BROADBAND IN RUSSIA

Russian Federation

A SECTOR ASSESSMENT: BROADBAND IN RUSSIA

Carlo Maria Rossotto, Natalija Gelvanovska, Dr. Yuri Hohlov,
Dr. Vaiva Mačiulė, Sergei Shaposhnik

World Bank Group

WORLD BANK GROUP
Transport & ICT

TRANSPORT & INFORMATION AND
COMMUNICATIONS TECHNOLOGIES
GLOBAL PRACTICE

in collaboration with

Institute of the Information Society

JANUARY, 2015

The report is available online at
http://www.worldbank.org/en/country/russia/publication/broadband-in-russia

Table of Contents

Executive Summary

I. One of the Russian Federation's key strategic development objectives for the ICT sector is to leverage high technology and innovation to strengthen a modern, well diversified economy. Many governments around the world view broadband as the foundational infrastructure that can drive social and economic development. Russia is no exception: broadband development is listed among the priorities of the Russian Government[1]. Relative to OECD comparators, Russia has set one of the most ambitious broadband targets, considering the country's geographic size and fairly low-population density. Russia plans to make 100 Mbps, or Ultra-Fast Broadband (UFB), available to 80 percent of Russian residents by 2018, with the ultimate goal of providing accessible and affordable broadband to 95 percent of households by 2020. Making this communication infrastructure accessible to the broader middle class, as well as to those in the lower 40 percent income bracket, could potentially advance economic prosperity.

II. Broadband is of strategic importance to Russia's social and economic development due to its impact on job creation and productivity. In particular, broadband is essential for further leveraging software and IT engineering jobs, which are already well-established in Russia, and for bringing job opportunities to remote and isolated geographic areas. Furthermore, the availability of high-speed internet is the key to increased competitiveness in business, and particularly to innovation in manufacturing. Finally, broadband facilitates Foreign Direct Investment (FDI), and is considered one of the pillars of "smart" and sustainable infrastructure, such as smart electric grids and intelligent transportation systems. Therefore, broadband is a critical part of the general infrastructure modernization pursued by the Russian Government.

III. This paper has three main objectives: (a) it benchmarks Russia's broadband performance indicators to identify progress towards the broadband development goals and areas needing policy attention; (b) it reviews the broadband market structure and regulatory environment to identify priority areas for reform; and (c) it outlines a policy agenda aimed at adding impetus to the scale-up of Russia's broadband infrastructure in all aspects of broadband service performance, such as access, quality, and affordability.

1 "Main Directions of the Activities of the Russian Government until 2018", adopted in 2013 (http://government.ru/info/761/)

IV. The main conclusions are as follows:

- Russia's growth in the Fiber-to-the-Home (FTTH) segment has gained impressive momentum, especially when compared with European benchmarks. Fixed broadband access is available for 56.5 percent of Russian households, while the rate for the European Union is 79 percent. However, Russia is rapidly expanding its FTTH (Fiber-to-the-Home) network, leapfrogging many European countries that have copper-based broadband access infrastructure. Russia gained more FTTH subscribers in the second half of 2012 than the whole of the 27 EU countries put together. In 2014, decisions were made to ensure rapid growth of broadband access infrastructure based on fiber-optic networks.

- Mobile broadband access has ample room for growth, as Russia has one of the highest rates of mobile penetration in the world and the transition to 3G and 4G will be easier than in other markets. In accordance with the radio frequencies use conditions established in December 2013 by the State Commission for Radio Frequencies, within 7 years operators must provide coverage of small localities (for some frequencies – settlements over 1,000 inhabitants). This should make mobile broadband available to 90 percent of the population.

- The average internet speed in Russia has witnessed a steady increase, and is comparable with the average Internet speed in many countries of the EU and other markets used by the note as a benchmark. In the fourth quarter of 2013, about 73 percent of Russian internet users enjoyed connection speeds above 4 Mbps. In the second quarter of 2013, the number of connections above 10 Mbps in Russia went up to 21 percent, which is consistent with the rapid expansion of FTTx. The average speed of fixed broadband connections in Russia is envisioned to reach up to 44 Mbps by 2018.

- Russia has strong indicators of broadband affordability, especially when compared with OECD countries. Only 10 percent of the households cannot afford broadband, and the cost of a broadband connection exceeds three percent of available average income in only two Federal Districts (Far Eastern and Southern), which is considered a good indicator of affordability. However, Russia faces challenge in terms of vast geography and affordability of the Internet in remote areas; there has been a steady progress in this area, however, considerable investments will still be needed to connect those unconnected.

- Russia's broadband strategy needs to be articulated, considering the country's diverse socio-demographic areas that include large metropolitan, urban, semi-urban, rural and ultra-remote areas. The broadband strategy, for example, should recognize that a metropolitan area like Moscow will need the ultra-fast broadband infrastructure necessary to compete with leading world cities like Berlin and San Francisco in the areas of software enterprise and development of global talent.

- Urban, semi-urban and rural regions also need a functioning broadband framework to empower the various socio-demographic areas in Russia to contribute to the overall development of the country. Moreover, connectivity in ultra-remote areas is vital to the socio-economic development of the country.

- The law "On Communications" in 2014 introduced a new universal connection service; namely, connection based on fiber-optic line access points in settlements with a population of 250-500 people that provide data transfer rates of at least 10 Mbps. Rostelecom was selected as the sole operator of universal communication services, and by 2018 it must connect 13,600 settlements, which are home to about 4 million people, while other settlements will be connected "en route," so the network will extend over the territory with over 33 million people. This project – with a total of 200,000 kilometers of fiber-optic build-out – will not only greatly expand the broadband subscriber base, but should also lead to increased average Internet access speeds in the future.

V. Russia's growth in the area of broadband has enjoyed strong momentum in the past few years. However, further reforms are needed to ensure the long term sustainability of Russia's development in this sector. The dominant broadband market player is Rostelecom, a state-owned enterprise. Rostelecom has increased its market share in practically all market segments in the recent years, and it plays a dominant, but not monopolistic, role in international and domestic backbone connectivity. There is, however, a potential conflict of interest since the Russian state is both a policymaker and a majority owner of the largest broadband network operation in the country. There are independent mobile operators and ISPs (Internet Service Providers) in most markets, but they typically rely on Rostelecom's infrastructure. Rostelecom's influence is also increasing in the local access market segment. Even in Moscow and St. Petersburg, where there is healthy competition in FTTx markets, Rostelecom's share is increasing. In effect, the mobile broadband market is an oligopoly, as is the case in most mobile broadband markets in the world.

VI. Russian authorities should continue to pay close attention to issues concerning fair competition, regulatory matters and sector governance to ensure the sustainable development of broadband infrastructure. The rapid growth during the past few years can only be sustained if certain conditions are in place. Russia, for instance, should consider reducing the risks of conflict of interest and ensuring independence in regulating the sector. Active monitoring of anti-competitive practices is needed. Infrastructure-sharing attempts have yielded limited success, but there is great potential in this area, given the large untapped infrastructure of utilities, oil and gas companies, transport infrastructure, etc. Existing regulations must be supplemented by legislative amendments and by agency regulations that will ensure the implementation of decisions and create conditions for non-discriminatory access. It is also important to build the capacity of the institutions responsible for the implementation of those regulations. Bitstream-enabling regulations that could have opened the vast copper line network to competitive DSL (Digital Subscriber Line) provision are absent. Spectrum allocation is sub-optimal and still heavily influenced by security and military concerns, and lengthy administrative procedures are hampering access to the high sites needed to deploy modern infrastructure.

VII. Russia has made tremendous improvements in the last few years, and its broadband infrastructure is getting closer to those of other global leaders. However, the long-term sustainability of this progress will depend on the implementation of a set of strategic and regulatory reforms in the sector, as summarized in this paper.

I. Introduction

1. **It is widely recognized that broadband is of fundamental importance to the social and economic development of a nation.** Indeed, international case studies show that broadband networks are increasingly an integral part of the economy and have a strong impact on economic growth and development both at the global and the country levels.[2] The focus of the paper is on infrastructure-related actions; measures to stimulate demand for broadband are, therefore, only marginally addressed[3]. Despite this fact, it should be noted that, taking into account the relatively moderate take-up of broadband in Russia and generally affordable broadband access prices, measures to stimulate demand are considered to be of equally high importance to Russia. This paper aims to provide a platform for debate with the Russian counterparts in the sector, and to discuss the measures needed to develop broadband in support of actions aimed at economic growth.

2. **This paper examines the broadband market in Russia and preconditions for its sustainable development.** It begins by presenting arguments demonstrating the importance of broadband to the overall economic development of Russia, including from the perspective of diversification of the economy and new job creation. The paper then benchmarks Russia's broadband performance with OECD comparators, as well as with other nations leading the way in broadband diffusion. The paper then takes stock of the existing broadband market structure in Russia and its main players as they stand today, including the regulatory and legal environment of the market for both fixed and mobile broadband. Finally, the paper provides a set of recommendations that addresses the issue of sustainability in Russian broadband delivery, and how it can continue its acceleration in the years to come.

3. **The contribution of the following colleagues is gratefully acknowledged by the authors:** Michal Rutkowski, Jose Luis Irigoyen and Randeep Sudan (leadership and managerial guidance); Juan-Navas Sabater (technical leadership and quality control); David Rines (technical quality control); Olga Rines (translation and content quality control); Paul Anthony Clare, Elena Karaban, Artem Kolesnikov and Marina Vasileva (external communications guidance); Tatiana Ershova, Dmitri Kapustin, Lada Strelkova, Mikhail Bunchuk, Oleg Petrov, Anna Ivanova, Aleksandra Liaplina and Ievgeniia Viatchaninova (research, analysis and quality control). The authors retain full responsibility for any mistake and omission in the note.

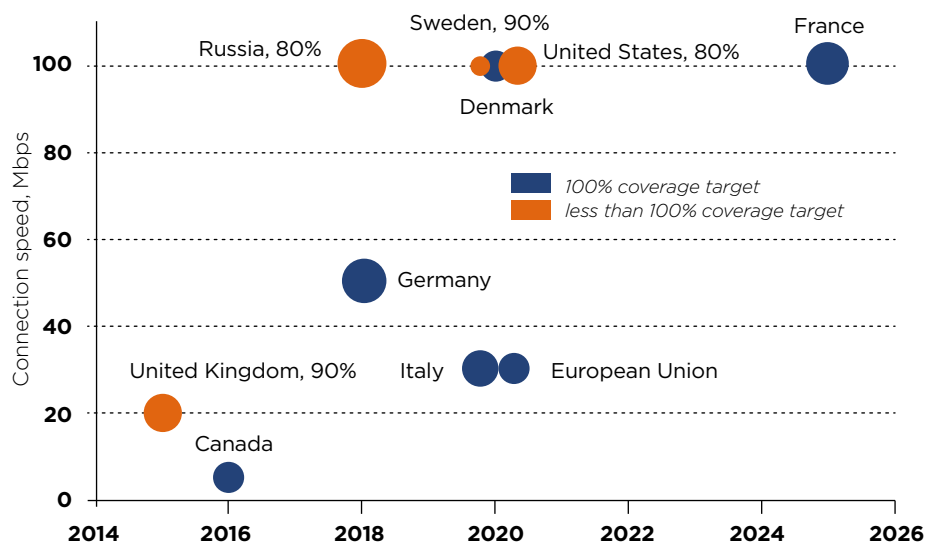
2 OECD (2008). Broadband and the Economy, Ministerial Background Report. DSTI/ICCP/IE(2007)3/FINAL, Paris.

3 This report is devoted to the supply-side issues related to broadband development in Russia. This development is clearly dependent on a number of demand-side issues, such as rolling out digital literacy programs, promoting local digital content and software, increasing publication and reuse of open data, crowdsourcing and citizen participation, improving e-government services, etc. While we do not cover these issues in this note due to the constraints of its scope, we are fully cognizant of their importance. Discussion of these and other related issues as well as analytical work is a big part of the World Bank's dialogue and collaboration with Russia and other countries.

II. Broadband targets

4. **In 2009, the President of Russia declared that the country should modernize and diversify its economy through high technology and innovation.** Governments of many states of the world consider broadband to be the key factor of their development agenda. For instance, 'Digital Agenda' within the framework of the European Union's EU2020 strategy is one of the flagship initiatives of this strategy, with broadband (high and ultrahigh-speed internet) designated as the basic infrastructure for the functioning of the EU's modern economy.

Figure 1: National targets for broadband development in different countries, 2014



Note: Percentage indicates targeted coverage;
Source: European Commission (EC), national websites

5. **Looking to catch up with countries that are world leaders in broadband technology, Russia has set broadband development targets that are highly ambitious, considering Russia's geographical vastness and relatively low population density** (Figure 1 and Box 1). In accordance with the modernization policy, the Ministry of Communications and Mass Media announced national broadband targets in 2012 to make 100 Mbps broadband available to 80 percent of Russian residents by 2018, with the ultimate goal to provide conditions – physically and financially – for affordable broadband access for all residents of Russia.[4]

Box 1: Broadband targets in Japan, Korea, Rep. and the EU

Japan and Korea, Rep. are targeting ultra-fast broadband coverage by the end of 2015. The targeted speed is 1Gbps.

