REGULATORY AGENCY FOR
ELECTRONIC COMMUNICATIONS
AND POSTAL SERVICES

AN OVERVIEW

OF THE TELECOM AND POSTAL SERVICES MARKET IN THE REPUBLIC OF SERBIA IN 2014

Republic of Serbia
RATEL
Regulatory Agency for
Electronic Communications
and Postal Services

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Belgrade, 2015

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An Overview of the Telecom and Postal Services Market in the Republic of Serbia in 2014

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A WORD OF INTRODUCTION

The Regulatory Agency for Electronic Communications and Postal Services (RATEL) is a national, independent regulatory authority for electronic communication, whose position in the legal system of the Republic of Serbia is defined under the provision of Article 137 paragraph 3 of the Constitution. With the amendments made to the Law on Electronic Communications (Official Gazette of RS, no. 62/14) and the Law on Postal Services (Official Gazette of RS, no. 62/14), the Republic Agency for Postal Services was merged with RATEL, which, in turn, continued to work as the Regulatory Agency for Electronic Communications and Postal Services. The Regulatory Agency for Electronic Communications and Postal Services assumed the rights, obligations, files, tasks, equipment, work assets, registers, employees and the appointed officials of the Republic Agency for Postal Services. The postal services are now regulated by RATEL's Postal Service Department.

Pursuant to the main principles laid down under the Law, strategic documents and relevant sector regulations, RATEL focused its regulatory activities on providing conditions for: a balanced and stable development of the electronic communications and postal services in the territory of the Republic of Serbia, business predictability and equal treatment of the operators, as well as the maximum benefit for the users of electronic communications and postal services, in terms of choice, price and quality of the services offered. The objective of RATEL's regulatory activities is a liberalized and open market of electronic communications and postal services, mainly through creation of a stable and predictable regulatory environment, in order to stimulate the sector development, investments, innovative services, new market entrants, promotion of competition and protection of users' interests.

One of the main RATEL's tasks is to provide further development of electronic communications and postal services market by applying competition incentive mechanisms (*ex ante*) and market regulation along with all measures available (*ex post*). RATEL continuously monitors nine relevant electronic communication markets and compliance with the regulatory obligations by operators with significant market power (SMP), by applying the *Rulebook on the application of the cost-accounting principle, separate accounts and reporting of an operator with significant market power in the electronic communications sector*. Following the Report on the analysis of wholesale market for call termination on the public telephone network (market 3), RATEL adopted the decision designating SMP operators in this market and imposing relevant obligations on them.

In nine relevant markets susceptible to ex ante regulation, where five operators had been identified as SMP operators, during 2013 RATEL monitored the implementation of regulatory measures, mainly reference offers and pricing methods for regulated prices. Reference offers are mandatory as regulatory measures for four operators with significant market power in six wholesale markets (Telekom Srbija Joint Stock Co., Orion telekom Ltd., Telenor Ltd. and Vip mobile Ltd.). In this way predictable and non-discriminatory business conditions have been created for operators in the wholesale markets susceptible to ex ante regulation. RATEL carried on with the continual analysis of the termination, collocation, leased lines and broadband rates, along with updating the information on cable service price modifications, overview of the roaming prices of the national mobile operators in 50 selected countries, etc.

Number portability service on public telephone networks at a fixed location has been available since 1 April 2014. By the end of the year, 41,513 fixed-line subscribers changed the operator, keeping the same number.

As part of the regulatory activity, in 2014 RATEL adopted six general bylaws, drafted five proposals of general bylaws adopted by the line ministry and a series of separate bylaws, to the end of electronic communications market regulation.

The same as every year, in 2013 RATEL published *An Overview of the Telecom Market in the Republic of Serbia*, providing the necessary information on operators, relevant public authorities, scientific institutions, investors, users and NRAs in the region and in the EU. Relevant data was exchanged with the Statistical Office of the Republic of Serbia, as part of the good cooperation between the two institutions.

As a result of the international cooperation, the *Agreement on Reduction in Roaming Fees on the Public Mobile Networks between the Ministries in Charge of Electronic Communications of: Bosnia and Herzegovina, Montenegro, the Republic of Macedonia and the Republic of Serbia* was signed. In line with the Agreement RATEL adopted the decision on gradual reduction in roaming fees.

Chair of the Managing Board

Professor Dr Jovan Radunović

1. RATEL'S ACTIVITIES IN 2014

The Regulatory Agency for Electronic Communications and Postal Services (RATEL) is a national, independent regulatory authority for electronic communication, functionally and financially independent from the state authorities, organizations and persons performing the activity of electronic communications. RATEL's work is not financed from the budgetary assets and the manner of financing as stipulated by the law regulating electronic communication is a mechanism ensuring RATEL's financial independence and RATEL's revenues stipulated by the law are not budgetary assets by their legal nature.

The Republic Telecommunication Agency (RATEL) was established in 2005, in line with the Telecommunications Law, as a national regulatory authority and an independent legal entity with the task to ensure efficient enforcement and enhancement of the telecom policy in the Republic of Serbia, aimed at further development of the telecommunications, and to create conditions for the implementation of information society. Following the entry into force of the Law on Electronic Communications (*Official Gazette of RS*, nos. 44/10, 60/13-CC Dec. and 62/14 hereinafter: Law), RATEL continued to work as the Republic Agency for Electronic Communications. With the amendments made to the Law on Electronic Communications (*Official Gazette of RS*, no. 62/14) and the Law on Postal Services (*Official Gazette of RS*, no. 62/14), the Republic Agency for Postal Services was merged with RATEL, which, in turn, continued to work as the Regulatory Agency for Electronic Communications and Postal Services. The Regulatory Agency for Electronic Communications and Postal Services assumed the rights, obligations, files, tasks, equipment, work assets, registers, employees and the appointed officials of the Republic Agency for Postal Services. The postal services are now regulated by RATEL's Postal Service Department.

RATEL was established as an autonomous organization, entrusted with public competencies under the Law, independent of state authorities and separate from the existing state administration structure, precisely in order to ensure a higher level of autonomy and independence in performing the entrusted public competencies. The purpose was to ensure a greater level of efficiency and the necessary distance from any political influence. Basic principles of RATEL's work in the previous year and in the ten years of its operation and regulatory activity have been to ensure of safe and predictable environment for operators' business and to attract investments in the sector, to create conditions for

the development and implementation of new technologies along with stimulation of rational an efficient usage of scarce resources, incentive to competition, mediation and dispute resolution and, finally, constant monitoring of the quality of service provided and protection of users' interest.

In line with the regulations pertinent to electronic communications and postal services, the most important activities, duties and responsibilities include adoption of bylaws, licensing, universal postal service tariffing, promotion of competition, quality of service monitoring and international cooperation. RATEL's activities accomplished in the period from 1 January to 31 December 2014, which were the result of activities and tasks defined under the regulations pertinent to electronic communications and postal services and under the 2014 Framework Business Plan, are presented below.

REGULATORY ACTIVITY

In performing its regulatory activity, in 2014 RATEL passed the following bylaws:

- *Rulebook amending the Rulebook on application forms for the issuance of individual licence for the use of radio-frequencies* (*Official Gazette of RS, no. 2/14)*
- *Rulebook amending the Rulebook on general terms and conditions for performing electronic communication activities under general authorization regime* (*Official Gazette of RS, no.* 13/14)
- *Rulebook amending the Rulebook on quality parameters for publicly available electronic communication services and monitoring of electronic communication activity* (*Official Gazette of RS*, no. 13/14)
- *Rulebook on number portability for services provided via public mobile communications networks* (*Official Gazette of RS,* no. 101/14)
- *Rulebook on content and manner of notification of international interconnection agreements* (*Official Gazette of RS*, no. 104/14)
- *Rulebook on the way and conditions of the access to the public postal operator's postal network* (*Official Gazette of RS*, no. 146/14)
- *Rulebook on the quality parameters for the provision of postal services and on the minimum quality standards for the provision of universal postal service* (*Official Gazette of RS*, no. 146/14).

Pursuant to the Law, in 2014 RATEL also drafted the proposals of bylaws to be adopted by the responsible ministry, as follows:

- *Rulebook stipulating the allotment radio frequency plan for work in frequency bands 791-821/832-862 MHz* (*Official Gazette of RS*, no. 94/14)
- *Rulebook stipulating the radio frequency allotment plan for work in the 1710-1785/1805-1880 MHz frequency bands* (*Official Gazette of RS*, nos. 112/14 and 125/14)
- *Rulebook on analogue to digital television programme broadcasting switchover and access to multiplex* (*Official Gazette of RS*, nos. 86/14, 18/15 i 30/15)
- *Rulebook amending the Rulebook stipulating the radio frequency/location allocation plan for terrestrial analogue FM and TV broadcasting stations for the territory of the Republic of Serbia* (*Official Gazette of RS*, no. 33/15).

Following the public consultations concluded on 24 November 2014 on the *Draft Rulebook amending the Rulebook on radio-frequency usage fee*, the opinions received in a timely manner were published on RATEL's website and the Rulebook was submitted to the line Ministry.

Following the public consultations concluded on 29 November 2014 on the *Draft Rulebook amending the Rulebook on the manner of monitoring the radio frequency spectrum usage, technical inspection procedure and protection from harmful interference* (*Official Gazette of RS,* no. 16/15) the opinions received in a timely manner were published on RATEL's website and the Rulebook was submitted to the line Ministry.

The public consultations on the *Draft Rulebook on the manner of collecting and publishing the data on the type, availability and geographic location of the electronic communication network capacities began on* 25 December 2014, pursuant to the Law.

Following the public consultations *the Rulebook amending the Rulebook on general terms and conditions for postal service provision* was submitted to the line Ministry in order to obtain the opinion on the compliance thereof with law and Constitution.

A number of separate acts were passed, as part of the implementation of the legal competences in the electronic communications market regulation.

Upon the entry into force of the Law Amending the Law on Electronic Communications (*Official Gazette of RS*, no. 62/14), RATEL's Managing Board passed *The Statutes of the Regulatory Agency for Electronic Communications and Postal Services* (*Official Gazette of RS*, no. 125/14) approved by the Government of the Republic of Serbia, according to Art. 7, para. 7 of the Law.

ELECTRONIC COMMUNICATIONS NETWORKS AND SERVICES

During 2014, RATEL continued with the activities aimed at creation of a free and open market, ensuring equal treatment for all participants. In keeping with the adopted regulations and procedures for the introduction of new technologies and services, which were finalized in the previous period, RATEL undertook a series of activities concerning the sector regulation, in order to stimulate competition in the Serbian telecom market.

A comparative overview of the number of users and penetration rate for public fixed communication network, public mobile communication network, Internet and cable systems for 2012, 2013 and 2014 is given in Table 1.

In 2014, RATEL continued monitoring the operators' compliance with the conditions under the issued licences, as well as the situation in the markets and the fulfilment of the decisions passed, pursuant to the competencies related to the market analysis, as stipulated under the Law.

The EU Roaming Regulation on roaming on public mobile telecom networks entered into force in June 2001, setting a cap for both wholesale and retail roaming charges in the EU member countries and the countries of the European Economic Area – EEA. Following the initiative made by the countries with observer status in BEREC to extend roaming charges limit to these counties, by applying the Roaming Regulation, on 29 September 2014, the *Agreement on Reduction in Roaming Fees on the Public Mobile Networks between the Ministries in Charge of Electronic Communications of: Bosnia and Herzegovina, Montenegro, the Repubic of Macedonia and the Republic of Serbia* was signed. In line with the Agreement on Reduction in Roaming Fees, Decision no. 1-03-021-146/14 on gradual reduction in roaming fees was adopted by RATEL-s Managing Board on 25 December 2014 and published on RATEL's website.

Table 1. A comparative overview of the number of users of the basic electronic communication services in the last 3 years

Source: RATEL

	2012		2013		2014	
	Number (thousands)	Penetration (%)	Number (thousands)	Penetration (%)	Number (thousands)	Penetration (%)
Fixed - lines	2,990.1	41.29	2,938	40.91	2,856.1	39.96
Mobile - users	9,137.9	126.19	9,198.7	128.09	9,344.98	130.76
Internet - subscribers	5,038.9	69.26	5,691.6	79.25	6,191,52	86.63
Cable - subscribers	1,442.2	19.92	1,552.5	21.62	1,497	20.95

Since the Law stipulates the obligation for RATEL to keep appropriate registers of the operators, in February 2011, the Managing Board passed the decision on the manner in which the registers, records, data bases and other information within the competence of the Republic Agency for Electronic Communications are to be kept and published on the Agency website. In addition to updating the existing registers and creating new ones, in 2014 there were 93 changes made in the register of operators performing electronic communications activity (53 new entries and 40 erasures) as follows:

- 8 new entries and 9 erasures for media content distribution service operators
- 2 erasures for VoIP operators
- 11 new entries and 21 erasures for Internet access and Internet services
- 1 erasure for data transmission
- 5 new entries for public voice service
- 7 new entries and 3 erasures for VAS (voice transmission, SMS, MMS)
- 1 new entry for BFWA network operator
- 6 new entries for WAS/RLAN network operator
- 3 new entries for passive infrastructure
- 2 new entries for optical transport networks
- 9 new entries for optical and 4 erasures for cable network operator
- 1 new entry for microwave transport network operator.

During 2014, one decision on international interconnection with the telecommunications network operators in the neighbouring countries was passed. Pursuant to the Law, 37 decisions on permits to use numbering resources were issued upon operators' requests, as well as 9 decisions on the withdrawal of such permits.

Number portability on public mobile networks, available since July 2011, was successfully operated during 2014, in line with the RATEL's bylaw regulating number portability. In 2014 there were 100,000 portings, making the total of 300,000 portings, which is more than 3% of the total number of mobile users.

RATEL and the operators providing electronic communication services via public fixed telephone networks signed a Protocol of implementation of the Rules on number portability on public telephone networks at a fixed location (*Official Gazette of RS*, no. 52/11) on 3 March 2014, in order to standardize the procedures related to administrative issues that may rise in the number porting procedure.

Number portability service on public telephone networks at a fixed location has been available since 1 April 2014. By the end of the year, 41,513 fixed-line subscribers changed the operator, keeping the same number. The successful launching of the number portability on fixed networks is partly owed to the experience with mobile number portability.

In 2014, pursuant to the Rules on radio equipment and telecommunications terminal equipment (R&TT) (Official Gazette of RS, no. 11/12, in force as of 1 June 2012), RATEL, as the body in charge of R&TT equipment conformity assessment, issued:

- 703 certificates of conformity and 1 duplicate certificate,
- 907 excerpts from the register of issued certificates.

Furthermore, 14 requests were forwarded to the line ministry, none of the requests were rejected, while there were 51 cases of withdrawn requests.

In 2014, RATEL continued with spectrum monitoring, control of quality parameters for publicly available electronic communication services and networks and control of electronic communication business performance.

RADIOCOMMUNICATIONS

The activities related to the joint work of the line ministries, Regulatory Body for Electronic Media and RATEL on the creation of conditions necessary for analogue to digital switchover in radio and television programme broadcasting, continued in 2014.

On 23 December 2014 RATEL's Managing Board passed the Decision to launch the public bidding procedure for the issuance of individual licences for the usage of the radio frequencies in the 1710-1785/1805-1880 MHz frequency band for the provision of public electronic communications, in accordance with GSM 1800/MFCN including IMT standard, on a technologically neutral basis, for the territory of the Republic of Serbia, to be issued pursuant to *Rulebook on minimum requirements for the issuance of individual licences for the usage of the radio frequencies upon completed public bidding procedure in the radio frequency band 1710-1785/1805-1880 MHz (Official Gazette of RS*, no. 136/14).

On 26 December 2014, RATEL published a public call for participation in the public bidding procedure for the issuance of individual licences for the usage of the radio frequencies in the 1710-1785/1805-1880 MHz frequency band for the territory of the Republic of Serbia. All three mobile operators participated in the public bidding. In March 2015 they were awarded individual decisions on the radio frequency usage for two 5 MHz- radio frequency blocks each. Upon completed public bidding procedure for the issuance of individual licences, the mobile operators were able to launch 4G service.

In 2014, RATEL drafted the following radiocommunication bylaws to be adopted by the line ministry:

- *Rulebook stipulating the allotment radio frequency plan for work in frequency bands 791-821/832-862 MHz*
- *Rulebook stipulating the radio frequency allotment plan for work in the 1710-1785/1805-1880 MHz frequency bands*
- *Rulebook on analogue to digital television programme broadcasting switchover and access to multiplex*

- *Rulebook amending the Rulebook stipulating the radio frequency/location allocation plan for terrestrial analogue FM and TV broadcasting stations for the territory of the Republic of Serbia*

All draft bylaws had been subject to public consultations, the opinions received in a timely manner were published on RATEL's website and the bylaws was submitted to the line Ministry.

Also, the Instructions for the usage of femtocell and picocell base stations were prepared as the basis for amending the licences issued to the mobile operators.

Implementing CEPT ECC/DEC/(01)03 and ECC Report 180, RATEL prepared the appropriate file (xml file format) for ECO Frequency Information System, applied in accordance with the Commission Decision 2007/344/EC on harmonized availability of information regarding spectrum use within the Community. The input of the data provided by RATEL was confirmed and the access to the data for the Republic of Serbia in EFIS database was made available on 12 February 2014.

In addition, as part of the activities related to RF spectrum management, during 2014, the following activates, including RF usage licence issuance, RF coordination and notification and RF spectrum monitoring, took place:

- as part of the broadcasting activities, the data from 30 BRIFICs (*BR International Frequency Information Circular*) of the International Telecommunication Union, of relevance for the broadcasting service of the Republic of Serbia, were analyzed. Answers were prepared for all cases where the new frequency assignments were affecting our broadcasting service, and they were delivered to the Radiocommunication Bureau in a timely manner. Also, special sections added to ITU BRIFIC were analyzed, namely 395 requests in 11 special sections of GE84 were analyzed for the broadcasting service and the answers were sent to the ITU Radiocommunications Bureau;
- by using the appropriate software, a large number of compatibility analyses were carried out related to requests for new frequency assignments, radio station dislocation in relation to the existing plans and removal of harmful interferences from the service area;

- a large number of coordination requests for new frequency assignments or modification of the existing, made by the neighbouring or other administrations, were solved.
- 4919 individual permits for radio frequency usage were issued at operators' requests according to provision of Art. 86 of the Law: 37 individual permits for radio-stations on aircrafts, 81 individual permits for radio-frequency usage for radio-stations on board of ships or other vessels, 284 individual permits for radio-frequency usage to diplomatic-consular offices and foreign legal entities in accordance with the provisions of Arts. 87 and 88 of the Law, as well as 126 amateur radio-station permits.
- 312 decisions on revoking the assigned radio-frequencies were adopted, according to Art. 95 of the Law,
- 26 individual permits for radio frequency usage were issued upon a repeated technical inspection.

Continual spectrum monitoring was performed during 2014.

USER PROTECTION

The same as in the previous years, RATEL continued with the user support services and resolving the complaints concerning the work of electronic communication operators, which involved the analysis of the number of user complaints according to the type of services and daily communication with the users by e-mail and telephone. The number of user complaints received in 2014 was 1485, of which 428 complaints were resolved with the positive outcome for the users. The majority of complaints in 2014 concerned the correctness of the bill for mobile telephony services and the quality of service. Even though RATEL published a comparative overview of mobile operators' prices for roaming services and the instructions on data transmission and the Internet access in roaming, and the operators issued warnings and instructions concerning the usage of smart phones, the number of complaints related to the bills for the roaming service are still considerable. when processing the user complaints, particular attention is paid to the protection of the rights of the disabled and the elderly, as well as the socially vulnerable.

During 2014, following the analysis of the general terms and conditions for the subscriber contract for five operators - Telekom Srbija a.d., Telenor d.o.o., Vip mobile d.o.o., Orion telekom d.o.o. and SBB d.o.o, RATEL sent recommendations to the operators on how to align general terms and conditions with the regulations in force, in order to enhance user protection.

MONITORING AND ANALYSIS OF THE MARKETS SUSCEPTIBLE TO EX-ANTE REGULATION

Pursuant to the Law, RATEL has the task to carry out market analysis, collect and publish statistical data and to provide the National Parliament of the Republic of Serbia with the data on the situation in the Serbian electronic communication market in the form of annual report on the activities. In order to make available the data concerning the situation in the Serbian telecommunications and postal services, RATEL issues every year the publication providing necessary information to operators, relevant public authorities, scientific institutions, investors, users and NRAs in the region and in the EU. Furthermore, information was collected and submitted to the International Telecommunication Union (ITU) in form of the questionnaire with indicators, reports on the annual analysis of the telecommunication traffic were prepared and quarterly data were submitted to the Statistical Office of the Republic of Serbia, and also information on telecommunications market, service prices and regulatory measures was provided to the Cullen International for the purpose of the annual report.

Regarding the control of regulated prices of the SMP operators, *Rules on the application of the cost-accounting principle, separate accounts and reporting of an operator with significant market power in the electronic communications sector* (*Official Gazette of RS*, no. 52/11) were fully applied. The regulatory reports of the following SMP operators were analyzed: Communications Company „Telekom Srbija" Joint Stock Co. (Telekom Srbija Joint Stock Co.) and Serbia Broadband – Srpske kablovske mreže Ltd. (SBB Ltd.), as well as the service packages provided by the two operators.

As part of the implementation of the decision designating SMP operators in the mobile call termination market (ref. no. 1-02-3491-568/11-40 of 29.11.2011.), on 20.08.2013 RATEL adopted the decision ref. no. 1-02-3491-818/11-22 on reduction in rates for call termination on mobile networks applied as of 1 January 2014. In view of this decision and in line with the wholesale markets obligation to publish information in the form of reference offer, Telekom Srbija, Joint Stock Co., Telenor Ltd. and Vip mobile Ltd. modified the existing reference offers for call termination on mobile networks and submitted the offers to RATEL, according to the set procedure.

In nine relevant markets susceptible to *ex ante* regulation, where five operators had been identified as SMP operators, during 2014 RATEL monitored the implementation of regulatory measures, mainly reference offers and pricing methods for regulated prices. Reference offers are mandatory as regulatory measures for four operators with significant market power in six wholesale markets (Telekom Srbija Joint Stock Co., Orion telekom Ltd., Telenor Ltd. and Vip mobile Ltd.). In this way predictable and non-discriminatory business conditions have been created for operators in the wholesale markets susceptible to ex ante regulation. RATEL carried on with the continual analysis of the termination, collocation, leased lines and broadband rates, along with updating the information on cable service price modifications, overview of the roaming prices of the national mobile operators in 50 selected countries, etc.

In 2014, RATEL carried out the analysis of the wholesale market for call termination on the public telephone network (market 3), in order to re-evaluate the existing decisions and determine whether any changes had occurred in the relevant market since the last analysis, such as to require different decision. Following the analysis of the wholesale market for call termination on the public telephone network (market 3), RATEL adopted the Decision no. 1-02-3491-410/14-50 of 29 December 2014, designating SMP operators on the wholesale market for call termination on the public telephone network (market 3) and imposing relevant obligations on the SMP operators.

RATEL'S ORGANIZATION AND DEVELOPMENT

In 2014 the Managing Board (five-year term) worked with the same members as in the previous years: Chairperson Prof. Dr Jovan Radunović, Deputy Chairperson Dr Zdravko Stanimirović and the members of the Managing Board Prof. Dr Miroslav Dukić, Prof. Dr Vlade Milićević and Vuk Vujović, MBA.

The following organization units were formed for performing the work within RATEL's competence:

- **Regulatory Affairs Department** (with the following divisions: Division for Legal Affairs in Electronic Communications Sector, Technical Regulations Division and Radiocommunications Division),
- **Economic Affairs and Market Analysis Department** (with the following divisions: Market Analysis and Cost-Accounting Division, Accounting and Finance Division and Procurement Section),
- **Logistics Department** (with the following divisions: General Affairs Division, e-RATEL Division and Monitoring Division),
- **Postal Services Department** (Postal Services Division).

The financial assets are provided by RATEL's revenues from the numbering fees, radio-frequency fees, fees for performing electronic communication activities, and revenues from the provision of services within RATEL's competence. RATEL's annual financial report is approved by the Managing Board and revised by an independent chartered auditor. The difference between the revenues and expenditures laid down in RATEL's annual financial report is paid into public revenues account of the Treasury of the Republic of Serbia and used by the responsible ministry for the promotion and development of electronic communications and information society. A part of these revenues, proportional to the revenues made by the electronic communication network and services operators in the territory of the Autonomous Province of Vojvodina, is paid into the account of the Province Treasury and used by the province authority in charge of electronic communication for the promotion and development of electronic communication and information society in the territory of AP Vojvodina. It should be noted that the National

Parliament of the Republic of Serbia approved the 2013 Work Report of the Republic Agency for Electronic Communications, submitted thereto in a timely manner through the Board for Space Planning, Traffic, Infrastructure and Telecommunications.

In 2014, RATEL's total revenues amounted to approximately 1,619 million dinars, with the total expenditures of 600 million dinars. Pursuant to Article 27, paragraph 6 of the Law, once the financial reports had been audited, the surplus of 1,019 million dinars was paid into the Treasury of the Republic of Serbia and the Autonomous Province of Vojvodina, in the amount of 1,002 million dinars and 17 million dinars, respectively.

In late 2011 the Law on Cinematography was passed (Official Gazette of RS, nos. 99/11 and 2/12-corr.) , and came into force as of 3 July 2012, under the provisions of which, Art. 19 point 4) and Art. 20, the institutes in the telecommunications sector, i.e. electronic communications, are regulated in a different way than they are regulated by the systemic law, whereby they are exceeding the limits of the cultural sector regulation. Namely, it is laid down by these provisions of the Law on Cinematography that the assets for the promotion of the national cinematography shall be raised, inter alia from: 10% of the revenue made from the fees paid by the public telecommunications operators to the Agency for the right to build, possess or exploit a public telecommunications network, and/or the right to provide public telecommunications services, revenue made from the fees radio frequency usage and assignment, revenue made from the certificate issuance, and revenue made from the costs of technical inspection and other costs of permit issuance, paid no later than 30 June of the current year for the revenue made in the previous year. The assets are paid into a separate account of the Film Centre Serbia. 115.4 million dinars were paid into the account of the Film Centre Serbia, on these grounds, in 2012, whereas the expected payment for 2013 amounts to 143 million dinars. In March 2012, the Agency submitted the initiative to the Constitutional Court of the Republic of Serbia for the review of the constitutionality of this law, for the reason that the provisions of the 19 point 4) and Art. 20 of this law are contrary to the Art. 4, paragraph 1, Art. 84, paragraph 3 and Art. 194 of the Constitution of the Republic of Serbia. In December 2013 the Constitutional Court passed the decision on initiating the procedure for determining unconstitutionality of the provisions of the 19 point 4) and Art. 20 of the Law on Cinematography. On 3 April 2014 the Constitutional Court passed the Decision no. IUz – 128/2012, whereby it was found that the

provisions of the 19 point 4) and Art. 20 of this law are contrary to the Constitution and the aforesaid provisions were repealed as of 29 April 2014.

On 31 January 2014, there were 116 employees, 80% of which have a university degree (7 PhD and 19 MSc) and 20% with secondary education.

RATEL is still located in rented business premises in Višnjićeva 8 in Belgrade. The spectrum monitoring centres are located in Dobanovci and Nis.

