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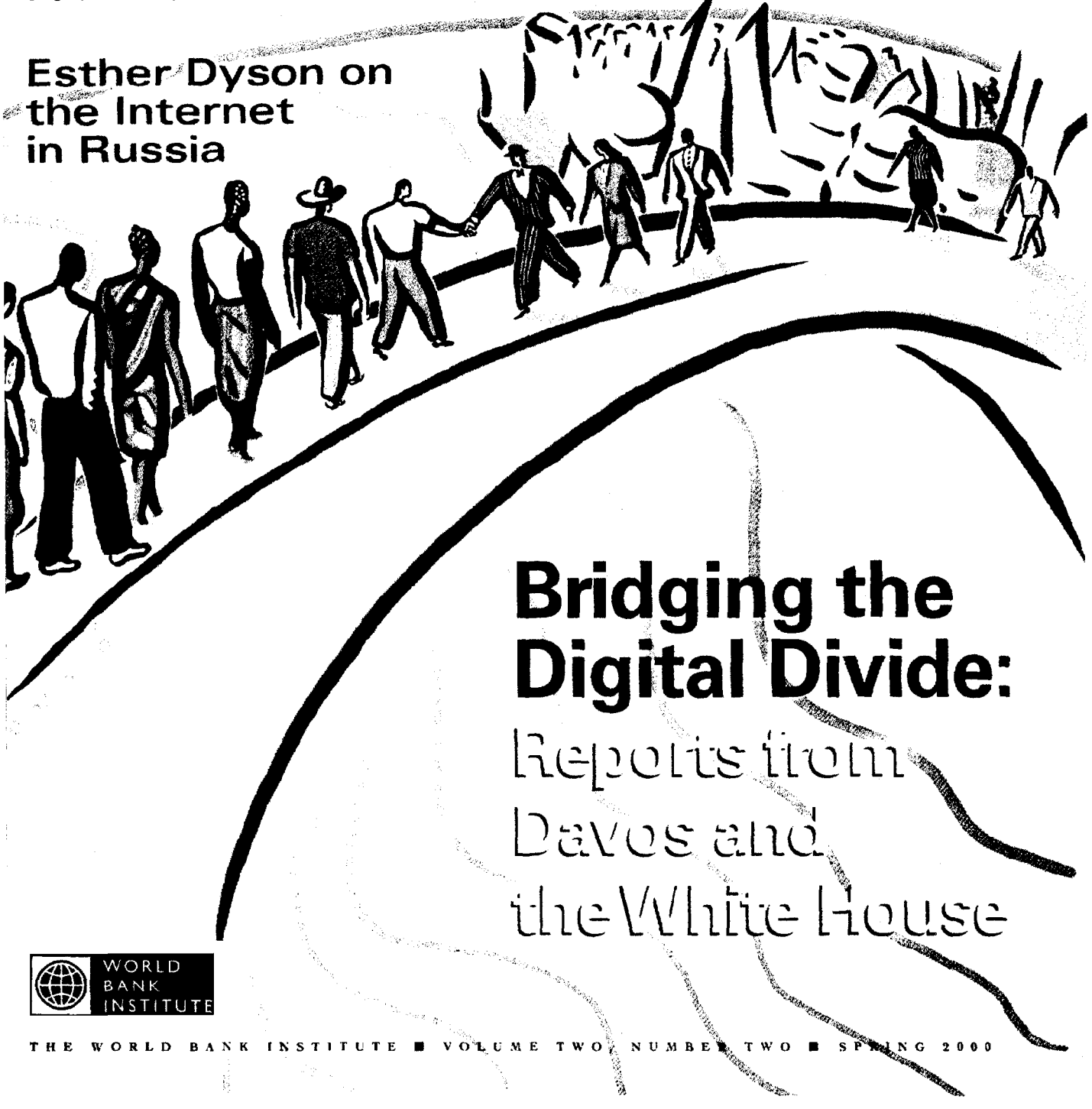
Spring 2000

Development

OUTREACH

PUTTING KNOWLEDGE TO WORK FOR DEVELOPMENT



Esther Dyson on the Internet in Russia

Bridging the Digital Divide:

Reports from Davos and the White House

WORLD BANK INSTITUTE

THE WORLD BANK INSTITUTE ■ VOLUME TWO, NUMBER TWO ■ SPRING 2000

Development OUTREACH is published quarterly by the World Bank Institute and reflects issues arising from the World Bank's many learning programs. Articles are solicited that offer a range of viewpoints from a variety of authors worldwide and do not represent official positions of the World Bank or the views of its management.

Partial funding for this issue was provided by the Swiss Agency for Development and Cooperation, SDC, as a member of the Global Knowledge Partnership.

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Photo and illustration credits: Cover: Bob Soulé; Page 2: Dorsati Madani; Page 4: Mark Malloch Brown; Page 6, 7: Photodisc and Anna Lawton; Page 10: KRT Photos/Joanne Hoyoung Lee; Page 12: White House/Sharon Farmer; Page 19: AFP Photos Live/Kim Jae-Hwan; Page 22, 23: Karen Akerson; Page 26, 29: Gilat Satellite Networks; Page 31: Corbis; Page 33: Monterrey Tech System; Page 35: Newsmakers Photos/Amit Bhargava; Page 37: The World Bank

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ISSN 1020-797X

What this issue is about...

As we begin the new century—and millennium—the world is faced with the dawn of a revolutionary information age, one th promises both potential benefits and obligations to global leaders and the world's citizenry. This expected sea change in the way we conduct business, educate our children and connect wi one another across country boundaries and income levels was the topic of two recent meetings of the world's most influential leaders; the first, in Davos, Switzerland, in late January and the second, in Washington, D.C. at The White House in early April. At both meetings, concern for those on the other side of the dig tal divide—often without skills or access to the information rev lution—dominated the discussions.

The digital divide can be daunting to people living and working in the developing world, where access to the tools of the information revolution is crucial to enabling struggling economies to leap-frog into the new century. "Imagine," said World Bank President James Wolfensohn, "what it's like in developing countries, as you see the digital divide presenting you with another mountain to climb before you can compete internationally."

But success stories exist, and are increasing daily. In Korea, the impressive growth of telecommunications services transforming the country into a knowledge-based economy. N Quaynor, a Ghanaian entrepreneur and chairman of Ghana.Cor NCS, describes pockets of excellence in Africa's information technology and the agenda to foster those advancements ove the whole continent. And Esther Dyson points to the integrity of the information technology sector in Russia, and its effect c enforcing sound market principles.

The new technologies also have the potential to improve health care and education in the developing world. These sec tors are fundamental to ensuring a comprehensive approach t development, one that ensures the economic benefits of the information age are realized throughout a society and sustain beyond normal business cycles. We report here on the latest developments in distance learning, as well as the use of wireless technologies to provide information to remote areas whe both education and health care are often lacking.

We hope you enjoy this issue, and look forward to receivir your comments. Along with inviting you to visit our website (www.worldbank.org/devoutreach), we'd like to remind our readers in developed countries that beginning with the next issue, a subscription fee will be required before receiving the magazine. Please fill out and mail the attached form on page 40 so we can continue to include you on our mailing lists.

And finally, I'd like to thank John Gage, a leader of global efforts to bridge the digital divide, who served as the guest editor for this issue in addition to contributing the report from Davos.

Mary McNeil
Editor

Development

OUTREACH

Volume Two, Number Two ■ Spring 2000

FEATURES

DEPARTMENTS

What Our Readers Think

Specialists in international development react to the article "The Two Battles of Seattle," that appeared in the Winter 2000 issue.

The Carrot Is Better than the Stick

by Nancy Birdsall and Peter Hakim

The storm of protest that undid global trade negotiations in Seattle last December has blown over. But in fact all is not well. In trade as on Wall Street, standing still is not really an option.

President Clinton touched a raw nerve among WTO delegates in Seattle, when he seemed to endorse applying trade sanctions to nations that fail to enforce minimal labor and environmental standards. Most delegates—particularly those from developing countries—fear that using trade sanctions to achieve goals unrelated to international commerce (i.e., human rights, decent working conditions, or cleaner air and water) will inevitably lead to protectionism by stronger and richer countries against the weaker and poorer. Governments of developing countries are afraid that whatever comparative advantages their economies now enjoy, lower wages or abundant resources, for example, will effectively be nullified if industrialized nations can use standards to raise barriers to their exports.

In contrast, the protesters in Seattle welcomed the Clinton statement. They are cynical about the willingness of governments (whether in developed or developing nations) or corporations to defend human rights, attack poverty, or protect the environment. In the post Cold War, globalized world, they see stiff trade sanctions as the necessary "big stick" to coerce good behavior.

This sharp divide benefits no one. Less trade will mean less growth and more poverty in developing nations—and nothing accomplished on the labor, human rights, and environmental agendas. There is a better way to proceed.

First, carrots instead of the sticks that trade sanctions represent. The international community ought to be working toward a system of rewards for third world countries that

are committed to locally appropriate labor and environmental standards. Why not, for example, create a special ILO fund to support developing country efforts to enforce their own labor standards?,

Second, the WTO needs to develop formal working relationships with relevant UN agencies. In environmentally related trade disputes WTO tribunals could more systematically cooperate with UNEP's scientists. The WTO and ILO could team up to conduct research and public forums on the effects of collective bargaining on wages, welfare and trade.

Third, decisionmaking at the WTO has to be opened up. The WTO should operate under a presumption of disclosure, releasing its documents to the public unless there is good reason not to do so. It could establish a special office, as the World Bank has done, for outreach and liaison with nongovernmental organizations worldwide.

In a globalized world, free traders and champions of social justice can both win – with more and freer trade that is not isolated from other issues. We need more integrated markets, but we also need labor and environmental standards. We can and should have both.

Nancy Birdsall is senior associate, Carnegie Endowment for International Peace. Peter Hakim is president of the Inter-American Dialogue.

Development News

News highlights on development issues from around the world

The Global Development Gateway Will Open New Internet Avenues

Plans to build a Global Development Gateway (GDG) are underway. The World Bank Group, in partnership with Microsoft, IBM, Soros' Open Society Institute, Bloomberg, Cambridge Technology and many other private and multilateral partners (UNDP, OECD and others) is leading the project for the opening of a Gateway on the web in support of worldwide poverty alleviation. The Gateway will have five large portals, including developing country governments, the international donor community, the media, civil society, and the private sector, and will support countries in their own initiatives to leverage the benefits of the Internet for their development and to acquire a significant presence on the web. Implementation of the three-year plan started in March 2000. The initiative reached a major milestone on May 4th, as the board of the World Bank Group gave the team the green light to proceed with the startup phase of the project, which will continue through June 2001. Visit: www.worldbank.org/gateway

A Powerful Tool for Sharing Development Knowledge

In early May the World Bank Distance Learning Center in Washington was linked with 10 sites across Africa, East Asia, the Caribbean, and Europe regions. In a short 10 month period the Global Distance Learning Network (GDLN) had progressed from being just an idea to a reality.

Last year the World Bank invited government agencies, foundations and private companies to join in the creation of GDLN to provide a tool for sharing development knowledge. This independently operated network will provide courses, seminars and discussion opportunities from a variety of sources around the world. GDLN will link the globe through a network of Distance Learning Centers that will support learning through videoconferencing, the Internet and print. By the end of June 2000, an additional 16 independent Distance Learning Centers will be interconnected to the network. Visit: www.worldbank.org/gdln

IFC Joins Japan's SOFTBANK to Spawn Startup Internet Companies

In the most significant single initiative yet to narrow the global digital divide and jumpstart the new digital economy in the developing world, the International Finance Corporation and SOFTBANK CORP., a Japan-based global Internet company, will invest $500 million to found SOFTBANK Emerging Markets (SBEM). SBEM will support startup Internet companies in some 100 developing countries. It will serve as an accelerator to speed the creation of Internet-anchored enterprises in developing countries by working with a network of global industry leaders and local partners.
"This historic partnership will play a crucial role in building the new digital economy in developing countries around the world," said Masayoshi Son, President and CEO of SOFTBANK CORP. "By leveraging SOFTBANK's global Internet capabilities and IFC's expertise in international development, this unprecedented initiative offers tremendous opportunity to investors and entrepreneurs to build successful new Internet business in emerging markets." Visit: www.softbank.com/sbem

South Africa unveils GRPS at Tel.Com 2000

Visitors to the Tel.com Africa 2000 Expo in Johannesburg are in for a technological phenomenon courtesy of MTN South Africa and Ericsson. These major players in the telecommunications arena have joined forces to host the first live public demonstration on the African continent of General Packet Radio Services (GPRS) - the new technology that finally combines two of the fastest-growing international industries, namely wireless telephony and the Internet.

Explains Bruce Cockburn, General Manager Products and Innovations at MTN South Africa, "GPRS is a vital stepping stone between existing networks and the future Third Generation Networks already being planned. It uses radio frequencies very efficiently and enables a far more user-friendly charging system, based on information transfer rather than call duration."

The Global Research Project Is Underway

The Global Development Network (GDN) announced an unprecedented Global Research Project designed to strengthen the links among researchers and policy implementers in developing and developed countries. Nearly fifty researchers in seven regional research networks met in Prague, Czech Republic, in June for the first phase of the project.

Launched in December of 1999, GDN is an emerging association of research and policy institutes worldwide that generate and share knowledge about policies that promote development. Instead of the traditional emphasis on Western-designed solutions imposed on developing countries, the network seeks to support the generation of local knowledge to solve local problems.

Another major GDN initiative is the Global Development Awards to promote the quality and availability of policy-oriented research to fight poverty (see ad in this issue). GDN's modus operandi and structure are still materializing. Through electronic surveys and online discussions as well as through more traditional conferences and workshops, GDN is formulating its *raison d'être* directly from the opinions and needs of the people its wishes to serve. Visit: www.gdnet.org, and www.gdnet.org/grproject.htm

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Guest Editorial BY MARK MALLOCH BROWN

The Information Revolution and Development

The "Information Revolution" has become so ubiquitous a phrase we risk losing sight of what it really means. Too many people argue that in a world where half the population has yet to use a telephone and there are nearly a billion illiterate adults, using IT for development is inappropriate and ineffective. But the point about revolutions is that they are revolutions: they transform all the processes they touch from financial transactions to educational provision. Already for much of the world the Internet has changed the way people live, work and do business forever. Our challenge is to find ways to unlock that transformative power to ensure the poor are among its beneficiaries and not its casualties.

The Information Explosion

It is difficult to grasp the scale and pace of the change. Less than three years ago there were still only 50m Internet users, by 2001 there will be 700m. Currently Internet traffic doubles every three months with e-commerce growing by 100 percent a year. In little more than five years there are likely to be 900m electronic devices connected to the Internet–equaling the number of telephones in the world.

For many in the developing world these rapid changes are seen as a threat. The information explosion has so far been a major contributing factor to the growing gap between rich and poor, both within and between countries. In our new global Knowledge Economy, poorer states with fewer resources and less well-educated workforces are being left further and further behind. Sub-Saharan Africa, the worst affected region, has nearly 10 per cent of the world's population but just 0.1 per cent of its Internet connections. And information technology growth is improving so rapidly in the rich world that as quickly as poorer countries are responding, the gap is continually widening rather than narrowing.

Finding ways to bridge this "digital divide" is a daunting task. It will require not only new investments in telecommunications infrastructure but improved and more responsive regulatory frameworks across the developing world. It will also eventually require – and demand –dramatically improved systems of governance that embrace cutting red tape and widening democracy and free speech. And all that will in turn depend on new international support.

Underlying Opportunities

But those sobering facts should not obscure the tremendous underlying opportunities. By effectively eliminating space and time the Internet gives us an unprecedented means of overcoming two of the root causes of extreme poverty, ignorance and isolation. Vast pools of interactive information from textbooks to technology and instructor support that would otherwise be inaccessible can, for the first time, be sprung open for the world's poorest.

We are still only in the pioneering phase, but already there are signs of promise for the future. Several countries are successfully experimenting with banking and other financial services for poor rural areas using only wireless technology that does not even require users to be literate. A new health network linking 30 developing countries is able to provide summaries of latest medical research and access to global medical libraries. Organizations like PEOPLink, which brings the work of 130,000 artisans across 14 countries in Latin America, Asia and Africa onto the web, shows how electronic commerce can open new markets even to the poor. And a number of Internet-based distance learning initiatives have already been launched, shifting virtual schools and universities from concept to reality.

We need to build on these scattered examples, find what works and what doesn't, and then mainstream the best and most effective schemes.