The EU seeks to ensure that by 2020, all Europeans will have access to internet speeds of above 30 Mbit/s and 50 percent or more of European households will subscribe to internet connections above 100 Mbit/s.

Source: EC, national websites

4 http://2018.minsvyaz.ru/en/#

III. Strategic importance of broadband for socio-economic development

6. **By developing appropriate policies for accelerating broadband diffusion, countries can increase domestic competitiveness and the likelihood of sustained growth.** During the last few years, there has been a considerable surge of studies analysing the contribution of broadband to GDP growth (World Bank[5], ITU[6], OECD, McKinsey[7] and other[8]). Despite opinions to the contrary,[9] the evidence is fairly conclusive – broadband has a positive impact on GDP growth.

7. Several **independent econometric studies estimate that broadband's impact on GDP varies from 0.25 to 1.5 percent for every 10 percent increase in penetration.** Furthermore, Koutroumpis (2009) found that, due to positive network externalities, the higher the penetration of broadband, the greater its contribution to economic growth.[10] On the other hand, other authors found that the impact on GDP is higher in emerging countries with less developed networks, and that mobile broadband has a greater effect on growth than fixed broadband (Thompson, Garbacz, 2011[11]).

8. Thus, broadband connectivity brings substantial benefits to both developed and underserved areas. These observations are important for Russia to take note of, as it is a country with wide disparities in broadband coverage. The general overview of economic literature suggests that broadband contributes to a country's economic growth in multiple ways (See Box 2).

5 Qiang, C. Z., & Rossotto, C. M. 2009. Economic Impacts of Broadband.World Bank.

6 Katz, R. 2012. Impact of Broadband on Economy. ITU: http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf

7 McKinsey & Company, February 2009. Mobile broadband for the masses: http://www.mckinsey.com/clientservice/telecommunications/mobile_broadband.asp

8 Czernich, N., Falck, O., Kretschmer T., & Woessman, L. 2009. Broadband infrastructure and economic growth. www.ifo.de/DocCIDL/cesifo1_wp2861.pdf

9 Charles Kenny, 2011. No Need for Speed, Foreign Policy, available at : http://www.foreignpolicy.com/articles/2011/05/16/no_need_for_speed

10 Koutroumpis, P. 2009. The Economic Impact of Broadband on Growth: A Simultaneous Approach. Telecommunications Policy.

11 Thompson Jr, Herbert G. and Christopher Garbacz, 2011. Economic Impacts of Mobile Versus Fixed Broadband. Telecommunications Policy, 35 (11), 999-1009.

Box 2: Broadband contributes to a country's economic growth in multiple ways

Broadband increases productivity. The deployment of broadband facilitates the adoption of more efficient business processes, cuts transaction costs, provides better access to greater labor pools, materials and consumers. According to Fornefeld, et al. (2008), companies adopting broadband-based processes improve labor productivity by five percent in the manufacturing sector and by ten percent in the services sector.[12] Studies suggest that ten percent higher broadband penetration in a specific year is correlated with 1.5 percent greater labor productivity over the following five years.[13]

Even if increased productivity displaces some jobs, the positive effects on job creation outweigh the negative ones; therefore, **broadband leads to a positive net employment creation (Broadband Commission, 2013).**[14] In a way similar to any infrastructure, the deployment of broadband networks creates direct, indirect and induced jobs.[15] Unlike traditional infrastructure, broadband has an impact far beyond the scope of the industry itself, by promoting new consumer and business behaviour, stimulating growth in adjacent industries and creating new ones. Simple estimates indicate that broadband can create between 2.5 and three additional jobs for each job directly in the sector of broadband access.[16] The relationship between broadband and employment tends to be stronger in industries where IT represents a larger share of an industry's inputs. Software is one of the most dynamic sectors of the Russian economy. Russian software exports have risen from just USD 120 million in 2000 to USD 3.3 billion in 2010. Meanwhile, the fastest growing segment of its IT market is offshore programming which now makes Russia the world's third biggest destination for outsourcing software, just behind India and China. Although the unemployment rate in Russia is relatively low compared to other big economies (the 2013 unemployment rate in Russia was 5.5 percent; whereas in EU-28, it was 10.8 percent; and in the United States, 7.4 percent), **broadband penetration could bring additional long-term employment, especially in rural areas and in sectors other than natural resources and extraction industries**. Broadband

12 Fornrfeld, M., Delaunay, G., Elixmann, D. 2008. The impact of Broadband on Productivity and Growth. Micus Management Consulting (on behalf of the European Commission).

13 http://www.thenewstribe.com/2012/04/18/is-broadband-important-for-us/

14 International Telecommunications Union. 2013. The State of Broadband 2013. Universalizing Broadband, available at: http://www.broadbandcommission.org/documents/bb-annualreport2013.pdf.

15 Broadband network construction creates direct employment in the jobs necessary for building the facility. The creation of direct employment has an impact on indirect employment, which includes jobs created to supply the materials and other inputs to production. Finally, household spending based on the income generated from direct and indirect employment creates so-called induced employment.

16 http://broadbandtoolkit.org/1.3#Table1.2

allows the diversification of the economy and the modernization of sectors like agriculture, education, healthcare and others.

Broadband also is **a key input for innovation.** The deployment of broadband accelerates innovation by introducing new technologies, services, applications and business models. It enhances the role of human capital through easier acquisition of knowledge and technical skills. According to McKinsey, innovations in information technologies, processes and operations are significantly changing the map of global manufacturing.[17] Russia, being one of the world's 15 largest manufacturing economies, will face a serious challenge in maintaining that position. Broadband may become an important catalyser of Russian's competitiveness in manufacturing and services alike.

Broadband is a driver for Foreign Direct Investments (FDI). First, the sector itself is attractive for FDI. The software and ICT industry is the world's leading sector for global FDI projects.[18] Russia has key assets, including a booming domestic IT and software sector, well-qualified engineers — building on Russian's traditional emphasis on math and sciences in the educational curriculum — and relatively low labor costs. The telecom sector is, on the other hand, dominated by Russian capital due to foreign equity limitation (49 percent), which should be eliminated four years after accession to the World Trade Organization (WTO). The development of broadband in the context of a competitive and open market is identified as a key factor to increasing the impact of GDP on growth (Farid Badran, 2011).[19] Second, ICT infrastructure is an enabler of FDI in other sectors. A recent econometric study indicates that the availability of reliable high-speed and reasonably-priced internet access is a key determining factor in FDI decisions (Kats, 2009),[20] and can be used to an advantage in reversing the recent trend towards FDI decline in Russia.

Finally, **broadband becomes a necessity for other utilities such as public transportation, electricity, water and heating**. These utilities are under constant pressure to improve efficiency and reduce cost, as well as carbon footprint. At the same time, they have to maintain — if not increase — the current level of service safety, reliability, and quality. According to the State Program on Energy Efficiency, energy efficiency should increase by 40 percent by 2020.[21] Here again, broadband is key. Broadband can reduce energy and water consumption through a range of tech-

17 McKinsey. 2012. Manufacturing the future: The next era of global growth and innovation. http://www.mckinsey.com/insights/manufacturing/the_future_of_manufacturing

18 The FDI report 2012. http://ftbsitessvr01.ft.com/forms/fDi/report2012/files/The_fDi_Report_2012.pdf

19 Farid Badran. 2011. Impact of broadband on economic growth in emerging countries, available at : https://community.oecd.org/docs/DOC-32096

20 Katz (2009) estimates that broadband has a direct impact on the decision of firm relocation. Broadband influences the relocation of firms in search of lobor pool, it drives firm relocation for functions resulting from value chain decomposition, and availability of broadband can contribute to attract highly educated labor force.

21 http://www.rg.ru/2011/01/25/energosberejenie-site-dok.html

nologies, such as smart transportation and logistics, smart meters and smart grids. The capability to monitor real-time data, react immediately, and control smart devices can improve energy and water consumption significantly. It is estimated that smart use of ICTs can reduce greenhouse gas (GHG) emissions by up to 25 percent.[22] Moreover, smart technologies usually reduce energy bills for end-users. Russia, with its strategic plans to excel not only in broadband development, but also in high-tech industries, has all the potentials to move forward to smart cities development.

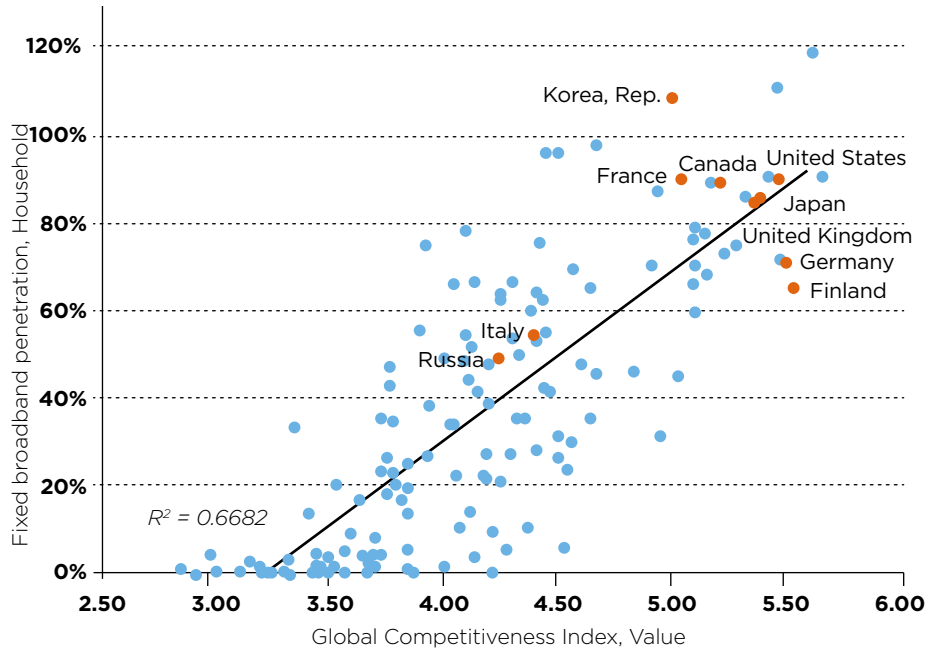
22 Smart 2020: Enabling the low carbon economy in the information age, http://www.smart2020.org/_assets/files/02_smart2020Report.pdf

9. **ICTs enabled a number of positive administrative reforms in Russia which were received well by international observers**. The Doing Business (DB) 2014[23] report recently released by the World Bank recognized that «Russia made trading across borders easier by implementing an electronic system for submitting export and import documents and by reducing the number of physical inspections» and by «transferring property easier by streamlining procedures and implementing effective time limits for processing transfer applications.» While broadband cannot be directly correlated with the DB parameters, it may be noted that countries with a higher DB ranking score (above 40) normally have fixed broadband penetration above 25 percent per capita, and those in the top ten have above 30 percent.

10. To sum it up, broadband fosters GDP growth, creates new jobs, spurs innovation and improves public services – in short, broadband increases a country's competitiveness, which is a must for continued and sustainable economic growth. The correlation between penetration of broadband and competitiveness is obvious (see Figure 2). Therefore, even if broadband infrastructure is an expensive investment, there is a much higher price to pay for not investing – that is, a loss of economic competitiveness.

23 http://www.doingbusiness.org/data/exploreeconomies/~/media/giawb/doing%20business/documents/profiles/country/RUS.pdf?ver=2

Figure 2: Correlation between the penetration of fixed broadband and global competitiveness index, 2013



Source: Index: World Economic Forum, 2013; Penetration: TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

IV. Digital divide and broadband access development in Russia

11. **Plans for the development of broadband access in Russia are being developed and implemented in the context of solving the problem of the digital divide**. On January 31, 2013 the Government of the Russian Federation under the chairmanship of the President of Russia held a session which identified bridging the regional digital divide and broadband development as one of the main lines of action for the Government for the period before 2018. Given the size of the country, the emphasis was placed on the need to address this problem at all levels: federal, regional and municipal, and to replicate regional best practices on a national scale. Targets for overcoming the regional digital divide are set out in the main documents for the strategic planning of information society development in the Russian Federation – Strategy for Information Society Development in the Russian Federation (adopted in 2008, expires in 2015[24]) and the state program "Information Society (2011-2020 years)"[25].