During 2014, a great number of sessions of the Managing Board were held where a number of general bylaws (rules, draft rules, instructions), the Financial Plan and the Procurement Plan for 2015 were passed. Furthermore, a large number of memoranda were addressed to the Government of Republic of Serbia, the responsible ministries, operators and many other institutions and organizations, both in the country and abroad. Also, two sessions of RATEL's Advisory Council were held in 2014.

The same as in the previous years, RATEL published on its website the Report on the Work of the Republic Agency for Electronic Communications for 2014, pursuant to the provision of the Art. 39 of the Law on Free Access to Information of Public Importance ("Official Gazette RS" Nos. 120/04, 54/07, 104/09 and 36/10) and the Instructions for preparing and publishing the report on the work of a state authority issued by the Commissioner for Information of Public Importance and Personal Data Protection. Observing the principles of transparency in the work and provision of information to all participants of the telecom market, a regular press conference with the presentation of the annual publication - Overview of the Telecom Market in the Republic of Serbia in 2013 - was held in RATEL's premises on 10 April 2014, and another press conference was held in the second half of 2014 where the most important results of RATEL's work were presented.

In 2014 RATEL continued publishing the professional-scientific magazine *Telekomunikacije*. Also, RATEL's representatives participated in the following roundtables and conferences:

- International conference on electronic trade and electronic business "E-trade 2014" in Palic, section "Postal services and e-trade"

- International conference TELFOR 2014, with participation in the presentation of the ministry of Trade, Tourism and Telecommunications: "The Development of Electronic Communications in the Republic of Serbia", 26.11.2014, Sava Centre, Belgrade.
- Simposium PosTel 2014, round table: "The Region and the International Organizations for Postal Traffic", 02.12.2014, Faculty of Transport and Traffic Engineering, Belgrade.

With the purpose of providing transparency in RATEL's work and offering an opportunity to the public to take part in the process of decision-making in the telecommunications sector, in 2014, pursuant to the provision Arts. 34-36 of the Law and the Instructions on the Public Consultations Procedure, RATEL organized a number of public consultations prior to the adoption of all general bylaws by the Managing Board.

COOPERATION WITH OTHER ORGANIZATIONS AND INSTITUTIONS

U In performing its main role under the Law to create the necessary conditions for an unhindered development of the electronic communication market in the Republic of Serbia, RATEL has established close cooperation with the line ministry, relevant state authorities, organizations and other entities.

With the aim of ensuring an efficient radio frequency spectrum management and the protection of operation of priority radio services, RATEL has established the cooperation with the responsible ministry, Ministry of Culture and Media, the Republic Broadcasting Agency, the Ministry of Defence, Serbian Armed Forces, the Ministry of Interior and the Serbia and Montenegro Air Traffic Service Agency. Also, a good cooperation has been established with the Commission for the Protection of Competition in the area of market analysis.

During 2014, RATEL participated in the activities related to the European integrations process, in particular in Chapter 1 (Free Movement of Goods), Chapter 3 (Right of Establishment and Freedom to Provide Services), Chapter 8 (Competition) and Chapter 10 (Information Society

and Media). The cooperation with the EU Integration Office involved, in particular, drafting monthly and biannual reports on the activities related to the European integrations, update of the electronic data base of legal documents, participation in the activities related to the National Programme for the Adoption of *Acquis* (NPAA), providing information concerning electronic communication sector for the annual EC Progress Report. In 2014 RATEL was particularly involved in drafting materials for the bilateral screening for Chapter 1 and Chapter 10 and the contribution for the Subcommittee on Research, Innovation, Information Society and Social Policy (EU-Serbia).

As part of the delegation of the Republic of Serbia, RATEL representatives participated in Chapter 10 Explanatory Screening Session held in Brussels in May 2014 and in Chapter 10 Bilateral Screening Meeting held in Brussels in July 2014. In the Bilateral Screening Meeting, the representatives of the Republic of Serbia provided necessary information on the situation in the electronic communications, information society and media and the information on the degree of alignment of the Serbian legislation with the *Acquis* in these areas.

The dynamic development of ICTs, i.e. services and equipment, requires continuous monitoring and introduction of new regulations. This requires intensive and direct international cooperation with the national regulatory authorities (NRAs) and other international institutions in the region and in the EU. For the purposes of the harmonization of regulations, technical provisions, and standards, in 2014 RATEL's experts took active part in the meetings organized by the ITU, UPU (Universal Postal Union), BEREC, ERGP, Cullen International, CEPT, CERP, ETSI and TAIEX, in particular:

- ITU-T work groups (SG2, SG3, SG9, SG12, SG13,SG15 i SG17) and ITU-R work groups (SG1, SG4, SG5 i SG6);
- CEPT Work Group Spectrum Engeneering (WGSE), Work Group Frequency Management WGFM) and Work Group Numbering and Networks (WGNaN),
- Regional Seminar for Europe "The Transition to Digital Terrestrial TV Broadcasting and Digital Dividend"
- 62nd ETSI General Assembly meeting.

Since the observer status in the ***Body of European regulators for Electronic Communications – BEREC*** was granted to RATEL on 1 March 2012, RATEL's representatives participate in the Board of Regulators – BoR and Contact Network – CN meetings, Expert Working Group – EWG meetings, and they also provide answers to BEREC questionnaires on a regular basis. Also, in September 2012 RATEL became a member of **Independent Regulators Group – IRG**, which is a network of independent European telecom regulators. IRG was established in 1997 as a group of European National Telecommunications Regulatory Authorities (NRAs) to share experiences and points of views among its members on important issues relating to the regulation and development of the European telecommunications market.

RATEL's representatives from the Postal Service Department participated in the work of the ERGP (*European Regulatory Group for Postal Services*) work groups, Contact Network and the plenary session. RATEL has observer status in ERPG as the EU accession country.

International cooperation in the radiocommunications involved RF coordination with the neighbouring countries in the border areas, according to the previously signed coordination agreements, as well as the RF coordination based on the commitments arising from the ITU-R Radio Regulations.

Constant contacts with all participants in the market were maintained through the official institutional participation of RATEL in the meetings and roundtables and through presentation in the national and international conferences and papers in the national and international magazines.

In 2013, there were two international meetings:

- TAIEX Workshop on Cyber Security,
- "Implementation of Competition Law in Electronic Communications in regard to Cartels and Restrictive Agreements" as part of the EU-SCS project of Strengthening Competition in Serbia,
- National conference on cyber crime and using information technologies for preventing illegal migrations as part of the EU Twinning project "Establishment of

an efficient system for preventing and combating illegal migration in the Republic of Serbia",

- Enhancement of Consumer Protection in the Republic of Serbia,
- EU postal services legislation, as part of PLAC project.

RATEL cooperates with the other NRAs in Europe, in particular with those in the region. In 2013 RATEL signed the memoranda of understanding with the NRAs of Croatia, Bulgaria, Greece, Turkey, Albania, Montenegro, Bosnia and Herzegovina and Poland. The cooperation defined by the memoranda provides for a regular exchange of information concerning the electronic communications policy and strategy making and expert meetings with the purpose of studying and comparing technical, legal, economic and other aspects of the regulatory activities in this sector.

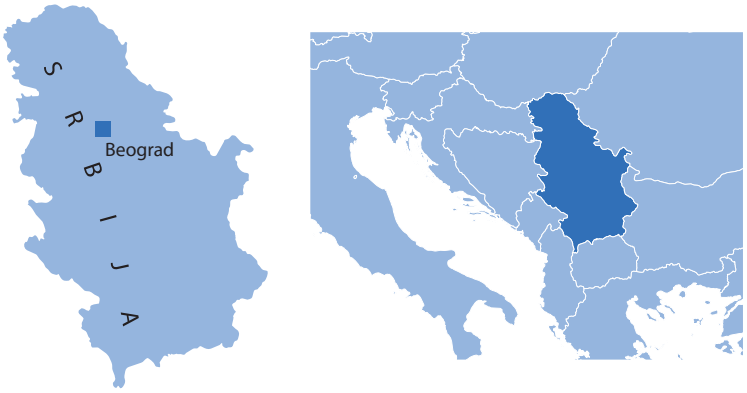
In its work, RATEL continues the cooperation with all participants in the telecom market: operators, providers, distributers, industry, research and educational institutions as well as with consumer associations.

Director

Dr Milan Janković

2. BASIC FEATURES OF TELECOMMUNICATIONS MARKET IN THE REPUBLIC OF SERBIA

Figure 1. Republic of Serbia – Basic Facts



Basic data	
Name	Republic of Serbia
Capital	Belgrade
Area	88.361 km^2
Population (without AP Kosovo and Metohija), estimate by the Statistics Office	7 146 759
Country code:	+381
Internet domain:	.rs
GDP for 2014 (RSD bn)	3 878
Average net income in December 2014	RSD 49 970.00 (€426)
Fixed penetration:	39.96
Mobile penetration:	130.76
ISPs:	217
Network digitalization rate:	99.79%

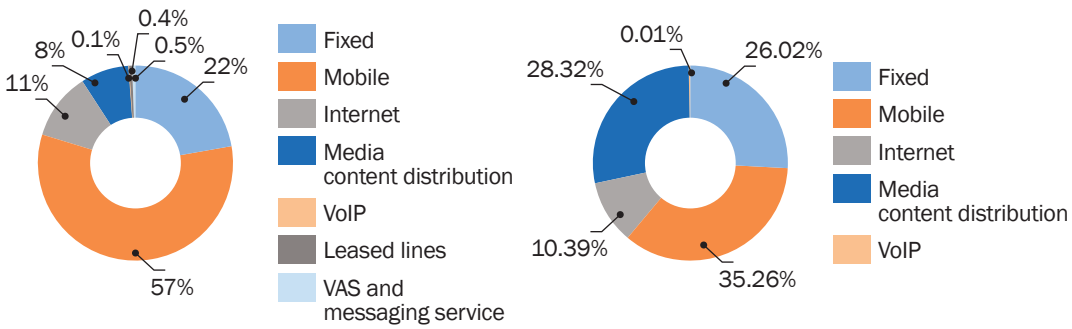
The revenues from telecom services in 2014 in the Republic of Serbia amounted to approximately 1.5 billion euros, which is almost at the same as in the previous year. The share of telecom sector revenues in GDP was around 4.5%, whereas the total investments in the telecom sector in 2014 amounted to 186 million euros, which is 28% less compared to the previous year.

The data used for the telecom market analysis in the Republic of Serbia were retrieved from the reports submitted by the telecom market participants and refer to the territory of the Republic of Serbia without the Autonomous Province of Kosovo and Metohija which is under UN administration pursuant to 1244 Security Council Resolution temporarily regulating, *inter alia*, the competencies of the international civil mission in this territory.

In terms market share accounted for by different services in the Serbian electronic communication market in 2014, same as in the previous years, the revenues from the mobile services accounted for the largest share in the total revenues, with almost 57%, amounting to 847 million euros. The total investments made in 2014 amounted to approximately 186 million euros, where over 60% went to the mobile and fixed telephony 65.8 and 48.5 million euros respectively. The structure of the revenues and investments in the telecommunications sector is given below (Figure 2).

Low usage basket shows average monthly expenses of a subscriber/inhabitant for telecommunications services. Tables 2 and 3 illustrate low usage and high usage telecom service baskets,

Figure 2. Structure and investments by services in 2014 Source: RATEL



representing monthly expenditure per subscriber of telecom services in Serbia in 2014 compared with the data retrieved in 2011, 2012 and 2013. According to the obtained data and the data received from the Statistics Office, in 2014, the cost of the basic package equalled 2.45% of the net average monthly salary in December and the cost of the high usage basket equalled 9.73%.

Table 2. Low usage basket (RSD) Source: RATEL

LOW USAGE BASKET	2011		2012		2013		2014	
	Average bill	% of the monthly salary	Average bill	% of the monthly salary	Average bill	% of the monthly salary	Average bill	% of the monthly salary
Fixed	988.99	2.25%	880.86	1.88%	837.88	1.65%	986.22	1.97%
Mobile (prepaid)	249.24	0.57%	261.95	0.56%	271.35	0.53%	238.8	0.48%
TV (national TV subscription)	500.00	1.14%	500.00	1.07%	500.00	0.98%	/	/
Total	**1,738.23**	**3.96%**	**1,642.81**	**3.50%**	**1,609.23**	**3.17%**	**1,225.02**	**2.45%**
Average net salary (in December)		43,887.00		46,923.00		50,820.00		49,970.00

Table 3. High usage basket (RSD) Source: RATEL

HIGH USAGE BASKET	2011		2012		2013		2014	
	Average bill	% of the monthly salary	Average bill	% of the monthly salary	Average bill	% of the monthly salary	Average bill	% of the monthly salary
Fixed	988.99	2.25%	880.86	1.88%	837.88	1.65%	986.22	1.97%
Mobile (postpaid)	1,715.07	3.91%	1,817.72	3.87%	1,666.05	3.28%	1,478.04	2.96%
TV (national TV subscription)	500.00	1.14%	500.00	1.07%	500.00	0.98%	/	/
Internet	1,289.84	2.94%	1,224.69	2.61%	1,302.59	2.56%	1,305.24	2.61%
Media content distribution	593.06	1.35%	727.34	1.55%	911.40	1.79%	1,093.57	2.19%
Total	**5,086.96**	**11.59%**	**5,150.61**	**10.98%**	**5,217.92**	**10.27%**	**4,863.07**	**9.73%**
Average net salary (in December)		43,887.00		46,923.00		50,820.00		49,970.00

Note: With the entry into force of the Law on Public Media Service (*Official Gazette*, no. 83/14), on 13 August 2014, the Law on Broadcasting (*Official Gazette*, nos. 42/02, 97/04, 76/05, 79/05, 62/06, 85/06 and 41/09) ceased to be valid. As the Law on Broadcasting ceased to be valid, the monthly national TV subscription is no longer collected since August 2014.

2.1 MARKET ANALYSIS

Pursuant to the competences laid down under the Law on Electronic Communications, in November 2014 RATEL carried out the analysis of the wholesale market for call termination on the public telephone network on the territory of the Republic of Serbia and made the appropriate report. The analysis was carried out in order to assess the degree of competition in the relevant market and to provide for a continuous monitoring of the wholesale market for call termination on the public telephone network, so as to identify any changes with respect to the previous analysis carried out in August/November 2011.

RATEL carried out the analysis of the wholesale market for call termination on the public telephone network pursuant to Art. 60 of the Law, stipulating that at least once in three years RATEL should conduct the analysis of relevant markets and, if necessary, additional markets, by applying the European Union recommendations pertinent to the markets analysis and identification of significant market power. The data used in the analysis cover the period 2011-2013.

Upon carrying out the analysis, in December 2014 RATEL passed the decision designating the following operators as SMP operators in the wholesale market for call termination on the public telephone network: Telekom Srbija, Serbia Broadband - Srpske kablovske mreže (SBB), Telenor, Beogrid, Knight Development Support, IKOM, Invest Inženjering, Kopernikus Technology, SAT-Trakt, Beotelnet-ISP, Radijus vektor, Telemark Systems and Orion telekom. The decision stipulates the obligations to provide services under set conditions so as to remove any barriers to the development of competition and to enable the development of the relevant market and competition, and to protect the interests of end-users, while taking into account the type and nature of the market weaknesses, investments made, stimulation of further investments and the possibility for reasonable rate on return with regard to risks.

The decision passed in December 2014 stipulates the following obligations for SMP operators Telekom Srbija and SBB:

1. publishing relevant data in the form of a standard offer;
2. non-discriminatory behaviour;
3. accounting separation;

4. enabling access to and usage of network elements and accompanying facilities;
5. price control and cost accounting,

whereas the obligations that apply to the operators Orion telekom, Telenor, Beogrid, Knight Development Support, IKOM, Invest Inženjering, Kopernikus Technology, Sat-Trakt, Beotelnet-ISP, Radijus vektor and Telemark Systems are as follows:

1. publishing relevant data in the form of a standard offer;
2. non-discriminatory behaviour;
3. enabling access to and usage of network elements and accompanying facilities;
4. price control.

SMP operators are required to comply with the set obligations under terms and conditions laid down in the market analysis.

The market analysis and the relevant decision are available at RATEL's website at: www.ratel.rs/регулатива/анализе_тржишта.538.html

2.2. COMPARATIVE ANALYSIS WITH SEE COUNTRIES

So far the comparative analysis of South East Europe countries covered the electronic communication markets in Croatia, Serbia, Montenegro, Albania, Bosnia and Herzegovina Macedonia and Turkey. It was mainly based on the data from the annual report published by Cullen International, *Monitoring of Electronic Communications in the Enlargement Countries*. However, in 2014 Cullen International stopped publishing the report and collecting the data on electronic communication market of the EU candidate countries. This year the analysis is based on the data published by the NRAs of the SEE countries.

Among the analysed countries, Croatia is the only EU member state, since 1 July 2013. The following countries have the candidate status: Turkey since 1999, Macedonia since 2005, Montenegro since 2010, Serbia since 2012 and Albania since 2014. Bosnia and Herzegovina has the status of the potential candidate country since 2003.

The values of VAT in the analyzed period were as follows: 19% in Montenegro, 17% in Bosnia and Herzegovina, 18% in Turkey and Macedonia, 20% in Serbia and Albania and 25% in Croatia.

Table 4 below shows the population and GDP for each country in 2013. According to the World Bank data, unlike the year before, increase in GDP at market prices was seen in almost all the countries: Montenegro 3.3%, Macedonia 3.1%, Albania 1.4%, Serbia 2.6%, Turkey 4.1%, Bosnia and Herzegovina 2.5%. The decrease was seen only in Croatia (0.9%), yet it was a lower drop in GDP compared to the previous year. GDP per capita in current prices, as a valuable indicator which also reflects the population size is shown in Figure 3. Despite slight drop in respect to the year before, in 2013 Croatia kept the leading position with the GDP per capita of 10,257 euros. Similarly, in Turkey there was a slight decrease in

Table 4. Population and GDP in current prices (2013 data)
Source: Statistical Office of the Republic of Serbia and Eurostat data

Country	Population (mn)	GDP (€ bn)
Montenegro	0.622	n/a
Macedonia	2.066	7.683
Albania	2.896	8.419
Serbia	7.147	34.263
Turkey	76.668	618.393
Bosnia & Herzegovina	3.831	13.446
Croatia	4.247	43.562

GDP, yet it remained rather high. In Serbia the indicator was increased to 4,794 euros in 2013. The lowest value of GDP per capita of 2,907 euros was seen in Albania

The total revenues from the electronic communications market in these countries are constantly growing. At the end of 2013, the total estimated revenues were almost 17.2 billion euros. Such growth is mainly owed to Turkey where the revenues grew by 8.3% in respect to 2012. The revenue growth, by 2.8%, was also seen in Serbia. In other countries there was a decrease in the revenues from the electronic communication services. However, the change presented in percentages should be taken with some reserve, since different data sources have been used in the comparative analysis.

Figure 3. GDP per capita in current prices (in euro, 2013 data)
Source : Statistical Office of the Republic of Serbia and Eurostat data

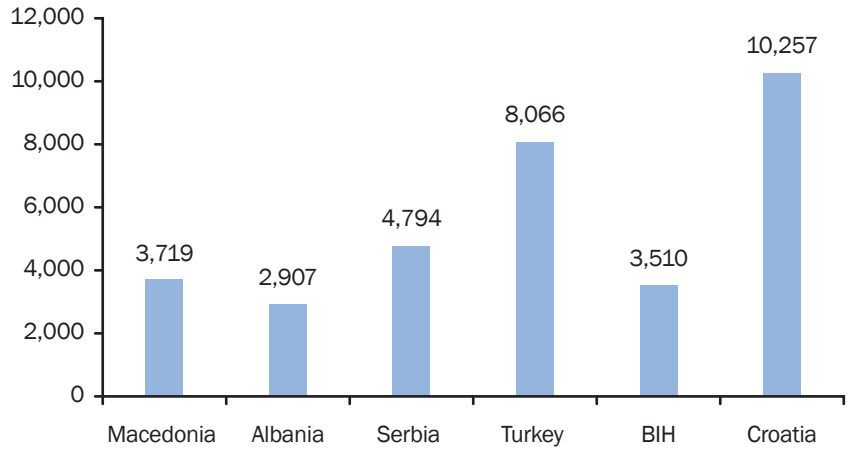


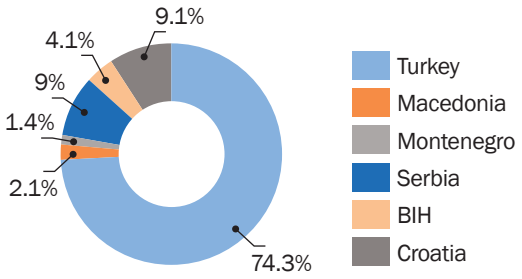
Table 5. Value of electronic communications markets in SEE (revenues in EUR mn.*)
Source: Enlargement countries monitoring report 4 - Annex - February 2014 (Cullen International) for 2011 and 2012, official websites of the NRAs for 2013: www.btk.gov.tr, www.aek.mk, www.ekip.me, www.rak.ba, www.hakom.hr, RATEL for Serbia

Country	2011	2012	2013	Change
Turkey	10,982	11,773	12,745	8.3%
Macedonia	386	367	360	-1.8%
Montenegro	242	240	236	-1.5%
Serbia	1,553	1,508	1,550	2.8%
Bosnia and Herzegovina	652	747	712	-4.7%
Croatia	1,793	1,640	1,553	-5.3%
Macedonia	370	398	n/a	n/a
Total	**15,978**	**16,671**	**17,155**	**2.9%**

* national currencies converted at average annual exchange rate

Figure 4 shows the total revenues by countries in 2013. Clearly, the largest share in SEE electronic communications market went to Turkey with approximately 12.7 billion euros in revenues. Croatia and Serbia were far behind with approximately 1.55 billion euros each, whereas the revenues of the remaining countries were below billion euros.

Figure 4. Market share in electronic communication market by SEE countries in 2013
Source: Calculation based on data from the official websites of the NRAs: www.btk.gov.tr, www.aek.mk, www.ekip.me, www.rak.ba, www.hakom.hr, RATEL for Serbia



The revenues from mobile telephony, fixed telephony, Internet and media content distribution have the biggest share in the total revenues in the observed countries. Figure 5 shows the share of these services in Croatia, Bosnia and Herzegovina, Serbia and Macedonia in 2013. The biggest share in the total revenues went once again to the mobile telephony. For the purpose of compatibility, the comparison between 2012 and 2013 is based on the data published by the NRAs.

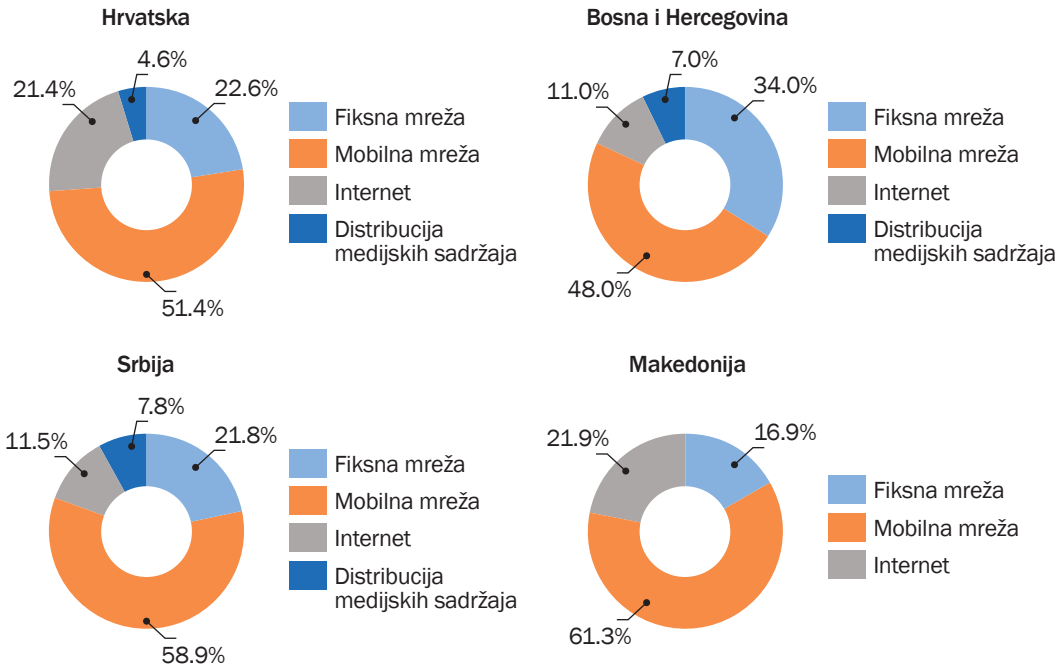
In Croatia, in 2013 there were no significant changes in the distribution of revenues in the electronic communications market in respect to 2012, and the fall is attributed mainly to the fall in the revenues from fixed telephony. The revenues from the mobile telephony showed a slight drop in Croatia in the analysed period, whereas the revenues from the Internet access and media content distribution increased.

In 2013, in Bosnia and Herzegovina the share of the mobile telephony in the total revenues dropped, whereas the share of the fixed telephony increased. The share of the revenues from the Internet and media content distribution remained unchanged in the analysed period, therefore the fall in the total revenues was mainly influenced by the decrease in the revenues from the mobile telephone services.

In Serbia, the revenues from fixed telephony showed a decrease, yet the drop was offset by the increase in the revenues from other services, in particular mobile telephony and the Internet. These developments resulted in a slight increase in the total revenues in 2013.

The revenues from electronic communications in Macedonia were lower compared to the previous years, which is mainly the result of the drop in the revenues from mobile telephony. The revenues from the fixed telephony service provision and the Internet were increased yet the their growth was lower than the impact of the revenues from the mobile telephony.

Figure 5. Electronic communications market revenue share by service in 2013
Source: RATEL for Serbia, official websites of the NRAs for other countries: www.hakom.hr, www.rak.ba, www.aek.mk



According to the available data on the total revenues in the electronic communications market in 2014, there was a decrease in revenues in Serbia, Turkey and Croatia by 3%, 4% and 8%, respectively.

However, the total revenues in Turkey expressed in the national currency are increasing. The total revenues in Bosnia and Herzegovina grew by 4%. The total revenues in the electronic communication market made in 2013 and 2014 for these countries are given in Figure 6.

Figure 6. Electronic communication market value in SEE countries (revenue in mn EUR)
Source: RATEL for Serbia, official websites of the NRAs for other countries:
www.hakom.hr, www.rak.ba, www.btk.gov.tr

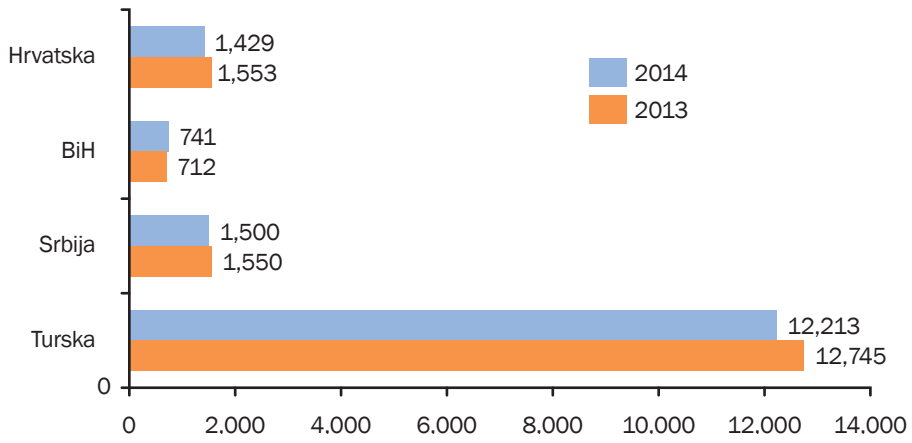


Figure 7 shows mobile network penetration rate in 2013 and 2014 in the observed countries. The penetration rate showed a slight increase in Serbia, Bosnia and Herzegovina, Montenegro and Turkey, whereas the rate dropped in Croatia and Albania. Both years, the highest mobile penetration rate was seen in Montenegro and lowest rate in Turkey and Bosnia and Herzegovina.