The Internet also offers new ways to do just that by greatly facilitating knowledge sharing. UNDP and other multilateral organizations – most notably the World Bank with its Global Development Gateway -- are well underway in setting up new global information networks. In UNDP's case, the Internet has for the first time allowed us to take full advantage of our global reach – headquarters to provide real time assistance and our 133 country offices directly to share lessons and experiences on everything from municipal reform and decentralization to business development strategies.

On another level, UNDP's launch of the NetAid website (www.netaid.org) in partnership with Cisco systems, has begun to mobilize new constituencies for development in rich and poor countries alike. For the first time we can recruit online volunteers from the developed world to offer virtual services to poorer countries and link companies, NGOs and individuals together around common themes and issues. NetAid also allows people to follow and directly monitor the impact of contributions they make for particular initiatives, such as a recent mother and baby survival program we launched in Rwanda.

UNDP has also been experimenting with pilot schemes from mobile internet units in Malaysia to special community telecenters in a wide range of countries from Bhutan to Egypt. But these are only small steps. The success of the internet to date has been private sector driven, and our role must be to develop projects that can act as springboards for the kind of public/private partnerships necessary to build and sustain bigger networks and increase access opportunities across the board.

Again, the early signs are encouraging. One example is the International Finance Corporation's recent alliance with Softbank in setting up a $500m investment fund to help incubate internet related businesses in developing countries. And the success stories in information technology are already there: India's newly booming software exports are expected to increase from $4bn this year to $50bn by 2008 and Costa Rica is being transformed into a regional IT hub. Others can follow where they lead.

In the future cheaper handsets will create new incentives for the private sector to expand into underdeveloped markets. And the cost of Internet access and cellular services is plunging everywhere. Unlike old telephone systems, new wireless models can reach anywhere without an expensive landline infrastructure and access costs are falling quickly. In short, the plummeting cost of information offers the developing world a dramatic opportunity to leapfrog older development strategies and generate more equitable economic growth.

The Boundless Scope of Applications

The point is that the scope for new applications is almost infinite. Some will inevitably fail, but others will succeed and new opportunities continually present themselves. UN secretary-general Kofi Annan's new Millennium Report recognizes this by launching not only a new UN Information Technology Service (UNITeS) but also a global health network and a wireless based communications system for emergencies and disasters.

We must build on these and other initiatives. Long term success will require both resources and resourcefulness: visionary leadership in developing countries combined with clear and coherent support from the international community and an embrace of the same kind of innovative thinking that spawned the information revolution in the first place. Because the most important and far-reaching applications of IT for development have yet to be discovered.

Mark Malloch Brown is administrator of the United Nations Development Program.
Visit: www.undp.org

Bridging the Digital Divide

The revolution in information technology is dramatically changing the world as we know it. Access to the Internet in high-tech oriented countries has grown at an astounding pace. In six short years (1992-1998), the number of Internet host computers worldwide increased from less than 1 million to almost 30 million.

But the core of the information society still resides in the developed countries. For instance, one-quarter of American households use the Internet on a daily basis, and more than half of all Internet users live in the United States or Canada. The information revolution could not gain a foothold in most developing countries, because they lack the basic infrastructure—phone lines, electricity, and literacy. The digital divide between people who are Internet empowered and those who are not is wide and real.

How to move from digital divide to digital opportunity? In the following special report, prominent business leaders, government officials, economic thinkers, and social activists address this topic and discuss the challenges of turning the new information technology into a global medium for the benefit of all humankind.

The report covers aspects of discussions that took place at the World Economic Forum Annual Meeting 2000, in Davos, Switzerland (January 27-February 1) and at the White House Conference "The New Economy," held in Washington, DC (April 4-5, 2000).

FROM DIGITAL DIVIDE TO DIGITAL OPPORTUNITY: BUSINESS LEADERS REPORT FROM DAVOS

BY JOHN GAGE

DAVOS, February 1, 2000. Tony Blair and Bill Clinton have presented their views of the changing world economy to the global business leaders assembled in Davos, and have returned to London and Washington. Two thousand CEOs remain in Davos for the last day of the Year 2000 World Economic Forum, and sixty of them are gathered in the Belvedere Hotel dining room listening intensely to discussions of how to make information technology more accessible to the world's poor.

Nobuyuki Idei (Sony), John Chambers (Cisco), Steve Case (AOL-Time/Warner), Martin Velasco Gomez (Telefonica), Bill Gates (Microsoft), Bill Joy (Sun), Carly Fiorina (Hewlett Packard), Eric Schmidt (Novell), Richard Li (Pacific Cyberworks), Tim Koogle (Yahoo), Masayoshi Son (Softbank), and sixty other CEOs, representing hardware and software, infrastructure and content, communications and computing hear the stark facts about world poverty: the divisions are deepening, both between countries and within countries. Yet emerging wireless and Internet technologies could transform global efforts to affect the lives of the world's poorest. "The new capabilities of information and communication technologies, together with a rising sense among people all over the world that they are entitled to participate openly in their government and society, offer enormous potential for advances that can be of great and lasting benefit to all people of the world...and particularly to the poorest people of the world," says World Bank President James Wolfensohn and the executives nod.

The next morning, sixty-five of them gather in the basement of the Belvedere Hotel to talk about technology, business, and the digital divide. They're called the Governors for Information Technologies, Media, Communication and Entertainment—the heads of the world's largest information technology and media companies—who gather each year to predict the future of technology, and analyze how it affects business and society. This year, they are resolved to emerge from Davos with a direction, a plan, a common project: to

turn the emerging digital divide into a digital opportunity for all. As John Chambers, president of Cisco Systems, told his peers, "We can change the life of every child who dreams of creating something new, but we must work together to create policies, practices, and opportunities to enable access for all."

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Each year, in January, the World Economic Forum assembles business, political and cultural leaders in Davos for extended discussions of the state of the world. For six days, participants from a hundred countries debate policy and practice in global development, discuss changing models of corporate and institutional governance, and explore the role of technology in transforming business and society.

In seminars and lectures, in breakfast meetings and press conferences, world figures exchange public and private views about the future. This year, they focused on globalization, reform, and the impact of information technologies on education and economic development. Ideas flow, positions are debated, but Davos is discussion, not action....in public. In private, agreements are negotiated, commitments are made....off the record.

The public discussion at Davos shapes the private agreements. Both Blair and Clinton, this year's keynote speakers, deplored the widening division between those with access to the tools of an emerging new economy—information and communication—and those without, and challenged the world business community to act.

As President Clinton said, "We should stop denying that there is in many places an increase in inequality, and we should instead start explaining why it has happened and what we can do about it....When we saw, beginning about 20 years ago in most advanced economies, a shift from the industrial economy to the digital economy, in many places there was an increase in inequality... The paradigm of the global economy puts a huge premium on education, skills, and access to information technology [which is] burdensome to developing economies...but people will not be denied access...My most important wish is that the global business community could adopt a shared vision of what you want the world to look like, and then go about trying to create it in ways that actually enhance your business, but help other people as well."

UK Prime Minister Tony Blair said, in his opening keynote, " In an economy dominated by information and knowledge, education is king...and our entire system of educating and developing the potential of people needs radical change...What makes sense for the industrialized world is imperative for the developing world—150 million children of primary age in developing countries do not go to school and over 900 million adults, two thirds of whom are women, are illiterate...The bane of all modern developed nations is social exclusion—a group of people, set aside from society's mainstream—-who need to be offered a deal, not some more benefit...The next step is to get the new Information Technology to the poor as well as to the comfortable."

The sixty-five CEOs agreed with this call to action, and formed a task force—the Digital Divide Task Force—including Cisco, Sun, Microsoft, Hewlett-Packard, Telefonica, 3Com, Toshiba, Siemens, and GrameenPhone, charged with preparing an initial Statement of Principles and an Action Plan to propose policies for governments and businesses that could be translated into action.

Supported and staffed by the World Economic Forum, the Task Force is holding meetings around the globe, testing policy recommendations against the practical experience of business and government in every region. Meetings have been held in Beijing, Kazakhstan, Rio, Geneva, and

World Economic Forum Forthcoming Events

8 June	France Meeting 2000, Paris, France
21-23 June	Southern Africa Economic Summit 2000, Durban, South Africa
28-30 June	Central and Eastern European Economic Summit 2000, Salzburg, Austria
2-5 September	Global Leaders for Tomorrow 2000, Geneva, Switzerland
11-13 September	Asia Pacific Economic Summit 2000, Melbourne, Australia
26-28 November	India Economic Summit 2000, New Delhi, India
4-5 December	Mexico Meeting 2000, Mexico City, Mexico (to be confirmed)
Dates to be announced	Middle East/North Africa Economic Summit 2000
25-30 January 2001	Annual Meeting in Davos

further meetings are planned to take place in Washington DC, Durban, Melbourne, New Delhi, and Cairo.

In March, in Geneva, fifty representatives from industry, as well as representatives from the World Bank, the United Nations, the International Telecommunications Union, the OECD, the European Commission, the WTO, the Japanese Ministry of Posts and Telecommunications, and numerous foundations met in Geneva to review and extend the proposals. A consensus emerged, focused on a single summary idea: access. Universal access. Every human should have access to the world's developing information infrastructure.

A consensus emerged, focused on a single summary idea: access. Universal access.

The challenge is to develop plans that all countries and all companies might use to drive change—in education, in entrepreneurship, in empowerment, in economic development, and in bridging other human divisions of health care, of food and water supply, of energy availability, and of poverty.

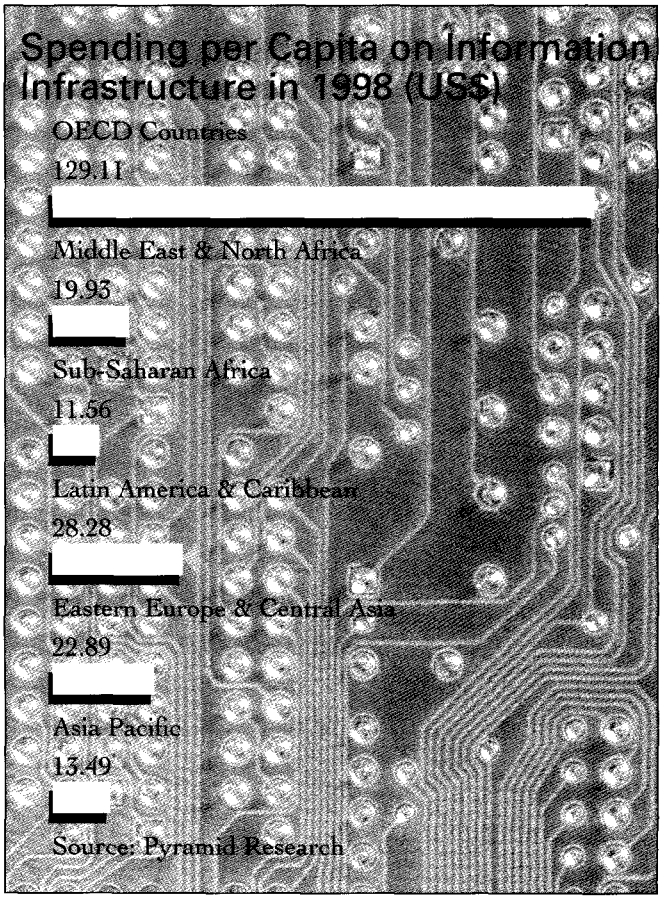
The first public forum for these proposals and plans will be at the Summit of the G7/G8, to be held in Tokyo and Okinawa on July 19 and 20, 2000. Dr. Klaus Schwab, the President of the World Economic Forum, has been invited by Japan, the host of the Summit, to present the agreed views of the world's largest companies to the assembled G7/G8 leaders.

This process of proposal, review, innovation and action will continue, culminating in a report of work-in-progress to a special session of the World Economic Forum 2001, where details of interventions and collaborations will be presented to all industry and governmental groups assembled in Davos. The action plans spell out the policy directions for governments, as well as the joint actions by businesses, that are necessary to bring access to everyone.

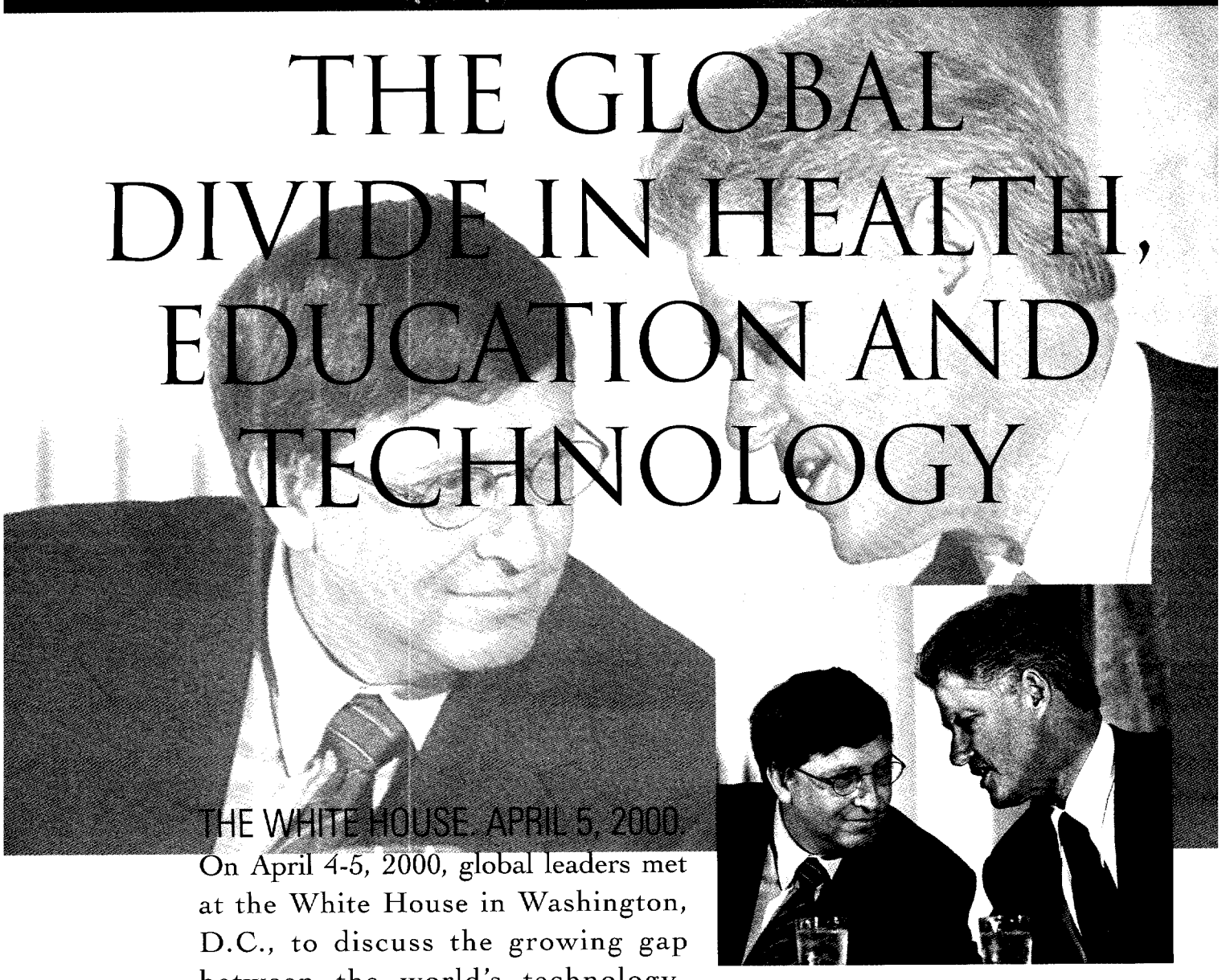
Industrial initiatives have begun. The pioneering educational efforts of companies in creating teaching and training institutes in hundreds of countries—the Cisco Academies, the Microsoft educational groups, the HP training groups, the Sun and IBM Java Acadamies—have provided the most advanced technical curricula to teachers and institutions-both public and private—in countries from Uganda to Peru, from China to Korea to Nepal. Measuring the impact of these programs in bringing universal access to the tools of the information economy is a basic component of the Digital Divide Task Force.

