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# I. CONDITION, DEVELOPMENT AND PROSPECTS OF THE TELECOMMUNICATIONS MARKET

## 1. CHARACTERISTICS OF THE TELECOMMUNICATION SERVICES MARKET

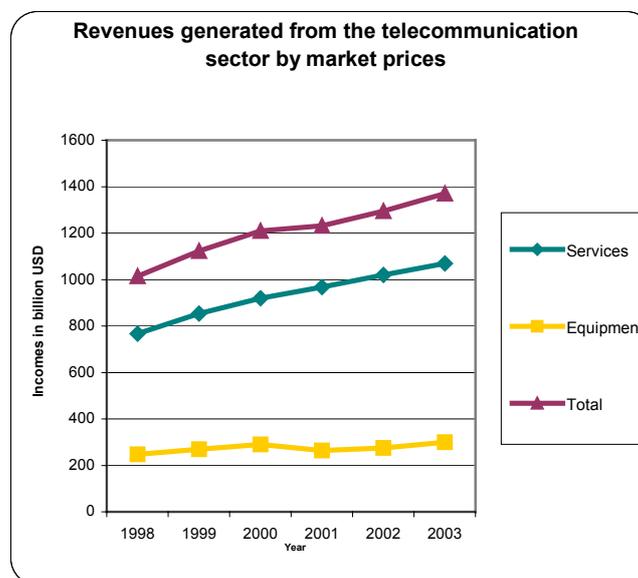
### 1.1 Global development

In the course of the past 2003 the telecommunications sector managed to stabilize itself and it is about to overcome the crisis it entered in 2000 and that was caused by the exaggerated optimistic expectations for a fast growth of the telecommunication services business.

Following several years of large scale restructuring and rationalization including personnel cut-downs, expenses limitation, writing off assets and sales of assets at lower prices, at the end of 2003 the large companies in Western Europe and North America have covered to a considerable extent their losses and now focus their attention on their core business – the provision of telecommunication services.

The long lasting trend of increasing the telecommunication sector's revenues is continuing on a global scale. According to the forecast data of the International Telecommunications Union (ITU) for 2003 the revenues calculated by market prices are leveling up to approximately 1,3 trillion US dollars. The increase of revenues from the telecommunications services for 2003 keeps its pace of the last years and amounts to 5% annually. The growth is unsteady with the revenues generated from equipment and installations and is closely related to the current state of the sector. In 2001 at the height of the crisis the growth is negative and reaches - 9%, and in 2002 it is around 4%. In 2003 a strong growth of around 9% is reported, which is indicative for the sector's stabilization in the prior year. It is expected that in 2004 the American companies will increase their investments in equipment and installations – for the first time since 2000.

The growth of the sector for the past six years is shown on the chart below:



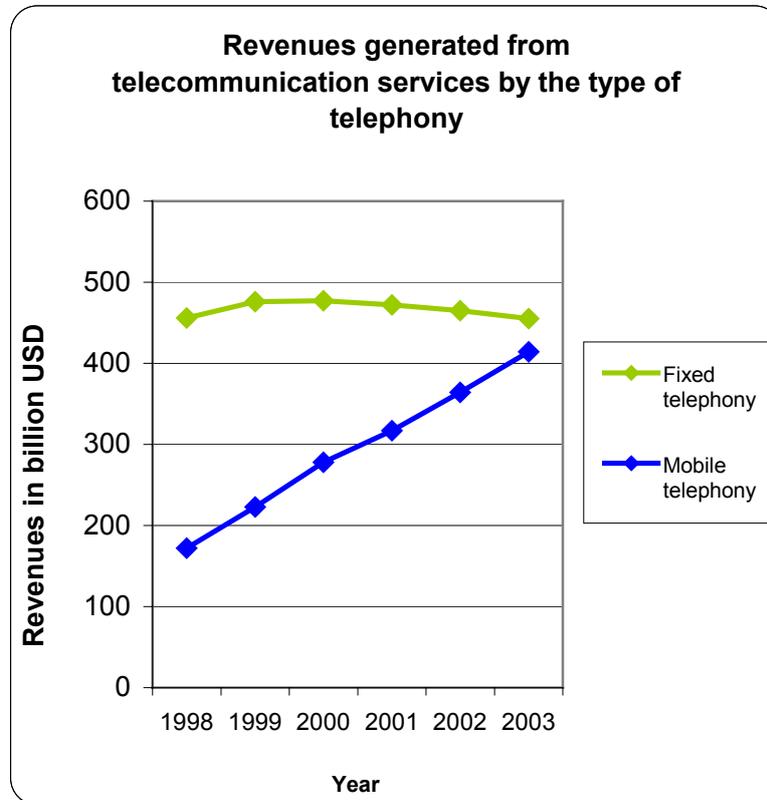
Source: ITU

Figure 1

Regardless of the hopeful stabilization of the sector as a whole, a number of problems still stand before the former incumbents of the fixed voice telephone service. Their main business – the provision of fixed voice telephone service is declining. Although the revenues from fixed telephony have larger share of the telecommunications market, a clear negative trend is apparent in the last three years. Moreover, the rates of drop are augmenting: while in 2001 the growth has been -1% in absolute value, it is already -1.5% in 2002 and reaches up around -2% in 2003.

Some countries are an exception of the common trend. For example, in 2003 the United Kingdom registered a growth in the revenues gained in the fixed voice service. The increase was

due entirely to the traffic rise of the non-geographic calls or raising the consumption of dial-up Internet access, the increase of traffic of calls to mobile operators and enhanced use of complementary services.<sup>26</sup> It is indicative that by the end of 2002 the traffic volume of dial-up Internet access is already bigger than the traffic generated by the conventional voice service<sup>27</sup>. At a global scale the operators of fixed networks may rely basically on raising their revenues from data transmission services, which may not compensate for the time being the common decline of their core business.



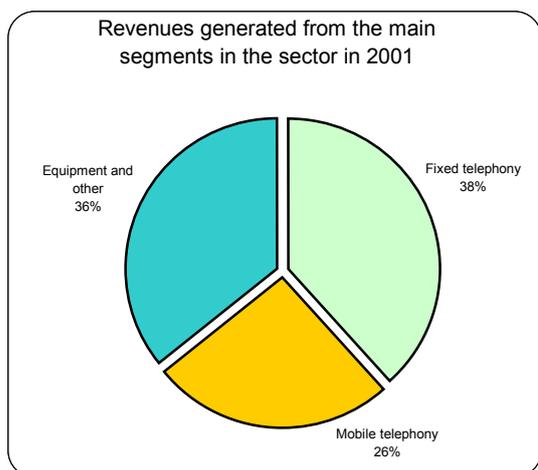
Source: ITU

Figure 2

The negative development presented as a percentage of the total sector share is even more salient. For two years, from 2001 until 2003, the share of revenues from fixed voice services has shrunk from 38% to 33% of the total revenues gained in the sector.

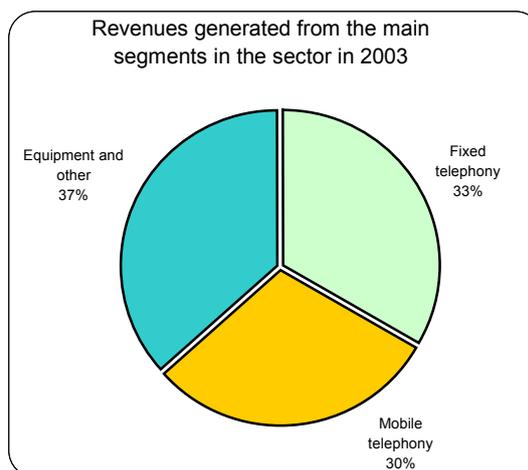
<sup>26</sup> Source: Ofiel, Annual report 2003

<sup>27</sup> One of the main reasons for this is the obligation imposed by the regulator to the British Telecom FRIACO (flat-rate Internet access call origination). It allows the providers of services for Internet access to offer unlimited dial-up Internet access using the infrastructure of BT



Source: ITU

Figure 3



Source: ITU

Figure 4

First of all, it is due to the impetuous development of the mobile operators whose revenues in the last three years have been increasing within the bounds of 13 - 14% on an annual basis. A clear tendency is available of a transition from a fixed voice service to a mobile voice service. Increasingly, people in the developed countries speak less on fixed telephones and waive the possession of a second fixed line at the expense of mobile telephones. In Europe the revenues of the incumbents marked a drop of around 2,5% in 2003, while in the USA the decrease was even higher – 7%. This substitution of one type of communications with another is pronouncedly expressed in Finland where presently one third of the households have no fixed telephone, while 94% of the households used to have one in 1990. This is partially a result of the very good coverage provided by the mobile operators even in the most remote regions of the country.

In most of the countries from Central and Eastern Europe – Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Slovenia and Slovakia, still at the end of 2002 the market share of the mobile voice service exceeded that of the fixed voice service.<sup>28</sup>

The other basic ground for the decreasing revenues of the companies – former incumbents is the strengthened competition by other operators who also offer fixed voice service using part of the infrastructure of the same former incumbents. For example, in the USA, at the end of 2003 the new operators have succeeded to take away over 10% of the market from the incumbents.

Among the countries of Central and Eastern Europe only in the Czech Republic and Poland the alternative operators have a considerable market presence, as they own 8,83% and 8,12%, respectively, of the fixed lines in their countries.<sup>29</sup> In the other countries from the region the share of the newly emerged operators is below 2,3%. To a great extent it is due to the late liberalization of the fixed voice service market, which was realized only in 2003.

In a short-term plan not a smaller threat for the ex-incumbents is the development of VoIP or voice transmission over Internet protocol. Although in embryo yet, the VoIP telephony is expected to grow quickly in the coming several years thanks to the extremely low operational costs and the larger potential opportunities - for example, electronic telephone diaries, accessible to the small businesses and the households, for the calls conducted with every telephone number containing information of the date, duration, topic and/or record of every conversation. Another option is the automatic and consecutive dialing of several telephone numbers (for instance, mobile, fixed and office) until the user gets connected with the person wanted. The VoIP service allows also the possession of a telephone number with an arbitrary geographic telephone code independently of the subscriber's physical location, which may change all the time. In this way, even when the client is in another country and has an access to broadband Internet, the people of

<sup>28</sup> Source: IBM, 4<sup>th</sup> Report on Monitoring of EU Candidate Countries

<sup>29</sup> Source: IBM, 4<sup>th</sup> Report on Monitoring of EU Candidate Countries

his geographic region who are calling him shall pay by local call prices, and his calls shall be included in the tariff of outgoing calls from the respective region of the telephone code.

These are only a part of the options of the VoIP technology, which being based on Internet has the further advantage to be decentralized in contrast to the traditional telephone networks. The introduction of new services is cheaper and is done through programming of new applications; not too large investments are required in the telephone network extensions. On the other hand, the dependence of the VoIP service on the Internet connection's quality restricts the scope of potential users. Another disadvantage is the absence of independent source of electricity unlike the traditional copper networks. Therefore the VoIP technology is vulnerable in case of natural calamity, failure or terrorist act.

In view of minimizing the impact of the VoIP service on their market shares large companies like AT&T, BT, France Telecom, Bell Canada, SBS, Verizon, began offering it only last year. In 2003 the market of VoIP equipment has increased by 21% and a more dynamic growth is expected in 2004. For the present, one of the biggest obstacles to the development of VoIP services is yet the lack of a widely distributed broadband Internet access. Except for countries like South Korea, Hong Kong and Japan, with respectively 23,5%, 15% and 11% of penetration among the population, its penetration in the most developed countries was below 10% for 2003. In USA it is approximately 8,7%, while in Germany and Great Britain it is respectively only 5,53% and 5,39%<sup>30</sup>.

For the large companies disposing of a broadband access and using their telephones mainly for internal or inter-company communication, the VoIP is a way to lower considerably their costs. Although only 2% of the companies in USA are using VoIP in 2003, indicative for the future of this technology is the decision of a giant like IBM to transfer 80% of its employees (around 300 000 people) to VoIP lines by 2008.

The competition of VoIP, mobile telephones and alternative operators of fixed voice service incites the incumbents to a change of their price strategies. A tendency exists to higher monthly fees and lower tariffs for a one-minute call. The objective is more competitive prices per minute call and simultaneously, keeping the revenues levels for a decreasing volume of calls made. Some operators even renounce charging call times and offer unlimited voice service use against a higher fixed monthly fee. In 2003 such price strategies were diffused mostly in North America but also, although to a lower extent, in Great Britain and the Scandinavian countries. The companies count on the simplicity and the easy costs prediction with such fees that could make them attractive for part of the users.

Notwithstanding the decline of the fixed voice service market and the loss of clients in the increasing competition and the new substitutes of the traditional telephones, opportunities for growth exist for the incumbents. Although, their extensive copper cablebased cost-consuming networks, accessible to a great number of households, businesses and organizations are an advantage of the fast developing market of data transmission. The xDSL technology allows using the existing copper networks for broadband Internet access at competitive prices. Investments are needed for the purpose in additional equipment in the telephone exchanges of the incumbents and installation of DSL modems with the users. By doing so, the extremely expensive substitution of the network itself shall be avoided. The DSL technology uses the free frequency capacity of the copper telephone cables and the result is a permanent Internet connection, as well as an opportunity for a simultaneous and independent use of the traditional telephony and access to Internet.

Until recently on a world scale many of the incumbents delayed the introduction of a DSL service or used to offer it at very high prices aiming to justify their investments in the older and expensive technologies for Internet access as ISDN and frame relay. But the continuing liberalization of the telecommunication sector with the introduction of unbundled access to the local loop forced the former incumbents to alter their strategies. Threatened by the move of users to alternative operators offering DSL, by using already their own infrastructure, the incumbents focused their attention on the DSL service development. In some countries like USA the cable

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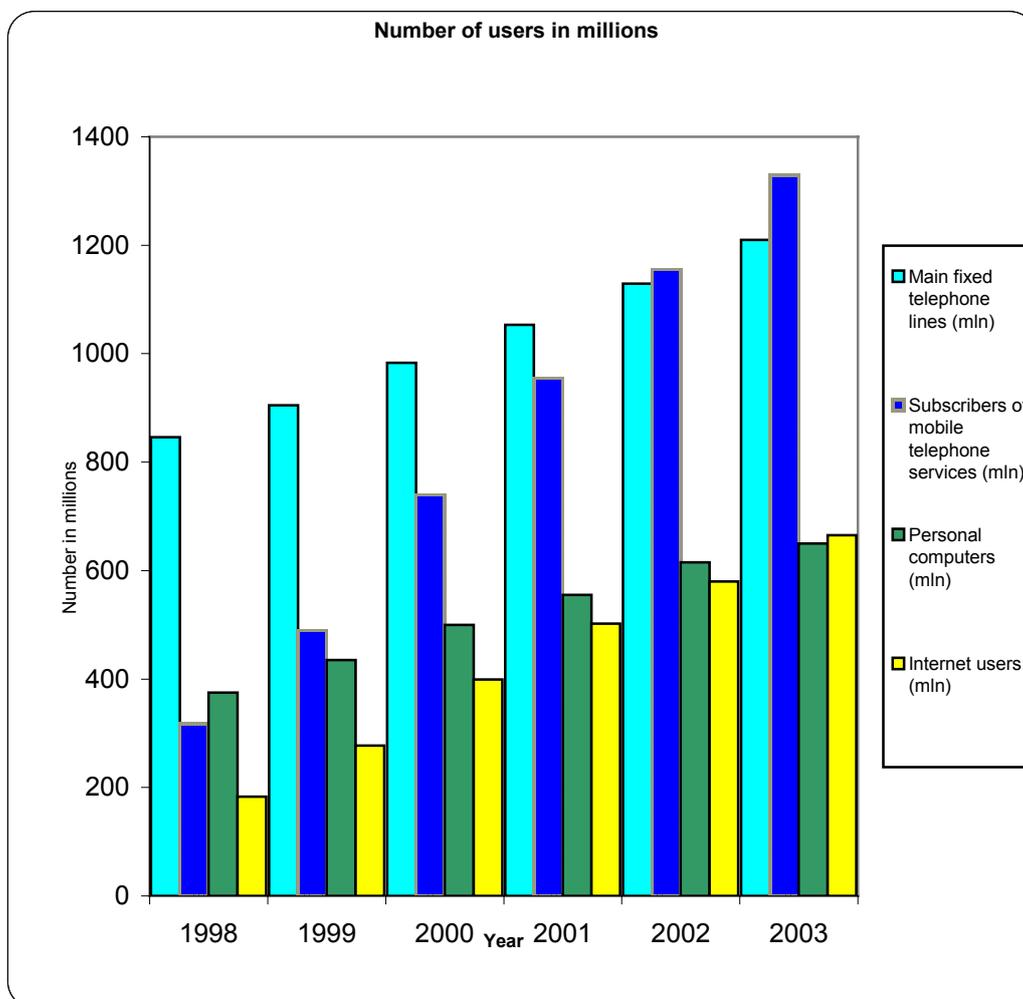
<sup>30</sup> According to Point Topic analysis group

operators also contributed to this development offering broadband Internet access via their cable networks in competition with the DSL technology. Besides this, the former incumbents consider now the supply of DSL service also as a way to keep clients who otherwise would refuse the fixed voice service.

As a result of this competitive pressure and of its technical advantages the DSL service turned into the most diffused broadband access to Internet and still continues developing at accelerated rates. In 2003 the growth of DSL lines on a world scale is 78%, and at the end of the year the number of subscribers reached 63,8 millions, half of them living in the Far East<sup>31</sup>. The growth in most countries of Western Europe is within 40% - 60%, and in some countries of Eastern Europe<sup>32</sup> it is over 60%.

The impressive development of DSL in 2003 wasn't enough to compensate the reduction of the incumbents' revenues. Still 70 - 90% of the revenues of most fixed operators are owed to the provision of the voice service and the challenges mentioned above remain. A difficult and continued restructuring lies ahead, as the broadband Internet access remains a basic possible driving force for growth.

In 2003 continued the tendency of increasing the number of users of telecommunication services. The growth of the number of fixed main telephone lines is maintained within the limits of 7% in the past years. Although at a slower pace compared to previous years, the number of mobile operators' subscribers continues its considerable rise – the increase for 2003 is 15%.



Source: ITU

Figure 5

<sup>31</sup> Source: Point Topic

<sup>32</sup> Poland, Slovenia, Czech Republic and Hungary

This impressive growth is unevenly distributed among the different regions. In the markets already saturated with mobile telephone services like the European Union, as well as in Japan, South Korea, Taiwan, Singapore, the increase is poor. Because of the fact that the mobile telephone penetration in these countries goes beyond 80% of the whole population, the potential for further growth is almost depleted.

At the same time in the developing countries with growing economies, relatively weak mobile telephone penetration and underdeveloped fixed networks, the number of mobile telephone operators' subscribers marks the biggest growth. For example in China, which became the largest market of mobile services, the growth in 2003 was approximately 30%<sup>33</sup> and the subscribers increased with around 5 millions per month. Nevertheless, the mobile density in China remains relatively low – only 18 - 19% and is unevenly distributed in the different provinces. The growth in Africa is also about 29%<sup>34</sup>, while the mobile density is only 6%, which on the other hand is twice bigger than the distribution of fixed telephone lines.

Central and Eastern Europe is the fastest developing market of mobile services in 2003, as only by October 2003 the growth has been 29%, or new 22,5 millions consumers, the basic part of them in Russia.<sup>35</sup> The total number of mobile services subscribers in the region is over 100 millions by October 2003, which is twice as much in comparison with the end of 2001. As a percentage of the total subscribers number on a global scale the share of Central and Eastern Europe is 7,7 %; of Western Europe and North America –27% and 14%, respectively.

Most mobile operators in the developing countries have focused their attention predominantly on the attraction of new subscribers and on the extension of their capacity and network coverage. Because of the non-depleted opportunities to increase the mobile telephone penetration in these regions the companies are aiming to raise their revenues by attracting new clients.

In comparison, the penetration of mobile services markets in Western Europe and countries like Japan, Taiwan and South Korea does not allow such extension. Therefore, the companies operating on these markets are striving for increase of the average monthly revenues from the existing clients. Since the potential for growth of the voice traffic volume is limited to a certain extent, the attention is directed to offering new services including data transmission.

Companies hope that the enormous success of the short messages (SMS) is an evidence of the consumers' readiness to use their telephones also for other services than voice. The SMS service established itself on the market in the last years unexpectedly for the operators and turned into a considerable part of their business. In 2003 the SMS service, together with the melodies and logos based on SMS, generated revenues for the operators of nearly 40 billions USD. At the same time the SMS messages burden minimally the mobile networks, which makes them extremely attractive for the operators. Only in the USA the SMS is not widespread and accordingly, it is not a "golden mine" for the operators. It is due partially to incompatibility between the different types of mobile networks, which does not allow subscribers of CDMA network, for instance, to send successfully SMS to subscribers of GSM or TDMA network. On the other side, SMS is not that attractive in the USA also because of the strong competition with the fixed networks: the mobile operators are forced to offer a high number of minutes in off-peak time at a very low price. Apart of this the SMS service has not managed to turn into a fashion in the USA and the most Americans consider SMS writing as too much effort consuming in comparison with the Internet based computer programs for messages.

After the euphoria and the subsequent downfall of the business strategies propagandizing the opportunities of 3G technologies, the mobile operators modified their messages to the users. The focus in 2003 was on the supply of new services and not new technologies. Most 3G networks launched in the last year were not presented to the clients basically as third generation networks but as a package of new services, as sending of pictures and games access for example, which are not offered by the other operators. Only certain models of mobile telephones offered solely by the given operator may attain access to these new services. These telephones are manufactured

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<sup>33</sup> Source: Ministry of information industries, China

<sup>34</sup> Source: Forecast data of ITU

<sup>35</sup> Source: Baskerville

especially for the needs of the operator and have different functions, menus and outer appearance than the others.

This differentiation, as well as the strong market presence of the large operators, like NTT DoCoMo, Vodafone, Verizon Wireless and other lead to strengthening of their positions versus the mobile telephones producers. The producers' trademarks lost part of their significance in 2003. Although they are still decisive in purchase in most cases, a trend is at hand, in which the operator's trademark starts becoming more and more important. The large operators sell already telephones, on which their trademark is inscribed, while the very producer remains unknown for the consumer. The producers with the strongest trademarks "Nokia" and "Motorola" lost at most. At the same time the Korean producers "Samsung" and LG, which are ready to accept the new operators' conditions, are succeeding to increase their market share. For 2003 the Asian producers' share on the mobile telephones market was 28,3%, while it has been 25,4% in 2002, which is equivalent to an increase of over 11%. In the meantime, for the same period the European producers' share has fallen down from 52,6% to 51,4%.<sup>36</sup> The American giant Motorola registered the biggest decrease – from 16,9% for 2002 to 14,5% for 2003.<sup>37</sup> The total number of sold mobile telephones in the world in the past year is approximately 471 millions<sup>38</sup>, the major part of these sales owed to people who substitute their old telephones with new ones.

