An overview of telecom market in the Republic of Serbia in 2006

Belgrade, 2007

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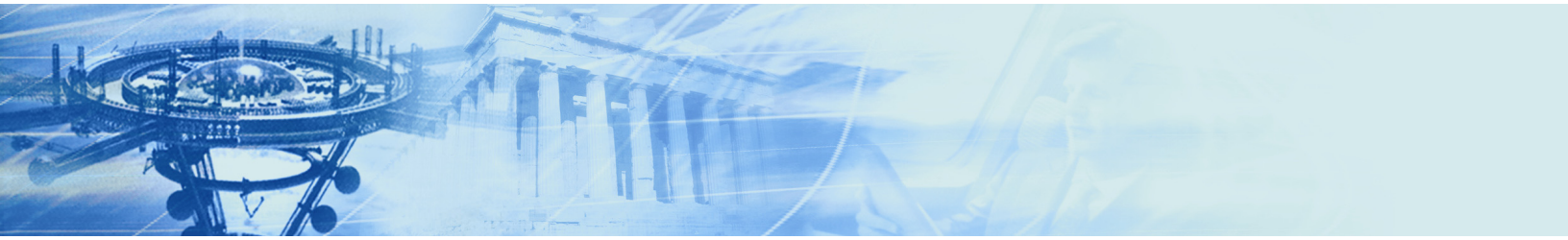


1. INTRODUCTORY WORD

In the Republic of Serbia, the process of liberalization and elimination of monopoly in telecom sector, as well as the beginning of harmonization with the EU legislation began with the adoption of the Telecommunications Law in 2003. The necessary condition for the implementation of this law was the establishment of the Republic Telecommunication Agency (RATEL). In late May 2005, the National Parliament of the Republic of Serbia elected the Managing Board of the Republic Telecommunication Agency, which provided, within the legal timeframe, all necessary conditions for RATEL to become operational and begin its work on 19 December 2005. Having rapidly resolved the initial problems concerning its functioning, in our view, RATEL successfully completed the business year of 2006, that this report is pertinent to.

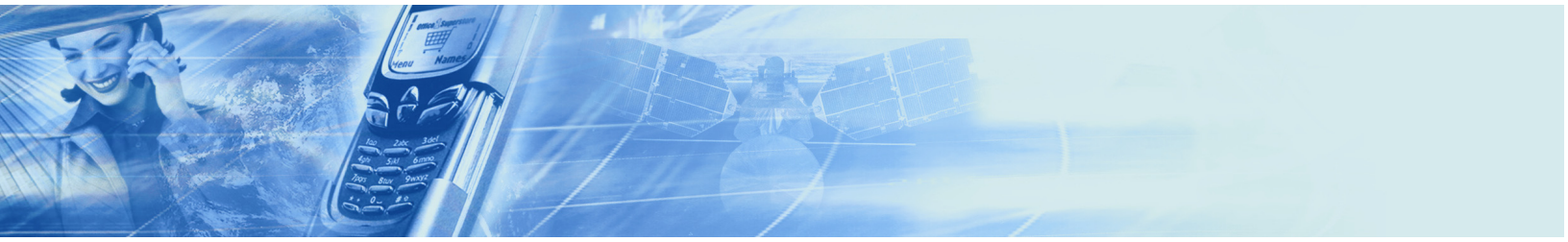
RATEL's main task is to create conditions for open market and to provide equal opportunities for all participants of the telecom sector. Accordingly, RATEL's principal aim is to provide conditions for further development of the telecommunications sector and fulfilment of public interests through:

- Market regulation based on acknowledged economic principles,
- Promotion of competition, introduction of new operators and new services,
- Continuous enhancement of the quality of existing services,
- User protection.

1.1. RATEL's ACTIVITIES IN THE FOLLOWING PERIOD

Pursuant to the Telecommunications Law, in performing the activities under this Law, RATEL is required to provide for the application of the Strategy for the Development of the Telecommunications Sector in the Republic of Serbia from 2006 until 2010, which has been adopted by the Government, thus enabling the fulfilment of the general public interest contained in the Strategy. In accordance with the Conclusion on the current state of the telecommunications development, the Strategy, inter alia, states that: "In terms of regulations governing the telecommunications sector, formal conditions have been created for de facto elimination of monopoly in telecommunications, liberalization and establishing a competitive market" and also that "…the development and regulation of the telecommunications infrastructure and services market are in the authority of RATEL." Accordingly, RATEL's Managing Board decided that the following activities will be crucial for the forthcoming period:

- Rational usage of the frequency spectrum;
- Establishing the universal service fund and full availability of universal service.



- Interconnection. The issues concerning international interconnection, leased lines and telecommunication ducts.
- Introduction of pricing according to the cost-based principles.
- Uniform development of telecom infrastructure and gradual migration to advanced packet switched networks. In particular, the development of advanced networks, as well as broadband and wireless Internet access.
- Harmonization of legislation relative to RATEL's competence with the EU regulations.

On this occasion, RATEL's Managing Board and management would like to emphasize once again their openness to co-operation with all relevant expert and scientific institutions and companies which can help us accomplish RATEL's defined mission in the telecom market in the Republic of Serbia. In this regard, RATEL will also continue to utilize the opinions and recommendations of the Advisory Council. Furthermore, we wish to present our views and results and hear the reactions of the general public and, therefore, we will initiate a series of expert discussions and, finally, through an open dialogue with all participants of telecom sector, i.e. operators, providers and end users, we will seek to continue with the decision-making such as to enable us to bring this sector of the economy closer to the experience of the economically developed countries that we need to aspire to.

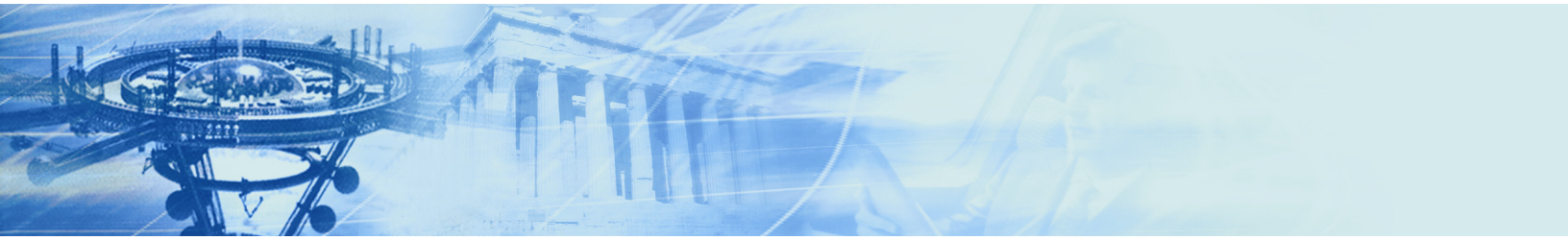
Chairman of the Managing Board of the
Republic Telecommunication Agency

Prof. Dr. Jovan Radunović

2. RATEL's ACTIVITIES IN 2006

Compared with 2005, when RATEL began its mission of telecom market regulation in the Republic of Serbia at the very end of the year, 2006 may be defined as the first and very successful business year for this Agency. All this is firmly confirmed by the following overview of business performance accomplished in the period from 1 January to 31 December 2006:

- Having regulation of telecom sector as its objective, RATEL adopted a large number of required bylaws. 15 Rules were adopted, regulating, inter alia: spectrum management, planning, usage, control and monitoring, technical inspections, procedures for control of telecommunications facilities compliance with standards and normative provisions, issuance of technical permits - certificates, issuance of authorizations for telecom service provision (Internet, cable distribution systems, etc.) Also, a number of bylaws regulating numbering, telecommunications networks, interconnection and universal service were also adopted or drafted.
- On the initiative of the Agency and as a result of great effort of RATEL's Advisory Council, in October 2006, the Government of the Republic of Serbia adopted the Strategy for the Development of the Telecommunications Sector in the Republic of Serbia from 2006 until 2010.
- Frequency Allotment Plan for analogue FM and TV stations was proposed and adopted.
- Numbering Plan for telecommunications networks was proposed and adopted.
- The License for mobile network and services issued to Telekom Srbija a.d. (Joint Stock Co.) was replaced.
- In collaboration with the Privatization Agency, a single public bidding procedure for the issuance of public mobile telecommunications network and public mobile telecommunications network services and sale of the company Mobi 63 was carried out, thus, making possible the biggest direct foreign investment in the Republic of Serbia, not only in 2006, but in the entire period 2000-2006.
- The License for public mobile telecommunications network and public mobile telecommunications network services was issued to Telenor ASA, Norway.
- The public bidding procedure for the issuance of the license to the third mobile operator was completed and the achieved price of 320 million euro was another direct foreign investment and the revenue to the budget of the Republic of Serbia. It should be noted that this is the highest price achieved for a mobile license in the whole region.



- The License for public mobile telecommunications network and public mobile telecommunications network services was issued to Mobilkom Austria, Austria.
- Based upon RBA tender, licenses were issued to 5 TV and 5 radio stations with national coverage.
- Based upon RBA tender, licenses were issued to 6 TV and 14 radio stations for the area of the city of Belgrade.
- 150 Internet service providers were registered with the Agency and 39 of them were granted work authorization.
- 58 cable systems operators were registered with the Agency and 1 of them was granted work authorization.
- More than 6000 radio station licenses were issued.
- More than 600 technical permits – certificates were issued.
- More than 860 technical inspections were performed.
- There was an increase in the number of users of all types of telecom networks and services, which was undoubtedly aided by the establishment of the Republic Telecommunication Agency and its involvement in performing its duties stipulated under the Law. This increase can be observed from the comparative overview of the number of users, the penetration level of public fixed telecom network, public mobile telecom network, Internet, cable systems and broadband services for 2005 and 2006 given in Table 1 below.

Table 1. Comparative overview of the number of users and penetration in 2005 and 2006

	2005		2006		Proportional increase in the number of users (%)	Absolute increase in the number of users (thousands)
	Number of users (thousands)	Penetration (%)	Number of users (thousands)	Penetration (%)		
Fixed	2,527.30	33.70	2,719.40	36.30	7.60	192.10
Mobile	5,510.70	73.50	6,643.70	88.60	20.60	1,133.00
Internet	756.70	10.00	1,005.00	13.40	32.80	248.30
Cable	530.50	7.00	541.90	7.20	2.15	11.40
Broadband	40.50	0.54	121.60	1.62	200.20	81.10

Source: RATEL

- More than 800 approvals for import of goods were issued.
- A new plan for digital broadcasting was co-ordinated, enabling the coverage of the territory of Serbia with 32 to 48 different TV programs, and 12 to 16 radio programs. (RRC-06 Conference in Geneva)
- Participation and work in a number of bilateral and multilateral meetings concerning international coordination for analogue and digital broadcasting.
- Contacts with other regulatory agencies from all countries in the region were established, as well as with relevant national and international institutions.
- Since late September 2006, RATEL has been officially registered with the International Telecommunication Union in Geneva, on behalf of the Republic of Serbia, as the representative for the regulatory issues.
- Today, RATEL collaborates with more than 1000 business partners.
- In 2006, RATEL released a publication entitled "**An Overview of the Telecom Market in the Republic of Serbia in 2005**".

Finally, during 2006, RATEL was very successful on the financial level as well, with total revenue of almost RSD 405 million and total expenditure of RSD 275 million. Since, under the Telecommunications Law, RATEL operates as a non-profit organization, the surplus of approximately RSD 115 million is paid into the budget of Republic of Serbia once the financial statement is audited.

Executive Director of the
Republic Telecommunication Agency

Dr. Milan Janković

3. BASIC INDICATORS

3.1. BASIC CHARACTERISTICS OF THE TELECOM MARKET IN SERBIA

This chapter provides basic parameters that characterize the telecommunications market in the Republic of Serbia.

The Republic of Serbia is situated in the central part of South East Europe (SEE). The geographic position is very convenient, since the corridors 7 and 10 pass through Serbia, connecting Central Europe with Asia.

Figure 1. The Republic of Serbia – basic facts

Country Map

Official Data

Name	Republic of Serbia
Capital	Belgrade
Area	88,361 km^2
Population (without Kosovo and Metohija)	7,498,001
GDP for 2006	RSD 2,084,668.3 mil. (€ 24.8 bn.) Real annual growth 58%
Average net income in December 2006	RSD 28,267 (€ 353) Annual growth 37.21%

Source: Statistical Office of the Republic of Serbia

The level of development of telecom market in the Republic of Serbia in 2006 was still low in comparison with the standards of the EU countries. The reasons for this are multiple, from the period of sanctions and isolation which slowed down the development of telecommunications, to events that took place in 1999 when a significant part of telecom infrastructure was destroyed. In 2000 the Republic of Serbia entered the transition process, which, among other things, enabled market opening, that led to significant developments in

the past couple of years. The final results of these processes are expected to emerge in a few years. The present goal is to achieve the level of the EU countries.

The Government of the Republic of Serbia adopted the Strategy for the Development of the Telecommunications Sector in the Republic of Serbia from 2006 until 2010. The Strategy is oriented towards the development of telecom infrastructure and service, as well as on the harmonization of the Serbian regulatory framework pertinent to telecommunications with the EU regulatory framework. It is characteristic for the developing countries to make large investments in the development of telecom systems and networks, which is why telecommunications are one of the main drivers of economic progress in our country. The increase of investments in telecom sector has a positive impact on the efficiency of other economic areas, which, finally stimulates the overall economic growth. The importance of the development of telecommunications is all the greater since it is one of the conditions for the accession to the EU.

According to Statistical Office of the Republic of Serbia data, the most dynamic growth in real sector in 2006 was seen in telecom and postal services sector and it amounts to ca. 74% (Table 2.).

Table 2. Economic activity in 2006 (%)

	%
Industrial production, physical scope	**4,7**
Construction, value of works	**31,0**
Traffic, scope of services	**10,0**
Telecommunications and postal services, scope of services	**74,1**
Retail trade, real growth	**7,7**
Tourism, overnights by tourists	**1,0**

Source: Statistical Office of the Republic of Serbia

Having taken into account the analysis of the actual situation in the telecom sector in the Republic of Serbia and the objective being reaching the level of the developed EU countries, the Strategy identifies the following goals, which need to be achieved within the set timeframe:

1) significant increase of the telecommunications' share in the total gross domestic product;
2) attracting foreign and domestic investments, by adopting incentive measures in order to create stimulative and favourable business environment;
3) full digitalization of the telecommunications infrastructure, as a key prerequisite for building the information society;
4) reaching the average European level of development of telecommunications;

5) providing that the Internet is available to everyone, and that it is fast, inexpensive and secure;
6) promoting the development of web economy;
7) increase in the participation of domestic industry and knowledge in the development of the telecommunications sector in the Republic of Serbia and ensure its restructuring in order to enter the world market;
8) harmonization of the development of telecommunications infrastructure with the requirements set in the strategies for other sectors, in particular with the Strategy for the Development of Information Society;
9) ensuring efficient access to information and knowledge;
10) increase in the level of knowledge and education related to information and communication technology, by building telecommunication infrastructure and information society.

