primary offering. An issue of new shares or securities by a company, typically in the case of a capital increase; proceeds of the offering go to the issuing company.

private company. A company owned by private parties (individuals or legal entities), and not by the state or another public body. A company with mixed ownership (some private and some public owners) may be considered a private company if the public sector owns less than a controlling interest in it. A private company is to be contrasted with a public enterprise or state-owned enterprise, which are owned and controlled by a state or other public entity. See public company.

private line. See leased line.

private network. Any network used to communicate within an organization (as distinct from providing service to the public), based on a configuration of own or leased facilities. The term includes networks used by private companies, state enterprises, or government entities.

private offering. See private placement.

private placement or private offering. An offering made only to a limited number of persons and not to the public at large. Securities laws may or may not regulate such offerings.

privatization. Transfer of control of ownership of a state enterprise to private parties, generally by organizing the enterprise as a share company and selling shares to investors. More generally, the term is sometimes used to refer to a wide range of modalities whereby business is opened to private enterprise and investment.

producer surplus. The difference between the sale price of goods or services and the cost of providing it.

promissory note. A note documenting a promise to pay. See also bond.

prospectus. A legal document that describes securities being offered for sale to the public and which must be prepared in conformity with requirements of applicable securities regulations.
protocol. A collection of agreements permitting the exchange of information between the user and a network, or among different networks. There currently exist several levels of telecommunications protocols sponsored by national and international standards-making bodies and manufacturers, consisting of electrical (ex. RS-232-C), character encodage (ASCII, BCD), linkage (XModem, HASP, HD2C), network (SNA, X.25), and equipment (3270, VT-100) protocols.

protocol conversion. Exchange of information between terminals or networks using incompatible communication protocols. Example: asynchronous-to-X.25 conversion provided by a packet assembler-disassembler to allow character-mode terminals to exchange information over a packet-switched network. Protocol conversion is considered to be not only a technique but also a separately tariffed service in countries that have promoted the unbundling of telecommunications services. It is often classified as a value added service.

PSTN (public-switched telephone network). A country's telephone system, including local loops, exchanges, trunks, international links, and, in some countries, the telephone apparatus.

PTC (Pakistan Telecommunications Corporation). Pakistan's state-owned telephone company.

PT Indosat. A government-owned joint-stock company which provides international telecommunications services in Indonesia.

PTO (public telephone operator). A term sometimes used for the organization that has sole responsibility for the provision of telecommunications services in a particular country.

PT Satelindo. Telecommunications service provider established in Indonesia in 1993, which is owned by PT Telkom (30%), PT Indosat (10%), and PT Bima Graha, a private company (60%), to provide international, cellular mobile, and satellite services in Indonesia. PT Satelindo will take over operation of Indonesia's domestic satellite system, Palapa, in 1995.

PTT (post, telephone, and telegraph). Generic name used to designate a government department or agency that operates the public telecommunications and postal networks, usually as a monopoly, and sets standards and policies. Until recently, telecommunications and postal services were organized as PTTs in most European countries, and from there the form was exported to a number of other countries, especially in Africa and Asia. In recent years the trend has been toward breaking up PTTs, leaving the policy and
Implementing Reforms in the Telecommunications Sector

regulatory functions with the government or specialized agencies and restructuring the operating functions as separate enterprises or companies.

PTT Telecom Netherlands. The telecommunications operating subsidiary of Royal PTT Nededand NV, due to be floated on the Amsterdam stock exchange in several tranches starting in 1994. It provides all types of telecommunications services in the 32 telecommunications regions of the Netherlands. Basic services and infrastructure are provided on a monopoly basis; however, regulatory changes are expected in the near future with the aim of creating a duopoly. PTT Telecom Netherlands has joined forces with several Dutch and foreign companies so as to offer a full range of services in line with market demand. Unisource, the joint venture in which PTT Telecom Netherlands and Telia AB of Sweden (formerly Televeket) are concentrating a significant proportion of their activities, has been strengthened by the participation of Swiss PTT Telecom as of July 1, 1993. Net turnover in 1992 was Dfl 10.487 million, and 1992 operating profit was Dfl 2.789 million.

PT Telkom (PT Telekomunikasi Indonesia). A government-owned joint-stock company responsible for the provision of domestic telecommunications services in Indonesia. PT Telkom also provides cellular mobile and paging services in joint ventures with private investors. Prior to the establishment of PT Satelindo, PT Telkom operated Indonesia's domestic satellite system, Palapa.

public company. A company whose shares are held by the public or a group of persons who do not otherwise have a common business interest. The shares are often traded on a securities market.

public enterprise. Enterprise owned by the public sector. This term includes state-owned enterprises, as well as enterprises owned by other state-owned enterprises, municipalities, or other public bodies.

public offering. An offering of stock or securities to the public at large, in which any member of the public may participate, as opposed to a private offering or placement. Public offerings are generally regulated by law.

public utility commission (PUC). An agency charged with regulating telecommunications and other public utility services within a state of the United States. Sometimes called a public service commission.

pulse code modulation (PCM). A form of modulation in which an analog signal is sampled, and the sample is quantized and then converted at regular intervals to a digital code to represent the absolute amplitude of each sampled pulse.
QAM (quadrature amplitude modulation). A sophisticated modulation technique using variations in signal amplitude that allows data-encoded symbols to be represented as any of 16 or 32 different states. The modulation is achieved through the impression of two independent signals on carriers of the same frequency that are 90 degrees out of phase with respect to one another. In 16-QAM each quadrature signal uses four-level coding to achieve a combination of 16 phase and amplitude states.