The cumulative effect of these policies will be to create an environment conducive to the development and promotion of the talents of a country's people, to the promotion of entrepreneurship and initiative, to capital formation to support economic development, and to the creation of the physical and cultural infrastructure that is central to a nation's capability to raise living standards for their citizens. The challenge that lies ahead is to succeed in transforming the potential of the Internet into practical initiatives for development. The first step is to bring the experience of business to bear on transforming the digital divide into a digital opportunity.

John Gage is chief science officer with Sun Microsystems.
Visit: www.weforum.org



THE GLOBAL DIVIDE IN HEALTH, EDUCATION AND TECHNOLOGY



THE WHITE HOUSE, APRIL 5, 2000

On April 4-5, 2000, global leaders met at the White House in Washington, D.C., to discuss the growing gap between the world's technology-connected and those who lack access to the tools of the Information Age.

This global digital divide, according to U.S. President Bill Clinton, "is real and growing worse." But the opportunities the information revolution presents are immense as well. "I believe," said Clinton in introductory remarks at the conference, "that the computer and the Internet give us a chance to move more people out of poverty more quickly than at any time in all of human history. But it won't happen by accident. We'll have to work to make it happen."

Featured below are excerpts from the conference's panel discussion on the "Digital Divide in Health, Education and Technology." A complete transcript of the conference proceedings can be found at: www.whitehouse.gov.

Panel: The Global Divide in Health, Education and Technology

President Clinton: The topic of this discussion is "The Global Divide in Health, Education and Technology." This is something that exists within each country....but I think it's clear to all of us that we have a special responsibility and, indeed, a real opportunity to make a better world by addressing this issue globally...

I want to begin by calling on Bill Gates, the founder and chairman of Microsoft.

Bill Gates: Thank you. It's an honor to be on this panel. The pace of innovation and the breadth of its impact on our society are really unparalleled... We're just beginning to understand how central the PC and software innovation have been to the creation of the remarkable prosperity that so many people are enjoying today. It's this pace of change and the contribution of these changes to our future prosperity that are changing our lives, not only here in this country, but around the globe. It's so critical that we understand this—that there is an obligation, I think, for all of us to not only embrace the new technology, but to think about how we can make it available to everyone, without regard to background or station or even what country they live in. And I think that's a key theme of our panel today...

Right now we're just embarking on electronic commerce. This is going to reduce a lot of the overhead in the economy. A lot of the pushing-paper-around jobs that are not interesting and not value-added will be reduced in that those resources will be freed up for productive activities... This change is not just good for business. In fact, if you had to pick who's the big winner in all of this, you'd definitely have to pick consumers. Technology is putting them in the driver's seat... That makes businesses innovate in a way that really wasn't necessary before, whether that's innovation in quality, customer service, or simply the price of the product. And it's that virtuous cycle that's allowed capitalism to work better in this era than ever before...

Nowhere does this technology hold more promise than in education. The Internet and the personal computer are critical tools that teachers will be able to use in new and exciting ways. In this age, learning will be more student-centered and more global. Software will let teachers share best practices with each other. They'll let students reach out to find other students with common interests, and they'll allow the world of knowledge to be easily available. The collaboration we're seeing between teachers, libraries, students and parents—it's very, very exciting. And yet, here, too, we can say that we're just at the beginning. Today only 14 percent of teachers [in the United States] are actually using the Internet as part of their instruction, and there's a lot more we can do to drive this forward...

> *The global divide must give way to a global connection...*
> — Bill Gates

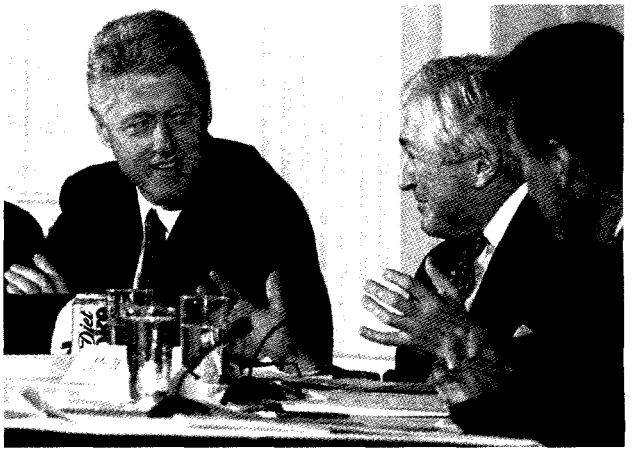
I think technology is a great change agent for democracy, whether in this country or in other countries. I think that it will increase voter involvement, voter accessibility to what's going on. And I hope that voter participation can rise as a result of that... All this power is rooted in the possibilities of technology lifting up people around the world. And because technology has the power to make such a positive difference, we have an obligation to make it available everywhere we can. The global divide must give way to a global connection...

The President: I want to call now on the President of the World Bank, Jim Wolfensohn, who from the first day he took office has had a critical part of his mission bridging these divides in traditional and innovative ways.

James Wolfensohn: Thank you very much, Mr. President, and for the invitation, and to talk about the new economy, which I think I'm invited to extend to mean the global economy—because our country is integrally linked with the globe in ever-increasing ways.

As I think you know, we have 6 billion people on the planet today. And as we address the question of the divide, we have to think that 3 billion of those people live under $2 a day,

and .5 billion live under $1 a day, in absolute poverty. So as we hear Bill talk about getting computers in every classroom, and 14 percent of the teachers only using computers for teaching, in many of the parts of the world we deal with there are no computers, and surely less than 1 percent of the teachers are, in fact, using computers for teaching purposes.



But the issue is not just static, because as we look at the new economy, we need to project forward, if not the millennium, 25 years. In the next 25 years we will add 2 billion people to our planet. And the 4.8 billion that now live in the developing countries will, in fact, grow to 6.8 billion, or just short of it. So the challenge that we face of this digital divide is not just one of measurement...It will in fact be the determinant of peace and tranquility around the world. Unless we can deal with that issue of the divide as our issue in the new economy, we will fail in internal activities that we do here, without regard to other parts of the world. So I make that as the first point.

The second point that I'd like to make is that we were asked to talk about technology, health and education. And indeed, these are fundamental elements in terms of breaking down the digital divide. But this needs to be looked at in a context, first. Breaking the divide will be dependent on economic growth in those countries. As our distinguished Secretary of the Treasury said the other day, if you have a discussion of these issues without talking about growth, it's talking about Hamlet without the prince.

Indeed, it's true–the issue of economics is fundamental to what we're dealing with. But interacting with economics are the issues of technology, education and health. And as we look at the developing world in which we're operating, there are, in fact, fundamental issues that require a framework in which they can operate. In the countries in which we're dealing, we must have a legal and a governance system which works. We must have a judicial system which works. We must have financial frameworks. We must fight against corruption. To bridge the digital divide is not just addressing the questions of technology, education and health. It has to be done within a context. Throwing money, or technology, or education into a system which doesn't deal with the issues of justice and opportunity for people simply won't work...

The biggest challenge to the livelihoods of poor people is health. Because if you're living on a dollar a day and you get sick, that is not just an inconvenience, that is a question of life. They want opportunities to have their health care protected, but they also want opportunities to get out of their condition. And this is where education comes in. Because education, within that framework, is the key determinant for people in poverty to find their way out of their condition. So, for us, the focus of so much of our activities interrelates the health and the education activities...

Alan Greenspan was talking about the inadequacy of a high school education in this country, and the need for continuing education at community colleges; that is a fantastic dream. But our dream in so many parts of the world is to get primary education. Our further dream is to get secondary education, for very few people have the opportunity for tertiary education. And this presents us with an enormous sense of fear, which comes with the challenge of globalization.

As we look in our country at technological innovation as a challenge to losing jobs, imagine what it's like in developing countries, as you see the digital divide presenting you with yet another mountain to climb before you can compete internationally. Here, however, the story's not all bad. In fact, the opportunity exists because technology can both provide the challenge and the answer. That is where I believe in this new economy as we're coming into a new and highly positive phase in terms of the difference between the rich and poor countries. We have many examples of how the use of technology -- in terms of distance learning, information on markets, creation of new markets with e-business, access to global knowledge -- may well provide the key for the breaking down of that digital

divide. It is both a challenge and a great opportunity.

The President: I'd like to now call on Henry Cisneros, who did yeoman's duty in this administration's first term as the Secretary of Housing ad Urban Development, and now the CEO of Univision.

Henry Cisneros: Thank you very much, Mr. President. The challenge of this panel is to discuss ways to harness the new technologies, to bring those who are left behind -- both domestically and internationally -- into the sphere of the new economy. And I would argue that we have to be somewhat sober in our assessments because the gaps are very large and because the scale is huge...

> *...imagine what it's like in developing countries, as you see the digital divide presenting you with yet another mountain to climb before you can compete internationally.*
>
> — James D. Wolfensohn

It's sometimes too easy to take a few anecdotal cases of instances where the Internet is reaching, or technology is reaching, and suggest that that constitutes a massive wave, when we know, as Mr. Wolfensohn has said, that the numbers are so massive and the need is so great. We also know that the anger, the resentments and the insecurities reach our world and our conversations, as at the recent WTO meeting in Seattle, or the speeches of developing country leaders at Davos, or the jobs that go offshore to make our quality of life possible in some sense, where people work for a few dollars a day or even a few dollars a week...

More and more, we're seeing computers as a commodity that ought to be very low-priced so that people can utilize the technology on the other side, and then even on the global scene, urging these policies globally, including low telephone access charges. In the final analysis, it seems to me that there is a convergence of sort of three initiatives here that are in the public domain. They are, one, how to make educational content available -- that's a public issue. Secondly, how to make the technology as available as possible and relevant as possible -- that's a public issue. And then, how the government can play the role of broker, organizer, to create the partnerships that bring the entities together...

The President: I'd like to now call on Dr. Amartya Sen, who won the Nobel Prize in 1998 for his magnificent work on poverty, ethics, and economics, and who has come from Cambridge University to be with us. Thank you, sir. We're honored to have you here.

Amartya Sen: I'm delighted to be here. I'll confine my observations mainly to one central point, which I think has fairly extensive implications and a fair amount of reach on other fields.

The main point is this. I think we live in a world of many interactive institutions -- the market, the government, the democratic process, the media, the NGOs, the research institutions, public and private, and so on. Each of them can play a major, but complementary role in enhancing the well-being and freedom of the individuals in the society and in the world at large...

The complementarity between different institutions demands a fuller recognition in the making of public policy. The market mechanism can provide an enormous opportunity to raise incomes and to expand living standards, and yet, there may remain major gaps. For example, special incentives may have to be created by public policy to make private funds develop and deliver the goods and services needed by the poor with inadequate purchasing power... I think we have to think creatively about these issues... Just as democracy creates political incentives, enlightened public support can create economic incentives of a very vital kind.

Indeed, the complementarity between different institutions is one of the major lessons of modern development experience...

The President: Now I'd like to call on Marai Chatterjee, who is the Secretary of the Self-Employed Women's Association of India... Thank you for coming this long way to be with us.

Marai Chatterjee: Thank you very much, Mr. President. I'm very honored to be here... I would like to share some experiences from the Self-Employed Women's Association of India (SEWAI), which I represent. It is a union of a quarter of a million very poor women workers who are earning definitely less than $1 a day, more close to 40 cents a day. What we have learned in the last 30 years is

THE WORLD TIMES/IDC

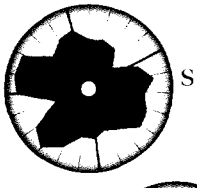
ISI

INFORMATION SOCIETY INDEX

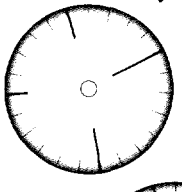
Info Revolution

Countries sized by ISI scores wit
Skaters at +2, at +1
Sprinters at 0, Strollers at -1
and Starters at -2
in size

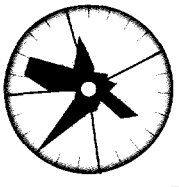
The 55 ranked countries collectively account for 97 percent of global GNP and 99 percent of global IT expenditures.



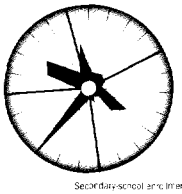
SKATERS



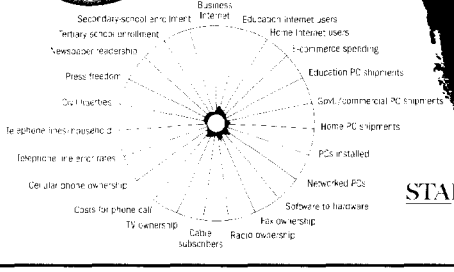
STRIDERS



SPRINTERS



STROLLERS



STARTERS

150 unranked nations have yet to build the basic infrastructures needed to take advantage of the information age.

In a strong position to take full advantage of the Information Revolution because of advanced information, computer, Internet and social infrastructures

SKATERS

Rank		Score	'99 Score and Rank
1	Sweden	5,062	4,084 (2)
2	United States	5,041	4,238 (1)
3	Finland	4,577	3,740 (3)
4	Norway	4,481	3,682 (5)
5	Denmark	4,336	3,621 (6)
6	Canada	4,257	3,363 (10)
7	Netherlands	4,230	3,532 (7)
8	Switzerland	4,174	3,333 (11)
9	Australia	4,129	3,492 (8)
10	Japan	4,093	3,475 (9)
11	Singapore	4,014	3,728 (4)
12	United Kingdom	3,807	3,029 (14)
13	Germany	3,558	2,883 (16)

STRIDERS

Rank		Score	'99 and
14	Hong Kong	3 484	3,0
15	Belgium	3 419	2,9
16	Austria	3 397	2,6
17	New Zealand	3 289	3,0
18	Taiwan	3 177	2,5
19	Ireland	3.144	2,4
20	Israel	3.140	2,8
21	France	3,140	2,5
22	Korea	2,931	2,5
23	Italy	2,703	2,2
24	Spain	2,533	2,2
25	UAE	2,301	1,4
26	Portugal	2,199	1,8
27	Czech Rep	2,130	1,7
28	Hungary	2,130	1,8
29	Greece	2,033	1,7

ISI VARIABLES: 23 indicators measuring the capacity for a country's citizens to exchange information internally and externally

COMPUTER INFRASTRUCTURE
- PCs installed/capita
- Home PCs shipped/household
- Gov't/commercial PCs shipped/professional workforce
- Education PCs shipped/students& faculty
- Networked PCs %
- Software/hardware spending

INTERNET INFRASTRUCTURE
- Amount of e-commerce
- # Internet home users
- # Internet business users
- # Internet education users

INFORMATION INFRASTRUCTURE
- Telephone lines/household
- Telephone faults/lines
- Cost of local telephone call
- Television ownership/capita
- Radio ownership/capita
- Fax ownership/capita
- Cellular phones/capita
- Cable subscribers

SOCIAL INFRASTRUCTURE
- Secondary-school enrollment
- Tertiary-school enrollment
- Newspaper readership
- Press freedom
- Civil liberties

For information, fee based-country reports and data details contact: Wilford Welch, World Times, wwelch@worldtimes.com, 415-388-9550 or Matt Toolan, IDC, mtoolan@idc.com, 508-935-4576

shaping the Globe

Measuring who's hot and who's not

- Sweden surpassed the United States as top-ranked for the first time since the annual ISI commenced in 1996
- The first ISI had two countries in the top Skater category. Now, there are 13 in all with Nordic nations accounting for four of the five most sophisticated information societies
- Most countries increased scores by an average of 7 percent since 1998. The UAE had the largest increase, roughly 20 percent, with Austria, Sweden the US, Uk and Japan close behind
- Saudi Arabia, the UAE, Canada, New Zealand and Romania jumped ahead in the ISI rankings four or more places. Singapore, Argentina and Peru each slipped four or more places
- The big population countries continue to lag at the bottom of the rankings due to poor social infrastructure and the difficulty of universal communications within large, low-income lands

purposefully into the information
h much of the necessary
ıcture in place

SPRINTERS

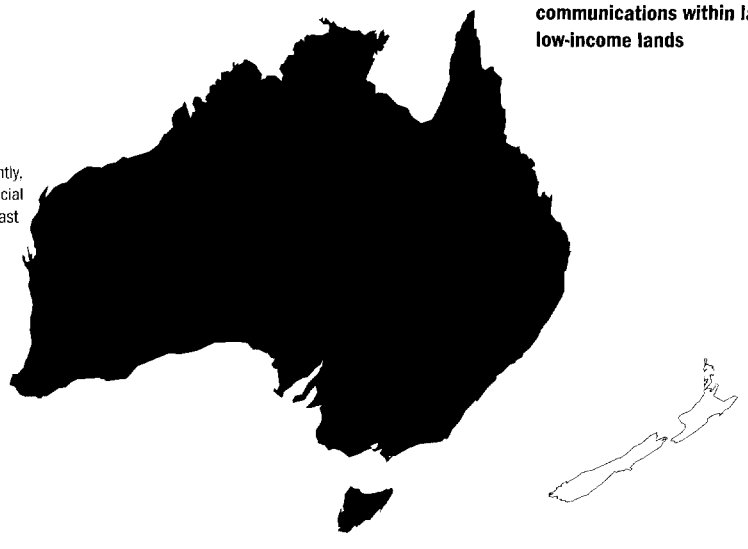
Moving forward in spurts before having to catch their breath and shift priorities due to economic, social and political pressures.