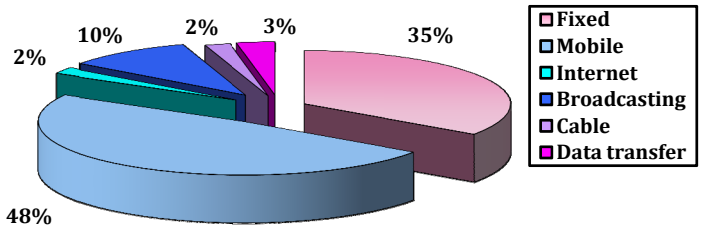
According to the Republic Telecommunication Agency data, the revenue from telecom services in 2006 amounted to RSD 109.4 billion, which equals around EUR 1.3 billion, this being an increase of 40% compared with 2005. The share in GDP was approximately 5.6%, which is a rather significant percentage compared with 2005 (when it amounted to 4.6%).

The Agency data was gathered based upon the reports submitted by telecom market players. The reports were collected during 2007, with balance on 31. December 2006, and they served as basis for the overview of the situation in telecom market in the Republic of Serbia.

The highest increase in revenue, 84%, was scored in the area of broadcasting, followed by growth in mobile telephony 39%, and Internet 38%, whereas the biggest share in the total volume was that of mobile telephony, 48%.

Revenue from telecommunication services EUR 1.3 bn. (5.6% GDP)

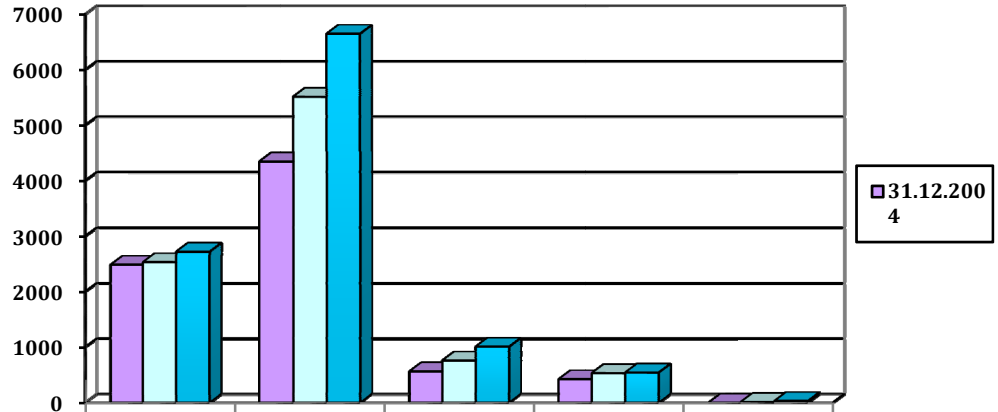
Figure 2. Allocation of revenue according to service in 2006



Source: RATEL

The highest increase in the number of users was seen in the area of Internet 33%, and the lowest increase was that of cable distribution, around 2%. It should be noted that the number of ADSL users increased three times.

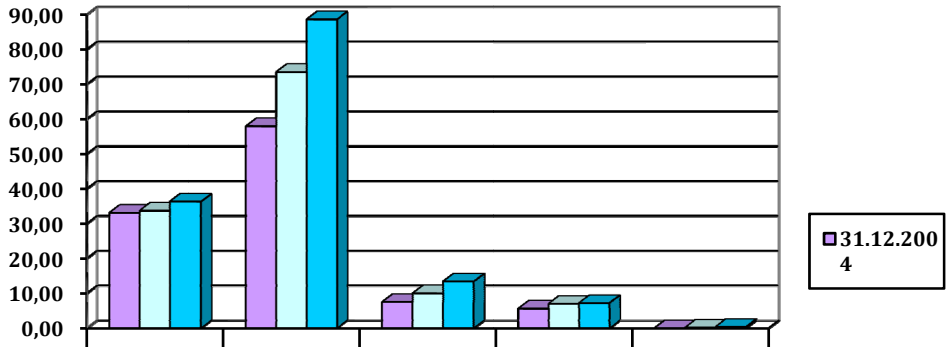
Figure 3. Number of users according to services (thousands)



	Fixed	Mobile	Internet	Cable	ADSL
31.12.2004	2481,5	4344,5	562,6	420,4	0
31.12.2005	2527,3	5510,7	756,7	530,5	9,5
31.12.2006	2719,4	6643,7	1005,0	541,9	26,1

Source: RATEL

Figure 4. Penetration



	Fixed	Mobile	Internet	Cable	ADSL
31.12.2004	33,10	57,94	7,50	5,61	0
31.12.2005	33,70	73,50	10,00	7,00	0,13
31.12.2006	36,30	88,60	13,40	7,20	0,35

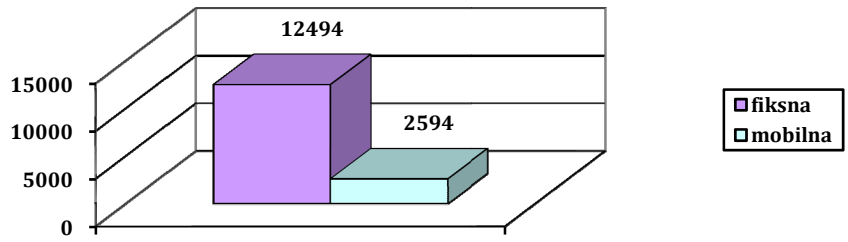
Source: RATEL

Total investments in telecom sector in 2006. amounted to ca. EUR 190 million. Total investments in telecom sector in past five years exceeded EUR 1.5 billion.

Total investments in telecommunications in 2006 EUR 190 mil.

As far as outgoing traffic in fixed and mobile network is concerned, it can be noted that public fixed network is more used since only 17% of total traffic was mobile network traffic, while the rest of the traffic was made through fixed network. However, this percentage tends to grow, so it is expected that significantly more traffic will be generated through mobile networks as the prices of mobile calls decrease.

Figure 2 Outgoing traffic in million of minutes



Source: RATEL

Table 3. and Table 4. show two telecom service baskets – low user basket and high user basket. These are the average expenditure indicators for telecom services among population using the basic package, which includes TV, fixed and mobile telephone, and of those using also Internet and cable distribution services. The expenditure for the low user basket equalled to 8% of average monthly salary, whereas high user basket required as much as 20%. The biggest expenditure in the basic package was for fixed telephony, while in the extended package it was for ADSL.

Table 3. Low user basket

	Average bill	Proportion of average earnings
Fixed	907.32	4.18%
Mobile (prepaid)	488.63	2.25%
TV (RTS subscription)	300.00	1.38%
TOTAL	**1,695.95**	**7.81%**

Source: RATEL

Table 4. High user basket

	Average bill	Proportion of average earnings
Fixed	907.32	4.18%
Mobile (postpaid)	1205.18	5.55%
TV (RTS subscription)	300.00	1.38%
ADSL	1,567.40	7.22%
Cable	404.73	1.86%
TOTAL	**3,668.08**	**20.20%**

Source: RATEL

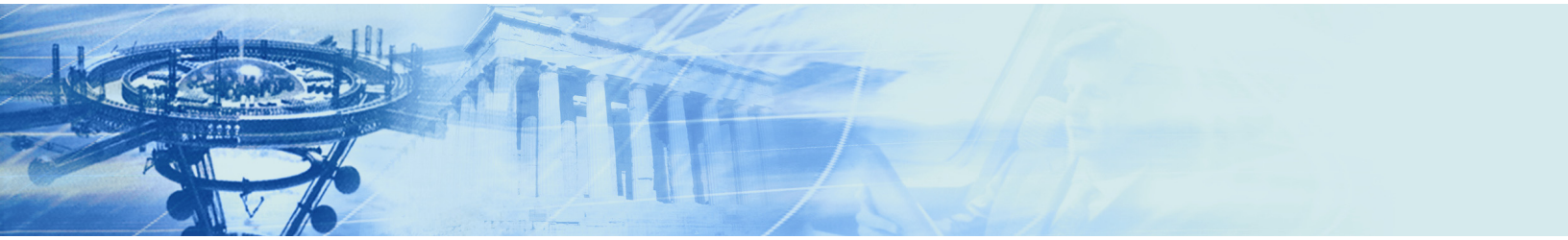
3.2. REGULATORY ACTIVITY

The process of introducing the regulatory framework which was harmonized with the EU regulations pertinent to telecommunications began in 2001. This led to the adoption of the Telecommunications Law (*Official Gazette of RoS*, no 44/03 and 36/06), which was written according to the EU 1998 regulatory framework. The basic objective was to institute a new, qualitatively different Law, which would be harmonized with the current international principles and EU standards. The first step brought about by its enforcement was the decrease of government influence and limitation, or elimination of the incumbent operator's monopoly.

The Telecommunications Law adopted in 2003

The Law divides the competence between the Government, responsible ministry and new independent regulatory authority – the Agency, thus providing for separation between political, operational and regulatory functions.

The Law provides for the Government to design the Policy and the Strategy for the development of telecommunications, on the proposal of the responsible ministry, whereas the regulatory role is assigned to the Agency. It should be pointed out that, according to the Telecommunications Law, the Agency is an autonomous regulatory body, independent of any government authority. Also, the Agency is required to ensure the implementation of the Strategy according to the Law.



The competence of the Agency, inter alia, includes:

a) Issuance of the following permits:

License, which is issued to domestic or foreign natural or legal person who intends to build, own or operate a public telecommunications network or provide public telecommunications services, in case that the network operation and/or public telecommunications services provision requires the usage of scarce resources (e.g. radio frequencies or numbering). License is issued after a completed public bidding procedure. In addition to the annual fee, there is also a once-off fee payable for license, which goes to the budget of the Republic of Serbia.

Authorization, which is issued for operating a public telecommunications network and telecommunications service provision to an unlimited number of entities, i.e. to anyone who meets the set requirements.

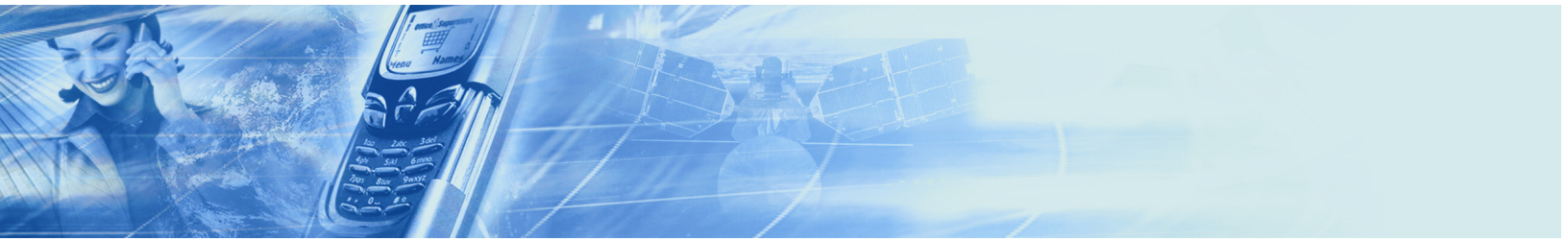
Radio station permit, which grants right to use a radio station and the right to use radio frequency(ies) listed in the permit.

Technical permit - certificate, which enables procurement, installation and putting into operation of telecoms networks, systems and/or facilities in compliance with technical standards and normative provisions;

b) Issuance of approvals for the import of goods, such as transmitters, radars, antennas and electrical machines and devices with special functions;
c) Separate competence of the Agency is related to SMP operators, since this can largely influence market relations. The operators declared as SMPs are required to seek approval from the Agency for any change in prices of their services;
d) The Agency duties comprise also interconnection, i.e. mutual connection of different operators' networks, universal service, i.e. requirements concerning its provision and financing, and leased lines, which implies the obligation of the SMP to provide the services of leased lines under certain conditions;
e) The Law entitles the Agency to propose the numbering plan and manage this plan, which implies rational usage of recourses and number assignment to operators on non-discriminatory basis;
f) In the radiocommunications area, the competence of the Agency concerns, above all, radio frequency spectrum management, i.e. the assignment and rational usage of radio frequencies.
g) In addition to the regulatory function, the Agency also has the control and monitoring function. It ensures the application of the legal provisions and monitors the work of public operators, which includes the power to pronounce appropriate punitive measures, in accordance with the Law.

As part of the regulatory activity, the following bylaws were adopted in 2006:

- Rules on fees for radio-frequency usage (*Official Gazette of RoS* No. 08/06)
- Rules on costs for radio-station licence issuance (*Official Gazette of RoS* No. 08/06)
- Rules on form contents for radio-broadcasting controllers' report (adopted by the RATEL's Managing Board on 10.02.2006, available on www.ratel.org.yu)
- Rules on types of radio-stations for which radio-station licence is not required (*Official Gazette of RoS* No. 29/06)
- Rules on determining types of public telecommunications services for which licence is required (*Official Gazette of RoS* No. 29/06)
- Rules on compliance control of telecommunications networks, systems and facilities with prescribed standards and regulations (*Official Gazette of RoS* No. 29/06)
- Rules on procedures for the issuance of licence for public telecommunications networks and public telecommunications services and on register keeping (*Official Gazette of RoS* 29/06)
- Rules on form and contents of the form for the report on radio station technical inspection and of the form for the report on telecom networks, systems and facilities technical inspection (*Official Gazette of RoS* No. 34/06)
- Rules on technical permits – certificate issuance (*Official Gazette of RoS* No. 34/06)
- Rules on technical inspection procedure in the field of telecommunications (*Official Gazette of RoS* No. 34/06)
- Rules on costs for technical permits – certificate issuance and for technical inspection of radio stations, telecom networks, systems and facilities (*Official Gazette of RoS* No. 41/06)
- Rules on fees and costs for licence and authorization issuance (*Official Gazette of RoS* No. 58/06)
- Rules on public telecommunications networks and public telecommunications services for which authorization is required (*Official Gazette of RoS* No. 60/06)
- Rules on terms and conditions for Internet service provision and on contents of authorization (*Official Gazette of RoS* No. 60/06)
- Rules on terms and conditions for radio and television program distribution service provision via cable network and on the form and contents of the authorization (*Official Gazette of RoS* No. 95/06)
- Numbering plan for telecommunications networks (*Official Gazette of RoS* No. 58/06)
- Draft frequency/location allotment plan for terrestrial analogue FM and TV broadcasting stations for the territory of the RoS (*Official Gazette of RoS* No. 06/06)
- Draft frequency allotment plan for GSM/DCS 1800
- Draft frequency allotment plan for UMTS/IMT 2000



- Draft frequency allotment plan for FWA systems in the frequency bands 3400 – 3600 MHz and 3600 – 3800 MHz
- Draft allotment channel plan for one-way transfer of FM and TV modulation channel in the band 23 GHz pursuant to Recommendation ITU-R F.637 Annex 5
- Revision of the Frequency/location allotment plan for terrestrial analogue FM broadcasting stations for the territory of the RoS, August – December 2006
- Revision of the Frequency/location allotment plan for terrestrial analogue TV broadcasting stations for the territory of the RoS, August – December 2006
- Draft allotment/assignment plan for digital DVB-T broadcasting for the territory of the Republic of Serbia, January – June 2006, in order to prepare for participation in RRC 06
- Draft allotment/assignment plan for digital T-DAB broadcasting for the territory of the Republic of Serbia, January – June 2006, in order to prepare for participation in RRC 06
- Decision on determining of the public telecommunications operator of fixed telephony network services with significant market power
- Decision on granting approval to Telekom Srbija a.d. to introduce a modern pricing system
- Decision on call back service provision
- Decision on granting approval to Telekom Srbija a.d. to increase the subscription fee
- Decision on requirements for value added service provider
- Principles on terms and conditions of cable duct sharing

3.3. COMPARATIVE ANALYSIS WITH SEE COUNTRIES

Until the late 1980s, in most of the European countries telecommunications services were mostly provided by one company, usually state-owned. However, the introduction of regulatory reforms by the EU over the past two decades enabled a more open and competitive telecommunications market. The liberalization process in the EU, and in other counties later on, was largely influenced by the process of reforms initiated by the EU Commission. Consequently, many countries began with the privatization of telecommunications operators and the opening of markets for a larger competition.