Figure 8 shows fixed line penetration rate in 2013 and 2014. Most of the countries have been experiencing a slight drop in fixed line penetration rate for several years, except for Croatia with a slight growth. Both years, the highest fixed line penetration rate was seen in Serbia and the lowest rate in Albania.

Figure 9 shows broadband penetration rate in 2013. There is a growth in broadband penetration arte in all observed counties, while the most evident increase was seen in Turkey.

Figure 7. Mobile network penetration rate
Source: RATEL for Serbia, official websites of the NRAs for other countries: www.hakom.hr, www.rak.ba, www.ekip.me, www.akep.al, www.btk.gov.tr

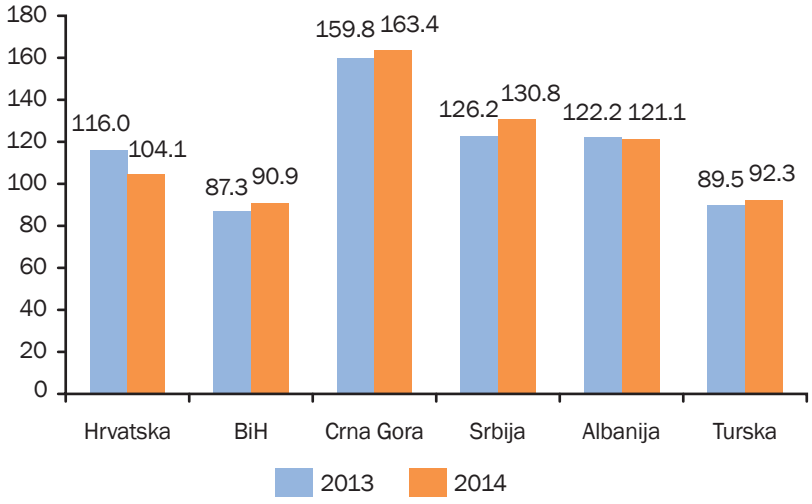
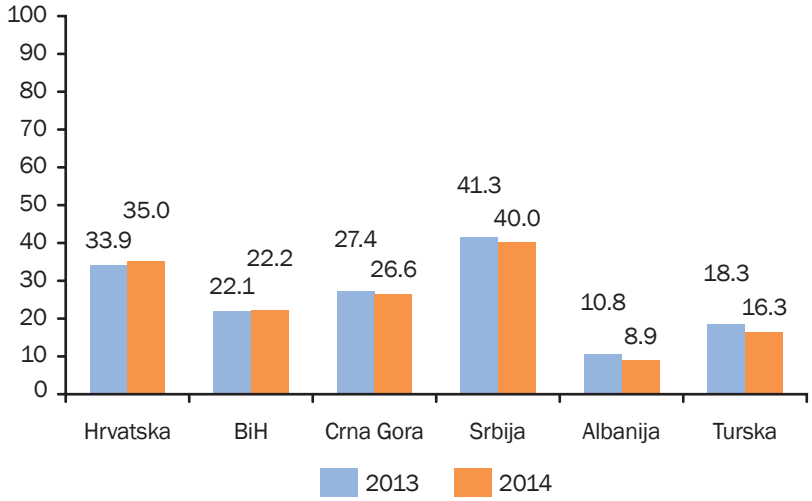
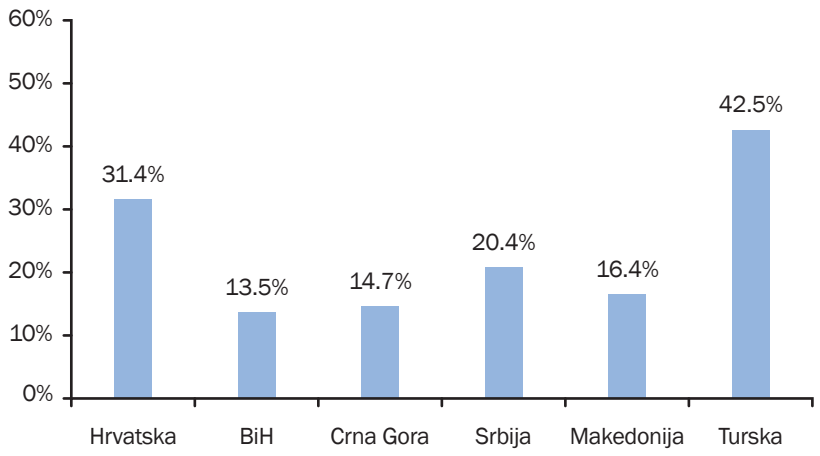


Figure 8. Fixed line penetration rate
Source: RATEL for Serbia, official websites of the NRAs for other countries: www.hakom.hr, www.rak.ba, www.ekip.me, www.akep.al, www.btk.gov.tr



Note: Penetration rate in BIH was calculated based on the number of active fixed lines of the incumbent operator

Figure 9. Broadband penetration rate in 2013
Source: RATEL for Serbia, official websites of the NRAs for other countries: www.hakom.hr, www.rak.ba, www.ekip.me, www.aek.mk, www.btk.gov.tr



Thanks to the constant development of the broadband electronic communication, the number of broadband users in Serbia continued to grow in 2014. In 2013 the number of Internet users, 3G subscribers included, was 6,191,519, which is an increase by 8% compared with 2013. The number of dial-up users decreased four times, which is a trend in both the EU countries and the countries in the region.

2.3 ICT DEVELOPMENT INDEX

With the aim of measuring and monitoring the development of information society and determining the digital divide among UN Member States, the International Telecommunication Union (ITU) publishes the indicators of ICT development on a regular basis. In comparison with the previous methodology, when data was usually obtained from the undertakings present in the ICT industry, recent approaches of data collection focus on obtaining relevant indicators on the basis of a representative sample of the telecommunications services users. The following

indicators are presented according to the ITU Manual for Measuring ICT Access and Use by Households and Individuals, published in 2011, which provides a description of the core indicators and methodology for data collection and analysis. The list of the core indicators on the use of ICTs by households and individuals is given below in Table 6. The list comprises 11 out of 12 core indicators with relevant values for the Republic of Serbia in 2014, and an additional, reference indicator HHR1, which is a general indicator. RATEL obtained the results given in Table 6, in cooperation with the Statistical Office of the Republic of Serbia.

Table 6. ICT development indicators — Source: Statistical Office of the Republic of Serbia

Indicator		Definitions and notes	2014
HH1	Proportion of households with a radio	The *proportion of households with a radio* is calculated by dividing the number of in-scope households with a radio by the total number of in-scope households. A *radio* is a device capable of receiving broadcast radio signals, using popular frequencies, such as FM, AM, LW and SW. It includes a radio set integrated in a car or an alarm clock but excludes radios integrated with a mobile phone, a digital audio player (MP3 player) or in a computer.	72 %
HH2	Proportion of households with a TV	*The proportion of households with a* TV is calculated by dividing the number of in-scope households with a TV by the total number of in-scope households. A *TV* (television) is a stand-alone device capable of receiving broadcast television signals, using popular access means such as over-the-air, cable and satellite. It excludes TV functionality integrated with another device, such as a computer or a mobile phone.	99 %
HH3	Proportion of households with telephone	The *proportion of households with telephone* (fixed or mobile) is calculated by dividing the number of in-scope households with a telephone (fixed or mobile) by the total number of in-scope households.	

HH3	Proportion of households with fixed telephone	The *proportion of households with fixed telephone only* is calculated by dividing the number of in-scope households with a fixed telephone only by the total number of in-scope households. A *fixed telephone line* refers to a telephone line connecting a customer's terminal equipment (e.g. telephone set, facsimile machine) to the public switched telephone network (PSTN) and which has a dedicated port on a telephone exchange. It may not be the same as an access line or a subscriber.	82.7 %
	Proportion of households with mobile cellular telephone	The *proportion of households with mobile cellular telephone* only is calculated by dividing the number of in-scope households with a mobile cellular telephone only by the total number of in-scope households. A *mobile cellular telephone* refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems, as well as IMT-2000 (3G). Users of both post-paid subscriptions and pre-paid accounts are included.	90.6 %
	Proportion of households with both fixed and mobile cellular telephone		
HH4	Proportion of households with a computer	The *proportion of households with a computer* is calculated by dividing the number of in-scope households with a computer by the total number of in-scope households. A *computer* refers to a desktop or a laptop computer. It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants (PDAs) or TV sets.	63.2 %
HH5	Proportion of individuals who used a computer (from any location) in the last 12 months	The *proportion of individuals who used a computer* is calculated by dividing the total number of in-scope individuals who used a computer from any location in the last 12 months by the total number of in-scope individuals. A *computer* refers to a desktop or a laptop computer. It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants or TV sets.	64.3 %

HH6	Proportion of households with Internet access at home	The *proportion of households with Internet access* at home is calculated by dividing the number of in-scope households with Internet access by the total number of in-scope households. The *Internet* is a world-wide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile phone, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.	62.8 %
HH7	Proportion of individuals who used the Internet (from any location) in the last 12 months	The *proportion of individuals who used the Internet* is calculated by dividing the total number of in-scope individuals who used the Internet (from any location) in the last 12 months by the total number of in-scope individuals. The *Internet* is a world-wide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile phone, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network	64 %
HH9	Internet activities undertaken by individuals in the last 12 months	The proportion of individuals who undertook each activity can be calculated as either: the proportion of in-scope individuals or the proportion of Internet users who undertook each activity.	
	Getting information about goods or services		79.7 %
	Getting information related to health or health services	Includes information on injury, disease, nutrition and improving health generally.	37.4 %
	Getting information from general government organizations	*General government organizations* should be consistent with the SNA93 (2008 revision) concept of general government. According to the SNA "... the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production." (General) government organizations include central, state and local government units.	37.4%

HH9	Interacting with general government organizations	Includes downloading/requesting forms, completing/lodging forms on line, making on-line payments and purchasing from government organizations. It excludes getting information from government organizations. *General government organizations* should be consistent with the SNA93 (2008 revision) concept of general government. According to the SNA "... the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production." (General) government organizations include central, state and local government units.	33.7 %
	Sending or receiving e-mail		62 %
	Telephoning over the Internet/ VoIP	The use of Skype, iTalk, etc. Includes video calls (via webcam).	57.5 %
	Posting information or instant messaging	Posting messages or other information to chat sites, blogs, newsgroups, on-line discussion forums and similar; use of instant messaging.	67.6 %
	Purchasing or ordering goods or services	Refers to purchase orders placed via the Internet whether or not payment was made on line. Orders that were cancelled or not completed are excluded. Includes purchasing of products such as music, travel and accommodation via the Internet.	Not covered by the survey
	Internet banking	Includes electronic transactions with a bank for payment, transfers, etc. or for looking up account information. Excludes electronic transactions via the Internet for other types of financial services such as share purchases, financial services and insurance.	13.5 %
	Education or learning activities	Refers to formal learning activities such as study associated with school or tertiary education courses as well as distance education involving on-line activities. (A more narrow interpretation is likely to be less meaningful as it could include a range of activities such as using the Internet to search for information.)	73.4 %
	Playing or downloading video games of computer games	Includes file sharing games and playing games on line, either paid or free of charge.	58.3
	Downloading movies, images, music, watching TV or video, or listening to radio or music	Includes file sharing and using web radio or web television, either paid or free of charge.	58.3

HH9	Downloading software	Includes the downloading of patches and upgrades, either paid or free of charge.	Not covered by the survey
	Reading or downloading on-line newspapers or magazines, electronic books	Includes accessing news websites, either paid or free of charge. Includes subscriptions to on-line news services.	73.4 %
HH10	Proportion of individuals who use a mobile cellular telephone	The *proportion of individuals with use of a mobile cellular telephone* is calculated by dividing the total number of in-scope individuals with use of a mobile cellular telephone by the total number of in scope individuals. A *mobile cellular telephone* refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems, as well as IMT-2000 (3G). Users of both post-paid subscriptions and pre-paid accounts are included. *Use of a mobile cellular telephone* does not mean that the telephone is owned or paid for by the person but should be reasonably available through work, a friend or family member, etc. It excludes occasional use, for instance, borrowing a mobile phone to make a call.	90.6 %
HH11	Proportion of households with access to the Internet by type of access (narrowband, broadband (fixed, mobile))	This indicator should be calculated as the proportion of in-scope households with Internet access that use each type of access service, for instance, the proportion of households with Internet access that use a broadband service as their means of access. It is expected that countries will collect data at a finer level than shown here. The categories chosen by countries should allow aggregation to total narrowband and total broadband, as well as to fixed and mobile broadband, as defined below. As households can use more than one type of access service, multiple responses are possible.	
	Narrowband	*Narrowband includes analogue modem (dial-up via standard phone line), ISDN (Integrated Services Digital Network), DSL at speeds below 256 kbit/s, and mobile phone and other forms of access with an advertised download speed of less than 256 kbit/s.* Note that narrowband mobile phone access services include CDMA 1x (Release 0), GPRS, WAP and i-*mode*.	<1 %

HH11	*Fixed broadband*	*Fixed broadband refers to technologies at speeds of at least 256 kbit/s, in one or both directions, such as DSL (Digital Subscriber Line), cable modem, high-speed leased lines, fibre-to-the-home, powerline, satellite, fixed wireless, Wireless Local Area Network and WiMAX.*	89.9 %
	Mobile broadband	Mobile broadband refers to technologies at speeds of at least 256 kbit/s in one or both directions, such us Wideband CDMA (W-CDMA), known as Universal Mobile Telecommunications System (UMTS) in Europe; Highspeed Downlink Packet Access (HSDPA), complemented by High-Speed Uplink Packet Access (HSUPA); CDMA2000 1xEV-DO and CDMA 2000 1xEV-DV. Access can be via any device (handheld computer, laptop or mobile cellular telephone etc.).	n/a
HH12	Frequency of individual use of the Internet in the last 12 months (from any location)	The frequency of individual use of the Internet can be calculated as either: the proportion of in-scope individuals or the proportion of Internet users, using the Internet with each frequency. It is recommended that countries collect this information in respect of a typical period; therefore, respondents should ignore weekends (if they only use the Internet at work) and breaks from their usual routine, such as holidays. Access to the Internet is not assumed to be only via a computer – it may also be by mobile phone, PDA, games machine, digital TV etc.	
	At least once a day	Once a working day for respondents who only (or most frequently) use the Internet from work	84.6 %
	At least once a week but not every day		11.4 %
	Less than once a week		4 %
Reference indicator			
HHR1	Proportion of households with electricity	Electricity is not an ICT commodity, but is an important prerequisite for using many ICTs. It is therefore included in the core list as a reference indicator. Electricity access may be enabled by a grid/mains connection, or by power generated locally (including at the dwelling). Local power includes electricity generated by a fuel-powered generator, or from renewable resources such as wind, water or solar. It excludes sole use of energy storage devices, such as batteries (though these may be used to store electricity from other sources).	99.9 %

In 2007, the International Telecommunication Union (ITU) initiated the process of creating a single Index which can be utilized in measuring the development of information society, the so-called ICT Development Index (IDI), which serves as a substitute for the previous two, namely the Digital Opportunity Index (DOI) and the ICT Opportunity Index (ICT-OI). This single IDI Index serves as a benchmarking tool for measuring:

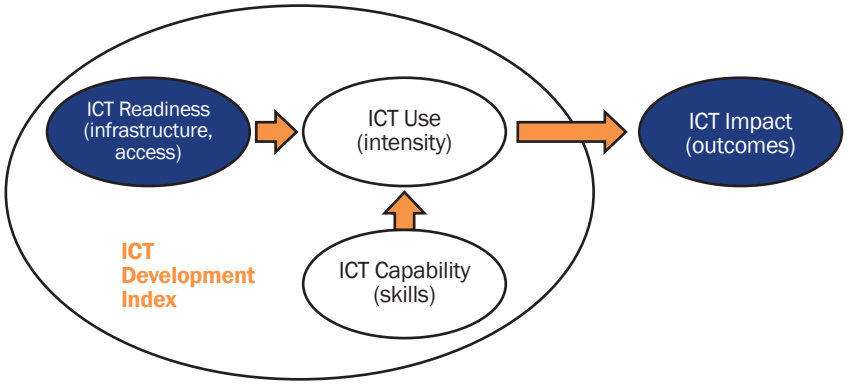
- the development of the ICT market in UN Member States
- digital divide between the developed and developing countries
- developmental potential of the ICT market

This Index combines 11 indicators divided into three sub-groups:

1. ICT Readiness (infrastructure and access)
2. ICT use (primarily by individuals, but also households and undertakings) and the intensity of use
3. ICT Capability (skills necessary for the effective use of ICTs)

Given the fact that these three sub-groups of ICT development cannot be monitored by means of a single index, there is a necessity for the establishment of a single composite index for monitoring the development of information society in each country. Infrastructure, developed to meet the needs of end-users as well as an appropriate level of education, act as prerequisites for the use of ICTs and evolution towards an information society (Figure 10).

Figure 10. IDI structure Source: Measuring the Information Society - The ICT Development Index, ITU



The list of 11 indicators is given in Table 7, along with reference (normalized) values prescribed by the ITU, sub-indices value and IDI Index value for the Republic of Serbia in 2014. The values of the sub-indices were calculated by normalizing the 11 indicators by means of reference values. The final value of IDI Index is calculated as a sum of sub-indices multiplied by weight coefficients. The ICT Access and ICT use sub-indices are given 40 per cent weight each, whereas the skill sub-index is given 20 per cent weight.

Table 7. 2014 IDI for the Republic of Serbia — Source: RATEL

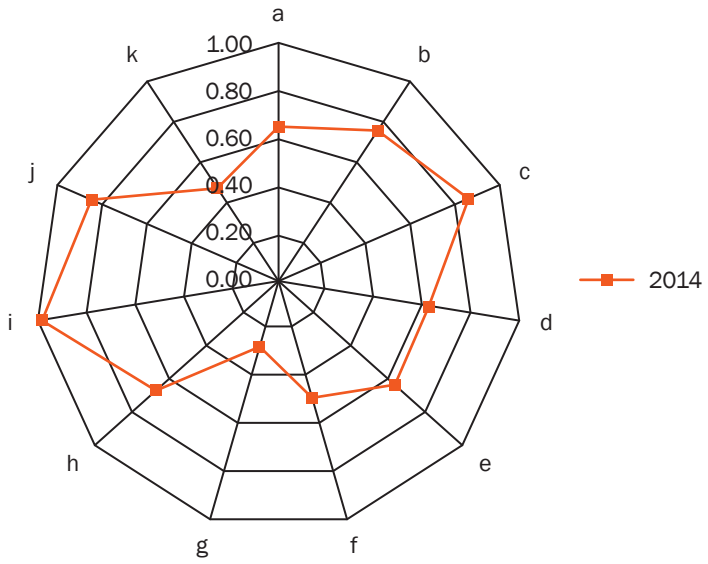
	Indicator	ITU ideal value	Value for Serbia in 2014
ICT Access			
a	Fixed telephone lines per 100 inhabitants	60	39.96
b	Mobile cellular telephone subscriptions per 100 inhabitants	120	130.76
c	International Internet bandwidth per Internet user	621,834	134,401
d	Proportion of households with a computer	100	63.20
e	Proportion of households with Internet access at home	100	62.8
ICT Use			
f	Internet users per 100 inhabitants	100	47.58
g	Fixed broadband Internet subscriptions per 100 inhabitants	60	15.60
h	Mobile broadband subscriptions per 100 inhabitants	100	65.44
ICT Skills			
i	Adult literacy rate	100	98
j	Secondary gross enrolment ratio	100	85.2
k	Tertiary gross enrolment ratio	100	47.6
ICT Access – Normalized values		Formula	
z1	Fixed telephone lines per 100 inhabitants	a/60	0.67
z2	Mobile cellular telephone subscriptions per 100 inhabitants	b/170	0.77
z3	International Internet bandwidth per Internet user	log(c)/5.90	0.87
z4	Proportion of households with a computer	d/100	0.63
z5	Proportion of households with Internet access at home	e/100	0.63

ICT Use – Normalized values		Formula	
z6	Internet users per 100 inhabitants	f/100	0.48
z7	Fixed broadband Internet subscriptions per 100 inhabitants	g/60	0.26
z8	Mobile broadband subscriptions per 100 inhabitants	h/100	0.65
ICT Skills – Normalized values		Formula	
z9	Adult literacy rate	i/100	0.98
z10	Secondary gross enrolment ratio	j/100	0.852
z11	Tertiary gross enrolment ratio	k/100	0.476
L	ICT Access – Sub-index	y1+y2+y3+y4+y5	0,700
y1	Fixed telephone lines per 100 inhabitants	z1*0.2	0.13
y2	Mobile cellular telephone subscriptions per 100 inhabitants	z2*0.2	0.15
y3	International Internet bandwidth per Internet user	z3*0.2	0.17
y4	Proportion of households with a computer	z4*0.2	0.13
y5	Proportion of households with Internet access at home	z5*0.2	0.13
M	ICT Use – Sub-index	y6+y7+y8	0,429
y6	Internet users per 100 inhabitants	z6*0.33	0.16
y7	Fixed broadband Internet subscriptions per 100 inhabitants	z7*0.33	0.09
y8	Mobile broadband subscriptions per 100 inhabitants	z8*0.33	0.22
N	ICT Skills – Sub-index	y9+y10+y11	0,757
y9	Adult literacy rate	z9*0.33	0.32
y10	Secondary gross enrolment ratio	z10*0.33	0.28
y11	Tertiary gross enrolment ratio	z11*0.33	0.16
IDI	ICT DEVELOPMENT INDEX	((L*0,4)+(M*0,4)+(N*0,2))*10	6.21

The value of IDI Index for the Republic of Serbia in 2014 amounted to 6.21, which shows a growth trend compared with 5.47 in 2011 and 5.62, in 2012 and 6.03 in 2013. Considering the ITU data for the previous years, it may be anticipated that Serbia will secure a place among the first 50 countries on the list based on the IDI Index value.

Figure 11 illustrates normalized values of 11 indicators with values ranging from 0 to 1, whereby 1 represents the maximum value of an indicator. The fact that ICT access indicators (a to e) have significantly higher values than ICT use indicators (f to h) is quite apparent and serves as an illustration of the disparity between the existing telecommunications infrastructure capacity and the use of such capacity in terms of telecommunications services transmitted by such infrastructure in Serbia, as is the case with the use of broadband Internet services. The value of ICT skills indicators (i to k) is satisfactory.

Figure 11. Graphical Representation of 11 Indicators (normalized values) Source: RATEL



3. PUBLIC FIXED TELECOMMUNICATIONS NETWORKS AND SERVICES

In 2014 the following operators public telephone service over fixed-line network was provided by several operators.

The following operators were holders of the licence for public fixed telecommunications network and services:

- Telecommunications Company "Telekom Srbija" Joint Stock. Co. (Telekom Srbija) – licence to build, own and operate a public fixed telecommunications network and provide public fixed telecommunications network services provision – licence replaced in 2006 – registered under no. 1;
- Telecommunications Company "Telekom Srbija" Joint Stock. Co. – licence for public fixed wireless access (FWA) network in 411.875-418.125/ 421.875-428.125 MHz frequency bands and voice services, data transmission services and simultaneous voice and data transmission – Licence issued in 2009– registered under no. 1;
- Media Works, Ltd. which changed the name in Orion telekom, Ltd. - licence for public fixed wireless access (FWA) network in 411.875-418.125/ 421.875-428.125 MHz frequency bands and voice services, data transmission services and simultaneous voice and data transmission – licence issued in 2009 – registered under no 14.;
- Telenor, Ltd. – licence for public fixed telecommunications network and services. The operator was awarded the licence in January 2010 – registered under no. 2.

Pursuant to Art. 149 of the Law, as of 1 January 2012, the provision of public fixed telecommunications network and services is under the general authorization regime.

In 2014, the following operators of public voice service via fixed network were registered with RATEL:

- Serbia Broadband - Srpske kablovske mreže d.o.o. (SBB d.o.o.) – registered under no. 12,
- Interaktivne kablovske objedinjene mreže - I.Kom d.o.o. – registered under no. 34,
- DOO Knight Development Support – registered under no. 80,
- Invest-Inženjering d.o.o. – registered under no. 88,
- Beogrid d.o.o. – registered under no. 162,
- JET TV d.o.o. – registered under no. 209,
- KOPERNIKUS TECHNOLOGY d.o.o. – registered under no. 56,
- BeotelNet-ISP d.o.o. – registered under no. 41,
- Sat Trakt d.o.o. – registered under no. 21,
- Telemark d.o.o. – registered under no. 57 and
- Radijus vektor d.o.o. – registered under no. 74.

In 2014, Telekom Srbija was the biggest active operator of the fixed telecommunications network, its business activities being the most important segment of the fixed telephony market, both in financial and technical terms. In addition to the Serbian market, Telekom Srbija is also present in Republic of Srpska and Montenegro. Since Telekom Serbia remained an SMP operator in 2014, the decisions stipulating the conditions for service provisions adopted in late 2011 remained in force. Following the public consultation procedure on the Report on the analysis of the wholesale market for call termination on the public telephone network, in 2014 RATEL adopted the Decision designating SMP operators on the wholesale market for call termination on the public telephone network and imposing relevant obligations on the SMP operators. the completed market analysis, the status of the existing SMP operators and the obligations imposed on them will be reviewed. Also, new SMP operators may be designated and obligations may be imposed on them, if necessary. All public voice service operators were designated SMP operators in the relevant market.

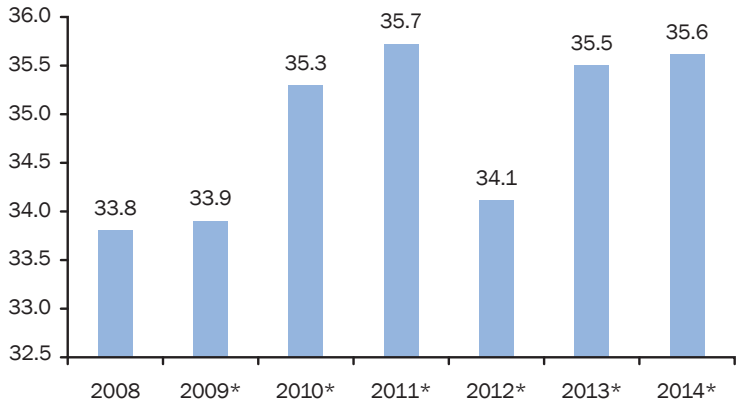
Telekom Srbija provided services over public fixed telecommunications network and public fixed wireless (FWA) telecommunications network and the operator Orion telekom provided the services over FWA network. At the end of 2014, in the operators' register kept by RATEL the number of public fixed wireless network stations was the same as in the previous year: 283 (99 Orion telekom and 184 Telekom Srbija). Telenor provided the services over its own public

fixed telecommunications network. In 2014 SBB increased the number of users of the public telephone service provided over its own public fixed telecommunications network. Operators DOO Knight Development Support and JET TV d.o.o. began with service provision, however, considering the small number of users, the data provided by these operators do not have a significant impact on the market of fixed network and services in 2014 and will not be further analysed in this Overview. It is expected that other operators Invest-Inženjering d.o.o, Sat Trakt d.o.o, BeotelNet-ISP d.o.o, Kopernikus Technology d.o.o, I.Kom d.o.o, Telemark d.o.o. i Radijus vektor d.o.o. registered for public telephone service provision will begin with service provision in 2014. In late 2014, DOO Knight Development Support purchased JET TV d.o.o, and further mergers and joint ventures may be expected to take place in future.

