ICT “continent” extend its boundaries

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Development of information-oriented society is one of the national priorities in the Republic of Belarus. It is the national task which requires coordination and cooperation of the whole state, business and society. In this process information communication technology assign a part of the requisite tool of socio-economic progress which is one of the key factor of the innovative factor of economy development.
State Program of the development of digital economy and information society in 2016-2020 is implementing nowadays, which provides for further forming of ICT infrastructure with priority of the development of fixed and wireless broadband Internet access.

Mobile accessibility – the timeline trend

One of the most widespread means among the republican population is mobile communication. As from its appearance in the country operators work to improve quality of provided services, to enhance their range and increase their accessibility. In the course of 5 years subscribers base of operators has grown more than to 700 000 subscribers. However now we can see slow dynamics of this indicator change. This is the illustration of market saturation for this kind of services (Figure 1). At the present time the market base of cellular telecommunication mobile subscribes includes 11.3 million people. Earlier mobile communications were presented by different methods of voice communications in general, but nowadays these positions belong to data communications, i.e. mobile Internet in other words.
International Telecommunication Union (ITU) makes an emphasis on the development of mobile networks to provide high-speed Internet access to support modern telecommunication services as more as possible quantity for population from removed areas, reduction of digital inequality between urban and rural inhabitants.
In accordance with this concept Belarus keeps in step with the times. At the end of 2015 in our country commercial operation of LTE technology has been started. If in the beginning of this process this service was available for Minsk citizens only, today it is available for citizens of all regional centers and for 29 large district centers. Transformating this information into the quantity indicator shows that more than 60% of population have the access to this technology. During the last quarter of this year more than 700 000 subscribers used data services based on LTE technology, one subscriber consumes around 5.8 Gb in average.

We are currently working on the construction of 4G networks, as well as the modernization of 3G networks. The Ministry of Communications and Informatization of the Republic of Belarus initiated the process of spectrum refarming in order to enable mobile operators to apply a lower frequency range of 900 MHz for 3G technology, which is traditionally used for the GSM networks (2G). This has made it possible for UE "Velcom" and JLLC "Mobile TeleSystems" to increase the coverage of the territory with 3G networks from 49% in 2014 to 96.5% at present.
The deployment of UMTS-900 networks has improved the quality of cellular mobile telecommunication

networks along the main roads and in urban density areas, network capacity has been increased. It was highly appreciated by subscribers.
The effectiveness indicator of our efforts is the number of mobile broadband Internet subscribers. Since 2010, the mount of unique subscribers has been this indicator has increased 7-fold – from 0.9 million to 6.4 million.
Despite the active development of wireless technologies for the Internet access, the fixed access does not lose its relevance. It is statistically confirmed that the number of fixed broadband Internet access subscribers increased from 26.9% in 2012 to 32.2% at the beginning of 2017 (Figure 2).

Broadband access for “content-heavy” data

Majority of the broadband Internet access technologies are represented today in the republic, where xDSL is the leader. But progress does not stand still: the subscriber needs higher speeds to download and upload “heavy” content. The approaches to the development of fixed networks have been changed in the country in 2010 (Figure 3).

The main tendency is focused on the implementation of the IMS software platform (IP Multimedia Subsystem), as well as on the construction of GPON fiber-optic networks (Passive Optical Network is the technology of broadband access passive optical networks). The application of such technologies is an effective way of developing data transfer networks that ensures the provision of both existing and new telecommunication services with consistently high quality.
Rapid implementation of networks using GPON technology allow to provide data services at bit rates up to 100 Mbps: subscribers quantity connected to the Internet via optic fiber increased from 15 % to 27 % during 2016, while subscribers quantity using xDSL technology decreased from 65 % to 55 %.
The growth of the number of broadband connections also has an effect on the width of the external Internet access channel. The external gateway is constantly expanding to improve the quality of services provided to consumers on the Internet access as well as for reservation and reduction of the traffic load on separate directions. In general, the total capacity has been increased 16-fold in 5 years – from 67 Gbps in 2010 to 1090 Gbps in the first half of 2017.

Digital TV increases audience

One of the most widespread sources of obtaining information is the television. Some experts predict a decrease of the population’s interest to the TV content distributed by traditional methods (IPTV, terrestrial and cable TV). However in practice such forecasts do not come true.
It should be noted that the Republic of Belarus was the first among the CIS countries that switched over to digital TV. This allowed the operators to provide commercial digital terrestrial broadcasting services throughout the country, especially in the remote areas for fixed telecommunication networks. The subscriber base of operators shows the popularity of the service: in a little more than 2 years it has grown up to 145,000 subscribers.
One of the traditional and habitual ways of television signal delivery to a consumer is the cable television networks (Figure 4). Its wide popularity is indicated by a large number of subscribers using this service (more than 1.7 million at the beginning of 2017). However, the widespread distribution of IPTV and commercial terrestrial television broadcasting, which are often provided by operators in one package with data services, leads to a gradual decrease of the subscriber base of cable television operators.

With the advent of the IPTV in the Republic, the population was able to assess the new opportunities and convenience of this service: a large number of various programs in good quality, the ability to manage the transmitted content and other interactive functions. For the past 3 years, the subscriber base of IPTV services has increased by 0.5 million and at the beginning of 2017 it has1.5 million subscribers (Figure 5).

During these years, serious work carried out, the results of which were noticed not only by our citizens, but also by the international community. For the period from 2011 to 2016 in the ITU rating by the development of information and communication infrastructure index, the Republic of Belarus rose from the 50th to the 31st place and it was noted many times by international experts as a country where this sphere develops most dynamically (Figure 6).
According to the results of the ITU assessment of the development of broadband access, the Republic of Belarus takes the 23rd position in number of fixed broadband access subscribers, the 59th position in number of wireless broadband subscribers and the 68th position in number of Internet users among 195 countries that participated in the study at the beginning of 2016.

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