Alongside with the overall changes, products and services have also gone through a strong modernization, especially the development of mobile services in the early 1990s, and later on, the expansion of Internet services.

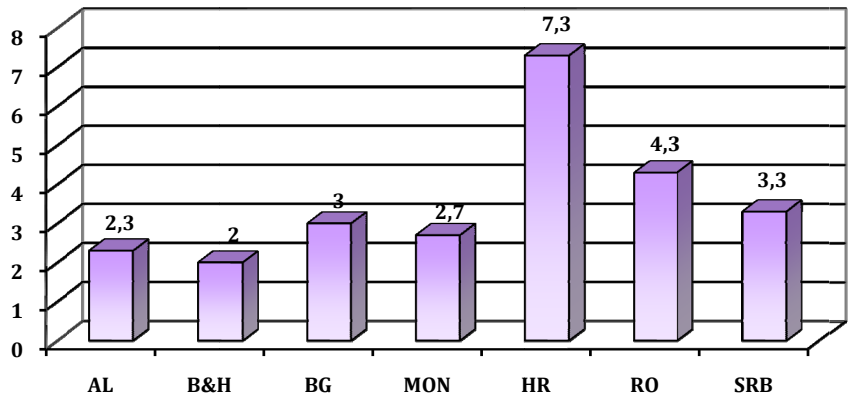
All these tendencies are also present on markets in the SEE countries, although with a certain delay compared with the EU countries. List of countries with population and GDP is given in Table 5 below.

Table 5. Population and GDP

Country	Population (mil.)	GDP (US$ bn.)
Albania	3.60	9.31
Bosnia & Herzegovina	4.55	9.22
Bulgaria	7.32	28.06
Montenegro	0.68	2.27
Croatia	4.50	37.42
Hungary	9.96	113.20
FYR of Macedonia	2.05	6.22
Romania	22.28	80.11
Slovenia	2.01	37.92
Serbia	7.50	32.87

Source: ITU / Statistical Office of the Republic of Serbia (estimate)

Figure 6. GDP per capita (EUR thousands)



Source: Country Comparative Report 3 (Cullen International)/Ministry of Finance (estimate)

Digital Opportunity Index (DOI) was presented in the report from the theme meeting within World Summit on the Information Society (WSIS, Geneva 2003 – Tunis 2005) dedicated to multistakeholder partnerships for bridging the digital divide, held in Seoul,

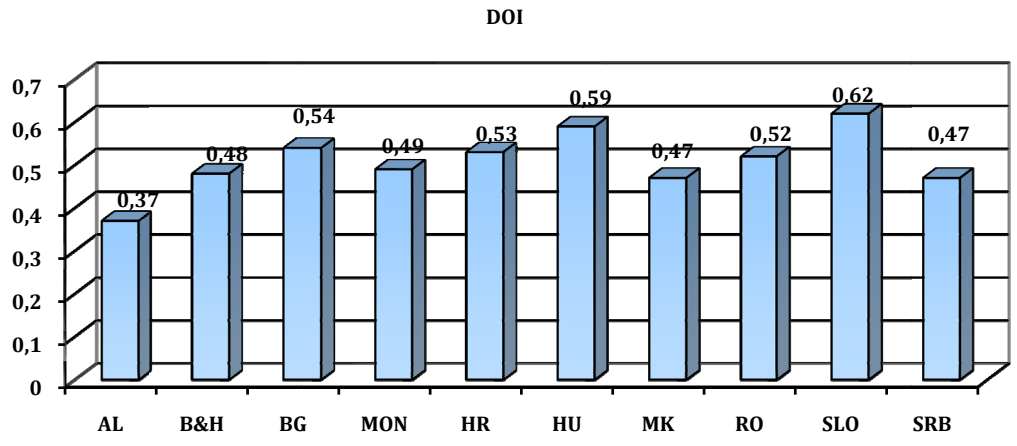
Republic of Korea, 23-24 June 2005. This Summit was attended by operators, investors, NGOs, etc. Previously, there was Digital Access Index (DAI) in use. DOI is structured around three categories:

- Opportunity – in order to participate in the Information Society, consumers must have accessibility to ICTs and must be able to afford them. The percentage of the population covered by mobile cellular telephony represents basic accessibility, while two tariff indicators, Internet access tariffs (as a percentage of per capita income) and mobile (as a percentage of per capita income) measure affordability.
- Infrastructure, which includes the network indicators of proportion of households with a fixed line telephone, mobile cellular subscribers per 100 inhabitants, proportion of households with Internet access at home and mobile Internet subscribers per 100 inhabitants. It also includes the devices that provide the interface between the user and the network: here, this is represented by the proportion of households with a computer.
- **Utilization** shows the extent of ICT usage and includes the proportion of individuals that use the Internet. Quality is reflected in access with advanced degrees of functionality in the ration of broadband subscribers among Internet subscribers (for both fixed and mobile technologies).

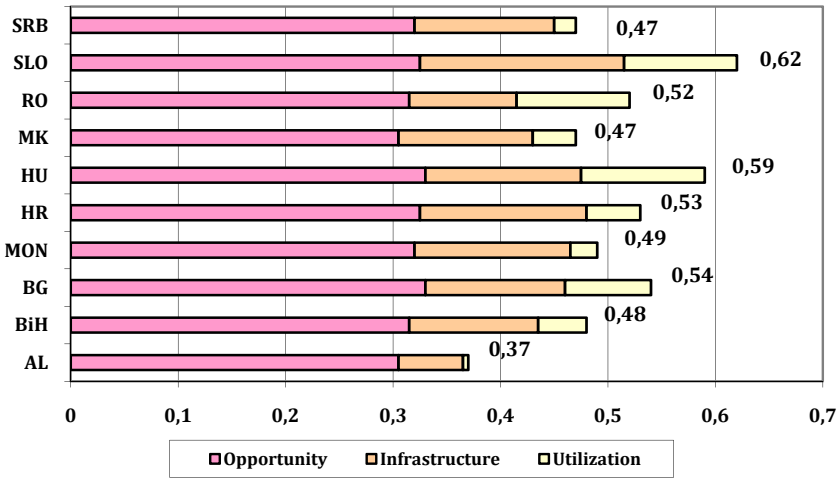
In an ideal world, digital opportunity would mean:

- The whole population having easy access to ICTs at affordable prices;
- All homes equipped with ICT devices;
- All citizens having mobile ICT devices; and
- Everyone using broadband.

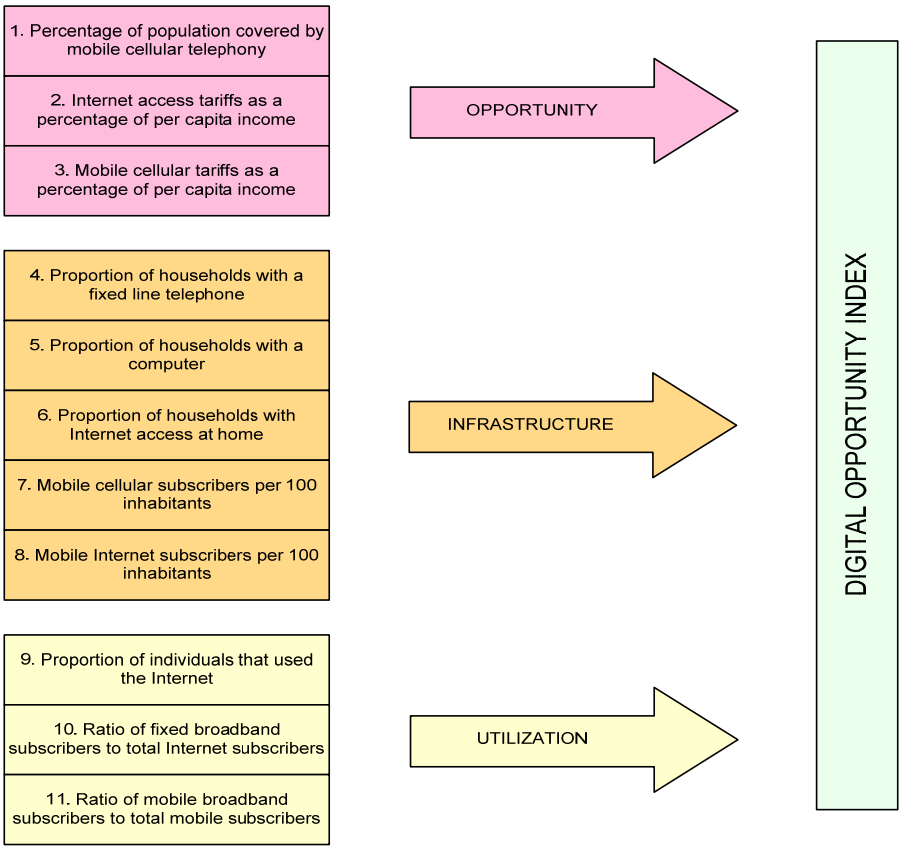
Figure 7. Digital Opportunity Index



Source: World Information Society Report 2007



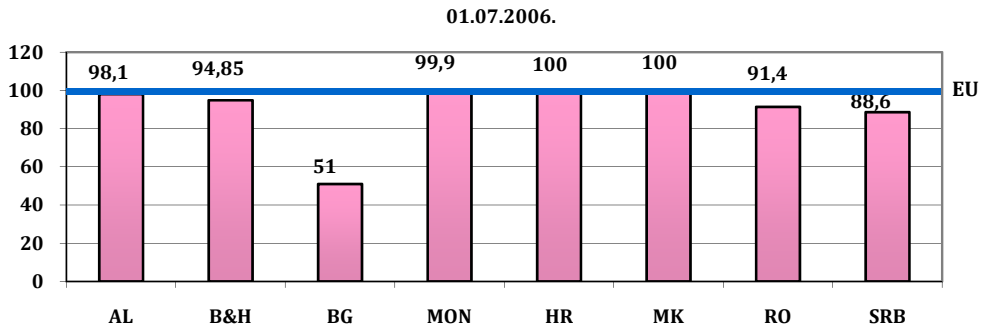
Source: World Information Society Report 2007.



Source: World Information Society Report 2006 – ITU

The fixed network digitalization rate in Serbia was increased by 5% compared with 2005, amounting to 88.6%. Figure 8. shows a comparative overview by countries in the region.

Figure 8. Fixed network digitalization rate (%)

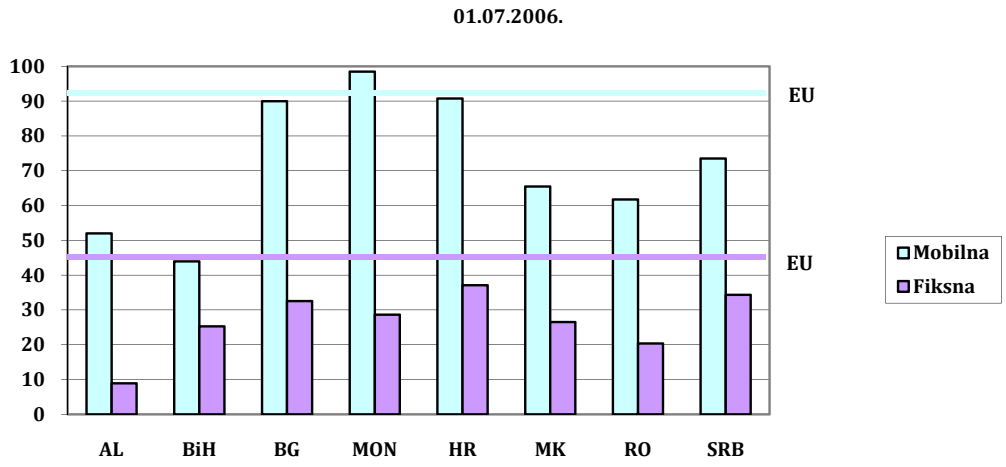


Source: Country Comparative Report 3 (Cullen International)

A comparative overview of mobile and fixed penetration shows that all countries in the region follow major world tendencies, since there are more mobile than fixed subscribers. The weak spot is underdeveloped fixed penetration of 36.3%. Last year, the fixed penetration was increased by 7.6% and mobile penetration by 20.6%.

Increase in penetration: fixed by 7.6% and mobile by 20.6%

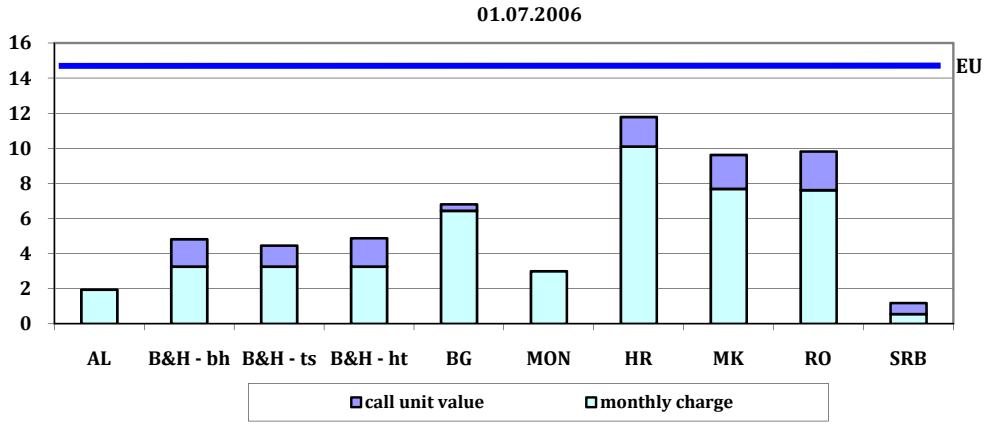
Figure 9. Mobile and fixed penetration



Source: Country Comparative Report 3 (Cullen International)

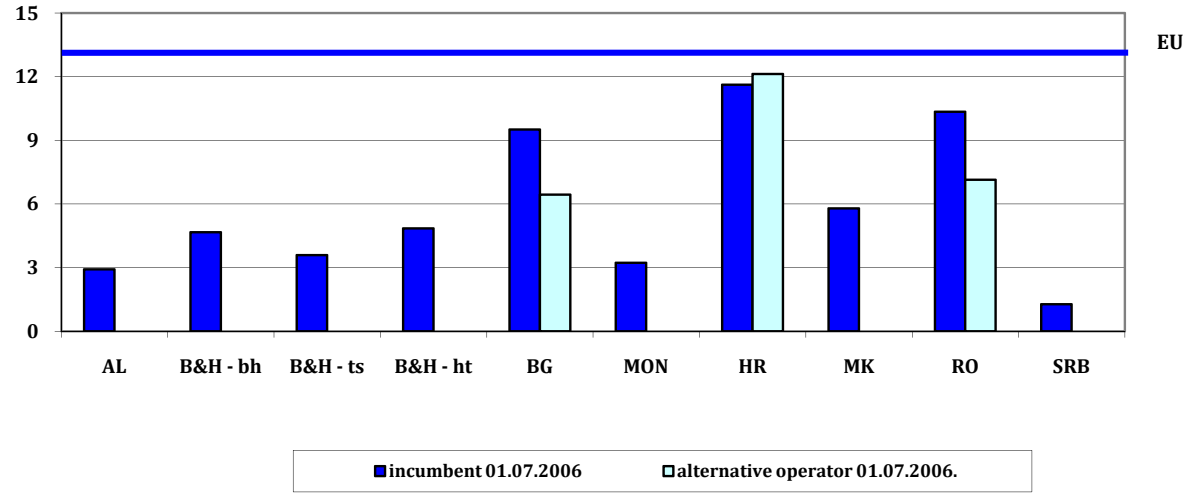
Figures 10. to 13. below show the prices of services offered by operators providing fixed network voice services and leased lines. It can be noted that the local calls charges in the Republic of Serbia are the lowest in the region.

