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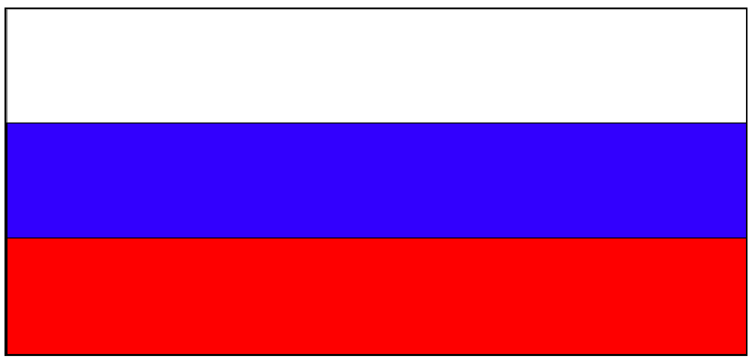
Telecom Market Research & Analysis

Russian Federation Broadband and WiMAX Market Analysis and Forecasts 2006-2010 1st Edition



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and

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About the Team

Artur Mironenko, MSc (Electronics Engineering) is our Senior Analyst for the Russian and Ukrainian markets. Mironenko Artur has a Master of Science in Economics from Kharkov State Economic University in Ukraine. He has more than 10 years of practical experience in projects in the telecom field. His experience in telecom includes work with a leading Russian consultancy company in this area- J'son&Partners and independent consultancy practice.
As a telecom analyst at J&P he conducted numerous research projects in different areas and scales, ranging from commercial trunking to evaluation of telecom equipment market. He contributed to the publication of market reports in key sectors of Russian telecommunication markets including cellular services, WiFi, landline telephony, regulation, etc. As an account manager, he was responsible for key corporate accounts (clients) at the J'son&Partners. He was numerously cited in leading Russian media (forr instance Vedomosti-a Russian equivalent of WSJ, Newsweek. etc).

Adlane Fellah, MBA is CEO and founder of Maravedis Inc, a world leader in market research and analysis, specializing in BWA and VoIP markets. He has worked over 9 years in the telecom industry including 3 years as Marketing Manager for the BWA Clearburst product line at Harris Corporation, in charge of all point-to-multipoint market intelligence. He has extensive experience with both the tactical dimension of sales support and the strategic vision and analysis to feed product development. He also has an extensive knowledge of regulatory affairs as well as financial modeling, through his tenure as senior consultant with the telecom-consulting firm Lemay-Yates Associates Inc. Mr. Fellah holds a Master of Business Administration from the University of British Columbia.

About Maravedis

Maravedis is an objective, third party research and analysis firm focusing on Broadband Wireless technologies including WiMAX, 802.20, TD-CDMA and Wireless Local Loop Systems. Maravedis' mission is to be the most trusted bridge between the world of fixed-mobile convergence and the world of real deployments and sound business models.

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Executive Summary

This report contains data and analysis on the current opportunities and challenges of the Russian BWA/WiMAX markets. The report also provides forecasts of key Russian markets up to 2010. An in-depth review and analysis of the top ten BWA/WiMAX potential service providers was conducted to understand the current Russian market activity. An overall understanding of the Russian Federation market would be incomplete without a detailed review and analysis of spectrum activity and overall regulation, which constitute a central part of this report.