RACE (Research and Development in Advanced Communications Technologies in Europe). A European R&D program for information technologies and telecommunications, adopted in 1987 to facilitate progressive evolution toward an EC-wide broadband integrated communications system.

Radiocommunications Agency (U.K.). The government authority responsible for the use of radio spectrum in the United Kingdom. The Radiocommunications Agency issues licenses for specific use of radio frequencies for aeronautical, marine, land, satellite, microwave, and hobby uses. It also produces specifications for radio equipment, is responsible for overseeing type approval of equipment, and monitors the use of the radio spectrum. The Radiocommunications Agency has satellite and terrestrial radiomonitoring stations and a radio laboratory. Agency staff investigate cases of radio interference and misuse of radio frequencies.

Radio paging service. A service that allows transmitting a signal, usually only an alarm tone, via radio from any telephone in the public-switched network to a personal, portable receiving device in a defined operating area. More sophisticated systems provide audible or visual display messages.

Radio spectrum. See frequency spectrum.

Rate averaging. A regulatory practice of setting uniform rates for the same service rather than having different rates based on the differing costs of, for example, different locations or traffic routes. See also rate de-averaging.

Rate base regulation. A method of regulation in which a common carrier is limited in its operations to a revenue level that will recover no more than its expenses plus an allowed rate of return on the carrier’s investment or rate base. See also price-cap regulation.

Rate de-averaging. The regulatory practice of setting different rates for a regulated service or service component in response to differences in costs and usage from one route to another; one city to another, or one state to another. In a de-averaged rate structure, the rate a subscriber pays for a particular service from a specific vendor will vary according to the subscriber’s geographic location.
Implementing Reforms in the Telecommunications Sector

rate of return. The profit shown by an investment, expressed as percentage of the total money invested. The rate of return varies depending on behalf of whom it is calculated. In particular, costs and benefits to a telecommunications operating company ("private returns") can be quite different from those to the economy as a whole ("social returns"). See also cost-benefit analysis and economic rate of return.

rate rebalancing. Moving telecommunications service rates closer to their associated costs, as needed when an incumbent provider prepares to face competition from new entrants or when a regulator seeks to increase economic efficiency of a monopoly operator. In most countries, monopoly provision of telecommunications services has resulted in subscription (rental) and local charges that are below costs, and long-distance and international charges that are above costs.

RBOC (regional Bell operating company). One of seven U.S. regional companies created by the 1984 divestiture of AT&T to take over ownership of the Bell operating companies within their region. The seven RBOCs and their respective operating company subsidiaries are (1) NYNEX Corporation (New York Telephone Company and New England Telephone Company); (2) Bell Atlantic Corporation (New Jersey Bell, Bell of Pennsylvania, Diamond State Telephone, and the Chesapeake and Potomac Telephone Companies of Maryland, Virginia, West Virginia and the District of Columbia); (3) BellSouth Corporation (Southern Bell and South Central Bell); (4) Ameritech Corporation (Michigan Bell, Ohio Bell, Indiana Bell, Illinois Bell, and Wisconsin Telephone Company); (5) Southwestern Bell Corporation (Southwestern Bell Telephone Company); (6) US West (Northwestern Bell, Mountain Bell, and Pacific Northwest Bell); and (7) PacificTELESIS Group (Pacific Bell and Nevada Bell). Two other former Bell System operating companies, Southern New England Telephone and Cincinnati Bell, Inc., were not majority owned by AT&T and are not considered BOCs for the purposes of the various line-of-business restrictions imposed by the antitrust settlement. The RBOCs also have set up numerous unregulated subsidiaries engaged in a variety of communications-related and noncommunications businesses. The divestiture agreement barred RBOCs from engaging in certain business activities, such as providing long-distance service, but provided mechanisms for review, waiver, modification, or removal of the prohibitions.

regulation. The process ensuring that public utilities such as common carriers operate in accordance with specific rules and fair competition principles. Also the body of rules in a tariff governing the offering of service by a carrier and including practices, classifications, and definitions. A regulator is an agency empowered to control and monitor the commercial activities of
radio and television broadcasters, cable system operators, telecommunications carriers, or any other public utility in the public interest.

resale. The subsequent sale or lease on a commercial basis, with or without adding value, of a service provided by a telecommunications carrier. A resale carrier or reseller is a company that leases bulk-rated plant (e.g., transmission) capacity from facilities-based carriers and uses that capacity to provide services to individual customers or groups of customers at prices high enough to make a profit yet sufficiently below the equivalent rates of the facilities-based carriers to attract customers.

reserved service. A term used by the Commission of the European Communities to describe telecommunications services that may be provided only by the existing public telecommunications operator and a limited number of others under license.

restructuring. Major changes in sectoral organization, enterprise organization, or enterprise ownership. Also may refer to a change in the structure of rate components for an existing service.

retail investor. An expression used in the investment community to refer to an individual who is investing on his or her own behalf, in contrast to an institutional investor, who invests on behalf of large organizations.

return on assets (ROA). Net income of a company expressed as a percentage of average total assets. ROA is used, along with ROE (return on equity), as a measure of profitability and as a basis for intra-industry performance comparison.

