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# **I. STATE, DEVELOPMENT, AND PROSPECTS OF THE ELECTRONIC COMMUNICATIONS MARKET**

## **1. Global development of the electronic communications sector**

### *Volume and growth of the sector*

In 2008, the electronic communications sector keeps its dynamic development in spite of the aggravated economic condition and downtrend registered in many other sectors of the global economy this year. According to Gartner, the total revenues from the provision of electronic communications services worldwide, in the past year, increased from USD 1.49 to USD 1.6 trillion. Analysts say that the increase in revenues by 2012 will remain relatively stable, in which period they will grow to an annual average of 4.4 percent.

Concerning the total revenues by region, over the last year, for the first time North America is not the region generating the highest share of revenues from the provision of electronic communications services, at the expense of the Asia-Pacific region. The revenues from the provision of electronic communications services in North America grew by 4.5 percent, in 2008, to USD 511.6 billion, while in Asia-Pacific region they registered a growth of 8 percent, reaching USD 513.1 billion.

In the period up to 2012, the highest growth is expected to be in the Middle East and Africa, where revenues from the provision of electronic communications services are expected to increase to an annual average of 8.6 percent<sup>1</sup>.

The total volume of revenues from the provision of electronic communications services, in 2008, within the European Union (EU) is estimated at USD 510.3 billion, compared to USD 467 billion for 2007.<sup>2</sup>

### *Mobile communications*

According to International Telecommunications Union (ITU) data, at the end of 2008, the number of mobile services users worldwide reached 4.1 billion people (Figure 1). During the year, for the first time, the global penetration of mobile services crosses the 50 percent border, reaching 61.1 percent as of 31 December 2008<sup>3</sup>. By 2013, the number of users is expected to grow over 5.3 billion, while worldwide penetration - to reach 75 percent<sup>4</sup>.

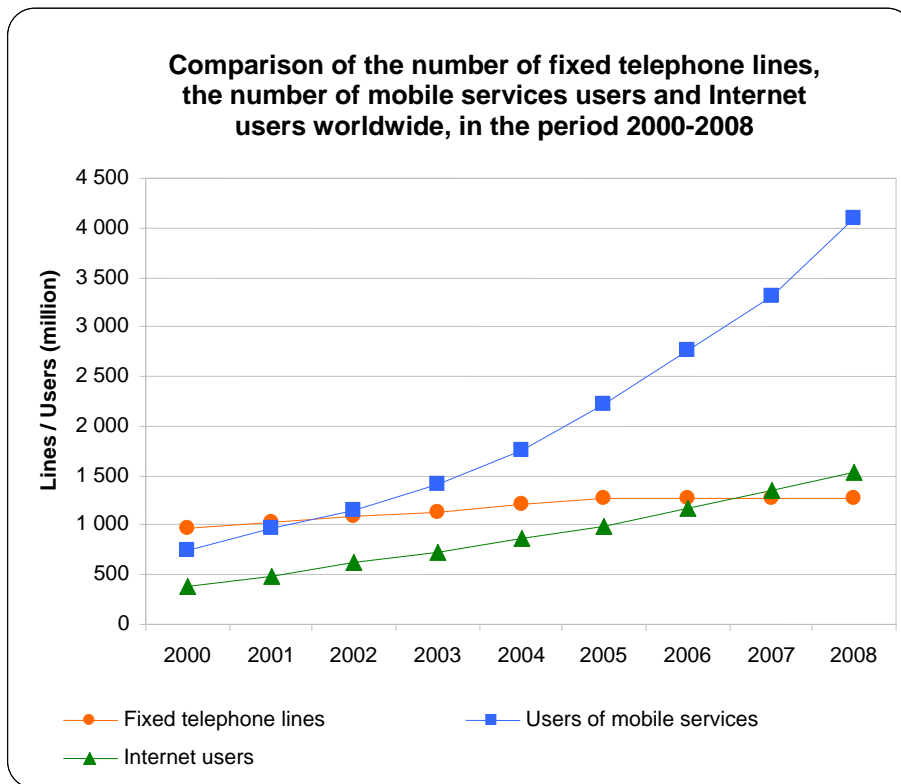
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<sup>1</sup> According to Gartner data, <http://www.gartner.com>

<sup>2</sup> According to European Information Technology Observatory data (EITO), <http://www.eito.com>

<sup>3</sup> International Telecommunication Union – Measuring the Information Society – The ICT Development Index 2009

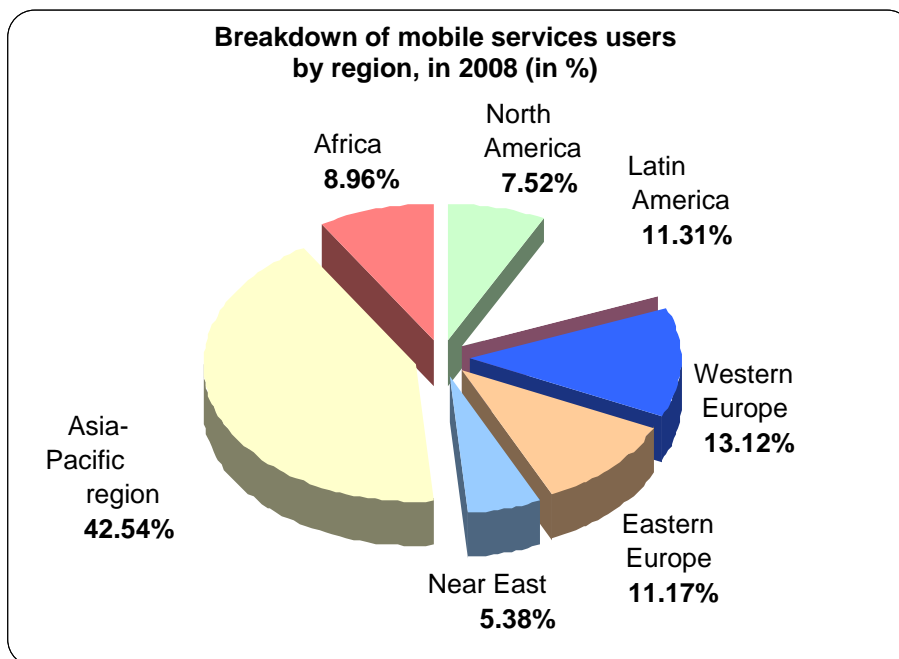
<sup>4</sup> According to Informa Telecoms & Media data, <http://www.informatm.com>



Source: ITU, 2009

Figure 1

Most of the mobile users, in 2008, live in the Asia-Pacific region (more than 1.6 billion people, or 42.54 percent of all users in the world). Almost 500 million users live in Western Europe, over 430 million - in Latin America, and 425 million - in Eastern Europe (Figure 2).