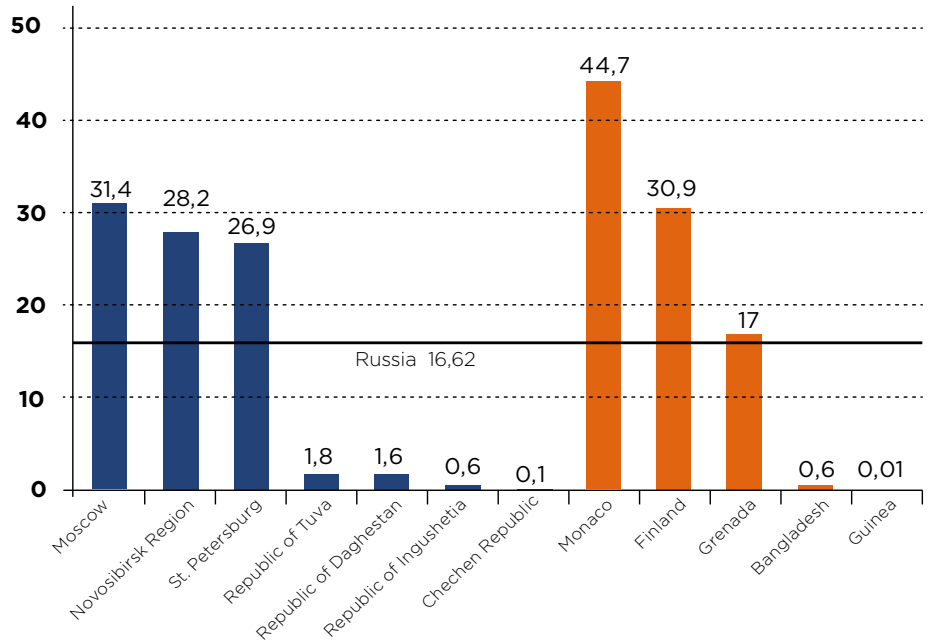
12. **Despite some progress, the digital divide between the different regions of the country and between rural and urban areas remains a significant problem in the development of the information society in Russia.** On a number of ICT indicators, differences between regions of Russia are much higher than in European countries, and may exceed the difference between developed European countries and developing countries that have just started down the path of developing the information society. Addressing the digital divide is complicated due to the size of the country, the large number of settlements located in remote and hard-to-access areas, and remaining significant differences in the socio-economic development of the subjects of the Russian Federation.

13. **In relation to broadband access development, the digital divide is the greatest in fixed broadband penetration**. Figure 3 shows the regions of Russia and countries of the world with the highest and lowest indicators. The gap between the leading region (Moscow) and the outsider regions is more than 50 times (Republic of Ingushetia) and about 300 times (Chechen Republic). If the leading regions for fixed broadband penetration are at the level of countries such as Finland, New Zealand, and the US, the situation in the lagging regions of the Russian Federation would be comparable to Bangladesh, Pakistan and Paraguay. The lag is caused by a combination of the low level of economic development and difficult areas for the deployment of wired broadband infrastructure (mountainous terrain, vast sparsely-populated areas, etc).

24 http://www.rg.ru/2008/02/16/informacia-strategia-dok.html

25 http://minsvyaz.ru/ru/doc/?id_4=1095

Figure 3: Fixed Broadband Penetration (number of subscriptions per 100 inhabitants) in the regions of Russia and in other counties, 2013



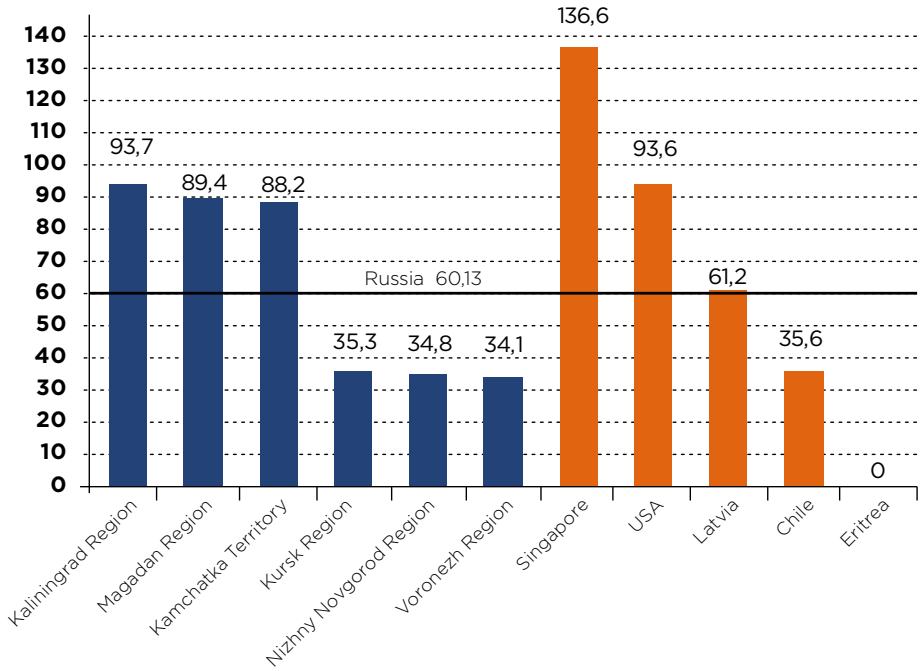
Source:: ITU, 2013; Ministry of Telecommunications and Mass Communications of the Russian Federation[26]

14. **Differentiation of regions in terms of penetration of mobile broadband is significantly smaller than in the case of fixed (wired) connections, which could alleviate the digital divide in broadband availability (Figure 4)**. In some regions, the development of mobile telephony and broadband compensates for an underdeveloped wireline network. In the Republic of Tuva, for example, mobile broadband rates are above average (87.8 active subscriptions per 100 inhabitant). This region is among the leaders, while having one of the lowest level of fixed broadband penetration. A similar situation – with less pronounced differences – can be found in regions such as the Republic of Altai, Republic of Sakha-Yakutia and Sakhalin Region. However, in a number of regions (in particular, in the Republic of Ingushetia), very low levels of fixed broadband penetration are combined with average or below-average performance of mobile broadband, which makes the overall situation with access to high speed internet significantly worse than the national average.

15. **There are significant disparities in access to ICT between urban and rural settlements**. Figure 5 shows the differences in the use of computers, the Internet and broadband access in urban and rural households in Russia. The largest gap is observed in the use of broadband – almost twice. Only one-third of households in rural areas have broadband access to internet (according to the classification of the International Telecommunication Union – 256 kbps and higher).

26 http://minsvyaz.ru/opendata/7710474375-abonentishpd/

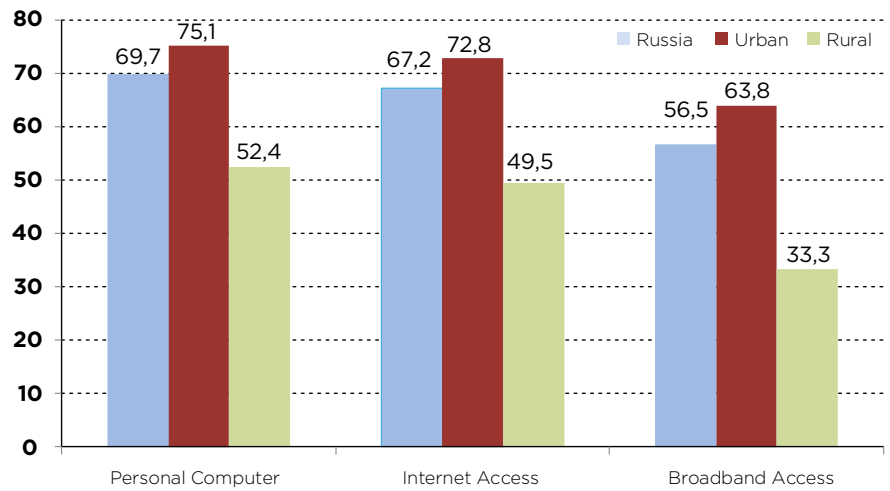
Figure 4: **Mobile broadband penetration (number of active subscriptions per 100 inhabitants) in the regions of Russia and in other countries, 2013**



Source: ITU, Ministry of Telecommunications and Mass Communications of the Russian Federation

16. **Analysis of the digital divide shows that the main areas experiencing underdevelopment of broadband access in Russia are rural settlements, as well as subjects of the Russian Federation with a low level of social and economic development**. In this regard, further accelerated development of broadband infrastructure is possible only within the framework of the state program that will combine regulatory measures to stimulate the development of broadband access in small towns and rural areas with various mechanisms of financial support for the deployment of broadband infrastructure in areas of low or negative return (from the universal service fund, federal and regional budgets).

Figure 5: **ICT use in households in the Russian Federation, by settlement type (October 2013), %**



Source: Rosstat[27]

27 http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/it_technology

V. Benchmarking Russia's broadband development

17. In terms of ICT development, most international institutions place Russia in a geographic context. Russia is variably treated as belonging to the Europe and Central Asian region (World Bank), the Eastern Europe region (International Telecommunications Union, ITU), or the Commonwealth of Independent States (World Economic Forum). In this context, Russia is performing reasonably well. However, as Russia has set broadband targets as ambitious as those of most developed countries, it would be interesting to see the country's performance *vis-à-vis* those of the global leaders.

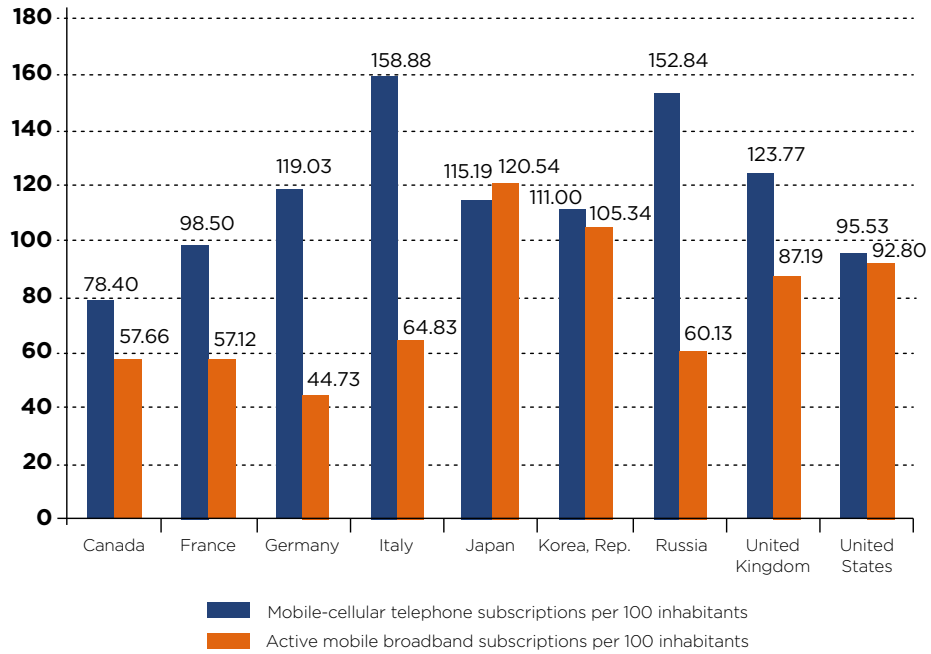
18. **Mobile broadband penetration is in line with developed countries**. In 2013, mobile broadband penetration in Russia was 60.13 active subscriptions per 100 inhabitants[28] and was close to the average of developed countries. It goes without saying that Russia has tremendous potential for further development. The country holds one of the highest mobile telephony penetration levels among global leaders (152.84 active subscriptions per 100 inhabitants as of the end of 2013[29]), meaning that basic mobile network infrastructure is widely spread across Russia.

19. However, **the ratio between mobile telephony subscriptions and mobile broadband subscriptions indicates that not more than 40 percent of total mobile telephony subscribers are signed up for mobile broadband services in Russia** (see Figure 6). In Japan, by contrast, there are more mobile broadband subscriptions than mobile telephone subscriptions. **In the United States, there are practically matching numbers of mobile telephony and mobile broadband subscriptions (the ratio of 0.97). A similar situation is observed in Korea (the ratio of 0.95)** as shown in Table 1. Lower prices for smart devices (smartphones and tablets) and faster deployment of 3G and 4G networks may significantly change the situation in Russia.

28 Broadband Report, UN Commission and ITU. P. 98: http://www.broadbandcommission.org/Documents/bb-annualreport2014.pdf

29 Measuring the Information Society 2014. ITU. 2014. P. 243. Since 2014, the Ministry of Telecommunications and Mass Communications of the Russian Federation has been providing data on active cell and mobile broadband subscriptions to the ITU in accordance with ITU methodology; the number of total subscriptions is greater than the number of active subscriptions.

Figure 6: Mobile telephony penetration compared to mobile broadband penetration (number active subscriptions per 100 inhabitants), 2013



Source: ITU, 2013; for Canada Mobile broadband penetration was not available from ITU for 2013, instead was used data from TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

Table 1: Ratio between mobile broadband subscriptions and mobile telephony subscriptions, 2013

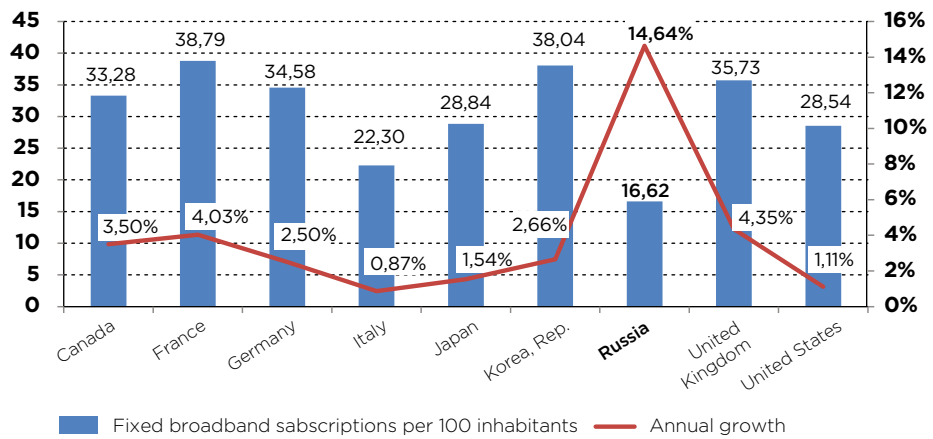
Country	Number of mobile broadband subscriptions divide by number mobile telephony subscriptions
Japan	1,03
United States	0,97
Korea Rep.	0,95
Canada	0,73
United Kingdom	0,70
France	0,58
Italy	0,41
Russia	**0,39**
Germany	0,31

Source: Authors based on data from ITU, 2013; for Canada Mobile broadband penetration was not available from ITU for 2013, instead was used data from TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

20. **Forecasts confirm both the potential and the need to develop reliable, high-speed mobile broadband networks**. According to Cisco Visual Networking Index[30] (VNI), in 2018, 49 percent of all networked devices in Russia will be mobile-connected. In comparison, only 22 percent of all networked devices will be mobile-connected in the United States; 20 percent in Canada; 29 percent in France; 32 percent in Germany; 26 percent in Japan; 41 percent in Italy; and up to 34 percent in Korea.