return on equity (ROE). Net income less preferred share dividends, expressed as a percentage of average common shareholders' equity.

right of first refusal. A contractual term providing that one party to the contract has a right to acquire certain rights or privileges, such as to buy or sell shares, before they are offered to others.

risk. The potential costs, monetary or otherwise, resulting from uncertain future events. Credit risk refers to the possibility that borrowers and others to whom a bank has made commitments to extend credit will be unable to repay their obligations when due. Liquidity risk refers to potential demands on a bank for cash resulting from commitments to extend credit, deposit maturities, and many other transactions. Market risk refers to possible losses resulting from price changes, such as a decrease in the value of a portfolio of common shares (or, more generally, from failure of an enterprise to sell
Implementing Reforms in the Telecommunications Sector

goods and services as expected. *Interest rate risk* refers to possible losses resulting from changes in interest rates. *Foreign exchange risk* refers to possible losses resulting from exchange rate movements.

roaming. An expression that describes mobile cellular telephone use which involves passing from the local service area of one company to that of another.

RPOA (recognized private operating agency). A private or government-controlled corporation (such as AT&T, BT, France Télécom, Telefónica de España, Swiss PTT) that provides telecommunications services in adherence to international telecommunications conventions. RPOAs participate as non-voting members of the ITU and its organs.

Rural Electrification Administration (REA). Agency created in the U.S. in 1935 to support the development of electricity and telephone facilities in rural areas by granting self-liquidating loans and providing technical assistance. About 1,000 rural electric and 900 rural telephone utility systems in 47 states have received loans from the REA.

Satellite Green Paper (EC). Communication published by the Commission of the European Communities in 1990 on a common approach in the field of satellite communications in the EC. The Satellite Green Paper extends the application of the generally agreed upon principles of EC telecommunications policy to satellite communications, taking into account its specificities. It proposes (a) full liberalization of the earth segment, including both receive-only and transmit/receive terminals; (b) free (unrestricted) access to space segment capacity; (c) full commercial freedom for space segment providers, including direct marketing of satellite capacity to service providers and users; and (d) harmonization measures as far as required to facilitate the provision of Europe-wide services, all subject to the appropriate licensing and type approval procedures.

SCT (Secretaría de Comunicaciones y Transporte). The government department in Mexico responsible for telecommunications policy and regulation.

secondary market. A market for the purchase and sale of outstanding issues following the initial distribution. Shares sold on the various exchanges and in the over-the-counter market are secondary trades.

secondary offering. An offering of a large block of existing stock in a company, where the proceeds of the sale go to the owner-seller of the stock, i.e., typically to the government in the case of state-owned enterprise divestiture.
Secondary offerings are in contrast to primary offerings, which are issues of new stock.

Securities and Exchange Commission (SEC). The U.S. regulatory body which supervises the issuance of securities.

Services Directive (EC). Directive issued by the Commission of the European Communities in 1990 on competition in the markets for telecommunications services. It requires member states of the European Community to (a) withdraw all special exclusive rights for the supply of telecommunications services other than voice; (b) make the conditions of access to the public networks nondiscriminatory and transparent; (c) publish information on the characteristics of the technical interfaces necessary for the use of public networks; (d) end restrictions on processing of signals before and after transmission over the public network; (e) separate regulatory and operating functions by July 1, 1991. It allowed member states to prohibit simple (voice) resale until December 31, 1992, and contains provisions to avoid abuse of dominant position.

Sherman Act. The main United States antitrust law under whose Section 2 the Antitrust II case was brought against AT&T. The complaint charged that AT&T had abused its power as a monopolist supplying equipment, thus excluding competition from the terminal equipment market and denying access to its network by long-distance competitors.


SITA (Société Internationale de Télécommunications Aéronautiques, or in English Airline Telecommunications and Information Services). A nonprofit organization that is owned by 350 member airlines and provides a variety of essential communications and data-processing services to its members via a global telecommunications network.

SLT (Sri Lanka Telecom). The government-owned corporation responsible for providing domestic and international telecommunications services in Sri Lanka, established by the Telecommunications Act of 1991.

Société Française du Radiotéléphone (SFR). One of two licensed providers of GSM-type digital cellular mobile services in France, the other being France Télécom.

sovereign debt. Foreign debt owed or guaranteed by a national government.
SPC (stored-program controlled exchange). A generic switching system in which the control logic is stored in software form in the memory of one or more digital computers. Changes can readily be made to such a system—to provide new services, for instance—by altering or replacing the software rather than rewiring components or paths.

Sprint. A global telecommunications carrier based in the United States. It operates the world's largest all-digital, fiber-optic communications network (45,000 kilometers in length), which provides long-distance voice, data, and videoconferencing services throughout the United States. Sprint also provides local exchange service to more than 4 million subscribers in 17 states, operates one of the world's largest telecommunications equipment distributors, publishes telephone directories, and provides local and long-distance operator services. The company also has experience in cellular telephone and CATV system operations. Through Sprint International, the company offers, from the U.S., direct-dial voice service to 220 countries and locations, provides packet-switched data service to more than 100 countries, and has the world's largest videoconferencing network, serving 35 nations.