In spite of the GSM operators' ambition to enlarge the data transmission market and the enormous amounts paid for 3G licenses, only a small part of them put into operation W-CDMA networks in 2003. The reasons were doubts regarding the level of consumer interest, technical problems, and the shortage of financial resources in some operators. Also problematic was the backward compatibility similarly or the possibility to use the new W-CDMA mobile telephones in the present GSM networks. It didn't allow the gradual building of the new networks and smooth migration from one technology to another. For these reason at the end of 2003 the number of users of W-CDMA worldwide was only 2,6 millions or only 0,2% of all mobile subscribers<sup>39</sup>, most of them living in the Far East.

In a striking contrast to the problems with the launching of the W-CDMA networks the competitive 3G CDMA2000 technology does not meet major technical difficulties in 2003 and backward compatibility is available with it. Financially stable operators staked on it, which managed to attract a considerable number of consumers. Because of their non-involvement in tenders for W-CDMA licenses the operators that stake on CDMA2000 are financially stable and succeed to attract a good number of consumers. Being roughly 31 millions at the end of 2002 the clients of CDMA2000 1x networks have increased to 84 millions at the end of 2003 or 2,7 times. Besides the subscribers of CDMA2000 1x EV-DO<sup>40</sup> were approximately 4 millions at the end of 2003.

Despite the great success of CDMA2000 in the past year, it is expected in a short-term plan that the technical problems connected to W-CDMA will be overcome and that it will turn into the dominant 3G technology. The reason for this is the huge market share of the GSM operators on a world scale. It is awaited that all of them will build up gradually W-CDMA networks.

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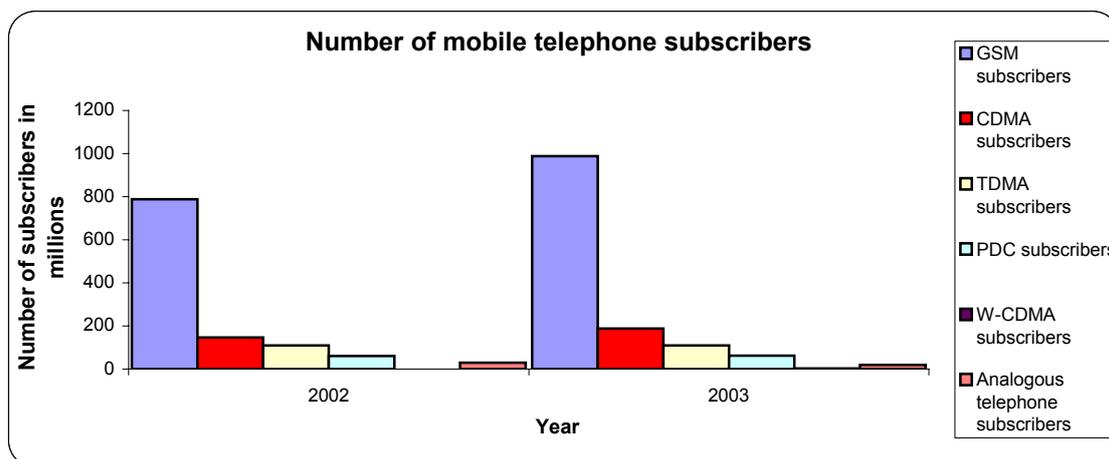
<sup>36</sup> *Source: Strategy Analytics*

<sup>37</sup> *Source: Gartner*

<sup>38</sup> *Source: Nokia*

<sup>39</sup> *Source: EMC*

<sup>40</sup> *Second stage of CDMA2000, allowing a faster data transfer than CDMA2000 1x*



Sources: CRC, EMC, CDG

Figure 6

At the end of 2003 the number of subscribers of GSM networks was 988 millions or 72% of all mobile telephone users. The clients of the GSM operators have increased with 200 millions<sup>41</sup> in a year, which is equal to a growth of 25,5%. In comparison: the subscribers' number of all generations CDMA at the end of 2003 is 189 millions<sup>42</sup>, i.e. an increase of 49.9 millions is apparent or 28,6% versus the previous 2002.

Another interesting tendency for 2003 is the continuing decline of the analogue mobile telephones, where the number of subscribers marked a decrease from 30 millions to 20 millions, or about 33%.

## 1.2. Structure and volume of the Bulgarian telecommunications market

In accordance with 2002, two approaches were used to measure up the volume of the Bulgarian telecommunications market in 2003 - with the first one the telecommunications market is segmented in three out of the four major shares according to the European monitoring methodology<sup>43</sup>, composed of the revenues of the licensed telecommunication operators from:

- Supply of fixed telephone services through fixed telephone networks;
- Supply of mobile services through mobile telephone networks;
- Supply of "leased lines" and data transmission services through public telecommunication networks;
- Supply of the Internet access services through the public switched telephone network.

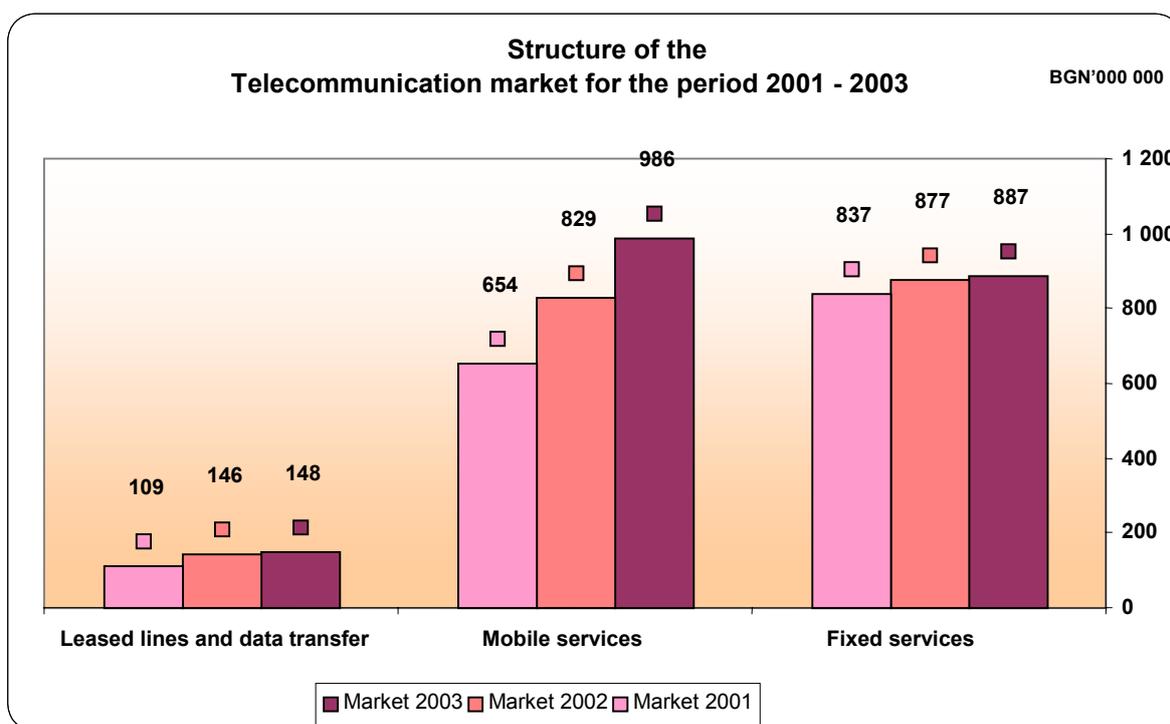
The share of revenues from dial-up Internet access by means of the public switched telephone network cannot be presented separately in the structure of the Bulgarian telecommunications market. The dial-up access to Internet is included in the total share of the fixed telephony.

The modification of the structure of the Bulgarian telecommunications market for the period from 2001 till 2003 is presented at figure 7.

<sup>41</sup> Source: EMC

<sup>42</sup> Source: CDG

<sup>43</sup> Monitoring of EU Candidate Countries – Telecommunication Services Sector – project of "Information society" Directorate of the European Commission for evaluation of the telecommunication markets state and progress in the EU Candidate Countries



**Source: CRC**

**Figure 7**

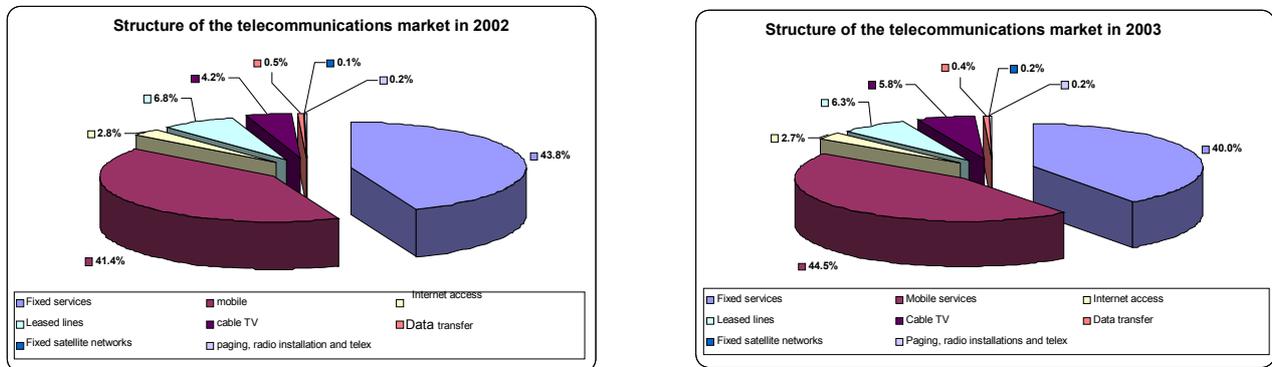
The basic trends in the market development in the last years may be followed based on the analysis of the dynamic in the structure of the particular segments. The share of mobile services continues to grow in absolute value and the volume of fixed services is falling down. The leased lines and data transmission segment maintains a comparatively constant share. Saturation on the Bulgarian market has not occurred yet in the consumption of telephone services and still a considerable consumer's demand and supply of broadband services are lacking. The still low mobile telephone penetration may also be noted (45% at the end of 2003), which remains for the present incomparable to the levels of 70% - 80% in the EU countries, regardless of the 10% growth for one-year period. Expected natural development in the next years will be slowing the pace of growth of the mobile service segment and consumption rise of services for Internet access, data transmission, especially after the introduction of a regulatory policy for unbundled access to the local loop.

As far as last year marked the end of the preparation for accession to the European Union (EU) of ten out of the thirteen candidate countries, the project of the European monitoring of the candidate countries was completed in December 2003, and the last (fourth) report contains data of the Central and Eastern Europe (CEE) telecommunications markets volumes as of June 30, 2003. For this reason data are missing currently for the end of last year and this year's juxtaposition with the CEE countries for the past one year is impossible as regards the increase of revenues from telecommunications activity.

With the new European regulatory framework in the EU countries a definition is introduced of the electronic communications services market as neutral in respect to the specific technologies for telecommunication operations. Now, included already in the volumes of the telecommunications services markets of the EU countries are also the revenues of cable television networks operators, revenues from supply of Internet access and on-line services. The electronic communications market volume calculated this way by preliminary data for the countries of the EU for 2003 amounts to EUR 251 billions, which represents an increase between 4% and 5% compared to the previous year<sup>44</sup>.

<sup>44</sup> According to data from the 9<sup>th</sup> Report on the Implementation of the EU Electronic Communications Regulatory Package

With the purpose of juxtaposition with the new European trends and a more comprehensive analysis of the Bulgarian telecommunications market volume, CRC studies also the development of the segments – cable television, fixed satellite networks, paging services and provision of the Internet access service. In this approach the market volume for 2003 amounts to BGN 2,215 billions or EUR 1,133 billion, which represents an increase of 10,7% compared to the previous year.

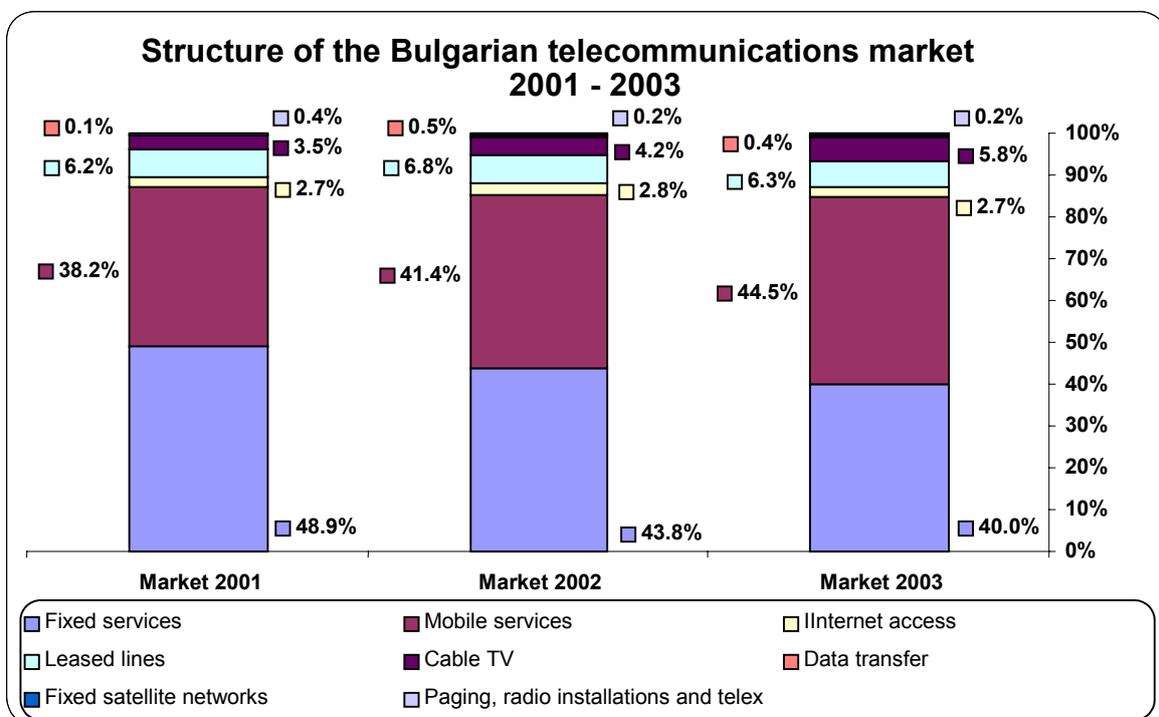


Source: CRC

**Note.** In the data for the fixed telephone services segment's volume in the CRC report for 2002 have not been included the revenues of BTC PLC from value added services and international calls termination in the operator's network. These revenues are included in the charts above for both years.

Figure 8

For third consecutive year the volume of the Bulgarian telecommunications market made up about 6% of the total value of the GDP of Bulgaria for the respective years leaving behind both the GDP growth and the gross added value growth – as a total, as well as for the sector of services. The market restructuring in the last three years may be followed on the figure below.



Source: CRC

Figure 9

Since the activity in Bulgaria on the provision of Internet access services is based on a free regime, the exact determination of the "Internet access" segment's size is impossible. According to

an expert evaluation of CRC based on the feedback from 92 operators providing Internet access, 40% of which are licensed to perform other telecommunications activity, the volume of revenues from the provision of this service in 2003 amounted to BGN 59 millions, which is an increase of 3% compared to 2002.

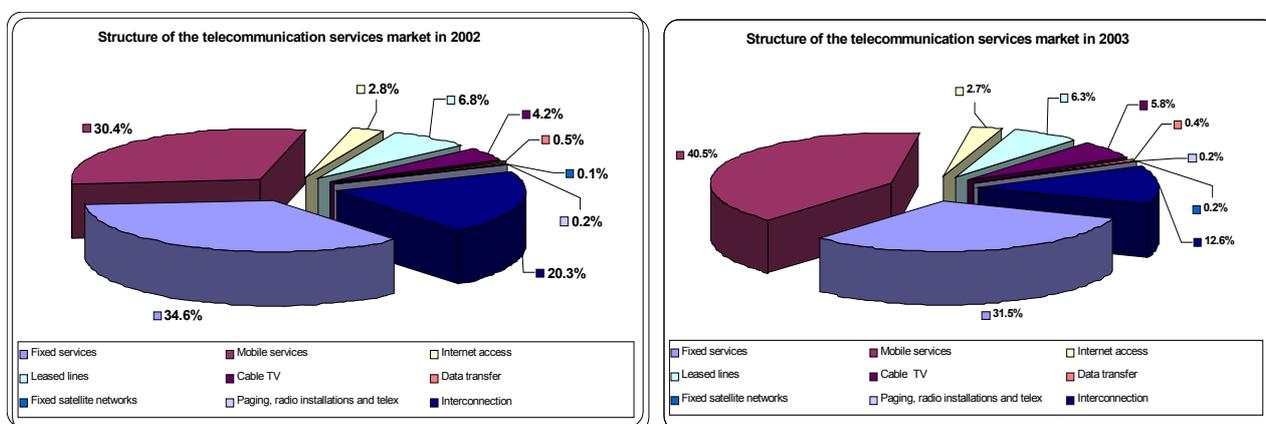
As mentioned the tendency of raising the volume of revenues from mobile services is going on. The data submitted to CRC for BTC PLC revenues from fixed telephone services in 2002 have not been comprehensive in terms of the value added services and the incoming calls from international operators. When correcting the data for the present analysis, structurally in 2002 the share of fixed services was still slightly higher than the share of mobile ones. The fixed telephone services' share yields already to that of the mobile ones in 2003, in accordance to global trends of telecommunication market development. The presence of the market leader "MobilTel" EAD, as well as of the second GSM operator "GloBul", continued growing more and more in the past year. The market of prepaid mobile services and value added services is continuing its development, new services are introduced based on *GPRS* technology. As a result in 2003 the mobile services market has grown by 19% compared to 2002.

Although at a slower pace the volume of the "Leased lines" segment is continuing its growth. The increase of only 1,5% is due to the fact that despite the BTC PLC monopoly dropping out at the end of 2002 and the licensing of 4 new operators of fixed satellite networks and of the three mobile operators to provide this service, there is solely the BTC PLC to offer actively the service and to make major profits of it.

Evaluation of the profits coming from the distribution of radio and television signals through cable telecommunications networks was made on the basis of 43% of the licensed operators. In 2003 the trend of capital concentration and merging of trade companies is continuing, which is a precondition for expanding the investment opportunities, improving the service quality and improving the operators' performance. 245 new licenses were issued during the year. The rise of 52% in the volume of revenues for 2003 compared to 2002 is owed to the increased supply of services through the cable network. The consumption of cable television is increasing in all regions of the country and the total number of subscribers has grown up by 43%.

The revenues from the provision of fixed telephone services increased insignificantly by 1 % versus the revenues for 2002. Included in this volume are the revenues from telephone services provision – automatic, through an operator and from payphones; interconnection with the mobile operators networks; facsimile and telex services; value added services. None of the licensed five new operators of fixed telephone networks has provided fixed telephone services in 2003.

It has been impossible in the calculation of revenues from voice services provision for 2002 to set apart the revenues from traffic termination for the interconnected operators providing voice telephone services, and by that reason the operators' revenues from traffic termination were also included in the market volume of BGN 1,8 billion mentioned in the report of CRC for 2002. As a comparison on figure 10 below is shown the structure of the telecommunication market in 2002 and 2003 with a differentiated share of the revenues from interconnection.



Source: CRC  
Figure 10

The real volume of the eight segments, included in the telecommunications market, recalculated after deducting the pay-offs for termination of traffic with operators in the country and abroad, represents BGN 1,936 billion and has grown by 21% compared to 2002, when it has amounted to BGN 1,594 billion. The share of interconnection in 2003 has decreased by 31% in absolute value versus 2002. It is due to the fact that the calls of subscribers of one network to the subscribers of another network are decreasing. Increasing are only the calls to "Cosmo Bulgaria Mobile" EAD, which is still in process of development. The trend of terminating calls of mobile subscribers in the mobile networks is strengthening. More and more rarely traffic generated in a fixed network terminates in a mobile one and vice versa.

The investments made by the major telecommunication operators for building and maintaining the networks and for services development in 2003 amount to BGN 606 millions. The decrease of 27% compared to 2002 is due mainly to the abrupt reduction in the amount of investments made by "Cosmo Bulgaria Mobile" EAD, which built up its mobile network entirely. Digitalization of the fixed telephone network of BTC PLC still continues, and for the past year the amount of investments made has increased by 40%.

### **1.3. Prospects for development of the Bulgarian telecommunications market**

The major factors, which will continue influencing the development of the Bulgarian telecommunications market are the increase of the consumer's requirements to the choice, quality and price of the services offered, strengthening the competition between the operators and services providers in the conditions of a liberalized market and the penetration of new technologies. With regard to the telecommunication market regulation the major efforts are directed to the establishment of a regulation framework harmonized with the European legislation, which shall stimulate the competition growth and the investments encouragement in the sector, protection of the consumers' interests, stimulating the application of new technological solutions.

In a short-term plan, development is expected of the infrastructure and of the activity of the newly licensed fixed networks operators and competition strengthening in respect to the provision of fixed voice telephone services and leased lines. The forthcoming realization of the further stages of BTC PLC network's digitalization and the provision of unbundled access to the local loop (envisaged for the beginning of 2005) will provide an opportunity to the penetration of broadband services on the Bulgarian telecommunication market.

Next year the intensive development of mobile communications shall continue. The licensing and the start of commercial operation of a third GSM operator and of wireless networks operators on the TETRA standard is expected. The expectations of the issuance of a third generation mobile communications license are rising. By developing the active mobile operators' networks provision of new services has occurred through GRPS technology. The consumer's interest to the mobile telephone services will continue growing and after the market saturation, a natural directing of the demand to high-speed Internet, on-line services and data transfer shall be expected.

## **2. FIXED TELEPHONE NETWORKS AND PROVISION OF FIXED VOICE TELEPHONE SERVICES**

### **2.1. Participants in the fixed voice telephone service market**

Following the expiration of the BTC PLC monopoly since January 1, 2003, conditions were established in the country for the penetration of new alternative operators on the market of fixed voice telephone service.

The CRC issued in 2003 individual licenses for the construction, maintenance and use of a public telecommunication fixed telephone network for the voice service provision to five companies: "Orbitel" EAD, "Globaltech Bulgaria" Ltd, "Eastern telecommunication company" EAD, "Nexcom-Bulgaria" EAD and "Netplus" Ltd. According to the individual license issued to "Globaltech Bulgaria" Ltd, the operator has the right of performing telecommunications activities and providing services only on the territory of Sofia city. The licenses of the other operators are for the territory of the Republic of Bulgaria, such as the scope of BTC PLC license. By the end of 2003

none of the alternative operators had started its activity on the provision of fixed voice telephone service.

## 2.2. Voice telephone services provided by BTC PLC through the fixed telephone network

One of the major investment projects realized by BTC PLC in 2002 is the installation and putting into operation of an intelligent platform developed on the basis of the existing digital telephone network. On the basis of the intelligent platform BTC PLC introduced three new services in 2003: “Universal number 0700”, “Free phone services 0800” and “Prepaid Btcard”.

The “Universal number 0700” service represents a uniform number for the whole country of the “07000 1X XXX” type, and the call costs to it shall be shared between the subscribers of the service and the call initiator.