Figure 10. Standard monthly charge and call unit value for residential subscribers (€)



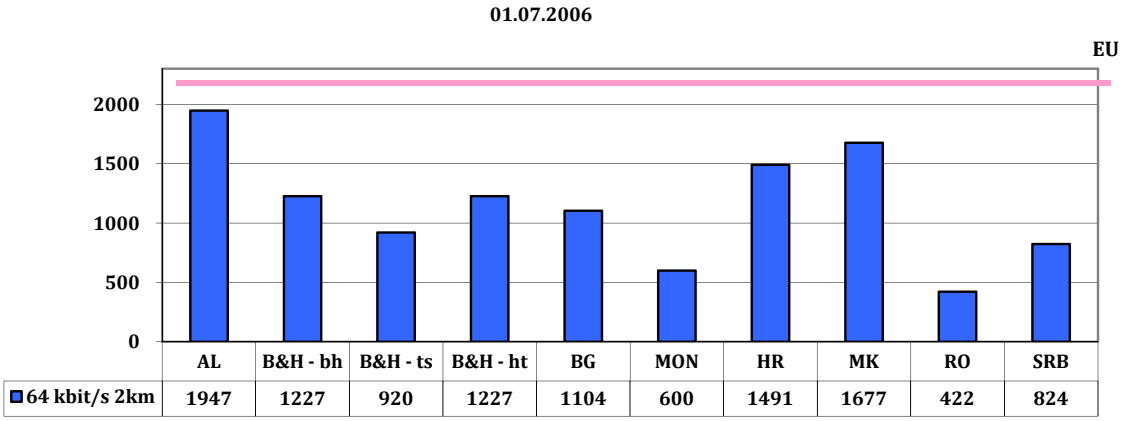
Source: Country Comparative Report 3 (Cullen International)

Figure 11. Price of a 3-minute local call in eurocents



Source: Country Comparative Report 3 (Cullen International)

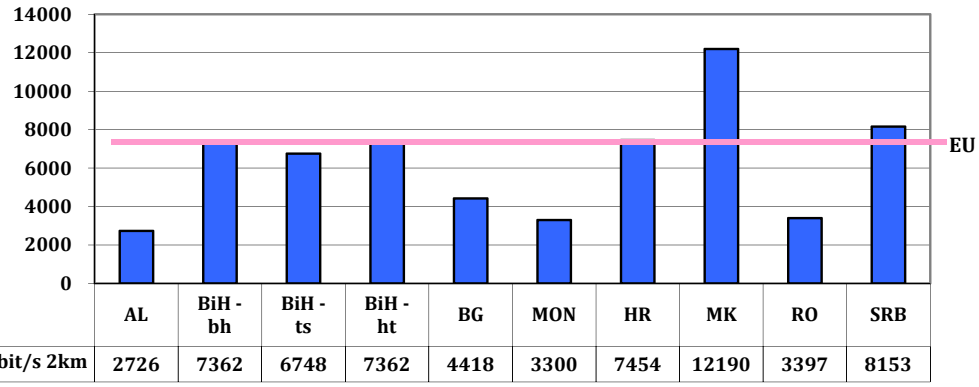
Figure 12. Prices for national 64 Kbit/s 2 km leased lines (€) on an annual level



	AL	B&H - bh	B&H - ts	B&H - ht	BG	MON	HR	MK	RO	SRB
64 kbit/s 2km	1947	1227	920	1227	1104	600	1491	1677	422	824

Source: Country Comparative Report 3 (Cullen International)

Figure 13. Prices for national 2 Mbit/s 2 km leased lines (€) on an annual level



	AL	BiH - bh	BiH - ts	BiH - ht	BG	MON	HR	MK	RO	SRB
2 Mbit/s 2km	2726	7362	6748	7362	4418	3300	7454	12190	3397	8153

Source: Country Comparative Report 3 (Cullen International)

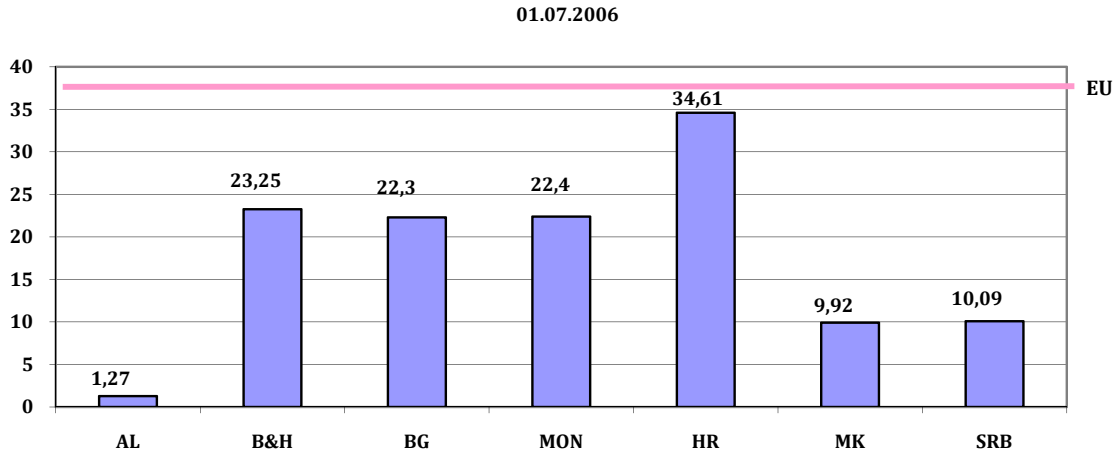
There has been a considerable increase in the number of Internet users in Serbia in the past years, but it is still below the level of the countries in the region. Table 6. below shows the number of Internet subscribers.

Table 6. Number of Internet subscribers

Country	Number of Internet subscribers (31.12.2005)	Number of Internet subscribers (01.07.2006)
Albania	40,000	40,000
Bosnia & Herzegovina	805,185	900,000
Bulgaria	2,200,000	1,721,298
Montenegro	120,000	140,000
Croatia	1,303,000	1,537,220
FYR of Macedonia	392,671	201,924
Serbia	756,675	756,675

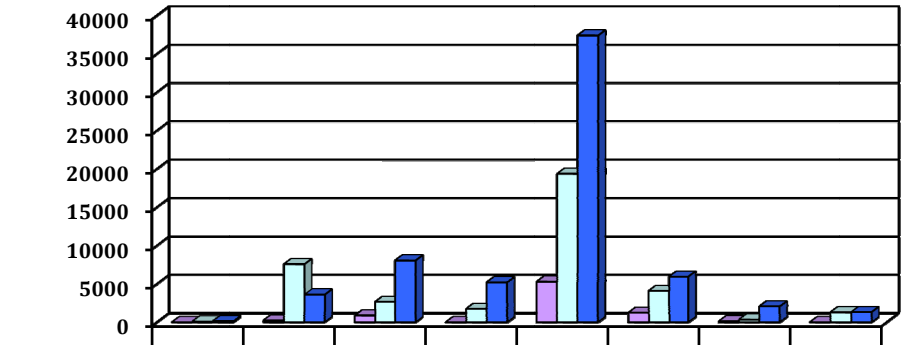
Source: Internet Usage (www.internetworldstats.com), Report 2 – Country Comparative Report (Cullen International) i Country Comparative Report 3 (Cullen International)

Figure 14. Internet penetration



Source: Country Comparative Report 3 (Cullen International)

Figure 15. Number of xDSL per million inhabitants



	AL	B&H	BG	MON	HR	MK	RO	SRB
01.01.2005.	0	235	857	0	5275	1217	101	0
01.11.2005.	86	7545	2636	1736	19332	4076	338	1271
01.07.2006.	114	3602	8034	5188	37380	5925	2046	1311

Source: Country Comparative Report 3 (Cullen International)

4. PUBLIC FIXED TELECOMMUNICATIONS NETWORKS AND SERVICES

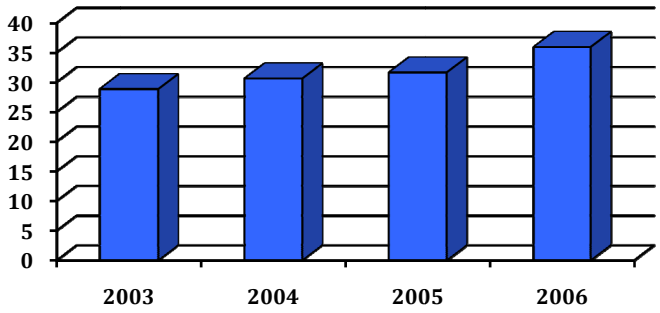
Telekom Srbija a.d. is the only public fixed telecommunication service operator. Since 2003, Telekom Srbija a.d. is in the ownership of two shareholders, Public Company of PTT traffic "Srbija" (80%) and OTE, Greece (20%).

Since Telekom Srbija is the only public fixed telecommunication service operator, on 24 March 2006, pursuant to the Telecommunications Law, the Republic Telecommunication Agency declared Telekom Srbija an SMP. In this regard, the process of drafting a cost-based accounting system for SMP operators was initiated.

Revenue from fixed telephone service – EUR 426 mil.

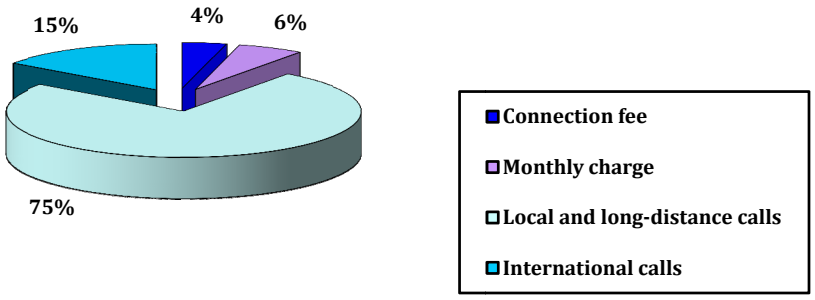
The revenue from fixed telephone service in 2006 was increased by 13.6% compared with 2005. In view of the fact that the growth in 2005 compared with 2004 was only 3.3%, this is a rather significant increase in revenue in the area of fixed telephony. (Figure 16.). The largest share in revenue is that of local and long distance calls, as much as 75%, while the share in revenue of international calls was 15% (Figure 17.). The annual revenue per user was RSD 13,193. Potential fixed telephony market involves over 3.2 million users. From current prospective, the expected growth rate by the end of 2010 is 5%. The planned annual investments in this area amount to EUR 350 million.

Figure 16. Growth tendency of total revenue from fixed telephone services (RSD mil)



Source: RATEL

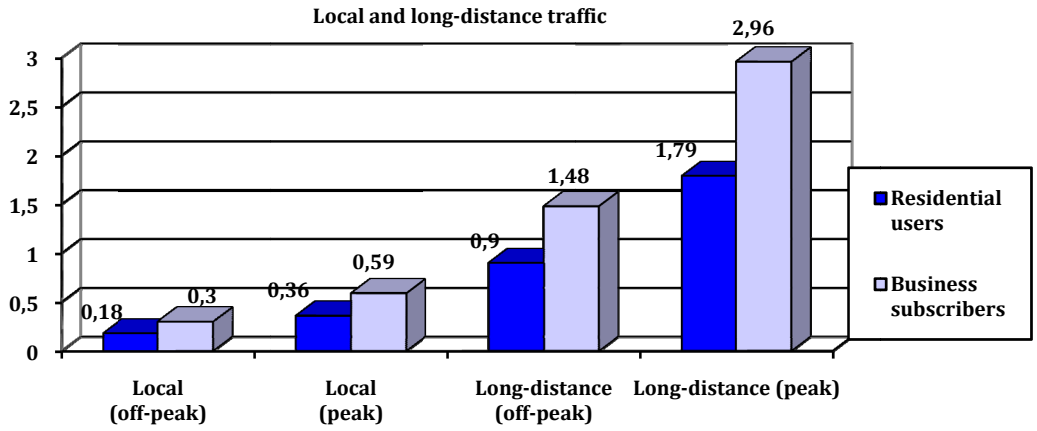
Figure 17. Distribution of revenue from fixed telephone services in 2006



Source: RATEL

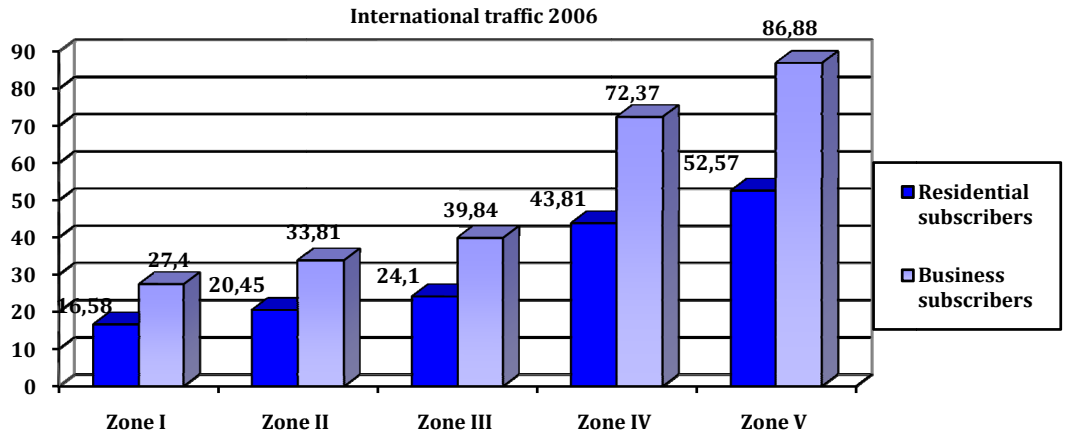
For the most part of 2006, the monthly charge for analogue telephone extension was RSD 40.00 for residential users and RSD 38.39 for business users (VAT excluded). Based upon the Decision adopted by RATEL on request made by Telekom Srbija, on 1 November 2006 the monthly charge was raised to 74.75 RSD (VAT excluded) for both residential and business subscribers. Also, on 1 May 2006, the practice of free call units (150) included in the monthly charge was abandoned, except for those subscribers who spend up to 150 call units a month (they are paying only the monthly rental charge). The once-off connection fee remained unchanged, amounting to RSD 5,000.00 for residential users and RSD 10,000.00 for business users, (VAT excluded).