21. **Despite a high growth rate, the penetration of fixed broadband remains at a very low level in Russia compared to benchmark OECD countries** (Figure 7). Russia's fixed broadband market has seen solid growth in the past few years.[31] According to ITU the number of fixed broadband subscriptions reached 16.62 per 100 inhabitants but remains substantially lower than in the majority of the developed countries. According to Rosstat, in 2013 56.5 percent of all Russian households[32] were wired with broadband, compared to over 79 percent of households[33] in the European Union.

Figure 7: Fixed (wired) broadband penetration (number of subscriptions per 100 inhabitant, 2013), and annual growth (%, 2012-2013)



Source: ITU, 2013

22. **The existing fixed-line infrastructure in Russia provides certain potentials for fast broadband growth at a reasonable cost**. The fixed telephony infrastructure (PSTN local loops) could be upgraded for delivery of broadband services, typically through the application of xDSL technologies on copper networks[34]. Russia's fixed telephony penetration (with 28.47 lines per 100 inhabitants, and 63.2 percent of households with fixed connection phones) is greater than in some EU countries. In Western countries (e.g., Germany, Switzerland, the United States), the number of fixed telephony connections was decreasing due to fixed-to-mobile substitution over the past decade. In Russia, a similar trend has been observed since 2008 (when it had 32.25 lines per 100 inhabitants), although the rate of decrease is relatively low. **At the same time, the ratio between broadband subscriptions and fixed-line subscriptions in Russia is 0.58, while the average in sample countries is ~0.64** (Figure 8). This implies that another 5 to 10 percent of Russian households can still be connected to broadband internet at reasonable costs, assuming that copper networks are well maintained. Regulatory decisions related to regulation of non-discriminatory access to the "last mile" may be needed.

30 http://www.cisco.com/web/solutions/sp/vni/vni_forecast_highlights/index.html

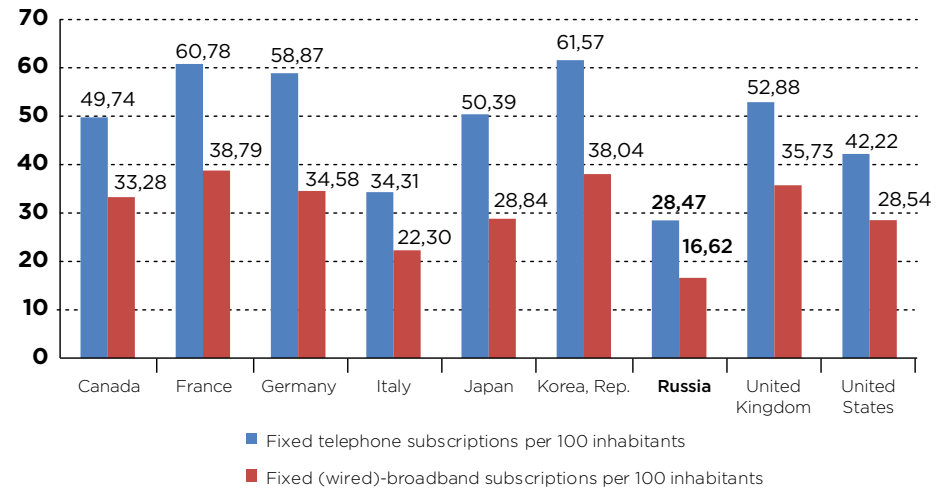
31 Since 2004 Russia has experienced high growth in terms of fixed broadband subscribers with CARG of 53%.

32 http://www.gks.ru/free_doc/new_site/business/it/fed_nabl/tab1.htm

33 http://ec.europa.eu/eurostat/data/database

34 Mainly VDSL technology would comply with Russia's broadband targets.

Figure 8: Fixed telephony penetration compared to fixed broadband penetration, 2013



Source: ITU, 2013

23. Partially due to this factor and partially as a result of the lack of a regulatory framework, at this time in Russia xDSL is being superseded by FTTx and is being outpaced by the growth of fiber-based broadband, with most Russian operators bypassing the existing copper infrastructure and deploying new networks, typically FTTx (see Figure 9). Cable-based access still represents a significant portion of the broadband connections in Russia. The biggest cable operators (AKADO telecom, ER-telecom and MTS) upgraded their cable infrastructure to FTTB, leaving the coax cable only in the last drop segment of the network. The recent report from FTTH Council Europe [35] noted that Russia is a clear fiber leader in terms of FTTx development. In the second half of 2012, Russia alone added 2.2 million new FTTH subscribers – more than all of Europe's 27 member states put together – to reach a grand total of 7.5 million fiber-connected homes. In 2013, another 1.4 million connections were added. This means that over 50 percent of total fixed broadband lines are fiber-based.

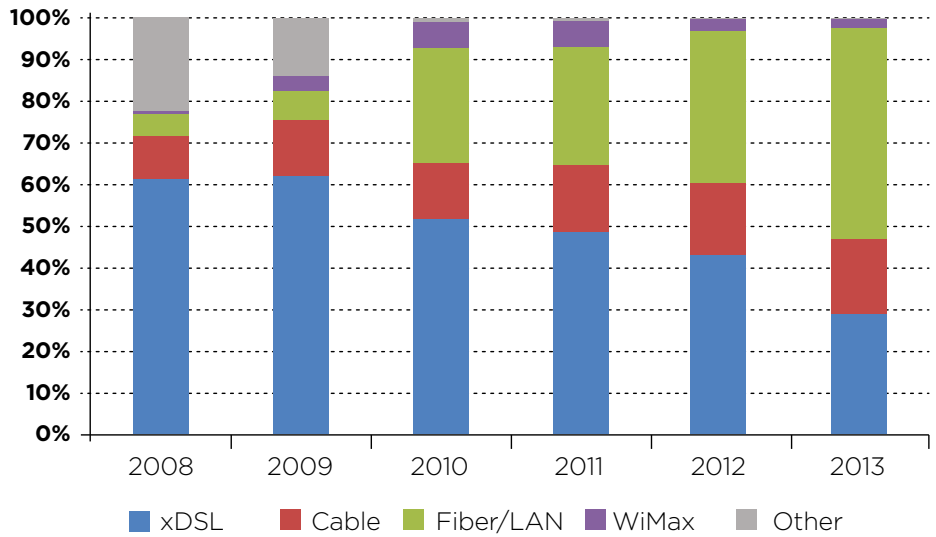
24. **Russia has outpaced the United States, France and Italy in the share of fiber connections**. In terms of household penetration, the United Arab Emirates leads the world in fiber access penetration rate with 85 percent all-FTTx access, ahead of the previous long-time leader, Korea, now with about 63 percent. In the European region, the leading fiber nation remains Lithuania, with over 34 percent of homes connected to fiber and 100 percent homes passed. Sweden takes second place in the European FTTx ranking, with 26.5 percent of homes having FTTx subscriptions. Nine countries across the world can now claim more than 20 percent[36] FTTx penetration as of December 2013.

35 http://www.ftthcouncil.eu/documents/PressReleases/2013/PR2013_EU_Ranking_FINAL.pdf

36 20 percent household penetration of FTTx xonnections is usually refered to as fiber maturity

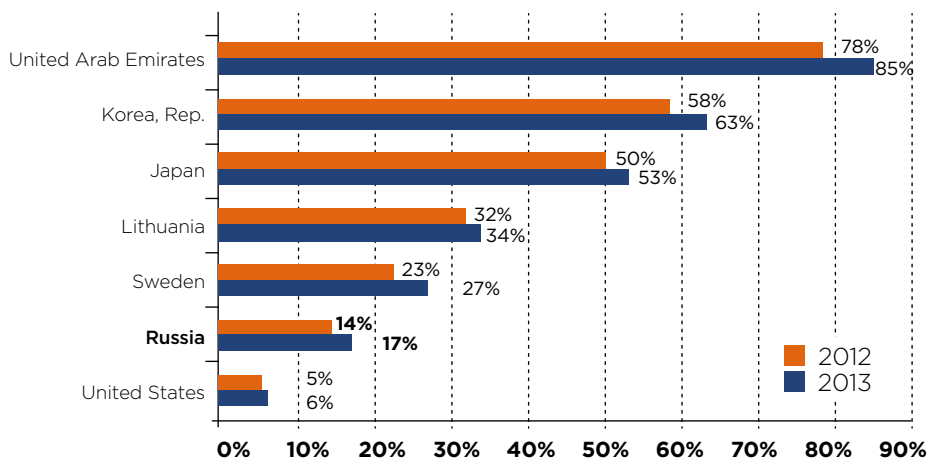
Three of them are European. It is estimated that Russia will surpass the 20 percent threshold by 2018[37] (See Figure 10).

Figure 9: Evolution of Broadband technologies in Russia, 2008-2013



Source: TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

Figure 10: FTTx household penetrations in selected countries, 2012-2013



Source: FTTH Council Europe, 2014: United Arab Emirates, Lithuania, Sweden, Russian Federation (2012); TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014): Korea, Japan, Russian Federation (2013), United States.

37 Heavy reading estimates, 2014, http://www.ftthcouncil.eu/documents/Reports/2014/Market_Forecast_December_2013.pdf

25. **Russia relies mainly on state-owned companies to implement broadband targets**. In early 2014, a new universal connection service was added to the law «On Communications»; namely, connection based on fiber-optic of access points in settlements with a population of 250-500 people that provide data transfer rates of at least 10 Mbps (amended by the Federal Law No. 9 on Feb 3, 2014). Prior to this there were two universal services – telephony in all localities (payphones) and establishment of community Internet access points in settlements with a population of 500 and above. Rostelecom was selected as the sole operator for all universal services, with the company signing a 10-year contract. Other players, such as MTS, Vimpelcom, and ER-Telecom, among others, are also developing fiber-optic connections and focus primarily on urban areas. This is a natural development, given the high investment costs involved in the deployment of a new fiber access network.

26. **Russia's plan to connect rural areas relies on Rostelecom's fiber-optic infrastructure**. In part, **broadband coverage in rural areas will be deployed through satellite and mobile technology**. Those options are discussed below:

a. Develop an extensive fiber-optic network for broadband access in rural areas: In accordance with the state Universal Service Obligation (USO) contract, by the end of 2018 Rostelecom must provide for connection access points to 13,600 settlements with populations from 250 to 500 residents with a connection speed no less than 10 Mbps. Overall, the operator plans to lay about 200,000 km of new fiber-optic communication lines – one of the largest fiber optic network deployment projects in the world. It is planned that by 2018 broadband connectivity will be available for 90% of households[38].

b. Deploy satellite technology. According to the law "On Communications," the broadband access universal service is to be based on fiber-optic lines, but by the regulator's decision the use of other technologies is possible in certain settlements. Satellite technology as a means of providing broadband access is in demand in sparsely populated, hard-to-access and remote areas where the deployment of fiber optic links is technically difficult and requires unjustifiably high costs. Given the cost of services and equipment, as well as the level of effective demand in these areas, satellite broadband access will be available for private users either as part of the universal service to connect settlements with a population of 250-500 residents, or through various mechanisms for subsidizing operators by subjects of the Russian Federation (examples of satellite broadband support to access remote communities exist in Russian regions such as Khanty-Mansiysk Autonomous Okrug-Yugra).

c. Broader mobile broadband coverage of settlements: In accordance with the conditions of radio frequencies use established by the State Commission for Radio Frequencies (decision of December 11, 2013), mobile operators are required to ensure coverage of settlements with over 1000 residents in the frequency range up to 1 GHz, from 2 000 residents – in the range from 1 to 2.2 GHz, and towns over 10 000 residents – in the range from 2.2 to 3 GHz[39]. The implementation schedule provides for full implementation in 7 years (by 2020). This will ensure the availability of mobile broadband to 90% of the population of the Russian Federation.