	Score	'99 Score and Rank
ıd	1,808	1,572 (30)
ınia	1,679	1,410 (35)
	1,677	1,473 (32)
ıtina	1,651	1,604 (29)
ı Rica	1,635	1,376 (36)
ysia	1,583	1,412 (34)
ıria	1,578	1,446 (33)
ma	1,539	1,320 (39)
ı Africa	1,537	1,330 (37)
zuela	1,491	1,328 (38)
a	1,444	1,283 (40)
i Arabia	1,362	1,064 (48)
ı	1,354	1,186 (41)
dor	1,314	1,171 (42)
co	1,286	1,169 (43)
y	1,259	1,080 (47)
nbia	1,136	1,108 (44)
ıpines	1,012	1,085 (46)
ınd	1,010	1,107 (45)

Moving ahead, but inconsistently, often because of limited financial resources in relation to their vast populations.

STROLLERS

Rank		Score	'99 Rank and Score
49	Jordan	942	916 (50)
50	Egypt	931	853 (51)
51	China	915	776 (53)
52	Indonesia	888	793 (54)
53	Peru	877	985 (49)
54	India	871	793 (52)
55	Pakistan	719	657 (55)



Prepared annually by:

IDC
Framingham, MA

World Times · Tribune Mondiale · Tiempo Mundial · 世界時代
Boston, MA

Designed by Debra Gossinel

that work and employment are central to poor women. As my sisters in SEWAI say, if we work, we survive; if we work, we can eat, we can feed our families. They work hard and long hours and are ready to maximize any employment opportunities that come their way.

But despite this, I'm sorry to say that the income divide for my sisters is increasing both within India and across countries. The good news is that while income inequality is increasing, the divide in health and education is narrowing down, even in poor countries like mine...

I'd also like to talk about two or three key issues which have the potential both to close the divide and to force the divide open further. One is the impact of globalization and liberalization. As most of you would know, we are one of the last countries in the world to open our economy. Our experience with globalization is about 10 years old. And from the point of view of the poor it has been a very mixed experience; it has in some ways enhanced the divide, in some ways closed it.

If I look at the positive impact, we now have our own Women's Cooperative Bank in India with 125,000 woman depositors. And with globalization and deregulation, we've been able to get financial services to our rural members. Also, those of our members who are involved in production and in small businesses have been able, for the first time, to dream of having access to markets of the North. My sisters who are producing exquisite craft products -- embroidery, textiles -- are now, equipped with an export license and can proudly sell their products all over the world. And of course, this has resulted in higher incomes.

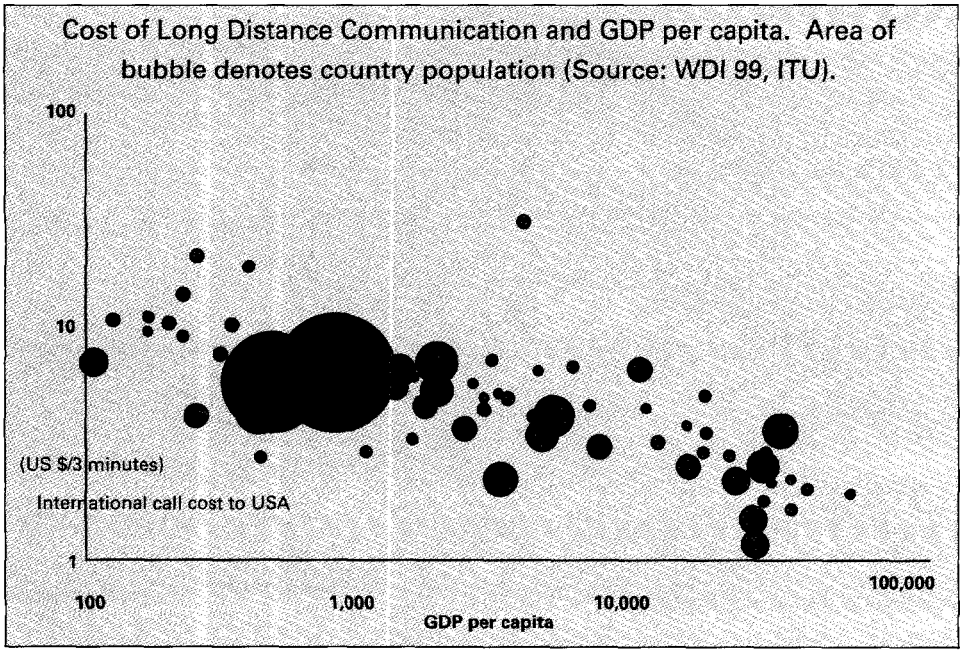
Speaking about the negative impact, which reinforces the divide, we no longer have access to raw materials. Certain industries are almost going extinct, because we are exporting to the global market, and primary producers such as hand loom weavers simply cannot afford to buy cotton yarn.

The other issue ...is the whole rise of the infotech sector, with tremendous possibilities even for a poor country like mine. But so far, we find that this sector is mainly linking those who have access to this technology, and leaves out and even de-links those who don't have access, the poor. I'd like to give a few examples of how in my own organization we've been trying to close the divide and increase incomes through use of information and technology.

Through the use of computers, we've been able to rapidly expand the number of poor women self-help groups to almost 2,000 small groups. These women are saving 30 to 40 cents per month. Although these are small beginnings, they're now able to buy a buffalo, their work equipment, and to have assets for the first time in their own name...

Even a simple technology which you know for many years in the United States but is still new to us, the telephone, has revolutionized the lives of many of my rural sisters in SEWAI. Recently one of our members took the plunge, as they always do, and took a loan of, I think, four U.S. dollars to get a telephone. And now, there's a rush of people trying to get telephones, because they found that their income was enhanced just by this one technology.

Infotech can increase incomes provided we set up the infrastructure. For a poor country like ours, the hardware is still far too expensive. The software has to be appropriate, it has to be in our lan-



guages. Most of us don't speak English, we don't work in the English world at all, and we also have to have training and backup services. We are excited by the infotech revolution, and so we have been using satellite communication to reach out to large numbers of women. We have been using our own government's satellite -- SATCOM, we call it -- to get training. And for the first time, rural women are able to pin down and speak to government officials whom they have been waiting to speak to for months.

The other point that I would like to make, which is keeping the divide open, is the health sector. Both the issue of access and affordability. I mean, we are very heartened by the development of vaccines and other important developments in science. But the question is, how do we reach these exciting developments to the poorest, the women in the most remote village in countries like mine. We have to develop mechanisms for that to happen. Otherwise, whatever little our members earn is frittered away in high medical costs and medical bills...

For the first time, rural women are able to pin down and speak to government officials whom they have been waiting to speak to for months.

— Marai Chatterjee

I'd like to close my remarks with a few points on what we have learned from women and work as to how we can actually close the divide. One very important point, Mr. President, which I also suggested to you when we met in Mumbai, is the increasing of employment opportunities. I was very happy to hear it discussed this morning on the panel, because we are saying the same to our government. Full employment, regular, continuous work, and an increase in the number of employment opportunities are the surest ways to fight poverty, to attack poverty, and also to close the divide.

The second way that we have learned to close the divide is capitalization of the poor. Promotion of capital formation at grass-roots level–and particularly with women. We have learned that asset ownership is one of the most powerful tools to attack poverty and close the divide.

The third point is capacity building of the poorest, even if they're illiterate, unschooled. We have learned that the poor have tremendous hunger to learn, particularly women, they want the opportunities, they need the capacity building and the education to stand firm in the competitive markets, to have access to information technology, science, education and also management skills...

The President: I'd like to now call on Bob Chase, who is the President of the National Education Association, and has been a leading advocate for closing the educational divide in our country.

Robert Chase: Thank you very much, Mr. President. This conference on the new economy and closing the global divide on education could not be more timely... Today, as you said, Mr. President, there are about 125 million children out of school. Another 150 million will leave their classrooms where they exist without gaining basic literacy skills. The future of our planet literally rests and lies in the hands of those children. And I don't believe that we can sit by when one in three people of the developing world is growing up illiterate...

We learned at a recent meeting in the Caribbean, one held just this past February, that more and more governments are investing in technological hardware without training people on how to use it. So technological hardware sits there, unused, and making a situation even worse...Another challenge stems from U.S. domination of the software industry. Because the software industry is produced in this country, too often people cannot obtain software in their own language...

Guaranteeing a free, compulsory education to every girl and every boy is an enormous undertaking. It will be expensive. It may cost as much as $8 billion a year for the next 10 years to guarantee that every child has the opportunity to learn, but the cost will be much greater if we don't make this commitment to our kids. When you consider that $8 billion is less than what North America spends annually on toys, and what the world spends on the military in under six days, this investment in our children is money well spent...

For a complete transcript of the White House meeting, visit: www.whitehouse.gov

COMMENTS BY Alan Greenspan
Chairman of the Federal Reserve

While there are various competing explanations for an economy that is in many respects without precedent in our annals, the most compelling appears to be the extraordinary surge in technological innovation that developed through the latter decades of the last century. In the early 1990s, with little advance notice, those innovations began to offer sharply higher prospective returns on investment than had prevailed in earlier decades. The first sign of the shift was the sharp rise in capital investment orders, especially for high-tech equipment, in 1993. This was unusual for a cyclical expansion because it occurred a full two years after the troth of the 1991 recession.

By 1995, the investment boom had gathered momentum, suggesting that earlier expectations of elevated profitability had not been disappointed. In that year, with inflation falling, domestic operating profit margins started to rise, indicating that increases in unit costs were slowing. These developments signaled that productivity growth was probably beginning to move higher, even though official data hobbled by statistical problems failed to provide any confirmation.

Now, five years later, there can be little doubt that not only has productivity growth picked up from its rather tepid pace during the preceding quarter century, but that the growth rate has continued to rise with scant evidence that it is about to crest. The acceleration of productivity stemming from the investment boom has held cost increases in check. Despite the surge in demand, unit labor costs over the past year have barely budged, and pricing power has remained well-contained. Apparently, firms hesitate to raise prices for fear that their competitors will be able to wrest market share from them by employing new investments to produce at lower costs.

Indeed, the increasing availability of labor-saving equipment and software at declining relative prices, and with improving delivery lead times, is arguably at the root of the loss of business pricing power in recent years. To be sure, marked increases in available global capacity and the deregulation of key industries have removed bottlenecks and increased the competitive supply response of many economies, especially ours, and these developments have been influential in suppressing price increases...

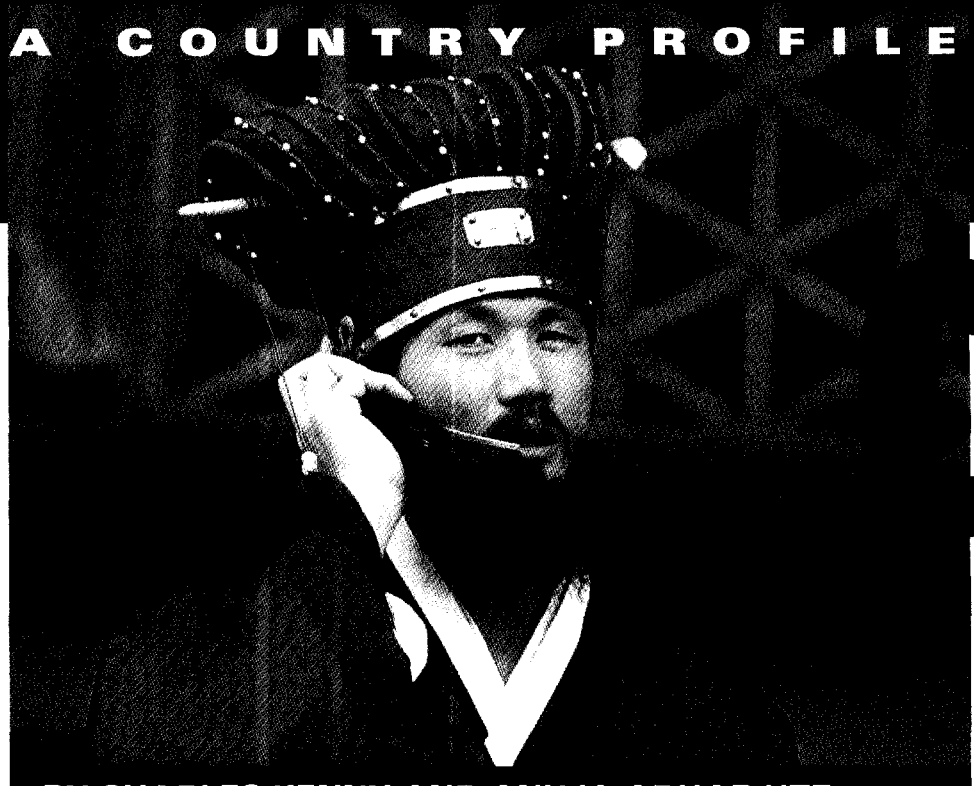
Before this revolution in information availability, most twentieth century business decision making had been hampered by pervasive uncertainty. Owing to the paucity of timely knowledge of customers' needs, and of the location of inventories and materials flowing throughout complex production systems, businesses required substantial programmed redundancies to function effectively. Doubling up on materials and people was essential as back up to the inevitable misjudgments of the real time state of play in a company. Decisions were made from information that was hours, days, or even weeks old...

These developments emphasized the essence of information technology. The expansion of knowledge and its obverse, the reduction of uncertainty. As a consequence, risk premiums that were associated with many forms of business activities have declined. In short, information technology raises output per hours in the total economy principally by reducing hours worked as activities needed to guard productive processes against the unknown and unanticipated. Narrowing the uncertainties reduces the number of hours required to maintain any given level of production readiness.

Because knowledge is essentially irreversible, much, if not most, of the recent gains in productivity appear permanent. Expanding e-commerce is expected to significantly augment this trend... It appears to be only a matter of time before the Internet becomes a prime venue for the trillions of dollars of business-to-business commerce conducted every year.

Korean Telecommunications Grow at *Record* Speed

A COUNTRY PROFILE



BY CHARLES KENNY AND ANUJA ADHAR UTZ

CAUGHT BETWEEN THE RAPID ADVANCE OF EXPORT-ORIENTED LESS DEVELOPED COUNTRIES IN THE REGION, INCLUDING CHINA, AND ADVANCED DEVELOPED COUNTRIES, KOREA IS CURRENTLY DEVELOPING A STRATEGY TO TRANSFORM ITSELF INTO A KNOWLEDGE-BASED ECONOMY.

MAKING EFFECTIVE USE OF KNOWLEDGE HAS ALWAYS BEEN AN IMPORTANT COMPONENT OF ANY COUNTRY'S DEVELOPMENT STRATEGY. IT IS BECOMING EVEN MORE IMPORTANT NOW, GIVEN THE VERY RAPID AND DRAMATIC DEVELOPMENTS IN THE PRODUCTION OF NEW KNOWLEDGE, AND IN THE PROCESSING AND DISSEMINATION OF INFORMATION. ADVANCES IN SCIENCE AND TECHNOLOGY ARE NOT ONLY ENABLING THE ENGINEERING OF NEW MATERIALS AT THE MOLECULAR LEVEL, BUT EVEN LIFE CREATION.

Driving this rapid expansion are two factors: A strongly committed government and increasing competition.

Advances in information and communication technologies (ICTs) are also beginning to impact the structure of economic and social activity, whether it be at home, at work or at play. To take advantage of the potential of this knowledge revolution, the new paradigm for Korea's transition to a knowledge economy involves four inter-related components: a new economic incentive and institutional regime; a highly skilled and creative population; a dynamic information infrastructure; and an effective innovation system. This article looks at Korea's achievements and challenges in the third pillar of this paradigm: the telecommunications sector.