Figure 18. Prices of local and long-distance telephone services, VAT excluded (din/min)



Source: RATEL

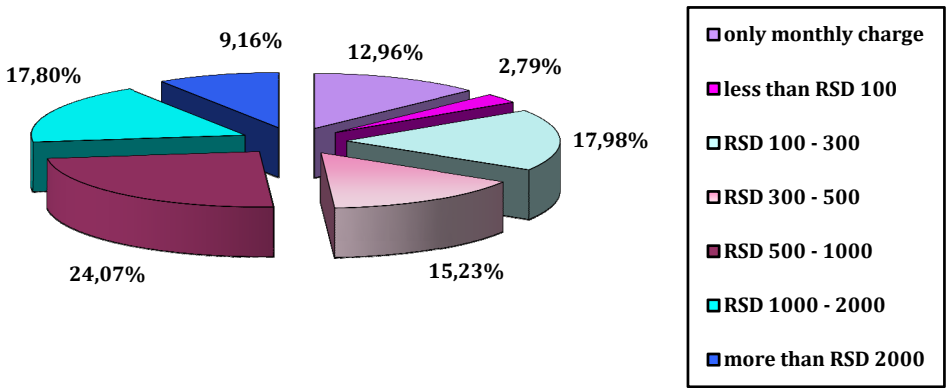
Figure 19. Prices of international telephone services, VAT excluded (din/min)



Source: RATEL

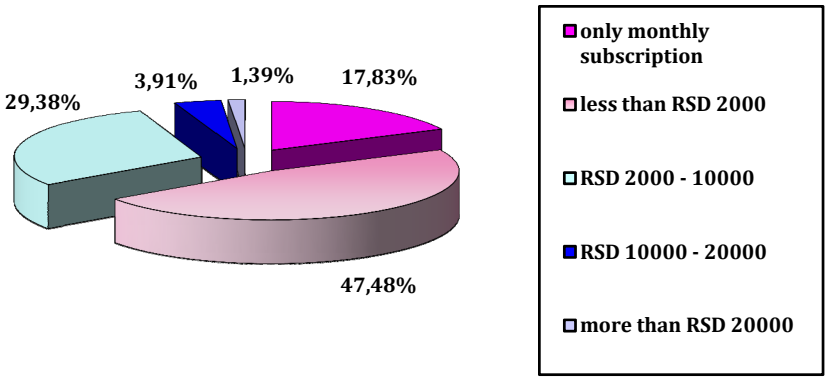
There were no major changes in the distribution of the number of users according to bills compared with the previous year. Approximately 13% of residential users are paying only monthly charges, whereas as many as 90% of users spend up to RSD 2,ooo for fixed telephony services (Figure 20.). There are approximately 36% of business subscribers with a monthly bill of over RSD 2,ooo (Figure 21.).

Figure 20. Distribution of residential subscribers according to monthly bill



Source: RATEL

Figure 21. Distribution of business subscribers according to monthly bill

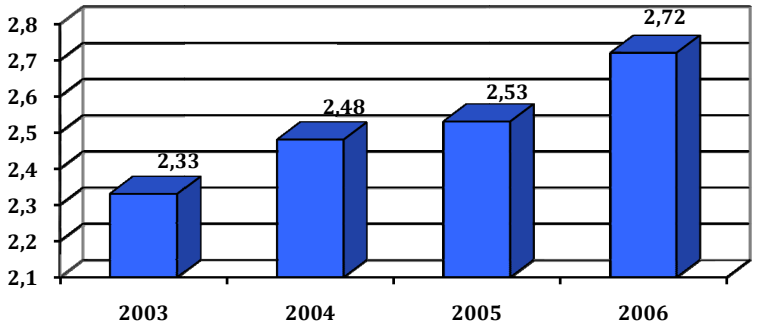


Source: RATEL

The number of subscribers increased by 7.5% compared with 2005 and amounted to 2.72 million, and the number of party lines was reduced by 23.66%. Almost 90% of the total number of subscribers are natural persons. Digitalization rate achieved the amount of 88.90%. Mean value of direct line percentage in towns was 86.87%.

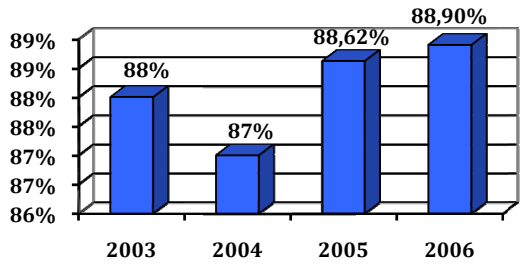
2.72 million subscribers

Figure 22. Number of subscribers (mil.)



Source: RATEL

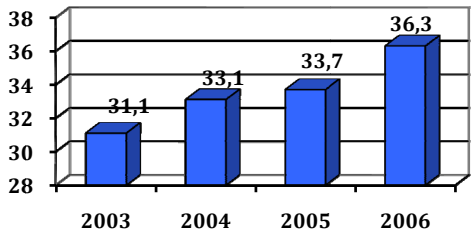
Figure 23. The share of natural persons in the total number of subscribers



Source: RATEL

Fixed network penetration reached 36.3, which corresponds to the average in the region.

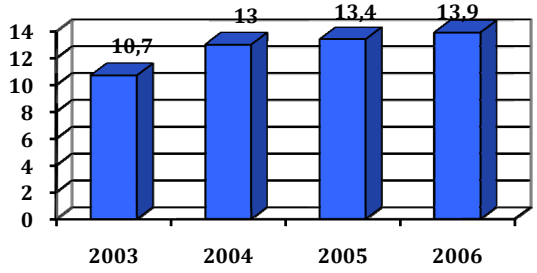
Figure 24. Fixed network penetration



Source: RATEL

Figure 25. indicates that the number of payphones in 2006 increased from 13.4 to 13.9 thousands. However, the share in total telephone service revenue is only 0.92%.

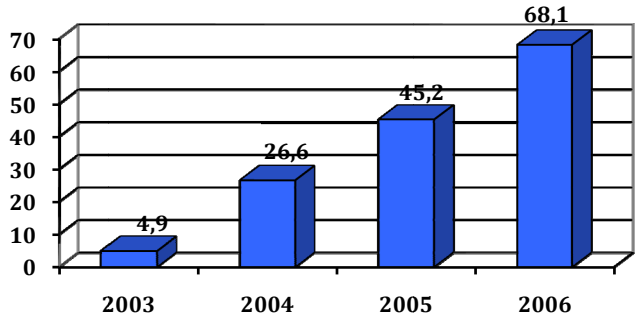
Figure 25. Number of payphones (thousands)



Source: RATEL

Figure 26. shows a growth trend in ISDN connections in the last four years. At the end of 2006 there were 68 thousand subscribers, which is an increase of over 50%. More than 97% of subscribers have a basic rate access, whereas the other users have primary rate access.

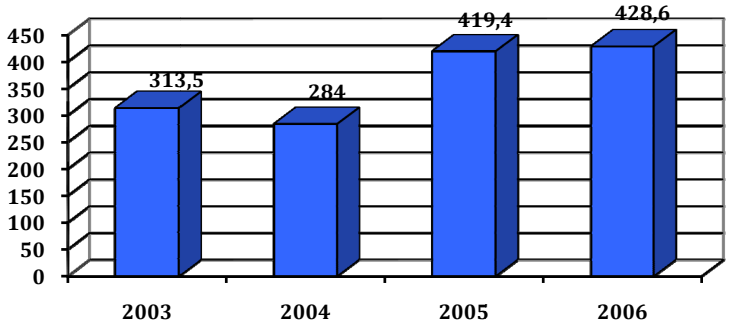
Figure 26. Total number of ISDN subscribers (thousands)



Source: RATEL

As for the quality of service, the number of unsolved requests for new fixed lines was more than 429 thousand, which is an increase compared with 2005. This problem is attributed to the fact that the capacity of analogue telephone exchanges cannot be increased and, in addition to this, in some localities new telephone exchanges need to be set up. The number of malfunctions on 100 lines was 52, and the percentage of malfunctions repaired within 24 hours was 34.8%.

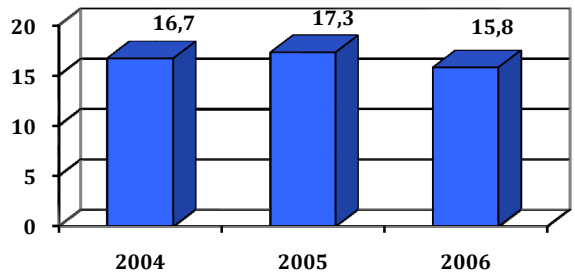
Figure 27. Number of requests for new telephone lines (thousands)



Source: RATEL

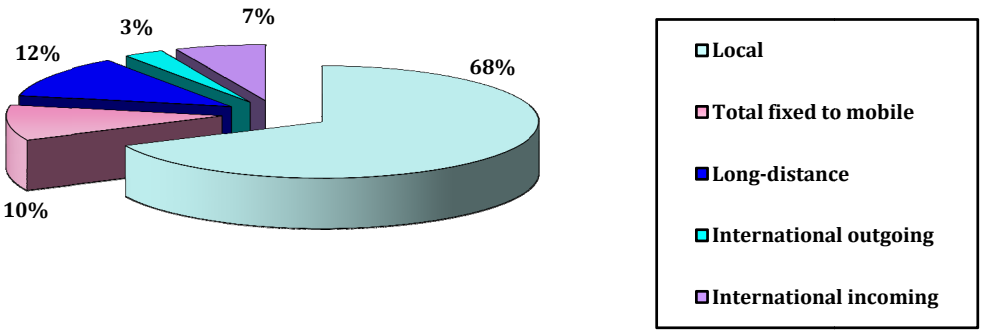
The total fixed network traffic in 2006 is estimated to 15.8 billion minutes, which is a decrease of 38% compared with the previous year (Figure 28.). The total number of minutes of fixed network traffic is estimated on the basis of data from the exchanges where it is possible to register the consumed call units or minutes. Such data are extrapolated according to the total number of users in the network. A new tariff system was introduced in 2006, which resulted in a different distribution of call units (local/long-distance) and therefore in approximation of consumed minutes. In addition, there was a significant decrease in the number of consumed call units/minutes from fixed to mobile network due to a reduction in prices of calls in mobile networks. Because of modified conditions of traffic measuring/recording compared with the previous year, the data are not comparable (without a detailed analysis). 68% of total traffic goes to local telephone traffic, and only 3% to international outgoing traffic (Figure 29.).

Figure 28. Total traffic (billions of minutes)



Source: RATEL

Figure 29. Distribution of fixed network traffic in 2006



Source: RATEL

5. PUBLIC MOBILE TELECOMMUNICATIONS AND SERVICES

There were significant developments in public mobile telecommunications networks in 2006, which concern changes in ownership structure, license issuance and replacement, that involve the following operators:

- **Telecommunications company Telekom Srbija a.d. - Mobilna telefonija Srbije MTS**, owned by Public company for PTT traffic Srbija (80%) and OTE, Greece (20%) (license replaced on 01.08.2006)

- **Telenor d.o.o. Belgrade**, 100% owned by Sonofon, Danmark (license issued on 01.09.2006)

- **Mobilkom Austria**, owned by Telekom Austria group, Austria (license issued on 01.12.2006)

All three operators were granted a license for public mobile telecommunications network and public mobile telecommunications network services in accordance with GSM/GSM1800 and UMTS/IMT-2000 standards, issued by the Republic Telecommunication Agency. The licenses were issued for the territory of the Republic of Serbia, for a period of 10 years, which can be extended for another 10 years. Mobilkom Austria was granted a license on 01.12.2006, but began operating in July 2007, under the name VIP Mobile d.o.o.

Figure 30. Mobile operators - Telenor

Coverage Map

Area covered by signal.

Official data

Name	**Telenor**
Head office	Belgrade
Founded	1994
Ownership	100% Sonofon AS
Number of employees	1025
Percentage of territory coverage	75%
Percentage of population coverage	92%
Number of base stations	879

Source: Telenor Serbia

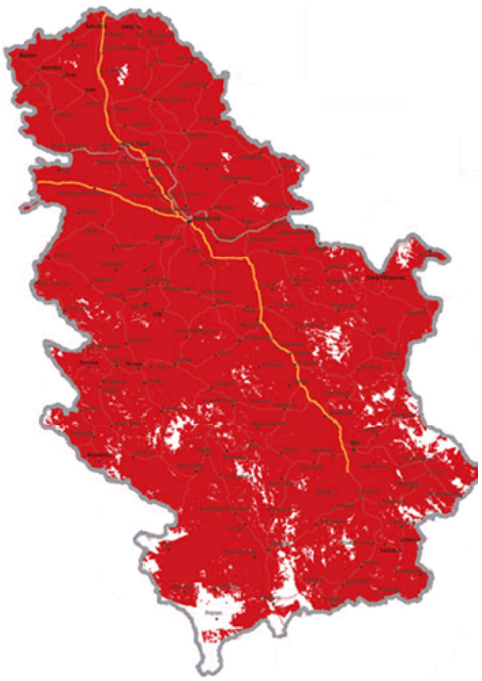
The Norwegian company Telenor purchased the company Mobi63 in a public bidding procedure on 31 July 2006, thus becoming a 100% owner of a mobile operator in Serbia. In this way, Mobi63 became thirteenth company within Telenor telecom group, which also includes two networks from the region: Panon, Hungary and Promonte, Montenegro. Telenor began its business in the Republic of Serbia on 1 September 2006, after being granted a license for mobile telephone service provision for the territory of the Republic of Serbia by RATEL.

The company Telenor increased the coverage of territory by 2% compared with 2005, by building 48 new base stations. (Figure 30.).

Figure 31. Mobile operators – Telekom Srbija

Coverage Map

Area covered by signal.



Official data

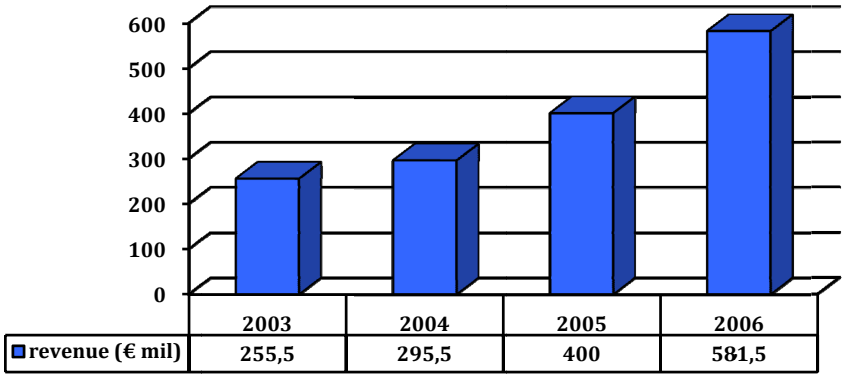
Name	**Telekom Srbija a.d.**
Head office	Belgrade
Founded	1997
Ownership	80% JP PTT Srbija 20% OTE, Greece
Number of employees	537
Percentage of territory coverage	90.78%
Percentage of population coverage	97%
Number of base stations	1085

Source: Telekom Srbija

Telekom Srbija increased the coverage of territory by almost 4% compared with 2005, by building as many as 350 new base stations, in this way also increasing the coverage of population by 2% (Figure 31). In December 2006 they were the first to put 3G network into commercial operation, using the latest HSDPA technology. Third generation network enables a series of new services, such as real-time video calls and value-added services like video streaming, traffic cam and cinema clip.

In 2006, mobile telephony was the most profitable telecom branch in Serbia, with share in the total business volume of as much as 48%. Even more interesting is the fact that the increase in revenue compared with the previous year was over 45%.