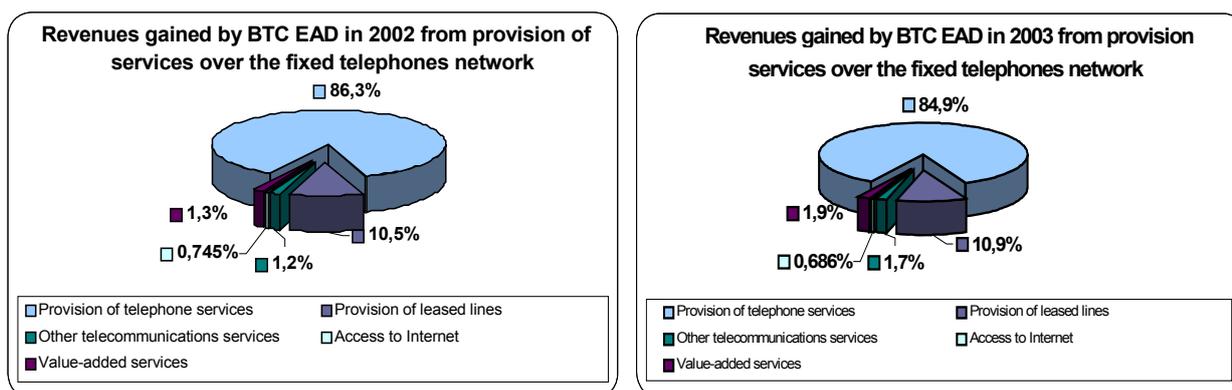
The “Free phone services 0800” service represents a uniform number for the whole country of the “08000 1X XXX” type, and the calls to it are at the expense of the service subscribers, and not of the caller. The service is intended for business subscribers of the company, who provide information of products and services offered, information services or consultation to citizens.

The “Prepaid Btcard” service allows its owner within the prepaid value to carry out local, long-distance, international phone calls, calls to the mobile operators networks in the country and abroad from each telephone in the network of BTC PLC, should a tonal dialing apparatus be available. Except for voice transmission the new service gives an opportunity also for a dial-up access to Internet through PSTN and ISDN. The prepaid cards of BTC PLC are designed for residential subscribers of the company wishing to limit and control their consumption, tenants, guests, who do not wish to charge the telephone account of their hosts, tourists, etc. The major competitors of BTC PLC offering an alternative to the prepaid card are the operators of systems of payphones and the providers of voice telephony over Internet protocol (VoIP).

It is expected in 2004 BTC PLC to expand the range of services offered on the intelligent platform basis. With the coming up of new operators on the market of fixed voice telephone service, and in order to keep the available subscribers and to attract new ones, the company will direct its efforts to offer new high-quality services at competitive prices.

The revenues of BTC PLC in 2003 from the services provided through the fixed telephone network amount to BGN 985 millions and grow in general by 1,9% versus 2002.

The structure of company revenues for the last two years is shown on figure 11.



Source: BTC PLC

Figure 11

The voice telephone service provided by a public switched telephone network has a major relative share in the revenues of BTC PLC (84,9%). Notwithstanding, the company reports a decrease in these revenues in 2003, in their relative share, by 1,4% compared to 2002, as well as in their absolute value, by 0,3%. This change is in high contrast to their 16 percent growth in 2001 versus 2000. It is due in a great extent to the preferences of the consumers who substitute the fixed telephone service with the mobile telephone service, which is becoming more and more accessible and economically advantageous.

An increase can be observed of the revenues in absolute value and as a relative share in the structure of revenues from the provision of the “leased lines” service, from value added

services and from other telecommunication services (radio installations, telex, fax, telephone renaming, etc.). The company revenues from Internet access are diminishing.

### **2.3. Prices and price policy of BTC PLC**

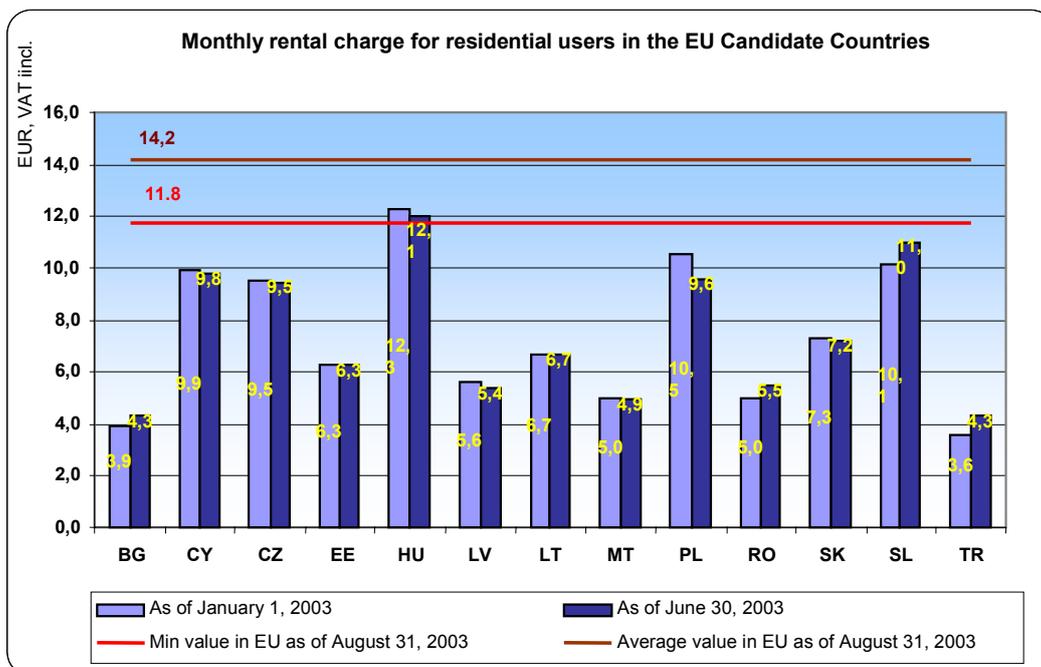
The price policy of BTC PLC in 2003 related to the fixed voice telephone service is directed to:

- Balance the prices of services and non-admittance of cross subsidizing between them;
- Conformity of the prices with the expenses relevant to the service provision in reference to the requirements of the newly adopted Telecommunications Act;
- Maintenance of a reasonable profitability in a long-term plan;
- Maximum approximation of the price levels and ratios to the already existing ones in the European countries with developed competition;
- Set prices of the services offered through the public switched telephone network to such levels that will allow the development of new telecommunications services and their adequate positioning in the "portfolio" of company services.

Regulation of the prices of the fixed voice telephone service since January 1, 2003 is being made through a Methodology of setting prices of the plain telephone service and the leased lines (State Gazette, issue 126 of 1998). After the elimination of the BTC PLC monopoly until the adoption of the new Telecommunications Act (TA) (effective from October 7, 2003) an instrument for regulating the fixed voice telephone service prices is lacking. BTC PLC implemented in July 2003 the only price change for the year of the services provided through the fixed telephone network, and information of these prices was submitted to CRC.

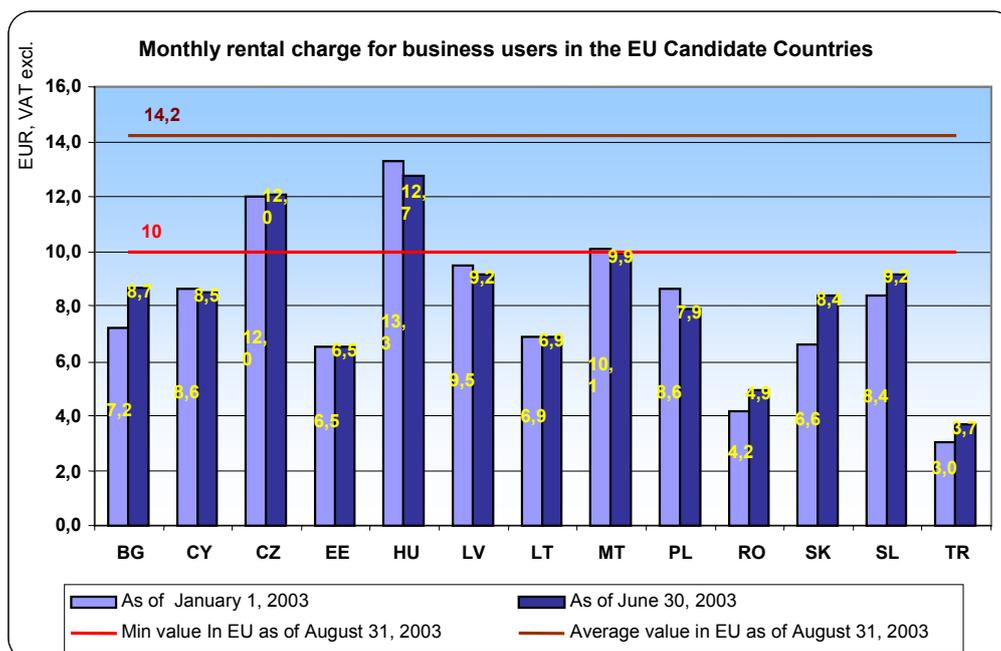
Provided in the new Telecommunications Act is the definition of operators having significant market power on the fixed telephone networks and fixed voice telephone services market. The prices of the fixed voice telephone service offered by operators with significant market power fall under the scope of prices regulated by the CRC. These prices shall be set by the public telecommunication operators in virtue of rules, adopted by a CRC decision, concerning their setting and the costs on the service provision.

The following two figures show the monthly rental prices of the incumbents for residential and business subscribers, respectively in the EU Candidate Countries and the EU Member States.



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCCoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 12**



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCCoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 13**

In all EU Candidate Countries the monthly rental for residential and business subscribers is under the EU average.

We can observe only a slight increase of the monthly rental price for residential users at an average for the 13 EU Candidate Countries. Its average value in the year's outset is 7,36 €, and in the middle of the year is 7,42 €. The monthly rental of business users grows by 3,4% on the average in the EU Candidate Countries for the first six months of 2003.

The monthly rental of the business users of BTC PLC nears the average values for the EU Candidate Countries, and it is the lowest for the residential users yet (its value by June 30, 2003 coincides with the monthly rental value for residential users in Turkey).

After the change of BTC PLC prices in 2003, which is a consecutive step in the process of their rebalancing, the ratio of prices of local, long-distance and international calls varied from 1:15:37,5 as of December 31, 2002 to 1:12,5:25<sup>45</sup> as of December 31, 2003. The average value of this ratio for the EU in 2003 is 1:2,5:5,4.

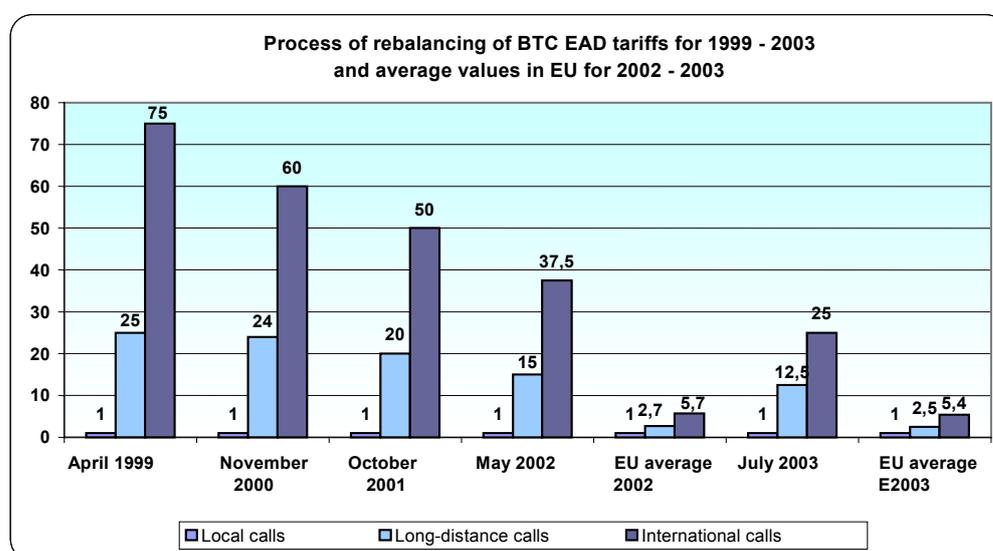
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<sup>45</sup> In prices for a 5-minutes call for digital local telephony; long-distance – at a distance over 100 km in the heavy-traffic hours from 08 till 21 and international – to neighbouring countries.

Table 1

Prices of BTC PLC <sup>46</sup>	Residential users			Business users		
	May 2002	July 2003	change	May 2002	July 2003	Change
Monthly rental	6	7,5	25%	14,75	16,25	10%
1 min. local call	0,013	0,015	15%	0,032	0,036	13%
1 min. Long-distance call	0,15	0,132	-12%	0,159	0,139	-13%
1 min. International call	0,734	0,619	-16%	0,734	0,619	-16%

Shown on the next figure is the modification of the ratio between the prices of BTC PLC for local, long-distance and international calls by a fivefold prices rebalancing for the period 1999 – 2003 compared to the average values for the EU Member States in 2002 and 2003. The rebalancing of prices of the fixed telephone services of BTC PLC finds expression in a rise of the prices of local calls and a price decrease of the long-distance and international calls with the aim of eliminating the uncompetitive cross subsidizing of the services prices. Notwithstanding, the prices of the incumbent<sup>47</sup> in Bulgaria at the end of 2003 are still strongly unbalanced in comparison with the average ratio for the EU.



**Source:** CRC, EC, 8th-9th Report on the Implementation of the Telecommunications Regulatory Package

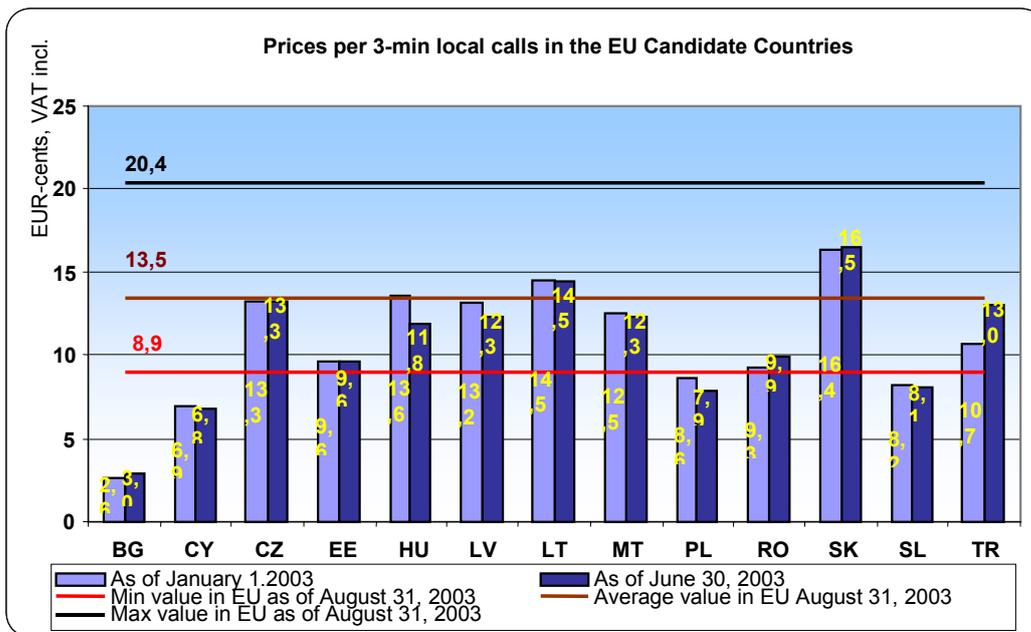
Figure 14

The charts presented below compare the prices per 3-minutes and 10-minutes local calls<sup>23</sup> of BTC PLC (effective from July 2003) with those of the EU Candidate Countries and the EU Member States.

<sup>46</sup> Presented are the prices of the offered services in BGN (Bulgarian leva) with no VAT, weighted by their constant weights in the consumer's price basket for plain telephone service, according to the Methodology for determining of prices of the plain telephone service and the leased lines.

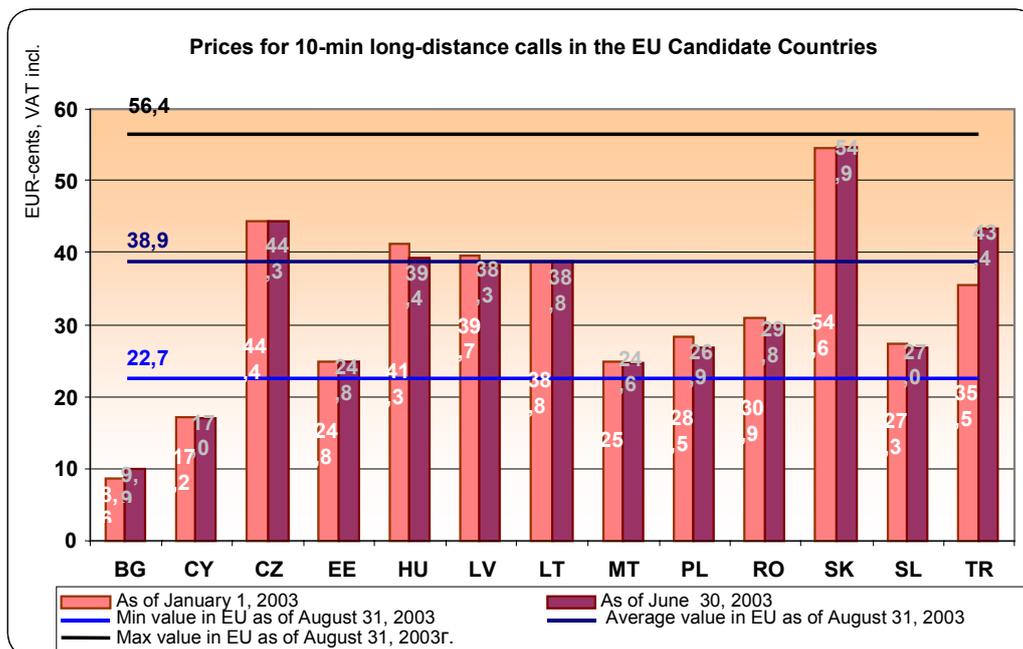
<sup>47</sup> Incumbent – operator who has owned in the past exclusive rights regulated by a law to provide telecommunication services.

<sup>23</sup> at 3 km distance in heavy-traffic hours



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCCoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 15**



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCCoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 16**

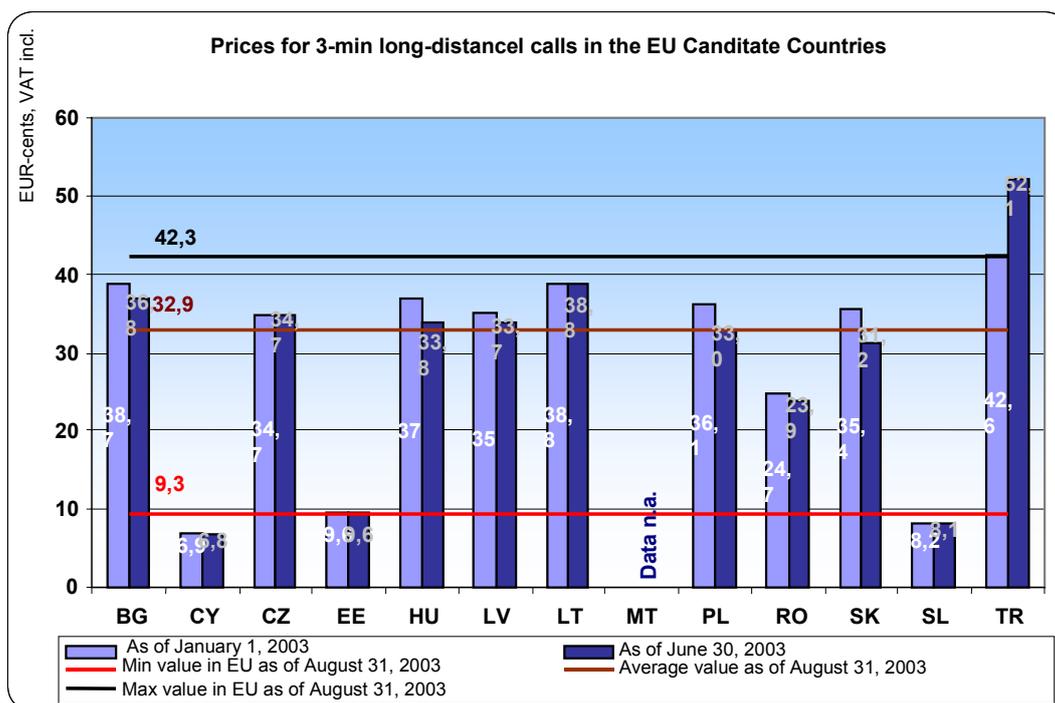
The analysis shows that the prices of a 3-minute and of a 10-minute local call in Bulgaria even after the change in the prices as of July 2003 is the lowest compared to the prices in all other countries.

As of June 30, 2003 the prices of a 3-minute and of a 10-minute local call in Bulgaria are three times below the EU Candidate Countries average. The average price of a 3-minute local call

during the heavy traffic hours in the EU Candidate Countries for July 2003 has grown by 2% and for a 10-minute call - by 4% compared to July 2002. In the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland and Romania there are alternative operators offering fixed local and long-distance telephone services at prices lower than those offered by the historical operator.

As of August 31, 2003 the prices of a 3-minute and of a 10-minute local call in Bulgaria are 4 times below the EU Member States average. For the period August 2002 – August 2003 the tendency of decrease of the tariff of a 3-minute and of a 10-minute local call in the EU Member States is still in place. (4% average lower prices for a one-year period).

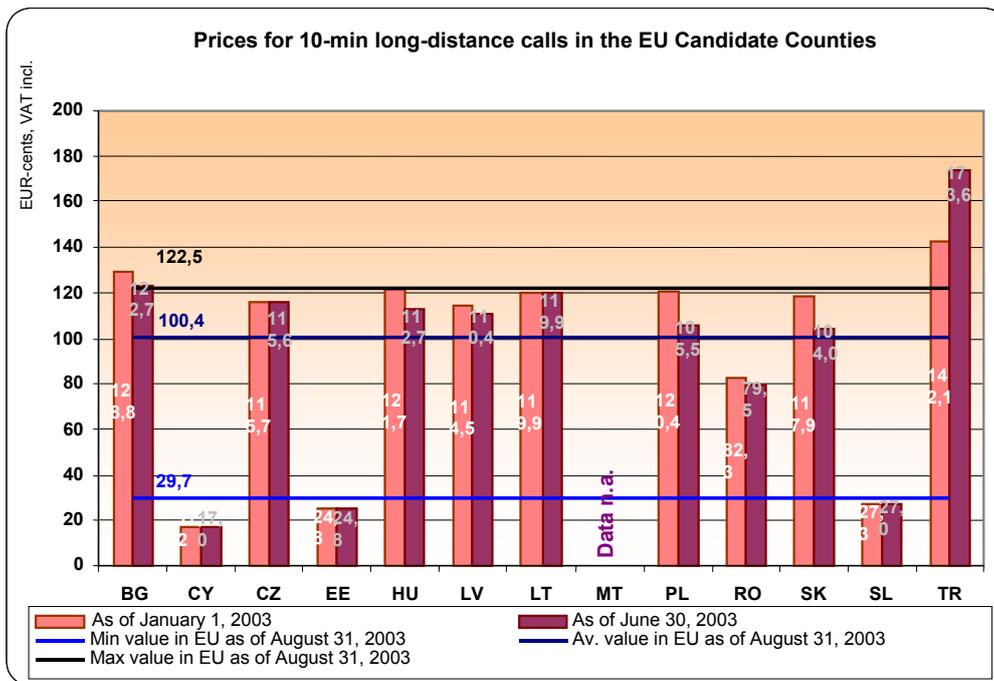
The following charts present the rates of the incumbents for a 3-minute and 10-minute long-distance calls<sup>24</sup>. Because of the country size of Cyprus, Estonia and Slovenia the tariffs for local calls and for long-distance calls in these countries coincide and for Malta the definition for a long-distance call is not applicable.