Standard & Poor's 500 Index. An index of the share prices of 500 key public corporations, divided into 87 industry groups, which is maintained on a continual basis by the Standard & Poor's bond-rating agency. Of these equities, 90% are traded on the New York Stock Exchange, with the balance traded over-the-counter. This index is considered a representative barometer of overall economic health, and of equity markets in particular. See also Dow Jones Industrial Average.

STAR Program. EC development program initiated in 1987 to promote the use of advanced telecommunications in the developing regions of the EC.

state holding company. A state-owned enterprise confining its activities to the ownership and holding of other companies (typically, though not necessarily, state-owned enterprise) and to the management and control thereof.

statute. Law or act of Parliament, as opposed to court-made law. Binding rule enacted by the sovereign authority in a society and laying down the fundamental principles for relations between the members of that society.

STD (Subscriber trunk dialing or direct distance dialing (DDD). A telephone exchange service that enables the customer to call other subscribers outside his local area without operator assistance.
Stentor. Formerly Telecom Canada. A consortium consisting of Telesat Canada and the nine major telephone companies across Canada: British Columbia Telephone Company (BC Tel), AGT Ltd., Saskatchewan Telecommunications, Manitoba Telephone System (MTS), Bell Canada, New Brunswick Telephone Company, Island Telephone Company, Maritime Telegraph and Telephone Company Limited (MT&T), and Newfoundland Telephone Company Limited. The consortium originally was formed in 1931 to facilitate the provision of coast-to-coast telephone service.

STET (Società Finanziaria Telefonica Spa). A provider and manufacturer of telecommunications facilities and services, 70% owned by the Italian state-controlled IRI-Group. While STET focuses on telephone and telex, its subsidiaries SIP and Italcable provide local and short-range long-distance and intercontinental services, respectively. STET’s industrial activities (production and installation of telecommunications and distributing systems) are mainly the concern of Italcable and SIRTI. STET also is active in publishing and communications through its subsidiary SEAT. STET employs about 123,000 people, has a capital of about 4,000 billion lire, and its 1989 turnover was 21,977 billion lire.

STM (Syarikat Telekom Malaysia Berhad). The majority government-owned enterprise incorporated in accordance with the Companies Act of Malaysia, responsible for operating the telecommunications business in Malaysia according to the Telecommunications Services Act of 1985. Now generally referred to as Telekom Malaysia.

Strowger switch. An electromechanical switch based on a stepping relay patented by Strowger in 1891. It was one of the leading technological changes that enabled automatic (as distinct from operator-assisted) telephone service.

subscriber bond. Some form of subscriber financing of telephone company long-term debt. For example, a telecommunications company bond purchased in some countries by a customer as condition to obtain a new telephone connection or resulting in faster connection, and which may be paid back through credits to future telephone bills or sometimes resold in a secondary market. Subscriber bonds played a major role in Japan’s developing both telecommunications and the bond market after World War II.

subscriber financing. Any mechanism whereby subscribers contribute an important part of the capital required by the telecommunications operating company for investment. Mandatory subscriber financing sometimes takes the form of obligatory purchase of bonds issued by the operating company, or of shares in the company’s stock, as a condition to obtain a new connection. See also subscriber bond.
subscriber line charge (SLC). In the U.S., a fixed monthly surcharge to recover a portion of subscriber access costs. The federal SLC is determined by the FCC and recovers a portion of the non-traffic-sensitive access costs assigned to the interstate jurisdiction. The balance of these costs not recovered through the SLC is recovered through the carrier common line charge.

SUBTEL (Subsecretaría de Telecomunicaciones). A department within the Chilean Ministry of Transport and Telecommunications which is responsible for technical regulation, overseeing the operation of all telecommunications networks and services, and granting licenses and franchises.

supplier credit. Financing for the purchase of goods, offered by the supplier of the goods. Usually comprises commercial bank loans and, where available, export development loans, government grants, and other concessional financing organized by the supplier.

surety bond. A three-part guarantee instrument which protects a person, corporation, or other legal entity in case of default in payment of a given obligation, improper performance of a contract, loss due to dishonesty, etc. The three parts are (a) the person, corporation, or legal entity on whose behalf the bond is issued; (b) the person, corporation, or legal entity in whose favor the bond is issued; and (3) the company which issues the guarantee.

swap. A commercial arrangement whereby two companies lend to each other on different terms, e.g., in different currencies, or one at a fixed rate and the other at a floating rate.

SWIFT (Society for Worldwide Interbank Financial Telecommunications). SWIFT operates a computerized telecommunications network to provide automated international message-processing and transmission services between financial institutions. Owned by the international banking community and operational since 1977, it connected in early 1989 more than 2,900 destinations in 60 countries. The network is controlled from two operating centers, in the United States and the Netherlands. The society's headquarters are in Belgium.

Syncordia. The Atlanta-based network management subsidiary of British Telecom, established in September 1991 to offer end-to-end outsourced global network services to large multinational corporations, that is, the provision of end-to-end telecommunications facilities and the management of all of the corporation's telecommunications needs, including equipment, circuits, and staff. Such outsourcing saves multinational corporations from
having to negotiate with telephone companies and dealing with different technical, quality-of-service, and cost factors in different countries.

System X. A medium-capacity digital switching system developed jointly by BT, GEC Telecommunications, and Plessey for use in the U.K. public network as a local, trunk, or international exchange.