38 http://www.comnews.ru/node/88326#ixzz3OKjgrM61

39 http://minsvyaz.ru/common/upload/Protokol_13-22.pdf

27. **Russia's broadband quality is improving**. According to Akamai, in the last quarter of 2013, the average connection speed for internet users in Russia was 7.45 Mbps — well above the global average of 3.82 Mbps, though behind Asian or European leaders (see Figure 11). In the last quarter of 2013 Russia has been ranked 24th on the global list of average connection speeds, with Korea at the top. Korea, as is well known, is a high-speed internet leader, with an average connection speed in the last quarter of 2013 of 21.9 Mbps and a peak connection speed of almost 64.4 Mbps.[40]

28. **In the fourth quarter of 2013, 21 percent of Russian internet users had an access speed of above 10 Mbps, while the average of global leaders was 30 percent.** Figure 12 illustrates how the connection speeds of each country are distributed. The speeds, measured by Akamai, are actual connection speeds, not those claimed by service providers. Therefore, this data provides an independent picture of the proportion of internet users enjoying high-speed connection. In the fourth quarter of 2013, 73 percent of Russian internet users enjoyed connection speeds above 4 Mbps, compared to 76 percent in sample countries. In the second quarter of 2013, the number of connections above 10 Mbps in Russia went up 14 percent points, which is consistent with the rapid expansion of FTTx in Russia. According to Cisco's forecasts, in 2018, the average speed of fixed broadband connections in Russia will reach 44 Mbps.

Figure 11: Average and peak connection speeds (Mbps) in select countries, 2013.

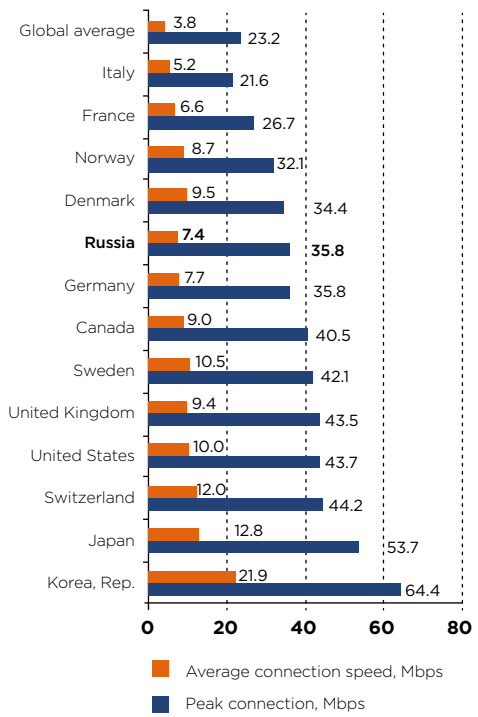
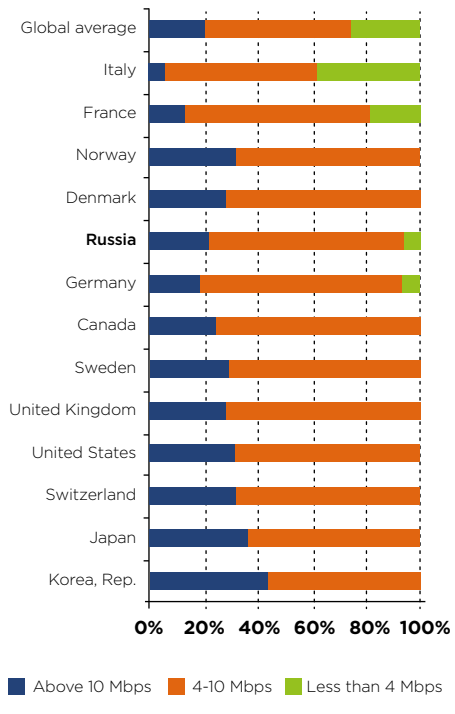


Figure 12: Distribution of average connection speeds in select countries, 2013.



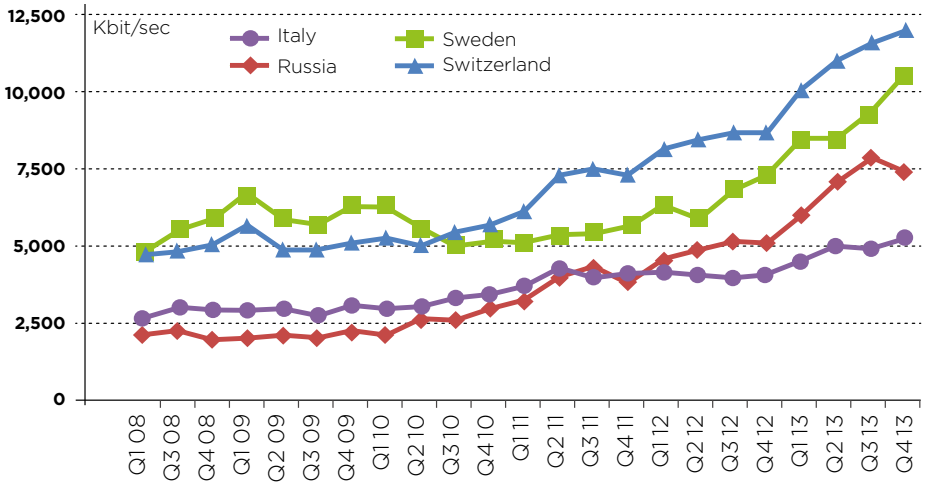
Source: Akamai, 2014

40 http://www.akamai.com/dl/akamai/akamai-soti-q413.pdf

29. **The average connection speed in Russia is constantly improving**. It has not only increased from about 2 Mbps in 2008 to 7.4 Mbps in 2013, but it has also outpaced the average speed of Italy, which stagnated in 2013. In order to maintain a steady pace of growth in the quality of broadband, Russia should strive to be at the forefront of the latest technologies. Delays, such as those which happened with 3G deployment or 4G spectrum licensing, should be avoided. Figure 13 illustrates the comparison of average connection speeds in select countries: Switzerland was chosen as the European leader in this regard; Sweden as a country similar to Russia from the climatic perspective; and finally Italy as a country with a high mobile penetration level comparable to Russia.

30. According to the Ookla Household Download and Upload Indexes,[41] which are based on end-users` quality measurement results, (see Figure14) the average upload speed in Russia is well above the average indicators for the studied countries, while in terms of the download speed, Russia is just slightly above the indicated countries. **When it comes to the biggest cities, however, Moscow and St. Petersburg did not fall even within the list of the 40 fastest cities in Russia** in terms of connection speeds.[42] As for megacities like Paris, Seoul or Tokyo, as well as for other large capitals such as Stockholm or Oslo, they are all well above Moscow with almost double the latter's connection speeds.

Figure 13: Evolution of average connection speeds in Russia, Italy, Sweden and Switzerland, 2008-2013



Source: Akamai, State of the Internet Report, 2014[43]

31. **Russia enjoys the lowest broadband prices on fixed broadband access (PPP), which is unaffordable only to an insignificant portion the Russian population**. In dollar terms, the value of fixed broadband access in 165 countries for which the International Telecommunication Union

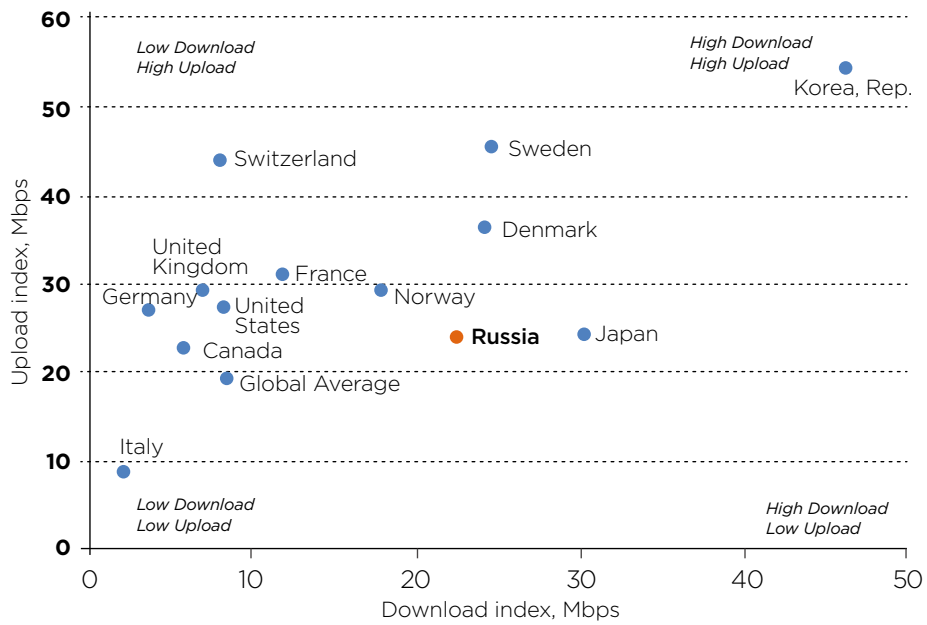
41 Value of Download / Upload Indexes is based on "millions of recent test results from Speedtest.net, this index compares and ranks consumer download speeds around the globe. The value is the rolling mean throughput in Mbps over the past 30 days where the mean distance between the client and the server is less than 300 miles." Source: Ookla, available at http://www.netindex.com

42 Source: Ookla; Note: neither in terms of download, nor upload connection speed; September, 2013

43 http://www.akamai.com/stateoftheinternet/

provides a price basket varies considerably (from $7 to more than US $ 1,000 PPP). The cost of fixed broadband in Russia in 2013 amounted to US $ 10.95 (PPP), the country on this indicator takes third place – behind only Vietnam ($ 7.15) and Mauritius ($ 10.65). However, a simple price comparison does not reveal the whole picture. The cost of broadband access, calculated as a percentage of gross national income (GNI), allows for service availability comparison. Per this parameter, Russia also ranks high (6th, see. Table 2). The UN Commission on Broadband defined 5% of the average monthly income as a goal and an indicator of affordability of broadband access, and in this respect the situation in Russia is quite good – according to the ITU, fixed broadband tariffs do not exceed 5% of income for 90% of households.

Figure 14: Distribution of countries per Download and Upload Indexes, August, 2014



Source: Ookla

Table 2: Fixed-broadband sub-basket, ITU methodology, 2013

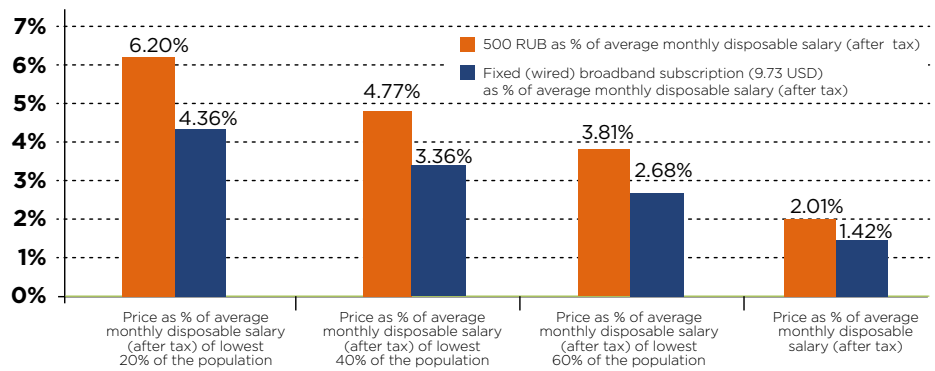
Rank	Economy	Fixed-broadband sub-basket			Speed (Mbps)	Cap per month in GB
		as % of GNI per capita	USD	PPP, $		
1	Macao, China	0,32	17,27	23,37	4	Unlimited
2	Kuwait	0,37	14,11	21,76	1	Unlimited
3	Singapore	0,44	19,9	20,58	25	Unlimited
4	United Kingdom	0,48	15,63	12,8	16	10
5	Switzerland	0,54	36,68	21,86	5	Unlimited
6	Russia	0,54	6,28	10,95	5	Unlimited
7	Japan	0,57	21,73	18,89	12	900
8	Norway	0,6	50,89	30,51	2	Unlimited
9	Ireland	0,61	19,92	15,67	50	30
10	Austria	0,63	25,43	22,1	8	Unlimited
11	Luxembourg	0,64	38,5	29,04	8	2
12	Hong Kong, China	0,68	21,66	27,85	8	Unlimited
13	United States	0,73	32,65	32,65	1	Unlimited
14	Qatar	0,77	54,95	74,67	1	Unlimited
15	Finland	0,77	30,41	22,88	10	Unlimited

Source: Measuring the Information Society, ITU, 2014. P. 124

32. **Even if the inequality of income distribution in Russia[44] is taken into account, only less than 20 percent of the Russian population are not able to afford broadband services[45] today.** Figure 15 provides the comparison of 500 RUB — which, according to Yandex, is the prevailing broadband tariff in Russia — as a share of average monthly disposable salary (after tax).