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCCoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 17**

<sup>24</sup> at a distance above 200 km in the heavy traffic hours; the data for Bulgaria are the rates of BTC PLC for the third long-distance zone – for a distance above 100 km



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCCoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 18**

Due to the insignificant decrease in the average price of BTC PLC for a long-distance call in 2003 that took place is still among the highest in Europe.

The average prices of long-distance calls in the EU Candidate Countries are comparable to the average values of the EU rates.

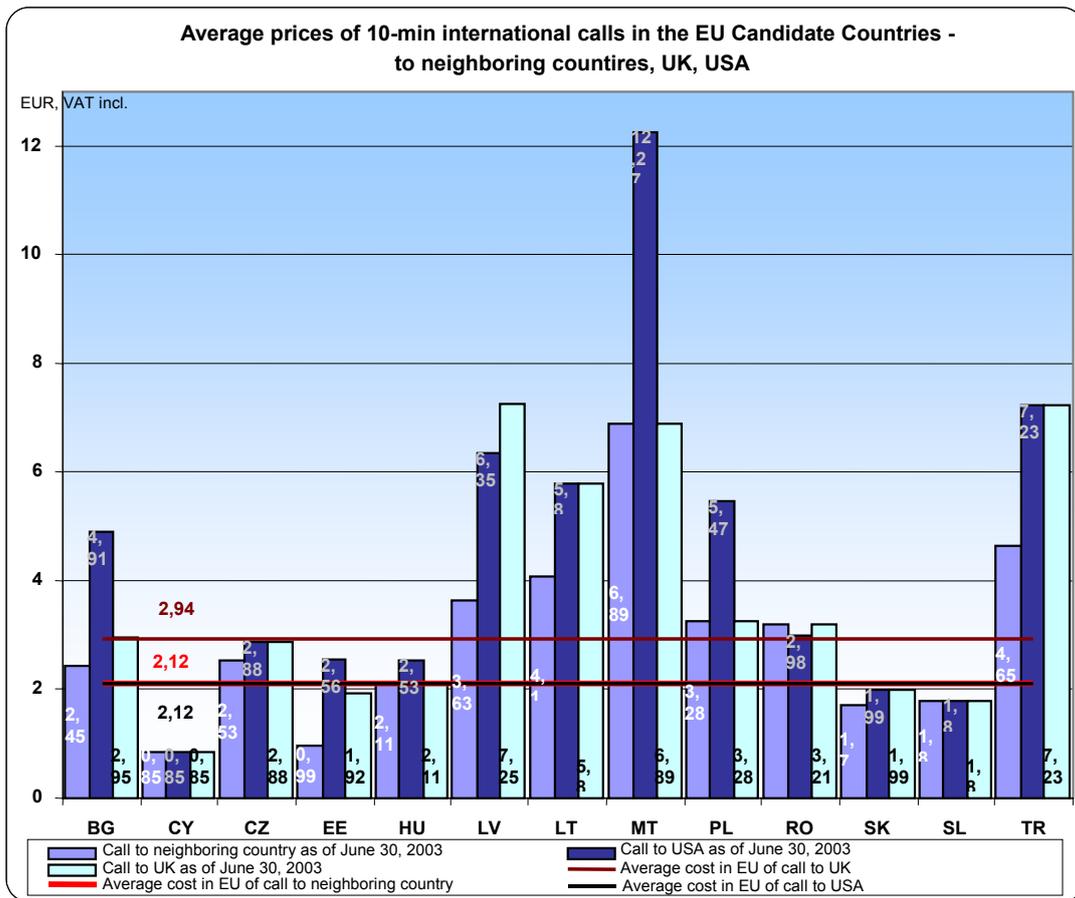
As of June 30, 2003 the prices of a 3-minute long-distance call in Bulgaria are by 4%, and of a 10-minute – by 6% higher than the average values in the EU Candidate Countries. The average price of a 3-minute long-distance call in the heavy traffic hours in the EU Candidate Countries in June 2003 has decreased by 3%, and of a 10-minute call – by 2% compared to their level in July 2002.

As of August 31, 2003 the prices of a 3-minute long-distance call in Bulgaria are by 12% and for a 10-minute – by 22% higher than the EU Member States average. The average price of a 3-minute long-distance call in the heavy traffic hours in the EU Member States as of August 2003 has decreased by 7%, and of a 10-minute call – by 8% compared to August 2002.

The above mentioned facts show that all over Europe (excluding Turkey) the trend of equalizing the rates for local and long-distance calls continues.

Presented on Figure 19 are the prices of the incumbents for a 10-minute international call to a neighboring country, a distant European country and the USA<sup>25</sup>.

<sup>25</sup> the prices are in E, VAT included for the heavy-traffic hours



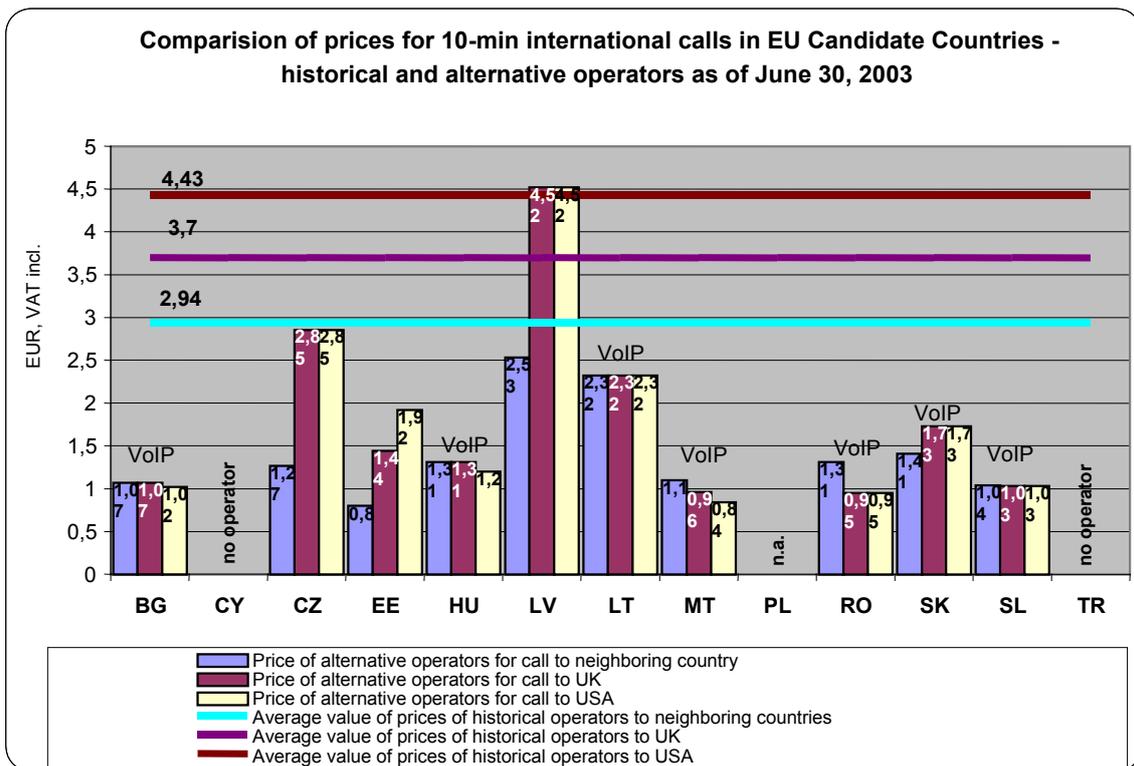
**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, PWCcoopers, 3th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector), 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 19**

As of June 30, 2003 the prices of the international calls offered by BTC PLC are lower than the average prices in the EU Candidate Countries: by 17% for calls to neighbouring countries and by 20% for calls to distant European countries, while for calls to the USA – by 11% higher. As of June 30, 2003 the prices of the international calls in the EU Candidate Countries decrease progressively as compared to the end of June 2002: the prices fell by 8% for calls to neighboring countries, by 28% for calls with distant European countries and by 18% for calls to the USA. Nevertheless the average prices of the international calls in the EU Candidate Countries are still higher than those in the EU Member States.

By 31.08.2003 the prices of international calls of BTC PLC are higher than the EU Member States average - by 16% for calls to neighbouring countries and by 132 % for calls to the USA. For calls to distant European countries the prices of BTC PLC coincide with the EU Member States average price values.

International calls are offered as well by alternative operators of fixed networks only in the Czech Republic, Estonia, Latvia and Poland. In Hungary, Lithuania, Malta, Romania, Slovakia, Slovenia and Bulgaria alternative operators, offering fixed international calls are the providers of voice telephone service over Internet protocol (VoIP).



**Source:** 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 20**

The average price in the EU Candidate Countries of a 10 – minute international call to a neighboring country of an alternative operator (mainly VoIP) is approximately 52% lower than the average price of the incumbents and 51% and 59% lower respectively for an international call to the United Kingdom and the USA. In Bulgaria the prices of the alternative operators (VoIP) are 56%, 78% and 65% lower for a 10 – minute call to a neighboring country, to the United Kingdom and to the USA, respectively.

The conclusion is that the restructuring of the tariffs of the fixed voice services provided by BTC PLC should go on in the same direction in 2004 that implies increase in the monthly rental and of the local telephony and decrease of the prices of the long distance and international phone calls. The goal is to achieve an acceptable rate of return for all services from the consumers' basket and to avoid cross-subsidizing between them.

### 3. UNIVERSAL TELECOMMUNICATIONS SERVICE

The liberalization of the telecommunications market alongside with the development of competition and the ensuring advantages to the end users of the services provided, creates prerequisites for depriving from access to telecommunications services a particular part of the population. In the remote geographical regions and those that are scarcely populated the provision of telecommunications services requires large installation and operational costs that bring minimal return and can not cover the investments made.

This significant aspect of the regulation of the telecommunications market has been settled down in the European practice through the introduction of the concept of the universal service representing a minimum set of telecommunications services of a specified quality level provided to each end user at an affordable price. In most of the countries the obligation for the provision of the said service is imposed on the historical operator providing fixed telephone service. In compliance with the Telecommunications Act, the CRC imposes this obligation to public operators that have been notified as operators with significant market power that carry out telecommunications through a fixed telecommunications network and provide fixed voice telephone services. In accordance with § 5, Para 3 of the Transitional and Final provisions of the Telecommunications Act, BTC PLC

is an operator with significant market power on the market of fixed voice telephone networks and the obligation for the provision of an universal service shall be set out in its individual license.

The Telecommunications Act envisages (after January 1, 2005) the conduct of a contest for assigning the provision of the services within the scope of the universal service upon request of operators that do not have a significant market power.

As far as the provision of the universal service at an affordable price often gives rise to financial losses for the operators a mechanism is needed to compensate the net losses of the operators resulting from the provision of the service. Among the EU Member States such fund has been established and is in operation in Italy and France, in the CEE countries the Czech Republic only has set up and operates such fund and Latvia and Romania are planning to introduce such a mechanism in 2004.

### **3.1. Affordability of the price of the fixed voice telephone service**

With the last changes in the prices of telephone services provided by BTC PLC (effective since July 1, 2003<sup>26</sup>) the preferences for residential users with a limited consumption are preserved. An opportunity is provided to the subscribers for concluding a complementary agreement for an economy consumption package at half of the price of the monthly rental fee and a price of BGN 0,01 per impulse for consumption up to 30 impulses. Compared to 2002 the number of impulses included in the economy package has been decreased by 10 impulses.

The preferential price packages for the usage of telephone services by residential users – disabled persons 1st group includes a monthly rental and a predetermined limit of consumption up to 70 charge impulses per month at the total price of BGN 1,25 and a price of BGN 0,01 per charge impulse for consumption from 71 to 110 impulses. For comparison in 2002 the price of the monthly rental and consumption up to 80 impulses was BGN 1 with a price per charge impulse – BGN 0,01 for consumption from 81 to 120 impulses.

In 2003 the usage of telephone services per telephone in the social and health services determined by the respective Ministries has been retained at the same level. In 2003 a monthly rental and a consumption of 400 charge impulses was at the price of BGN 3, 30, in 2002 the package included a consumption of 50 impulses more at a price of BGN 3.

### **3.2. Quality of the fixed voice telephone service**

In most countries from Central and Eastern Europe as well as in Bulgaria the national regulatory body in the field of telecommunications monitors the quality of the service provided in compliance with the international standard EG 201 769 of ETSI.

In 2003 an improvement or preservation of the value of performance indicators for quality of commercial services can be observed.

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<sup>26</sup> no VAT included

**Table 2**

<b>Performance indicators for quality of service</b>	<b>31.12.1999</b>	<b>31.12.2000</b>	<b>31.12.2001</b>	<b>31.12.2002</b>	<b>31.12.2003</b>
Pending applications for new telephone lines	331 785	245 414	187 000	151 854	114 568
Average reported faults per 100 telephones a month	4,2	4,04	3,76	3,53	3,18
Average number of faults eliminated within 24-hour period.	87,4%	89,91%	90%	88,21%	78,74%
Average number of claims for the quality of the connection per 1000 subscribers	0,2	0,13	0,33	0,08	0,07
Average number of claims for the amount of the monthly bills per 1000 subscribers	1,01	0,63	0,41	0,35	0,31

**Source: BTC PLC**

In 2003 a considerable decrease in the number of pending applications for new telephone lines was witnessed – 25% less in comparison to 2002.

From 3,53 in 2002 to 3,18 in 2003 decreased the value of the indicator “Reported faults per 100 telephones on average per month”.

The share of unsuccessful calls has retained its value of 2002 and amounts to 17%. The time needed for a new telephone line has been insignificantly decreased from two months and four days in 2002 to two months in 2003.

The change in the value of the indicators “Average number of claims on the amount of the monthly bills per 1000 subscribers” and “Average number of claims for quality of the connections per 1000 subscribers” in 2003 (compared to 2002) is not significant but compared to 2001 it shows a considerable improvement of the commercial servicing of the company’s subscribers.

### **3.3. Elements of the universal telecommunications service**

#### **3.3.1. Public telephones**

An important aspect of the universal telecommunications service is the access to fixed voice telephone service through public telephone sets (pay phones).

The access to fixed voice telephone service through public telephones (payphones) and its quality have been regulated in the Bulgarian legislation through particular quantity and quality indicators for coverage by territory and by population that have to be achieved by the operators obliged to provide the universal service. These operators have the obligation to secure also access to the free of charge emergency call service without using coins, tokens, cards or any other means of payment as well as to create the conditions necessary for ensuring access of disabled persons to this service.

The public pay phones are used mainly by consumers that do not have fixed telephones at home, consumers with low income that even when possessing a mobile phone use public telephones in order to make calls at lower prices and consumers that live in rented premises. The main reasons for which the public telephones are preferred are the possibility to make short calls due to the suitably located public telephones and the possibility to make longer local calls that is economically more feasible than the usage of a mobile phone.

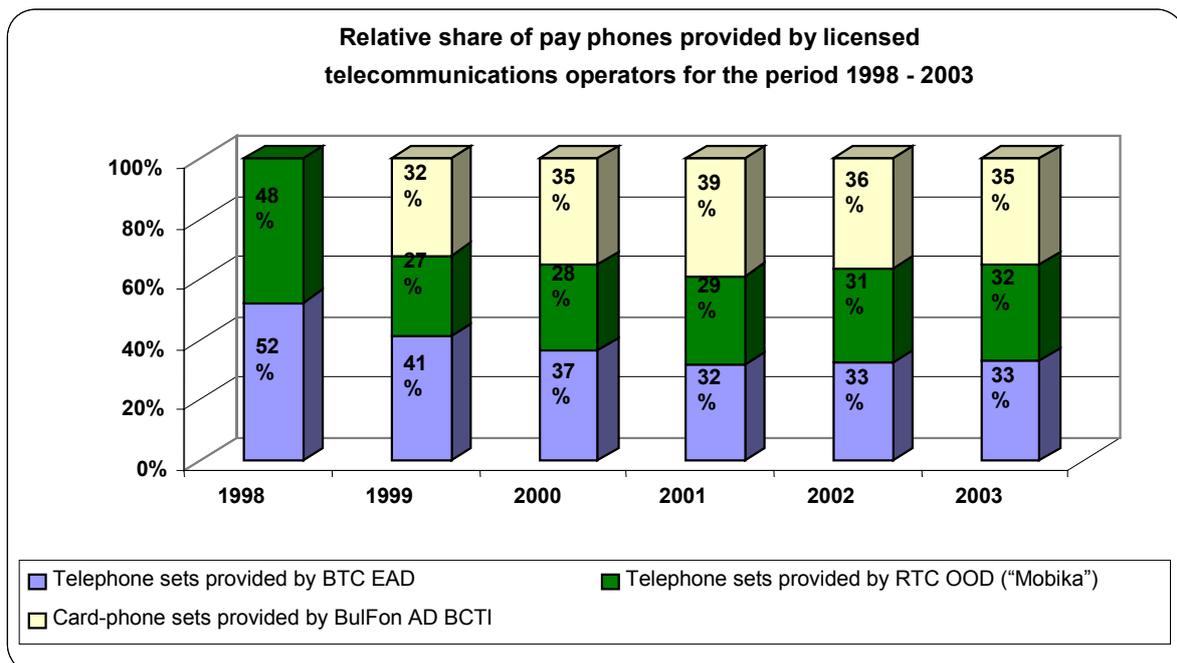
In 2003 the activity of installation and operation of systems of payphones continues to be performed by “Radio telecommunications Company” OOD (RTK OOD), “BulFon” AD BCTI and BTC PLC.

**Table 3**

Number of pay phones as per:	31.12.1998	31.12.1999	31.12.2000	31.12.2001	31.12.2002	31.12.2003
<b>Total incl.:</b>	<b>15 699</b>	<b>19 031</b>	<b>21 619</b>	<b>19 910</b>	<b>21 389</b>	<b>21 092</b>
Pay phones for local calls – with tokens and telephone cabins of BTC PLC	8 227	7 846	7 929	6 357	6 975	6 998
Pay phones for combined calls – phone cards, with coins and combined sets of RTC OOD (“Mobika”)	7 472	5 085	6 078	5803	6 637	6 646
Pay phones for combined calls – phone card sets of “BulFon” AD BCTI		6 100	7 612	7 750	7 777	7 448

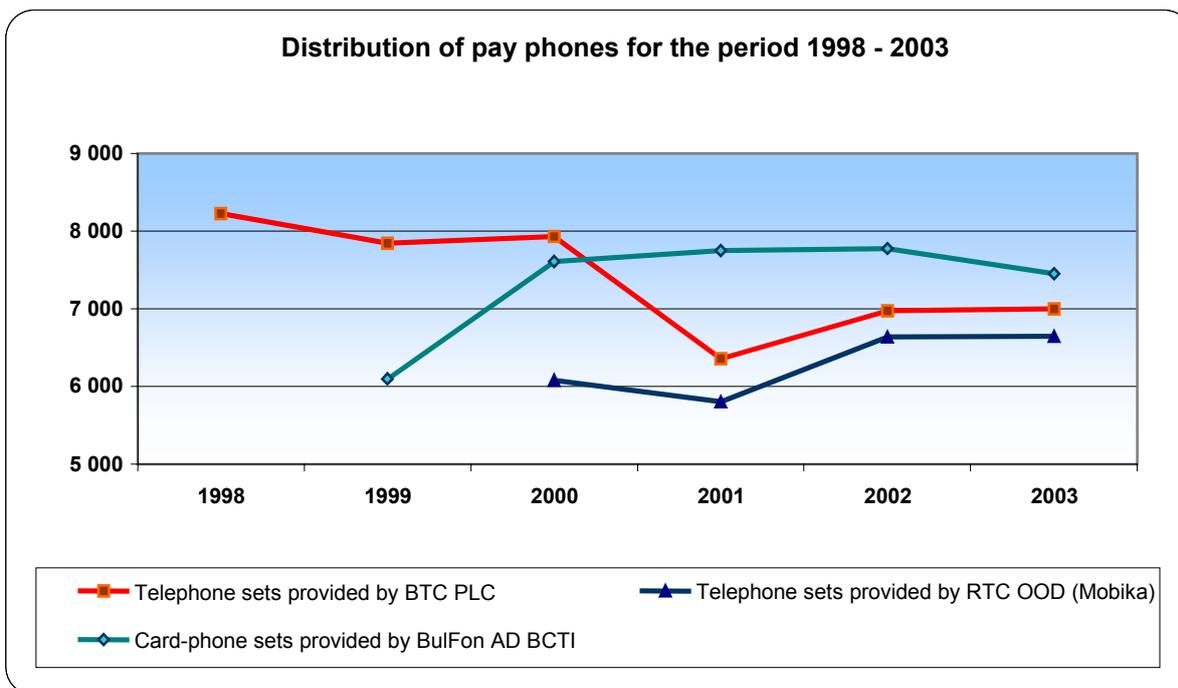
**Reference: CRC**

The public telephones of BTC PLC work with tokens, those of “BulFon” AD BCTI with phone cards and those of RTC OOD (“Mobika”) with phone cards and coins. “Mobika” and “BulFon” use phone cards with a built-in microchip.