Source: GSMA Mobile Infolink

Notice: Data in the chart are current to 22.09.2008

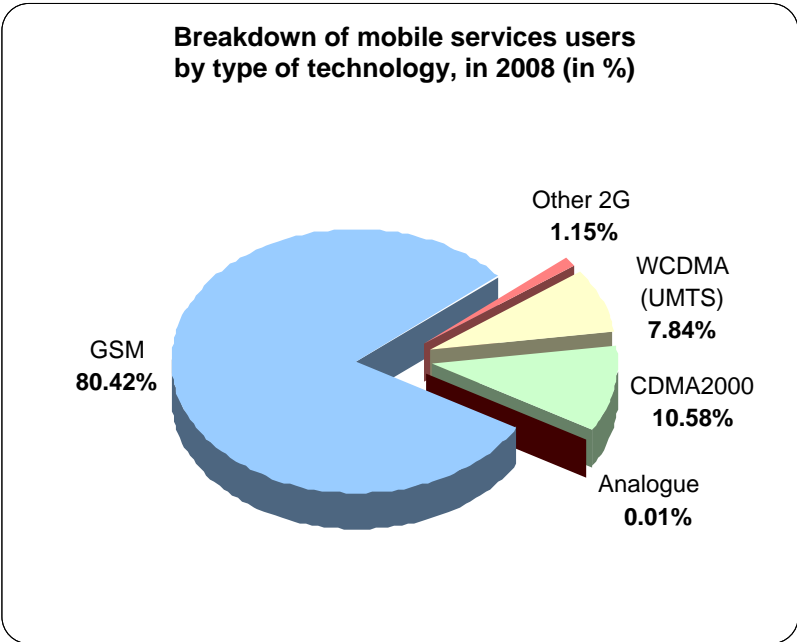
Figure 2

The number of mobile services users within the EU reached 592.22 million as of 1 October 2008, and the average penetration of mobile services was 119 percent. The highest penetration is in Italy - 152 percent, Lithuania - 149 percent, and Luxembourg- 142 percent.<sup>5</sup>

GSM remains by far the most popular technology for mobile communications worldwide with more than 3 billion users (80.42 percent of all users in the world). The second most popular technology worldwide, with more than 400 million users (10.58 percent of the total number) is CDMA2000 (including CDMA2000 1x 2.5G modification and the 3G modifications EV-DO and EV-DO Rev.A), distributed mainly in North and South America and Southeast Asia.

At the end of 2008, subscribers to third generation technology such as UMTS, HSPA, FOMA and others, numbered nearly 300 million.

Users of analogue mobile networks, as of September 2008, are only 309 thousand people worldwide, which is less than 0.01 percent of all users of mobile communications in the world (Figure 3).



**Source:** GSMA Mobile Infolink  
 Notice: Data in the chart are current to 22.09.2008

**Figure 3**

In the European Union third generation mobile services (3G) are offered in all member states by total 87 companies. The number of 3G services users, as of 1 October 2008, was 91.3 million people (15.5 percent of total mobile users in the EU).<sup>6</sup>

The share of users using prepaid mobile card services, in 2008, worldwide increased from 60 to 70 percent.<sup>7</sup> Conversely, within the European Union this percentage decreased over the past year from 61 percent to 58.2 percent, as again the most popular are the prepaid mobile cards in Italy and Malta - used respectively by 88 percent and 87 percent of the mobile services users.<sup>8</sup>

<sup>5</sup> Commission staff working document accompanying the Progress report on the single European electronic communications market 2008 (14th report)  
<sup>6</sup> Commission staff working document accompanying the Progress report on the single European electronic communications market 2008 (14th report)  
<sup>7</sup> According to Paul Budde Communication Pty Ltd data, <http://www.budde.com.au>  
<sup>8</sup> Commission staff working document accompanying the Progress report on the single European electronic communications market 2008 (14th report), information is current to 1 October 2008

According to Portio Research data, the total number of messages sent, in 2008, was 3.5 trillion and is expected to reach 5 trillion by 2011.<sup>9</sup>

In 2008, the revenues from the provision of mobile services worldwide amounted to USD 874 billion. The share of voice and SMS services from these revenues remains very high - 88.9 percent. Portio Research analysts expect this trend to continue over the next few years, forecasting a slight decrease of this rate up to 85 percent in 2011.<sup>10</sup>

By the end of 2008, there are about 400 mobile virtual network operators (MVNO)<sup>11</sup> worldwide, which provide services to a total of 107 million end-users<sup>12</sup>. According to Juniper Research data, in 2008, revenues generated by such operators reached USD 60 billion. It is expected that in 2011 these revenues will reach USD 80 billion<sup>13</sup>, and the number of subscribers - 126 million.<sup>14</sup>

### ***Fixed communications***

According to ITU data, the number of fixed telephone lines worldwide, at the end of 2008, is 1.27 billion (Figure 1). The trend to replace fixed telephony services with mobile ones, observed in the developed countries, leads to a decreased number of active fixed lines in those regions of the world. On the other hand, there is an increase in the number of new established fixed telephone lines in developing countries. Due to these facts the relative stability of the indicator "penetration of fixed services worldwide" persists, which for fifth consecutive year maintains a level of less than 20 percent - by the end of 2008 it was 18.9 percent.<sup>15</sup>

The downtrend in revenues from fixed communications remains in 2008 too. According to IDATE, within the past year they fell worldwide by 5.2 percent to USD 366 billion.<sup>16</sup>

### ***Voice over Internet protocol (VoIP)<sup>17</sup>***

Voice over Internet Protocol (VoIP) services continued to enjoy growing popularity worldwide. Revenues from VoIP services provided at a fixed location for a year in succession registered significant growth (33 percent), reaching USD 30.8 billion. At the end of 2008, users of fixed VoIP services with guaranteed quality reached 106 million.<sup>18</sup> In Europe, the number of users of VoIP services was 35 million, by the end of 2008, as this type of communication is most widespread in France, where more than 50 percent of the households use VoIP networks for voice transmission.<sup>19</sup>

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<sup>9</sup> According to Portio Research data, <http://www.portioresearch.com>

<sup>10</sup> According to Portio Research data, <http://www.portioresearch.com>

<sup>11</sup> According to the report The MVNO Directory 2009

<sup>12</sup> According to Paul Budde Communication Pty Ltd data, <http://www.budde.com.au>

<sup>13</sup> According to Juniper Research data, <http://www.juniperresearch.com>

<sup>14</sup> According to Paul Budde Communication Pty Ltd data, <http://www.budde.com.au>

<sup>15</sup> International Telecommunication Union – Measuring the Information Society – The ICT Development Index 2009

<sup>16</sup> According to IDATE data, <http://www.idate.fr>

<sup>17</sup> In the text only the fixed VoIP services are considered, since most of the networks providing mobile VoIP services are either recently established or are still in process of testing, and therefore the users' number and services provided via those networks cannot be assessed accurately. VoIP services throughout the text are considered those with guaranteed quality. Only the information on voice transmission via Skype concerns service without guaranteed quality.