Figure 15: Broadband price as a percentage of average monthly disposable salary (after tax), 2012

Source: World Bank, ITU



33. **Broadband access price in Russia is declining**. According to Yandex[46], during 2013, the price per one Mbps dropped on average 1.6 times to 27.9 RUB. **Despite the sharp decrease during recent years, the cost of broadband still varies substantially across federal districts, with the lowest price for one Mbps in the largest cities, while it is 10 times higher in the Far Eastern Federal District** (in 2014). The least affordable broadband in Russia may be found in the Far East with high-cost satellite technologies playing the main role, in regions where there is a developed oil

44 income share held by lowest 20 % is 6.5%, whereas income share held by highest 20% is 47.1%

45 according to the standards set by ITU's Broadband Commission

46 http://company.yandex.ru/researches/reports/2013/ya_internet_regions_2013.xml

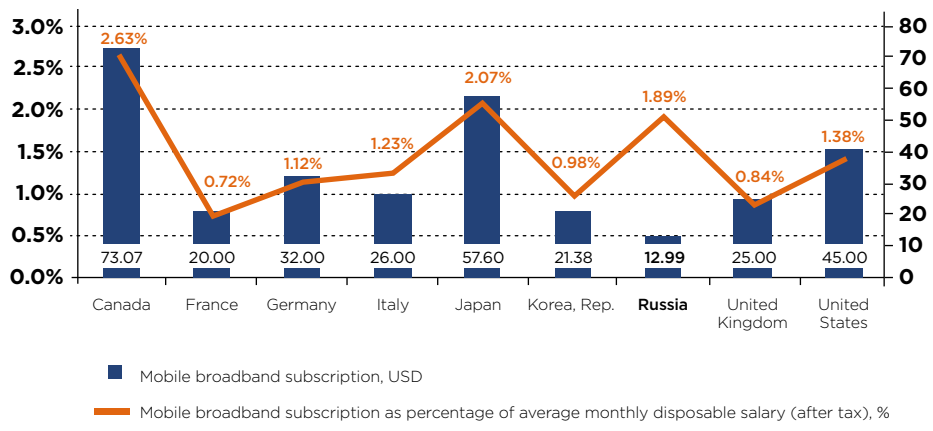
industry and people, having higher-than-average income, can therefore afford the stiffer prices, and in the North Caucasus (see Table 3). Price decreases are most noticeable in bigger cities — a result of fairly competitive market mechanisms in urban areas, both in terms of the number of operators and the type of technological platform.

Table 3: Fixed broadband prices in different federal districts of Russia, 2012-2014

Federal districts	Monthly access price for 1 Mbps connection, RUB		
	2012	2013	2014
Central	49	24	14
North-Western	98	39	27
Southern	**128**	**37**	**21**
Volga	62	24	15
Urals	94	25	15
Siberian	76	27	17
Far Eastern	**507**	**197**	**119**
Moscow	31	16	12
Saint-Petersburg	31	13	11

Source: Yandex Development of the Internet in the Regions of Russia Report 2012, 2013 and 2014[47].

Figure 16: Mobile broadband price baskets, according to ITU methodology, 2014



Note: Official websites of the national mobile operators with the market share of over 20%. The simple average of the lowest-priced mobile broadband packages per country has been calculated, excluding any discounts or special offers.
Source: Authors

47 http://download.yandex.ru/company/ya_internet_regions_2014.pdf

34. **Russian mobile broadband services are low-priced (though higher than fixed broadband)**. Expenditures for mobile broadband represents 1.89% of average monthly disposable salary (after tax) in Russia, which is currently slightly above the average level of prices among the benchmark countries, but still meets international affordability standards (see Fig. 16).

VI. Broadband market structure in Russia

35. **State-owned companies have significant influence on broadband market development**. There are four major players in the Russian broadband market: the three largest mobile operators — MTS, Vimpelcom, and Megafon – and Rostelecom (see Table 4).

Table 4: Market shares of main Russian operators in different markets, 2013

Market	Rostelecom	MTS	Vimpelcom	Megafon	Comments
Mobile telephony, (subscr.)	6.1%	30.2%	23.4%	28.2%	Tele2 was the 4th biggest player, with 10% of market share in 2012.
Mobile broadband, (subscr.)	**1.45%**	**33,46%**	**35,7%**	**27,01%**	**Market shares as number of 3G and 4G subscriptions**
Mobile, (revenues)	4,10%	32.88%	24.08%	30.71%	Market shares as of total mobile market revenues
Mobile data (revenues)	n.a.	35%	23%	38%	Market shares as mobile data revenues
Fixed-line telephony, (subscr.)	70%	12%	0.27%	n.a.	ER-Telecom has 1.19% market share
Fixed-broadband, (subscr.)	**44,63%**	**10,19%**	**9,68%**	**n.a.**	**ER-Telecom has 11.2% of market share**

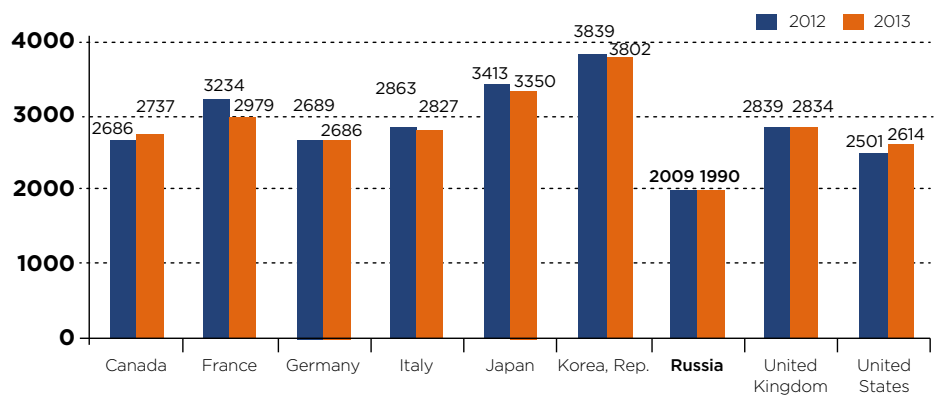
Source: GSMA Intelligence, Advanced Communications and Media (AC&M) 2013 (http://www.acm-consulting.com/) TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

36. **Russia has one the leading positions in the level of competitiveness in the mobile telephony market among benchmark OECD countries**. The mobile market is shared by three network operators – MTS, MegaFon and VimpelCom. They account for 81 percent of the Russian market in terms of subscriptions, and 96 percent of total mobile revenues.[48] The rest of the market is shared

48 https://wirelessintelligence.com/files/analysis/?file=2012-06-14-russia-hits-mobile-saturation-point.pdf

among several smaller market players. The comparison of market concentration index (Herfindahl-Hirschman Index, HHI) among benchmark countries reveals a competitive mobile market structure (see Figure 17). At the same time, recent market consolidation processes[49] create a risk that the market may shift to a less competitive track. National operator Rostelecom is strengthening its position mainly through market consolidation.

Figure 17: Mobile market concentrations (HHI) in selected countries, 2012-2013



Source: TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

37. **The Russian mobile telephony market is predominated by Russian capital**. All of the main mobile operators are directly or indirectly controlled by Russian companies (see Table 5).

Table 5: The ownership of main mobile operators, 2013

Operator	Ownership Structure (as of October 2013)
Mobile TeleSystems (MTS)	50.8% of the operator's shares owned by OAO AFK Sistema. 49.2% of shares are in free float.
MegaFon	MegaFon is majority-owed by Alisher Usmanov's AF Telecom Group (50%+1 share). Telia Sonera Group holds 25%, MegaFon Investments Limited – 7.6 %, CEO – 2.5%, the remaining 14.7% are free floating.
Vimpelcom	Vimpelcom is wholly-owned by Amsterdam-based Vimpelcom Ltd. , which in turn is partly owned by Altimo (Russian capital) and Telenor (Norwegian capital).
Tele2	Prior to March 2013 Tele2 was wholly-owned by the Tele2 Group of Sweden. In March 2013 the Swedish company agreed to sell Tele2 Russia to the VTB Group (whose majority holder is the state in the form of the Federal Agency for State Property Management).

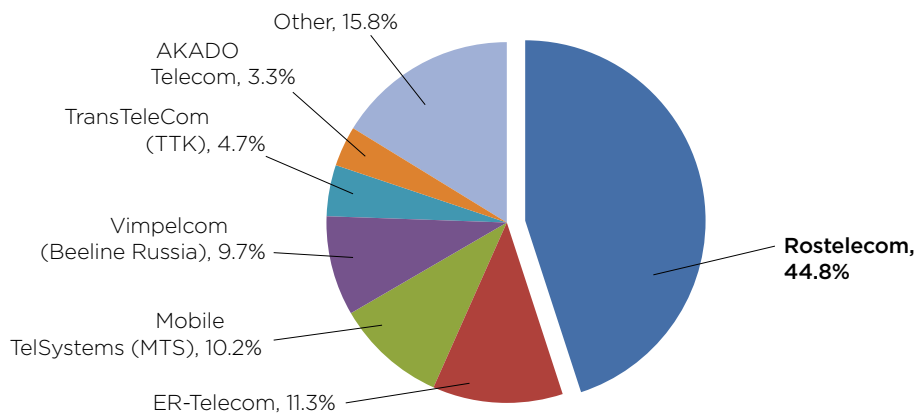
Source: Operators, TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

49 E.g. in July 2012 Rostelecom has completed a deal to acquire a 100% of SkyLink. The acquisition gave Rostelecom access to 3G licenses in 69 regions across Russia.

38. **The biggest three mobile operators share nearly the entire mobile broadband market in Russia**. Ninety-six percent of total 3G and 4G subscriptions belong to the top three. Their share of overall mobile data revenue accounts for 96 percent.[50] Rostelecom is still a minor player; however, the company has stated its goals to become a fourth nationwide mobile broadband player.

39. In fact, **Rostelecom is becoming an increasingly significant player in all market segments**. After merging seven regional incumbent operators, it obtained a substantial market share in **fixed telephony** (70 percent of all PSTN lines). In the **fixed broadband market**, where regional telecom operators play a significant role, Rostelecom holds almost 45 percent of the market share—nearly four times more than that of its closest competitor (see Figure 18). At the end of 2013, Rostelecom had delivered fixed broadband to 10.6 million households, nearly half of them through FTTx technology.

Figure 18: Fixed broadband market shares in Russia, 2013



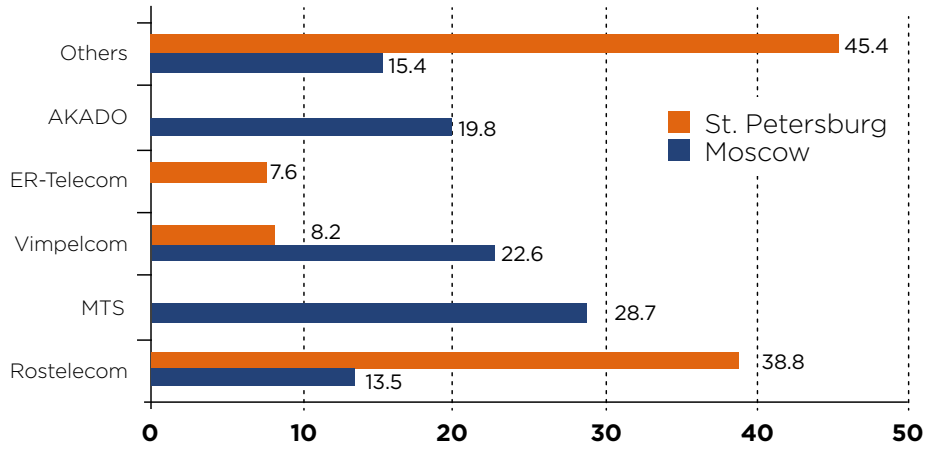
Source: TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

40. **Even in Moscow, where the fixed broadband market appears to be fairly competitive due to intense rivalry among the three operators[51] and the deployment of varying technological platforms** (see Figure 19 and Table 6), **Rostelecom is managing to slowly increase its market share**. Quarterly data show that the market share of Rostelecom in Moscow grew from 9.1 in the last quarter of 2011 to 13.5 in the last quarter of 2013. This trend is likely to continue, as at least 60 percent of the company's investment from 2013 until 2017 will directly target improved broadband services.

50 http://www.acm-consulting.com/news-and-data/data-downloads/cat_view/11-vas.html

51 Two of them, MTS and Vimpelcom, are also controlling large market shares in mobile connection market

Figure 19: Fixed broadband market shares in Moscow and St. Petersburg (%), 2013



Source: Advanced Communications and Media (AC&M) 2013 (http://www.acm-consulting.com/)

Table 6: Access network technologies deployed by main fixed broadband operators, 2012

Operator	Access network technologies		
	Cable	xDSL	FTTx
AKADO	+	-	+
ER-Telecom	+	-	+
MTS	+	+	+
Vimpelcom	-	+	+
Rostelecom	-	+	+

Note: Cable refers to DOCSIS 3.0 and DOCSIS 2.0; xDSL – ADSL and ADSL2+; FTTx – FTTB/FTTH
Source: Operators, TeleGeography's GlobalComms Database, 2013 (http://www.telegeography.com, data, retrieved August 2014)

41. After the acquisition of National Telecommunications Company (NTK) in February 2011, Rostelecom became the second-ranked operator in the **pay-TV** market segment in terms of subscriber base, as well as becoming the revenue leader.[52] The award in July 2012 of an LTE license to Rostelecom is likely to increase the company's ability to jointly offer video and communications services on multiple platforms.

42. **Rostelecom is a vertically-integrated incumbent operator, controlling nearly all key elements of the broadband value chain** (access, although to a lesser extent in the biggest cities; backbone; and international connectivity). The company has approximately 500,000 km of backbone infrastructure, and owns 13 international exchanges[53] (see Figure 20). It is also the end-party and co-owner of the basic capacities in six international fiber-optic cable systems (See Table 7). As any mobile operator or ISP needs to rely on backbone internet infrastructure, the overall dominance of Rostelecom in the backbone segment can be a cause of concern.