Figure 32. Increase in total revenue from mobile telephony (EUR mil)



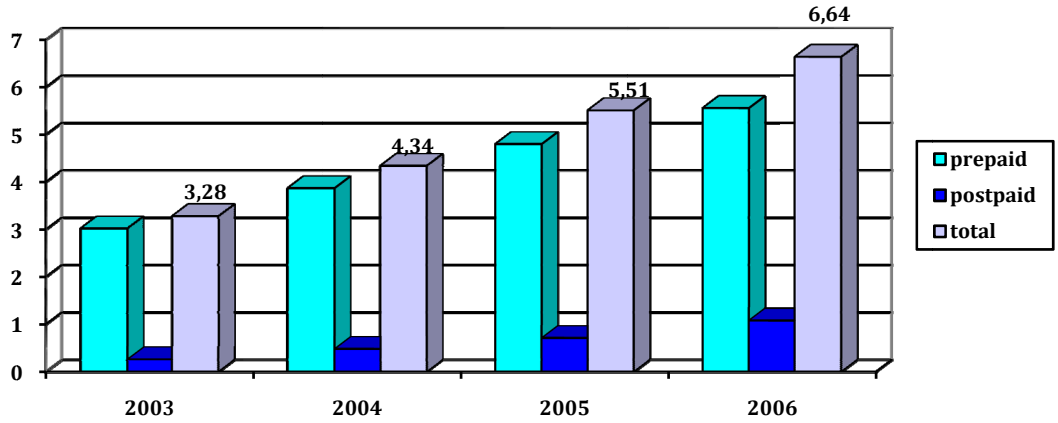
Source: RATEL
*** estimated value**

At the end of 2006, the total number of mobile users amounted to 6,643,722, which is an increase of 21% compared with the previous year. This number of corresponds to the percentage of 88.6%, which is above average in the region.

6.64 million users

The share of postpaid users in the total number is 16.3%, which is an increase of 3.5% compared with the previous year.

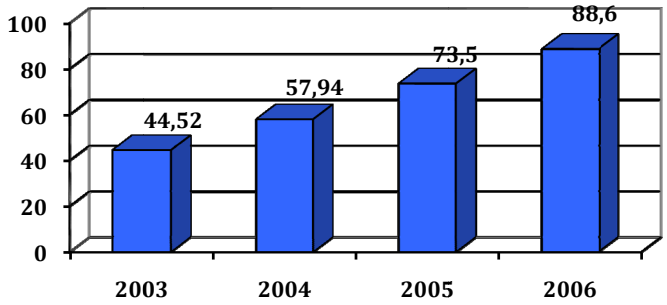
Figure 33. The total number of mobile telephony (mil)



Izvor: RATEL

In 2006, there was a significant increase in mobile penetration, reaching 88.6% (Figure 34).

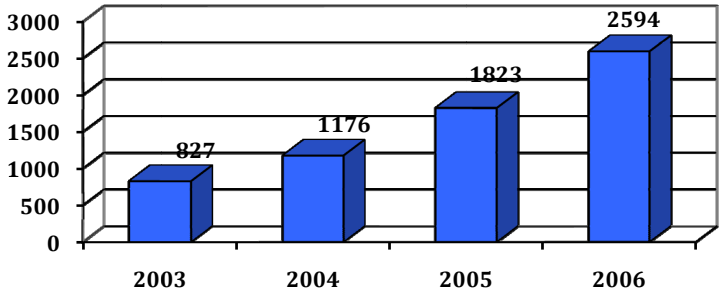
Figure 34. Mobile penetration



Source: RATEL

With the increase in number of users there was an increase in traffic as well, so that the consumed minutes amounted to 2.6 billion, which is an increase of 42%. Accordingly, the annual average is about 390 consumed minutes per user, compared with 330 minutes of outgoing traffic per user in 2005.

Figure 35. Total outgoing traffic (mil. min)

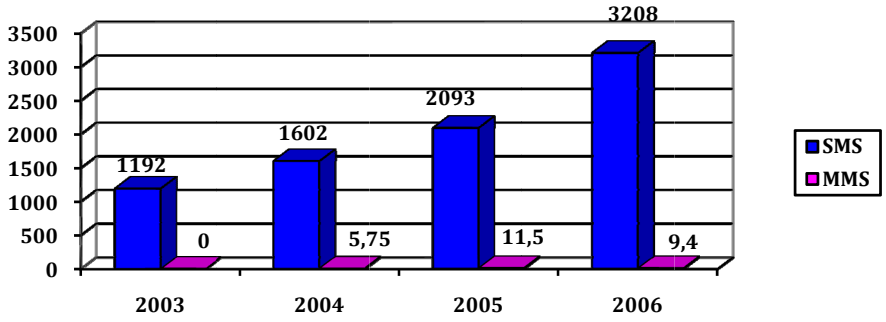


Source: RATEL

The number of SMS is constantly growing, arriving at 480 text massages per user a year in 2006, which is an increase of 50%. The number of MMS was reduced compared with the previous year. The total GPRS traffic was increased by nearly 8%, with over 8.2 Tbit/s for the whole year.

On 27 December 2006 Telekom Srbija began with commercial provision of the third generation mobile telephony, attracting 8,442 users by the end of the year.

Figure 36. Number of sent SMS/MMS (mil.)

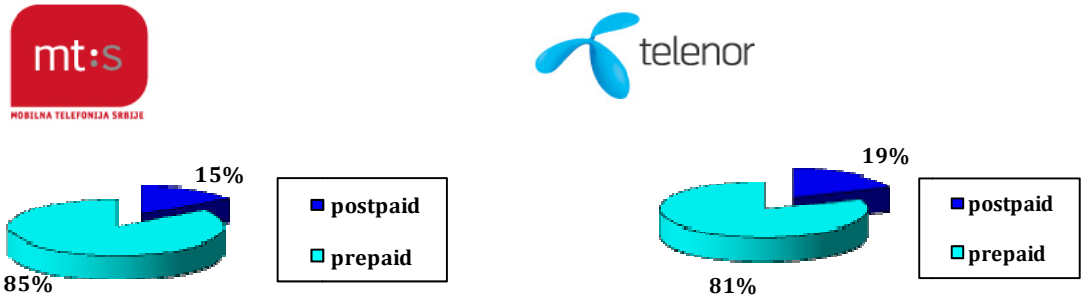


Source: RATEL

The operators provide a wide range of additional services to users, such as: voice mail, call divert, call waiting, conference call, sending and receiving of short messages (SMS), data transfer, fax, incoming call identification, hidden identification, itemised monthly bills, disconnection on request, connection on request, change of tariff package, replacement of damaged or lost SIM card, WAP, multimedia messages transfer (MMS), etc. With the introduction 3G network, new services emerged as well: real-time video calls, video streaming, cinema clip, etc.

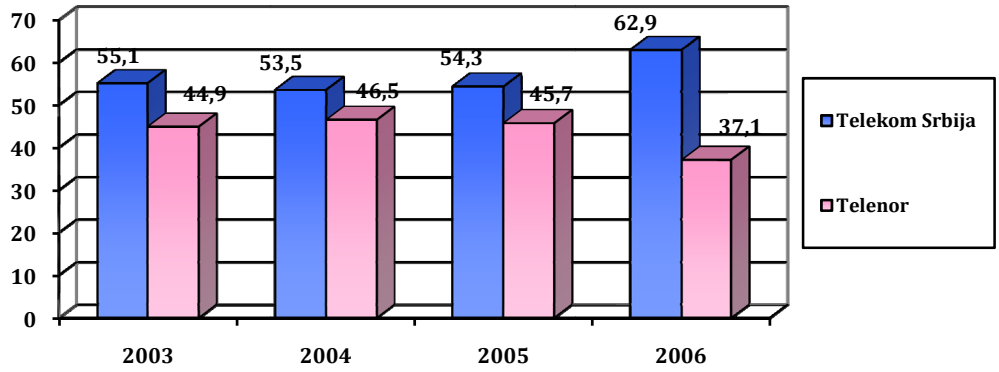
Figures 37.-41. below show the market share of the two mobile operators in terms of the number of users, income and traffic.

Figure 37. Distribution of prepaid/postpaid users between the operators



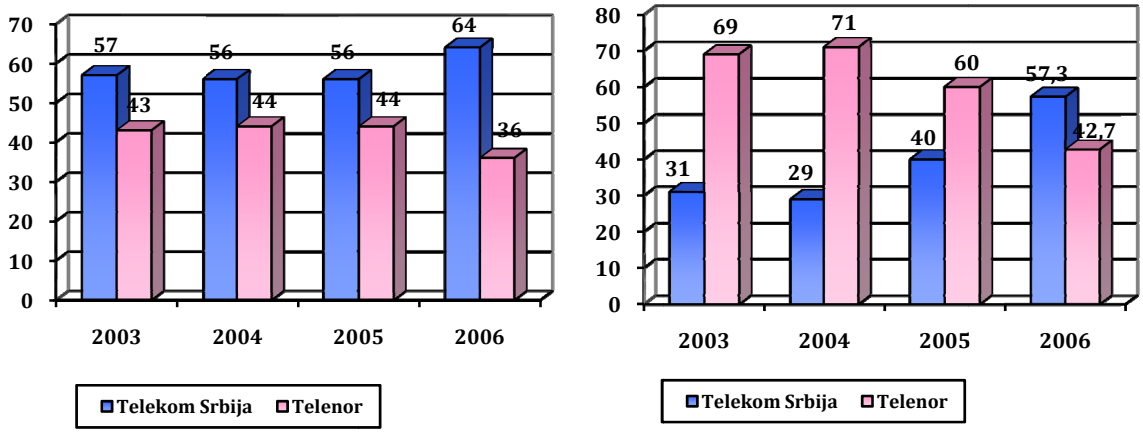
Source: RATEL

Figure 38. Market share – total number of users (%)



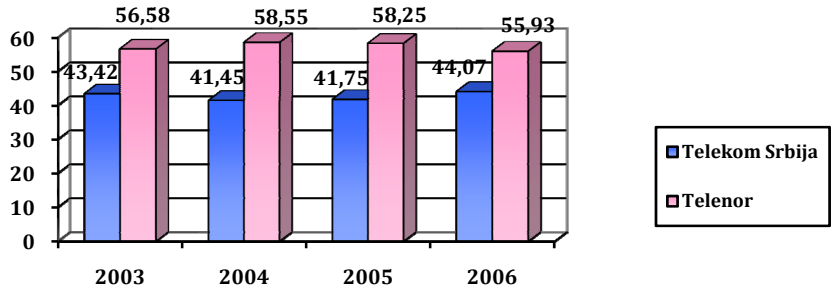
Source: RATEL

Figure 39. Market share – number of prepaid/postpaid users (%)



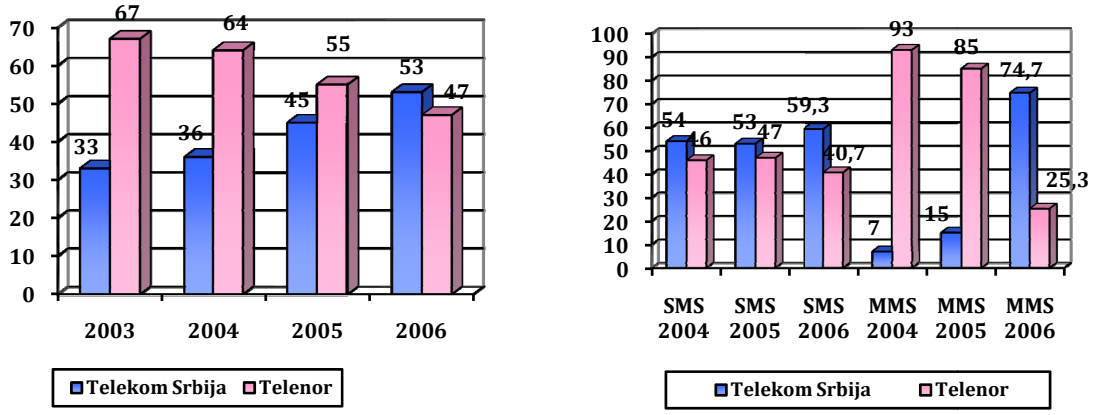
Source: RATEL

Figure 40. Market share – revenue (%)[1]



Source: RATEL

Figure 41. Market share – outgoing traffic/ SMS-MMS (%)



Source: RATEL

Mobile telephony is a typical segment which proves the often mentioned principle that the regulation leads to competition, which then enhances investments, resulting in increased penetration. During 2006, on the basis of the adopted regulations, the conditions were created for launching a public bidding procedure for license issuance. Three licenses were granted in this procedure (one license was replaced) bringing about full competition. This resulted in new services, new tariff packages and lower prices. The overall outcome was that in 2006 the number of mobile users reached nearly one million.

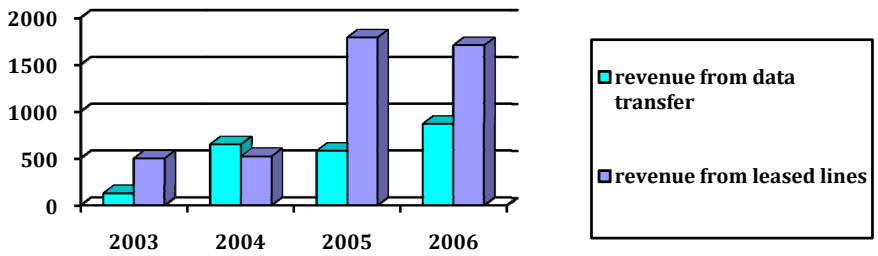
[1] Since Telenor began with its work in September 2006, the data for 2006 are estimation.

6. DATA TRANSFER NETWORKS

In addition to public voice services provision (POTs and ISDN), public fixed telephone network is also used for data transfer services (through POTs and ISDN connections), and leased lines services (digital and analogue). Data transfer network services are: X.25/X.28 services, Frame Relay services and IP based data transfer services (IP VPN – point-to-point, point-to-multipoint, dial VPN) and other.

The total revenue from data transfer increased by 50% amounting to RSD 866 million, whereas the revenue from leased lines decreased by 4.7%.

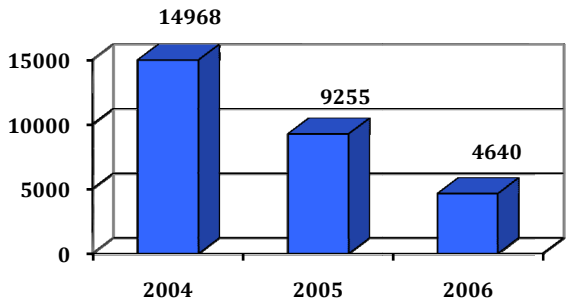
Figure 42. Revenue from data transfer and leased lines (RSD mil)



Source: RATEL

The total number of subscribers of data transfer over Yugoslav Public Network for Data Transfer with Packet Switching (JUPAK) is dropping due to presence of other technologies providing a higher quality of service. In 2006 it decreased by 50%.