<sup>18</sup> According to Infonetics Research data, <http://www.infonetics.com>

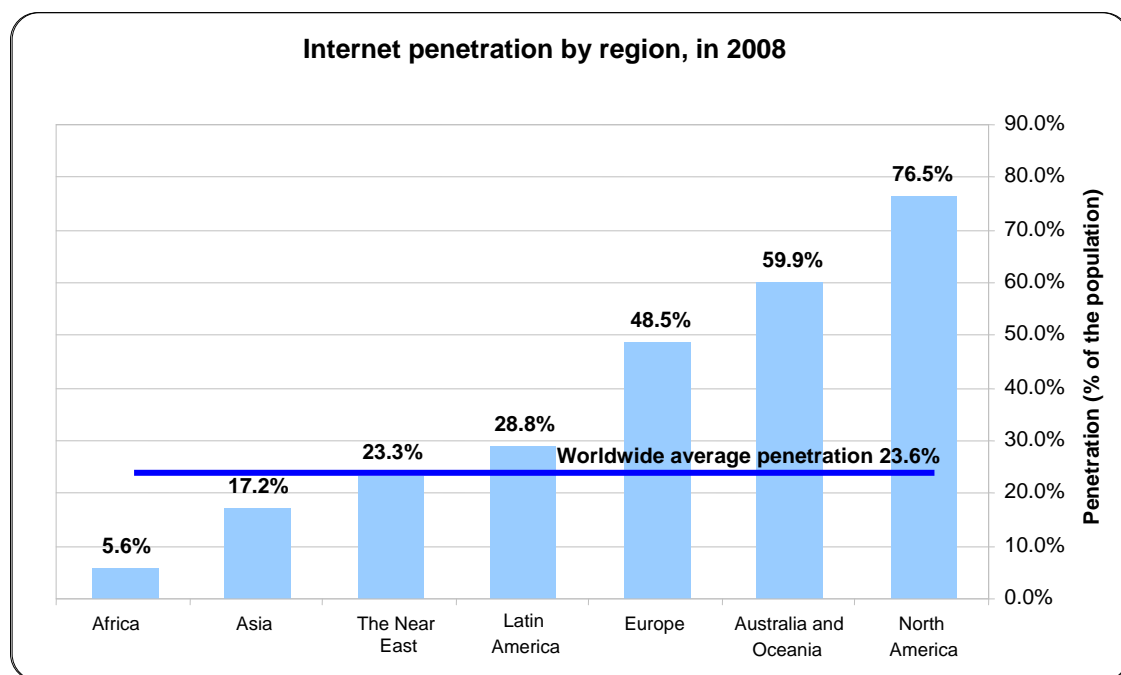
<sup>19</sup> According to TeleGeography data, <http://www.telegeography.com>

## Internet

According to Internet World Stats data, by the end of 2008, Internet users worldwide were 1.582 billion or 23.6 percent of the world population.<sup>20</sup>

Compared to 2007, the number of Internet users worldwide grew by 19.8 percent, as the largest increase was registered in the Middle East (where their number increased by 39 percent), in Latin America (28 percent increase), in Asia and Africa (up by 27 percent and 21 percent respectively). For a year, Internet users in Europe increased by 12 percent to 390 million, within the EU - by 8.7 percent to 297 million people.

People in North America (76.5 percent of the population), Australia and Oceania (59.9 percent of the population) and Europe (48.5 percent, as within EU a penetration of 60.7 percent is observed) use Internet to the greatest extent. Internet penetration is lowest in Africa, where only 5.6 percent of the population is using the global network (Figure 4).



*Source: Internet World Stats*

**Figure 4**

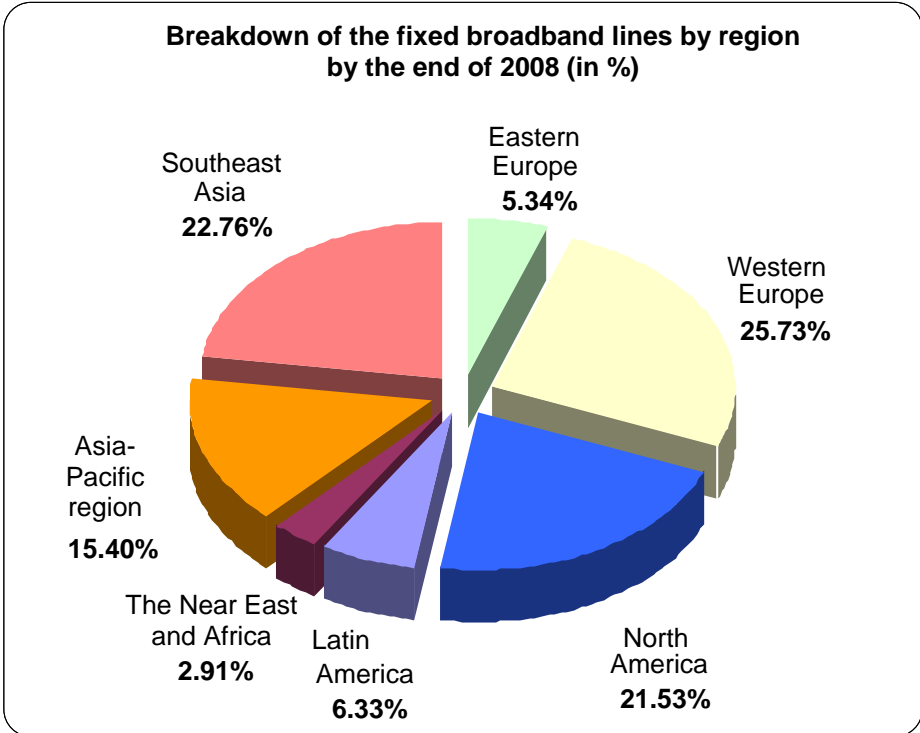
<sup>20</sup> Internet World Stats, <http://www.internetworldstats.com>

As forecasted by IDC, by 2012 the number of Internet users worldwide will increase up to 1.9 billion, which represents more than 30 percent of the world population.<sup>21</sup>

**Fixed broadband Internet access**

By the end of 2008, the total number of fixed broadband lines worldwide reached 410.9 million, representing 17.4 percent growth per year, while broadband penetration grew by one percent to 7.1 percent.<sup>22</sup>

In terms of its allocation and development per geographic regions, Western Europe remains the region with the greatest number of established fixed broadband connections - 25.73 percent of all lines in the world. Within a year, Southeast Asia marked a large increase in its relative share, which held 22.76 percent of all lines in the world (Figure 5).



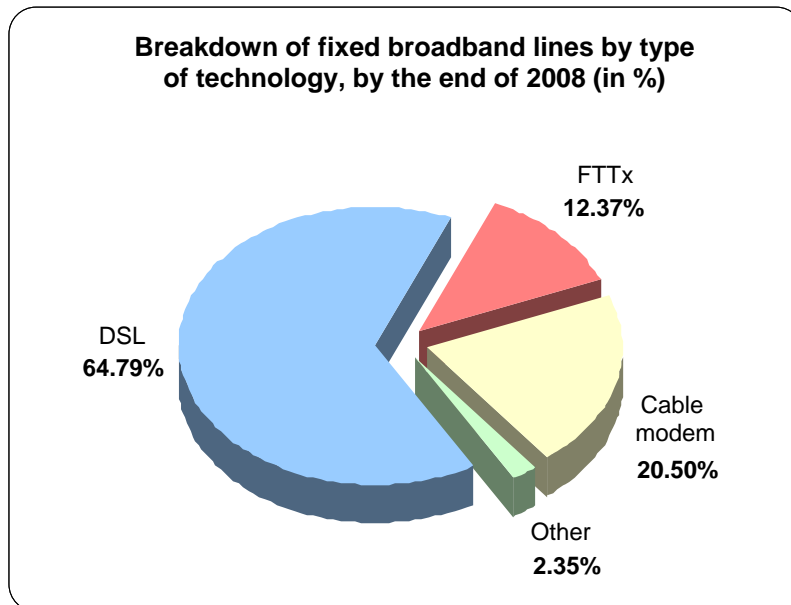
Source: Point Topic

Figure 5

In 2008, 14 million new fixed broadband lines were established in the European Union. Thus, at the end of the period, fixed broadband connections in the European Union were 114 million, representing an increase of 14.3 percent a year. Average penetration of fixed broadband access in the European Union Member States, by the end of 2008, reached 22.92 percent compared to 20.16 percent by the end of 2007.<sup>23</sup>