Growth in telecommunications

Growth in basic telecommunications services in Korea over the last twenty years has been very fast. In 1980, telephone penetration in Korea was just 7.3 lines per 100 people. By 1997, it was 44.4, nearly equal to the OECD average rate of 48.9. But even more impressive than this long term performance is the phenomenal expansion of mobile and Internet connectivity over the last three or four years.

Between 1994 and 1998, the number of mobile phone subscribers increased from under a million to 14 million for a population of 46 million. By end-1999 it is estimated that this number had reached nearly 23 million, suggesting a mobile penetration rate (alone) of close to 50 per 100 people. The number of Internet hosts is also increasing rapidly, with the country adding nearly 100,000 host sites by January 1999-2000 (an increase of over 50 percent). Some estimates suggest there were already as many as 12 million Internet users in Korea in February of this year. Just last year, an estimated 2 million Internet PCs were sold. Users can connect over an information superhighway which is already installed in 94 major areas of the nation with a capacity of 2.5 gigabytes per second. And usage has been encouraged by very low charges: for consumers and small businesses using the Internet for less than 20 hours a month at off-peak times, a recent study by the Organization for Economic Co-operation and Development (OECD) suggests that Korea's rates are the lowest among all members in the Organization.

In turn, employment in information and telecommunication companies has climbed from 318,000 to 507,000 in 1994-8 and public telecommunications revenue reached around $US 9.1 billion in 1997. Turnover in the ICT sector as a whole in 1999 is estimated to have increased 20 percent to 71 trillion won.

Driving this rapid expansion are two major factors: a strongly committed government and increasing competition. The government's recent Cyber Korea plan, along with a number of other policy documents, has laid out an ambitious agenda to provide for the networking and knowledge needed in the new global economy. Policy goals include creating 1 million jobs and 118 trillion won worth of new production, providing universal service access speeds of 2Mbps.

President Kim's announcement of January 3, 2000, that Korea should transform itself into an advanced knowledge-based nation includes the following goals:

- making Korea into one of the world's ten information and knowledge superpowers;
- developing the next generation Internet and the information superhighway by 2005;
- promoting the use of computers by students, teachers, and the military;
- envisioning the dawning of an Internet democracy; and
- closing the development divide through productive welfare and balanced regional development.

Good initiatives

In order to meet these ambitious targets, a range of initiatives have been introduced. The government will invest 10.4 trillion won in advanced information infrastructure and information technology by 2002, while connecting 10,400 schools to the Internet, providing computers free of charge to 236,000 teachers and 200,000 classrooms. It is addressing the issue of digital divide through a program which will give free PCs and five years of free Internet access to about 50,000 children from low-income families. To further ensure public access, it is facilitating Internet

PC purchases and building public Internet Plazas. There are ongoing plans to teach 900,000 civil servants, 10 million students and 600,000 military personnel how to use computers, and train one million housewives in Internet use. Finally, to ensure the future of network commerce, the government will remove a number of legal impediments to e-commerce and digitize the public procurement operations of 26,000 institutions (up from 556 in 1998).

At the same time, it plans to continue liberalizing the telecommunications sector. Perhaps most importantly it plans to sell off a significant part of its remaining stake in the incumbent telephone operator, Korea Telecom. This should encourage further sector growth because where fair competition and less regulatory intervention has been allowed for significant periods, the results have been impressive—not least in the mobile sector and in third party resellers for voice over Internet Protocol (IP) services. In 1995-8, mobile revenues increased nearly six-fold. With the removal of the government-imposed compulsory subscription period of two years for mobile in April 1999, the number of mobile customers shot up by a further three million in one month. And low prices for Internet access are in part the result of fierce and relatively unencumbered competition between about 24 commercial and five non-profit Internet Service Providers (ISPs) in the country, some of which offer free PCs in return for three year's subscription.

More reform

The benefits of liberalization to the sector in Korea does suggest one area for further reform in order to sustain the momentum of the networking revolution in Korea. For while growth over recent years in service provision and the ICT sector has been impressive, there is still some way to go in less competitive parts of the sector. For example, in the national long-distance market, Korea Telecom had a 91 percent market share in mid 1999, and close to 100 percent in the local market. As a result, prices have remained high and service provision weak. Between February 1996-1999, the longest distance telephone charge in Korea dropped by 22 percent, as compared to 50 percent in Japan or 46 percent in France. Perhaps most important in the future is rollout of more advanced equipment and services. The network digitalization rate in 1997 was 66.7 percent of fixed access lines, compared to an OECD average of 89.2 percent. In the area of the Integrated Services Digital Network (ISDN), as of May, 1999, Korea Telecom had but 90,000 customers.

Independent regulation will be one part of the solution to overcome these problems and ensure stronger competition. Korea is one of only two countries in the OECD without an independent regulator. The Korean Communications Commission (KCC) lacks independent legal status (coming under the supervision of the Ministry of Information and Communications-MIC) and has but 20 employees who remain part of the MIC's management structure. Its powers are largely indirect and advisory, its role reactive rather than proactive.

A reformed regulatory regime could introduce a number of reforms to expand competition. These might include lowering barriers to entry posed by very high license, annual and research fees levied on operators and moving toward the unbundling of services. Presently, local loop network elements may not be unbundled, in effect meaning that Korea Telecom's competitor in this market (Hanaro), must replicate all existing sunk plant at prohibitive cost to itself. If unbundling remains prohibited, real competition will be unable to blossom.

Korea's recent record in the information infrastructure sector has been extremely impressive. The Korean Government has been essential in this process, and it is following a number of laudable policies that will ensure widespread access to the new ICTs. Combined with further reform to encourage active competition, the sector will remain a vital engine of growth for the country's transformation to a knowledge economy.

This article is based on a major economic report, Korea: Transition to a Knowledge-Based Economy, that is just being completed by the World Bank and the OECD, under the direction of Carl Dahlman of the WBI, at the request of the Ministry of Finance and Economy of Korea.

Charles Kenny is an information infrastructure economist in the Communications and Information Technology Group of the World Bank. Anuja Adhar Utz is a knowledge management officer at the World Bank Institute.

FEATURE

ESTHER DYSON

ON THE Internet IN RUSSIA

ESTHER DYSON SPOKE ABOUT HER EXPERIENCES IN RUSSIA AT THE ISN 2000 CONFERENCE, SPONSORED BY THE WORLD BANK'S INFORMATION SOLUTIONS NETWORK, WHICH TOOK PLACE ON MARCH 28-30, 2000. FOLLOWING IS A TRANSCRIPT OF HER PRESENTATION.

TO ACCESS THE QUESTION AND ANSWER SESSION GO ONLINE AT:

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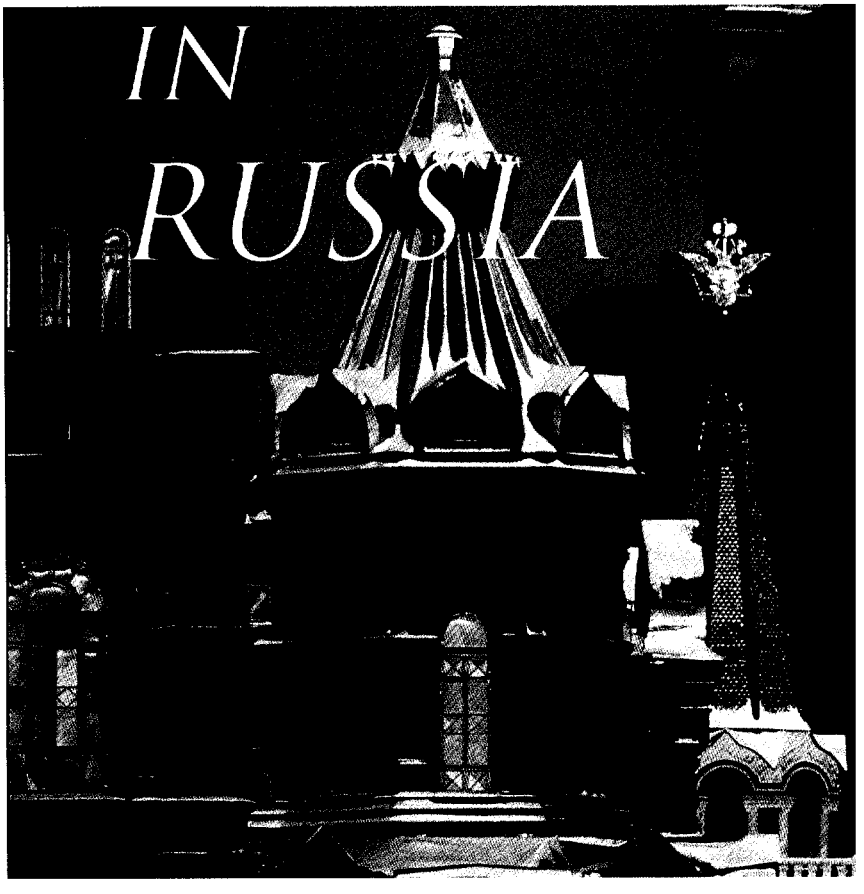
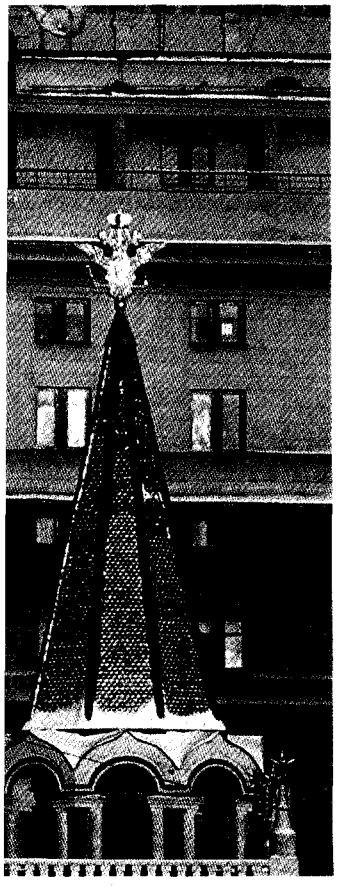


I have been traveling to Russia for ten years, and I am on the Board of Trustees of the Eurasia Foundation that fosters and sponsors NGO activities in the Russian Federation as well as in the FSU. Therefore, I am not the kind of investor who goes to Russia to buy government paper and get rid of it quick.

For about five or six years, I was in Russia as the writer of a newsletter about the computer industry. This was a great vehicle for getting educated on the subject, because one cannot just walk into some little computer company and say: "Hi, I'm here to help you. Tell me about your business and I'll give you good

Browsing the Internet between classes (above)

Students in a Moscow school (right)



advice." Instead, I would walk in and say: "I'm writing a newsletter about the computer business and I'm going to make you famous. So, tell me about your company." This way, I learned a great deal about the Russian computer market, and also about the U.S. market, simply by being able to contrast it with a place where market rules did not apply. Once I complained to somebody that he did not include the phone number on his marketing literature, and he said: "When I put it on, people scratch it off; then they hand out my literature and sell the phone number." Definitely, a very different market!

Sound investments

In 1990 I started a series of conferences, one conference a year, called the East-West Tech Forum. Now, the name has changed to EDventure High-Tech Forum in Europe. At that time, it was like the boys vs. the girls. The boys were the rich American vendors selling computers and software, and the girls were the nice, little East European resellers, who would add value on top of those products. The idea of the conferences was to get these two groups together. I kept telling the American vendors: "You should invest in these markets; these are great markets for people who are smart. What you should do is invest not simply by throwing in money, but by training people." Eventually a friend of mine, a venture capitalist in the United States, said: "You keep telling people to invest in these markets. How about if I give you a million dollars, would you invest it for me?"

And I said: "Oh, no. I couldn't do that. It would be a conflict of interest. Besides, I don't have the time; I'm a writer." But then I thought: "If someone wants to give me a million dollars, I'll figure out how to do it." In those days, a million dollars went pretty far, especially in the Central European computer markets. This guy was actually afraid of Russia, and the fund invested only in Central Europe.

A couple of years later, I started investing in some Russian computer companies with my own money. But the general attitude towards what I was doing was: "Oh, that Esther! She's so cute. She invested in those computer companies over in Central Europe, but I'm sure she will never make money." I will not go into any detail, but it is true that I did not yet realize a lot of gains. On the other hand, one can make money starting small businesses there, and I have and plan to do more.

The computer market is virgin territory

There are real people in these markets, and especially the Russian computer market is something magical. Those who know Russia, know what a huge cesspool of problems it is—corruption, lack of transparency, misuse or neglect of laws - all the things the World Bank is fighting against. It is difficult to do business in Russia, because there are few working banks, minimal payment systems, poor logistics and the like.

But the computer industry is actually different in Russia. First of all, the people from that industry did not steal anything from the state. It is not an industry of privatized computer factories. It is a marketplace of people who built software from nothing, out of their own heads. The older ones mostly come from research institutes where they

worked as mathematicians, scientists or engineers. They are honest, and they have the self-respect and dignity that come from having built their own business, rather than having to be grateful to someone you despise for everything you own. So, the IT/software market is a real little jewel in a troubled country. The challenge is how to take that little jewel and help it grow and become a virus that can infect the rest of the Russian economy. Even if many other businesses deservedly wither away, the guys who are able to use information systems well and honestly will flourish and prosper.

This is a fairly optimistic view, but this is the one that keeps me going. As recently as six months ago, most people in the West still thought that what I was doing was cute and sweet. But then, suddenly, the fascination with the Internet moved not just from the United States to Western Europe, but even into Russia. I got a fax from Boris Jordan's office--he started Renaissance Capital in Moscow—and then I got an email from his secretary, saying that he wanted to invest in high-tech and inviting me to discuss this with him. So I wrote him back and said as politely as

What is ICANN?
(Internet Corporation of Assigned Names and Numbers)

BY ESTHER DYSON

Much as the telephone world is going private, so is the Internet. The challenging issues for anybody who wants to figure out what to regulate and what not to regulate and how to do so, are: where is the locus of control and how do you make it accountable? From the perspective of government regulators, you want to regulate monopolies, most particularly commercial monopolies, for two reasons. One, because they make monopoly profits and they suck money out of the pockets of consumers or whatever. And the second is because control is control, and somebody who has a monopoly can control what people see and do, can control the rules of the marketplace, can in fact regulate something without accountability. In fact, governments themselves are the primary monopolies in this world.

ICANN is trying to minimize the amount of control in the Internet, number one; and number two, develop structures to make ICANN itself accountable, because ICANN too, by and large, is akin to a monopoly. It controls the central standards and the unique address system that the Internet is based on. You need a single address system that is consistent and has unique addresses for everything in the Internet, though different parts of it may follow different conventions. The organization that allocates that and sets policies for it and so forth, therefore, needs to be accountable to the relevant public.

So ICANN is a private not-for-profit corporation that sets these policies and enforces them. It is not a government and it is not subject to government control other than as any corporation is. Its policies are set by and are accountable to the Internet community -- users, vendors, service providers worldwide. It's a big challenge figuring out precisely who those people are, how they should express their power: Should it be by voting through a consensus process, however that might happen? But it's clear that ICANN is accountable to the community it serves.

The way it sets and implements its policies is through contracts with those same parties. We can't pass laws. We can't impose taxes. We have to get various parties to agree to make contracts with us. We've just done that with Network Solutions, where we were very fortunate to have a big ally, namely the United States Government, because both Network Solutions, which is a monopoly, and the U.S. Government are very powerful entities. We are just this little thing in the middle, but having established some control vis-a-vis Network Solutions, we're now in a more solid position to negotiate mutually acceptable contracts with the country-code top-level domain administrators throughout the world.

But in the end we've got to get those guys to agree with us, to agree with our authority, to decide that it's better to work with us than to try to resist us. After all, "we" are "them." We want them to join us in being the body that represents them. And so we're a new kind of policy-setting animal which personally I find extremely exciting intellectually. I find it worthwhile to do personally and emotionally, and a huge challenge as well.

Excerpted from a presentation given at the infoDev Symposium, "The New Networked Economy," The World Bank, November 1999.

www.icann.org

I could: "If you want to invest in the Internet, you have to write your own emails."

Besides Boris Jordan, who is mostly looking at Western Europe, there are five or six groups which want to invest 20 or 30 million dollars each into e-commerce in Russia. My first reaction to that was a strange sort of jealousy:"It's my Russia, who're these people coming in?" ....even though in my rational moments I had been desperately hoping people would join me because this sector needs investment, needs support, needs growth, needs people backing it.