T-1. A digital transmission system operating at a rate of 1.544 Megabits per second (Mbps) with a standard multiplexing format (equivalent to 24 voice grade circuits).

TACS (Total Access Communication System). A United Kingdom-developed public cellular land mobile system operating in the 900 MHz frequency range, designed to permit automatic exchange of traffic with the public-switched telephone network. It features high voice quality, high reliability, low blocking, and relatively low cost, and can be used for both voice and data transmission.

tariff. The schedule of rates and regulations governing the provision of telecommunications services by a particular carrier.

TAS (Telecommunications Authority of Singapore). The telecommunications regulatory body in Singapore.

TCI (Telecommunications Inc.). The largest owner and operator of cable television systems in the U.S. TCI and its subsidiaries provide cable television services to over 13 million subscribers in 48 states as well as in Washington DC, Puerto Rico, and the United Kingdom. In 1992, the Denver-based TCI had assets of US$13.2 billion and operating revenues of US$3.6 billion. In October 1993, it announced a merger with Bell Atlantic.

TCNZ (Telecommunications Corporation of New Zealand). The largest telecommunications operating company of New Zealand. It provides a variety of telecommunications services, including data and voice communications, telegram, telex, facsimile, videotex/teletex, TV, electronic mail/message service. Along with New Zealand Post and Post Office Bank, TCNZ was one of the three corporations created by the splitting of the functional activities of New Zealand Post Office. TCNZ was privatized in 1990 to a consortium consisting of Fay Richwhite and Freightways of New Zealand, Bell Atlantic, and Ameritech.

TDMA (time division multiple access). A radio scheme in which many signals share a single common transmission frequency band by allocating use of the transmission paths to each signal at discrete instants.
Implementing Reforms in the Telecommunications Sector

Techint (Compagnia Tecnica Internazionale). Argentina's largest conglomerate with investments in the industrial, engineering, construction, oil and gas, commercial and financial, transport, electrical energy, and telecommunications sectors. Techint's 1991 income was US$1.9 billion. It is the Argentinean partner of Telefónica de España in Telefónica de Argentina, one of the two regional telephone companies in Argentina.

TELECEL (TELCEL Celular S.A.). A private consortium led by BellSouth of the U.S. with minority Venezuelan private interests, it has a nationwide concession to provide cellular voice and data transmission services in Argentina.

Telebanking. A service which allows clients to carry out banking transactions from their home or business over a communication network, such as videotex.

TELEBRÁS (Telecomunicações Brasileiras S.A.). The state-owned holding company of the Brazilian telecommunications system, which owns the 28 operating companies providing public telecommunications services within each state as well as Emtel, the international and interstate long-distance operator.

TELECOM (Empresa Nacional de Telecomunicaciones). The state enterprise in Colombia that operates most domestic long-distance, all international services, and local service in some towns and rural areas.

Telecom Argentina. The northern regional telecommunications company in Argentina owned by a consortium including France Telecom and STET of Italy. It was established in 1990 with the privatization of ENTel. Telecom Argentina was given an exclusive mandate for seven years with possible extension for three years. Before privatization, Telecom Argentina was provisionally called Telco Norte.

Telecom Asia. A joint venture between Charoen Pokphand (85%), a private Thai conglomerate, and NYNEX (15%), a U.S. RBOC, to install 2 million telephone lines in Bangkok. In October 1993, Telecom Asia announced that it would raise US$400 million through a partial public flotation of its shares.

Telecom Australia. Australia's government-owned domestic terrestrial telecommunications carrier which was merged with OTC Limited (Australia's international carrier) under the 1991 Telecommunications Bill.

Telecom Canada. See Stentor.
**Telefónica de Argentina.** The southern regional telecommunications company in Argentina, owned by a consortium that includes Telefónica de España; it was established in 1991 with the privatization of ENTel, the state-owned national telephone company. Telefónica de Argentina was given a seven-year exclusive mandate to operate domestic telecommunications services in its territory with possible extension for three years. Before privatization it was provisionally called Telco Sur.

**Telefónica de España S.A..** The monopoly provider of domestic and international telecommunications services in Spain. The government of Spain owns, directly or indirectly through other state-owned institutions, about 34.9% of the outstanding shares of Telefónica. It exercises control over Telefónica through this shareholding and through the legal regulatory structure within which the company operates. Telefónica directly or indirectly owns 43.6% of Compañía de Teléfonos de Chile (CTC), 20% of ENTEL Chile, 8.04% of Telefónica de Argentina, 16% of the consortium which owns 40% of CANTV in Venezuela, and 79% of Telefónica Larga Distancia de Puerto Rico.

**Teleglobe Canada, Inc..** An international telecommunications carrier and the sole authorized operator of international telecommunications facilities linking Canada with all countries other than the United States (guaranteed until at least 1997). The corporation owns a global network which uses fiber-optic and coaxial submarine cables as well as communication satellites to link Canada with 230 countries and major territories. It employs 1,000 individuals and has more than 11,000 cable and satellite circuits in service in various parts of the world. Teleglobe Canada, Inc. is wholly owned by Teleglobe, Inc., which is in turn owned by National Telesystem Ltd. (20%), Bell Canada Enterprises (BCE, 20%), Caisse de Dépôt et Placement du Québec (15%), Ontario Municipal Employees Retirement Society (10%), and Rogers Communications Inc. (5%). The balance of shares is held by the general public.