xDSL remained the dominant technology for fixed broadband Internet access globally with almost 65 percent of the total number of fixed broadband lines. The cable connections for broadband Internet access, a leading technology in North America, were 20.5 percent of all connections, and optic lines, popular in Southeast Asia and Asia-Pacific region - 12.37 percent (Figure 6).

<sup>21</sup> IDC, <http://www.idc.com>  
<sup>22</sup> Point Topic World Broadband Statistics, Q4 2008, <http://www.point-topic.com>  
<sup>23</sup> Commission staff working document accompanying the Progress report on the single European electronic communications market 2008 (14th report)



*Source: Point Topic*

**Figure 6**

xDSL (79.4 percent) remains the dominant technology for fixed broadband Internet access within European Union as well, followed by the cable access (15.3 percent), the optical access (1.4 percent), and the fixed wireless access (1.1 percent)<sup>24</sup>.

#### ***Mobile broadband Internet access***

According to Informa Telecoms and Media data, at the end of 2008, the number of users of mobile broadband Internet access reached 186 million, increasing by 84 percent compared to the end of 2007. Analysts say that, on the one hand, the huge users growth is due to the large number of mobile networks offering broadband Internet access (by the end of 2008 there were more than 400 mobile network operators offering similar services to end-users in the world), the emergence of the so-called flat-rate tariffs (allowing unlimited Internet traffic for a fixed monthly fee), as well as the large number of terminal devices (mobile phones, PDA, 3G modems, etc.) enabling full use of high-speed Internet connection.

Upon the penetration of the 4G technology for mobile broadband data HSPA + LTE and TD-SCDMA transfer, and the development of existing technologies such as HSPA, EV-DO and WiMAX, by the end of 2013, users of that service are expected to reach 1 billion people<sup>25</sup>.

## **2. Prospects of the global electronic communications market development<sup>26</sup>**

Significant impact on the development of the global electronic communications market, in 2009, is expected to have the reduced consumer demand and limited investment in communication technologies and services arising from the deterioration of the global economy. However, several trends could be outlined, featuring the development of the global electronic communications market this year.

<sup>24</sup> Commission staff working document accompanying the Progress report on the single European electronic communications market 2008 (14th report)

<sup>25</sup> Infonetics Research, <http://www.infonetics.com>

<sup>26</sup> The analysis is based on the elaboration Top 10 Telecom Predictions for 2009 of inCode Telecom, <http://www.incodetel.com>



In the first place, the consolidation of the undertakings providing electronic communications, aimed at the optimization of their management and investments, and at the termination of inefficient services provision and inefficient networks or network elements maintenance is expected. A series of mergers and acquisitions of companies is expected as well.

The lack of fresh capitals in the electronic communications market may "open the door" for the entry of part of the large Internet companies like Google, Yahoo, Microsoft, and others, which would invest in companies providing electronic communications in order to broaden the scope of their services (e.g. by the inclusion of mobile applications).

Although much of the attention of specialists in the field of electronic communications is focused on the mobile fourth generation services (and in particular to what extent there will be competition between LTE and WiMAX technology), within the next few years, an increasing role is expected to play also the HSPA technologies, necessary for the provision of complete data transfer services for iPhone or similar devices holders.

On the other hand, the large volume of the traffic carried over the mobile networks occasionally causes network congestion. Mobile phone companies have few options to prevent such situations. The first one is to change their tariff plans and to limit the plans providing unlimited traffic to consumers. Another option is to control the speed of mobile access provided to the individual user. There is a third option, which enables the "unloading" of part of the traffic from the main network through the use of the so-called femtocells, which represent small mobile home base stations with the size of a router for wireless internet. Their market penetration, however, is expected to be after 2010, because of the technological time needed for the introduction of the recently adopted standard for GSM/HSPA femtocells.

Much attention for the year in succession is expected to be paid to the convergent services too. It is quite possible that, in 2009, services allowing "three-screen convergence" to be presented for the first time - the same services to be available for consumers on their TVs, computers and mobile phones through a unified user interface, consistent with the characteristics of each device. Such services will most likely not be presented by undertakings owning electronic communications networks, but rather by partnerships between large media companies (e.g. Time Warner) and Internet portals (e.g. Google) or manufacturers of consumer electronics (e.g. Apple).

Last but not least, the trend of undertakings providing electronic communications to keep active "green" policies, consisting in the organization and participation in major initiatives to protect the environment, is expected to be reinforced.

### **3. Legal and regulatory framework**

Significant changes to the regulations in the sector were introduced in 2008. Over the year, experts from the CRC participated in the development of:

1. Draft Law amending and supplementing the LEC;
2. Law on National Emergency Call System using Pan European Number 112;
3. Law amending the Law on radio and television.

4. Instruction for interaction between the CRC, the Ministry of Transport, the Ministry of Interior, the Ministry of Defence, the State Agency for National Security, the State Agency for Metrology and Technical Surveillance, and the Ministry of Regional Development and Public Works - National Construction Control Directorate.

In 2008, secondary legislation - regulations, tariffs, methodologies, regulatory policies, technical requirements, general requirements, model licenses and electronic forms, has been prepared and adopted, as well as amended.

In 2008 the CRC developed and adopted the following regulations under the LEC:

1. Regulatory policy for the use of telephone numbers, names and addresses for the provision of electronic communications;
2. Regulatory policy for the management of the frequency spectrum for civil use;
3. Rules on procedures for access to public information in the CRC;
4. Rules on procedures for the transfer of permissions for individually assigned scarce resource;
5. Rules for determining the terms and conditions for provision of data on the location of the end-users and subscriber's data by the undertakings providing public telephone service for emergency calls to the emergency call centers;
6. Rules on procedures for providing access to electronic communications services through a network of terrestrial digital broadcasting and for providing electronic communications services for people with hearing and visual disabilities through these networks;
7. Rules on procedures for providing carrier-selection service;
8. Rules on procedures for providing and using of the network functions "calling line identification", "connected line identification" and "tone dialling";
9. Geographic Number Portability Functional Specification when changing the provider of fixed telephone service and/or changing the address within the national destination code;
10. Non-geographic Number Portability Functional Specification when changing the provider of the relevant service;
11. Regulation No. 1 of 19 December 2008 on procedures for access and/or interconnection;
12. Tariff of fees collected by the CRC in 2009 according to the LEC;
13. General requirements for the provision of public electronic communications.