Russian Market Structure

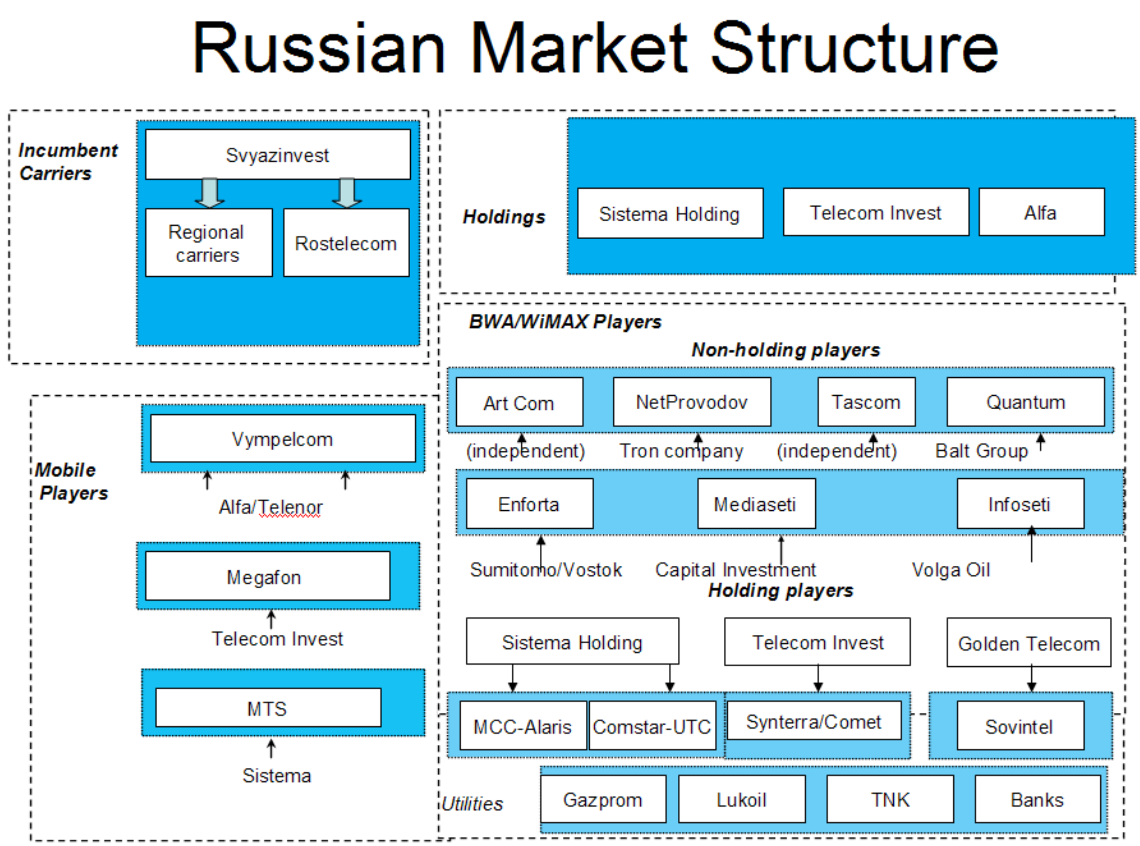

Exhibit 1. Major Russian telecom firms

Background

The Russian economy is growing for the 7th consecutive year, at a 6-7% annual rate. The country is fully engaged in becoming a market-driven economy. The whole economic structure is slowly changing from prevalence of large conglomerates to an economy based on small- and medium-sized businesses.

This new growing economy requires a modern telecommunication infrastructure in order to ensure competitive levels of productivity. The telecommunication industry in Russia has had to grow rapidly over last 10 years to overcome many years of under-investment during the communist era.

The fixed-line penetration across the country in 1991 was 15.8%, but doubled to 30% in 2005. The Internet market grew significantly in 2005, at an average annual rate of 36.25%. Internet penetration, 16% in 2005, has traditionally been constrained by low PC penetration levels.

Russian businesses and individuals are eager to use new technologies and services. Mobile penetration is now approaching that of the European Union. In February 2006, mobile penetration in Russia reached 90%, with 130 million subscribers and in Moscow even exceeded that level, compared to 97% for the EU. The next huge potential market is the broadband Internet access market. Broadband Internet penetration among residential users is still extremely low at an estimated 3.9% at the end of 2005.

Market Drivers

There are more than 40,000 towns without any communications facilities, and wireless networks can represent an efficient solution for providing bundled services in these neglected areas. Further, modern communications are required by oil, gas and other utilities with substantial funds available for capital investment.

This underserved demand for broadband constitutes an opportunity for wireless ISPs to gain a significant share in this growing key market. In Russia the growth rate of personal income and corporate revenue in large cities exceeds the growth rate of the overall economy. Therefore, a growing number of Russians have sufficient disposable income to afford these new telecom services if offered. Further, despite Russia's enormous land area, 70% of its population live in urban areas.

The portion of Internet users on dial-up is declining rapidly, from 43% at the beginning of 2005 to 30% at the end of 2005. Those six million remaining dial-up users represent a huge opportunity for BWA/WiMAX in the years to come.

Further, some state programs that are aimed at providing Internet and telephone service in the most remote areas of the country, may spur BWA market development. For instance, Electronic Russia wants to implement information technologies in municipal organizations and educational institutions across the country, and BWA is an ideal vehicle to achieve this goal.

BWA/WIMAX Regulation

The telecom regulator is the Ministry for Communications and Information (MCI), while the **State Radio Frequency Commission (SRFC) is in charge of spectrum management and radio regulation.**

The authorities are trying to find a compromise between satisfying market demand and sharing the spectrum among different user segments (government, satellite stations, broadcasting, etc.). Also, the MIC is trying to achieve the state goal – to increase penetration of telecom services across Russia while not allowing companies to conduct business solely in the most profitable large cities.

Currently, the following frequencies are used for BWA/WiMAX: 2.4 GHz, 3.5 GHz, 5.1 GHz, 5.2 GHz, 5.7-6.4 GHz, 10.5 GHz, 26 GHz and 28 GHz. **All these frequency**

bands require a license. The important characteristics of each frequency band are presented in the Regulatory Environment section of the report.

Although several networks are deployed in the 3.5 GHz band (such as Alaris's in Moscow), shortage of spectrum makes it unlikely that this band will be widely used for WiMAX deployment in the near future. Currently, the majority of networks operate in the 5-6.4 GHz bands.