The total revenue from fixed telephone services provided by all operators (Telekom Srbija, Orion telekom, Telenor and SBB) in the territory of the Republic of Serbia in 2014 amounted to 35.6 billion dinars. The revenues from the international traffic in 2014 amounted to 2 billion dinars, making the total revenue 37.6 billion dinars, which is similar to that of the previous year.

The investments made in the fixed telephony in 2014 amounted to 5.7 billion dinars, which is a 20% increase compared with the previous year.

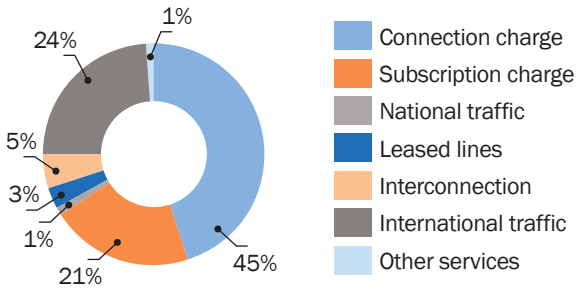
Figure 12. Revenues from fixed telephone services (in billions of RSD) Source: RATEL



* Revenues from wholesale Internet services are illustrated within the chapter titled Internet Services and are therefore excluded from revenues from fixed telephone services

The largest share in the total revenues goes to the subscription charges, amounting to around 16.7 billion dinars and accounting for 45% of total revenues from the fixed telephone services, a share that is higher compared to the 41% in 2013. The share of the national traffic remained at the same level with 21%.

Figure 13. Distribution of revenues from fixed telephone services in 2014 Source: RATEL

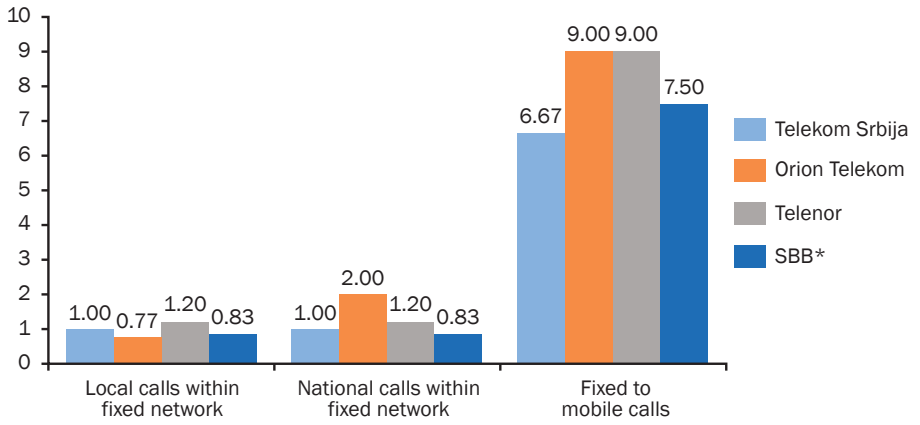


The revenues from leased lines dropped by 40%, and their share in the total revenue decreased from 2% to 1%. The revenues from interconnection and international traffic are slightly lower compared with the previous year and their share in the total revenue was 3% and 5%, respectively. The share of other services remained at the same level with 24%.

Per-minute rates (VAT excluded) of each operator for local and national calls, and for calls to mobile networks, are given in Figure 14. Telekom Srbija has applied new tariff model since 1 June 2014, with single tariff for the national calls to fixed networks (1 dinar per minute), whereas peak and off-peak rates no longer apply. The calls made to mobile network for Telekom Srbija users are charged 6.67 dinars per minute. The rates charged to Orion telekom d.o.o, Telenor d.o.o. and SBB d.o.o. users remained unchanged. The same as before, SBB d.o.o. offered calls within the same network free of charge, whereas Orion telekom d.o.o. offered a quantity of minutes free of charge, depending on the tariff plan.

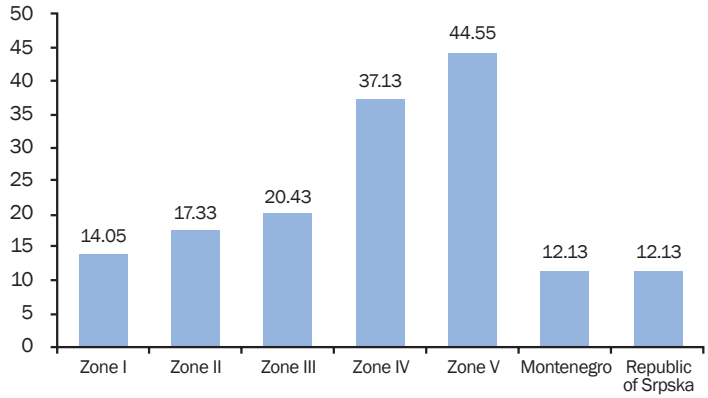
Telekom Srbija's international call rates remained unchanged, as shown in Figure 15.

Figure 14. Local, national and fixed-to-mobile telephone service rates in 2014, VAT excluded (RSD/min)
Source: RATEL



*local calls within the same network are free of charge

Figure 15. International call rates in 2014* VAT excluded (RSD/min.) Source: RATEL

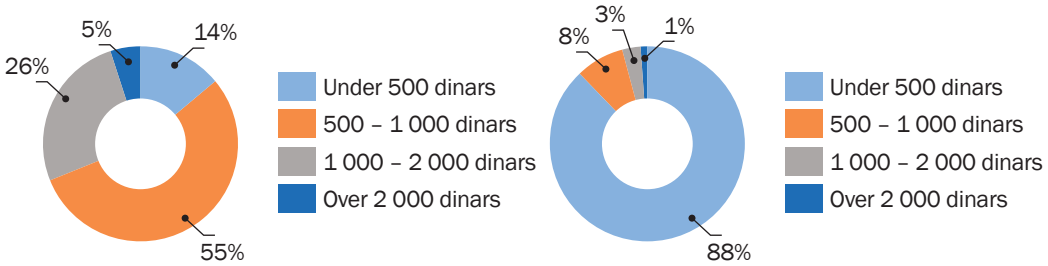


*Prices of international telephone services of other operators are available on their official websites: www.sbb.co.rs, www.telenor.rs i www.oriontelekom.rs

Telekom Srbija's connection charges remained unchanged: 5,000 dinars for residential and 10,000 dinars for business users, excluding VAT and the CDMA connection charge was 12 000 dinars. As for Orion telekom, the connection charge ranged between 416.67 and 4,165.83 for residential users and amounted to 8,333.33 dinars for business users, excluding VAT. Telenor reported that there was no connection charge. SBB had a single price for both residential and business subscribers and the connection charge was 3 325 dinars, excluding VAT, the same as in the previous year.

The highest number of Telekom Srbija's residential users (around 50%) had monthly bills for fixed-line services ranging between 500 and 1,000 dinars, whereas the number of residential users paying less than 500 dinars makes 14% of the total number of subscribers. This means that the number of users with 500-1,000 dinars bill range increased, whereas the number of users with bills under 500 dinars decreased. There were 26% of residential users with monthly bills ranging between 1000 and 2000 dinars and 5% (cf. 11% in 2013) with bills over 2000 dinars (Figure 16). SBB had a slightly different distribution: most of the subscribers (88%) had bills under 500 dinars, around 8% had bills ranging from 500 to 1000 dinars, 3% had bills from 1000 to 2000 dinars and 1% had monthly bills of over 2.000 dinars. Such distribution of subscribers, which as mainly the same as in 2013, is probably the result of the operator's tariff policy and the right to free calls within the same network.

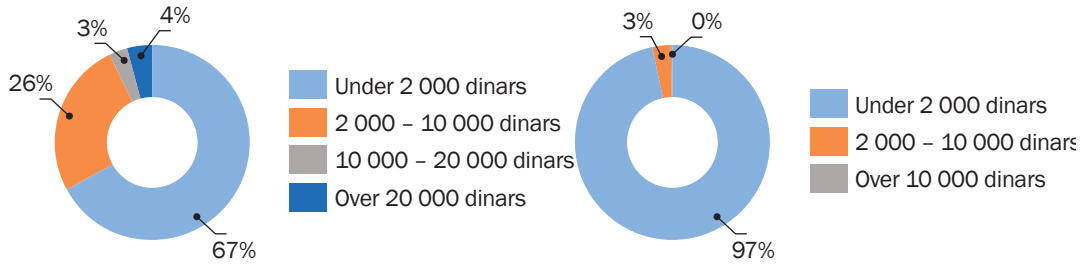
Figure 16. Distribution of residential subscribers according to monthly bills in 2014 Source: RATEL



Telekom Srbija a.d. SBB d.o.o.

Business user of Telekom Srbija with monthly bills under 2 000 dinars for fixed-line services increased in 2014 to 67%. The other business users with bills in the 2000-10000 dinars range decreased accounting for 26%, while the percentage of users with bills between 10000 and 20000 dinars was 3%, and the share of those with bills of over 20000 dinars was 4% (Figure 17). SBB has a significantly smaller number of users and 97% of them have bills below 2000 dinars, the same as the year before. The number of business users of other operators does not affect the general picture of the distribution of business subscribers.

Figure 17. Distribution of business subscribers according to monthly bills in 2014 Source: RATEL



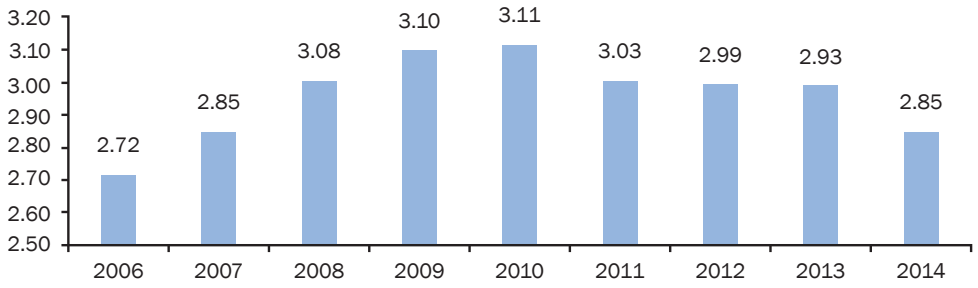
Telekom Srbija a.d. SBB d.o.o.

The average monthly bill of Telekom Srbija's residential users in 2014 was 821 dinars, whereas business users were paying 3,964 dinars on average. Average bills of Telekom Srbija's CDMA network users were 739 dinars for residential users and 1,279 dinars for business users.

The average monthly bill of SBB's residential users was 179 dinars and of business users 204 dinars. The average Telenor's bill for business users was 20,651 dinars (excl VAT).

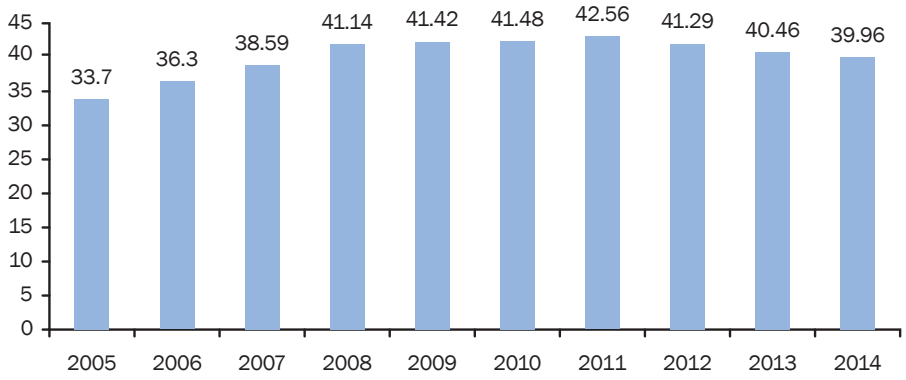
The number of main lines decreased compared with 2013, amounting to 2.85 million. Residential users still prevail with a 90% share in the total number of users, whereas the number of party-lines was reduced by 19%. The digitalization rate rose to 99.79% in 2014.

Figure 18. Number of main lines in fixed network (millions) Source: RATEL



Fixed line penetration rate was 39.96%.

Figure 19. Fixed line penetration rate Source: RATEL

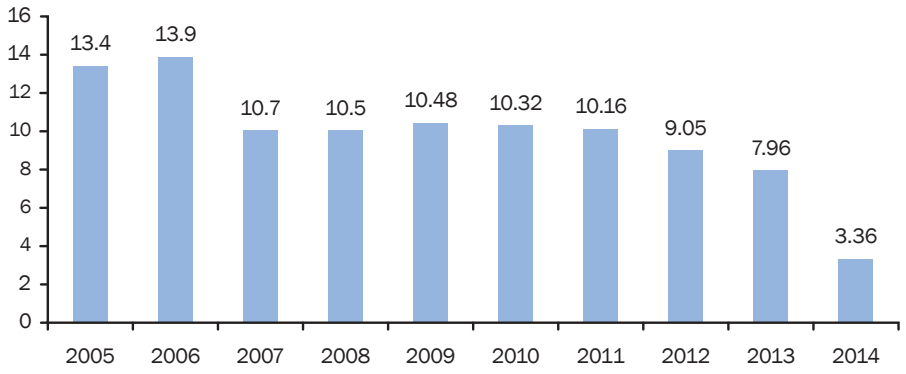


In 2014, the number of public payphones decreased by 4,604, or 58%, amounting to 3,358.

The number of ISDN subscribers in 2014 was 60 thousand. Around 97% of ISDN subscribers have a basic rate access, whereas other users have primary rate access. ISDN connections are following a downtrend, which is reflected by the drop in the number of ISDN users.

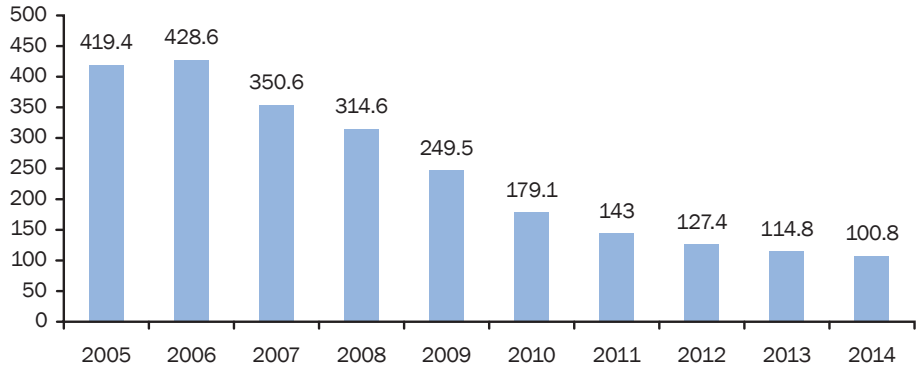
In 2014, the number of unmet requests for new fixed-line connections was 101 thousand, this being a decrease by 12% compared with 2013. The number of malfunctions per 100 lines in 2014

Figure 20. Public payphones (thousands) Source: RATEL



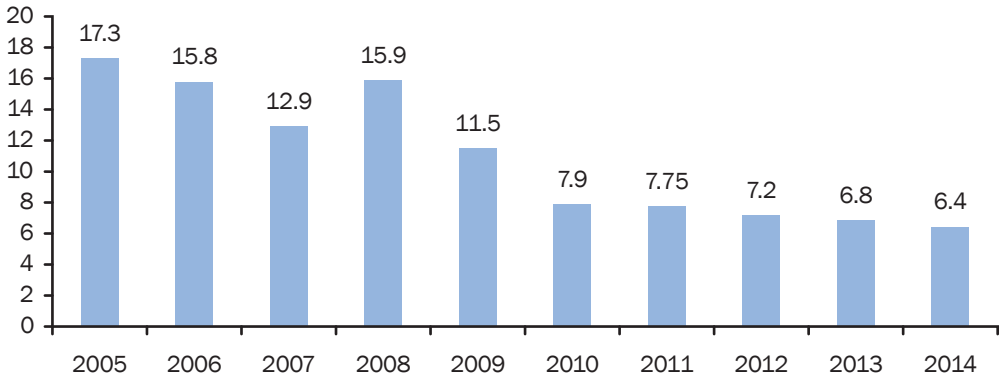
was 13. The percentage of malfunctions repaired within 24 hours was 58%. Since other operators have a considerably smaller number of users, their data is incomparable with the data received from Telekom Srbija. The number of unmet requests for new connections is expected to keep on reducing, due to the Telekom Srbija's network development, new operators in the market and smaller interest for fixed-line network in general.

Figure 21. Number of unmet requests for new fixed line connections (thousands) Source: RATEL



The total fixed network traffic in 2014 was estimated to 6.4 billion minutes of national traffic and 620 million minutes of international traffic, which is an overall decrease by 6% compared with 2013. As shown in Figure 22, the traffic volume has been following a downtrend, primarily due to

Figure 22. Total national traffic (bn. of minutes) Source: RATEL



other types of services being offered, such as mobile network, electronic messaging, VoIP, etc. 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. Out of the total fixed network traffic, 70% was local traffic, which is slightly less compared to the previous years.

Compared with the previous year the distribution of traffic remained mainly the same: the share of local traffic was 63% and the share of long-distance traffic was 14%, the share of fixed-to-mobile traffic was 8% and the share of the international traffic in the total traffic was once more 9%.

The total number of VoIP operators at the end of 2014 was approximately 75,000 which is a 20% decrease compared to the previous year. There were 20 million of minutes of traffic, which is 3.5 million less compared with the previous year or an 15% decrease. There were 10.7 million minutes

of the international transit which is a 50% increase.

Number portability service on public telephone networks at a fixed location has been available since 1 April 2014. As soon as the fixed number portability was introduced there was interest for this service, and the number of portings was increasing during 2014, with occasional oscillations.

By the end of the year, 41,513 fixed-line subscriber changed the operator, keeping the same number. The successful launching of the number portability on fixed networks is partly owed to the

Figure 23. Distribution of fixed line traffic in 2014 Source: RATEL

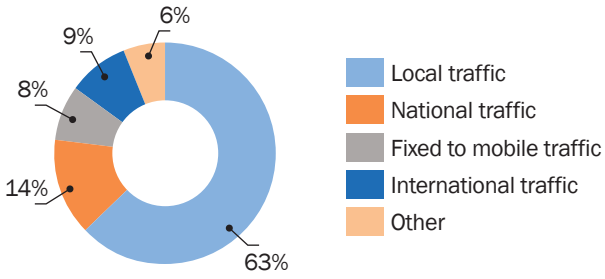


Figure 24. Number of portings each month Source: RATEL

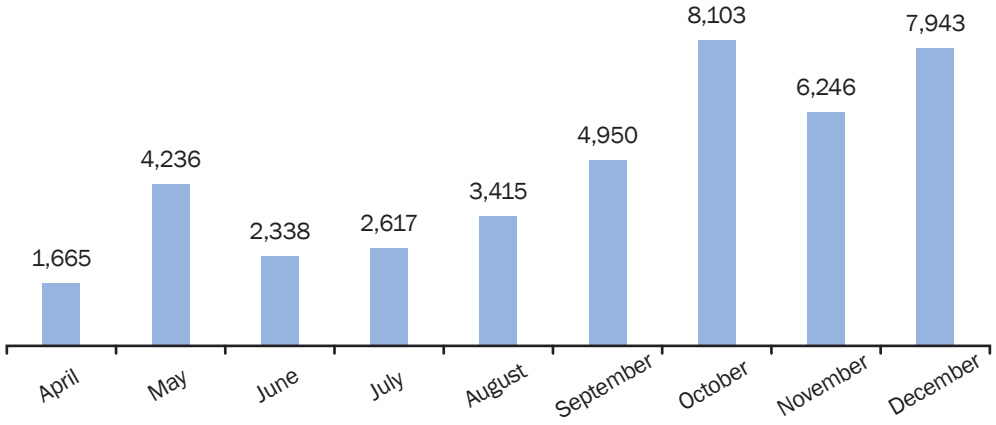
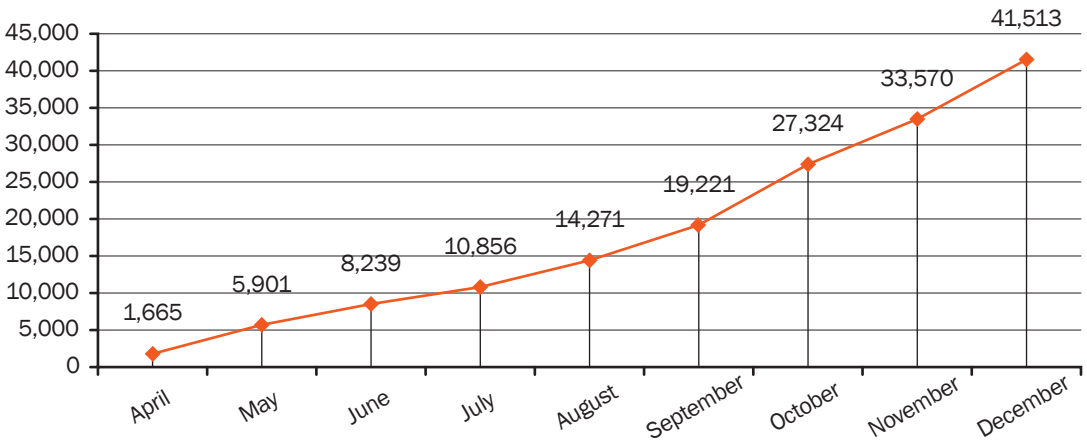


Figure 25. Number of portings in 2014 Source: RATEL



experience with mobile number portability.

4. PUBLIC MOBILE TELECOMMUNICATIONS NETWORKS AND SERVICES

There were three mobile operators in 2014 in the mobile market in the Republic of Serbia:

- **Telecommunications Company Telekom Srbija Joint Stock Co. - Mobilna telefonija Srbije MTS**, 58.11% owned by the Republic of Serbia – the Government of the Republic of Serbia, 20% owned by Telekom Srbija, 14.95% owned by the citizens of the Republic of Serbia and 6.94% owned by the current and former employees of Telekom Srbija and its predecessor[1] (licence replaced, valid as of 15. 08. 2006)
- **Telenor Ltd., Belgrade**, 100% owned by Telenor A/S, Denmark, (licence issued on 31. 08. 2006)
- **Vip mobile Ltd.**, 100% in the ownership of Mobilkom CEE Beteiligungsverwaltung GmbH, Austria (licence issued on 01. 12. 2006)

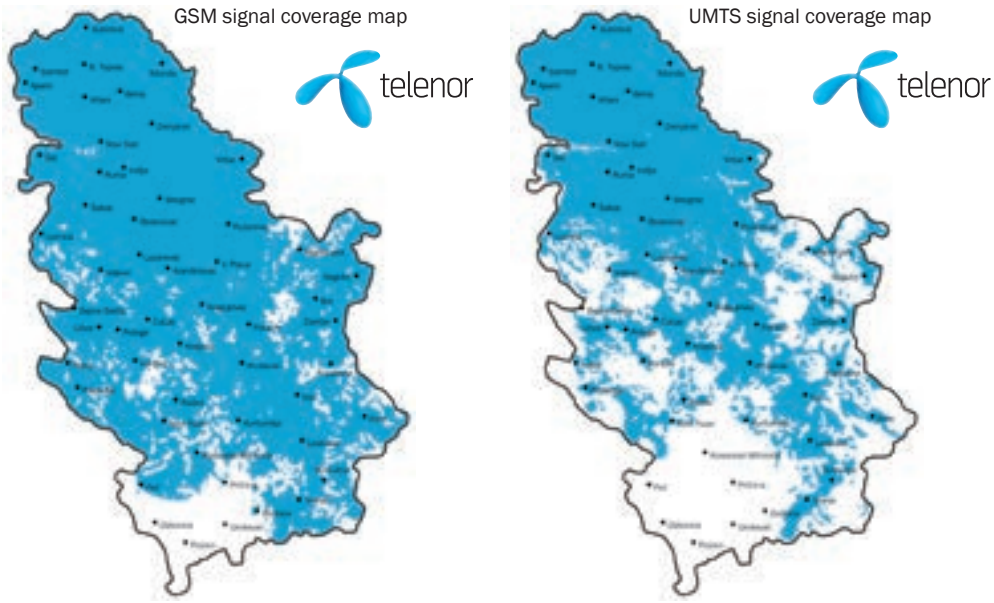
All three operators were granted licences for public mobile telecommunications networks and public mobile telecommunications network services in accordance with GSM/GSM1800 and UMTS/IMT-2000 standards, issued by RATEL. The licences were issued for the territory of the Republic of Serbia, for a period of 10 years, which, upon expiration, may be extended for another 10 years without a special request from the operator, provided the requirements under the licence are fulfilled.

The Norwegian company Telenor has been present in the Serbian telecom market since 31 July 2006, when they bought the company Mobi63, through a bidding procedure. Telenor Ltd. is a part of Telenor Group, present in 13 countries across Europe and Asia and another 17 countries through ownership in VimpelCom. The mobile operators from Telenor Group present in the neighbouring countries are Telenor Hungary (ex Panon), Telenor Montenegro (ex Promonte) and Telenor Bulgaria (ex Globul).

In 2007 Telenor began with the commercial use of the UMTS network, enabling video calls and additional services based on high-speed data transmission. In 2014, Telenor built 350 new base stations, reaching the total of 3,398 base stations by the end of 2014.

[1] Source: www.telekom.rs

Figure 25. Mobile operator – Telenor Ltd. Source: Telenor d.o.o.



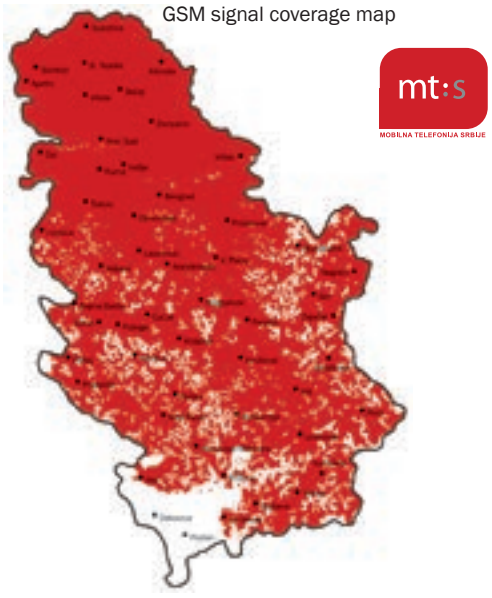
Official data	
Name	**Telenor Ltd.**
Head office	Belgrade
Ownership	100% Telenor A/S, Danska
Percentage of territory covered by GSM network signal	91.75%
Percentage of population covered by GSM network signal	99.38%
Percentage of territory covered by UMTS network signal	69.77%
Percentage of population covered by UMTS network signal	83.68%
Number of base stations	3,398

MTS - Mobilna telefonija Srbije, as a branch of the Telecommunications Company Telekom Srbija Joint Stock Co., was founded in June 1997 and it began to operate through a GSM standard based network in August 1998. In addition to Serbian market, Telekom Srbija is also present as a mobile operator through daughter companies in Republic of Srpska and Montenegro.