52 http://www.gazprombank.ru/upload/iblock/0d3/gpb_rostelecom_initiation.pdf

53 http://www.rustele.com/company-profiles/ojsc-rostelecom.html

Table 7: Rostelecom shares in international fiber-optic cable systems

International fiber-optic cable systems	Market share
Denmark—Russia 1 (DK—R1)	50%
Russia—Japan—Korea, Rep. (R—J—K)	33%
Italy—Turkey—Ukraine—Russia (ITUR)	30%
Georgia — Russia (G—R)	67%
Black Sea Fiber-optic cable system (BS FOCS)	9.4%
Russia—Japan	50%

Source: http://www.wikinvest.com/stock/Rostelecom_(ROS)/Submarine_Cables

Figure 20: Map of Rostelecom's Backbone infrastructure

Source: Rostelecom[54]

43. **Rostelecom is a partially state-owned company** in which the government (represented by the Federal Agency for State Property Management) together with the state-owned Vnesheconombank holds more than 48 percent of shares, about 22 percent of shares being controlled by Rostelecom directly or via its subsidiary Mobitel Ltd, and the rest being owned by other shareholders or is floating stock. In other words, the state has a major influence on the development of the market, especially considering that the majority shareholder of TransTelecom (TTK), closest market player to Rostelecom in the fixed broadband market, is the state-run Russian Railways. TTK claims to have a total of 20 international gateways with additional connections to Mongolia, Poland, the Baltic states and the CIS countries. The company rents its backbone to such players as Vimpelcom and MTS.

54 http://report2011en.rostelecom.ru/reports/rostelecom/annual/2011/gb/English/20/about-the-company.html

44. **The State is influencing market development not only through the state-owned telecom companies, but also through governmental institutions, such as ministries and regulators** (the sector-specific regulator and the Federal Anti-Monopoly Service act as Russian competition authorities). The Ministry of Communications is responsible for establishing and enforcing the state policy on electronic communications in Russia. It not only sets the intermediate and ultimate targets for ICT as a whole, and broadband development in particular, but also decides on the state's financial support. Meanwhile, the sector-specific regulator in Russia is a branch of the same Ministry.

45. The Government plays a leading role in the overall development of the Russian broadband market. **However, the current governance model and market structure may result in a conflict of interest, as the Government acts as policymaker, regulator, and a significant market player** through the entire value chain of the broadband market.

VII. Sector issues

46. **Basic conditions and government policy**

- ***Absence of both regulatory independence and separation between the formulation of strategy and its implementation.*** Unlike in many developed countries, Russia lacks an independent sector-specific regulator. In this situation, effective regulations and the support of competition in the sector require special attention. At the same time, the separation between policy/strategy formation and its implementation is also not sufficiently ensured. In addition, the government is actively involved in the management of Rostelecom. This creates a risk of conflict of interest, which requires resolution or the development of tools to minimize this risk. In the past, international organizations have raised concerns regarding the lack of national regulators in some countries, especially as some government agencies retain considerable voting rights in communications providers. This is the case in Russia.

- ***Transparent and efficient use of public funds and the Universal Service Fund.*** In the near future, the universal service reserve fund will make a significant contribution to the development of broadband in Russia. According to the prognosis, the total amount of financial support for the provision of universal service will amount to about 163 billion rubles over 10 years. These funds will go to support the ongoing operation of 148,000 universal service payphones, 21,000 community access points (in settlements of 500+), as well as to providing a new universal communication service – internet access with a speed of no less than 10 Mbps in the access points located in settlements with populations of between 250 and 500 residents. The plan is to connect 13,600 settlements, which are home to about 4 million people, by 2018, while other settlements will be connected "en route," so the network will extend over a territory with over 33 million people. Financing for broadband infrastructure in remote and hard-to-access areas is also provided by some subjects of the Russian Federation. Project implementation and the infusion of funds will stimulate market development. The main task at hand is putting in place an efficient, open-access model allowing for maximized usage of existing and developing infrastructure by operators and end-users. Making the right decision will boost competition and allow people in remote and (or) rural areas to benefit from the infrastructure put in place.

- ***Lengthy planning procedures:*** Although Russia's modernization program, which highlights the importance of broadband development, was initiated in 2009, the broadband development segment still remains in the planning stage. Only in 2012 did the Ministry of Communications come up with a more concrete proposal for UFB development targets (100 Mbps for 80 percent of the population). In 2014, the specific broadband development model was selected and began to be implemented for small settlements within the framework of the universal service mechanism. In the last two years, a number of decisions and plans were introduced directed at the development of competition, joint use of passive and active communication equipment, and non-discriminatory infrastructure access. However, at the same time there is still no approved National Broadband Plan which would define specific targets, offer a road map for achieving these targets, and coordinate various measures and tools for broadband access development. This lengthy planning process at the governmental level hinders the effective deployment of state and private investment in broadband development.

- ***FDI influx obstacles and inefficiency of administrative procedures.*** In legislation there are still certain barriers that create obstacles for foreign investors seeking to participate in ICT companies. Foreign capital participation in so-called companies of strategic importance is restricted. The activities of foreign investors are state-controlled in accordance with Federal Law No. 57 of 29 April 2008, which sets rules that govern foreign investments in organizations of strategic importance and defines sectors as "having strategic importance." In comparison, only a few OECD countries maintain barriers to FDI in telecommunications providers. Only in Canada and Korea are such restrictions applied to all providers. Within the WTO framework, Russia agreed to remove the 49-percent FDI cap on incumbent telecoms operators four years after entry into the business. But while financial investors might be keen to tap that opportunity, strategic investors are unlikely to be encouraged. The main reason for this is that, in reality, direct control is exercised by the various agencies that issue licenses, permits, and certificates. The presence of numerous administrative barriers slows down the foreign investment process.

- **Increasing the effectiveness of spectrum management**. Although the process for the award and allocation of radio frequency bands through tenders or auctions is established in Russia, until recently a number of regulatory issues remained that prevented the effective use of radio frequencies. Procedures for frequency allocation should be further improved from the perspective of transparency and clarity of criteria. Only in 2013 did the process begin of introducing the principle of radio spectrum technological neutrality, which allows for more efficient use of allocated frequencies. The issue of frequency conversion also remains an important problem. So far there is no established optimal combination of state and private financing for "clearing" spectrum, which complicates the civilian use of some spectrum that is important for mobile broadband development. The present system, whereby the operators are required to pay for the costs of clearing out the frequencies, does not work as a practical matter. Also lacking is a sufficiently new and effective regulatory mechanism such as joint frequency use by operators.

47. **Market Structure**

- ***State-owned companies are envisaged as main contributors to the achievement of the broadband targets***. Taking into account sectorial trends, the state-owned companies will provide for significant input in the development of the broadband segment on the territory

of Russia, and close collaboration between the public and private sectors may become the key for successfully reaching national broadband targets. International practice suggests that a government may fail to achieve established targets if it relies solely on state-owned companies. Moreover, costs may be unjustifiably high, especially when there is an opportunity to attract private funds. Decisions made in 2013 to expand mobile broadband coverage to small towns and settlements are a positive sign. In the US, the EU, and other countries, it is generally expected that the private sector, municipalities and local community would take the primary responsibility for investing in the development of broadband, and such participation should be encouraged (See Box 3). The state's intervention also generally would be justified, but only for unprofitable, underserved or unserved areas (see Box 4). The government may want to provide the necessary incentives to encourage private investment and stake a claim to the venture through private-public partnership agreements.

Box 3. State Aid approach in the EU

In this area of state aid the EU has accumulated perhaps the widest experience globally, supporting 25 Member States over 11 years in their efforts to extend broadband network coverage to areas where market operators are unlikely to invest on commercial terms. The first thing to notice from that experience is that connectivity gaps are an unavoidable reality in every country regardless of its level of income or level of development of the ICT sector as a whole[55].

The transfer of State aid resources may take many forms, such as direct grants, tax rebates, soft loans or other types of preferential financing conditions to multiple beneficiaries, including telecom operators, municipalities and local communities. State resources are also considered to be involved if the State provides a benefit in kind, for instance investing in the construction of (part) of the broadband infrastructure.

The main principles applicable to the design of any State aid intervention in the EU are the following[56]:

(1) Contribution to the **achievement of objectives of common interest**: State aid should contribute to the achievement of the objectives of common interest, such as, for instance, the goals of the national broadband plan;

(2) **State aid should address** the absence of market delivery due to **market failures or important inequalities**: in general, it is a case of "market failure" if a market, left to its own devices, fails to deliver an efficient outcome for society. In the case of broadband, investments in infrastructure may not be undertaken even though the economic benefits for society (i.e., positive externalities) exceed the cost. It is important to ensure that investment in broadband also addresses another important objective of common interest – equity (social or regional divide);

(3) **Appropriateness of State aid as a policy instrument**: State aid intervention is appropriate if there is no alternative to public support to overcome the lack of broadband connectivity, such as ex-ante (including SMP) regulation measures, spectrum (re)allocation, and demand side measures;

(4) Existence of **incentive effect:** State aid should take place only if investment would not have been undertaken within the same time frame without any public intervention. As an example, there may be no infrastructure currently deployed, but mobile operators may have coverage obligations to cover the certain geographic area in question (as part of their LTE, LTE-advanced licensing procedures) or a certain operator may be designated as a universal service provider assisting the same area;

(5) Aid should be **limited to the minimum necessary** and have limited negative effects: This set of measures is required to demonstrate that a State aid project is pro¬portionate to address the connectivity gap. In this regard:

a. **detailed mapping and analysis of coverage** should be performed;

b. **the project should undergo public consultation** to minimize distortions of competition with existing providers and with those who already have investment plans;

c. whenever a third-party operator should be selected to deploy and operate subsidized infrastructure**, the selection process should be open and transparent**;

d. tenders should follow a **technologically neutral approach** and most economically advantageous (not necessarily the cheapest) offer should be selected;

e. State aid **projects should take advantage of (reuse), to the extent possible existing infrastructure** (ducts, masts, etc. also from other sectors like energy);

f. subsidized broadband infrastructure **is required to offer effective wholesale access ("open access") for third parties**;

g. The **overall balancing** exercise **and the compatibility** conditions: Taking into account that public intervention is always the distortion of natural market conditions, **State aid project should be designed in a way that the overall balance of the effects of the project is positive**.

Source: Authors based on "EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks", European Commission, 2013/C 25/01, at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF and "Applications of State Aid rules in relation to rapid deployment of broadband networks", EFTA Surveillance Authority, 2013, at: http://www.eftasurv.int/media/state-aid-guidelines/Part-IV-Application-of-state-aid-rules-in-relation-to-rapid-deployment-of-broadband-networks.pdf

55 E.g. State aid was applied in Austria, France, UK, the Netherlands, Sweden, Finland, Estonia, etc. All of these countries belong to the high-income group (as defined by the World Bank) and enjoy well-developed ICT sectors.

56 There are specific cumulative conditions under the EU legal framework required for a support to be qualified as State aid: 1) the measure has to be granted out of State resources, 2) it has to confer a selective economic advantage to undertakings, 3) it has to distort or threaten to distort competition; and 4) it has to be liable to affect trade between Member States.

- ***Complex environment for the development of competition.*** It is widely recognized that competition is a proven strong market force, able to increase overall infrastructure investments and push both penetration and affordability of broadband services. It is also generally agreed that private capital drives competition and the sustainable growth of the telecom sector. Today, the dominance of the vertically-integrated incumbent operator, Rostelecom, and the absence of a sector-specific set of regulations make it difficult for alternative operators to compete. Therefore, the priority task for the regulatory agencies should be the implementation of anti-monopoly controls and the stimulation of competition. It is worth noting that Rostelecom is strengthening its position, mainly through market consolidation. That would be considered normal practice if the consolidation did not entail the exit of important competitors. Tele2 decided to abandon the market after it failed to secure 3G and 4G licenses and permission to use its 2G network for data services.[57] Indeed, it would not be possible for a mobile operator to compete without being able to offer high-speed data services. Normally, this would raise serious concerns among fair competition regulators, especially considering that Tele2 is known all over Europe as one of the most aggressive market players, bringing priced-based competition into markets. In March 2013, the state-controlled bank, VTB, bought a Russian subsidiary of Tele2. At the end of the same year, 50 percent of the company was sold to investors and, in 2014, based on Tele2, a new federal cellular operator was established which combined the cellular assets of Rostelecom and Tele2. The completion of the legal transaction was announced in August 2014. Rostelecom received 45 percent of the authorized capital of the new company. As a result of this, a new operator has 2G / 3G licenses in all federal districts and a 4G license for the entire territory of Russia and is now able to provide high-speed mobile Internet services in the 3G and LTE standards. The emergence of a new federal operator should increase competition in the mobile broadband market.

57 http://www.ft.com/intl/cms/s/0/e8b493a0-9e15-11e2-9ccc-00144feabdc0.html#axzz2VSW4bUsN

Box 4: Financing infrastructure in rural areas: the case of the United States

The United States Department of Agriculture (USDA) Rural Development's Rural Utilities Service (RUS) Program provides a variety of loans and grants to build and expand essential public facilities and services such as water and sewer systems, housing, health clinics, emergency service facilities, electric and broadband services.