**TELEINTAR.** The monopoly international voice carrier of Argentina, a jointly owned subsidiary of Telefónica de Argentina and TELECOM, the two private monopoly regional telephone operating companies. These three companies, as well as a jointly owned subsidiary that provides competitive services, were created with the privatization of ENTel, the Argentine state telecommunications monopoly, in 1991.

**Telekom Malaysia.** See STM.

**TELEKOM 2000.** DBP Telekom's strategic infrastructure modernization plan to increase the number of main lines in the eastern states of Germany (the former German Democratic Republic) from 2.4 million in 1991 to 9 million by 1997. The estimated total investment is DM 60 billion.
Implementing Reforms in the Telecommunications Sector

telematics. The provision of computer-based services to the public over telecommunications networks.

telematic service. Any telecommunications service other than ordinary telephone and telegraph services available to the public and generally requiring the user to interact with a computer-based system. Examples are teletex, videotex, facsimile, and messaging. See telematics.

telepoint service. A terrestrial mobile telephone service in which public base stations serve as intermediary points between the public-switched telephone network (PSTN) and portable personal telephone sets, situated in a radius of about 100 meters. See also CT2.

teleport. A facility giving access to a satellite network or other long-haul telecommunications network. Though usually connected to a building or real estate complex offering shared tenant services (such as a free enterprise zone or industrial park), a teleport sometimes also services the greater regional community beyond the tenants of the individual development.

teletex. A sophisticated update of the international telex service introduced in many countries in the mid–1980s. Teletex reproduces upper and lowercase characters so the output resembles a facsimile copy of a well-typed letter. Transmission speed is many times faster than telex. Teletex transmission is memory-to-memory between intelligent devices similar to word processors. Teletex systems provide gateways for interconnection with the older and slower telex systems.

telex. A public-switched telecommunications service providing for two-way, nonsimultaneous, written-word communications between subscribers using teletypewriter terminals.

Telex-Chile. A private operating company that provides domestic and international data, telex, and leased-lines services throughout Chile, and more recently through its subsidiary Chilesat, also domestic and international voice carriage in competition with the dominant operator ENTEL and with VTR. Originally Telex-Chile was the telex service of the government’s post and telegraph administration, restructured as a commercial, state-owned company and sold to Chilean investors.

Telia AB (formerly Swedish Telecom or Televerket). The major telecommunications operator and the largest investor in Sweden and, since July 1, 1993, a fully state-owned limited liability company. Telia AB provides telephone network services as its main business; other services include data communications, leased circuits, mobile cellular telephony, paging, directories,
cable TV, alarm services, customer financing, and consultancy. It is an important manufacturer and provider of telecommunications terminals and PABXs in Sweden. It joined with Ericsson to develop AXE, digital exchanges used both in the fixed and mobile networks. Fifty percent of its exchanges are digital; this will rise to 100 percent by the year 2000. Telia AB formed an alliance called Unisource with PTT Telecom Netherlands and Swiss PTT Telecom. Telia AB also operates in the neighboring Baltic countries. In 1992 it had 39,000 employees and a turnover of SEKr 35,000 million (US$ 5,000 million).

TELMEX (Teléfonos de Mexico S.A. de C.V.). The privately owned telecommunications carrier of Mexico.

Telstra. The Australian government-owned provider of domestic and international telecommunications services. Known as AOTC until 1993, Telstra is a result of the merger in 1991 of Australia's domestic telecommunications company, Telecom Australia, and Australia's international telecommunications services provider, OTC Ltd. Until 1991 Telecom Australia and OTC Ltd. had exclusive mandates in the domestic and international services, respectively.

Telus. Holding company of AGT Ltd., a telephone company throughout the province of Alberta, Canada, except for the city of Edmonton, AGT Ltd., Canada's third largest telecommunications carrier, was privatized in 1990 and is a member of the Stentor consortium.

terms of trade. The ratio of the index of export prices to the index of import prices. When export prices rise faster than import prices, a country experiences an improvement in its terms of trade.

Time Telecommunications Berhad. Malaysian telecommunications company which is part of the Renong Group, and which has and operates a fiber-optic cable alongside Malaysia's new North-South Expressway.

TLD (Telefónica Larga Distancia de Puerto Rico Inc.). The international telecommunications service provider in Puerto Rico, which is 79% owned (through a holding company) by Telefónica de España, the Spanish monopoly telecommunications services provider, and 19% by the Puerto Rico Telephone Company, the monopoly local exchange carrier. TLD is authorized to provide international telephone, television, and business services.

toll network. See long-distance.

tort law. Civil liability with respect to harms.

TOT (Telephone Organization of Thailand). The state-owned monopoly provider of domestic telephone services, operating under the Telephone Organization of Thailand Act of 1954. Also provides cellular mobile and digital paging services as well as international services to neighboring countries. See also CAT.

traffic-sensitive costs. Costs which vary as a function of traffic volumes. They include investment and operating costs (including depreciation and return on investment) associated with telephone company facilities, and vary in aggregate quantity with the volume of calls (and other measures of traffic) handled by the telephone system. Also included are the costs associated with common switching facilities in the local central office (end office), interoffice trunks (which connect several end offices either directly or via an intermediate switching point), and intermediate or tandem switching systems used to route calls.

transfer price. The price charged for goods and services when a unit, subsidiary, or affiliate of a company supplies those goods and services to another unit, subsidiary, or affiliate of the same company. Such prices are of concern to fiscal authorities in the countries where such a company operates because prices can be set artificially by the company in order to minimize its overall taxes.

transparency. In a technical sense, the property of a digital transmission channel, telecommunications circuit, or connection that permits any digital signal to be conveyed without change to the value or order of any signal elements. In the context of trade, transparency refers to openness in decisionmaking, to rendering intelligible and accessible the laws, policies, rules, and regulations that govern trade, applied not only to the formulation for prior notification and consultation but also to their implementation through existing regulatory authority.