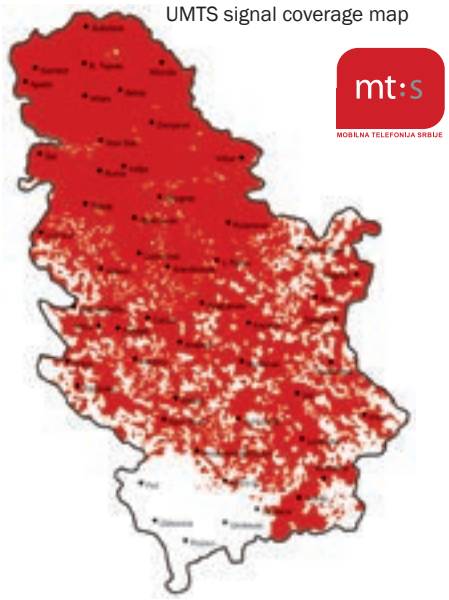
In December 2006, MTS began with the commercial operation of a 3G network with the latest HSD-PA technology. During 2008, the operation of the 3G network was intensified. In 2013, Telekom Srbija built 275 new base stations, reaching the total of 4,062 base stations by the end of 2014.

Figure 26. Mobile operator – Telekom Srbija, Joint Stock Co. Source: Telekom Srbija

GSM signal coverage map



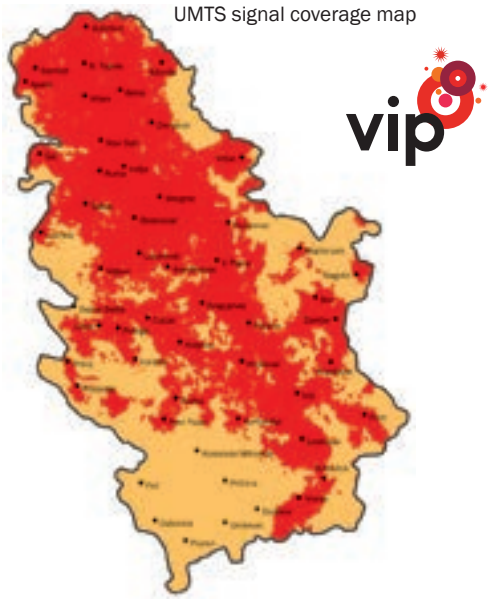
UMTS signal coverage map



Official Data	
Name	**Telecommunications company "Telekom Srbija" Joint Stock Co.**
Head office	Belgrade
Ownership	58.11% the Republic of Serbia – the Government of the Republic of Serbia, 20% Telekom Srbija, 14.95% the citizens of the Republic of Serbia and 6.94% current and former employees of Telekom Srbija and its predecessor.
Percentage of territory covered by GSM network signal	89.75%
Percentage of population covered by GSM network signal	99.75%
Percentage of territory covered by UMTS network signal	85.41%
Percentage of population covered by UMTS network signal	97.16%
Number of base stations	4,062

Vip mobile Ltd., the holder of the third mobile network licence, is a member of the Mobilkom Austria Group/Telekom Austria Group, present in eight European countries, including the following countries in the region: Croatia, Bulgaria and Macedonia.

Figure 27. Mobile operator – Vip mobile Ltd. Source: Vip mobile

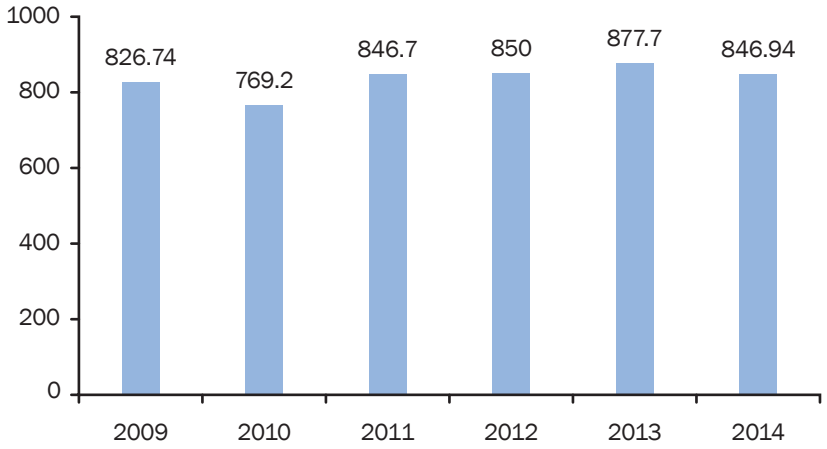


Official data	
Name	**Vip mobile Ltd.**
Head office	Belgrade
Ownership	100% Mobilkom CEE Beteiligungsverwaltungs GmbH Austria
Percentage of territory covered by GSM network signal	84.50%
Percentage of population covered by GSM network signal	98.60%
Percentage of territory covered by UMTS network signal	45.00%
Percentage of population covered by UMTS network signal	82.50%
Number of base stations	2,966

In addition to 320 million and 1 euros paid for the licence, Mobilkom Austria made considerable investments in the network roll out and development. In 2014, Vip mobile Ltd. built 427 new base stations, reaching the total of 2,966 base stations by the end of 2014.

The revenues from mobile networks in 2014 were 99.35 billion dinars or 846.94 million euros. In the national currency (RSD), the revenues were slightly increased in respect to the previous year when the total revenues from mobile telephony service amounted to 99.3 billion dinars, whereas the revenues observed in euros showed a 3.5% decrease. The difference in the revenues in the two currencies is a consequence of the increase in the average exchange rates for euro in 2014, compared with the previous year. The total investments in the mobile market were lower in respect to the previous year amounting to 7.72 billion dinars.

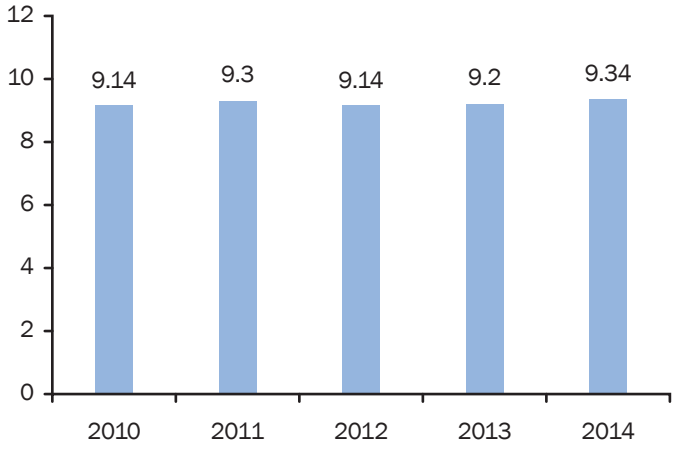
Figure 28. Total revenues from mobile telephony (in mn. euros) Source: RATEL



The total number of mobile users increased, amounting to 9,344,977, at the end of 2014. The number of users includes postpaid and prepaid users active in the last 3 months in 2014 (pursuant to the ITU definitions).

9.34 million users

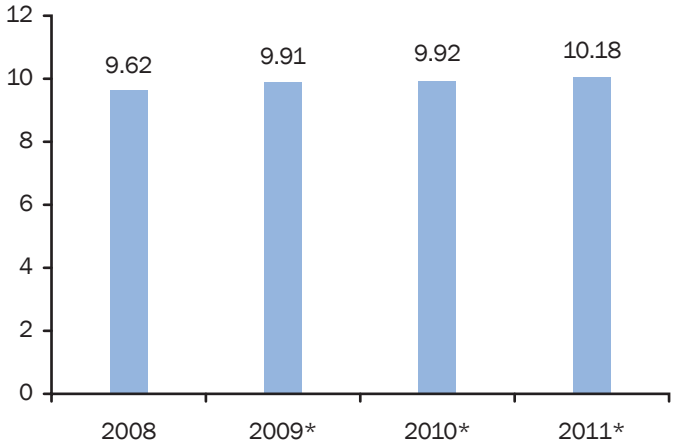
Figure 29. Total number of active mobile users (millions)



* total number of prepaid and postpaid users active in the last 3 months of each year

Total number of mobile users is given in Figure 30.

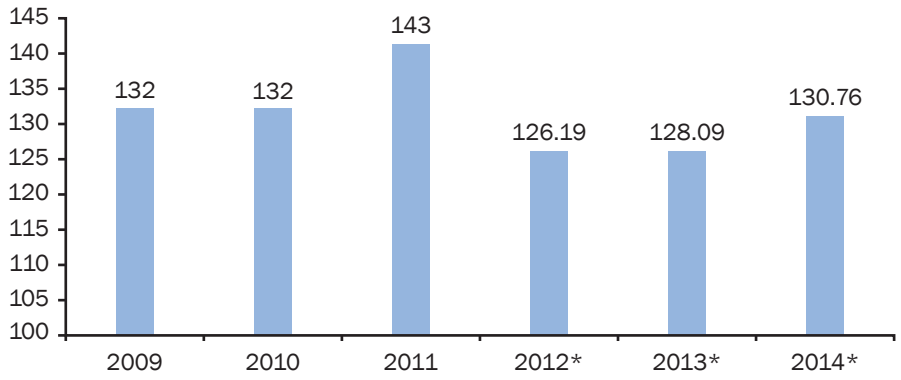
Figure 30. Total number of mobile users (millions) Source: RATEL



* total number of prepaid users is indicated for Telekom Srbija

The number of mobile users was again higher than the number of inhabitants with. 130.76% penetration rate.

Figure 31. Mobile penetration rate Source: RATEL



*prepaid and postpaid users active in the last 3 months of each year for all three operators

If we observe the prepaid/postpaid users ratio, the advantage goes to the prepaid users, yet the share of the postpaid users is growing year after year, amounting to 47% in 2014 (Figure 32). Since 2010, the calculation includes only those prepaid users active in the last 90 days, pursuant to the revised ITU indicators definitions.

The minutes of calls are increasing year after year. In 2014 the total outgoing traffic on the mobile network amounted to 14.86 billion minutes of calls, which is an increase of approximately 8.7% compared with the previous year (cf. 13.68 in 2013). The annual average of traffic per user in 2014 was 1 590 minutes or approximately 4 minutes and 22 seconds daily.

The total of 10.29 billion SMS messages were sent in 2014, which is a decrease by 4.4% compared with 2013 when 10.76 billion SMS messages were sent. The average per user in 2014 was 1,101 SMS messages a year or 3 SMS messages a day. In 2014, there were 20.25 million MMS messages sent, which is a decrease of 18.22% in respect to 2013.

Figure 32. Prepaid/postpaid ratio Source: RATEL

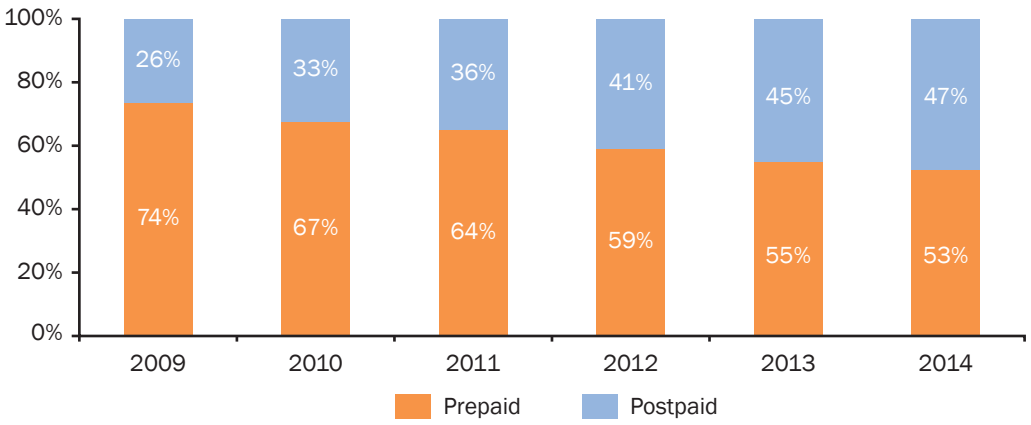


Figure 33. Total outgoing traffic (millions of minutes) Source: RATEL

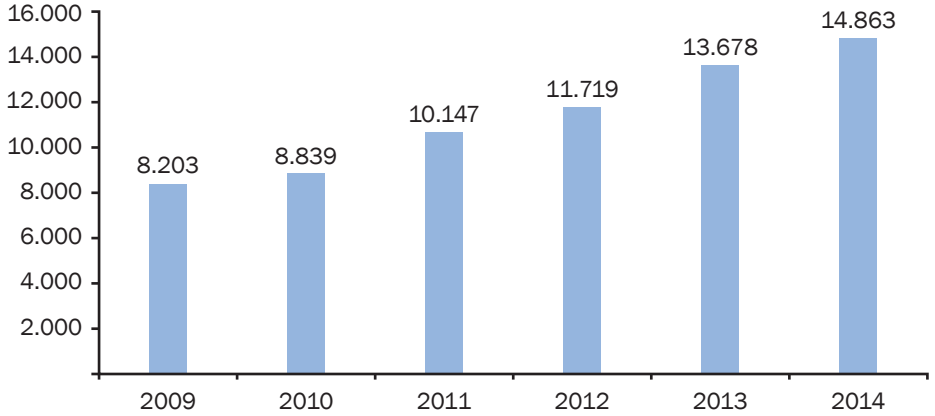


Figure 34. Number of SMS messages sent (millions) Source: RATEL

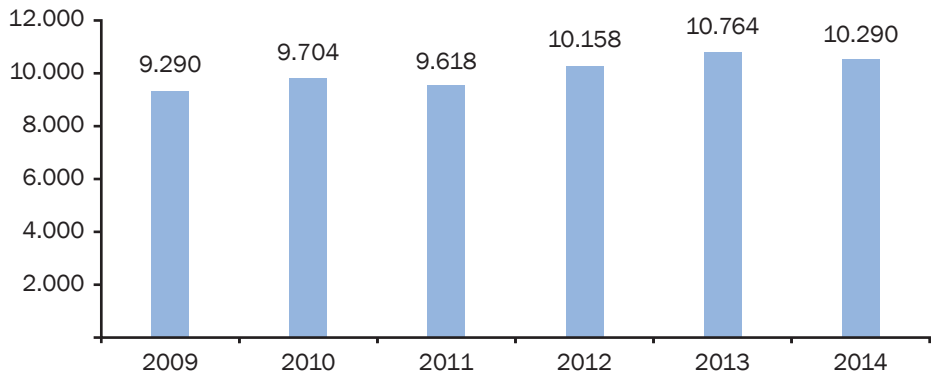
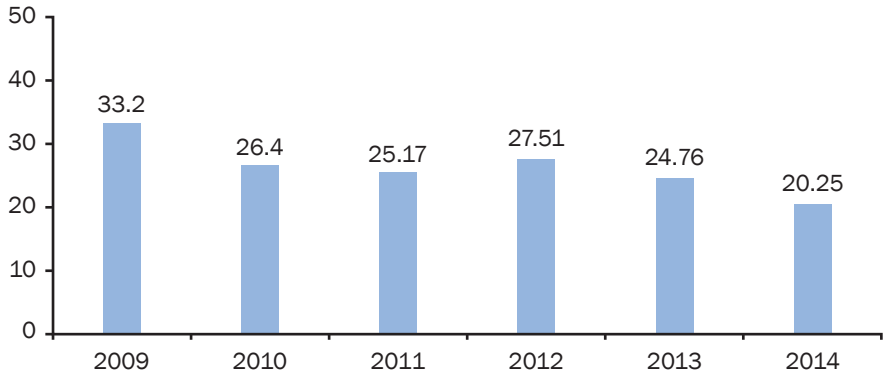
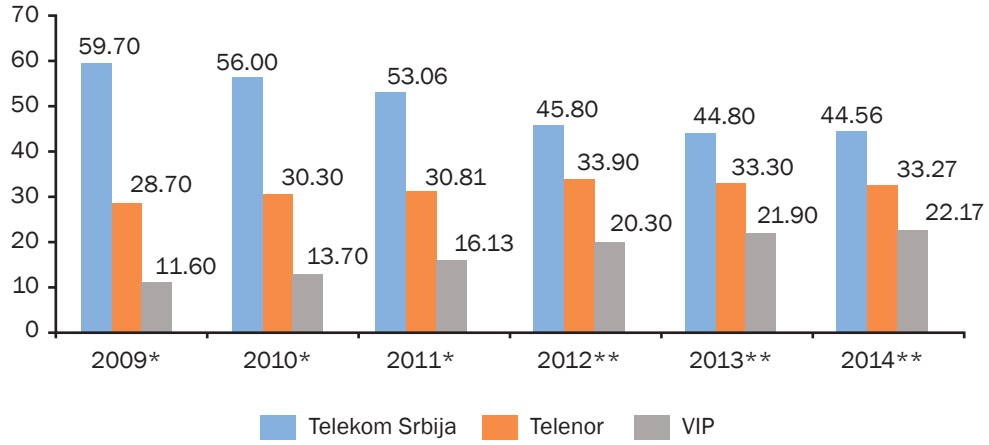


Figure 35. Number of MMS messages (millions) Source: RATEL



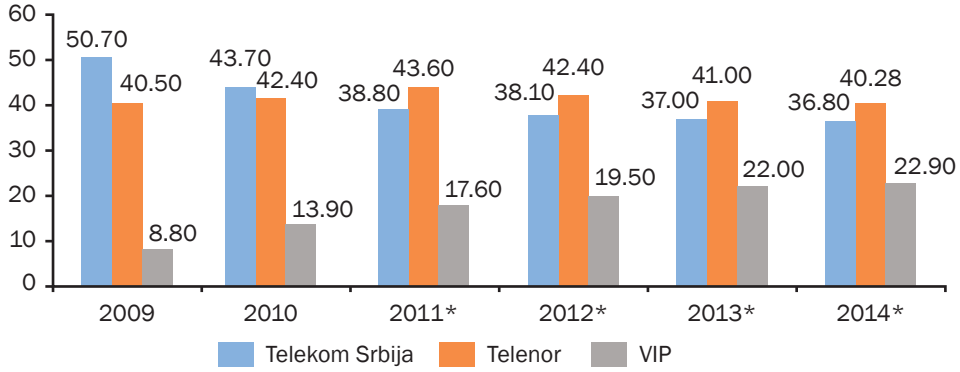
Figures 36 to 40 show the market share of mobile operators in terms of the number of users, share of each operator in the total mobile telephony revenues and share in the total outgoing traffic and the number of sent massages - SMS and MMS.

Figure 36. Market share in terms of the number of users (%) Source: RATEL



* The data for Telekom Srbija comprises the total number of prepaid users
** Market share for all three operators shows concerns prepaid and postpaid users active in the last 3 months

Figure 37. Share in the total revenue from mobile services (%) Source: RATEL



* The share of Telekoma Srbija in the total mobile market revenues would be 41.35% in 2011, 39.4% in 2012 and 37.6% in 2014, if the internal accounting between business segments are included.

Figure 38. Share in the total outgoing traffic (%) Source: RATEL

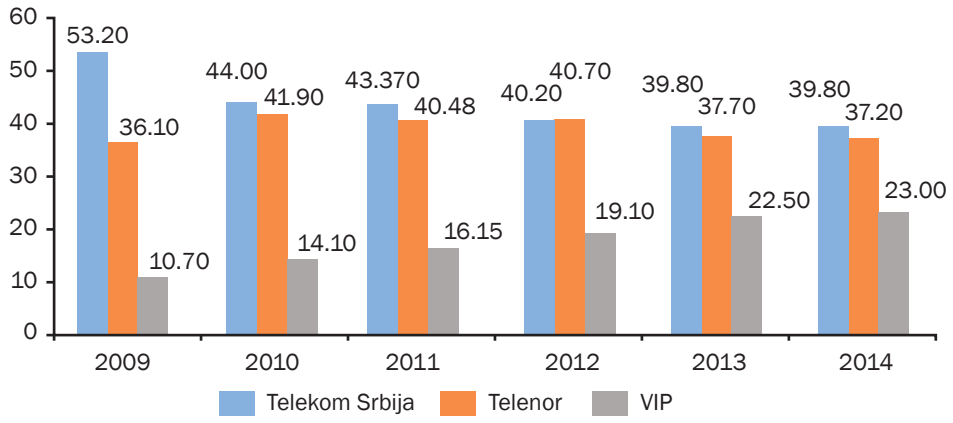


Figure 39. Share in the total number of sent SMS messages (%) Source: RATEL

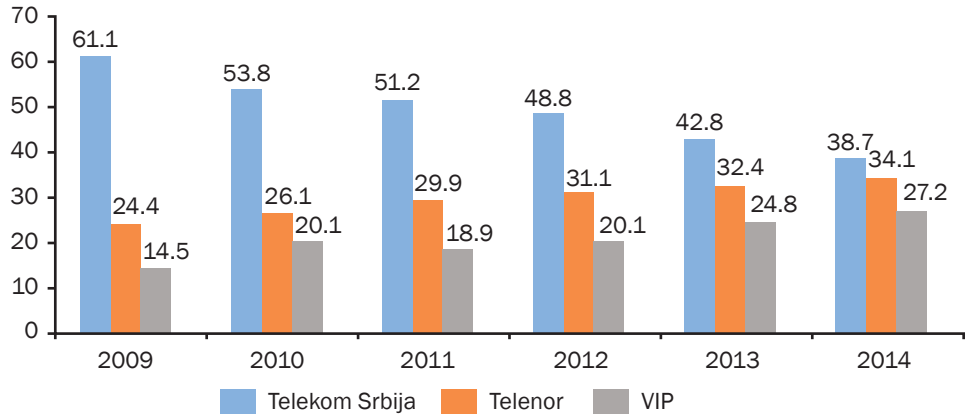
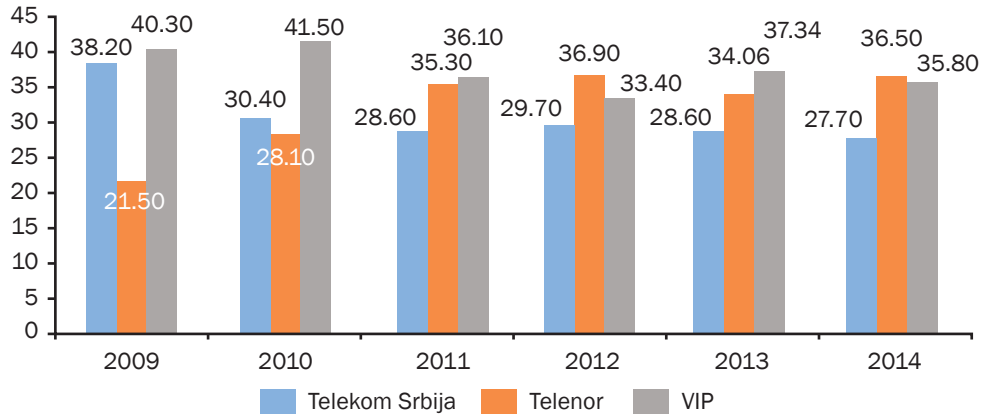


Figure 40. Share in the total number of sent MMS messages (%) Source: RATEL

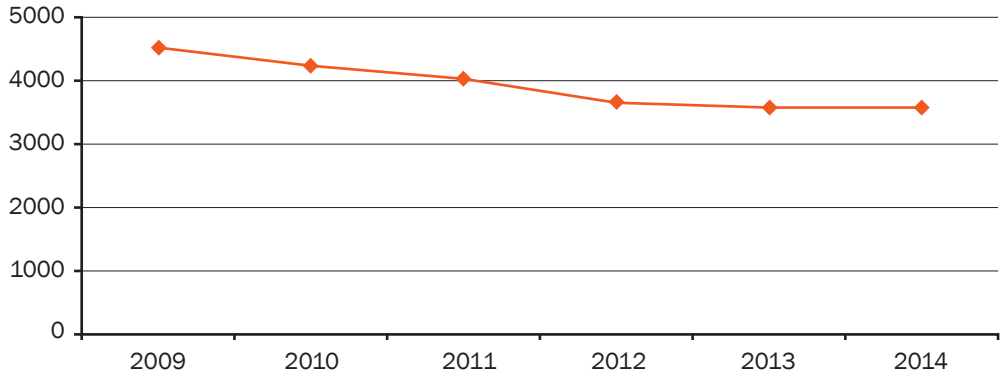


HHI (Herfindahl Hirschman Index) is an indicator used for determining the degree of concentration of a given market and it is defined as the sum of the squares of the market shares of each individual market share. The market share was identified by the number of users.

Table 8. HHI values in the period 2009–2014.

	2009.	2010.	2011.	2012.	2013.	2014.
indeks HHI	4520	4239	4025	3656	3596	3584

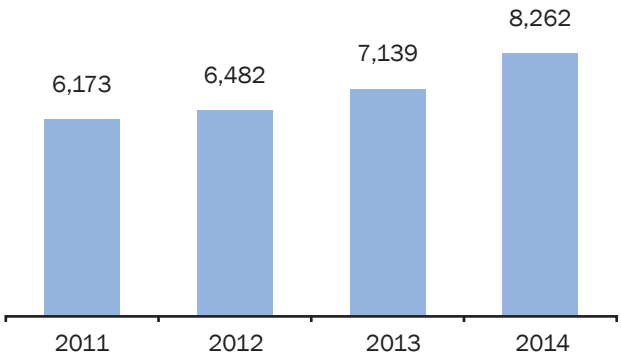
Figure 41. HHI values in the period 2009-2014 Source: RATEL



The value of HHI has been decreasing year after year, indicating a decrease in the market concentration and the increase in the competition between the operators.

During the fourth year since the number portability on mobile networks had been introduced, the number of portings continued to grow, with a monthly average of 8,262 portings in 2014. The number of portings varied throughout the year, reaching 15,000 in December, which is the highest number of portings since July 2011 when the number portability on mobile networks was introduced.

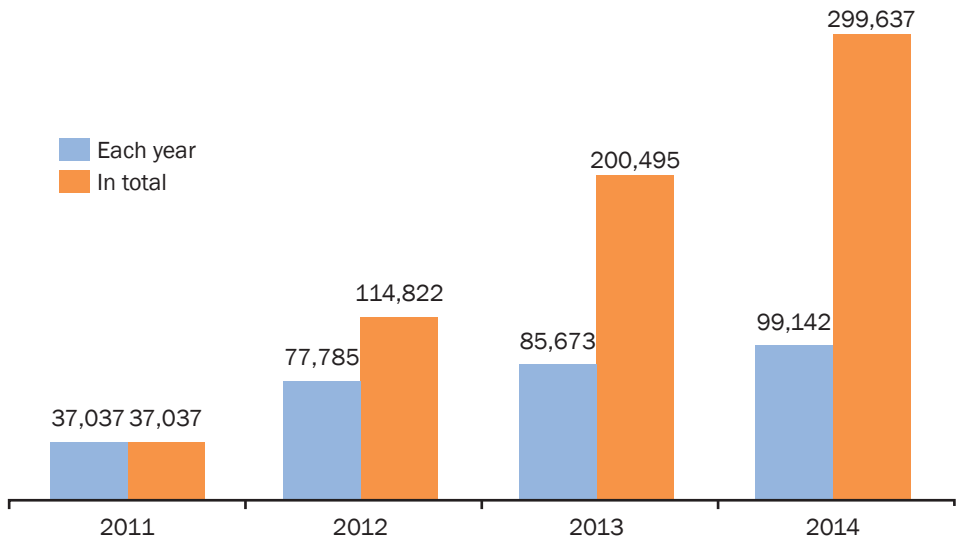
Figure 42. Monthly average of ported numbers by year Source: RATEL



In 2014 there were around 100,000 number portings on mobile networks, thus reaching the total of 300,000 porting by the end of 2014, which is over 3% of the total number of users.