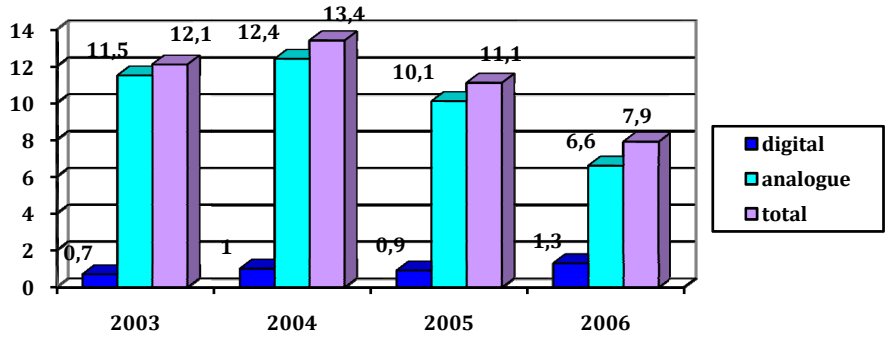
Figure 43. Number of subscribers of data transfer network



Source: RATEL

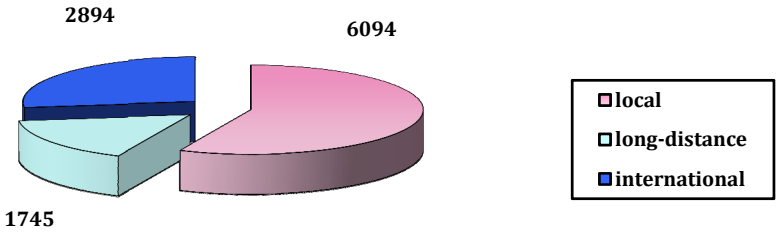
The number of leased lines has been decreasing in the past two years, currently being around 8,000. Analogue lines are still dominant among the leased lines, despite their decrease of 35%. There is a general tendency to reduce analogue and increase digital lines, where the latter had an increase of 45% in 2006 (Figure.). Local lines are the most widely used (85%), whereas long-distance and international lines are less deployed (Figure 45.).

Figure 44. Structure of leased lines - digital/analogue (thousands)



Source: RATEL

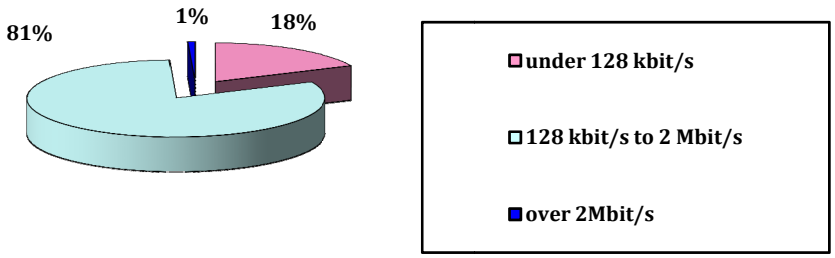
Figure 45. Structure of leased lines in 2006 - local/long-distance/international



Source: RATEL

The leased lines have been provided for a great number of capacities from 64 kb/s to 622 Mb/s. Most of the users lease lines between 128kb/s and 2Mb/s, whereas the share of lines of over 2Mb/s in the total number is only 1%.

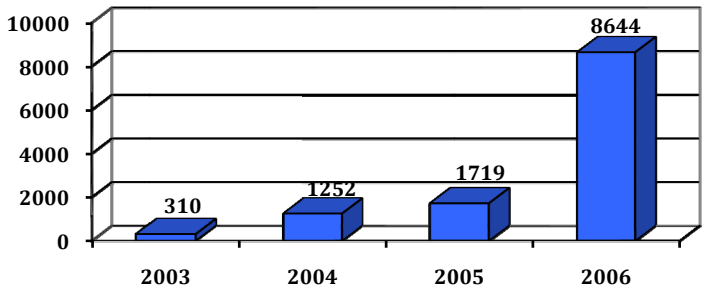
Figure 46. Distribution of the number of subscribers by capacity



Source: RATEL

The growth tendency of Internet link capacities towards foreign countries may be expected to continue in the following years. Figure 47. shows the capacity of Internet links towards foreign countries for 2003, 2004, 2005 and 2006. The biggest increase was seen in 2006 (5 times bigger compared with the previous year) and it amounted to 8644 Mb/s.

Figure 47. Capacity of Internet links towards foreign countries (Mb/s)



Source: RATEL

7. INTERNET SERVICE

From the aspect of Internet access among users in Serbia, the dial-up access is the most common one. This type of access is usually carried out in the conventional way, and also through ISDN PRI interface or Telekoma Srbija's SMIN (Serbian Multiservice Internet Network). Telekom Srbija has provided necessary capacities within its network, which also enable broadband Internet access through ADSL modems placed with the end-user. In addition to the dial-up access, other technologies generally used for Internet access by end-users are wireless access and ADSL.

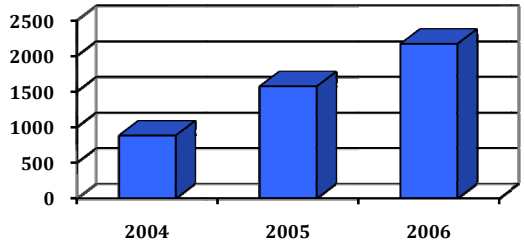
Table 7. Number of providers according to access technology

Number of providers according to access	2004	2005	2006
Dial-up	30	34	51
Coaxial cable	3	5	9
Optical cable	0	0	0
Radio access (wireless)	27	38	75
xDSL	0	12	16
Other (through lased line + ISDN)	27+16	28+18	28+15
Total	61	66	109

Source: RATEL

The total revenue from Internet service increased by 38% compared with the previous year, which is, together with the increase in the number of ICT users, a rather encouraging information for further development of Internet in Serbia.

Figure 48. Revenue from Internet (RSD mil)



Source: RATEL

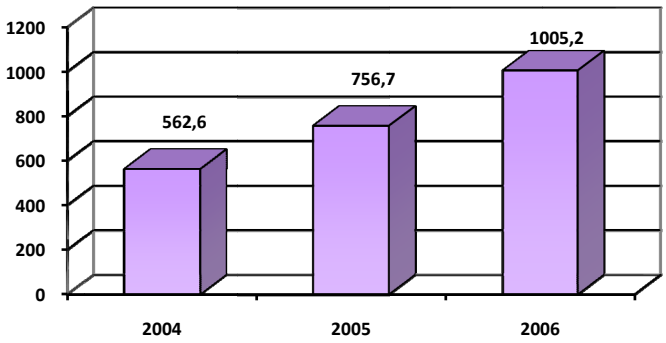
The total number of Internet users in 2006 was over one million, which is an increase of 35% (Figure 49.). As for the technologies, the dial-up access still prevails, being the cheapest

More than 1 million subscribers

together with the wireless access, but also providing the lowest quality.

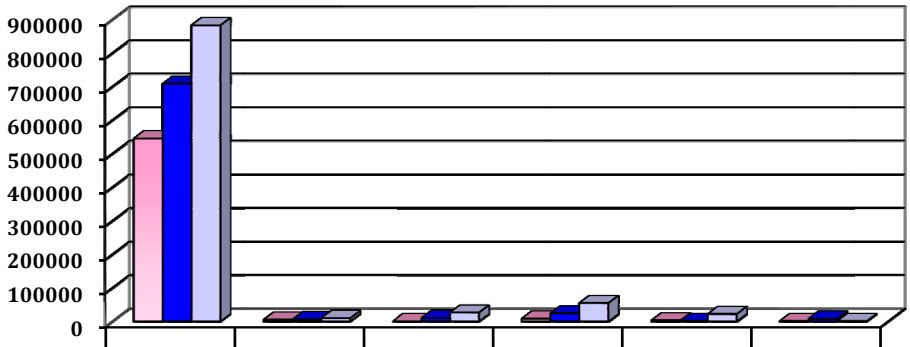
The biggest growth in the number of users was observed in the wireless access, which increased 20 times compared with 2005. The increase in the ADSL technology, which was introduced in 2004, should be mentioned as well. The growth of this broadband technology should to be encouraged and promoted since, among available technologies, ADSL is the one providing the highest quality of service, i.e. the fastest flow (Figure 50.).

Figure 49. Number of Internet subscribers (thousands)



Source: RATEL

Figure 50. Distribution of the number of users according to access

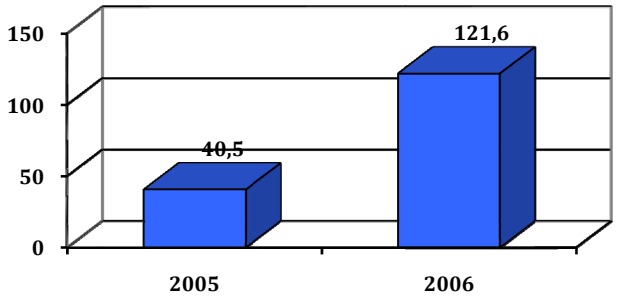


	Dial-up	ISDN	ADSL	Cable	Wireless	Leased line
2004	545164	5219	0	8372	2918	898
2005	708226	5973	9530	23956	1049	7941
2006	882611	9387	26126	54598	21968	823

Izvor: RATEL

The number of broadband service users increased as much as three times compared with 2005. Such growth is largely owed to application of new technologies and increased capacity of ADSL and cable Internet, as well as to reduction in prices of services. A positive growth tendency in the number of users and quality of broadband service is of strategic importance for the development of telecommunications.

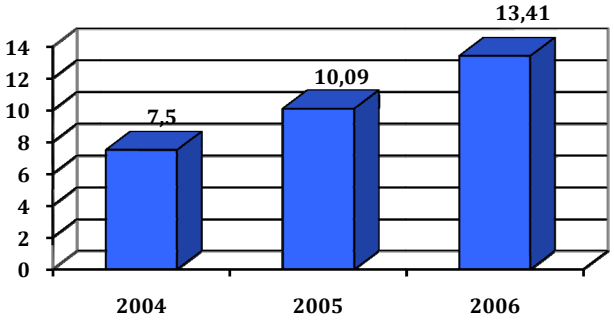
Figure 51. Number of broadband service users (thousands)



Source: RATEL

There was an increase in the Internet penetration, which was around 13%. However, it still remained below the SEE average, which is around 19%.

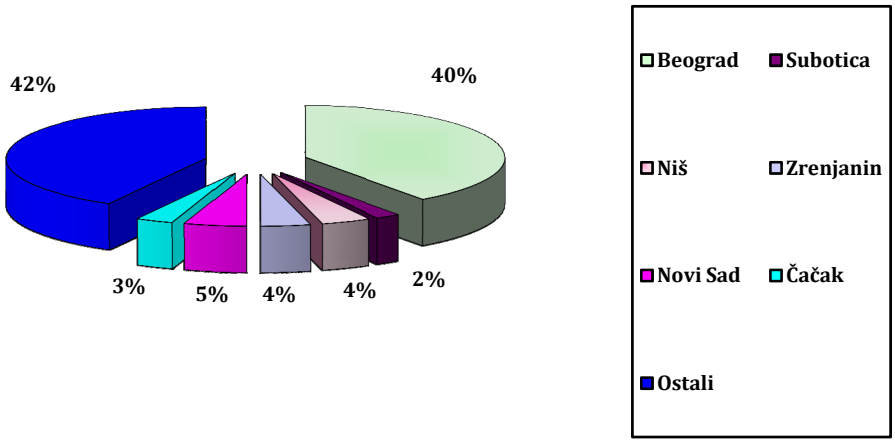
Figure 52. Internet penetration



Source: RATEL

The geographic distribution of ISPs in Serbia rather even – less than half operate in Belgrade, while around 20% operate in other large towns and 40% in the rest of Serbia.

Figure 53. Geographic distribution of ISPs



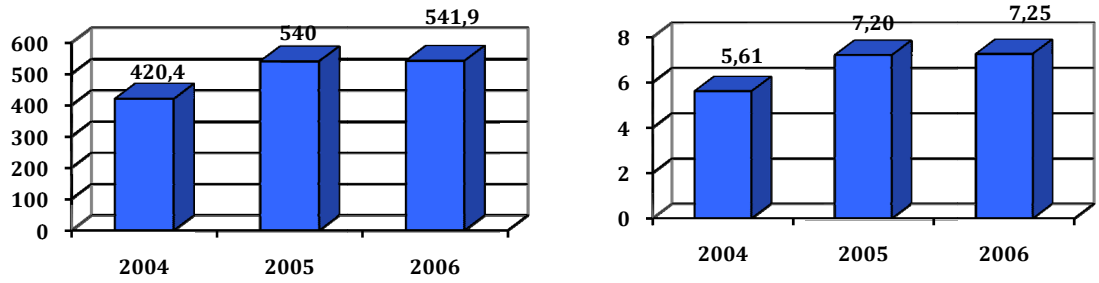
Source: RATEL

According to price lists published on ISPs' websites, it can be observed that a great variety of packages is offered, which provide different flows and different access technology to end-user.

8. CABLE SYSTEMS

The largest cable system operators are SBB and PTT KDS. SBB has 46.5% of market share, whereas 16.37% goes to PTT KDS. They are immediately followed by IKOM with 13.4% market share. Currently, there are more than 540,000 cable network users. The majority of subscribers have been connected in the past few years, and the networks are mainly coaxial enabling solely one-way operation (radio and TV program distribution). By the end of 2010, the number of users is expected to reach 2,000,000.

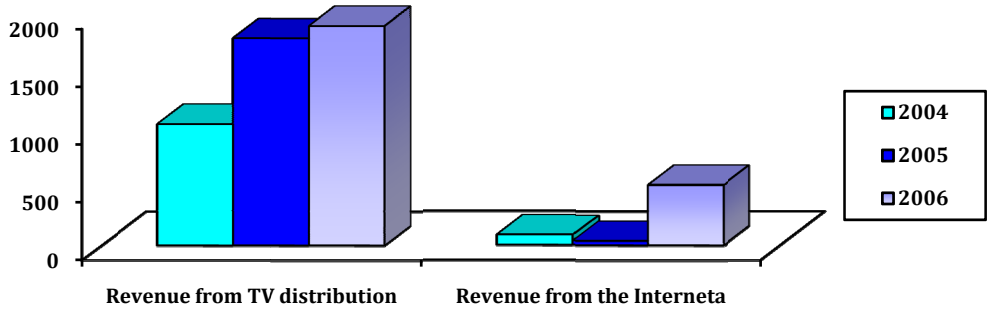
Figure 54. Total number of users (thousands)/Penetration



Izvor: RATEL

The total revenue was increased by 32%. This growth is primarily owed to the increased volume of the Internet service provision via cable network. Many ISPs who used to provide TV program distribution only are now providing the Internet service using the same infrastructure. The revenues form the Internet service provision was increased as much as 14 times, while the revenue from TV program distribution by mere 6%.

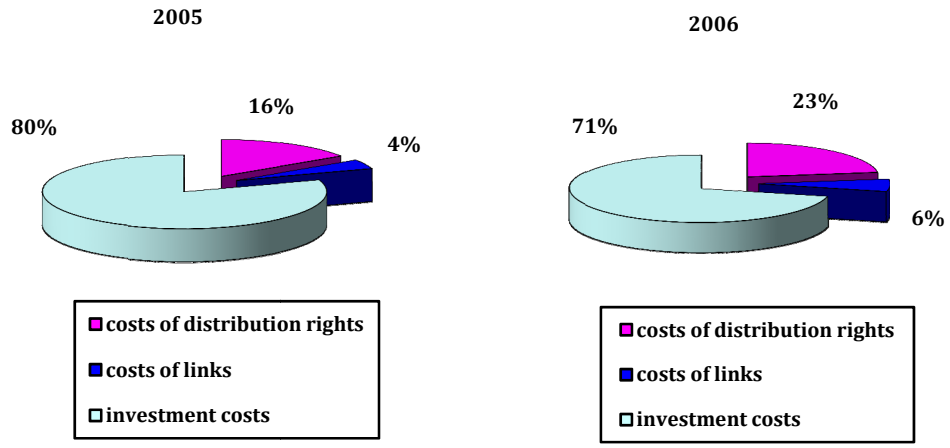
Figure 55. Increase in revenues of ISPs



Izvor: RATEL

The total costs amount to approximately EUR 6.5 million, which is an increase of 62% compared with the previous year. Most assets were spent on investments, followed by costs of distribution rights. In 2006, the investments amounted to over EUR 16 million, which is approximately equal to the amount spent in 2005.