Acts developed by the CRC and acts, in the drafting of which the CRC has participated, adopted by other authorities during 2008 are as follows:

1. Methodology for procedures for determining, analyzing and evaluating the relevant markets and determining the criteria for undertakings with significant market power;
2. Methodology for determining prices and price packages of the universal service;
3. Regulation No. 5 on the procedures for issuing of telephone directories, including working with databases, their transfer and use, as well as for the provision of telephone directory enquiry services;
4. Regulation No. 6 on the requirements and parameters of the universal service quality, the special measures for people with disabilities and the procedures for the selection of undertakings providing public electronic communications networks and/or services, and on the imposition of the universal service provision obligation;

5. Regulation No. 7 on the assignment rules and procedures for primary and secondary provision of use, reservation and withdrawal of numbers, addresses and names;

6. Regulation No. 40 on the data categories and the way in which they are stored and made available by undertakings providing electronic communications networks and/or services for the needs of the national security and detection of crimes;

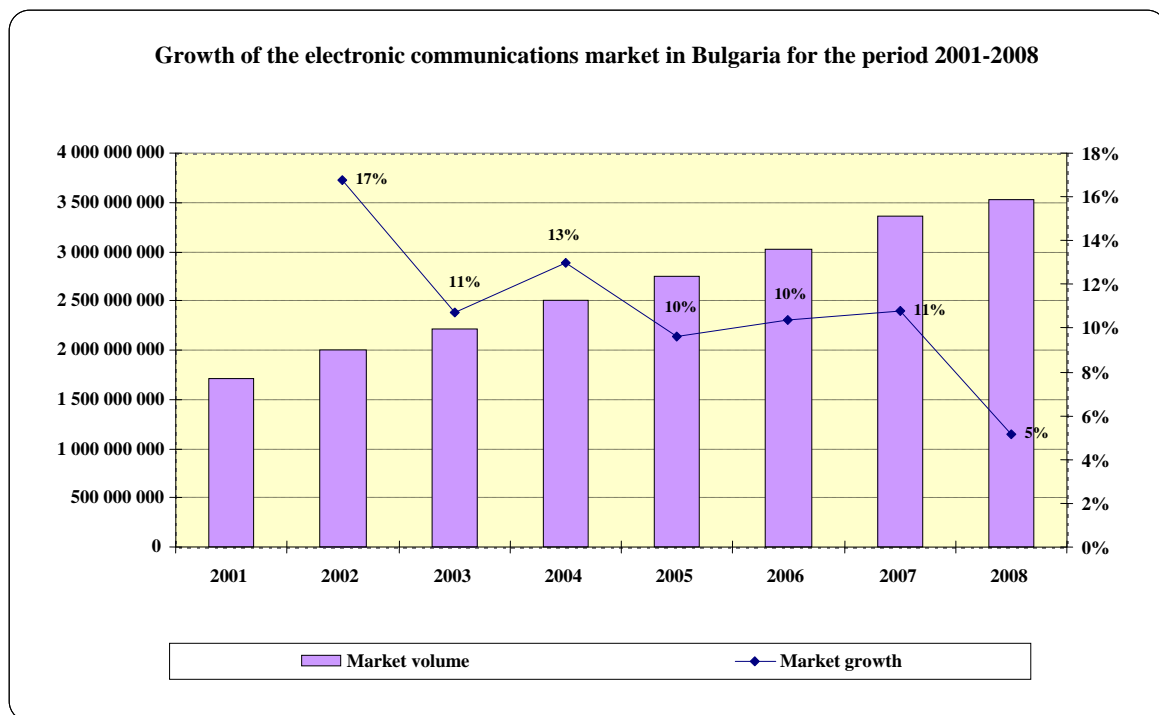
7. Regulation on procedures for the provision and disposal of forfeited property under the LEC;

8. Plan for introduction of digital terrestrial television broadcasting (DVB-T) in Republic of Bulgaria.

#### 4. Volume and structure of the electronic communications market in Bulgaria

In 2008, the volume of the electronic communications market, covering the market segments of fixed services, mobile services, leased lines, data transmission and Internet access, cable TV, fixed satellite networks and other electronic communications networks and/or services<sup>27</sup> was estimated to BGN 3.532 billion or € 1.806 billion, representing 5-percent increase compared to the previous year. The total market volume of electronic communications for the relevant year represents 5 percent of the total GDP<sup>28</sup> in Bulgaria.

Figure 7 presents the variation of volume and growth of electronic communications market in the period 2001-2008.



*Source: Data, submitted to CRC*

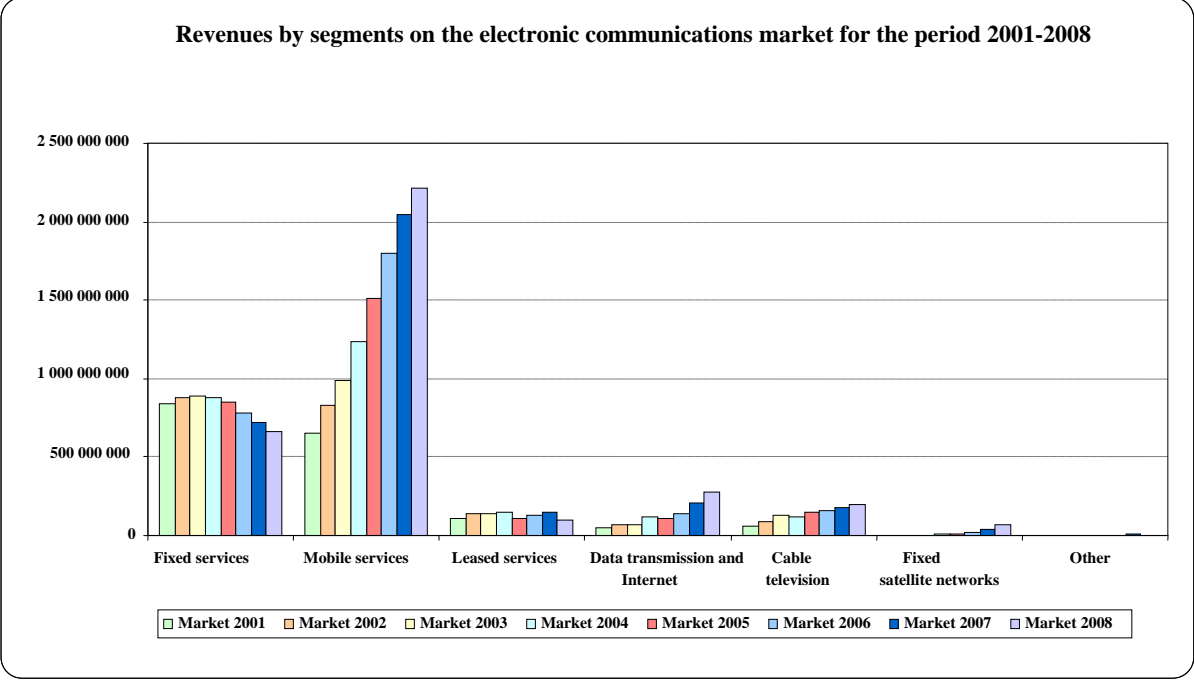
**Figure 7**

<sup>27</sup> Includes the revenues from telex, wireless/radio installation, revenues from the provision of public electronic communications through a fixed radio service network of the point-to-point type, the revenues from the provision of voice services through a number starting with national access code type 99x through point-to-multipoint networks, and the revenues from providing microwave transmission lines for radio and/or television programs.