In 2014 amendments were made to the regulations relevant for the future developments in the mobile telephony market. With the Law Amending the Law on Electronic Communications (*Official Gazette of RS*, no. 62/14) of June 2014, technological neutrality has been introduced in the usage of radio frequency spectrum and numbering resources. Licence holders were able to begin with the usage of RF bands on a technology neutral basis as of 1 January 2015. The application of the technology neutral principle in 1800 MHz RF band was enabled once the public bidding procedure for this band had been completed. In late 2014, RATEL launched the public invitation for the public bidding procedure for the issuance of individual licences for the usage of the radio frequencies in the 1710-1785/1805-1880 MHz frequency band. All three mobile

Figure 43. Total number of ported numbers each year and in total Source: RATEL



operator participated in the public bidding, and the decisions for the usage of two 5 MHz-RF blocks were issued to each operator in March 2015. The implementation of the new generation of mobile technologies - 4G has thus been made possible, which will enable better coverage and faster Internet in the territory of the Republic of Serbia.

2014 is also important for the activities related to the reduction in roaming fees. On 29 September 2014, the Agreement on reduction in roaming fees on public mobile communication networks was signed between the ministries in charge of electronic communications of Bosnia and Herzegovina, Montenegro, Republic of Macedonia and Republic of Serbia. By signing the Agreement the ministries have consented to set a price cap on the roaming prices in the signatory countries, in line with the fees applied in the EU, i.e. the fees set out in the Regulation (EU) No 531/2012 of the European Parliament and of the Council of 13 June 2012 on roaming on public mobile communications networks within the Union.

In order to implement the Agreement, RATEL's Managing Board adopted the Decision no. 1-03-021-146/14 of 25 December 2014, which sets out the implementation schedule for price caps applied to wholesale and retail fees for calls, SMS, data transmission and MMS, in line with the prices set out under the Roaming Regulation (Figures 44-49).

Figure 44. Average wholesale roaming call price cap (per-minute price in euros excl. VAT)

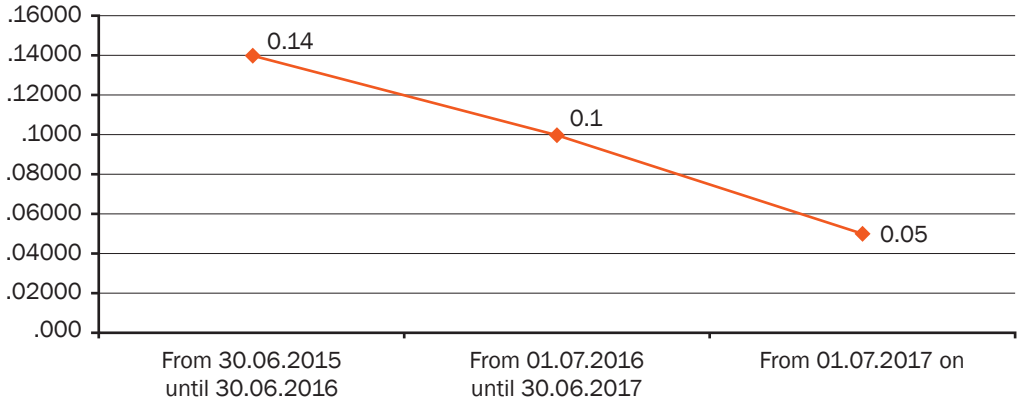


Figure 45. Average retail roaming call price cap (per-minute price in euros excl. VAT)

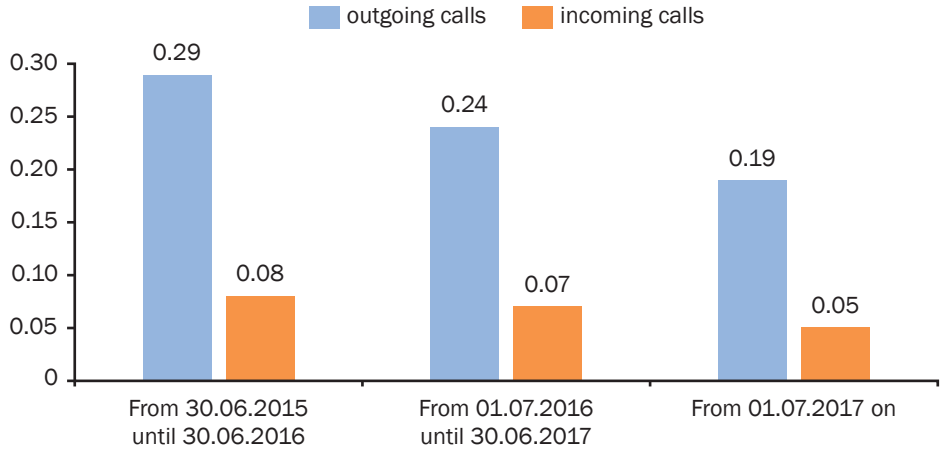


Figure 46. Average wholesale roaming SMS price cap (in euros excl. VAT)

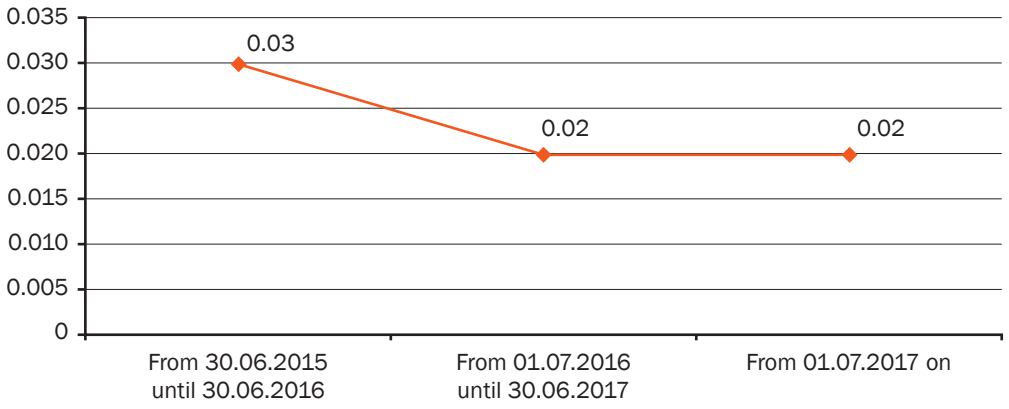


Figure 47. Average retail roaming SMS price cap (in euros excl. VAT)

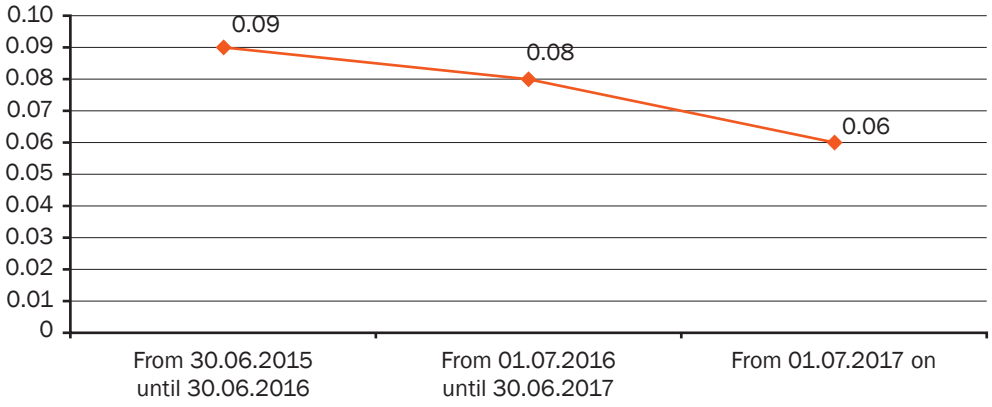


Figure 48. Average wholesale roaming data transmission price cap (per MB in euros excl. VAT)

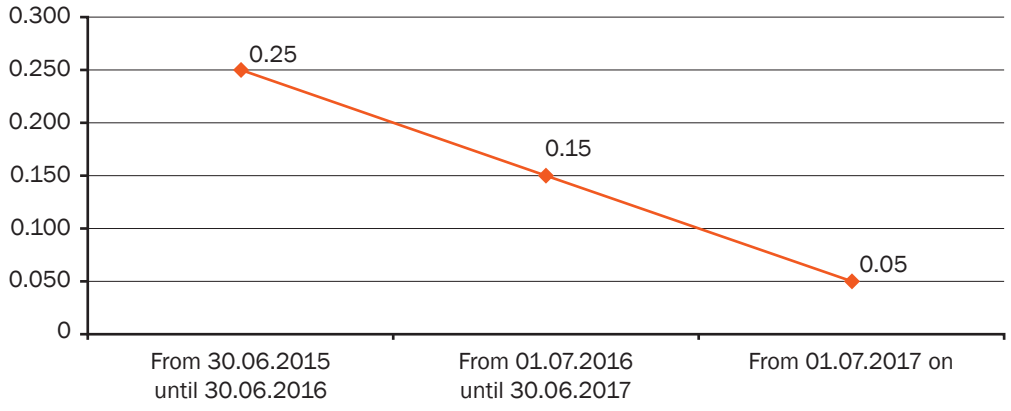
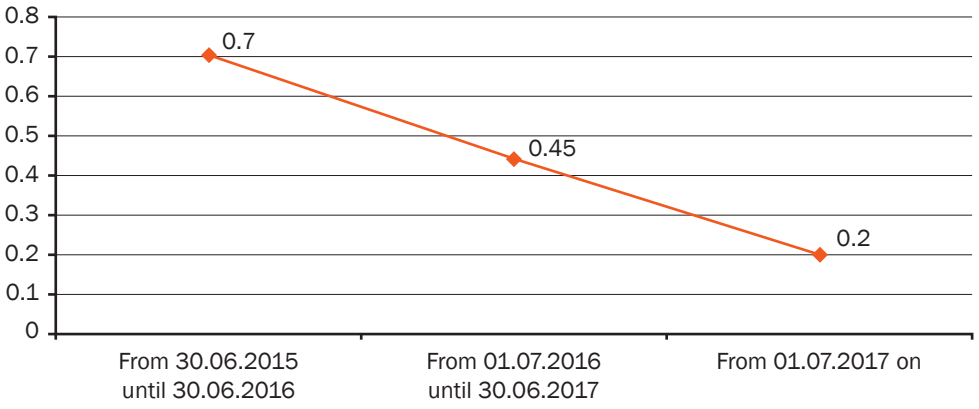


Figure 49. Average retail roaming data transmission and MMS price cap (per MB/message in euros excl. VAT)



5. INTERNET SERVICES

Internet technologies provide the most efficient support for the development of information society. They are an important factor of economic growth and progress of a country. The Internet market in the Republic of Serbia has been experiencing expansion for years. This refers in particular to the number and structure of the Internet connections and the total revenues from the Internet service provision. The trend that began in 2008 when the number of broadband connections was for the first time higher than dial-up connections, continued.

The Internet market in 2014 maintained a positive growth trend from the previous years, with the total number of broadband connections in the Republic of Serbia in 2014 amounting to over 1.5 million (without 3G network subscribers), which is more than 99% of all Internet connections (without 3G network subscribers). The large share of broadband connections reflects the end-users' growing demand for transmission of large quantities of data via Internet.

ADSL access was dominant Internet connection in 2014, with around 700 thousand connections, accounting for 50% of all broadband connections (without 3G network subscribers). In addition to the ADSL, other types of Internet access available were cable modem, which is another service provided by the CATV operators, directly, via Ethernet, via optical cable and by means of wireless access.

In December 2014, there were 217 Internet service providers (ISPs) registered in Serbia. Table 9 shows the number of ISPs according to the Internet access provided to end-users.

Table 9. Number of ISPs according to type of access

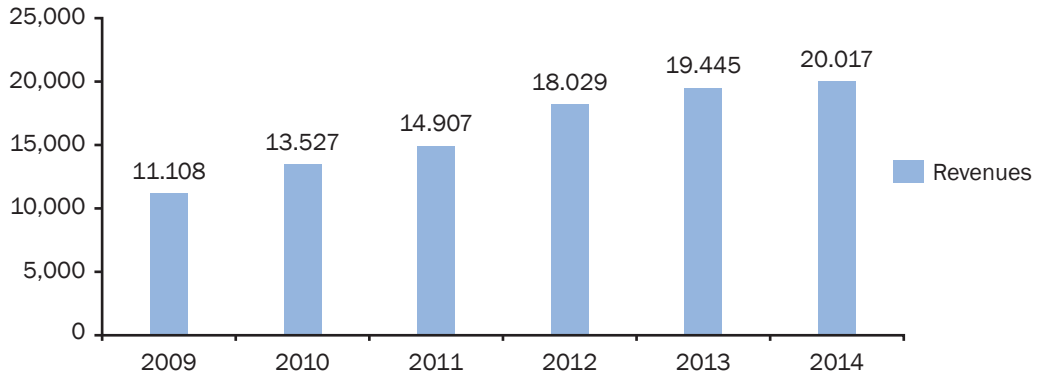
	2009	2010	2011	2012	2013	2014
Dial-up	36	42	29	18	12	7
Cable modem	20	22	21	22	23	26
Optical cable	3	11	11	12	12	17
Ethernet	24	25	14	10	12	10
Wireless	78	115	109	95	71	67
ADSL	27	23	21	13	16	14

Table 10. Total number of ISPs — Source: RATEL

	2009	2010	2011	2012	2013	2014
ISPs	199	192	232	222	221	217

The continued expansion of the Internet market is reflected, both by the increase in the number of users and by the constant increase in the total revenues from the Internet service provision in the past years. The total revenues in 2014 grew by 3% in respect to 2013, amounting to approximately 20 billion dinars[2]. If the total revenues from the Internet service provision in 2014 are compared with the total revenues in the previous years, a continuous growth trend of the Internet market in Serbia is evident along with a slight market saturation.

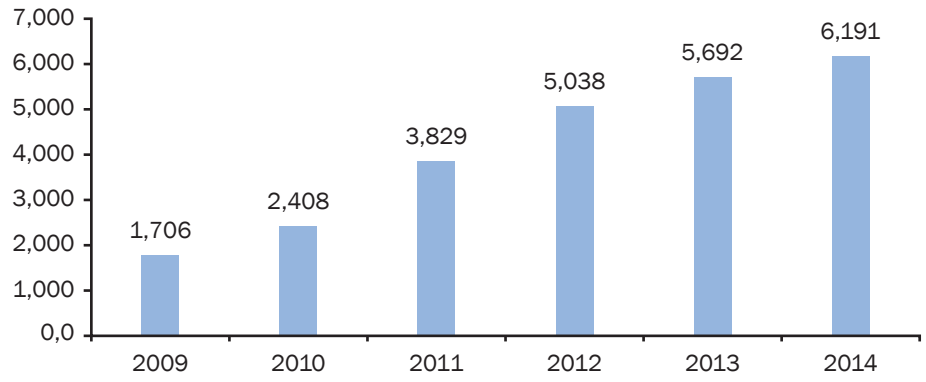
Figure 50. Internet service revenues (millions of RSD) — Source: RATEL



The total number of broadband connections in Serbia in 2014 was 1.7 million (3G mobile network users excluded), which is approximately 15% more than in 2013. In the previous year, there was a 3.2% increase in the number of subscribers who accessed the Internet using ADSL modem. The increase in the number of subscribers accessing the Internet via cable modem by 9.5%. If the access to the Internet via 3G network is taken into account (by using cell phones), there were more than 6 million potential subscribers in 2014.

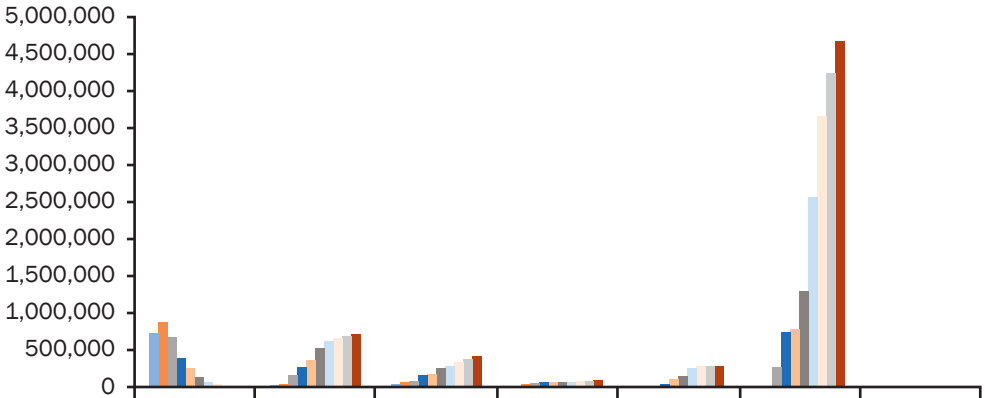
[2] The total revenues include the revenues from the Internet wholesale

Figure 51. Number of potential Internet subscribers in thousands* Source: RATEL



*3G network subscribers included.

Figure 52. Internet users according to the access technology Source: RATEL

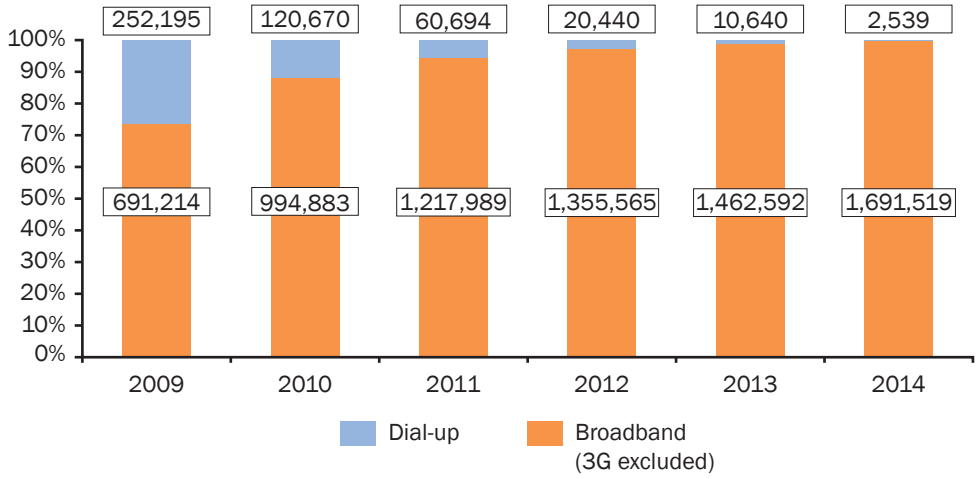


	Dial-up	ADSL	Cable modem	Wireless access	Mobile Internet	3G network subscribers*	Other
2005	708,226	9,530	23,956	1,049			13,914
2006	886,611	26,126	54,598	21,968			10,210
2007	692,905	132,359	87,731	36,059		257,379	2,276
2008	397,202	267,876	151,154	48,864	25,489	738,401	1,135
2009	252,195	351,252	187,923	45,864	100,628	762,307	5,547
2010	120,670	536,796	260,474	58,305	131,475	1,291,887	7,783
2011	60,694	623,611	285,413	53,754	249,542	2,550,038	5,669
2012	20,440	659,878	331,281	62,013	291,588	3,662,919	10,805
2013	10,640	693,645	375,328	79,878	288,580	4,218,790	24,784
2014	2,539	715,845	410,821	83,643	288,348	4,676,981	15,881

*3G network subscribers without mobile Internet

The number of dial-up connections continued to decrease. In 2006 the total number of dial-up subscribers amounted to 882 thousand accounting for 88% of the total number of Internet subscribers, whereas in 2014 the number dropped under 3 thousand, with a minor share in the total number of Internet connections.

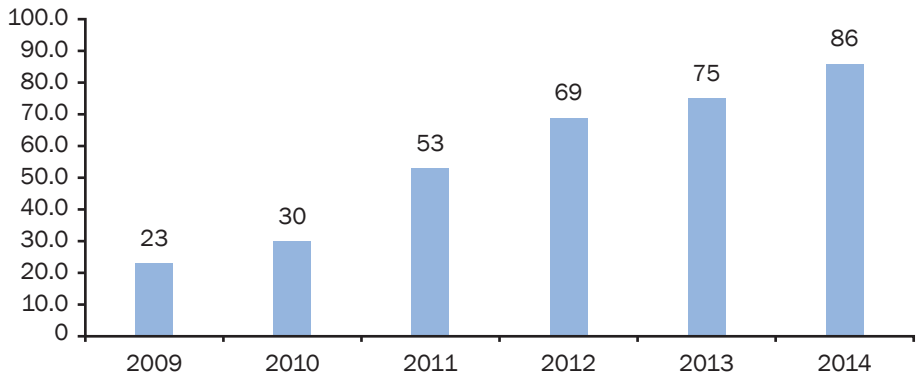
Figure 53. Share of the Internet connections (3G mobile network subscribers excluded)
Source: RATEL



In 2014, the number of Internet connections per 100 inhabitants was approximately 86, which roughly corresponds to the number of broadband Internet connections per 100 inhabitants, in view of the rather low share of narrowband connections. However, if the 3G mobile network subscribers are excluded from the total number of broadband subscribers, broadband penetration rate amounted to approximately 21%. Fixed broadband penetration was over 17%, which is a satisfying percentage compared with the data for the previous year.

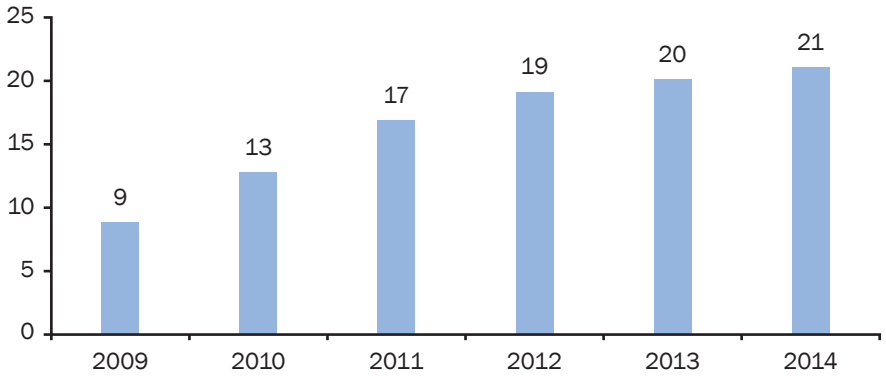
The above data illustrate a continuous growth of the Internet sector in Serbia, both in terms of the total revenues and the number of broadband subscribers. The choice of access technology reveals a step-up towards broadband services usage, reflected in the constant increase of ADSL, cable modem and mobile network users. The number of mobile Internet users is stagnating and there is a continuous decrease in the number of dial-up users.

Figure 54. Internet penetration rate* Source: RATEL



* 3G mobile network subscribers included.

Figure 55. Broadband penetration rate Source: RATEL



The increased competition in the broadband market and the growing user demands led to an improved quality of Internet services, reflected in the constant growth of high bitrate connections. Table 11 illustrates the tariffs of some packages available in the market.

Table 11. Monthly subscription fees for permanent Internet connection		
2009		
Access bitrate	Access Technology	Monthly subscription fee for permanent Internet access (VAT included) in RSD
1024/128 Kbps	ADSL	1,425.44
1536/128 Kbps	Cable	1,390.00
1024/256 Kbps	Wireless (2.4 GHz)	1,299.00
5 GB free of charge, and 3.84 RSD for each additional MB	Mobile Network	1,480.00
2010		
Access bitrate	Access Technology	Monthly subscription fee for permanent Internet access (VAT included) in RSD
1536/256 Kbps	ADSL	1,532.82
4096/256 Kbps	Cable	1,390.00
1536/256 Kbps	Wireless (2.4 GHz)	1,186.00
5 GB free of charge, and 3.00 RSD for each additional MB	Mobile Network	1,050.00 –1,364.00
2011		
Access bitrate	Access Technology	Monthly subscription fee for permanent Internet access (VAT included) in RSD
1536/256 Kbps	ADSL	1,532.82
6144/512 Kbps	Cable	1,540
2048/256 Kbps	Wireless (2.4 GHz)	1,000
6 GB free of charge, and 1.00 RSD for each additional MB	Mobile Network	1,050.00
2012.		
Access bitrate	Access Technology	Monthly subscription fee for permanent Internet access (VAT included) in RSD
5120/1024 Kbps	ADSL	1,549
10240/1024 Kbps	Cable	1,566
3072/512 Kbps	Wireless (2.4 GHz)	1,599
3 GB with full access bitrate included in the price	Mobile Network	690

2013		
Access bitrate	Access Technology	Monthly subscription fee for permanent Internet access (VAT included) in RSD
5120/1024 Kbps	ADSL	1,549
15360/1536 Kbps	Cable	1,590
3072/2048 Kbps	Wireless (2.4 GHz)	1,279
3 GB with full access bitrate included in the price	Mobile Network	690
2014.		
Access bitrate	Access Technology	Monthly subscription fee for permanent Internet access (VAT included) in RSD
10240/1024 Kbps	ADSL	1,549
25600/2048 Kbps	Cable	1,590
5120/1024 Kbps	Wireless (2.4 GHz)	1,550
5 GB with full access bitrate included in the price	Mobile Network	449

Note: the price lists were taken from the websites of the undertakings and apply to residential users; each package has additional costs and technical requirements pertinent to the closing of subscription contracts and establishment of connection; some of the packages require subscription contracts that entail specific obligations over a specified period of time.

6. USAGE OF ICTs IN SERBIA

In the modern society ICT has the main role in both economy and manufacturing, as well as in all segments of the social life of an individual and of the society as a whole.

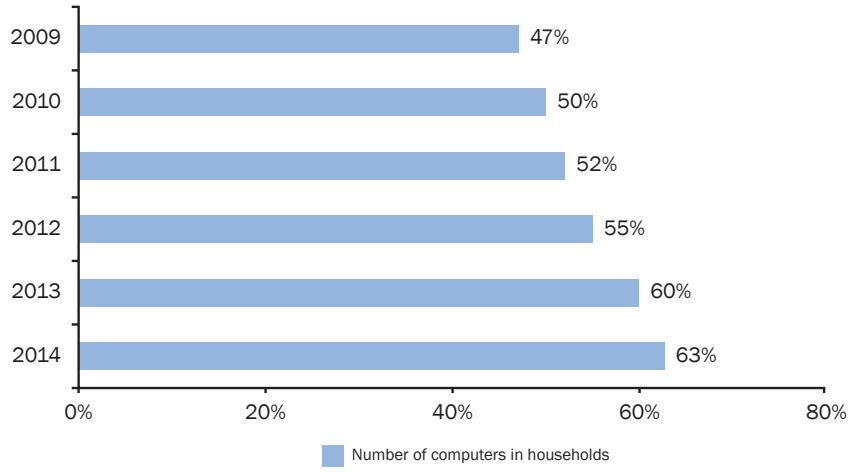
Surveys on the use of information-communication technologies by individuals, households and companies in Serbia are regularly conducted by the Statistical Office of the Republic of Serbia. The survey was carried out according to the Eurostat methodology in the territory of the Republic of Serbia. However, the data do not include the data for AP Kosovo and Metohija.