E-commerce culture

But these initiatives sound very much like, "Let them eat cake." Russia does not need a bunch of Internet portals; Russia needs food distribution systems, factories that work, logistics, food-processing and the like. It does not need all that fancy high-tech stuff.

But, in fact, any kind of commerce now is e-commerce. Anybody who is starting a business will use the Internet, just as in the past he would use the telephone. The great thing about e-commerce is the culture that comes with it. It is the culture that tells Boris Jordan to write his own emails and interact with people directly. It is the culture that says, "post your prices," so that people can compare. It is a culture of openness and fair transactions, a culture of competition, a culture of communicating with the customer both before and after the sale. This is what Russia really needs. My hope is that we will see more and more of this, and that people will start funding e-commerce efforts in Russia related to wholesale markets in the steel industry, food distribution, lots of exchanges, and so forth. In a country where there are not many trade shows, brochures or catalogues, 800 numbers, or SEC disclosure statements, it is important to start building an infrastructure of information, which is really the base of most modern commerce.

In fact, it is tremendously exciting. The big challenge, though, will be a huge shortage of trained, experienced people. I want to mention the following as a model for the kind of things that might be possible in order to meet this challenge. Lately, Ford established a program to give a computer to each of its employees. Ford is not a charity; it is a company trying hard to compete in a world that is changing around it. The company is facing two challenges: One is how to become a modern, e-commerce-enabled, Internet-savvy company; the second is how to keep people. This is tough. Not long ago I was speaking to a group of middle-management people from traditional companies, and I asked them: "How many of you would like to leave your job and go to a startup?" Using an anonymous feedback system, 44 percent of this traditional audience said: "We want out." Although they had not acted on it, if I were an official from Ford or the like I would be scared. And Ford is. So, they are giving computers to all their employees, not just in the U.S., but in their factories in Poland and everywhere else. I would like to encourage companies in Russia to do the same thing, because despite all you hear about Russia, there too there is a huge people shortage. Russians, like anybody else, respond well to being treated with respect, to being told: "We want to invest in you. We want to give you a computer to use at home, and after two years, if you're still with us, it's yours to keep." Maybe, in the case of Russia, you have to throw in Internet service. But I think this kind of approach is going to be tremendously helpful. It is not a giveaway, and at the same time it may require some kind of extra push; it may not be cost-effective, at least in the short run.

But the computer industry is actually different in Russia... The people from that industry did not steal anything from the state... It is not an industry of privatized computer factories.

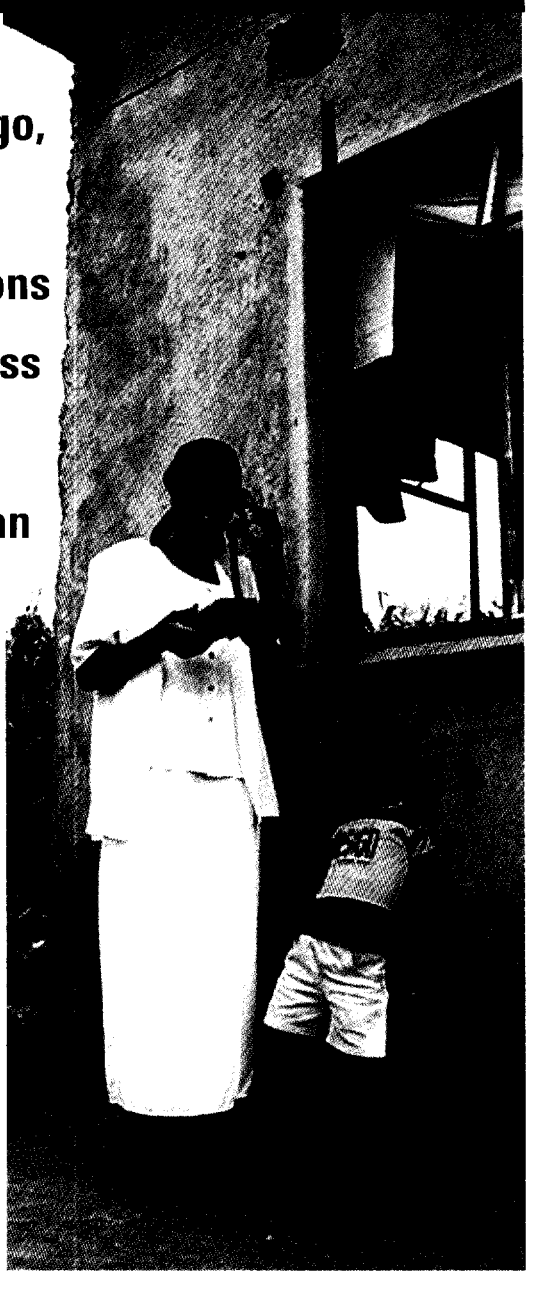
In this specific case, I am trying to foster a scheme for the pharmaceutical companies to give computers not only to their employees but to their distributors, and possibly the little drugstores. This will create a kind of groundswell. This is the right way to go to a country and to invest in it, because what is often needed is a role model and examples of success. If a company is successful in attracting people because it gives them computers, other companies will have to react. I am working to make this happen.

Esther Dyson is chairman of EDventure Holdings.
Visit: www.edventure.com

WIRELESS COMMUNICATION: Linking Remote Areas

BY GARY TOOKER

Almost 20 years ago, the International Telecommunications Union said, "Access to a dial tone is a fundamental human right."



Today, with the convergence of computing and communications, access is no longer defined by a dial tone, but by a much broader vision of the digital future. Universal access and Internet access have become synonymous. The Internet's unprecedented popularity has profoundly affected society, commerce, politics and the media, and is widely recognized as the fundamental building block for bringing basic telephony and data services to the peoples of the world.

New wireless and fiber optic technologies are greatly improving the means of access to modern communications in both the developed and developing worlds. The convergence of wireless communications and the Internet will provide limitless access to information in all forms and provide extraordinary opportunity. Motorola estimates that there could be a billion wireless phone users by 2002, up from 470 million wireless and 260 million Internet users in 1999, and that the industry will ship a billion devices with wireless Internet access capability by 2003.

Opportunities springing from the wireless Internet revolution include the delivery of public services, such as education and health care to a much broader population. The delivery of information is the most powerful tool in building a

knowledge economy. As the basis of the educational system, it creates the trained workforce that is essential for alleviating poverty and succeeding in a global knowledge economy. The wireless Internet promises access to information without restrictions of time or location. For the first time, it sets the stage for universal access and closing the gap between the "information haves and have-nots". It can happen, if the World Bank, the private sector and governments take the right steps.

In the early 1980s, only one in five people in the entire world had access to a telephone. Since then, the convergence of telecom and computing has had a huge impact in the developed world, but the gap between information poor and information rich has actually increased. In Asia, for example, over half the people have never made a phone call, just as in 1982, despite the growth in the number of telecom users in the developed economies of the region. China's record of installing 20 million telephone lines a year is impressive, but it only keeps up with China's population growth. Investment has been concentrated in densely populated urban areas where an early revenue stream can be achieved and the existing network operates most efficiently.

In much of the developing world, the existing telecommunications network is inadequate to support the deployment of high-speed data Internet applications. In some cases, the appropriate regulatory environment does not exist to allow for the introduction of wireless Internet access in an expeditious and cost efficient manner.

As with any effort that introduces new technology, it is vital that the public and private sectors work collaboratively to find creative and flexible ways to address the challenges of bringing wireless Internet access to the developing world. Governments need to provide an attractive investment climate. One necessary ingredient is the creation of an enabling regulatory environment for the wireless Internet. This includes allocating sufficient and globally harmonized spectrum, acceptance of international standards, implementing clearly articulated policies providing for transparent licensing procedures, free circulation of wireless Internet handsets, flat rate pricing schemes, and full and fair interconnection rights.

In addition to regulatory reform, the World Bank, governments and the private sector should collaborate on creative ways of improving the investment climate. For example, the World Bank and certain developing nations could create a plan to aggregate rural markets into a larger market to entice private investment. The Internet protocol is an open architecture that overcomes national borders and the barriers of conflicting standards. Likewise, when harmonized standards are adopted across nations or

regions, larger markets are created, regardless of distance. Governments must promote open and vigorous competition as a principal driver for establishing the physical infrastructure necessary for wireless Internet services to thrive. This enables all providers to participate and consumers to enjoy freedom of choice and lower prices, because Internet access must be affordable by all. Besides, by fostering competition, economies can create self-sustaining Internet networks. And, just as important given the ability of the Internet to fundamentally reshape national and international economies, both the public and private sector must also be active in trade negotiations to ensure that no tariff or technical trade barriers exist that would impede development of and access to the Internet.

Emerging economies are being held back by a shortage of communication professionals. This is a significant problem that could be addressed by World Bank/private sector partnerships. For example, a partnership has been established between the World Bank and Motorola in which scholars from developing countries work to develop a university-level educational curriculum focused on communications and IP-based network technologies. In addition, Motorola has provided equipment and trainers in areas like Indonesia, China, and other countries, where in conjunction with the technical universities, people are trained to install and maintain the equipment. This is not something we do because we're just good people. It's because without the training, there wouldn't be any people to put the system in or to maintain it.

Technology Input Indicators 1997-1999

	1997	1998	1999 (est)	97-99
Mobile Phones per 1,000 persons				
OECD Countries	195	268	332	+70%
Middle East & North Africa	20	28	40	+100%
Sub-Saharan Africa	10	15	19	+90%
Latin America & Caribbean	25	41	66	+164%
Eastern Europe & Central Asia	13	27	45	+246%
Asia Pacific	12	20	31	+158%

Source: Pyramid Research

The World Bank needs to be part of a mechanism that enables the rich and poor alike to partake in the benefits of ubiquitous communications. The emphasis is on the idea of developing market-based community information systems utilizing local talent, based in centers that might start with telephone access and could be updated over time. For example, the so-called LINCOs (Little Intelligent Communities). The partners of LINCOs are the Costa Rican Center for Sustainable Development, the Media Lab at the Massachusetts Institute of Technology, the Center for International Development at Harvard, the Institution of Technology of Costa Rica, the Center for Future Health at the University of Rochester, the School of Architecture at MIT, and the Omar Dengo Foundation. Motorola is working with them, providing embedded solution and chip sets. Basically, it consists of trucking communication systems into rural communities. The system fits in a shipping crate of about 20 cubic feet, and includes telephone communications, power, Internet, and a screen for the village people to come and interface, and get acquainted with communications. Other examples include young innovators such as Kam Ligu, who is bringing broadband telecom to villages in Africa, and Miguel Lennox of the Genome Project, who works on providing free software to a number of Mexican communities. Still another example is Chilean professor Ricardo Rojas, who has developed software to teach disadvantaged children basic skills in reading and calculating using video games.

Since the wireless Internet is inherently borderless, nations will need to work together and achieve a new level of cooperation among private companies, governments and financing institutions. This is needed to assist developing countries in achieving universal access by helping them develop strategies and long term visions, providing technical assistance to build strong competent regulatory frameworks, and building partnerships between the public and private sectors to invest where needed. The convergence of the Internet and wireless technology presents an opportunity to transform the nature of communications as we know it today. Properly managed, it can enhance commerce, education, and health care and bring poor, rural economies into the global marketplace for the first time.

Gary L. Tooker is chairman of the Board, retired, Motorola.

THE DIGITAL DIVIDE IN Africa

BY NII NARKU QUAYNOR

The spread of the Internet has enabled the development of information economies and thereby the potential to narrow the economic gap. This is an opportunity for the African countries, if they embrace the facilities rapidly. Effective information services can create wealth, but to achieve that goal we should develop a suitable agenda for the African continent.

Five years ago, I attended one of the Internet Society workshops, and there I decided it was time for my country to move toward full connectivity. When I returned to Ghana, I put the process in motion. Now we have a private Internet community. We have grown from 9,600 bits per second international bandwidth to two megabits. We have grown from one subscriber to well over 10,000. And we have grown from having no corporate links to about 30. These are positive results, but a lot still needs to be done.

An agenda for the African continent will include items such as infrastructure development, information economy management, and institutional development, as well as strategic directions and priority applications.

International connectivity settlements and Internet dispersion within the country and regionally are extremely important for infrastructure development. Although most African countries have attained full connectivity, this has been achieved by Internet Service Providers (ISPs) organizing a pipe to connect to their upstream provider. Once the link is in place this is utilized by all global users. A policy is needed to normalize these costs in order to reduce the undue burden on the emerging countries that are performing a global service. Furthermore, very high bandwidth information highways and exchanges must be constructed to interconnect all key townships in each country and also every capital city on the continent.

The information economy cannot function without adequate management, especially in the current phase of global market development. Without a strong local economy it is very difficult for an emerging nation to compete effectively in the global market because several of the required services--logistics, quality control, return policies, and the like--may not be at par internationally. For this reason nations should have policies that support local market development as a priority. Furthermore, strong local markets benefit key applications such as e-commerce and e-governance. Liberal and competitive markets are important in stimulating needed investment in the telecommunication market. An accepted method of ensuring a level playing field and presenting an objective recourse in dispute resolution among operators is the implementation of an independent regulatory agency. Such a regulatory regime is adequate for the telecommunications industry. However, the layered services of telecommunications infra-

structure, including ICT and Internet, thrive in a self-regulated environment. Best practices in legal framework such as cyber laws and taxes should also be shared.

The role of institutional development cannot be overemphasized. Large governmental ICT projects have a unique ability to harness the entire industry towards achieving the nation's priority objectives as well as developing ancillary services for the larger good of the information economy. The rules for coordination and administration of the Internet are currently being redefined through ICANN, which is an independent international non-profit corporation registered in California (see box, pg. 24). However, several governments, international agencies and citizens are not participating. To block the appropriation of the process by a few global enthusiasts, African countries should establish corresponding regional organizations such as AfriNIC (for addresses), AfDNS (for names) and AfNOG (for operators). African governments must participate in the Governmental Advisory Committee of ICANN and mobilize their citizens to participate in the at-large membership of ICANN.

Another key issue is industry development. It is recognized that a good amount of the technology components essential for implementing networking infrastructure are manufactured by a few multi-national corporations who are not currently operating in African countries. Hence, African governments should devise policies and programs that attract these multinationals to invest and manufacture some of the products in Africa. Africans must not only be users but also contributors to the development of the technologies and, therefore, develop human resource capacity. An integrated approach to capacity building is required due to the inter-disciplinary nature of the information industry. In this regard, nations must develop plans that address building capacity at all levels including primary, secondary, tertiary, research, industrial, continued education and awareness. There is great potential in making use of organized forces such as the national service, unions, and armed forces as the trainers in awareness programs.

The African agenda should move in four strategic directions. First of all, toward empowerment of the private sector. Netpreneurs are taking significant risks in developing the infrastructure and info-structure of the information economies. Given the importance of the new economy and the need for its rapid development, a policy to encourage the entrepreneurs to accelerate the deployments is desired.

Secondly, the new economy must have a democratic basis. Democratic governments depend on the votes of their citizenry for election. A commitment to the information economy by governments is to embrace the use of ICT for the voting process, or at least for consultations with their constituencies. Universal Access methods that assist in accelerating the diffusion of Internet and ICT into deprived communities would be an asset.

Thirdly, the creation of technology parks. Expertise for critical aspects of the information economy is scarce in Africa and efforts should be made to concentrate these resources in order to create the necessary critical mass for rapid development.

And finally, service accessibility must be expanded. Although manufacturing of chips, equipment and software-products are the desired long-term goals, services such as bulk data entry, custom software development for export and design center productions are accessible and should be stimulated.

Another task is the prioritizing of application development. One of the fields that demands immediate attention is the cultural field. Traditionally, Africa has relied on oral means to preserve its history and folklore. More recently, various artifacts have been preserved in national archives and museums. This method of preservation, however, is short-lived and much of the material has decayed. It would be better to preserve the cultural heritage in digitized form.

There is an endless number of applications that need to be developed where education is concerned, and all fields of study should be encouraged to produce relevant content. However, flagship projects in distance education, tele-medicine and environment should lead the way. And in the field of linguistics, applications that foster natural language development must be supported. Indigenous languages are widely spoken in African countries, yet there are few writings available resulting in the disappearance of these languages. The Internet is a good medium to publish in the indigenous languages. Fonts and encoding should be developed in an effort to engage the rural community who uses predominantly native languages.

Africa is blessed with pockets of excellence in the information technologies. The challenge facing the continent is to determine the right mix of policies and programs that will cause those isolated pockets of excellence to become pervasive.