<sup>28</sup> Calculated at current prices. Source: NSI

Data show that despite the continuing upward trend of the electronic communications market volume in absolute terms, over the last year, the growth rate decreased by 5 percentage points compared to the previous three periods, when it was respectively 10 percent in 2005/2004, 10 percent in 2006/2005, and 11 percent in 2007/2006.

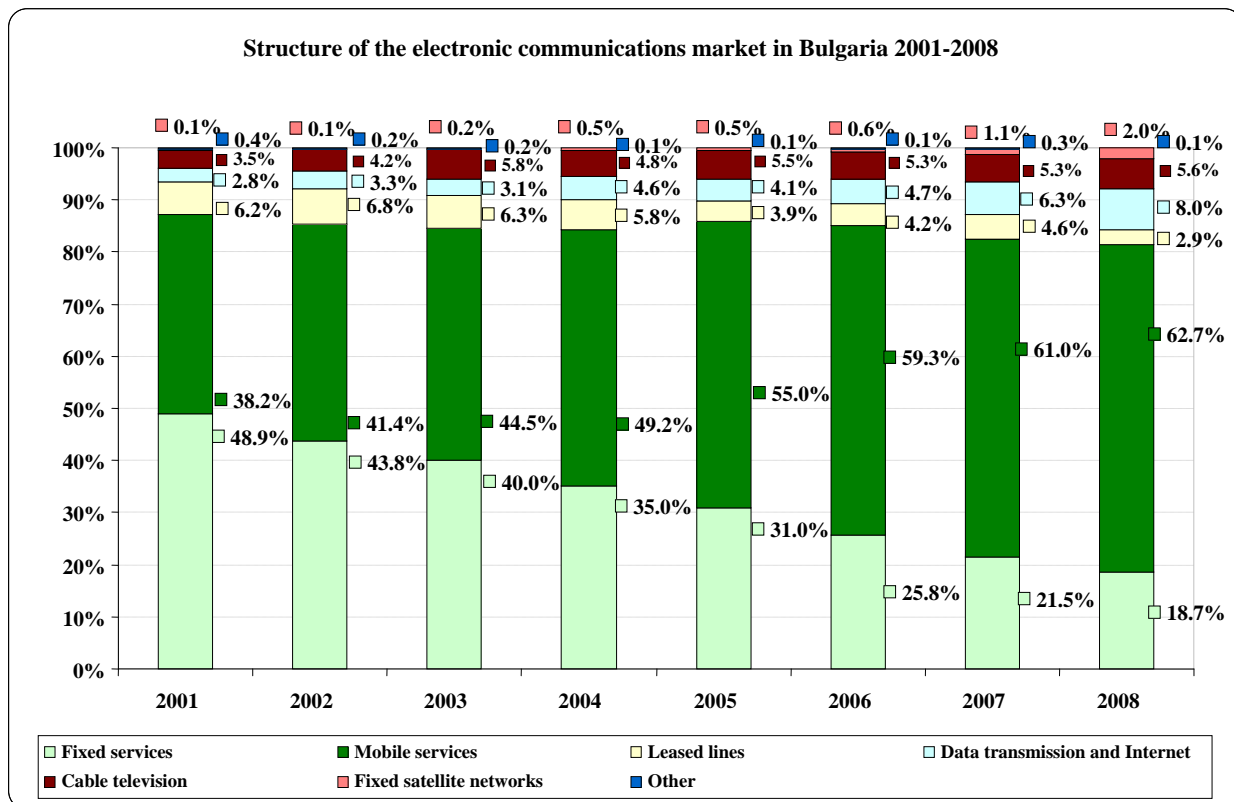
Figures 8 and 9 present the variation in volume of revenues by segment and the dynamics of the market structure of electronic communications.



Source: Data, submitted to CRC

Figure 8

As evident from Figure 8 in general, for the period concerned, the revenues in the segment of mobile services, cable television, and data transmission and Internet access keep on growing, while in the total revenues in the segment of fixed services for a year in succession a decrease is reported.



Source: Data, submitted to CRC

Figure 9

Data featuring the market structure presented in Figure 9 show that the market segments, in which in previous years traditionally has been recorded growth, in 2008, again a growth in absolute and relative terms is reported:

- the share of revenues from mobile services grew by nearly 2 percentage points for an annual period, such is the share change of revenues from "data transmission and Internet" in the total volume;
- the revenues from public electronic communications through cable transmission network and/or distribution of radio and television programs also reported an increase, over the year, but the share change of the market segment is only by 0.4 percentage points;
- the largest growth in absolute terms was recorded in the "satellite networks" segment - nearly 90 percent.

In 2008, there was a decrease in the volume of three of the electronic communications market segments:

- the volume of revenues from fixed telephone services traditionally reduced. The segment's share in the total volume of the electronic communications market fell by nearly 3 percentage points compared to the previous year;
- a decrease was recorded in the "leased lines" segment, whose share in the total market volume decreased by less than 2 points;
- the absolute volume decrease of the "Other"<sup>29</sup> segment was substantial in 2008, compared to the previous year - by nearly 48 percent, but given its small relative share

<sup>29</sup> It includes the revenues from telex, wireless/radio installation, revenues from the provision of public electronic communications through a fixed radio service network of the "point-to-point" type, the revenues from the provision of voice services through numbers of national access code type 99x through point-to-multipoint networks, and the revenues from the provision of radio relay lines for transmission of radio and/or television programs.

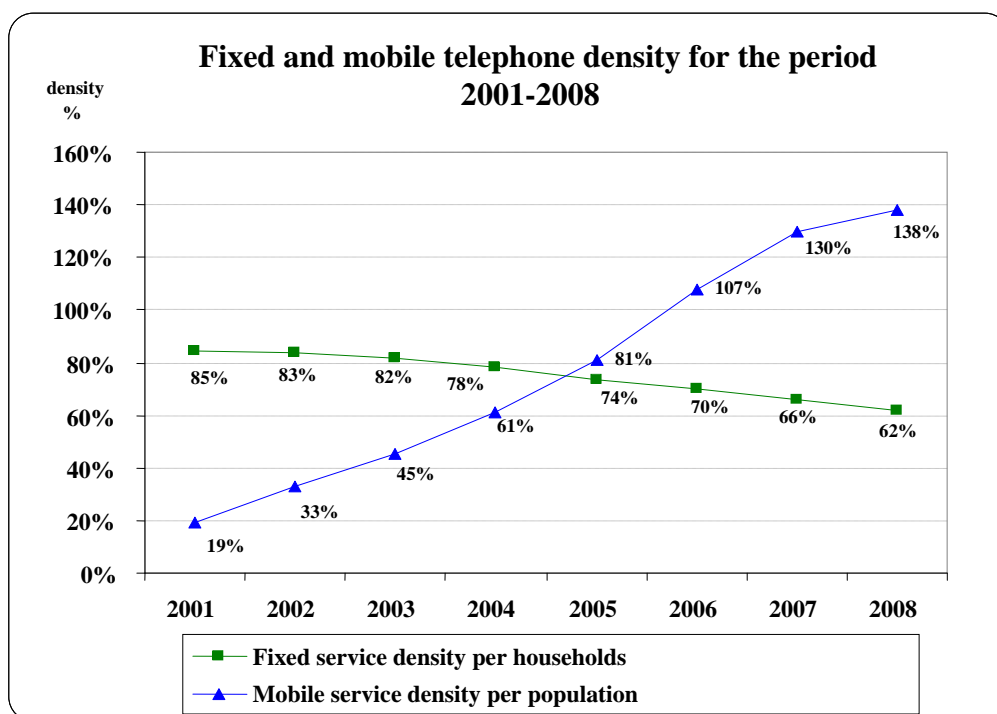
in the total market volume, the change in relative value is only - 0.1 percent.