**Source: CRC**  
**Figure 21**

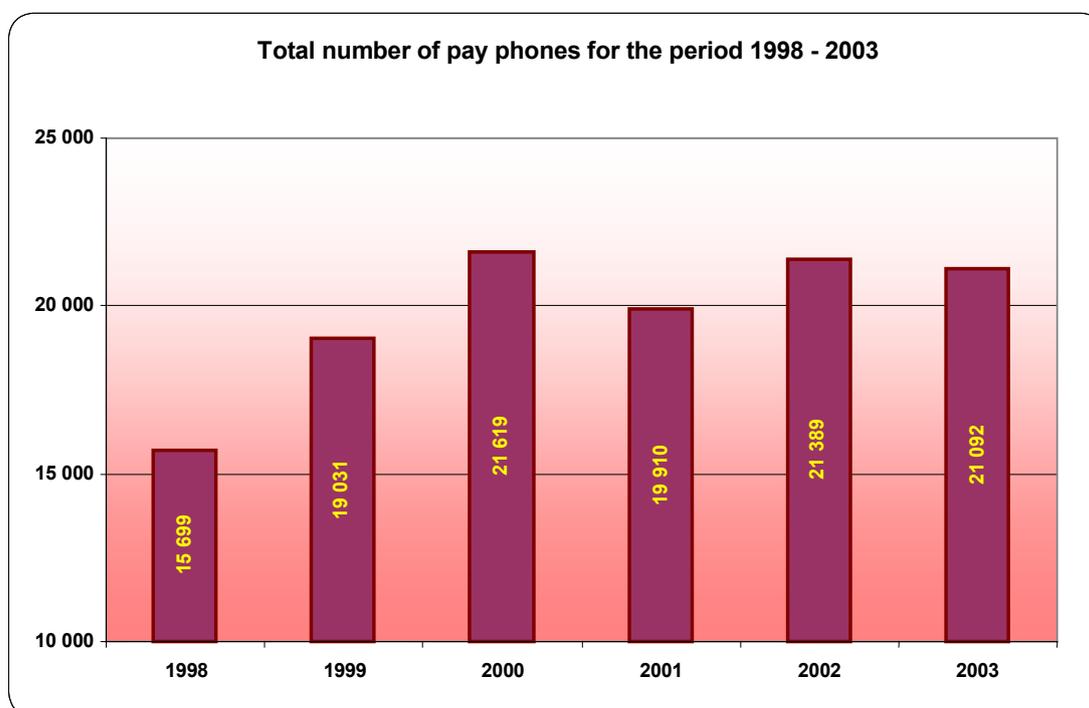
For the period 2001 – 2003 the relative share within the total structure of the installed public telephone sets of the three operators remains approximately the same. In 2003 the number of pay phones of BTC PLC and RTC OOD (“Mobika”) has increased and that of “BulFon” AD has decreased. For a third consecutive year the largest share of the public telephone sets belongs to “BulFon” AD and the three operators possess almost an equal share of the total number of pay phones in the country.



Source: CRC

Figure 22

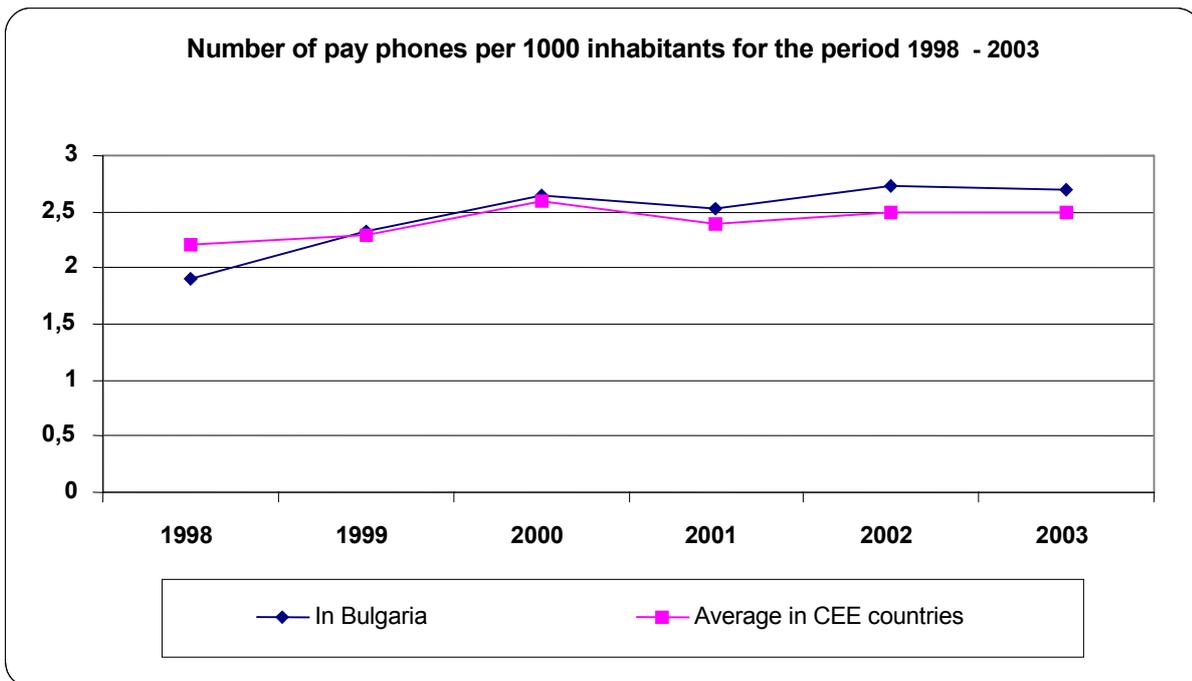
As of December 31, 2003 the total number of public telephones has decreased by 1, 4% compared to December 31, 2002. This is the second decrease in the total number of pay phones since 1999. The most significant decrease in the number of pay phones has taken place in 2001 compared to 2000 – 8%. The result for 2003 is due to a 4% decrease of the number of pay phones of “BulFon” AD that has not been compensated by the insignificant increase of the number of pay phones of BTC PLC and RTC OOD (“Mobika”).



Source: CRC

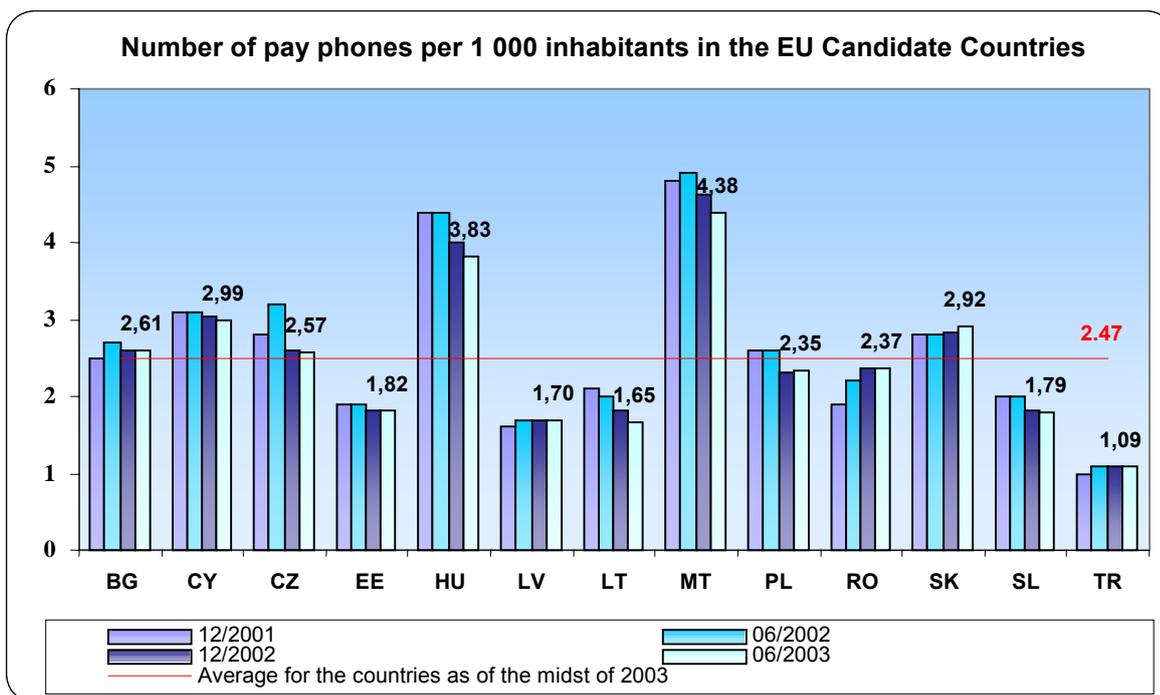
Figure 23

According to the indicator “number of pay phones per 1000 residents” in 2003 Bulgaria is again slightly above the average that for the EU Candidate Countries is 2,47.



Source: 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)

Figure 24



Source: 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)

Figure 25

At the end of 2003 the revenues gained from the provision of services through public pay phones amount to BGN 19, 5 million, which are 17% lower compared to 2002. The decrease could be explained with the emergence on the market of alternative telecommunication services being provided at affordable prices – for instance attractive price packages offered by the mobile operators to their end users. As a result the users are less motivated to use the services offered through public telephone sets and the operators do not invest in further development and

maintenance of their system based on these telephones. This trend is expected to deepen in the coming years.

### **3.3.2 Directory services and facilities for disabled persons**

Another element of the universal telecommunication service is the provision of directory enquiry services for the telephone numbers of the subscribers and a directory with the telephone numbers of subscribers of fixed and mobile networks.

The operators obliged to provide this element of the universal service should observe the requirements for protection of personal data stipulated by the Telecommunications Act and the Law on protection of personal data. The telephone directories should be generally accessible and updated and published at least once every three years. They should be developed and maintained both in a hard copy and in electronic version.

With regard to the provision of specialized services enabling access to the telecommunications services to disabled people from different groups certain facilities were put in place in 2003 such as the opportunity for inclusion of network connecting devices designed especially to help people with disabilities, free of charge provision of the telephone Directory of BTC PLC, as well as preferential price packages for consumption of telephone services. About 2% of the total number of telephone sets have been adjusted for usage by disabled people from different groups. In 2003 the number of telephone sets of BTC PLC adjusted to be used by disabled people has grown almost twice.

### **3.4. Legal framework**

In 2003 the Communications Regulation Commission initiated the elaboration of the following secondary legislation envisaged in the Telecommunications Act:

- Ordinance on the terms and conditions for securing of the universal telecommunication service;
- Methodology of terms and conditions for determination the affordability of the price of the universal telecommunication service;
- Rules for calculating the net losses of the public operators incurred from the provision of the universal telecommunication service.

The purpose of these legal acts, the adoption of which is forthcoming in 2004, is to create conditions for satisfying the main needs of telecommunications services of all end users on the whole territory of the country.

## **4. LEASED LINES**

Before the expiry of BTC PLC monopoly over the provision of the "leased line" service the telecommunications operators had the right to build their own lines only following a denial on behalf of BTC PLC and after a permission granted by the CRC. After the expiry of the BTC PLC exclusive rights as of January 1, 2003 prerequisites were created for the emergence of new participants on the leased lines market. A special provision in the individual licenses of the mobile operators was made according to which the operators get the opportunity to provide the service "leased line" but in 2003 still none of the mobile operators provides this service. By the end of 2003 individual licenses for the provision of the service "leased lines" have not been issued yet. It is anticipated that in 2004 the first individual licenses for carrying out long-distance communications through a telecommunication network for the provision of the "leased lines" service would be issued to operators that have built up infrastructure on the territory of the country that would enable them to build networks similar to the BTC PLC network.

Within the market segment "leased lines", the radio relay lines of BTC PLC are also included, as well as those of the licensed operators for construction, maintenance and operation of

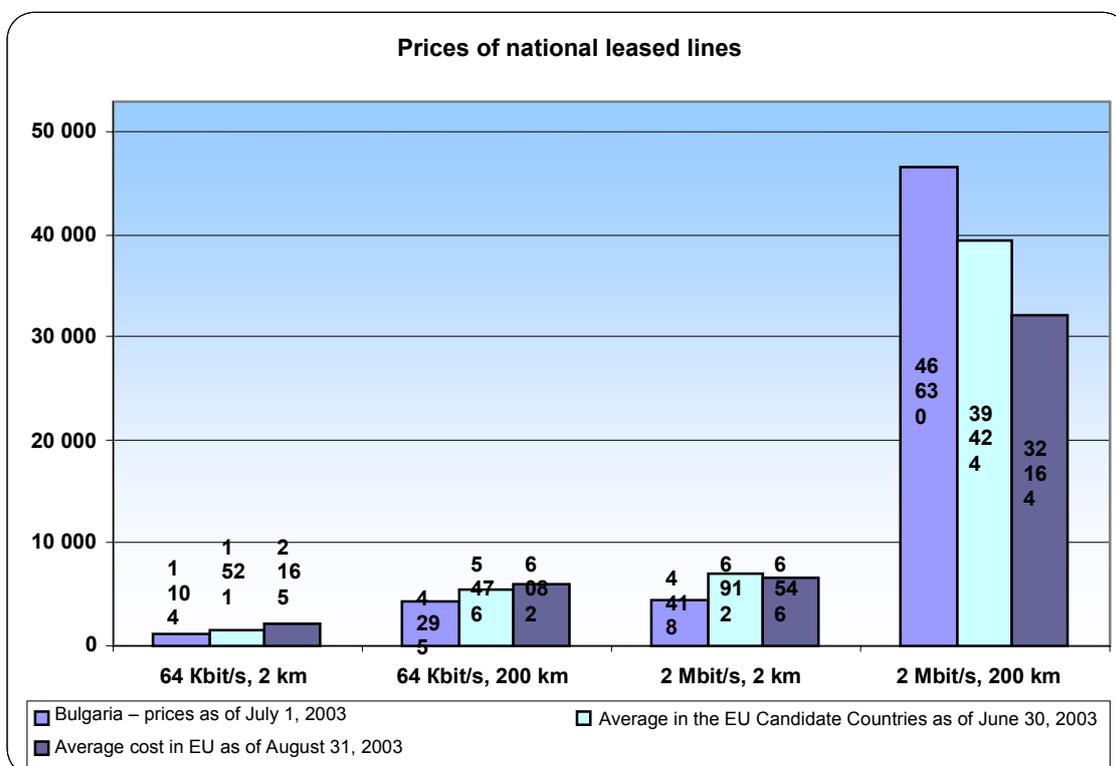
public telecommunications networks from the fixed radio service. In 2003 the CRC issued four such licenses: two to “Netera” EOOD and one to “Rakom NT” EOOD and “Transat” AD. Among the licensed operators only “Rakom NT” EOOD has launched activities under the license and provides the service “leased lines”. In 2003 the operator provides a leased line at the rate of 2 Mbits/s over a distance of up to 100 km. A comparison made of the prices of the two functioning operators on the market for provision of the “leased lines” service shows that the prices offered by “Rakom NT” EOOD are lower than those of BTC PLC.

By the end of 2003 the revenues from the provision of the “leased lines” service amount to BGN 139 million, 99% of which have been generated by BTC PLC. Compared to 2002 the revenues from this activity have grown by only 2%.

By the end of 2002 the price regulation for the provision of the “leased lines” service has been carried out through the Methodology of setting prices of the plain telephone service and the leased lines (promulgated in the State Gazette number 126 of 1998). After the expiry of the BTC PLC monopoly and until the adoption of the new Telecommunications Act (effective from July 7, 2003) the prices of the service “leased lines” have not been subjected to regulation due to the lack of an appropriate mechanism envisaged within the Telecommunications Act. In July 2003 BTC PLC introduced one single change in the price of the service for the respective year for which the CRC was duly notified.

The new Telecommunications Act foresees the designation of operators with significant market power in the field of provision of the service “leased lines”. The prices of these operators for leased lines within the scope of the minimum package fall within the range of the regulated by the CRC prices and should be cost-oriented. The operators with a significant market power that provides the “leased lines” service should draw up a reference interconnection offer.

Shown at the figure below is the annual subscription for leased lines<sup>27</sup> provided by the incumbents in the EU Member States and in the CEE Candidate Countries. **Source:** CRC

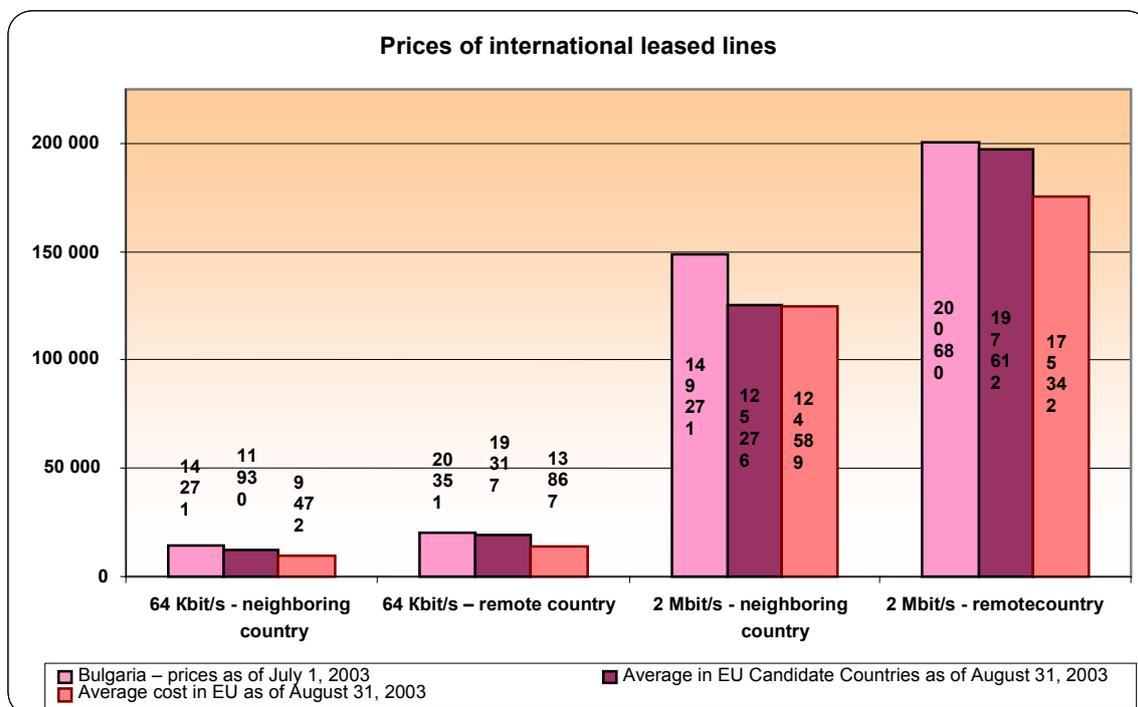


**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

<sup>27</sup> the prices are in Euro excluding VAT and all possible contracted discounts

**Figure 26**

With the last price changes BTC PLC decreased by 21% at average the prices for national leased lines. The tariffs of BTC PLC for leased lines at the rate of 64 Kbit/s, 2 km and 200 km, 2 Mbit/s 2 km are 31% at average lower than the average prices in the EU Candidate Countries and EU Member States. The prices of the leased lines of 2 Mbit/s 200 km are 30% higher than the EU average.



**Source:** EC, 9th Report on the Implementation of the Telecommunications Regulatory Package, 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services sector)

**Figure 27**

The prices of the international leased lines have decreased by 3% at average compared to the prices preceding the changes effected in July 2003 and they are above the average for Europe. BTC PLC provides international lines for near and far European countries at prices 9% higher than the average in the EU Candidate Countries and 19% higher than the average in the EU Member States.

In connection with the liberalization of the telecommunications market during the next years the expected trends are that the price of the leased lines will continue to fall and that new telecommunications operators will enter this market segment.

## 5. MOBILE CELLULAR NETWORKS AND SERVICES

### 5.1. Participants and competition on the market

At the end of 2003 three telecommunications operators are functioning under issued individual licenses for construction, maintenance and operation of a public telecommunications mobile cellular network with national coverage and provision of public telecommunications service through it: RTC OOD with a trade name “Mobikom”, “MobilTel” EAD with a trade name “M-Tel” and “Cosmo Bulgaria Mobile” EAD with a trade name “GloBul”. The operators use different standards in the realization of their activity – analogue NMT 450i used by “Mobikom” and digital GSM standard used by “M-Tel” and “GloBul” but the services they provide are of one and the same nature and similar.

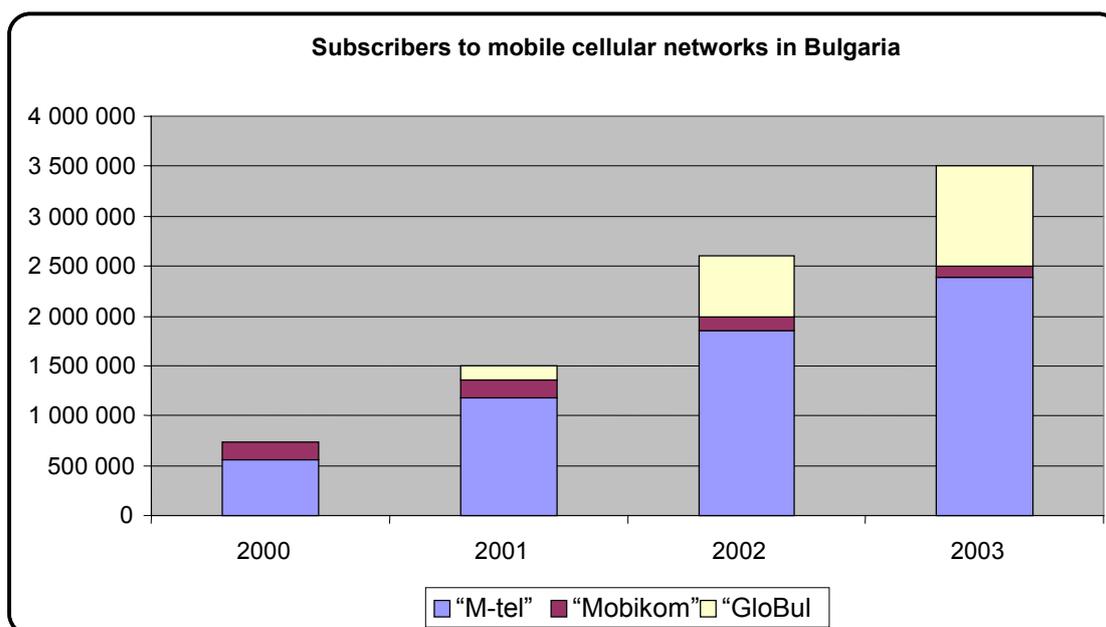
Observed throughout the year was a lasting strengthening of the market positions of the second mobile operator “GloBul” while “M-Tel” retained its leadership position. It should be noted here the more and more fading away of the operability of the first national operator “Mobikom”. The

anticipated entrance of a new participant on the market in 2004 is based on the finalization of the privatization deal of BTC PLC and the possibility for issuing a third GSM license as a part of the deal.

In 2003 “Mobikom” demonstrated an interest towards the construction of a new digital telecommunications network based on CDMA2000<sup>28</sup>. CDMA2000 represents a system of third generation (3G) that would enable “Mobikom” within short period of time to build up a competitive digital network using as a basis its own analogue NMT network. The technology allows for a faster data transmission than GPRS and would be particularly attractive for companies and organizations with remote and with difficulty accessible offices, for road transport companies and state structures wishing to send and receive data directly from their automobiles.

## 5.2. Development of the market of mobile phone services

The tendency of increasing the number of subscribers of the mobile networks was retained in 2003 as well and their total number grew by almost 50% for a one year period reaching 3 502 872 by the end of 2003. During the past year the market presence of the GSM operator “Cosmo Bulgaria” EAD that entered the market at a later stage was strengthened. The available data indicate that the growth in the number of the users of the services provided by the second GSM operator is due both to the general growth of the users of mobile telecommunications services in the country and to attracting subscribers from the networks of the two other telecommunications operators active on the market. On the other hand, the dominating “M-Tel” also succeeds in enlarging the number of its users and in substantially increasing its revenues. In spite of the loss in relative share in 2003 in absolute value “M-Tel” has succeeded to attract nearly 500 000 new clients.