Nii Quaynor is chairman of Ghana.Com, NCS.

E-Commerce Eludes Developing Countries

RON BERRY

The business world and society have undergone many changes because of information technology, and the impact of the Internet may cause some of the biggest yet. The Internet is quickly becoming a global information system accessible in nearly all countries. Moreover, at the beginning, no one envisioned it as a tool for conducting business virtually anywhere at anytime with anyone who has access. With an estimated on-line customer base of 288 million people (www.glreach.com) that is growing daily, conducting Internet commerce seems like the thing to do.

Quite simply, the Internet is quickly becoming the major choice for electronic commerce transactions. The Internet will be a driving factor in the global economy during the next century, as organizations and companies are looking for ways to tie into and leverage the network to conduct e-commerce. The increase in e-commerce via the Internet is definitely moving society a little closer to the "global village" concept that has been touted as a future way of life. More importantly, it is changing the face of business.

The Internet may level the competitive playing field for small businesses and entrepreneurs competing in a global economy. It is now possible for a small, virtual organization that has no inventory, no warehouses, and few employees to successfully compete in the global arena with multinational organizations. Because of the Internet, former barriers to global market entry such as huge capital investments, large staffs, and huge multi-lingual, transnational infrastructures no longer exist.

People began using the Internet for business purposes by publishing static web pages for advertising and creating an on-line presence. Dynamic pages soon emerged and allowed organizations to support on-line sales, customer service, and other information or value added services. According to some statistics, it is estimated that over $10 billion in business to consumer sales have occurred within the last year via the Internet. Sales in the area of Internet commerce expected to see the largest growth, business to business commerce, are expected to reach $153 billion this year. Besides connectivity and global reach, common advantages related to using the Internet for business purposes include reduced transaction and communication costs, expanded market potential and improved communications. In addition, companies now can offer their goods and services to customers 24 hours a day virtually in every time zone. In essence, the business storefront never closes. These advantages, however, do not come without challenges.

Organizations conducting business over the Internet face new legal, security, and privacy issues. Issues such as the legality of email messages as binding contracts must be addressed. Additional security measures to ensure that data and systems are reliable and valid must be developed. Since most information will be collected and stored electronically, organizations must develop measures to ensure the privacy of their customers and their own organization. Additionally, if organizations are going to conduct business globally, they may run into language, cultural, and currency problems. Conducting business in developing countries might prove difficult because of a lack of credit cards by citizens of those countries, for example.

The new, virtual, organizational design calls for heavy reliance on technology and business partners. With Internet commerce, if the server or other critical network components are down, then business is down. To further

compound this problem, organizations may be relying on business partners or foreign governments to provide access to the Internet, inventory, shipping, billing, or many other normal business functions. If one of these partners becomes unable to fulfill their obligations, then business may be affected. In summary, Internet commerce calls for an unproven business model that could be very risky, especially to small organizations.

In developed countries, the expansion of the Internet has been nothing short of phenomenal. The technology infrastructure, along with a high penetration of computers, has supported the growth in Internet commerce without too many problems. Unfortunately, developing countries are being left out of the expansion and the move toward the concept of a "global village." If developing countries are not able to join the Internet revolution soon, the distance between the "technology haves" and the "technology have-nots" will continue to widen and may not ever recover.

Many challenges and obstacles must be overcome before developing countries can benefit from the Internet and Internet commerce. In most developing countries, the necessary technological infrastructure is either inadequate or non-existent. To upgrade or develop the infrastructure would be extremely expensive and require the support of the government, which may never happen. In countries in transition, such as Eastern Europe, the hold over from prior socialist governments still limits competition and maintains centrally controlled telecommunication firms. In most of Europe, every single phone call has a cost. If there were a fee every time an American connects to the Internet from his home, most likely use of the Internet would change drastically. Until governments become Internet and business friendly and set Internet access and use as a priority, developing countries may never reap the benefits their world counterparts share.

Another problem in some developing countries is the limit placed on foreign investment in domestic businesses. Without outside investments, telecommunications may not reach the level necessary to participate in the Internet global economy. Partnerships should be allowed to enhance the development of the technology infrastructure necessary for Internet penetration.

Most likely, developing countries are years away from having the necessary infrastructure for countrywide use of the Internet. Costs of equipment and access will keep citizens of developing countries from participating on the Internet. Similarly, entrepreneurs in the most remote areas of the world may find it difficult to access new markets via the Internet. However, there is some hope with wireless technology.

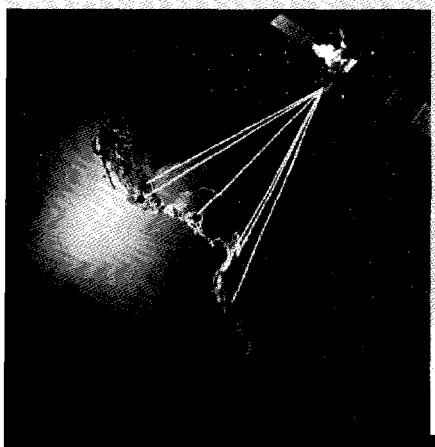
A Dutch group is processing email for organizations and individuals in countries with Internet access by using wireless connections as opposed to dedicated lines. This group sets up a central computer with a modem to serve a region of users. Every night, the computer is accessed to pick up email messages that are sent out worldwide through other providers. Another group, Volunteers in Technical Assistance (VITA), has established a low earth orbit satellite system for communication to and from the Internet. While both of these systems seem innovative, they both have severe limitations. For example, the VITA approach can only send messages four times a day for 14 minutes. Another approach involves the use of short wave or VHF radio systems for communications to and from the Internet in developing countries. This approach is promising and has already been used in conjunction with VITA's satellite system.

While it may seem highly unlikely for entrepreneurs in developing countries to participate and succeed in Internet commerce, we must always remember that nothing is impossible. Man was first put on the moon with computing power that is not as powerful as what most people in developed countries use to access the Internet today. As the efforts of volunteer groups continue and technology progresses, developing countries may become active participants on the Internet.

Ron Berry is the Entergy Endowed Professor of Computer Information Systems at the University of Louisiana at Monroe, and the founding editor of the Journal of Internet Commerce.

The author gratefully acknowledges the input and feedback of Dr. Jim Wood, Walker Endowed Professor of Entrepreneurship at the University of Louisiana at Monroe.

For information on the *Journal of Internet Commerce*, visit: www.hawortpressinc.com



Monterrey Tech's *Virtual University*

BY RAFAEL RANGEL SOSTMANN

Telecommunications and information technologies are having a growing influence these days in both companies and institutions as well as in all facets of everyday life. In education, the UNESCO's World Declaration on Higher Education states: "The rapid breakthroughs in new information and communication technologies will further change the way knowledge is developed, acquired and delivered. It is also important to note that the new technologies offer opportunities to innovate on course content and teaching methods and to widen access to higher learning".

These technologies provide immediate access to worldwide information banks and new knowledge that is appearing daily. In addition, they make knowledge available to an increasing number of people, without requiring that they physically attend a university or other facility. As a result, it is no longer necessary to invest enormous sums of money in the real estate that has traditionally supported face-to -face education systems.

The highly industrialized countries use technology capacities to satisfy a broad range of educational needs. If this is a valid approach for highly industrialized countries, it is even more significant for newly industrialized ones as a means of reducing the educational gap between the developed and the developing worlds.

The experience of the Monterrey Tech System is a case in point. Monterrey Tech, a university system with 29 campuses across Mexico, began using satellite technology to solve communications problems that existed between some of its campuses in the late 1980s. In addition, in 1988, however, the institution started using satellite communication to offer graduate programs to a large number of its own faculty members and thus avoid the high cost in terms of time and money involved in sending them abroad to obtain graduate degrees. This was how the Interactive Satellite Education System came into existence.

In the mid-90s, the Interactive Satellite Education System gave way to the current Virtual University, that uses satellite and other information technologies to offer graduate programs in management, engineering, information technology and education technology. Monterrey Tech's Virtual University also offers terminal courses in several undergraduate majors at some of the System campuses that do not have faculty accredited in certain required specialties in undergraduate study plans. Building on this initial experience focused on delivering accredited academic courses, the UV created a business channel with programming designed to develop the competitiveness of firms in Mexico. There are currently 1,000 classrooms in operation, particularly in small and medium companies, across the country.

Other initiatives in continuous education targeted for specific groups soon followed. Another important program at the UV is aimed at developing the professional capacity of elementary education teachers in Mexico and other Latin American countries. The program focuses on upgrading teaching skills and training teachers in the use of new didactic techniques using computers and multimedia. One of the most recent programs is seeking to give non-governmental organizations in Mexico and Latin America the tools and knowledge they need to advance their agendas with greater success. Finally, the UV is working jointly with the World Bank to offer a training program for municipal employees and officials, who often have no prior

experience with public administration and typically are elected for short terms.

In these various programs, the UV uses a wide range of teaching models, that are products of both expanding technological infrastructure and the growing experience of participating educators. In graduate programs, for example, emphasis is placed on independent and group learning. As a result these programs encourage the formation of student networks, spanning different countries, that provide an environment that enriches the knowledge and experience the members have acquired in their individual home countries. A tutorial faculty group follows up on the work done individually and in groups by graduate students. Terminal courses in undergraduate majors are also based on this teaching model, while other programs make use mainly of satellite transmissions and video conferences. The Virtual University has classrooms in ten Latin American countries, in which communication is mainly via satellite but also by Internet in those countries that have the appropriate infrastructure.

The development of teaching models at the Virtual University has had an impact on how teaching is being done in Monterrey Tech's face-to-face system. In campus classrooms across the country, techniques have been adopted that encourage students to develop their capacity for independent learning, information search, the formation of work groups, problem-based learning and case studies as learning experiences. Faculty has worked on new curricular designs in which creating the environments for this kind of learning and mentoring the processes is key.

As educators, we ourselves have learned several lessons from the Virtual University experience. First, we are convinced that the new technologies are a valuable resource for bridging the education gap. Thanks to these technologies, Monterrey Tech has been able to meet its goal of raising the number of professors with a graduate degree from 38 to 97 percent in roughly 10 years. Our experience with the Virtual University has also taught us that distance or distributed education requires the adoption of teaching models suitable for the different kinds of participants in the different programs. What works well for graduate students, for example, is not necessarily effective for training public servants.

Many of the skills developed in this kind of learning experience have value in the workplace. Knowing how to look for information and finding the right information, which students must learn to do as part of their academic experience is becoming increasingly important in the globalized business world. Similarly, group effort is being recognized more and more as a relevant part of job performance. Distance education supported by group learning in which the participants work asynchronously helps develop this skill.

Universities cast in the traditional mold will continue to be important; their role is vital for the success of distance learning in higher education. They will certify the quality of the courses delivered electronically and their faculty will be responsible for husbanding the logical integration of knowledge. High-tech distance education systems are too new to verify how efficient they are. There are simply not enough data. And these systems are not without their critics, who tend to weigh them against face-to-face systems. They raise such questions as the efficacy of uniform academic administration and evaluation, disperse systems, and the impact on the socialization process--traditionally an important facet of a university student's formative experience. These and numerous other challenges are only beginning to be studied and addressed.

However, in view of the education gap between highly industrialized countries and those in various prior stages of industrialization, the basic issue is how to bridge the gap on a broad scale as quickly as possible. It is not so much a question of which system, old or new, is superior or ideal but which system can respond to the immediate need. Therefore, where traditional face-to-face systems cannot be provided in the short term, distance education systems are undoubtedly a viable answer. Although setting up the required infrastructure for them does not come cheaply, the investment in monetary terms is modest in comparison with what would be needed across the world in physical and human resources to meet current education needs with traditional systems. To which one must add the cost of the loss of human talent and productive capacity left under- or undeveloped because education is inadequate or not available. Emerging technology has always brought change in the way things are done and opened up visions of new opportunities. Old and new co-exist and may complement, even enrich, each other. The revolution in telecommunications and information technologies that is transforming the worlds of business, finance and the mass media has a dramatic role to play in education. Indeed, at Monterrey Tech this has already begun to take place.

Rafael Rangel Sostmann is president of Monterrey Tech System.
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Children Worldwide Must be Internet-Connected

by Muhammad Abd al-Hameed

Children from the Kalkaji slums in New Delhi, India, browse the Internet using a touch pad computer provided by NIIT, India's leading computer education institute. The computer, part of an experimental program, is installed on a side wall of the institute and draws many children from nearby neighborhoods. Notwithstanding the fact that these children had never seen a computer before, they were able to learn how to browse just like the children who received schooling at the institute.

Dr. Sugata Mitra, the R&D Head of NIIT, observing that children in the slums responded the same way to a computer as those from upwardly mobile backgrounds, commented: "When it comes to computers and children, we don't have to rely on conventional pedagogues like textbooks and classrooms."

This story is part of the ICT Stories Project and was presented at the Global Knowledge 2 Conference in Kuala Lumpur, March 2000. For more about the Stories Project, visit: www.iicd.org/stories

Lahore, Pakistan.

Most middle class fathers in Pakistan (as well as in other developing countries) want their children to have personal computers but cannot afford to buy them, even though the price is as low as it can be. A multimedia personal computer, complete with monitor and speakers, costs the equivalent of US$600. But that sum equals 2 to 3 months of a junior executive's salary. And it amounts to twice the price of a 20" color television set, which can be enjoyed by the entire family, not just the children.

Not that the government is not doing its bit to make personal computers affordable. As soon as the personal computer became widely known in the early 1980s, the Government of Pakistan allowed its free import. "Free" meant not only removal of all import restrictions but also exemption from customs duties.

The popularity of the Internet has added to the woes of the parents. Students have another very strong reason to have a personal computer at home, especially when the cost of Internet is low (it is as low as Rs 10, or 5 US cents, per hour). The availability of the Internet, even in middle-size cities increases the demand greatly. And with it, the demand for personal computers.

How to make personal computers and Internet connection affordable to most middle class homes? There are several things that governments in developing countries can and should do to achieve the objective.

Exemption from import duties. The personal computer should be exempted from all import duties and taxes. Import duties and taxes on personal computers will be gone in any case in the near future under the terms of the Information Technology Agreement, which most countries have signed on the recommendation of the World Trade Organization.

International circuits at actual cost. The bogey of "national interest" allows the telecom monopolies in the developing countries to charge whatever they like for their services, which is often many times more than what they pay to the international carriers for the circuits. The burden, naturally, falls on the Internet service providers, who have to pass on the exorbitant charges to their customers.

Leasing with a new approach. If we say that the obvious answer to the cash price of PCs is leasing, the reaction will be hardly very enthusiastic. The reason is the very high cost of money in most developing countries. High interest rates logically lead to high leasing payments, discouraging the prospective customers.

But there are some sources of cheaper funds that may be tapped:

Supplier's credit. One source can be the computer supplier. It is in his own interest to encourage the sale of his goods by making the purchase easier for the buyer. The supplier may arrange funds from his own bank, or use its own surplus funds.

Export financing institutions. There are financial institutions that charge very low interest rates to enable developed countries to export their products. These institutions can provide funds to the manufacturers of personal computers to promote their export to the developing countries.

Government assistance. The Japanese government has given aid to many developing countries to set up television stations. When strong television signals are beamed to all parts of a country, a huge demand is created for television sets, most of which are manufactured in Japan. This is enlightened self-interest. If a country is a major manufacturer of personal computers, its government may provide interest-free loans to the leasing companies in developing countries to promote the export of computers.

International financing institutions. The World Bank, Asian Development Bank, Islamic Development Bank and other international and regional financial institutions can provide funds without interest, or with minimum interest, to developing countries for the leasing of personal computers.

Commercial banks. In some countries, such as Japan, where the interest rates are very low, the commercial banks may be persuaded to provide funds for the leasing of personal computers in developing countries. It will be a normal commercial operation but for a great cause.

In all these cases, even small amounts will go a long way. Let us say the target is to lease 100,000 personal computers per month. At the wholesale price of say $300, the total will come to $30,000,000. In a year, the total will come to $360 million. In a three-year revolving cycle, the total funds required will be $1.08 billion. In every cycle of three years, 3.6 million computers will be added. It will be quite a start to prepare for the requirements of the 21st century. The amount will not be much, especially when it will not be a grant but a fully returnable loan. And it will be providing 1,200,000 personal computers per country every year. The smaller developing countries may not even have that many homes in need of computers.