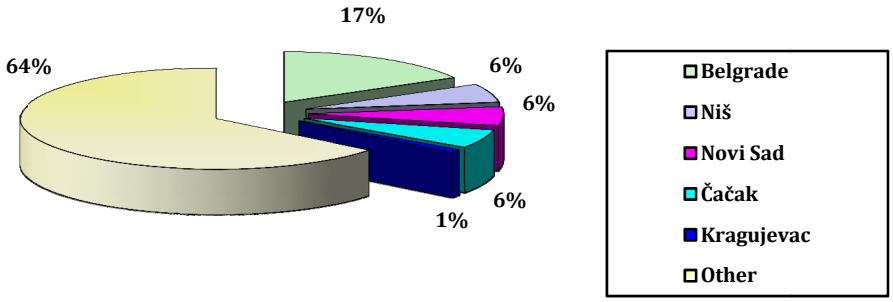
Figure 56. Cost allocation (RSD mil)



Source: RATEL

The geographic distribution of cable operators in Serbia is rather even – 1/6 operate in Belgrade, 1/6 in other large towns and 40% in the rest of Serbia.

Figure 57. Geographic distribution of cable operators



Source: RATEL

9. BROADCASTING

Based upon the public tenders and decisions made by the Council of the Republic Broadcasting Agency regarding the license issuance for television and radio program broadcasting, the Republic Telecommunication Agency issued licenses for broadcasting stations to the following broadcasters:

For TV signal coverage – 5 national networks:

- ***Pink International Company d.o.o. Belgrade***

  - 35 licenses for broadcasting transmitters

  - 78 licenses for TV broadcasting signal supply

- ***Broadcasting company B92 a.d. Belgrade***

  - 35 licenses for broadcasting transmitters

  - 38 licenses for TV broadcasting signal supply

- ***TV program production and broadcasting company Fox televizija d.o.o. Belgrade***

  - 36 licenses for broadcasting transmitters

- ***Košava d.o.o. Belgrade /Happy TV d.o.o. Belgrade – time-sharing***

  - 35 licenses for broadcasting transmitters

  - 90 licenses for TV broadcasting signal supply

- ***TV Avala d.o.o. Belgrade***

  - 33 licenses for broadcasting transmitters

  - 2 licenses for TV broadcasting signal supply

For radio signal coverage – 5 national networks:

- ***Broadcasting company a.d. Belgrade***

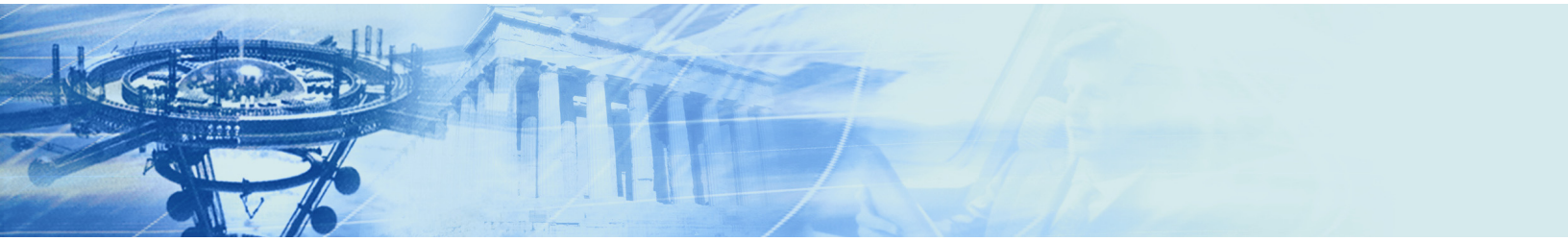
  - 15 licenses for broadcasting transmitters

- ***Broadcasting company Radio S, Belgrade***

  - 16 licenses for broadcasting transmitters

  - 40 licenses for radio broadcasting signal supply

- ***Index d.o.o. Belgrade***



- 15 licenses for broadcasting transmitters
- 40 licenses for radio broadcasting signal supply

- ***Roadstar radio d.o.o. Belgrade***
  - 18 licenses for broadcasting transmitters
  - 18 licenses for radio broadcasting signal supply (VSAT receivers)
- ***Holding company Interspeed a.d. Belgrade***
  - 19 licenses for broadcasting transmitters
  - 50 licenses for radio broadcasting signal supply

For TV signal coverage – 1 regional network:

- ***Super TV - Regional TV centre, Subotica***
  - 10 licenses for broadcasting transmitters
  - 24 licenses for TV broadcasting signal supply

For TV signal coverage – Region of the City of Belgrade:

- ***Art TV Art television - kanal kulture d.o.o. Belgrade***
  - 3 licenses for broadcasting transmitters
  - 6 licenses for TV broadcasting signal supply
- ***Enter Game Group d.o.o. Belgrade***
  - 3 licenses for broadcasting transmitters
  - 4 licenses for TV broadcasting signal supply
- ***Holding company Interspeed a.d. Belgrade***
  - 3 licenses for broadcasting transmitters
  - 6 licenses for TV broadcasting signal supply
- ***Telecommunications company TV Metropolis d.o.o. Belgrade***
  - 3 licenses for broadcasting transmitters
  - 4 licenses for TV broadcasting signal supply
- ***JRDP Studio B, Belgrade***
  - 5 licenses for broadcasting transmitters
  - 8 licenses for TV broadcasting signal supply

- ***Media, publishing and advertising company SOS kanal d.o.o. Belgrade***

  - 3 licenses for broadcasting transmitters

  - 8 licenses for TV broadcasting signal supply

For radio signal coverage – Region of the City of Belgrade:

- ***RFI Beta d.o.o. Belgrade***

  - 1 license for broadcasting transmitters

  - 2 licenses for radio broadcasting signal supply

- ***Broadcasting, marketing and services company Radio top FM d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***Telecommunications company City d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***TDI radio televizija d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 4 licenses for radio broadcasting signal supply

- ***Public broadcasting company Studio B , Belgrade***

  - 3 licenses for broadcasting transmitters

- ***Plus koncept d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***Radio novosti d.o.o. Belgrade***

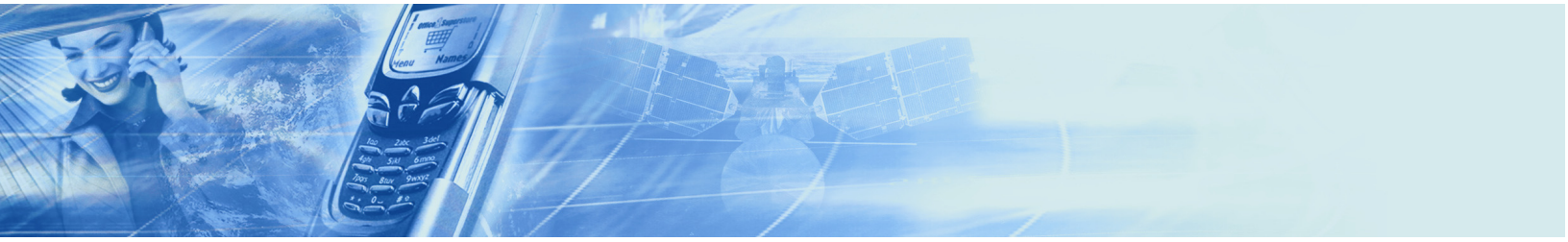
  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***Visual and business communications company Spirit Sound MFM d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply



- ***Sport radio FM d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***Naxi transport, traffic and consultancy company d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***Trident Media Group d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 4 licenses for radio broadcasting signal supply

- ***Trade, services and intermediation company Mipos d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

- ***Informing and marketing company Pink International Company d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

- ***Broadcasting society Pingvin d.o.o. Belgrade***

  - 1 license for broadcasting transmitter

  - 2 licenses for radio broadcasting signal supply

The ITU Regional Radiocommunication Conference for planning of the digital terrestrial broadcasting service in Region 1 and the Islamic Republic of Iran, in the frequency bands 174 230 MHz and 470-862 MHz (RRC-06), which was held in Geneva from 15 May until 16 June 2006, was attended by the representatives from RATEL, along with more than 1000 delegates form 104 countries from Europe, Africa and Middle East.

One of the final results of the Conference was the coordination and international recognition of the digital **Plan GE06,** namely allotment/assignment plan for digital broadcasting, **DVB-T,** for the territory of the Republic of Serbia, as well as the digital allotment/assignment plan for digital broadcasting, **T-DAB**, for the territory of the Republic of Serbia. This implies the following:

- eight layers for the whole territory of the Republic of Serbia for digital television (one in VHF band and seven in UHF band) for portable and mobile reception

- two layers for the whole territory of the Republic of Serbia for digital radio (in VHF band) for portable and mobile reception
- six more layers for the City of Belgrade for digital television in UHF band

In view of the presented results of the Conference, it is important to underline the fact that the current level of technology enables to form a multiplex of 4-6 channels with a studio quality image. This means that, due to the results achieved at the Conference by the delegation of the Republic of Serbia, the coverage of the whole territory of the Republic of Serbia with 32-18 different TV programs and 12-16 radio programs has been enabled. Also, a possibility of coverage of the wider area of the City of Belgrade with 56-84 programs has been ensured. Since the deadline for migration to the new digital plan is 2015, it can be expected for the further development of technology to enable even greater number of TV programs with the same frequency resources.

10. FUNCTIONAL SYSTEMS

The utilization of ICT in large public systems, such as Electric Power Industry of Serbia (EPS), Serbian Railways (ŽTP) and Serbian Petroleum Industry (NIS), is a condition for their development and progress. Also, their integration into the European market and business system requires constant modernization and introduction of new technologies and their telecom networks, since they are the infrastructure of ICT systems. Unfortunately, in the past years EPS was the only one to make a significant step forward towards completing their own modern functional communication system, with capacities which satisfy their own needs, but that also provide a possibility to lease vacant resources in the public telecom market.

10.1. ELECTRIC POWER INDUSTRY OF SERBIA

Efficient functioning of electro-energetic systems and electric power industry in general requires an advanced telecommunications system. The third phase of the project of a new telecom system construction is underway, and this will be one of the EPS infrastructural systems. The basis of the new system is a transport telecommunication network, which is a single transport infrastructure based on optical fibres. The optical network was constructed by applying OPGW cables to all 400 kV power transmission lines and to most of the 220 kV power transmission lines. The optical network spreads to almost 3000 km over power transmission lines, reaching all important energy points of the EPS system.

Except for Bajina Bašta direction, which was the first to be completed and where 24-fibre optical cable was installed, all other directions have 48-fibre cable installed. The structure of OPGW 48-fibre cables is mixed: 24 fibres are ITU-T G.652, and other 24 ITU-T G.655B. Obviously, these are rather big transport capacities, the biggest in the country at the moment.

Almost 3000 km of cable installed in EPS network

A part of the optical network is already being operated for reconnection and dispatcher needs. Temporary small capacity terminal equipment is also being used. These links have been operating well the whole time with rather small capacities. The quality of these temporary links seems to be an improvement compared with the situation in the past. The communication has been established with around 30 nodes, while there are more than 60 planned in total, which means that the temporary solution covers a significant number of structures.

The basic principle of the technical solution for terminal equipment in the new telecom network of the Electric Power Industry of Serbia is the use of SDH devices. The

network has a mesh structure, with capacities on main links - STM – 16 (2,488 Gb/s), on neighbouring electric power industries - STM – 4 (622 Mb/s), whereas within the network the main directions will be STM – 4 and other will be STM – 1 (155 Mb/s). According to the project, new terminal equipment will be installed in over 60 nodes, i.e. major energy structures of the EPS.

The telecommunications system will be completely capable of meeting the requirements of signal transmission in order to be able to apply advanced technologies and procedures in technical and business management of electric power system in Serbia. Also, the surplus of telecommunications capacities will enable entering free market and equal participation in it.

10.2. SERBIAN RAILWAYS

The Serbian Railways (ŽTP) telecommunication system is based on analogue technology, with basic purpose to carry out the telephone and telegraph traffic. This points to the necessity of urgent startup of construction of an up-to-date telecommunication system that should meet all requirements present in optimal performance of modern railways around the world.

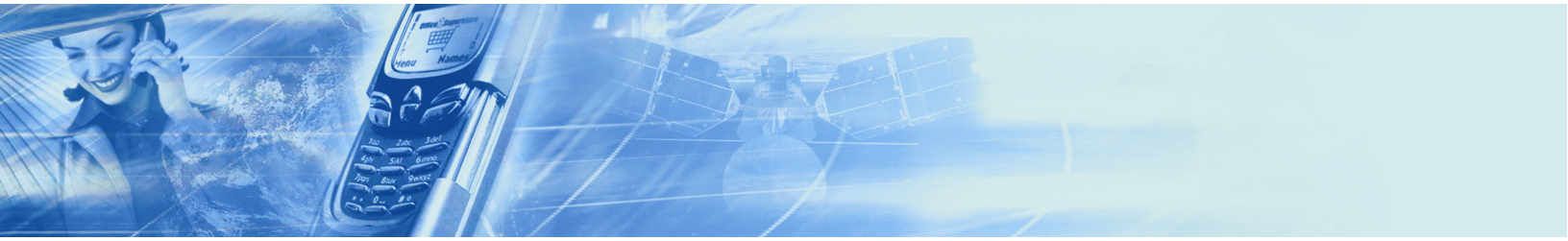
The fact that the railway is an extremely complex, heterogeneous, hierarchically organized system distributed in space, which relies on systems from all areas of engineering, defines rather strict requirements concerning the performances, technical standards, reliability and sustainable functioning of the system. Indeed, since the Serbian railroads are an integral part of the European railway system, the vision of their development is fully accomplished through the development of the European railroads. The telecommunication system should meet all requirements set by all development aspects of modern European railways.

10.3. SERBIAN PETROLEUM INDUSTRY

The purpose of the Serbian Petroleum Industry (NIS) telecommunication network is voice and data transfer. It is composed of two subsystems: automatic telephony and radio links. The NIS facilities, both industrial and managerial are based throughout the territory of the Republic of Serbia, due to which the telecommunication system is divided into three regions: Novi Sad, Zrenjanin and Belgrade.

Within the NIS system, parts of NIS have built their own link ways for their needs, namely:

- Optical cable on the route between NIS Business Centre and telecom centre of Telekom Srbija Novi Sad,
- Optical cable on the route Paraćin-Pojate-Kruševac and Bresnica-Čačak-



Preljina-Gornji Milanovac,

- Coaxial cable on the route NIS Refinery Novi Sad - NIS Refinery Pančevo used to connect the two refineries,
- Copper cables 2x150x4x0.6 on the route between NIS Business Centre and ATS TELEKOM in Novi Sad.

NIS radio link system is organized to function as an island type system in each part of NIS separately. This system conveys only voice. Radio networks operate on 2 m and 0.7 m wavelengths.

The present situation of data and voice transfer in NIS does not satisfy their needs. Therefore, a new concept of NIS link system was made based on:

- Functional network of automatic telephony for integrated voice and data transfer, image transfer, telemetry and other telecommunication criteria,
- The principles of digital processing of signal, mutually connected telecommunication platforms through digital optical transfer systems,
- Integration with the system of mobile radio links,
- Connection with public telecommunication system and other connection link holders where there is an interest for connection.

So far, NIS does not plan to lease their own capacities.