Treaty of Rome. Treaty establishing the European Economic Community, signed in 1957 in Rome by the representatives of the six initial member states.

TRI (Technology Resource Industries Berhad). A Malaysian holding company, which provides mobile cellular services (E-TACS 900) through its Celcom subsidiary. TRI has obtained an international gateway license.

trunk. A circuit between two telephone exchanges or switching centers, or from an exchange to a customer's switchboard. A circuit capable of being switched at both ends and provided with the necessary terminating and signaling equipment. Called toll in the U.S.
trunked radio system. A method of operation in which a number of radio frequency channel pairs are assigned to mobile and base stations in the system for use as a trunk group.

TT&T (Thai Telephone & Telecommunications). A joint venture between Loxley Bangkok, Jasmine International, and NTT to install 1 million telephone lines in the provincial areas outside of Bangkok.

Type I. Class of Japanese telecommunications operators and service providers that own their facilities.

Type II. Class of Japanese telecommunications operators and service providers that lease facilities from Type I carriers to provide service to the public.

type approval. Approval of a specific manufacturer and type of equipment. Some regulatory bodies and telephone companies require that telecommunications equipment meet specific technical performance criteria. Once these criteria have been met and demonstrated, type approval is granted for its general use in their jurisdiction.

UMC (Ukrainian Mobile Communications). A joint venture of PTT Telecom Netherlands, Deutsche Bundespost Telekom, Telecom Denmark, and the Ukrainian government to build and operate a mobile telecommunications network in the 21 largest cities of the Ukraine.

unbundled tariffs. Tariffs in which each component of a communications service or product (called a basic service element by the FCC in its Computer II decision) is priced separately, so that customers may select only those components needed and be charged accordingly.

UNDP (United Nations Development Program). A branch of the UN that finances technical assistance and related investments for economic and social development. For example, many successful national and regional telecommunications training centers have been established and initially operated in developing countries using UNDP funds administered by the ITU.

Unisource. A joint venture among PTT Telecom Netherlands, Telia AB of Sweden, and the Swiss PTT to provide outsourcing for large multinational corporations, i.e. to manage customers' private networks, including virtual private networks for voice and data as well as packet-switched data and value added networks.

Unitel Communications Incorporated. A Canadian telecommunications operator formerly known as CNCP Telecommunications, owned by Canadian
Implementing Reforms in the Telecommunications Sector

Pacific Limited (48%), Rogers Communications (32%), and AT&T (20%). As a result of CRTC's Decision 92-12 in June 1992, Unitel has been permitted to offer public long-distance telecommunications services in competition with the Stentor companies, the established Canadian regional long-distance carriers. Unitel previously had been able to offer data, telex, and other private voice services.

universal personal telecommunications (UPT). A service that enables access to telecommunications services by allowing personal mobility. UPT enables each user to participate in a user-defined set of subscribed services as well as to initiate and receive calls on the basis of a unique, personal, network-independent UPT number. It can be used across multiple networks at any fixed, movable, or mobile terminal regardless of geographical location. The only limitations are those resulting from terminal and network technical capabilities or restrictions imposed by the network provider.

universal service. The concept that every individual within a country should have basic telephone service available at an affordable price. The concept varies among countries, from having a telephone in every home and business in the wealthier countries to most inhabitants' being within a certain distance or time away from a public telephone in developing countries.

usage-sensitive pricing (tariffs). A rate or price for telephone service based on the rate of utilization rather than a flat (fixed) periodic fee; often used in respect to some local services and called local measured service (LMS).

US West Inc. One of the seven U.S. regional Bell operating companies (RBOCs) created by the AT&T divestiture in 1984. As of the end of 1991, US West's largest subsidiary, US West Communication, provided telecommunications services to more than 25 million residential and business customers in the 14 western and midwestern states of Arizona, Colorado, Idaho, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. Additionally, a subsidiary serves more than 293,000 cellular telephone and 210,000 paging customers. US West has foreign joint ventures in cellular telephone packet data, cable TV, and telephone systems.

UTEL (Ukrainian Telecom). A joint venture of PTT Telecom Netherlands, Deutsche Bundespost Telekom, AT&T, and the Ukrainian government to establish, modernize, and operate the Ukraine's international telecommunications services as well as to install and manage a long-haul trunk network.

VAN (value added network). Communications network or system that is enhanced or has value added through data processing. A value added network
service provider will lease basic transmission channels from a common
carrier, add intelligence, and then resell specialized services that are not
available from the original carrier—such as computer-controlled switching,
temporary data storage, error detection and correction, protocol conversion,
electronic mail service, and videotex. See also VAS.