Once a personal computer is in place in a home, the Internet part will be easy. If the cost of the international leased circuits is reduced to a level where it is on a par with the prevailing international prices, the major hurdle in providing Internet at affordable rates will be removed.

The plan in action. How will it work in practice? The funds coming from various external sources will go to a leasing company. If more than one leasing company is willing to participate in the plan, they will be required to offer uniform lease terms to all lessees of computers, just like all Internet service providers will offer the uniform connection rates. They may, however, have different standards for qualifying applicants and their service operations may also differ.

The source of funds will determine the implementation of the plan. If a manufacturer of personal computers arranges funds on his own, he will obviously supply his own product. If the government of a country provides funds, the computers will come from there. The international financial institutions may, however, allow computers from various sources at competitive prices.

Once a computer has been leased, the leasing company will inform the approved Internet service providers and authorize the lessee to get the connection from any of them. The lessee may go to any other approved ISP if he is not satisfied with the service of the present one.

The lease period will be three years. Since the price of a personal computer is falling all the time while its specifications are improving constantly, the lease will be based on the current price and specifications. A lessee may not be allowed to terminate a lease before the expiry period. At the end of it, he may sign a new agreement for a new computer at the price prevailing at that time.

This package will be definitely an affordable cost for lower middle class homes, or even the poor families in Pakistan. If a parent can afford to get his son or daughter in college, he will also be able to pay US$20 per month for computer and Internet. It will be less than the price of a typical college textbook. The knowledge obtained will, however, be far more than what a single book can provide a student.

The combination of personal computer and Internet connection in an affordable package will be the single most important contribution to the education of a student. Thanks to distance education courses being offered on the Internet by leading universities and other institutions all over the world, quality higher education will be within the reach of poor students even in the remote parts of the developing countries. The long-term benefits of this revolution are not difficult to imagine.

Muhammad Abd al-Hameed is a consultant on information and telecommunications technologies in Pakistan.

World Bank to World: Can We Talk?

Development Forum harnesses the Internet's global reach for dialogue and knowledge-sharing

by Kerry Stephen McNamara

What do a World Bank senior economist, the head of a women's NGO in Senegal, an entrepreneur in Nepal, and a professor in Canada all have in common? They, along with more than 15,000 others from 150 countries, have participated in the past year in a unique experiment in online learning hosted by the World Bank Institute.

Development Forum, the Bank's virtual auditorium for collaboration and dialogue on development issues, harnesses the global reach of the Internet to bring together a broad range of practitioners, researchers, community workers, government officials, journalists and others from across the world for focused debate and information-sharing on specific development challenges. In the past year, "events" in this global virtual auditorium have ranged from public consultations on the draft of the World Bank's World Development Report on Poverty to focused, intensive "virtual working groups" on subjects ranging from environmental sustainability to anti-corruption strategies, from sustainable microfinance schemes to gender and development. Recently, in the wake of the World Bank/IMF Spring Meetings and the protests that accompanied those meetings, the forum has featured a lively month-long debate on "Globalization, Poverty and Development" with over 5,000 participants from across the globe.

The forum employs a hybrid email/Web platform. Discussions take place by means of moderated email lists accessible to anyone with even the simplest email connection. They are archived to a Web site where participants can view the discussions and access background documents and related links.

The forum is an adaptable tool; it can complement and improve traditional training programs by linking participants in a World Bank Institute core course in an ongoing 'community of practice'. It can help Bank staff reach out to, and consult with, a broader range of clients, stakeholders and external partners on specific challenges they face (as in the recent virtual working group on curbing unwanted teen pregnancy in Africa.) It can help the Bank open up to, and engage with, its critics on controversial issues (as in the recent debate on globalization.)

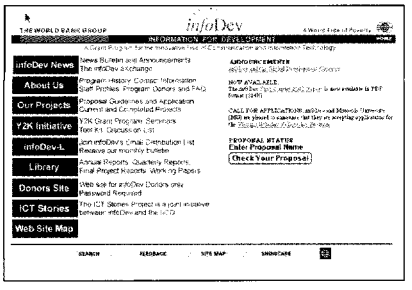
A team from the World Bank Institute manages the forum and trains staff throughout the Bank in the use of online dialogue as a tool for knowledge-sharing and global outreach. Increasingly, the Bank is working with external partners–ranging from the Panos Institute, London to Transparency International to the Netherlands Ministry of Foreign Affairs–in organizing and hosting these global e-consultations.

The forum, in short, is another tool of the Bank's embrace of the information revolution, and of the increased recognition that the growth of a global information economy presents the Bank with both the opportunity and the challenge of "learning to learn" with its clients, critics, and others from across the globe, connected by the extraordinary reach of the Internet.

Kerry Stephen McNamara is senior knowledge management officer with the World Bank Institute.

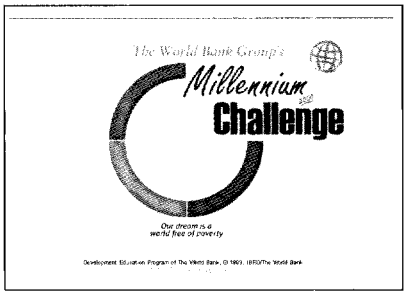
Visit Development Forum website at: www.worldbank.org/devforum

Looking for development information, networking opportunities, like-minded partners, a friendly chat on a topic of interest, or a professional exchange of ideas? Included here are samplings of websites that present a variety of interests and topics—from communication technologies to global poverty—but are equally creative in their approach to knowledge dissemination and networking strategies.



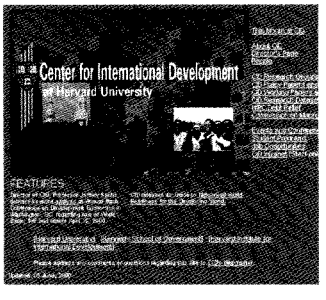
The Information for Development Program *(infoDev)* is a multi-donor grant program that supports innovative projects demonstrating the development opportunities offered by information and communication technologies. *infoDev*'s mission is to utilize these technologies for economic and social development, with a special emphasis on the needs of the poor in developing economies. *infoDev* operates as a "venture fund" for ideas. It also offers a mechanism for rapid deployment of targeted technical assistance for emergency situations.
www.infodev.org

The World Bank's Millennium Program is a year-long effort to focus



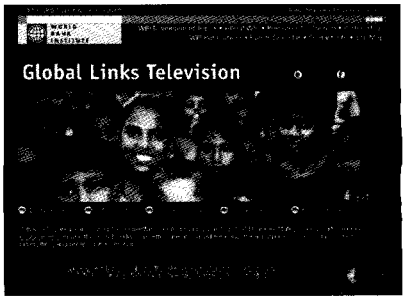
attention on global poverty and to highlight the major development challenges that the world faces in the 21st century. Over the 12 months, running from September 1999 through September 2000, the World Bank will host a series of conferences and special events and launch new publications aimed at encouraging discussion, debate, and innovation on how best to combat poverty world-wide.
From the website, try the following links: *Millennium Challenge*, to communicate with students around the world; *Faces of Inclusion*, the portraits of six people who are striving to meet their own challenge of inclusion through their personal efforts; *UN Millennium*, the Millennium Assembly of the United Nations to discuss fundamental review of the role challenges facing the United Nations in the new century.
www.worldbank.org/millennium

The Global Trade Negotiations Home Page is a one stop resource for those interested in analytical, up to date information on the multitude of issues, debates, government standpoints, institutions and organizations that surround international trade policy. The site provides a collection of research papers and articles, links to other



websites, as well as contact information for additional sources. Ideal for policy makers and advisers, researchers and negotiators. The site does not advocate any specific trade policies or support any particular ideology. Rather, as an academic resource, it offers an objective entry point to the many trade related resources on the Internet, with a focus on many areas relating to developing countries.
www.cid.harvard.edu

Global Links is an award-winning new television series which explores critical issues in economic and social development around the world, drawing on the vast knowledge resources of the World Bank. Development is sustainable when a broad base of society can understand and participate in the process. Global



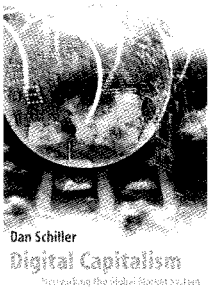
Links focuses on people—their compelling stories transcend nationalities and cultures to convey the human face of illiteracy versus education; disease versus adequate sanitation; and poverty versus economic growth. **Global Links** is broadcast to television viewers primarily in developing countries. Video cassettes are also used for educational purposes in secondary schools, universities, and professional seminars.
www.worldbank.org/globallinks

You Say You Want a Revolution: A Story of Information Age Politics by Reed E. Hundt. Yale University Press, 2000

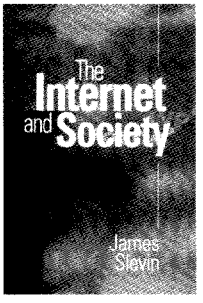
Al Gore did not invent the Internet, but his vision affected the goals of antitrust attorney Hundt, as Federal Communications Commission Chair (1993-97). The complicated process that produced the 1996 Telecommunications Act, and the FCC regulations that implemented the far-reaching legislation, are the center of this lively narrative. Hundt's story includes cable rate regulation, international trade talks, and quality children's television.

Digital Capitalism: Networking the Global Market System by Dan Schiller. MIT Press, 1999.

One of the early claims of cyberculture was that the Net constituted a realm distinct from the "real world." This book argues strongly to the contrary. Not only is cyberspace an integral part of the real world, Dan Schiller insists, but it exists primarily to serve powerful real-world economic interests. It was neither Al Gore, the Pentagon bureaucracy, nor a subculture of long-haired hackers that brought digital networks into being, but the large corporations that were looking to expand operations across national borders.



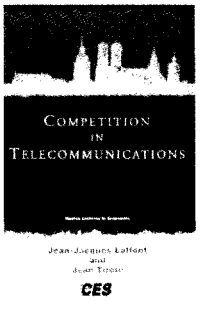
Internet and Society by James Slevin. Polity Press, 2000



The book features a wide-ranging introduction to the Internet and its significance in modern culture and society, with a variety of examples from around the world. It develops an original argument about the nature of the Internet, blending social theory, communications analysis and case studies. It also links the impact of the Internet to central debates and concepts concerning manufactured risk, reflexive modernization, self-formation, publicness and globalization.

Internet and Intranet Security Management: Risks and Solutions by Lech Janczewski. Idea Group Publishing, 2000

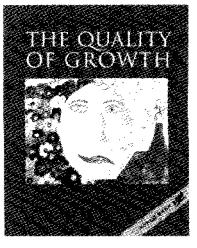
From typical local networks through country-wide systems and business-based distributed processing, we have witnessed widespread implementation of computer-controlled transmissions encompassing almost every aspect of our business and private lives. This book addresses the issues of information security from the managerial, global point of view. The global approach allows us to concentrate on issues that could be influenced by activities happening on opposite sides of the earth.



Competition in Telecommunications (The Munich Lectures) by Jean-Jacques Laffont and Jean Tirole. MIT Press, 1999.

Theoretical models based on the assumption that telecommunications is a natural monopoly no longer reflect reality. As a result, policymakers often lack the guidance of economic theorists. This book analyzes regulatory reform and the emergence of competition in network industries using the state-of-the-art theoretical tools of industrial organization, political economy, and the economics of incentives.

The Quality of Growth by Vinod Thomas, Mansoor Dailami, Ashok Dhareshwar, Daniel Kaufmann, Nalin Kishor, Ramon E. Lopez, and Yan Wang. The World Bank and Oxford University Press, 2000



What contributes to development? Economic growth remains central—not just its pace, but also its quality. The discussion here brings out four dimensions of the quality of growth: distribution, sustainability, variability, and governance surrounding the growth process. The book advocates broadening the policy framework: from the often, sole focus on a quantitative agenda for short-term economic growth to a qualitative agenda involving human, social and environmentally sustainable development. "Economic growth, properly understood, has many dimensions imperfectly captured by such single figures as GDP per capita. This World Bank study calls attention to the wider span of contributions to human welfare and carefully documents them. The result is a more sober and nuanced assessment of the conditions of life in developing countries." *(Kenneth J. Arrow, Professor, Stanford University and Nobel Laureate, Economics)*

Calendar of Events

July 2000

4-6 2000 Forum Economic Ministers of the Pacific Islands Meeting, Niue, New Zealand

5-7 Urban Cultural Heritage Forum, Beijing, China

8 G7 Finance Ministers Meeting, Fukuoka; Japan

9-10 G8 Foreign Ministers' Meeting, Miyazaki, Japan

9-14 XIII International AIDS Conference. This global meeting brings together all sectors engaged in the local of global response to HIV/AIDS. Durban, South Africa
Debrework Zewdie, 202 473-9414, Dzewdie@worldbank.org

10-14 Urban Futures, Johannesburg, South Africa

11-13 Asian City Development Strategy , Fukuoka; Japan

21-23 Okinawa G8 Summit, Japan

24-8/4 Subnational Budgeting for Poverty Reduction, Georgia State University and World Bank, www.decentralization.org

26-29 GhaCLAD 2000, Accra, Ghana. A global effort to bring all of Africa online
www.ghaclad.org
ghaclad@ghaclad.org

August 2000

1-15 People Across Borders: a virtual conference. A regional effort to network academics and intellectuals in the Middle East through the use of IT
www.mevic.org
mdahan@ibm.net
Riad al Khouri, meba@nets.com.jo

9-13 World Tobacco or Health Conference/Strategic Advisory Committee Meeting for WHO Tobacco Free Initiative, Chicago

14-17 10th Stockholm Water Symposium, Stockholm, Sweden

September 2000

5-8 World Federation of Public Health Associations, Beijing, China

9-10 APEC Finance Ministers, Brunei, Darussalam

11-13 World Economic Forum, Asia Pacific Summit - Australia Davos Connection Melbourne, Australia

19-28 **World Bank/IMF Annual Meetings**,
Press Room opens Sept. 18; Program of Seminars will run Sept 23-26; Plenary sessions of the Boards of Governors will run from Sept 26-28, Prague, Czech Republic

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1ST INTERNATIONAL WORKSHOP ON

APPLYING INTERACTIVE LEARNING TECHNOLOGIES (ILT-1): PRACTICAL TOOLS FOR IMPROVING TRAINING QUALITY

SINGAPORE: AUGUST 21 - 30, 2000

The World Bank

Singapore Polytechnic

World Bank Institute (WBI)/the World Bank, in partnership with Singapore Polytechnic, will organize this Workshop as a collaborative learning opportunity for training executives/directors, senior trainers and education planners, through real and virtual group interactions, to study the proper applications and utilization of interactive learning technologies (ILT) for improving training and education quality. During this 3-phase Workshop, participants will develop their own Strategic Plan for ILT utilization in support of their institution's learning/training programs.

Phase-1: Pre-Workshop Internet/Web-based Briefing
(3 weeks: starting August 1, 2000 at own training institute/home-base)

Phase-2: Peer Learning and Group Training
(10 days: August 21 - 30, 2000 in Singapore)

Phase-3: Post-Workshop Follow-Up: Free After-Training Coaching Service
(3 months: September – November 2000 at own training institute/home-base)

This workshop is organized as part of the World Bank Institute (WBI)'s **Knowledge Utilization through Learning Technologies (KULT) program**

For further information on this Workshop and/or to obtain the Application Form, please contact:

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1ST INTERNATIONAL WORKSHOP ON

QUALITY ASSURANCE: ENSURING COMPETITIVE EDGE OF EDUCATIONAL AND TRAINING INSTITUTIONS THROUGH ISO 9000 CERTIFICATION (ISO-1)

KUALA LUMPUR, MALAYSIA: SEPTEMBER 4 - 9, 2000

The World Bank

UNIVERSITY SCIENCE MALAYSIA

World Bank Institute (WBI)/The World Bank, in partnership with University Science Malaysia, will organize this Workshop as a collaborative learning opportunity for managers of educational and training institutions who are interested in adopting high-quality standards. Improvements of the quality of learning processes, methods and outcomes are now essential for the survival of educational and training institutions in the highly competitive and global market place. The ISO-1 Workshop activities will include sharing of experiences through peer-based learning, and the use of case-method and analysis to identify and understand the requirements and procedures of the ISO 9000 certification process and the ways it can bring benefits to learning organizations.

This workshop is organized as part of the World Bank Institute (WBI)'s **Knowledge Utilization through Learning Technologies (KULT) program**

For further information on this Workshop and/or to obtain the Application Form, please contact:

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WORKSHOP WEBSITE:
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