Source: CRC

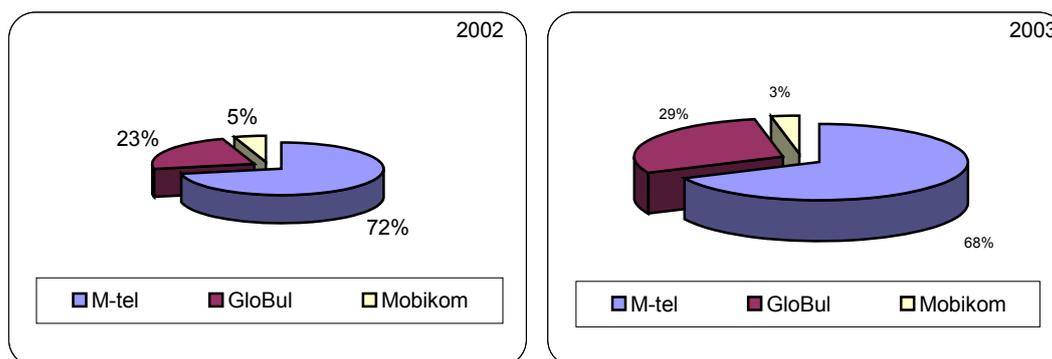
Figure 28

Compared to the same period of the preceding year the number of subscribers of “M-Tel” has increased by 29% and that of “GloBul” – by 66%. For the same reference period the number of subscribers of “Mobikom” has decreased by 26% and the tendency is for a continuing drop in the number of users of the analogue network.

The market shares for 2002 and 2003 of the three mobile telecommunications operators calculated in accordance with the number of subscribers are presented on the figures below.

<sup>28</sup> See 1.Characteristics of the telecommunications services market, 1.1.World development

**Market share of the operators of mobile cellular networks in Bulgaria based on the number of subscribers**



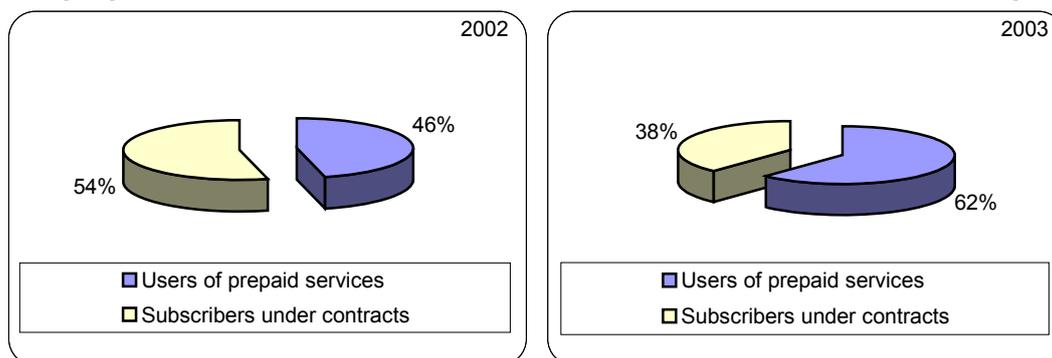
**Source: CRC**  
**Figure 29**

“M-Tel” continues to be the undisputable leader on the market with a share of 68% in spite of the slight fall by 4% compared to 2002. On the other hand, “GloBul” has succeeded to raise its share from 23% to 29%.

The total revenues gained in the sector of mobile services amount to BGN 986 million for 2003 and they have grown by 19% for a one year period. “M-Tel” keeps its leading positions on the mobile telecommunications market also from the point of view of the indicator “market share” defined according to the amount of revenues gained from the provision of services through a licensed network. In spite of the slight relative decrease in the general structure of the market the revenues of the company continue to grow. For the same period a significant growth in the revenues gained by “GloBul” has been witnessed – 150% growth compared to 2002. The growth of the shares of the digital networks is also on the account of “Mobikom” whose revenues have decreased almost twice in absolute value with a market share that continues to shrink.

During the past year an intensive development was witnessed on the market of prepaid mobile services. Our country follows the world trend – the number of users using prepaid mobile services is already exceeding the number of subscribers under contract. The prepaid services offer to the users the convenience of no monthly rental fees and contracts with the mobile telecommunications operators. At the same time the prepaid services generated only 13% of the revenues of the operators active on the mobile services market.

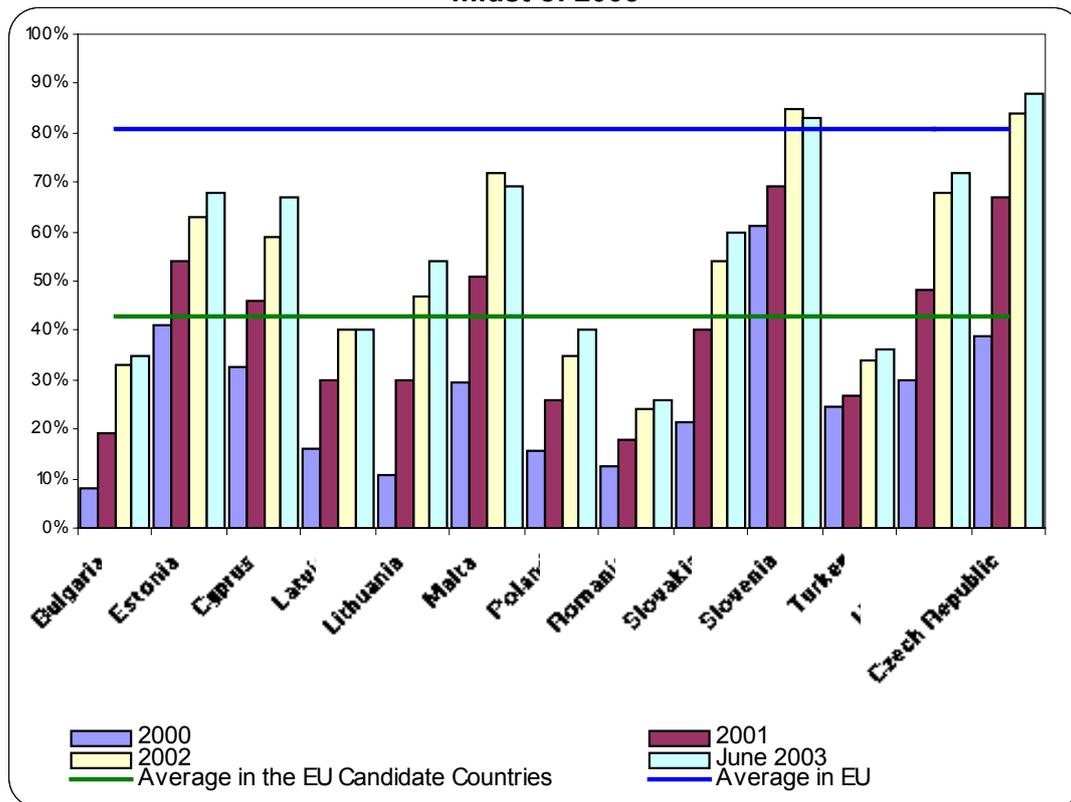
**Users of prepaid services and subscribers under contracts with the mobile operators.**



**Source: CRC**  
**Figure 30**

In spite of the reported significant growth in the number of subscribers of mobile services, in the middle of 2003 the country was still occupying the last but one position among the EU Candidate Countries according to the indicator “mobile telephone penetration” (mobile subscribers per 100 inhabitants). The value of this indicator for Bulgaria is approximately 35% while the average for the EU Candidate Countries is 43%. The values for the region vary from 26% (for Romania) to 83% (for Slovenia) and 88% (for the Czech Republic).

## Mobile telephone penetration in the EU Candidate Countries from the end of 2000 to the midst of 2003



**Source:** IBM Business Consulting Services, 4<sup>th</sup> Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)

**Figure 31**

Following a strong growth during the second half of the year, at the end of 2003 the mobile telephone penetration in Bulgaria is 44, 9% that represents an increase by 12% compared to the end of 2002.

### 5.3 Services provided

The mobile cellular networks provide a wide range and variety of services. Besides the telephone calls the users have access to voice mail, conference connection, short messages exchange (SMS) and emergency calls. There is an opportunity for the activation of a large number of additional services as re-direction of calls, calls barring, information about the number of the caller, bill check, stand-by or hold of calls, notification through SMS about new mail or missed calls, information services, etc.

With the development of the mobile networks the operators launch the provision of Internet access, data and fax transmission through the mobile phone. "M-Tel" was the first GSM operator in Bulgaria who has been offering to its users the convenience of MMS through GPRS since October 2003. In the beginning of December 2003 the second GSM operator also offered to its clients an MMS service. MMS (Multimedia Messaging Services) is an evolution of the short messages SMS and allows the transmission of longer messages, images, short music clips and pictures to other subscribers, to e-mail addresses as well. The GPRS standard (General Packet Radio Service) is an intermediate step between the second (GSM) and the third (UMTS) generation mobile networks. The main advantage of the UMTS is the permanent connection for data transmission. In such a manner the network is used only when traffic is generated that leads to a much more efficient usage of the devices and to a faster and of better quality connection. Compared to the common mobile Internet access the user, instead of being charged for the duration of the connection pays only for the traffic generated. In spite of the advantages of this technology by the

end of 2003 “M-Tel” did not offer mobile Internet and WAP through GPRS. This is expected to take place in the beginning of 2004.

In 2003 “M-Tel” introduced the service “Business group” allowing to companies that possess from 2 to 6 SIM cards to talk at preferential price rates within the group. The company introduced also the service “Studio 88” offering to its clients the opportunity to choose a greeting to their friends. “GloBul” on the other hand introduced the service “Call number for participation in gambling”.

In the course of the last year both operators introduced the provision of numbers for providers of value added services through which SMS messages sent from the users of the networks are accepted. Since the beginning of 2004 “M-Tel” is planning to provide the services “M-Tel+” – an opportunity to receive through SMS specialized news, horoscopes, etc.

#### 5.4 Quality of service

Presented in the table below are data about the number of complaints filed from subscribers of the mobile networks and the reasons having caused them, as well as information provided by the operators on the monitored indicators for quality of service.

**Table 4**

	M-Tel	GloBul	Mobikom
<b>Total number of filed written complaints from users incl.:</b>	2 448	1 585	129
- number of justified complaints	705	559	129
- number of complaints in response to which written replies have been sent	2 283	628	129
<b>Distribution of the complaints per reasons:</b>			
- technical failure	64	74	15
- correctness of the bills	983	1 064	79
- disagreement with the principles of work	225	12	
- problems in the activation and administration/quality of the services	106	93	
- dissatisfaction with the service received in the Business Centers	205	33	
- documentation fraud	196	78	
- problems with the delivery of invoices	178		
- others	491	231	35
<b>Failed calls (%), incl.:</b>	0,95	2	0,104
- due to overloading of the network	0,9	0,5	0,1
- due to technical failure	0,05	1,5	0,004
<b>Average lead time for the elimination of failures in the licensed network incl.</b>	42,35 min.	23,71 min.	3,55 hours
<b>Average time for the activation of the services (in hours), incl.:</b>			
- activating new subscriber	0,67	-	Up to 24 hours
- Internet access provision	0,67	-	Up to 24 hours
- roaming	0,67	1-4 hours	Up to 24 hours

**Source:** CRC

The differences in the data shown above are mainly due to the number of subscribers of the different companies, the quantity characteristics and the territorial coverage of the networks of the three mobile operators. Compared to the preceding year “GloBul” and “Mobikom” report significant decrease in the indicator “*number of complaints filed*” by 42% and 32%, respectively while for “M-Tel” the decrease is of just 4%. The two GSM operators report a drop in the number of unsuccessful calls due to technical failures – “GloBul” by 25% and “M-Tel” by 50%. With regard to the number of unsuccessful calls due to the overloading of the network “M-Tel” retains the level from the last year while “GloBul” and “Mobikom” have succeeded to decrease them by 50%. As

could be seen from the table “Mobikom” has a considerably longer period for elimination of failures compared to its competitors.

### **5.5 Prices and price policy**

The three operators of mobile cellular networks make their prices and price policy freely and communicate them to the CRC.

The two GSM operators are sensitive to one another with regard to the prices and their marketing strategies. They monitor each other’s activities and strive to be clearly differentiated and recognized from the competitive (price and non-price) behaviour of the other one – in terms of the service packages offered and in making their tariffs.

The non-price competition between the two GSM operators takes the form of a race and rivalry for attracting the consumer through differentiation of the offered services (opportunity for activation of a large number of complementary services, promotional packages incl. a mobile telephone set and a subscription, etc.).

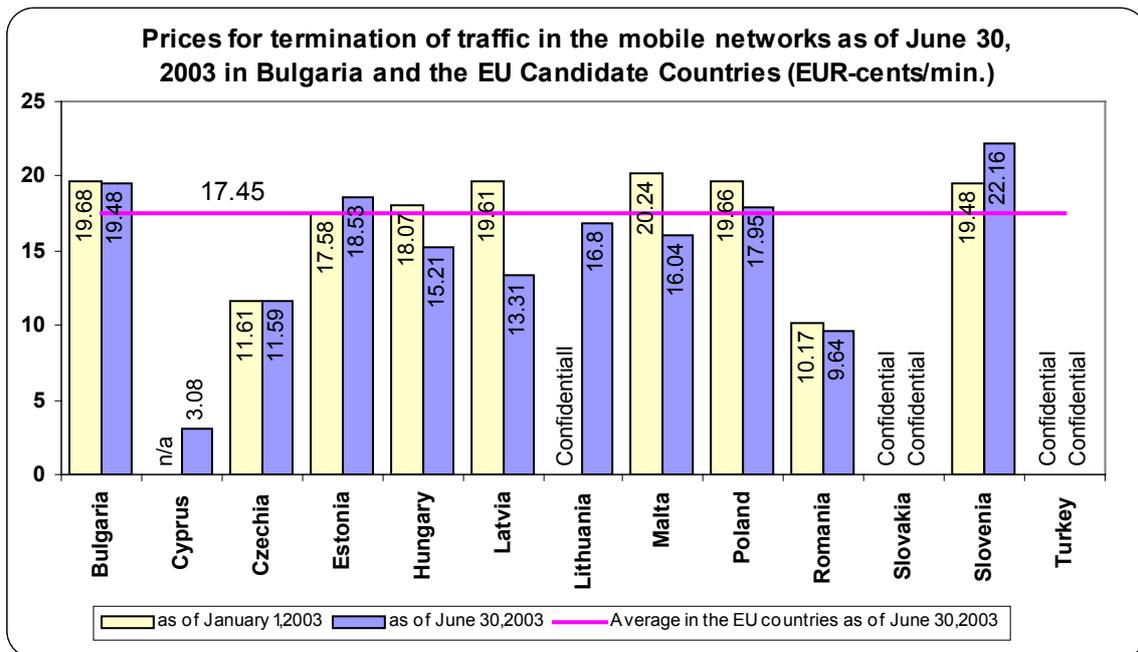
The price packages of the three mobile operators comprise two major components – a subscription fee and a fee per one-minute call. In 2003 “M-Tel” continued to apply its price policy from the prior year and offers four subscription plans: “Limited”, “Economy”, “Universal” and “Business”. The prices are differentiated in accordance with the amount of the monthly rental fee selected, to which network the call of a given subscriber is directed and whether the call has been made in hours with weak or heavy traffic. “GloBul” continues to implement its strategy for a universal subscription plan for its subscribers offering equal tariffs per one-minute call to any network in the country without time zones. In response, in the very beginning of 2004 “M-Tel” introduced a fifth promotional subscription plan that includes a lower monthly rental fee and an uniform tariff plan for calls to all national networks. “Mobikom” offers its services to the subscribers through four tariff packages: “Mobi L”, “Mobi XL”, “Mobifix” and “Cityphone”.

In 2003 all the three telecommunications operators of mobile cellular networks continued to provide access to their services through prepaid cards. This type of service gains more and more popularity due to the fact that it does not set an obligation for paying a monthly rental fee.

In 2003 “M-Tel”, “GloBul” and “Mobikom” followed a policy of conducting different promotional campaigns for price discounts of the mobile telephone sets, of initial subscription fee, of decreased monthly rental fee, bonuses and discounts for a prepaid subscription.

The end user prices of the mobile services depend both on the price strategies of the companies and the agreed prices for interconnection with the fixed network of BTC PLC and the mobile networks.

Presented below are the prices for termination of traffic in the mobile networks as of June 30, 2003 in Bulgaria and the EU Candidate Countries. The average value of the calculated price for termination of traffic generated from the fixed networks to the mobile networks in the EU Member States for 2003 is 17,45 (with 1,5 €-cent/min) lower than it was in 2002.



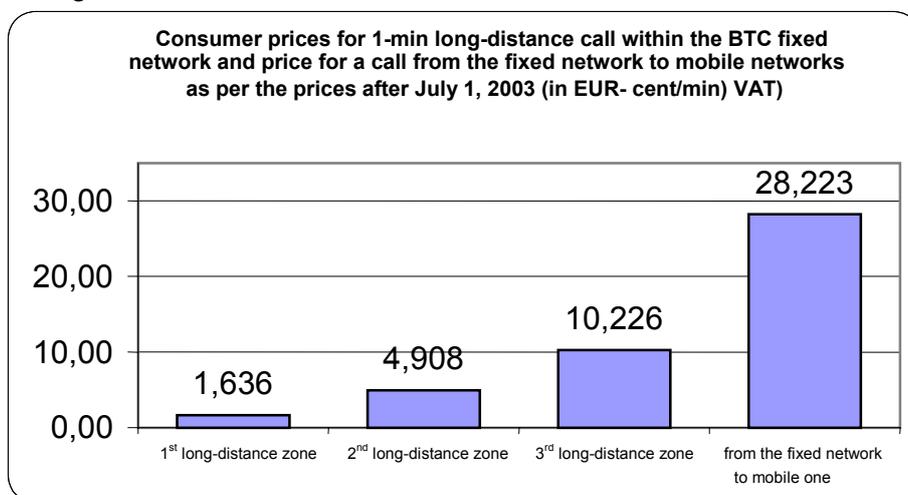
Source: IBM Business Consulting Services, 4<sup>th</sup> Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)

Figure 32

The price for traffic termination in Bulgaria has decreased by about 1% (from 19,68 €-cent/min in 2002 to 19,48 €-cent/min in 2003), and it still exceeds considerably the average price for termination in the EU Member States and in most of the EU Candidate Countries.

The trend for reduction of the prices for traffic termination in the mobile networks in most of the European countries is due to the applied regulation of these prices based on the cost-orientation principle in their setting up in the case of SMP operators. The regulatory body in Bulgaria does not have legal grounds for regulation of these prices. The new Telecommunications Act does not define a market of interconnection as well as regulated wholesale prices for operators of mobile telecommunications networks.

As could be seen on figure 33 after the reduction of the calculated price for traffic termination from the fixed to the mobile network with 0,20 €-cent/min and the last change in the end user prices of BTC PLC at the end of 2003 the user price per one-minute call from a fixed to a mobile network in Bulgaria remains relatively high compared to the prices for a one-minute long-distance call in the fixed network – almost three times higher than the price of a call to the most remote zone for long-distance calls.



Source: BTC PLC

Note: The prices are VAT excluded

Figure 33

## 6. DATA TRANSMISSION NETWORKS

In 2003 thirty four new operators have been granted licenses for construction, maintenance and operation of public telecommunications networks for data transmission.

After the Telecommunications Act came into force (promulgated in the State Gazette No. 88 of October 7, 2003) the telecommunications activity “construction, maintenance and operation of public telecommunications networks for data transmission without using scarce resource” passed from a licensing to a registration regime. At the end of 2003 CRC developed and adopted a General License No. 217 for providing telecommunications through public telecommunications networks for data transmission without the use of the scarce resource. In accordance with the terms and conditions of this license there would be an automatic re-registration of the operators carrying out their activity without using a scarce resource. Under individual license will remain five operators using scarce resource – numbers for accomplishing their activity, three of them were granted licenses in 2003 – “Sofia Communications” AD, BTC – NET EOOD and “Comnet Bulgaria” OOD.

From a total of forty-six licensed operators of data transmission networks running in 2003 were twenty-seven and seventeen perform their activity under a free regime – provision of services for Internet access (mainly non-dial-up).

At the beginning of 2003 the Bulgarian data transmission market was entered by the international company “SITA – International Company for air-traffic telecommunications –Sofia Branch”. The activity of the company comprises construction and maintenance of telecommunications data transmission network on the territory of the Republic of Bulgaria using the global network of SITA in 220 countries and territories worldwide for the provision of data transmission and Internet access services to business customers. By the end of the year the “Sofia” Airport, the “Varna” Airport and the “Bourgas” Airport have been interconnected.

In 2003 the big companies with a deployed infrastructure have also entered the data transmission market. “Bulgargas” has been licensed in the middle of the year and at the end of the year it has already built up an optic cable network of 650 km. According to the intentions declared by the company it is planning to rent separate parts of its network to other telecommunications operators.

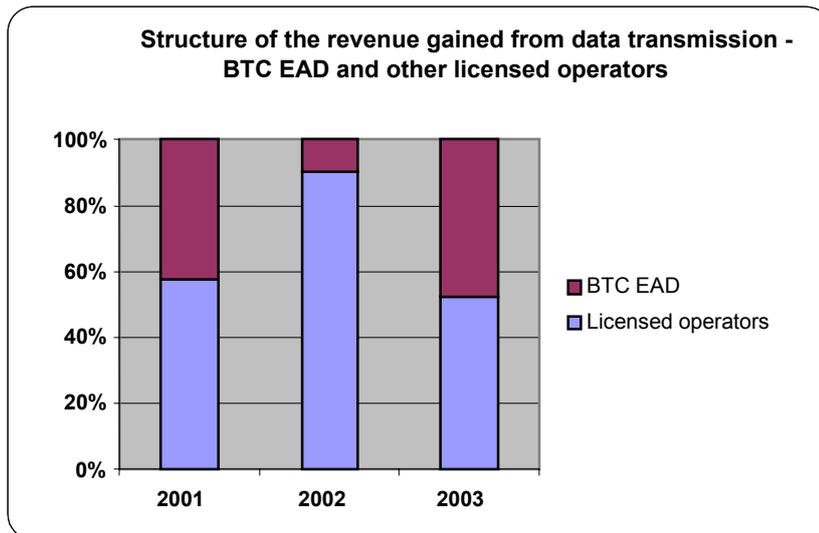
Intentions for entering the telecommunications market have been declared also by the “National Electricity Company” and “Overgas”. Using their constructed networks the national infrastructures have the opportunity to also lay optic cables thus minimising their costs.

In 2003 “Cabletel” AD is still in the process of constructing its network and at the end of the year the optic fibre route connecting Sofia and Plovdiv was built. The company demonstrated a video connection between the two cities. Thus, through the network of “Cabletel” AD the subscribers would have a simultaneous access to a telephone, cable TV and Internet. The optic fibre route will be extended to other cities in Southern and Eastern Bulgaria and by the end of next year it is expected to have international connection through Greece, Romania and Turkey.