The majority of market participants expect the process of WiMAX deployment in Russia to be tortuous. At the end of 2005, the SRFC issued a special document that defines technical parameters of WiMAX networks. Any potential network must meet these requirements in order to get a license.

BWA Overview

There are more than 200 companies that provide broadband wireless access in the Russian market. There were a total of 65,000 BWA subscribers in 2005, including users of private networks.

In small and middle sized towns, this access is typically via a WISP operating one or two base stations and providing BWA as an additional service to dial-up/Ethernet services. Development plans by WISPs are limited to their given town or area. The typical number of customers varies from a few dozen up to 2-3 hundred. Still, there are no national networks, with the largest networks covering no more than 10 cities. As a result, Maravedis expects consolidation of service providers to reach "critical mass**"** over the next three years. In fact, at the time this report was being finalized, Enforta announced that it would be acquiring all of Netprovodov's telecom businesses. However, as this transaction was not yet final, this report contains separate company profiles for Netprovodov and Enforta.

BWA/WiMAX Service Providers

The task of determining the Top-10 Russian BWA providers was challenging. Little information is available regarding most BWA providers' shareholders/owners, financial results, subscriber base or pricing plans. However, we were able to obtain insights from industry experts, analysts and service providers themselves.

Starting 2007, tough competition will lead to consolidation among service providers. By 2009-2010 we can expect the M&A activity to produce national operators.

Among the Top-10 service providers already active that we interviewed, those that belong to one of the three holding companies will be serious players in the market. Others, such as Enforta, also benefit from a sound investment capacity. However, vendors and financiers need to be skeptical about service providers' announcements that seem overly ambitious, for these sometimes lack substance.

What to Expect in 2006-2007

It can be expected that limited certified WIMAX equipment will be installed in Russia in the second half of 2006 because of lack of spectrum in the 3.5 GHz band. It is also probable that 5 GHz certified equipment will only become available in 2007.

The largest prospects for WiMAX certified equipment in Russia lie in the 2.5-2.7 GHz band, for which ample certified equipment for both fixed and mobile WiMAX will be available in 2007. Spectrum in that frequency band will become available once TV channels are digitalized and a proper allocation is put in place in 2007-2008.

Challenges

One of the distinctive features of the Russian market is that operators want to offer services under conditions **of limited and licensed frequency spectrum**. In large cities, where BWA is mostly used now, metropolitan networks will face growing competition of wireline access technologies, influenced by limited frequency spectrum and RF interference.

Moreover, Russia is a very price-sensitive market. Demand for broadband services is exploding, but both service providers and residential end-users demand very low-cost CPE (in the $100 range) to adopt WiMAX extensively. So far, the demand for broadband wireless services has been mainly driven by high-end corporate, residential and government users.

Further, many of the cash-rich operators we interviewed said that they prefer not to commit to large network deployments until enough spectrum is made available.

On the regulatory front, WiMAX mobile is not yet permitted by the SRFC. For WiMAX to prosper in Russia, frequency bands in the 2 GHz range (2.3-2.4 and/or 2.5-2.7 GHz) must be made available to commercial operators. That will require current analog broadcasters to digitalize their networks, which will take a long time.

Market Forecasts

The entire market of BWA equipment is expected to reach $45-50 million in 2006 (from about $27 million in 2005)[1] and $365 million by 2010.

It is clear that speed of BWA deployment will vary greatly among regions, as determined by economic structure, growth rate, standard of living and distribution of wealth.

The most promising regions (oblasts) for the development of BWA/WiMAX networks are Moscow city, Saint Petersburg, Samara oblast, Sverdlovsk oblast, Rostov oblast, Tatarstan republic, Krasnodar krai, Tyumen oblast, Chelyabinsk oblast and Bashkortostan republic. The Central region will concentrate one-third of total subscribers.

Maravedis projects an accumulated 867,000 subscribers by 2010 among residential and business users, with WiMAX subscribers representing one-third of the total. Approximately 60% of the WiMAX subscribers will be residential mobile customers, while fixed WiMAX will continue to be driven by large corporations and gradually by SME customers.

[1] Maravedis estimations

Methodology & Assumptions

The research was conducted through two main channels:

Secondary Sources

Maravedis always strives to provide its clients with a new and unique perspective of the industry based on its own research. To ensure that we add value to the information already available to stakeholders in the industry, we reviewed most of the market research available on broadband wireless access in Russia, including

- ITU Statistical Yearbook 2004
- The World Bank Development Indicators 2005
- Numerous articles

Primary Sources

Primary research is a lengthy but indispensable process for market research because it yields data neither biased nor distorted by intermediaries. As part of this research, Maravedis conducted interviews with the following:

- All service providers listed in the report
- The Regulatory Authority
- National account managers and other key representatives of equipment vendors active in the Russian market

The survey took place from January to April 2006 and involved discussions with product managers, marketing managers, regulators, technologists and sales people at all organizational levels.