In 2014, the survey was conducted on the sample of 2,400 individuals, 2,400 households and 1,200 companies. Response rate was 96% for households and individuals and 92.7% for companies.

The sample was allocated to the areas of Central Serbia (without Belgrade), AP Vojvodina and the City of Belgrade, according to the respective number of households.

The growth trend of households with a computer continued in 2014. The number of households with computer was 63.2%, which is an increase by 3.3% in respect to 2013. Most of the households have

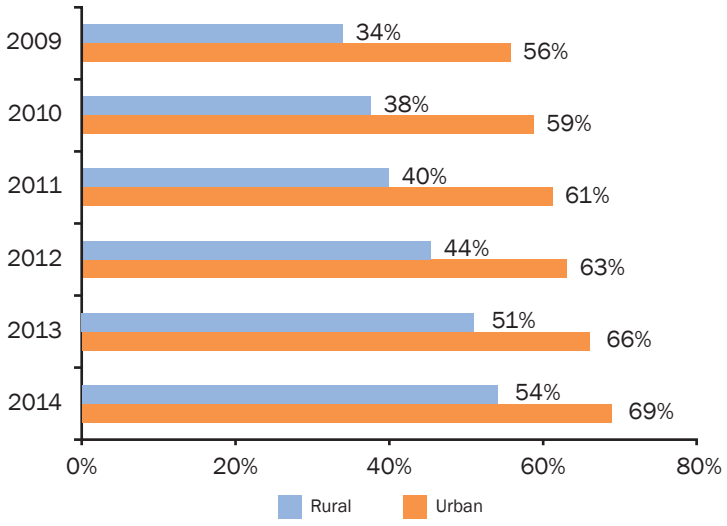
Figure 56. Percentage of households with a computer
Source: Statistical Office of the Republic of Serbia



one computer (80.8%), while 14.4% of households have two computers. The incidence of computers in households varies depending on different territorial areas: Belgrade 70.6% (67.1% in 2013), Vojvodina 66.3% (64.0% in 2013) and Central Serbia 57.5% (55.1% in 2013).

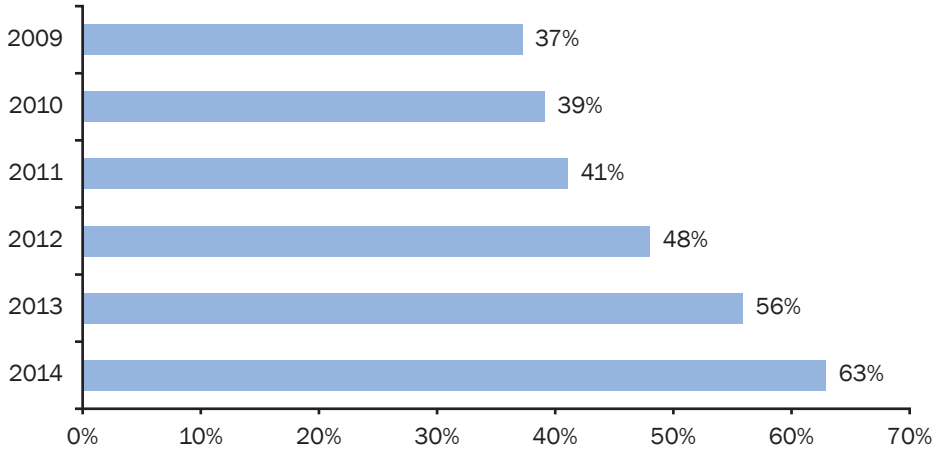
The incidence of computers in households also varies between urban areas (68.9%) and rural areas (53.7%) in Serbia. There was a proportional increase in respect to 2013, since the number of households with computer in urban areas grew by 2.6% and in rural areas by 2.8%.

Figure 57. Percentage of households with a computer according to the type of area (rural or urban)



In 2014, there were 62.8% of households in the Republic of Serbia with the Internet connection, this being an increase of 7% in respect to 2013, or a 15.3% increase in respect to 2012. Once again, significant discrepancies may be observed if we compare the number of households with Internet connection in urban and rural areas in Serbia. While in urban areas of the Republic of Serbia the number of households with Internet connection amounted to 67.8% (cf. 63.8% in 2013), in rural areas there were

Figure 58. Households with Internet connection Source: Statistical Office of the Republic of Serbia



51,1% (cf. 42.5% in 2013) of households with Internet connection. It should be noted that the growth rate of Internet connections in respect to 2013 was seen in both urban (4%) and rural (8.6%) areas.

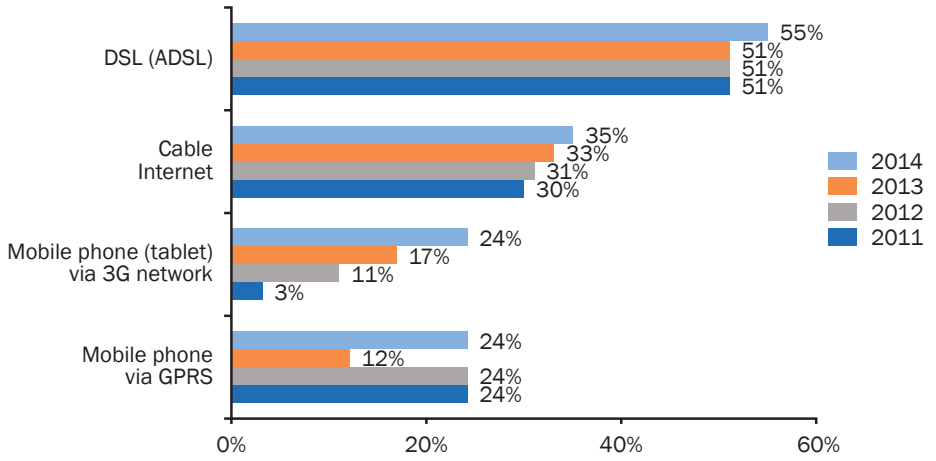
It should be noted that the gap is also related to the household income, as Internet connection was mainly used by the households with the monthly income of over 600 euros (90.6%), while only 40.9% with the income of 300 euros had Internet connection in 2014.

One of the main indicators of ICT development in the EU is the percentage of households with broadband Internet. With the broadband diffusion, the downtrend of modem connection was continued. In 2014, 55.6% of households with Internet had DSL (ADSL) and 35.3% had cable Internet. The biggest rise was seen in the mobile phone usage via GPRS with 24.4% in 2014 (cf. 11.8% in 2013).

The survey revealed that 62.5% of the respondents had used the computer in the past 3 months (cf. 56.9% in 2013), 1.8% participants had used the computer more than 3 months earlier, 6% more than a year earlier and 29.7% (cf. 36.6% in 2013) respondents had never used the computer.

Figure 59. Household Internet use according to the type of connection

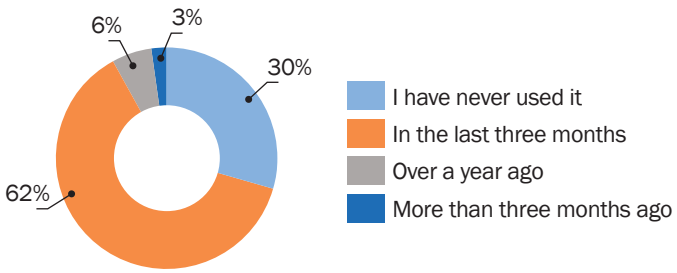
Source: Statistical Office of the Republic of Serbia



In respect to 2013 the number of computer users increased by 6.9%, and the number of users in the last 3 months increased by over 300 000.

Figure 60. Computer usage by individuals

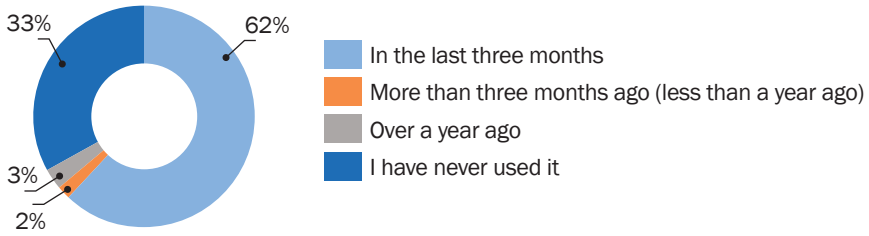
Source: Statistical Office of the Republic of Serbia



In the Republic of Serbia 62.1% (cf. 53.5% in 2013) of people used the Internet in the last three months, 1.9% of the respondents used the Internet more than three months ago and 2.9% of them over a year ago. The percentage of the respondents who said that they had never used the Internet was 33.1% (cf. 41.5% in 2012), which is significantly lower compared to the previous years.

The number of Internet users in 2013 increased by 6.9% in respect to 2012 or by 11.5% in respect to 2011 and 12.6% in respect to 2010. The survey showed that the number of persons who had used the Internet in the past three months increased by over 200 000 compared with 2012.

Figure 61. Internet usage by individuals Source: Statistical Office of the Republic of Serbia



The survey showed that 37.4% of respondents among the Internet users, had used public administration services instead of personal contact. Over 1,300,000 individuals used the electronic services of the public administration.

84.6% of the respondents reported that they had been using the Internet every day or almost every day in the past three months. Over 2,850,000 persons used the Internet (almost) every day, which is an increase of over 450.000 compared with 2013.

Figure 62. Frequency of the individual Internet usage
Source: Statistical Office of the Republic of Serbia

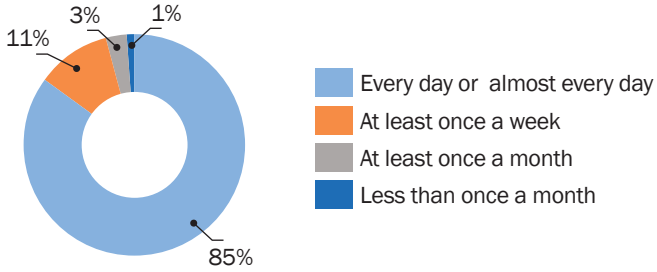
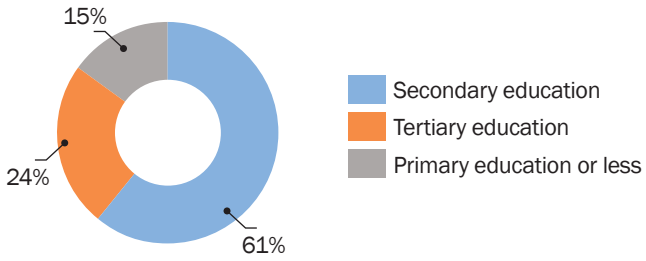


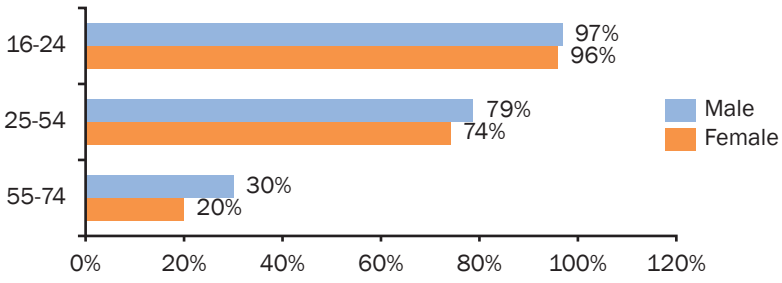
Figure 62 illustrates the structure of the Internet users by level of education. Majority of Internet users, 61%, have secondary education, 24.2% of users have higher education or university degree and 14.8%. of users have primary education or less.

Figure 63. Internet users by level of education Source: Statistical Office of the Republic of Serbia



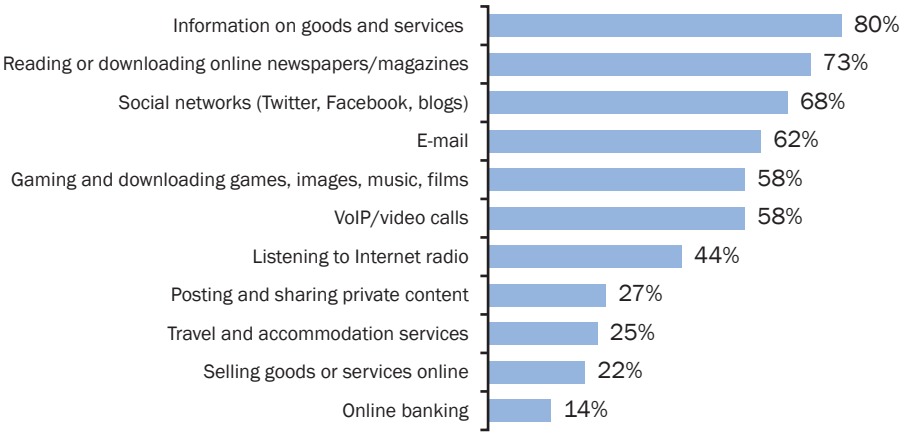
The percentage of male users is higher in respect to female users in all age groups, with the biggest discrepancy in 55-74 age group. The survey showed that in the past 3 months there had been 66.2% of male and 58.1% of female users of the Internet.

Figure 64. Internet usage in last 3 months according to gender/age
Source: Statistical Office of the Republic of Serbia



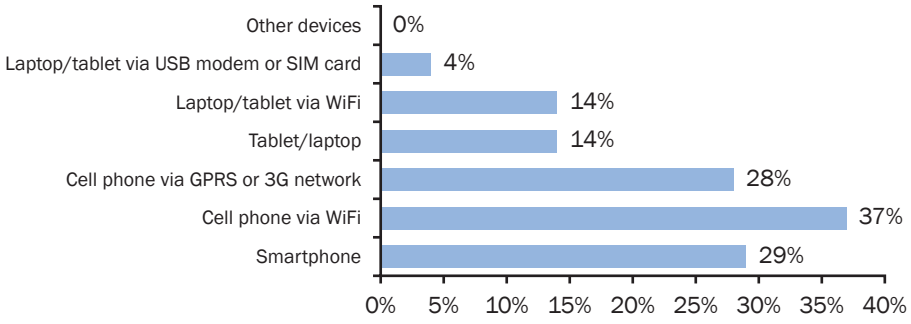
In 2014 the Internet was mostly used for searching the information on goods and services (79.7%), followed by reading online newspapers/magazines (73.4%) and social networks such as Twitter and Facebook (67.6%).

Figure 65. Internet usage for private purposes (in the last 3 months)
Source: Statistical Office of the Republic of Serbia



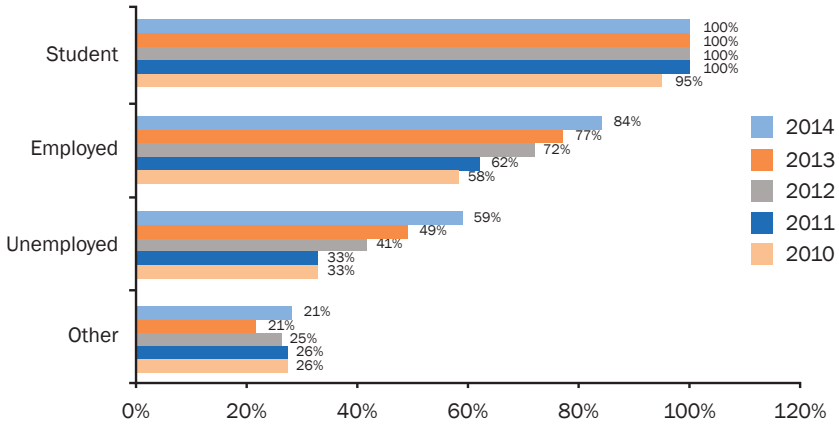
The survey showed that 36.7% (cf. 30.3% in 2013) of the Internet population had used a Smartphone for Internet access outside home or work (Figure 66).

Figure 66. Usage of mobile devices for Internet access outside home/work
Source: Statistical Office of the Republic of Serbia



The share of the Internet users according to their employment status (Figure 67) shows that the Internet was mainly used by students (100%), while the number of employed users grew from 76.6 in 2013 to 84.3% in 2014. The number of unemployed Internet users increased from 49.1% in 2013 to 58.9% in 2014.

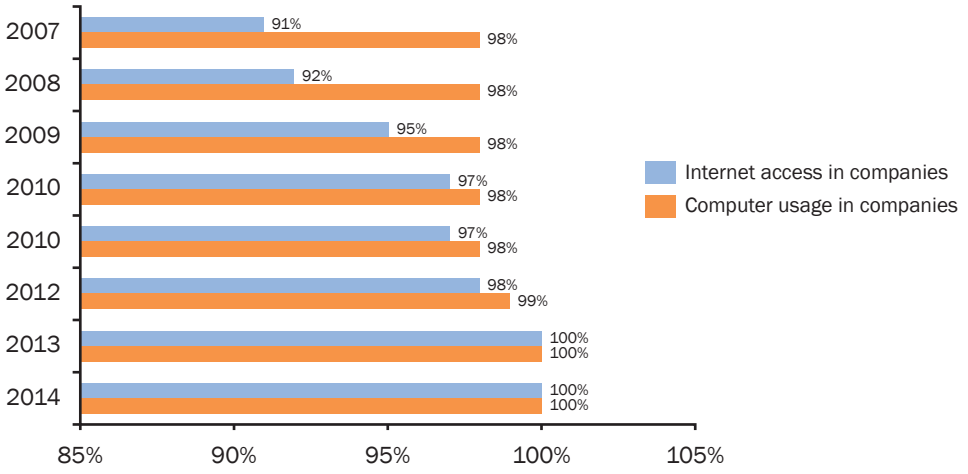
Figure 67. Share of Internet users according to their employment status
Source: Statistical Office of the Republic of Serbia



The number of enterprises using the computer for business remained at 100% reached the year before.

There are 100% of companies in the Republic of Serbia with the Internet connection, which is a 0.4% increase compared to 2013. Among the companies with Internet connection, 98% have broadband.

Figure 68. Internet and computer usage by companies
Source: Statistical Office of the Republic of Serbia



The survey showed that 92% (cf. 87.6% in 2013) of companies with Internet connection had used public administration electronic services, which is a 4.4% increase compared with 2013.

Figure 69. Usage of online public administration services by companies
Source: Statistical Office of the Republic of Serbia

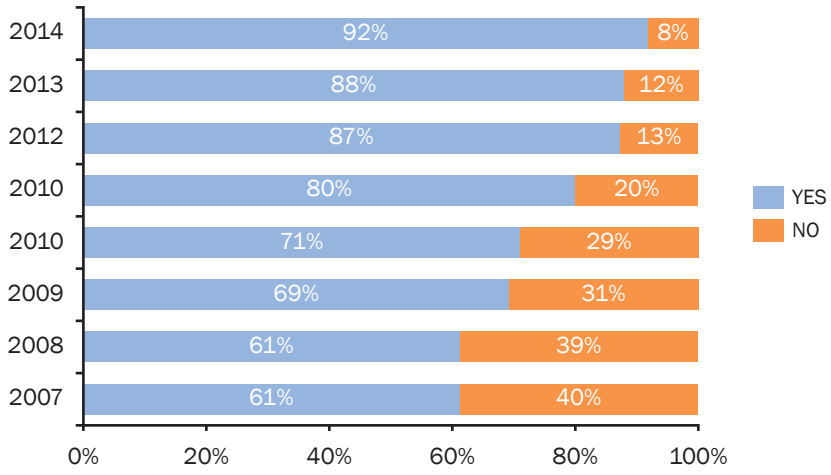
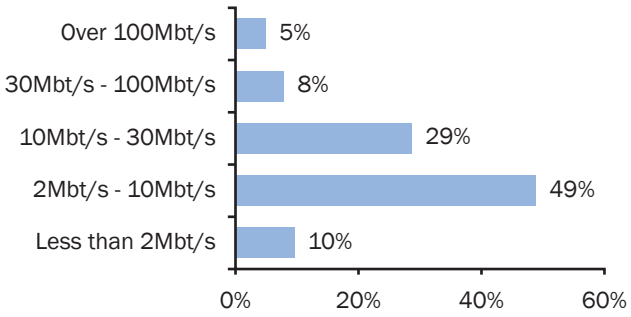


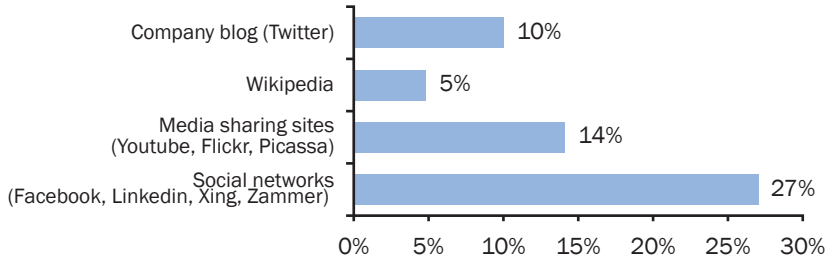
Figure 70. shows the Internet connection bitrate in the companies, defined by the contract with ISPs, where the majority (48.8%) of the companies had 2-10 Mbit/s. There was a significant increase in companies using 10-30 Mbit/s from 15.5% in 2013 to 28.5% in 2014.

Figure 70. Internet bitrate in companies (as defined by contract with ISPs)
Source: Statistical Office of the Republic of Serbia



74% of the companies with Internet connection had their own website, which is a 0.2% increase in respect to 2013. Social networks are becoming more and more important for the company business, as illustrated by the results showing that as much as 27% (cf. 23.4% in 2013) of companies used social networks for their business.

Figure 71. Usage of social networks for business purposes
Source: Statistical Office of the Republic of Serbia

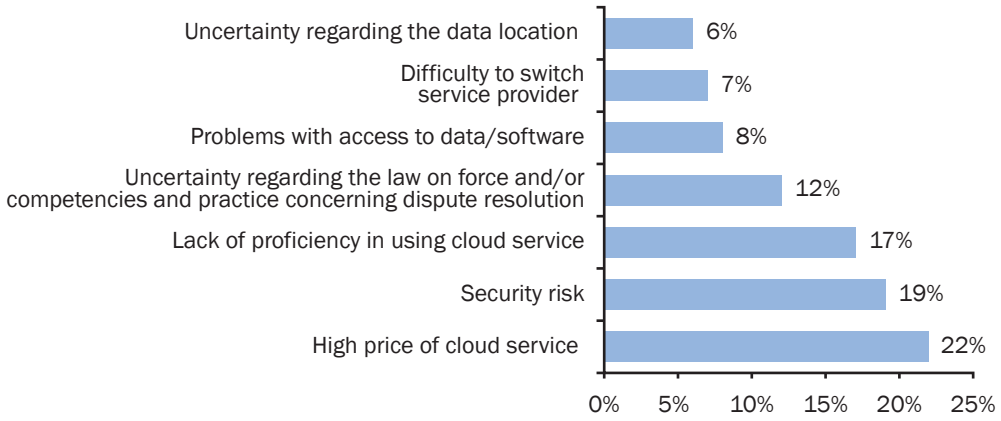


There are 3.8% of companies in Serbia paying for cloud service. Clouding provides access to ICT services for software usage, data storage, etc. These services are:

- located on provider servers,
- used at user request,
- charged by usage/capacity

Figure 72. Limiting factors for cloud service usage

Source: Statistical Office of the Republic of Serbia



7. MEDIA CONTENT DISTRIBUTION

In 2014 there were 98 operators registered for media content distribution, providing the service via: cable distribution networks (coaxial, hybrid and optical) – CATV, public fixed telephone network– IPTV, satellite distribution network– DTH (Direct to Home) and wireless network.

There were 1.5 million users of the media content distribution services in 2014, almost the same as in the previous year (4% less). The penetration rate was 20.95% in terms of population, and 60% in terms of households.

Na The largest media content distribution operator in 2014 continued to be Serbia Broadband – Srpske kablovske mreže d.o.o. (SBB) with a market share of over 50%, in terms of revenues. Other leading operators are Telekom Srbija Joint Stock Co., Public Enterprise PTT, Kopernikus tehnology Ltd., I.KOM Ltd. and Radijus vektor Ltd. In terms of the number of subscribers and revenues made, the joint market share of these operators in the media content distribution market was around 88%.

Figure 73. Market share of the leading operators in 2014 Source: RATEL

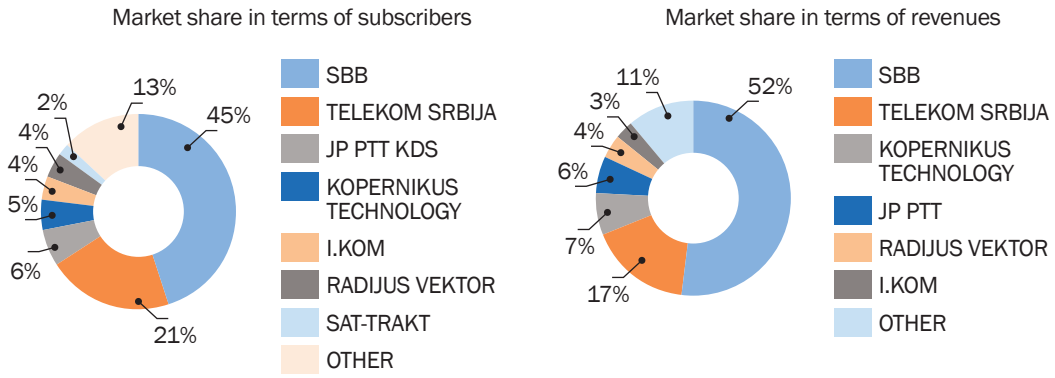
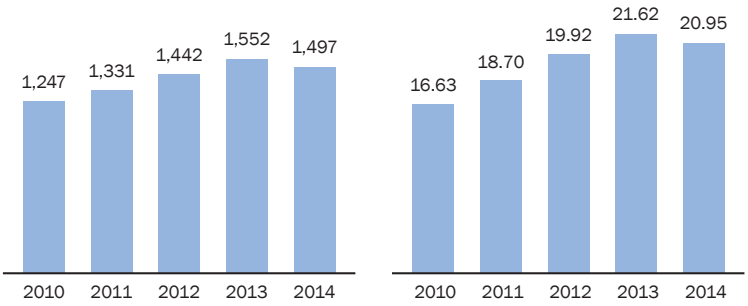


Figure 74. Total number of media content distribution subscribers (thousands)/Penetration rate
Source: RATEL



Media content distribution via CATV was dominant in 2014, with around 930 thousand subscribers. Figure 76 shows increase in the number of subscribers of digital HD TV which offers various options (video on demand, replay, recording, etc.), in addition to analogue TV (which is the basic package provided by all operators).