In 2008, the segment of mobile networks and services in Bulgaria continued developing dynamically in terms of increased competition and market saturation. The revenues from this segment increased in absolute value by 8 percent and accounted for over half (63 percent) of the revenues from electronic communications services overall in the country. On one hand, the continuing growth of the segment and its significant share are due to a tendency that part of the users of voice telephone services drop fixed services and replace them with mobile ones, as well as the many aggressive promotions, held over the year, related to discounts on the monthly fees for certain plans, including extra minutes for outgoing calls and others.

Generally, the volume of the segment of fixed telephone services decreased continuously, as for the last year, this decrease is almost 9 percent in absolute terms and by 3 percentage points in the relative value of the total market volume, indicating that the trend towards a decline in the revenues from provision of fixed networks and fixed telephone services continued in 2008.

In 2008, the total number of undertakings authorized to provide fixed telephone services and access to public telephone services through the carrier-selection service (including the incumbent ) amounted to 23. Sixteen alternative undertakings have actually provided fixed telephone services in 2008. Seven of them provided the carrier-selection service - ITD NETWORK AD, BTC-NET EOOD, GOLD TELECOM BULGARIA AD, NEXCOM BULGARIA EAD, ORBITEL EAD, SPECTRUM NET AD and TRANS TELECOM EAD. The subscribers have used mainly carrier-selection service. Only the ORBITEL EAD subscribers use the carrier pre-selection service.

Figure 10 presents the trend of reduction of fixed telephone density and increase in mobile one, established in recent years. On one hand, it is due to the increasing popularity of mobile services among Bulgarian consumers, and on the other hand, to the practice of mobile undertakings in Bulgaria to report as active all users of prepaid services, purchased and recharged a SIM card credit at least once every 12 months, which is a relatively long period compared to the practice in the reporting on this indicator in the European Union countries.



*Source: Data submitted to CRC*

**Figure 10**

The chart shows that, in 2008, the growth rate of the mobile density in Bulgaria slowed – only 6 percent increase was reported compared to the previous year. Reduction of fixed density was the same as in 2007 - by 4 percent. Despite the increased popularity, in recent years, of the mobile phone services and the free access to voice over Internet Protocol, provided through specific software applications (Skype, Google Talk, Justvoip etc.), it should be noted that part of fixed telephone services users were reluctant to give them up. Maintaining the fixed access is largely due to the opportunities it provides for the use of services other than the public telephone service. For home users these are bundled services or the use of DSL access, but for business users - the services of data transfer, Internet access and the ability to use the office telephone exchanges.

A total of 30 companies notified the CRC that they intend to provide the leased lines service, including international leased lines, with an estimated start date of the activity up to 31.12.2008; as per data submitted to the CRC, only 15 of them were actually operating. The revenues from providing the leased lines service, in 2008, amounted to 102.4 million representing a decrease of 33 percent compared to 2007. The large decline was due mainly to two reasons. In the first place, one can underline the reduction in revenues from the provision of wholesale leased lines (to other undertakings providing public electronic communications), which fell by almost 37 percent, attributable to the tendency that undertakings providing public electronic communications in Bulgaria prefer more and more to invest in building their own infrastructure, relying less and less on hiring such. On the other hand, a great influence on the decrease of the market volume exerted the decline of the total revenues generated by BTC AD from providing the wholesale and retail leased lines service, which decreased by 41 percent in 2008. Although there was an increase of 64 percent in the total revenues generated by alternative undertakings from the provision of leased lines, it cannot balance the significant decrease in the volume of the market.

In 2008, 34 new companies providing public electronic communications through cable network for transmission and/or distribution of radio and television programs were registered, which under the LEC have notified the CRC of their intention to carry out this type of electronic communications activity. In the last year, an increase of the newly registered companies was observed compared to 2007. At the same time, 15 addendums to existing notifications were issued for the extension of the territorial coverage, and 44 decisions of the CRC for deletion were issued as well. According to expert evaluation of the CRC, the volume of total revenues from cable networks was estimated at nearly BGN 200 million<sup>30</sup>, which is 13 percent more than in 2007. More and more undertakings providing services through cable networks offer or are planning to offer bundled services such as "Double play" (cable television and Internet access and/or cable television and voice transmission), "Triple play" (cable television, Internet access and voice transmission), encrypted programs, data transmission, services as HDTV (digital television standard supporting a format that allows high quality transmission and higher resolution than the traditional analogue or digital TV standard) and video on demand. Besides the analogue, an increasing number of companies providing services over cable network offer digital reception of television programs by subscribers as well. The number of the latter increased almost 3 times in 2007 and formed more than 13 percent of the total one.

In 2008, the volume of the fixed satellite networks market segment grew twice compared to the previous year, and amounted to BGN 69.90 million. This growth was due mainly to the sustained increase of annual revenues from providing satellite digital television and radio to end-users - in 2008, the revenues from this service reached BGN 62.44 million, which in absolute terms represents BGN 33.01 million more than in 2007.

About 93 percent of the revenues came from services provided to end-users and 7 percent - from wholesale services, as revenue from providing satellite digital television and radio to end-users covered 89 percent of the total segment.

The number of undertakings licensed to provide public electronic communications of that segment remained the same as in the previous year - undertakings authorized to provide public electronic communications services through networks of fixed satellite radio service this year were 10, and undertakings licensed to provide "access to satellite systems" services - 4. In 2008, the CRC did not issue licenses to new undertakings, according to the LEC, and no notifications of new undertakings for carrying out public electronic communications service "access to satellite systems" were made.

In 2008, the volume of the "data transmission and Internet access services" market segment amounted approximately to BGN 281 million, marking an increase of 33 percent compared to the previous year. The number of subscribers to ADSL services has increased by 50 percent. According to CRC data, the broadband penetration among the population in Bulgaria, at the end of the year, was 11.2 percent.