In 2003 the volume of the “data transmission” market segment amounted to BGN 9,620 million<sup>29</sup> and it has grown by 3% compared to 2002. During the year an increase in the share of revenues of BTC PLC compared to the prior year was observed (from 9, 8% in 2002 to 48% in 2003). BTC PLC reported five times more revenues generated from its data transmission activity in 2003 (Figure 34).

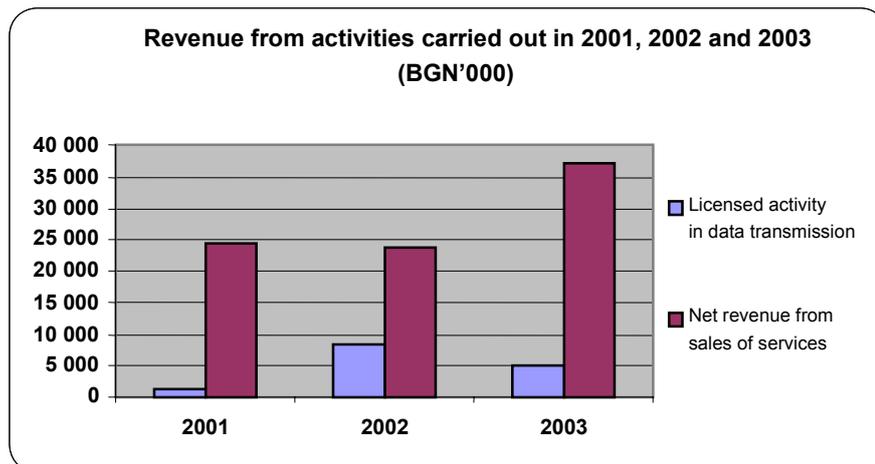
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<sup>29</sup>from the total volume of revenues of the licensed operators of data transmission networks excluded are the revenues gained from Internet access service provision



**Source: CRC**  
**Figure 34**

In 2003 the revenues gained from the licensed data transmission activity of the operators (excluding BTC PLC) represent 14% of the net revenues from sales of services. For comparison in 2002 this indicator was 35, 4% (Figure 35). The decrease of the value of the indicator is due to the fact that a lot of the newly licensed operators (“Evrocom Cable”, BTC-NET EOOD etc.) perform other telecommunications services as well from which they accumulate higher revenues.

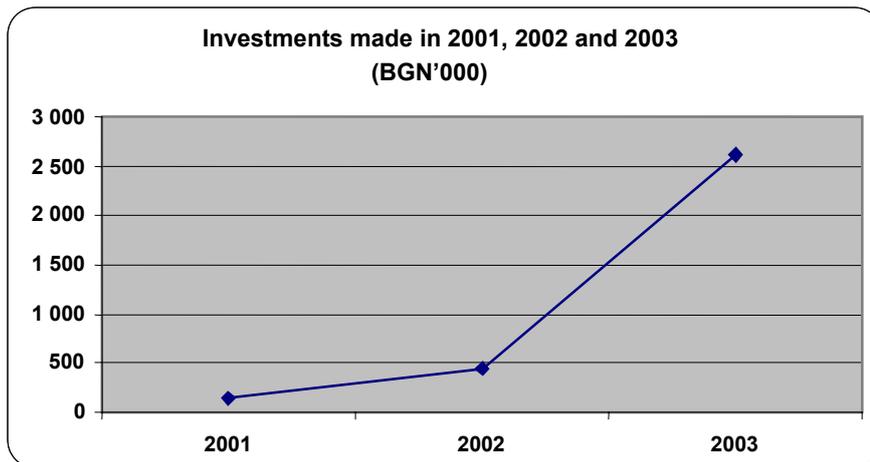


**Source: CRC**

**Note:** The revenues of BTC PLC are excluded from the chart. The net revenues from sales of services have been taken from item 1.b) Net revenues from the sales of services from group I. Revenues from the activity according to the Reports for revenues and expenditures of the licensed operators and are revenues generated from the provision of telecommunications services.

**Figure 35**

During the past year the investments made in data transmission networks amount to BGN 2,617 million or almost seven times more than in 2002 (Figure 36).

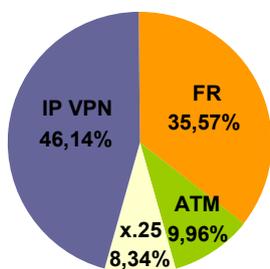


Source: CRC  
Figure 36

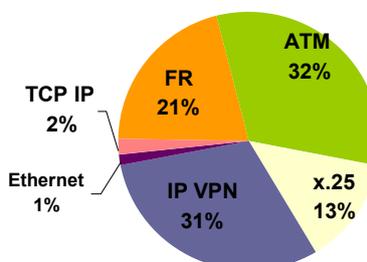
For the provision of services through data transmission networks different protocols are used and the most used are Frame Relay, ATM (Asynchronous Transfer Mode), and x.25. One of the main activities of the licensed operators is also the development of virtual private networks. Currently, on the market there are already operators that carry out data transmission over an Ethernet protocol. Since August 2003 BTC PLC also offered a new service to the consumers – development of a client’s virtual local network through a high-speed optic network for data transmission over the Ethernet protocol. This is a service through which separate segments of the local network or separate networks of a given client/clients are connected in one virtual local network – VLAN on the territory of Sofia.

The analysis of the revenues distributed by types of services shows a considerable increase in the revenues from the provision of ATM services in 2003 – almost 8 times more compared to the preceding year. The main operators that provide services based on ATM are BTC PLC and BANKSERVICE AD. An increase in the revenues from the provision of x.25 based services could also be seen. In accordance with the study of International Data Corporation (IDC) from 2003 dedicated to the dissemination and usage of Frame Relay and ATM services all over the world the services supported by ATM will still play an important role on the data transmission market but the world trend is towards increased usage of IP VPN.

Structure of revenue by types of services in 2002



Structure of revenue by types of services in 2003



Source: CPC  
Figure 37

Five of the operators envisage providing during the next year a voice transmission over the Internet through their licensed data transmission network.

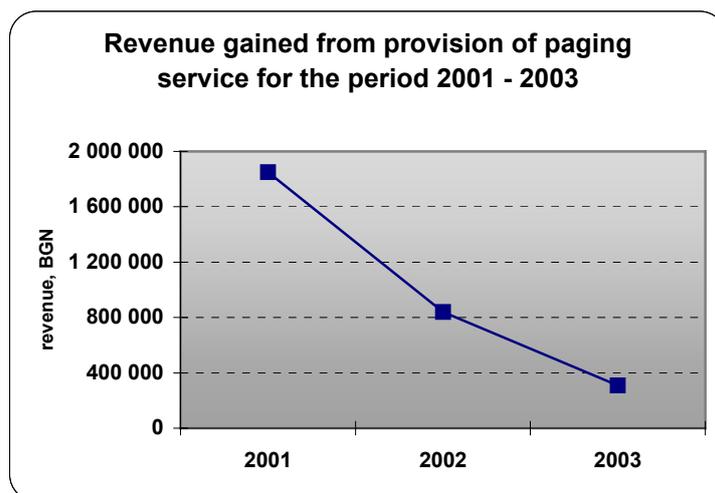
The trend from 2002 of increasing the number of operators active on the data transmission market is deepening and it is expected that in 2004 other Internet service providers will also perform such activity.

## 7. PUBLIC PAGING NETWORKS

Only two operators of public paging networks continued their activity in 2003 – RTC OOD under the trade name “Mobipage” and “Varna page” OOD. The network of RTC OOD has a national coverage and that of “Varna page” OOD provides services on the territory of Varna. At the beginning of 2003 expired the licenses of “Skortel – PRP” OOD and “Di-Va” OOD that provided services through their paging networks on the territory of Sofia City. Since the beginning of 2003 BTC PLC also ceased the provision of public services through its paging network.

The analysis of the segment confirmed the trend from the recent years towards a strong shrinking of the market of the paging services. The technological development of the networks and the resulting emergence of new and complex mobile services such as transmission of voice, data and image – SMS, MMS etc. provided through the GSM network decreased consumer interests in the paging services. The diversity of attractive price packages offered to the consumers of mobile operators whose networks operate under the NMT and GSM standard also resulted in a drop in the demand for paging services.

In 2003 the total revenues gained from paging services amounted to BGN 310 000. The revenues from the activity for this financial year decreased by around 63% compared to the prior year. That is with 10% more compared to the decrease of revenues from the licensed activity for 2002 compared to 2001.



Source: CRC

Figure 38

At the end of 2003 the total number of residential and business subscribers of the paging networks was 5 207. The number of the subscribers of the leading national operator RTC OOD has decreased by 42% compared to the end of the preceding year. At the end of 2003 the “Mobipage” service was being used by 99% of the total number of subscribers of the paging services.

Due to the falling efficiency of this type of telecommunications activity the operators are thinking to terminate the activity under the issued licenses for carrying out telecommunications through paging networks and the provision of services through these networks.

It is expected that in 2004 the provision of paging services on the Bulgarian market would be finally terminated.

## 8. SATELLITE SYSTEMS

In 2003 continued the issuance of licenses to new telecommunications networks in the fixed satellite radio service and to Earth fixed satellite networks and by the end of the year

commercial activity was performed by five operators – “BTC PLC, “Teleport Bulgaria” AD, “Telenor Bulgaria” EOOD, “Netera” EOOD and “Bulsatcom” AD. The adoption of the new Telecommunications Act (promulgated in the State Gazette No. 88 of October 7, 2003) did not introduce any amendments in the licensing regime of the VSAT networks, of the networks in the fixed satellite radio service and of Earth fixed satellite networks.

At the beginning of the year a license was issued for data transmission through construction, maintenance and operation of a network in the fixed satellite radio service to “Transat” AD, a subsidiary of “Petrol” AD. In 2003 the company built up the first VSAT network on the territory of the country with own managing HUB station and the volume of the investments in the network exceeded half of those made in the VSAT sector. Based on Internet protocols this technology provides rich opportunities for the realization of dialogue applications for commercial and bank information systems, Internet provision, distance learning, process control, file transfer. The company secures TCP/IP communication medium for information applications and offers links with guaranteed security and speed. “Transat” AD has been granted another license in 2003 for fixed radio service but the network is still in the process of development.

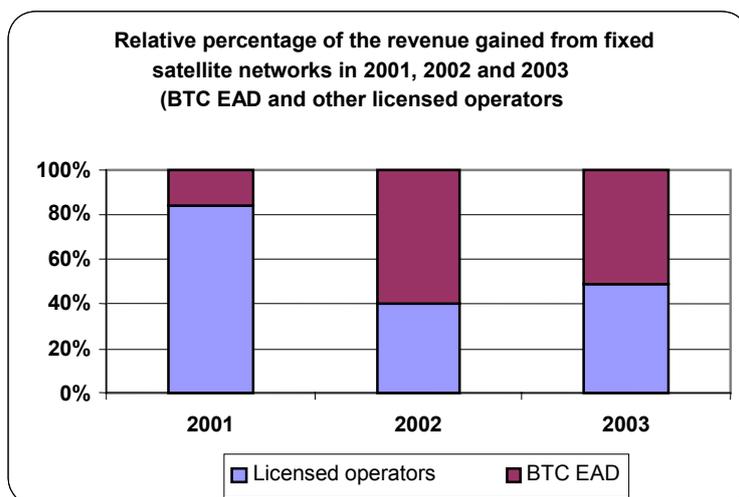
An individual license for the construction, maintenance and operation of Earth fixed satellite network has been issued to “Netera” EOOD and it is in the process of development. The company provides services through its centers for terrestrial and satellite communication. “Sofia Teleport” and “Telecom Center” – Rousse. It secures also a direct connection to the I.T.E.N.O.S. - Frankfurt, one of the largest centers for data transmission in Europe. In 2003 a project was announced for the building of optic network that would connect eight large cities and through which an international connectivity would be realized. The operating network that was licensed in 2002 consists of one transmitting fixed Earth satellite station and provides satellite transfer of one TV and two radio programmes.

The network of “Telenor Bulgaria” EOOD has been functioning since 2001 and consists of one transmitting fixed Earth satellite station located in the region of the Vitosha mountain, CRC Kopitoto, that realizes connection with the satellite BIFROST – 2 of the satellite organization “Telenor Satellite” AS. The station is intended for TV and radio programs transfer including teletext in digital format. In 2003 the operator provides satellite transfer of 15 TV and 8 radio programmes.

“Bulsatcom” AD has been granted a license in 2002 for the construction, maintenance and operation of a public telecommunications fixed Earth satellite network for data transmission and satellite distribution of TV and radio programmes. Since November 2003 the company offers reception of TV programmes through the digital technology DVB from the satellite “Hellas Sat 2” and by the end of the year has its first subscribers of digital television service.

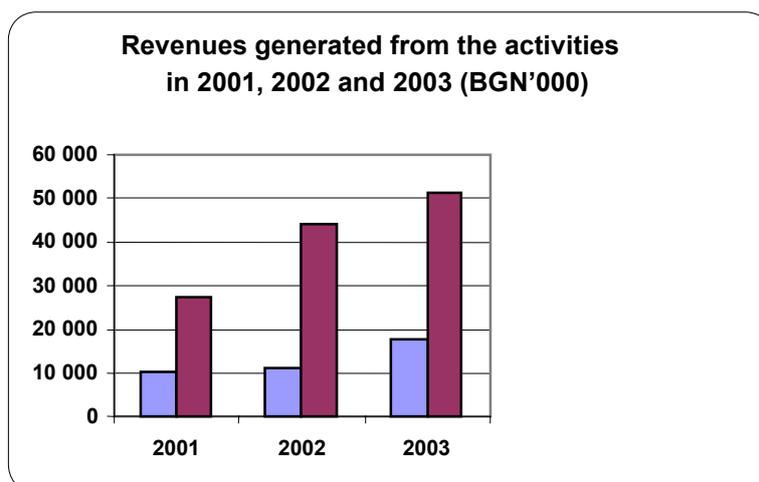
“Teleport Bulgaria” AD has two licenses for construction, maintenance and operation of public VSAT networks on the basis of which it provides data transmission services as well as satellite services through constructed public telecommunications VSAT networks – “Teleport II” and “Teleport III” comprising a total of five fixed satellite stations connected to the satellite NSS 703 of the satellite organization “New Skies Satellites” and the satellite “Eutelsat II-01” of the satellite organization “Eutelsat”.

The complex license of BTC PLC includes also activities on construction, maintenance, usage and development of satellite telecommunications networks and of Earth stations for satellite communications. The platform for satellite transfer of digital TV and radio programmes is additionally equipped with the option for transmission of a total of 12 TV and 24 radio programmes. The reliability of the system has also been improved by the introduction of management and control system. This service is intended for the national and regional air and cable operators. Regardless of the increased capacity the subscribers of digital satellite transfer have not raised in number compared to the preceding year.



**Source: CRC**  
**Figure 39**

The volume of the market segment of fixed satellite networks in 2003 amounted to BGN 3,5 million and has increased by 23% compared to 2002. The relative share of the revenues of BTC PLC represented 51% of the total volume of revenues. In 2003 a decrease in the market share of the former monopolist was observed while the revenues of the other licensed operators were by 8% more than in 2002 (Figure 39).

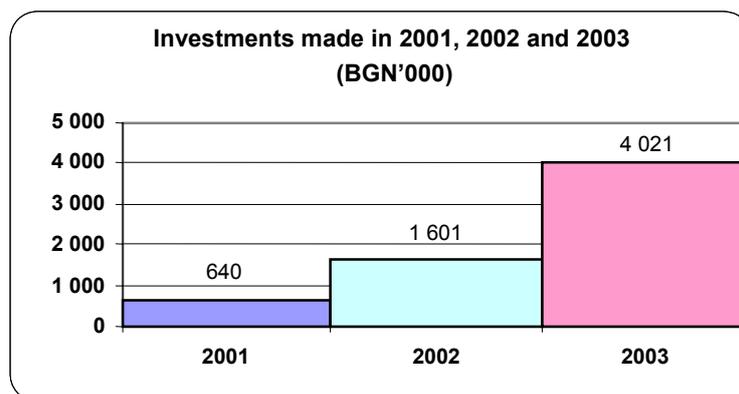


**Source: CRC**

**Note:** The revenues of BTC PLC are excluded from the chart. The net revenues from sales of services have been taken from item 1.b) Net revenues from the sales of services from group I. Revenues from the activity according to the Reports for revenues and expenditures of the licensed operators and are revenues generated from the provision of telecommunications services.

**Figure 40**

The revenues of the licensed operators of public satellite networks for 2003 (excluding BTC PLC) have increased 1,5 times compared to 2002 and represented 40% of the corporate net revenues from sales of services. For comparison in 2001 the revenues from the licensed activity were 37% of the net revenues from sales of services and in 2002 – 26% (Figure 40).



**Source: CRC**  
**Figure 41**

The investments made in fixed satellite systems in 2003 retained the growth trend and they have increased 2,5 times in comparison with 2002 (Figure 41) and amounted to BGN 4,021 million.

In 2003 two new licenses for fixed Earth satellite station were issued; but new operators have not entered the market of fixed satellite systems yet. There is a tendency towards enlarging the scope of activity of the operators already functioning on this market. An increase in the volume of the market of fixed satellite networks is expected in the future due to the fact that they prove to be an alternative to the existing terrestrial cable and radio networks, providing higher quality of the emitted signals with a guaranteed security and data transmission speed.

## **9. TERRESTRIAL BROADCASTING**

In 2003 after the adoption of the new Telecommunications Act (effective from October 7, 2003) the practice established since 2002 of dividing the functions on regulation of the media sector has been retained. The regulation of the telecommunications activity of terrestrial broadcasting (radio and TV) is carried out by CRC, and of the programme contents – by the Council for Electronic Media (CEM). The licensing regime for telecommunications activity is directly bound to the licensing of the programmes for radio- and TV broadcasting activity in compliance with the provisions of the European legislation.

### **9.1. VHF FM RADIO BROADCASTING**

At the beginning of 2003 in the country there were 73 operators of public telecommunications networks for terrestrial radio broadcasting working under 185 licenses with local coverage and two operators working under licenses with national coverage – the Bulgarian National Radio and “Darik Radio” AD.

In 2003 CRC did not issue licenses for this type of telecommunications activity. 40 licenses for terrestrial radio broadcasting with local coverage were canceled following an appeal of the results from a competition for issuance of licenses for this type of activity in the respective towns. Under two more licenses for which the CRC has not pronounced yet no activity is being performed due to appeal against the results of a held competition.

So, as of December 31, 2003 fifty-eight operators of public telecommunications networks for radio broadcasting with local coverage run their activities on the market under 143 licenses. More than half of the operators work in more than one settlement.

In some of the regions as Montana, Lovetch, Pernik and Silistra as of December 31, 2003 contest procedures have not been opened and individual licenses have not been issued for the construction of public networks for radio broadcasting with local coverage. In this regions radio broadcasting is performed by radio stations that have launched their activities before August 15, 1998 when the Telecommunications Act became effective (State Gazette No. 93 of August 11, 1998). In 2003 on the territory of Bulgaria worked 30 of these radio operators. They have already

filed applications for licensing their current telecommunications activity and will be granted licenses in 2004.

All operators of public radio broadcasting networks air their own programmes.

The national radio operator, that has license for the whole territory of the country, is the Bulgarian National Radio. It broadcasts 24-hours a day "Horizont" and "Hristo Botev" programmes as they both have achieved 100% coverage by territory and population. BNR performance includes also the emissions for abroad "Radio Bulgaria" that broadcast daily programmes for 100 countries worldwide in 10 languages 55 hours at average a day. The "Horizont" programme is broadcasted on the Internet 24 hours a day. Five regional programmes are included in the BNR system: Varna – with 24-hours programme, Plovdiv, Stara Zagora, Shoumen and Blagoevgrad – with 18 –hours a day programmes. On the web site of BNR "Radio Bulgaria" broadcasts in real audio mode news in English, French and Russian.

The other radio operator with national coverage – "Darik radio" is the first private radio in Bulgaria. Its programmes are broadcasted in real time and on the Internet. The signal of "Darik radio" has been uploaded through an Earth satellite station to the satellite Intelsat.

The revenues from the major activity of the two radio operators holding national license have grown by 6% as of December 31, 2003 compared to December 31, 2002 as 96% of the amount of the revenues have been generated from radio advertising.

## **9.2. TELEVISION BROADCASTING**

As of December 31, 2003 three operators provided services under issued licenses for terrestrial TV broadcasting with national coverage – Bulgarian National Television /BNT/, "Balkan News Corporation" EAD (BTV) and "New Television – First Private Channel" EAD.

Before July 2003 when following a competition held the CRC issued an individual license for terrestrial TV broadcasting with national coverage on the name of "New television – First Private Channel" EAD, then programme of "New television" was broadcasted by "Multimex – I.D." AD under the license with local coverage on the territory of Sofia issued to the operator.

In 2003 the revenues from the main activity of the television operators amounted to BGN 91 mln. that is 15% more compared to 2002. More than 90% of the realized revenues are generated from the emission of advertisements as their relative share in the general structure of revenues has retained its value from the prior year.

The amount of the foreseen investments in networks for 2004 is around BGN 5 mln. that represents 23% more than those made for construction, maintenance and operation of the networks for television broadcasting in 2003.

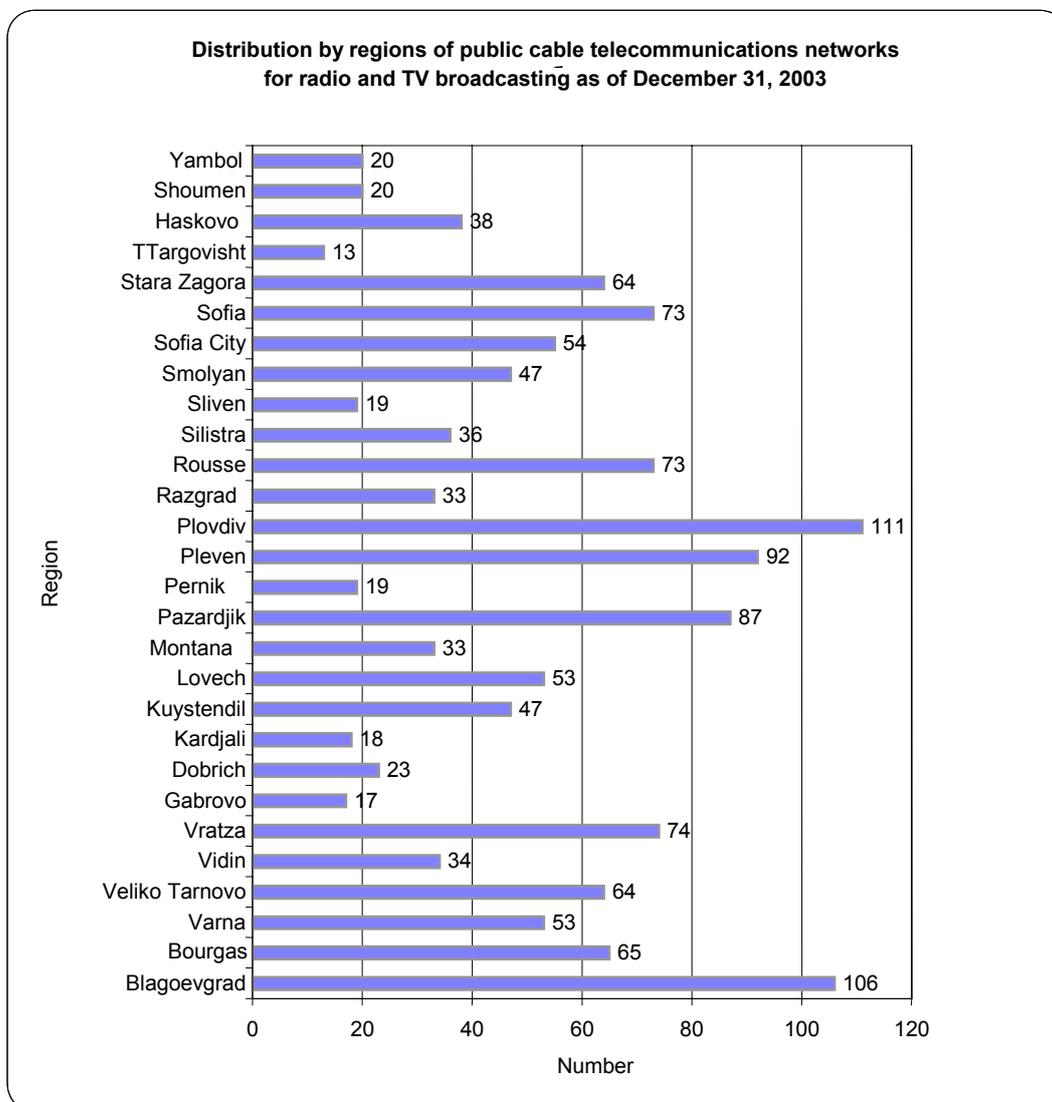
The coverage of population attained by the BTV programme as of December 31, 2003 was 97.6%, that of the BNT programmes – 94, 4%, and that of "New television – first private channel" EAD – 52%. The BNT has four regional centers in the cities of Blagoevgrad, Varna, Plovdiv and Rousse.