VAS (value added service). Telecommunications service which, in the course of the
transmission of information between users, modifies the form of content of
the information or defers its delivery. Value added services may be offered
either within the network, using enhanced facilities of the network provider,
or outside the network, by means of terminal equipment (e.g., the host
computer of an independent service provider) connected to the network. The
distinction between value added service and enhanced service is essentially
geographic. Value added service is the prevalent term used in Europe, whereas
enhanced service is commonly used in North America.

vertical integration. The undertaking by a single firm of successive stages in the
process of production of a particular good or service.

VHF (very high frequency). The range of radio frequencies extending from 30 to
300 MHz.

videoconferencing. A two-way telecommunications service that allows live video
images and speech of participants in a conference to be transmitted between
two or more locations. Videoconferencing services generally require the
digital transmission rate of T-1 (1.544 Mbps) or higher.

videotex. A generic term describing an interactive telecommunications system
which conveys information by manipulating symbols, particularly text, for
display on a video screen. These services provide data storage, retrieval, and
processing. They combine customer premises query devices such as a
typewriter keyboard or Touch-Tone pad, and a video display, such as a
home TV set, that are linked by the public telephone network to a
computerized data bank or other information source.

Vodafone. An operator of cellular radio, trunked private mobile radio, packet
radio, and radio paging networks in the U.K. Vodafone is also involved in
cellular operations in many other countries, including France, Sweden,
India, and Australia, as well as Hong Kong.

voice mail. Message and storage service; the telephone equivalent of electronic mail.

VPN (virtual private network). A private network in which public-switched
facilities are configured to provide a business with capabilities similar to
those of a dedicated private network at a lower cost than would be entailed by leasing private lines. The circuits that are allocated dynamically to form a virtual private network are called virtual leased lines, virtual private lines, or virtual dedicated lines.

**VSAT (very small aperture terminal).** A class of very small aperture, intelligent satellite earth stations suitable for easy on-premise installation, usually operating in conjunction with a large-size hub earth station and capable of supporting a wide range of two-way, integrated telecommunications and information services, also sometimes known as micro/mini earth station, personal earth station, customer premise earth station, on-premise terminal, etc. VSAT earth stations have a typical antenna size of 1.8 meters to 0.8 meters. Able to transmit or receive in Ku-band, the VSAT is used for one- or two-way transmission of audio, video, or data signals. The small size of a VSAT makes it convenient for customer on-premise use. VSATs often are used to bypass the local telephone company.

**VSNL (Videsh Sanchar Nigam Ltd.).** An 85 percent state-owned corporation that provides international telecommunications services on an exclusive basis in India. VSNL is due to be partially floated on international markets in 1994.

**VTR (Chile).** A private consortium of Chilean and foreign investors that owns CNT (see above) and several specialized telecommunications operating companies in Chile. Originally VTR was a private company, partly owned by RCA, which provided international telex service in a few large cities in competition with the state telegraph monopoly (see Telex-Chile) and other foreign-owned private international telex operators. VTR provides international services in competition with ENTEL, Chilesat, and others.

**WARC '92 (1992 World Administrative Radio Conference).** An intergovernmental conference held under the auspices of the ITU in February 1992 in Torremolinos, Spain to achieve worldwide agreement on frequency allocations and other compatibility questions for all classes of radio communications and broadcasting.

**WATS (wide-area telephone service).** A nationwide long-distance telephone service in North America, in which users contract for high-volume circuit usage rather than paying for each call individually.

**WATTC-88 (World Administrative Telegraph and Telephone Conference 1988).** An intergovernmental conference held under the auspices of the ITU in December 1988 in Melbourne, Australia, to draft new international telecommunications regulations which took effect on July 1, 1990, and
which provide the basic norms and administrative mechanisms for the existing and future international telecommunications network and services.

WesteL. A joint venture between the U.S. regional Bell operating company (RBOC) US West and Hungarian Telecommunications Company (HTC) to provide NMT-450 cellular mobile services in Budapest.

WIK (Wissenschaftliches Institut für Kommunikationsdienste GmbH). A research institute located in Bad Honnef, Germany, associated with the enterprises of the Deutsche Bundespost and whose mission is to conduct research on economic and social issues in the areas of telecommunications, posts, and postal banking. The institute is funded primarily by the German government and the three enterprises of the Deutsche Bundespost (DBP Telekom, DBP Postdienst, DBP Postbank.)

whipsawing (U.S.). In an environment in which a carrier from one country negotiates and interconnects with several carriers in another country, the ability of the single carrier to play one of the other country’s carriers against the other(s) in order to enhance its position. Whipsawing is used to increase an accounting rate by promising or threatening to increase or decrease return flow traffic.

white paper. A detailed policy statement published by the U.K. government which usually precedes legislation. For example, in March 1991 the Secretary of State for Trade and Industry presented to Parliament a white paper entitled Competition and Choice: Telecommunications Policy for the 1990s. It effectively ended the government’s duopoly policy which had been in place since 1980.

World Partners. An international alliance formed in 1993 by some of the world’s largest telecommunications corporations. Initiated by AT&T (which remains the lead member), it will cater to the full range of telecommunications needs of multinational corporations. Members include KDD (Japan’s main international telecommunications carrier), Singapore Telecom, Telstra of Australia, and Korea Telecom.
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Implementing Reforms in the Telecommunications Sector

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Implementing Reforms in the Telecommunications Sector

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Implementing Reforms in the Telecommunications Sector

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