At the end of 2008, five companies held licenses for building a point-to-multipoint network with national coverage, using WiMAX technology. Four of them actually operated in the market - MAX TELECOM OOD, TRANS TELECOM EAD (using the 1One trademark), NEXCOM BULGARIA EAD and MOBILTEL EAD (with M-Tel trademark). In 2009,

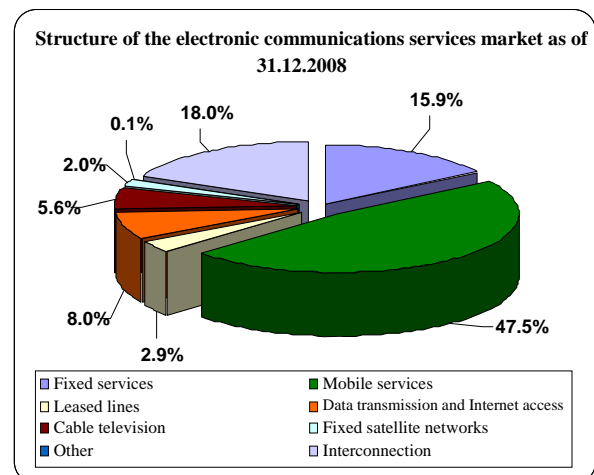
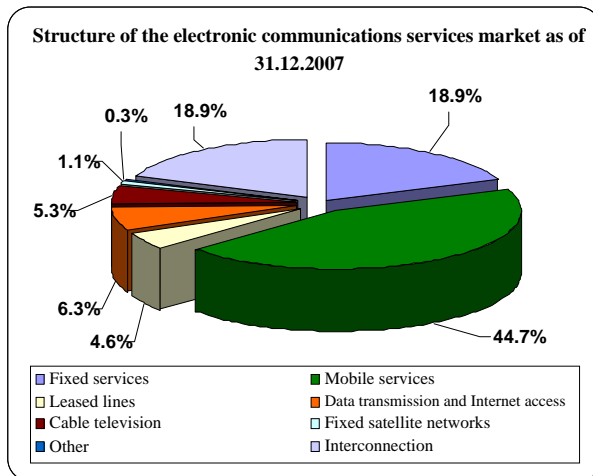
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<sup>30</sup> It includes the revenues from providing a basic program package, including additional package and encoded programs, as well as bundled services, including Double play (cable TV and Internet), Double play (cable TV and voice transmission) and Triple play.



CARRIER BG AD is also expected to start offering services through its WiMAX network. Total revenues from the provision of broadband Internet access, voice services, and others, through this type of networks still represent a small proportion of the total revenues of the entire electronic communications market.

The next figures present the individually differentiated segment of interconnection within the overall structure of the electronic communications market.



Note: The revenues from the implementation of physical interconnection (ports, lines and points of connection), termination of traffic (originating from fixed/mobile undertakings and WiMAX networks in the country and abroad, including SMS and MMS traffic), carrier selection, transit traffic and collocation are included in the calculation of the interconnection segment volume.

*Source: Data submitted to CRC*

**Figure 11**

**Figure 12**

In 2008, the variation in revenues volume generated from interconnection was insignificant, and by the end of the year recorded a growth of only 0.3 percent. The structure of the segment itself also remained relatively stable - the share of revenues from interconnection of the undertakings providing fixed-line networks and services increased by 2 percentage points, and for the appropriate services provided via mobile terrestrial networks this indicator decreased respectively by 2 percentage points. This decrease was due to the traffic closure within the individual networks, on the one hand, and to the measures taken by CRC to reduce price of termination in individual mobile networks, on the other. Generally, the share of revenues from interconnection in the total volume of the electronic communications market was estimated at 18 percent.

The total amount of investments made in building and maintaining networks and development of services declared by undertakings engaged in electronic communications, in 2008, amounted to about BGN 794 million, which represents a decrease of nearly 25 percent compared to the previous year. In 2009, companies plan to invest in the sector just over BGN 757 million.

## 5. Prospects for the development of the Bulgarian electronic communications market

In 2008, the CRC took steps, the results of which are expected to have an impact on the Bulgarian electronic communications market in medium term. One of them is related to the expected successful completion of the first round of market analysis and the implementation of specific obligations on the undertakings with significant market power on the relevant

markets, which will result in the achievement of more effective competition in the electronic communications market.

In 2009, it is expected that the mobile number portability, launched in April 2008, will gain greater visibility, and the fixed number portability will be launched as well. Expectations show that number portability will boost competition among undertakings offering fixed and mobile telephony services.

Probably, the consolidation trend in the electronic services market, started in the last few years, will continue with mergers and acquisitions between companies providing cable television services and Internet access.

In recent years, an increasing penetration of broadband services was observed, as the extent of their penetration in Bulgaria was already over 10 percent, and the penetration per household was approaching 30 percent. Market trends envisage that the country will reach the average values of broadband penetration in the European Union (22.92 percent as of January 1, 2009), in the next few years. According to Pyramid Research forecasts, the penetration of broadband Internet access in Bulgaria will reach 28 percent by the end of 2013. The largest growth is projected for the DSL access, as its subscribers are expected to increase more than 3 times in a six-year period. The expectations for broadband Internet access growth in Bulgaria are based on the fact that many new networks are established and existing ones - modernized, as ultimately this will reduce the so-called "digital gap" and the lagging behind of the country compared to EU countries as per this indicator.

Internet usage in the country will continue to increase alongside the increasing supply by cable operators of double (cable television and high speed Internet) and triple play service offers (cable television, fixed voice telephone service, and broadband Internet). Besides the more popular Double play and Triple play bundles of the cable operators, the network operators for data transmission are likely to offer similar services in their Internet, VoIP telephony, and IP television variety as well.

The provision of VoIP telephony in Bulgaria is expected to be developed; this telephony is already widespread in many European countries. The growth of this service (both per number of subscribers and per revenues from this segment) offered by alternative operators in the country will persist and even accelerate in the next few years.

The global trend of increasing usage of mobile Internet (albeit slowly) is observed in Bulgaria as well. It is expected that the market of electronic messages exchange sent by wireless devices, as well as the mobile television and navigation services (and other new services) will also increase.

The launching of the fifth WiMAX operator is expected, although the deterioration of the economy affects the investments in this segment too. Future market development of services provided through point-to-multipoint networks is related to the active search of a market niche in the provision of both mobile and broadband Internet access. Attracting new subscribers could transform the wireless high-speed Internet access in a real alternative to DSL, cable, optical and broadband LAN Internet access.

Subject of attention, in short term, continues to be the transition from analogue to digital radio and television broadcasting, which should be completed by 31.12.2012. The transition to digital broadcasting requires the preparation of the legislative framework, the provision of necessary technical infrastructure, the public awareness rising campaign related to the devices/receivers through which digital TV services can be provided, etc., can be provided. In addition, the transition to digital broadcasting is associated with making available scarce resource - radio frequency spectrum (the so-called "digital dividend"), which will bring new opportunities for the communication business.

The impact of the global economic crisis on the electronic communications market in Bulgaria is expected to be controversial. In Western Europe, since the end of the last year, a serious decline in mobile phones sales was reported, which affects the industry. At the same time, a tendency is observed, where, namely under crisis conditions, the priority investments are made in building and strengthening of infrastructure, including telecommunications networks. Thus, the development of the electronic communications sector as an engine for overall revitalization and stabilization of the global and national economies is a positive prospect.