Besides "Channel 1" the BNT broadcasts the satellite "TV Bulgaria". The BNT satellite channel is broadcasted through EUTELSAT. On the territory of Bulgaria all cable TV operators broadcast "TV Bulgaria" programme. BTV has signed a contract with "Netera" OOD for a satellite broadcasting of its programme. The three national operators are in permanent competition among each other for winning national audience.

A trend has been observed that the operators holding individual license for radio or television programmes make use of alternative forms for signal carriage – through satellite or cable, using the existing networks of other licensed telecommunications operators.

## 10. CABLE TELECOMMUNICATIONS NETWORKS FOR RADIO AND TELEVISION BROADCASTING

In 2003 the licensing of public cable telecommunications networks for radio and television broadcasting continued. The licenses issued for this type of telecommunications activity in 2003 were 240 and thus, their total number reached 1 386 and the number of the cable operators – 563.

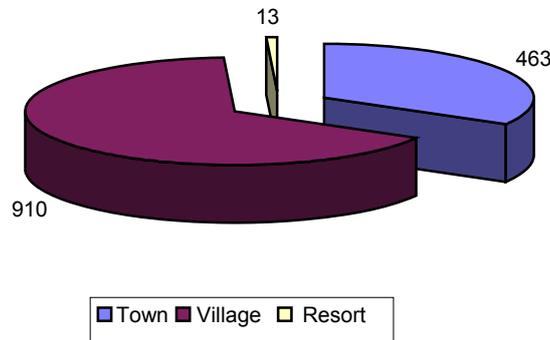


**Source: CRC  
Figure 42**

The issued individual licenses are unevenly distributed by regions - almost half of the networks have been built in eight of the twenty eight regions of the country (Figure 42).

Cable telecommunications networks for radio and television broadcasting have been built up in 234 towns from a total of 240 and in 942 villages from the total of 5100 in Bulgaria. In only 18% of the villages there is a cable infrastructure while for the towns this indicator is nearly 100%.

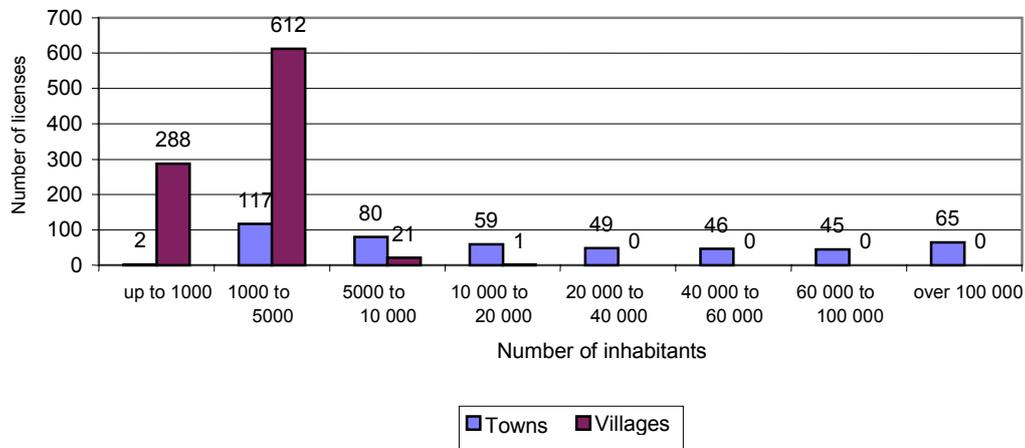
**Distribution of individual licenses for construction, maintenance and operation of public cable telecommunications networks by type of settlement as of December 31, 2003**



**Source: CRC**  
**Figure 43**

Figure 43 shows the distribution of the licensed public cable telecommunications networks according to the type of the settlement on which territory they operate. From their total number, 910 (or 65% of all networks) provide territorial coverage in the villages, and 463 – in the towns. The number of the networks in the villages has achieved a growth of 20% compared to 2002.

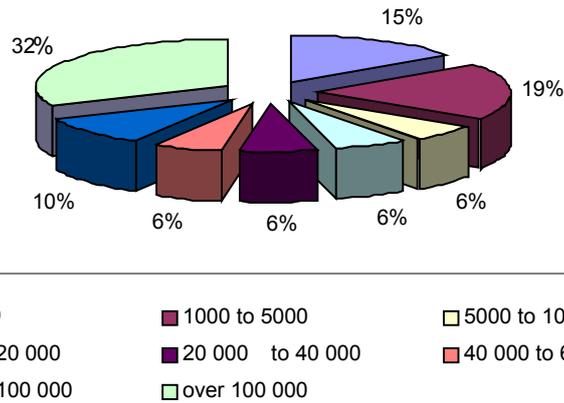
**Settlements with developed public telecommunication networks as of December 31, 2003**



**Source: CRC**  
**Figure 44**

Almost 75% of the cable networks for radio and television broadcasting have been built in the small towns and villages with a population up to 5000 residents and yet they cover just one-third of the population of the country. In the towns with a population of over 60 000 residents in which almost half of the population is concentrated only 8% of all networks have been built (Figure 44).

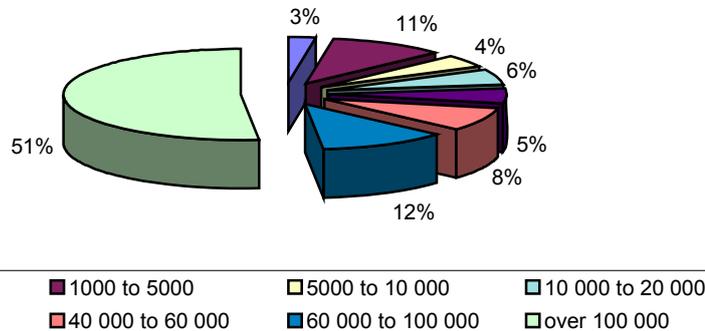
**Structure of Bulgarian population by number of inhabitants of certain settlements as of December 31, 2003**



**Source: National Statistics Institute**  
**Figure 45**

The high concentration of the population in the large cities, on one hand, and the higher living standards in these cities, on the other, determine the higher relative share of the population that makes use of the services provided by the cable telecommunications operators. In the large cities with a population of over 100 000 residents more than half of the total number of subscribers is concentrated. The relative share of the subscribers in the towns with a population of over 60 000 people (considering the accumulation) is 63%.

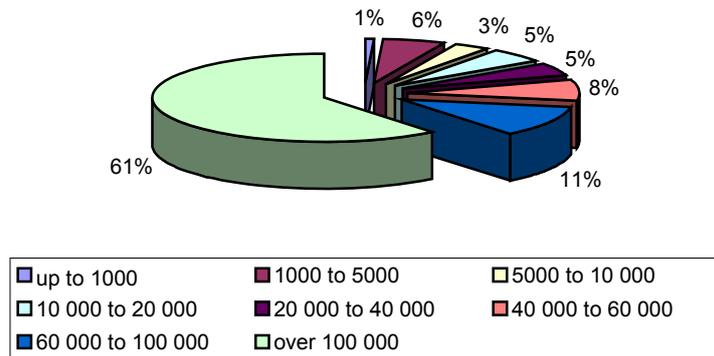
**Structure of number of subscribers according to the number of inhabitants in certain settlements as of December 31, 2003**



**Source: KPC**  
**Figure 46**

In the small towns and villages with a population of up to 5000 people this indicator is 14%. The total number of subscribers of cable telecommunications networks in Bulgaria as of December 31, 2003 based on an expert evaluation of the data received by the CRC from 45% of the licensed operators is 1 002 357. According to this indicator the market of cable telecommunications networks has achieved a growth rate of 37% compared to 2002.

**Structure of revenues from cable telecommunication activities according to the number of inhabitants in certain settlements as of December 31, 2003**



**Source: CRC  
Figure 47**

Presented on Figure 47 is the structure of the revenues generated from cable telecommunications activity. In view of the fact that more than half of the subscribers are located in towns with over 60 000 residents the revenues from public cable telecommunications activity in these towns constitute a significant part of the total market revenues – 72%. In settlements with up to 5000 citizens this indicator is just 7%.

In accordance with an CRC expert evaluation the volume of the total revenues generated in this market segment for 2003 has been almost BGN 130 mln. and has increased by 48% compared to 2002. The main part of the revenues has been realized from the distribution of radio- and television signals.

An increase in the offering of complementary services on the cable network was observed in 2003 – distribution of encoded programmes and access to Internet. Provision of complementary services is mainly carried out by the large cable operators and the operators in the big cities. These services represent still an insignificant part of the total revenues structure but the expectations are towards a further increase in their share.

The Bulgarian market of cable telecommunication services is in a process of development and restructuring. In 2003 continued the trend of capital concentration and merging of companies that is a prerequisite for enlarging the opportunities for investments, improvement of the service quality and rising of the effectiveness.

The regulatory activity of CRC is directed towards the implementation of a more relieved registration regime for the cable telecommunications networks. With regard to the adoption of the Telecommunications Act dated October 7, 2003 and the Ordinance No. 13 dated December 22, 2003 for specifying the types of telecommunications activities subject to individual licensing and to registration under general license in the beginning of 2004 the licensed cable telecommunications networks passed to a registration under General license No. 201 of December 23, 2003 for carrying out telecommunications through a public cable network for the distribution of radio- and television programmes and for the provision of telecommunications services through this network. The registration regime does not envisage payment of annual fees for the regulatory activities. The more relieved conditions for registration of this type of telecommunications activity gives the opportunity for providing coverage of a larger part of the Bulgarian population, widening the scope of the services offered and strengthening the competition in the sector as a whole.

Under the conditions of a liberalized telecommunications market it is anticipated that the cable telecommunications networks would become a real alternative for the provision of a voice telephone service as well.

## **11. INTERNET ACCESS SERVICE PROVISION**

With the development of the telecommunications market a trend of a mass penetration and development of IP-based networks for communications and provision of services through these

networks has been observed. The uniform IP-infrastructure (using Internet protocol) ensures conditions for the provision of voice services and access to the Internet. By preserving the reliability and the high quality of services the open IP-architecture gradually replaces the traditional networks with switching of loops and allows the conventional services to be offered in a single package – based network. More and more applications are being used for the provision of Internet services through the existing telecommunications networks.

After the amendments in the regulatory framework with the adoption of a new Telecommunications Act of October 2003 the provision of the service “Internet access” is still carried out under a free regime. In compliance with Article 48 para 1 item 4 of the Telecommunications Act (promulgated in the State Gazette No.88 of 2003) this type of activity is carried out without individual license and a registration under general license. From the EU Candidate Countries only in Bulgaria and Latvia the Internet service provision is carried out under free regime.

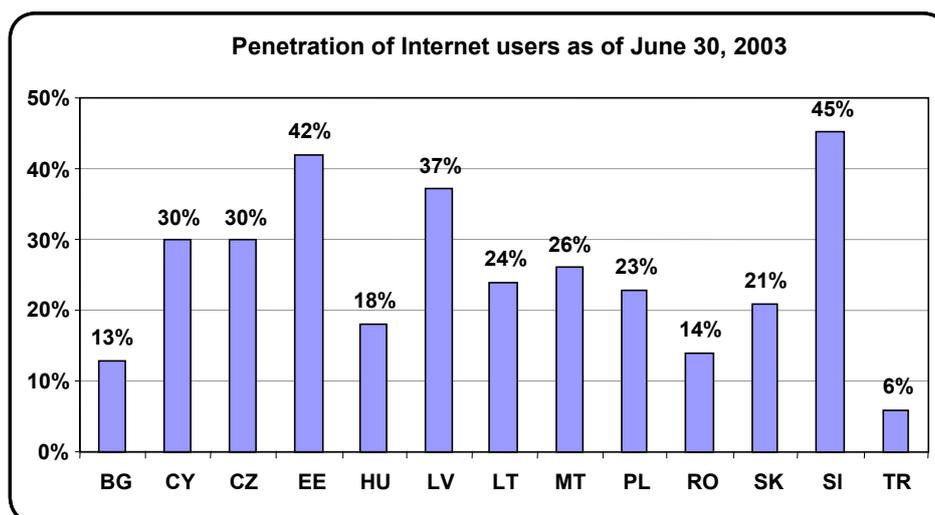
The absence of a licensing or registration regime makes it more difficult to obtain official information on this type of telecommunications activity as well as to protect the consumers of Internet services. Again, this year CRC requested data on the activity of the Internet service providers (ISP) for 2003 but the information submitted to the Commission was insufficient for a comprehensive analysis of this intensively developing market segment.

For the analysis of the Internet market, data are used from independent Bulgarian and foreign agencies as it is hard to find comparable sources for its assessment. The different surveys for the country showed a lasting trend for increase in the Internet consumption. The data showed an increase in the number of the users and of the time used for Internet access.

According to data of “Alpha Research” for 2003 the number of the users has increased from 14, 6% in January to 20, 9% in November<sup>29</sup>. Reported are fluctuations for the different months but the gradual increase was retained. In accordance with the data of GfK Bulgaria Internet users amounted to 14,5% of the population above 15 years of age (as of October 2003) that is around 900 000 people.

In 2003 the National Statistics Institute (NSI) carried out for the first time a specialized statistical survey on the access to information and communication technologies in the households and among the population. The survey confirmed the tendency of increase in the number of consumers of Internet services. According to the NSI information 10,5% (650,9 thousand) of the population of age between 15 and 74 years are Internet users.

The comparison of the data for penetration into Internet in the EU Candidate Countries is shown on Figure 48 below:



**Source:** 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)<sup>30</sup>

**Figure 48**

<sup>30</sup> The national representative surveys of Alpha Research pertain to the population above 18 years of age.

<sup>31</sup> [http://europa.eu.int/information\\_society/topics/ecom/doc/all\\_about/international\\_aspects/eu\\_enlargement/4th\\_report\\_final.pdf](http://europa.eu.int/information_society/topics/ecom/doc/all_about/international_aspects/eu_enlargement/4th_report_final.pdf)

A full comparability of the information concerning the separate countries could not be made in a synonymous manner due to the different ways of defining the age limit, the type of Internet access, the activity demonstrated by the users etc. Nevertheless, in view of the overall monitoring, the conclusion was made that the significant percentage of Internet penetration in some of the countries was due to the higher degree of market liberalization (Estonia, Slovenia). The established co-relation implies a tendency of increase of the penetration degree on the Bulgarian market – the value of this indicator is still among the lowest even among the EU Candidate Countries.

Data are missing about the exact number of the Bulgarian Internet service providers (ISP). CRC requests information about the Internet market from about 170 ISPs. Only 11 of them can be determined as national on the basis of their presence in different towns of the country and a total number of subscribers.

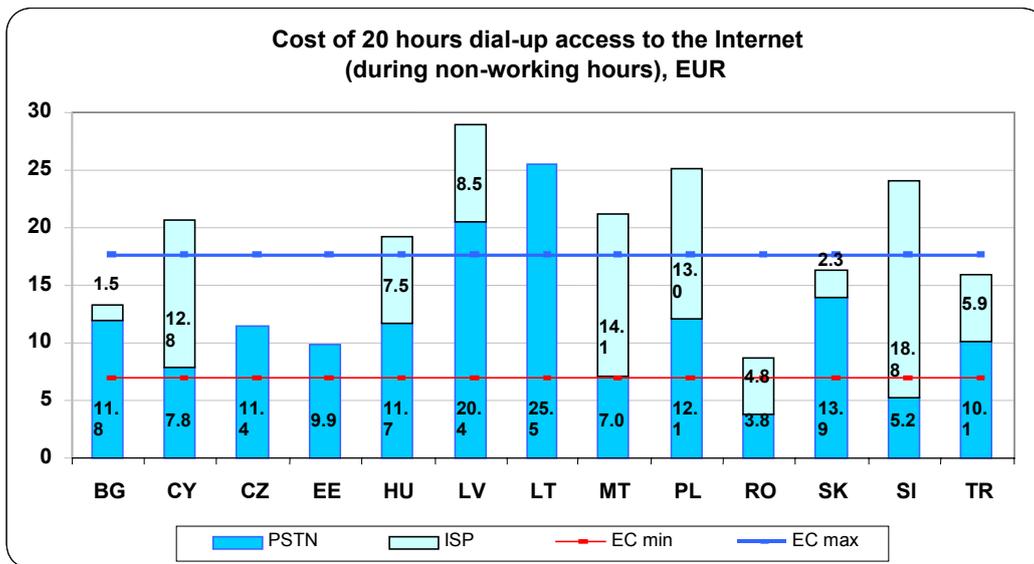
According to data obtained by the CRC the volume of the revenues gained by the ISPs at the end of 2003 amounted to around BGN 60 mln. and the Internet market continues to grow. In 2003, twenty-four of the Internet providers that is about 14% of their total number, got individual licenses for public data transmission networks. The revenues for 2003 declared by these ISPs generated from the provision of Internet access significantly exceeded those generated in 2002 and represented about 12% of the total volume of the Internet segment.

The services provided by the ISPs are dial-up and non-dial-up Internet access, e-mail, web hosting, web design, VoIP (transfer of voice over Internet protocol) etc. The revenues from dial-up access were below 10% of the segment while the revenues from non-dial-up access were slightly above 60%.

The access to Internet through cable modem or through local area networks is becoming an alternative to the traditional ways. The number of operators of cable networks that provide such access continues to increase. The advantage is a quality and a faster connection than the one released through the dial-up access at a price lower than the one paid for a leased line. A problem for the consumers is that the cable Internet is accessible in districts where already exist cable telecommunications networks and the number of subscribers of one local network is limited. Residential users as well as business ones use cable Internet because of the more stable connection and the higher speed of data transfer. According to CRC data cable Internet is offered by 6% of the ISPs, which cover 4% of the segment.

The greater part of the subscribers use a dial-up access to the Internet through the public switched telephone network (PSTN) that is a property of BTC PLC. In the report from the final stage of the monitoring of the EU Candidate Countries presented are comparisons of the expenditures of the consumers using this type of Internet access. The data have been obtained under comparable circumstances for residential and business users. The expenditure is calculated on the basis of the most profitable price offered by a national ISP for 20-hour packages (during non-working time) and 40-hour packages (during working time) taking into account also the telephone consumption of the subscriber for Internet access through the PSTN.

The expenditures for the residential users are presented on Figure 49 below.



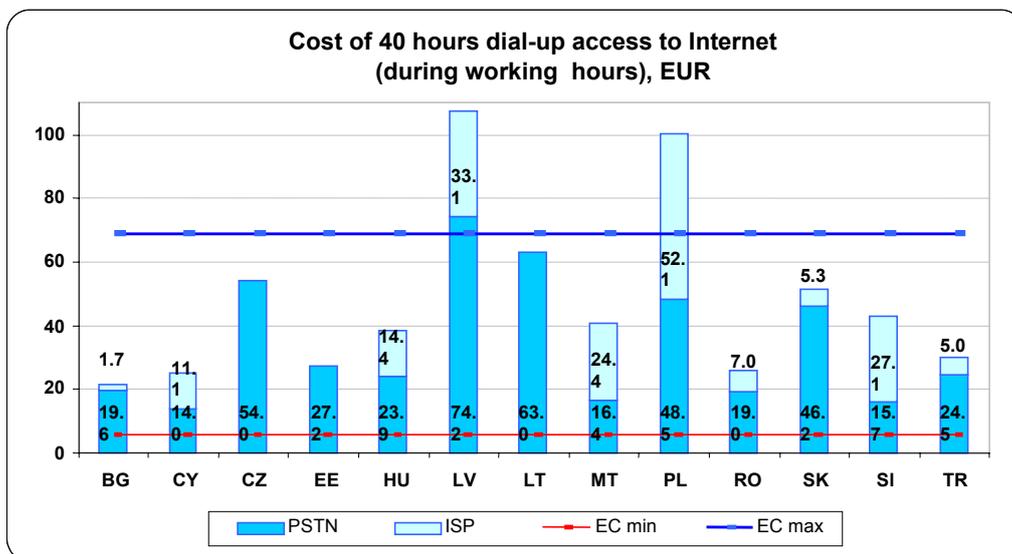
**Source:** 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)

**Figure 49**

Only in Bulgaria and Turkey the expenditures of the residential users have slightly increased while in five of the countries these expenditures have decreased compared to the prior year.

For comparison with the EU Member States limits are designated on the chart within which the expenditures of the residential users in these countries vary – the minimum and the maximum value are 6,9 € (France, with 7,3 € for 2002 ) and 17,7 € (Belgium, with the same value for 2002), respectfully.

The calculations of the expenditures of business users have been made for a 40-hour package dial-up access during the working time. The data are presented on Figure 50 below.



**Source:** 4th Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)

**Figure 50**

In general, the expenditures of the business users are significantly higher than those of the residential ones. The amount of these expenditures in the EU Candidate Countries is lower than

the maximum value for the EU Member States (69 € for Belgium, the same for 2002). The lower limit for Internet consumption in the EU is 5,9 € (France, as for 2002 the cost was 6,4 €).

It should be noted, however, that the business consumers use mainly the alternatives to the dial-up Internet access in spite of the higher cost of leased lines.

Re-calculated, the expenditures for the both user groups (residential and business), taking into account the GDP per capita for Bulgaria, tend to be much higher: the actual costs paid by the Bulgarian consumers are three times higher than the values shown on the charts above.