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (Recovery Act). The Recovery Act provides RUS with $2.5 billion to expand access to broadband services in rural America. The Recovery Act expands RUS's existing authority to make loans and provides new authority to make grants for the purpose of facilitating broadband deployment in rural communities. To maximize the level of funds available for broadband projects, the agency leveraged its budget authority appropriated by the Recovery Act to make grants, loans and loan/grant combination awards.

Loans to build broadband networks and deliver service to households and businesses in rural communities provide a necessary source of capital for rural telecommunication companies, broadband, wireless companies, and fiber-to-the-home providers. Grant funding is reserved for communities with the highest need that lack access to broadband service.

Eligible applicants include for-profit and non-profit entities, tribes, municipalities, and cooperatives. In particular, the Act encourages investments in tribal and economically disadvantaged areas. Through low-cost funding for broadband infrastructure, rural residents can have access to broadband service that will close the digital divide between rural and urban communities that is sustainable over time, and that is crucial for economic development.

In all, over $2.33 billion in grants and $1.19 billion in loans were made to 320 projects, totalling over $3.5 billion. Of the original 320 projects, 297 were for infrastructure; four, for satellite broadband service support; and 19, for technical assistance, the majority of which went to tribal communities.

Source: http://www.rurdev.usda.gov/RUSTelecomPrograms.html

48. **Conduct**:

- ***Next steps in the regulation of access and shared use of infrastructure.*** Until recently, infrastructure sharing was at a low level in Russia. Both mobile and fixed network operators were individually rolling out expensive 3G, 4G and fiber networks, mainly concentrating their investment in dense territories, which does not alleviate the "digital divide" between urban and rural areas.

- Although in recent years there have been some examples of good practices in infrastructure sharing, they were primarily in regard to passive equipment, as was the case with coverage of federal highways in 2013 by mobile operators who shared only antenna mast structures. More efficient communication infrastructure sharing was hampered by a number of regulatory restrictions, which were gradually removed in 2012-2014. Regulations have now been adopted that govern the use of not only passive, but also active communication equipment – particularly the sharing of base stations – and provide for the possibility of joint registration of radio frequency equipment. Further steps in this direction, in particular allowing the joint use of spectrum, will reduce the cost to operators for the development of communications infrastructure and increase the profitability of coverage of small and remote communities.

- An important area of regulation is non-discriminatory access to shared infrastructure. This area has great potential, given the amount of unused resources of the energy infrastructure, as well as the infrastructure of the oil and gas industry, transportation infra-

structure, etc. In late 2014, the government adopted the Resolution of the Government of the Russian Federation regarding rules for non-discriminatory access to infrastructure assets[58]. To be effective, it needs to be complemented by legislative amendments and agency regulations that will ensure the implementation of these decisions and create the conditions and procedures for non-discriminatory access.

- ***Absent access regulation.*** The absence of a legal framework for Bitstream Access and Local Loop Unbundling (LLU) blocks the opportunity to use existing last mile infrastructure more effectively and boost service-based competition where infrastructure-based competition is failing. In particular, the European Union was able to boost broadband penetration and service-competition through better utilization of the access network infrastructure of their incumbents.[59] Through infrastructure (copper and fiber) sharing, Russia could prevent inefficient duplication of networks, avail itself of cost-sharing measures and further expand networks across the country. This would have a positive effect on both the pace of broadband spread and its affordability. The Ministry has plans to work out a LLU regulatory framework in 2015.

49. **Performance**

- In the context of the international benchmark, the Russian broadband market performs reasonably well in many aspects, such as penetration and retail pricing. Nevertheless, a closer look at the functioning of the market itself and its governance mechanisms reveals some risks and potential issues that could affect broadband market development. The risks and potentially detrimental conditions within the basic components of the market discussed above may impede the long-term sustainability of today's auspicious trajectory of the development of the Russian broadband market.

58 http://government.ru/docs/15968/

59 For instance, in Germany, out of 28.7 million PSTN connections supplied by Deutsche Telekom, 23.4 million xDSL lines were in service at the end of 2011, and nearly 11.2 million of these xDSL connections were retailed to end customers by Deutsche Telekom competitors. Similar to Germany, most broadband coverage in France today is supplied byxDSL technologies over the France Telecom telephone network. Out of around 33 million lines deployed across the whole of France, 88% of the total number of lines were eligible to supply triple play service over xDSL. As of 31 December 2011, 85.3% of all existing France Telecom lines were unbundled. Annual Report 2011, Autorité derégulation des communications électroniques et des postes (ARCEP), June 2012).

VIII. Recommendations

Russia has achieved substantial progress in the area of broadband and ultra-fast broadband access. Russia also has all the necessary potential for further progress with stable growth indicators. Below are key recommendations related to the operation and governance of the broadband market that can help ensure the sustainable development of broadband communications in Russia.

I. The effectiveness of policies for the development of broadband access will increase through the adoption of a National Broadband Plan, the design of which should meet the following conditions:

Governance and coordination of efforts

- Consideration of the positions of all relevant stakeholders, including citizens and businesses;

- Identification of detailed and measurable Key Performance Indicators (KPI) and design of a consistent roadmap to achieve them. It is advisable to determine specific KPIs for different user groups – educational facilities, healthcare institutions, organizations operating in the field of cultural activities, households;

- Organization of a system for monitoring broadband development. This will require modernization of the federal statistical monitoring in this area, which may include among others:

  i. Transposition of the broadband indicators that are recommended by the International Telecommunications Union (ITU) into the statistical practice (including such indicators as percentage of the population covered by at least a 3G mobile network);

  ii. Development of indicators and a set of tools for statistical monitoring of the coverage (physical availability) of fixed broadband;

  iii. Expansion of the list of affordability indicators for mobile and fixed broadband access and development of the appropriate tools;

  iv. Identification of the criteria and composition of remote, hard-to-access, and sparsely-populated territories for the purpose of monitoring broadband development in those territories.

- Development of a mechanism for coordinating the activities of various agencies involved in the implementation of the National Broadband Plan;

- Coordination of the National Broadband Plan with other pillars defined within the broader policy of the development of the Information Society;

- Establishment and joint application of a coherent set of instruments addressing different aspects of broadband access development. It is important to combine and coordinate these measures, including:

  i. Balancing the risks related to the potential conflict of interest which arises from the significant role of the public sector in policy formulation, policy implementation and capital participation in the incumbent operator Rostelecom. There are a number of possible alternatives for mitigating these risks. International practice suggests that the creation of an independent regulatory body operating within a framework with clearly defined boundaries between policy formulation and policy implementation is one of the most recommended measures. Regardless of how this is realized, the overall objective of the established governance model should be adequate to ensure effective and technologically neutral sectorial management, including simplified administrative procedures associated with entry into the market and the operation of domestic and foreign players (for example, it is reasonable to decrease the number of various licensed activities); an optimal combination of public and private financing to stimulate the conversion of radio frequencies; efficient market-oriented management of resources; and further improvement of the overall business climate in the sector;

  ii. Facilitating effective competition, including competition based on the shared use of communications infrastructure; in this regard, through the development of a regulatory framework for Significant Market Power (SMP) regulation in the area of broadband networks access (e.g. Local Loop Unbundling (LLU), Bitstream Access, etc.) (See more detailed set of recommendations in IV below);

  iii. Address infrastructure deployment where competition fails to deliver sufficient supply of infrastructure through monitoring and enhancement of broadband development through the Universal Service Obligation (USO) mechanism (See more detailed set of recommendations in II below); development of the conditions for radio-frequency usage, extending the coverage of mobile broadband to areas with less than 1000 inhabitants (utilizing state support); ensuring shared and non-discriminatory infrastructure access (See more detailed set of recommendations in III below); activating mechanisms for public-private partnerships, and (or) allocation of subsidies for the development of infrastructure in municipalities, etc.;

Measures facilitating infrastructure development in rural, remote and isolated areas:

- Accurate determination at the federal level of geographical areas where government intervention is required (with a low level of commercial viability) and consideration of the needs and structure of the economy based on the gap analysis. Direct intervention by the state, as well as contributions from non-state-owned entities, should be encouraged;

- Measures for progress in infrastructure extension should be developed for geographic areas (referred to in the paragraph above) where economic incentives for private sector investments are lacking (also known as grey and white areas). This would allow monitoring of the progress of public sector efforts in incentivizing and, where required, leading infrastructure deployment efforts;

- Transparent, efficient and technologically neutral use of public funds for the development of broadband access through the mechanisms of public-private partnerships and the allocation of intergovernmental subsidies and transfers for the development of broadband infrastructure. Standard procedures and rules should be designed for the allocation of financial support from the federal and regional budgets for the development of infrastructure in rural settlements and remote and isolated locations;

II. The development of broadband infrastructure under the framework of USO will have a greater effect through:

- Monitoring and analysis of the implementation of the decisions adopted in 2014 with regard to the new universal service – broadband connection access points in settlements of between 250 and 500 residents based on fiber-optic lines which have the capacity to connect end-users at a speed of not less than 10 Mbps. There are several potential bottlenecks in the adopted service model that require attention and possible adjustments;

- Development of various mechanisms and scenarios of establishing access network infrastructure, connection of users and provision of user support, including the possible expansion of the USO for the provision of broadband access to end users (households, public institutions). Obligations of the Universal Service operator are limited to the provision and servicing of an access point. This creates certain risks because a Universal Service operator cannot at the same time also be a service provider. In some cases, leveraging commercial operators for the provision of connection as well as the provision of services to end users may not be successful, given the low incomes of the rural population, the inaccessibility and remoteness of some settlements, etc. It may be consistent, therefore, to anticipate alternative solutions for areas where, despite deployment of an access point, growth of the subscriber base is not evident;

- Development and possible use of a more flexible selection model of a Universal Service operator to provide broadband access. The current selections of Rostelecom as the single Universal Service operator and of fiber-optic as a priority technology to connect the access points are fairly reasonable. However, it is important to assess the economic efficiency of this approach. In this regard, during the first two-to-three years, it is advisable to closely monitor the adopted model and to assess its economic efficiency (taking into account implementation costs in different licensing areas) and results achieved (especially in remote, isolated and (or) sparsely populated areas). Based on the results of the assessment, the organization of tenders for the selection of a Universal Service operator (or a consortium of operators) may be considered in a number of licensing areas.

III. Current infrastructure sharing framework would benefit from:

- Increased transparency of the infrastructure available for utilization from the utility companies. The development or provision of consolidated access to existing digital infrastructure maps would increase awareness by, and subsequently utilization by, the telecom operators of the utility assets available and their geographical location, which will foster infrastructure use in the deployment of communications lines;

- Publicly available advance reference offers, i.e. template legal agreements, to share infrastructure assets. Such advance offers would enable a more efficient infrastructure sharing process. Requirements for the composition, amendment and publication of such offers could be elaborated by the Federal Antitrust Agency in co-operation with the Ministry of Communications and Mass Media;

- Encourage a zero-level dispute resolution procedure at the Federal Antitrust Agency (before the first instance court litigation). At the moment, a dispute may be placed before both the court and the Federal Antitrust Agency at the discretion of the claiming party. For the development of consistent case law, it is advisable that, at the early stages of implementation of infrastructure sharing, all disputes would go through a mandatory zero-level dispute resolution procedure at the specialized public agency. This measure will also remove the burden from the courts of dealing with highly specific technical issues, e.g. determination of technical conditions to provide infrastructure sharing, calculation of the infrastructure sharing costs, etc.;

- Greater elaboration of the methodology to be applied to calculate infrastructure sharing costs and price composition. International experience proves that determination of the prices for infrastructure sharing is the main source of disputes. It is therefore advisable to establish in advance an approach for dealing with cost calculation disputes;

- Extension of the infrastructure sharing obligation to telecom operators. The experience of other countries maintaining infrastructure sharing frameworks demonstrates that sharing of the existing passive telecom infrastructure (e.g. ducts, dark fiber, etc.) is the first choice for operators due to number of reasons, including the readiness of this infrastructure for telecom – related deployments.

IV. Formulation of the LLU and Bitstream Access framework would benefit from:

- Establishment of the Significant Market Power (SMP) regulatory regime, including a market analysis procedure for wholesale broadband markets. LLU and Bitstream access are asymmetric obligations aimed to level the playing field between incumbent operators and alternative market players through the promotion of further investment by the latter and more efficient use of the last mile infrastructure by the former. The SMP regime is required to allow the imposition of such obligations upon evidence of competition failure in the relevant market(s);

- Adoption of the best regulatory practices in the area of LLU and Bitstream access implementation. The EU has developed a sufficiently rich regulatory experience in the area of SMP regulation, including LLU and Bitstream access. The Russian telecom market may significantly benefit from adapting this experience. Particularly beneficial could be alignment in areas of the provision of LLU and Bitstream access, including definition of the wholesale products, formulation of the requirements for the reference access offer, provision of access and maintenance; and regulation of the prices for access and related products, including, but not limited to backhaul and co-locations;

- Allowing greater flexibility in the formulation and adjustment of LLU and Bitstream access rules by the overseeing agency. As in the case of infrastructure sharing, it is suggested to keep the main principle guiding SMP regime on the level of the primary legislation, while keeping more detailed technical implementation of the market analysis and requirements for LLU and Bitstream provision on the level of the secondary legislation.


1/3
$9.73


10 Mbps
$9.73
1/3