Figure 75. Media content distribution users by technilogies (thousands)
Source: RATEL

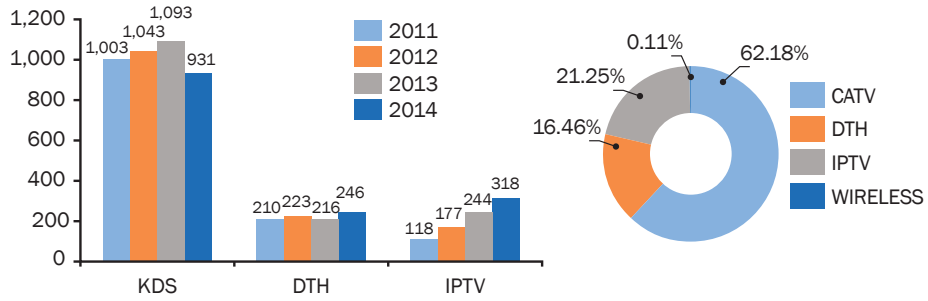
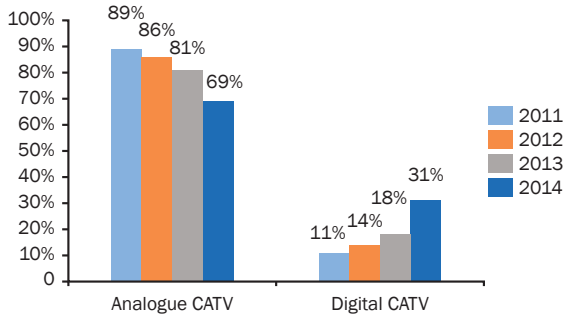
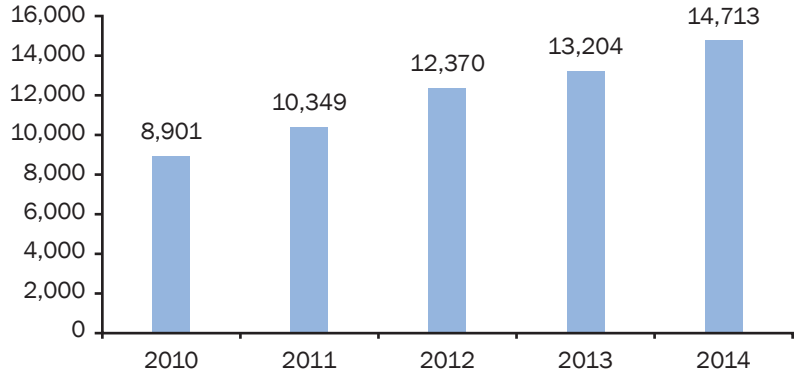


Figure 76. Cable users
Source: RATEL



The total revenues from media contents distribution was 14.7 billion dinars, which is an increase of 11% year-on-year.

Figure 77. Increase in the revenues from the media content distribution (RSD millions)
Source: RATEL



The biggest share in the revenues from the media content distribution went to CATV (64%), followed by IPTV (17%) and DTH (19%).

Figure 78. Revenue structure in 2014
Source: RATEL

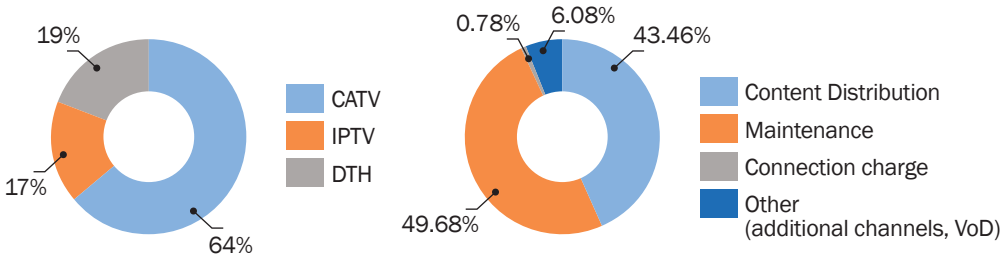
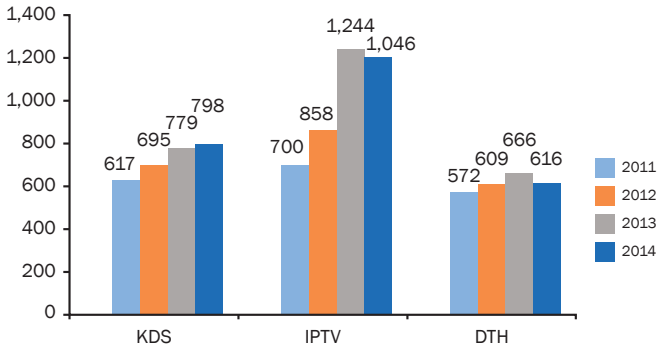


Figure 79. Average monthly subscription for basic service package Source: RATEL



As shown in Figure 79, the revenues from the network maintenance and content distribution accounted for almost 50% of the revenues, whereas only 7% went to the connection charges and other services (additional channels, video on demand, etc.).

As shown in Figure 76, in 2014 CATV subscribers paid on average 798.25 dinars per month, DTH service subscribers paid on average 616.11 dinars for the basic service package, while IPTV services subscribers paid on average 1046.39 dinars on a monthly basis.

Figure 80. Average bill per subscriber (RSD) Source: RATEL

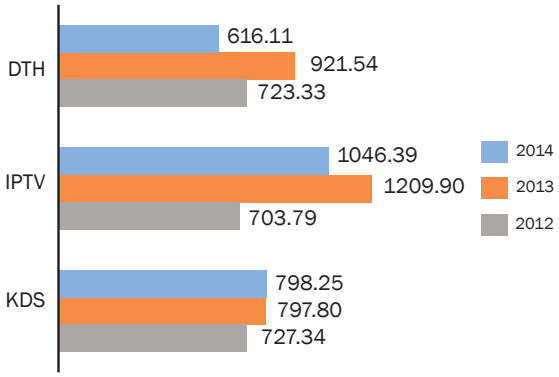
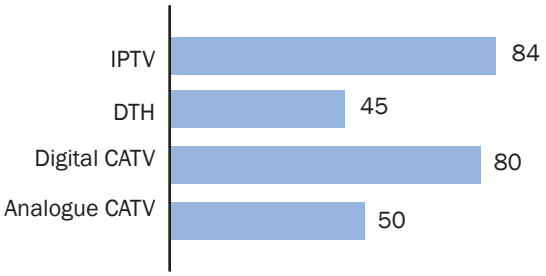


Figure 81 provides an overview of the number of TV channels offered in the basic package in 2014, by different media content distribution technologies.

Figure 81. Average number of TV channels in the basic package in 2014 Source: RATEL



8. MESSAGING AND VALUE ADDED SERVICES

Law on Electronic Communications and Rulebook on general terms and conditions for electronic communication activity (*Official Gazette of RS*, no. 38/11) have created administrative possibility for messaging and value added service (VAS) providers to be registered in the register of operator managed by RATEL, in line with the legal competences.

In 2014 there were 60 operators in the register of public communication networks and services registered for value added service provision, most of them being registered for messaging service provision, as well. The operators provide the services through fixed and mobile network operators, and the users of these networks can access value added services using public numbering (090Xabcdef and 0780abcdef) for value added voice transmission and internal numbering of the mobile operators for value added messaging (SMS, MMS).

Messaging and value added service provided by operators may be divided, according to purpose, into: televoting, advertising, entertainment, children entertainment, humanitarian aid, adult entertainment, lottery, SMS notification, marketing bulk messages, goods and services payment and other.

Annual revenues from VAS for the 2012-2014 period are given in Figure 82. Service provision accounts for the total revenues in the amount of 900 million dinars. In 2014, the revenues in this market, according to data collected by RATEL amounted to nearly 880 million dinars. Part of the revenues, made from network usage, traffic billing and collecting, go to network operators based on commercial contracts between network operators and messaging and value added service providers.

Figure 83 shows the share in revenues held by messaging service provision on the one hand and value added service provision on the other.

Figure 82. Annual revenues in the period 2012-2014 (in RSD)

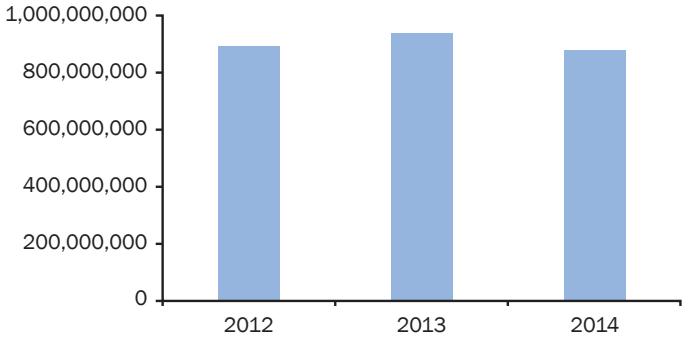
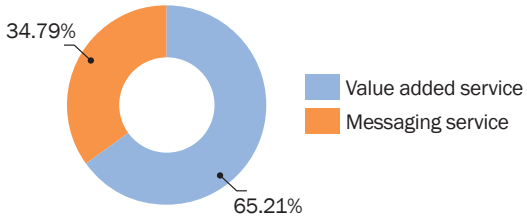
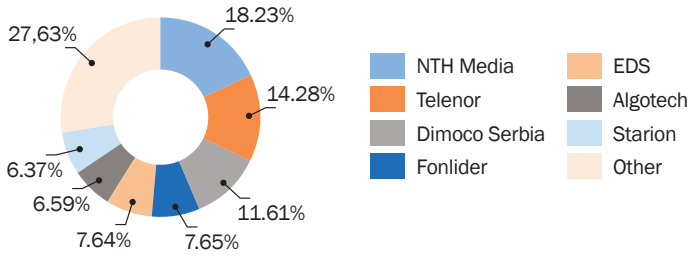


Figure 83. Revenue share by services in 2014



According to available data provided to RATEL by the operators, three operators with the largest revenues from messaging and value added service provision in 2014 were: NTH Media d.o.o., Telenor d.o.o.[3] and Dimoco Serbia d.o.o. holding 44.12 % of the value added service market.

Figure 84. Market share of messaging and value added service operators according to revenues made from these services



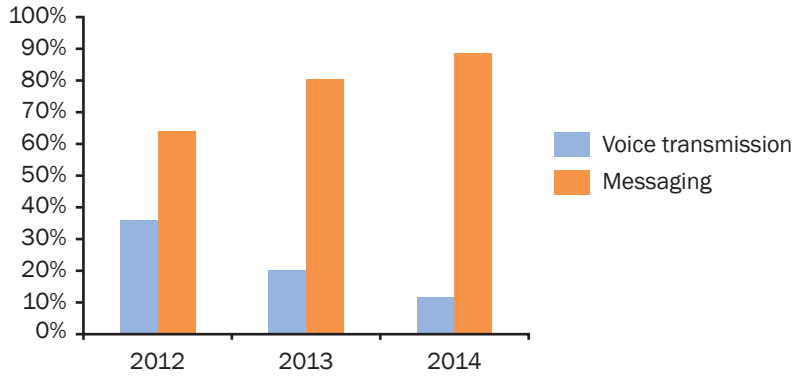
[3] Telenor's revenues were made from traffic to a humanitarian SMS number and went to humanitarian causes.

In addition, the following operators made significant revenues as well: Fonlider, Entertainment Data Services (EDS), Algotech and Starion.

Value added service market is fully competitive. Figure 84 shows the share of VAS providers (VASPs) according to revenues made. However, it should be noted that the revenues are divided between VASPs, network operators and content creators.

Almost 90% of the total revenues made in 2014 are revenues from messaging service (SMS, MMS) and VAS messaging, and the rest of revenues come from voice VAS. Technology that enables easier and better data processing for SMS and MMS and the expansion of direct electronic marketing have led to a significant increase in the revenues made from messaging and value added services, on the one hand, and a decrease in revenues from voice VAS, on the other. However, large-scale usage of smart phone devices lowers users' interest for VAS, which particularly affects voice VAS.

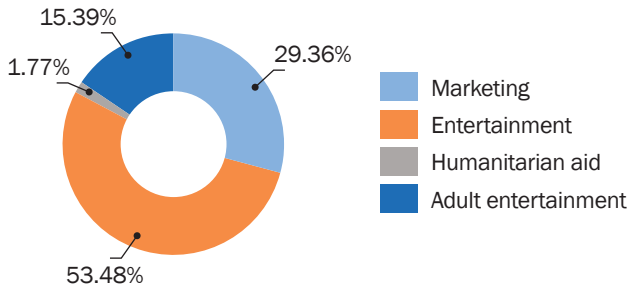
Figure 85. Market share by type of VAS, according to revenues made in 2012, 2013 and 2014



RATEL assigned 590 numbers for voice value added service provision.

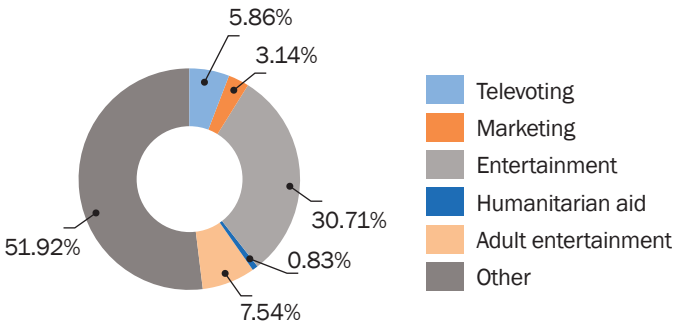
In 2014, voice value added service provision accounted for over 1.1 million minutes of traffic, and the share by type of voice VAS is given in Figure 86.

Figure 86. Share of minutes according type of voice VAS in 2014



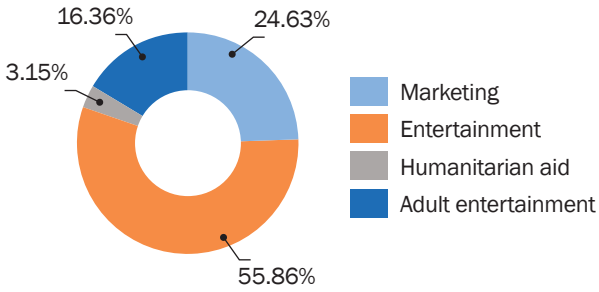
Messaging value added services accounted for over 9 million messages and the share by type of VAS is given in Figure 87. Messages labelled as “other” make up 51.92%, since they do not fall into a standard set of VAS, but concern different notifications, taxi orders or queries (on exchange rates etc.) and payment of goods and services.

Figure 87. Share of VAS messages by type in 2014



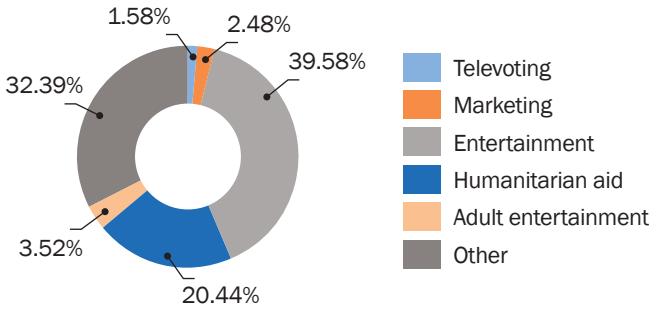
Revenues from voice VAS are over 65 million dinars and the share by type is given in Figure 88.

Figure 88. Share of voice VAS in revenue by type in 2014



Revenues from messaging VAS are over 600 million dinars and the share by type is given in Figure 89.

Figure 89. Share of messaging VAS in revenue by type in 2014



According to official data provided by operators, companies registered for VAS provision had 417 employees, while more than 40 of them were employed in telecom business.[4]

[4] Operators Telenor and Novosti have more than 1300 employees- However, since a small number of them are engaged in VAS-related work, the employees working for these operators have not been taken into account.

9. BROADCASTING

Based upon users' requests, public tenders as well as decisions made by the Council of the Republic Broadcasting Agency regarding the permit issuance for television and radio programme broadcasting, RATEL issued the broadcasting station permits to the following broadcasters:

Initial network for digital TV signal broadcast testing			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	Javno preduzeće emisiona tehnika i veze, BEOGRAD	40	24

For TV signal coverage – commercial service – national coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	PRVA TELEVIZIJA DOO, BEOGRAD	36	0
2.	ZEMUN, "HAPPY TV" DOO, BEOGRAD	35	0
3.	Preduzeće za informisanje i marketing "PINK INTERNATIONAL COMPANY" društvo sa ograničenom odgovornošću, BEOGRAD	36	10
4.	Radio difuzno preduzeće "B 92" akcionarsko društvo, BEOGRAD	35	0

For radio signal coverage – commercial service – national coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	Radio difuzno preduzeće "B 92" akcionarsko društvo, BEOGRAD	19	0
2.	Privredno društvo za proizvodnju i emitovanje RTV programa "INDEX" DOO, BEOGRAD	17	10
3.	Radiodifuzno privredno društvo "RADIO S" DOO, BEOGRAD	16	40
4.	"Privredno društvo "HIT MUSIC FM" DOO, BEOGRAD	17	0

For TV signal coverage – public service – provincial coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	JAVNA MEDIJSKA USTANOVA "RADIO-TELEVIZIJA VOJVODINE", NOVI SAD	0	4

For TV signal coverage – commercial service – regional coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	DOO "ISTOK COMPANY", SALAŠ	4	0
2.	Javno preduzeće RADIO-TELEVIZIJA VRANJE PO, VRANJE	0	4
3.	"TV MOST" društvo sa ograničenom odgovornošću za informativno izdavačku delatnost, NOVI SAD	0	2

For radio signal coverage – commercial service – regional coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	"RTV M" DOO, KNJAŽEVAC	1	0
2.	Radio difuzno društvo "Radio-Televizija AS" D.O.O., ŠABAC	1	0
3.	Akcionarsko društvo "TIMOČKA TELEVIZIJA I RADIO", ZAJEČAR	1	0
4.	Javno radiodifuzno preduzeće "RADIOTELEVIZIJA PANČEVO", PANČEVO	1	2

For TV signal coverage – commercial service – local coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	Udruženje građana "LASTAVICA", KRUŠEVAC	1	0
2.	RTV "CARIČIN GRAD" DOO LEBANE, LEBANE	1	0
3.	Društvo sa ograničenom odgovornošću radio i televizijske delatnosti MLAVA-MEDIJA, PETROVAC /NA MLAVI/	1	0

For TV signal coverage – commercial service – local coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
4.	"DISKOS" društvo sa ograničenom odgovornošću za izdavanje i proizvodnju nosača zvuka i slike, ALEKSANDROVAC (KRUŠEVAČKI)	1	2
5.	Akcionarsko društvo "INFORMATIVNI CENTAR" AD, PRIBOJ	1	0
6.	Društvo sa ograničenom odgovornošću "TELEVIZIJA VALJEVO PLUS", VALJEVO	1	0
7.	Privredno društvo za proizvodnju, trgovinu i usluge "KOLUBARA PRESS" DOO, LAZAREVAC	1	0
8.	Javno radiodifuzno preduzeće "RADIOTELEVIZIJA PANČEVO", PANČEVO	1	0

For radio signal coverage – commercial service – local coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	"GRUŽAMEDIJA" Društvo sa ograničenom odgovornošću Knić, KNIĆ	1	0
2.	Društvo sa ograničenom odgovornošću radio i televizijske delatnosti MLAVA-MEDIJA, PETROVAC /NA MLAVI/	1	0
3.	"DISKOS" društvo sa ograničenom odgovornošću za izdavanje i proizvodnju nosača zvuka i slike, ALEKSANDROVAC (KRUŠEVAČKI)	1	0
4.	Javno preduzeće za informisanje "RADIO TELEVIZIJA STARA PAZOVA", STARA PAZOVA	1	0
5.	"SPA 106" Duško Đukić PR, KOSJERIĆ	1	2
6.	RADIO JAVOR D.O.O., IVANJICA	1	0
7.	"ANI PRESS" DOO, PIROT	1	2
8.	"RADIO LUX" DOO, SMEDEREVO	1	0
9.	Društvo za marketing emitovanje i produkciju radio i TV programa "MEDIA-PRESS" DOO, VRNJAČKA BANJA	1	2
10.	Privredno društvo za propagandu i marketing "REBUS" DOO, KRUŠEVAC	1	0
11.	Društvo za proizvodnju, promet i usluge "GMC - TRADE" D.O.O., LAZAREVAC	1	0

For radio signal coverage – commercial service – local coverage			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
12.	Preduzeće za informisanje i trgovinu "MEGA" DOO, INĐIJA	1	0
13.	Društvo za emitovanje radio i televizijskog programa "KOMETA" D.O.O., BOR	1	0
14.	Predrag Filipović PR, Agencija za usluge reklame i propagande "BRAF" Topola, TOPOLA	1	0
15.	Preduzeće za promet usluge i telekomunikacije i marketing "RADIO-VLADIMIRCI" D.O.O., VLADIMIRC..	1	0
16.	Društvo sa ograničenom odgovornošću Informativno marketinško društvo "VESTI", UŽICE	1	0
17.	Ortačko društvo za iznajmljivanje i distribuciju filmova "IBM" Marković Milorad i drugi, KRALJEVO	1	0
18.	Društvo sa ograničenom odgovornošću "IN RADIO", NOVI SAD	1	0
19.	Društvo za usluge poslovne aktivnosti i trgovinu "KISS" DOO, LAZAREVAC	1	0
20.	"RADIO FRUŠKA GORA" DOO za informativnu, marketinšku i zabavnu delatnost, RUMA	1	2
21.	Privredno društvo sa ograničenom odgovornošću "RADIO-ANTENA", VRŠAC	1	2
22.	"RADIO KAROLINA" DOO, BEOGRAD	1	0
23.	"RADIO VRŠAC" Društvo sa ograničenom odgovornošću, VRŠAC	1	0
24.	Javno preduzeće "INFORMATIVNI PRESS CENTAR" opštine Vladičin Han, VLADIČIN HAN	0	2

For TV signal coverage – commercial service – Belgrade region			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	Javno radiodifuzno preduzeće "STUDIO B", BEOGRAD	5	2
2.	Privredno društvo za telekomunikacije "TV METROPOLIS" DOO, BEOGRAD	3	4

For radio signal coverage – commercial service – Belgrade region			
Ord. no.	Name and seat of the radio station owner	Number of issued broadcasting station licences	Number of issued microwave station licences
1.	Javno radiodifuzno preduzeće "STUDIO B", BEOGRAD	3	0
2.	"NAXI" Preduzeće za špediciju, saobraćaj i inženjering DOO, BEOGRAD	1	2
3.	"TDI RADIO TELEVIZIJA" DOO, BEOGRAD	1	0
4.	"SPORT RADIO FM" društvo sa ograničenom odgovornošću, BEOGRAD	1	0
5.	Preduzeće za radiodifuziju i marketing "NOSTALGIE - PLUS KONCEPT" DOO, BEOGRAD	1	0
6.	"RADIO NOVOSTI" DOO, BEOGRAD	1	0
7.	Radio difuzno društvo "PINGVIN" društvo sa ograničenom odgovornošću, BEOGRAD	1	2
8.	Preduzeće za informisanje i marketing "PINK INTERNATIONAL COMPANY" društvo sa ograničenom odgovornošću, BEOGRAD	1	0
9.	Preduzeće za vizuelne i poslovne komunikacije "SPIRIT SOUND MFM" DOO, BEOGRAD	1	0
10.	Privredno društvo "BETA RADIO" D.O.O., BEOGRAD	1	2
11.	Preduzeće za radio-difuziju, marketing i usluge "RADIO TOP FM" DOO, BEOGRAD	1	2
12.	TRIDENT MEDIA GROUP D.O.O., BEOGRAD	1	0
13.	Društvo za radiotelevizijsku delatnost, marketing i konsalting "RTV CENTAR" D.O.O., BEOGRAD	1	4

10. RF SPECTRUM USAGE AND QUALITY OF SERVICE MONITORING

As part of the RF spectrum management, RATEL performs permanent monitoring of the RF spectrum usage, monitors technical inspection implementation and controls the quality parameters of the publicly available electronic communication services and the electronic communication business activities.

10.1 RF SPECTRUM USAGE MONITORING

RF spectrum usage monitoring in 2014 was performed from fixed monitoring centres either from suitable fixed locations or from selected locations in specific campaigns or in motion. Table 12 shows the number of monitoring records made from the fixed centres or on field.

Table 12. Number of monitoring records made from the fixed centres or on field in 2014

Number of monitoring records made from the fixed centres	Number of monitoring records made on field
5511	7582

In addition to monitoring from fixed monitoring centres and on field, three remote control receivers in Belgrade and two more outside Belgrade are also used.

10.1.1 BANDS ALLOCATED TO SO-CALLED FUNCTIONAL COMMUNICATION SYSTEMS (4 m, 2 m, 0.7 m)

The usage of the bands allocated to so-called “functional systems” further decreased, partly as a result of many businesses that had used them becoming insolvent. A number of radio station is still working without licence, mainly in order to avoid paying for the licence fees.

10.1.2 BROADCASTING (FM/TV)

Irregularities in the work of radio and TV stations were also registered in 2014. Typical irregularities involve disregard of the requirements laid down in the permits, increased radiated power and relocation of the radio station. Additional transmitters installed without a permit, illegal stations' operation and unauthorized radio links for signal delivery from studio to broadcasting transmitters was also registered.

The number of broadcasting stations working without permit was significantly lower in 2014. The number of illegal stations was cut down to half in 2014, compared to 40 such broadcasters in 2013. The decrease in the number of broadcasting stations working without permit was achieved mainly through cooperation with the Prosecutor Office and through actions taken by the police departments which were provided technical support by RATEL. The overview of the broadcasting stations working without permit in late 2014 is given in Table 13.

Table 13. Overview of the broadcasting radio stations working without licence registered in late 2014

Ord no.	Identification, location	Frequency (MHz) / Channel (C)
1.	Radio Riđica, Riđica	90.0
2.	Internet radio Ruski Krstur, Ruski Krstur	96.9
3.	Radio Guess FM, Novi Sad	105.7
4.	Radio Mladost, Apatin	101
5	Radio Grom, Zrenjanin	99.8
6	Radio Kult, Požarevac	102.7
7	Radio Enigma, Prijepolje	104.3
8	Radio Ibis, Zrenjanin	96.7
9	Radio Padina, Padina	88.4
10	Radio Grmeč (Skala) , Novi Sad	96.9
11	Radio Suton (Antena), Novi Sad	104.2

12	Radio Horizont (Aškali), Novi Sad	98.2
13	Radio without ID, Zaječar	101.9
14	Radio Dal, Novi Sad	93.8
15	Radio Jesenjin, Novi Sad	104.5
16	TV Jerina, Smederevo	30. C
17	Radio 013, Plandište	90.9
18	Radio Džoker, Velika Plana	92.3
19	KTV Zrenjanin	32. C
20	Radio 956, Niš	95.6
21	TV Banker, Niš	24. C

A significant decrease in the number of illegal broadcasting stations was partly the result of bankruptcy of the Fokus radio and the end of operation of this, once, national broadcaster.

10.1.3 MOBILE TELEPHONY

Mobile telephony operators are continuously expanding their networks and increasing the number of base stations. However, many approvals for new or already installed base stations are being revoked by local self-governments through environment protection authorities, In such cases, RATEL automatically revokes the licences issued for these base stations.

Mobile operators occasionally report harmful interferences that affect base stations receipt. Interference to base stations caused by DECT 6.0 cordless phones intended for North American markets, often reported in 2013, has been temporarily solved by relocating the stations in other RF bands. However, other interferences, caused by ancillary TV transmissions on the same locations, unprofessionally installed mobile telephony repeaters (with or without the knowledge of the operators), radio station broadcasting from other countries, etc.

10.1.4 WIRELESS INTERNET

In the licence-free 2.4/5.7 GHz frequency band an increased usage of the RF spectrum by wireless Internet operators was found through monitoring . Due to large number of users, frequencies above the licence-free bands are often used, causing interferences to microwave stations of licence holders, especially at radio frequencies around 6 GHz.

10.2. TECHNICAL INSPECTION

In 2014, the results of the measured parameters during radio station technical inspections were registered via web portal, which facilitated data base update. In 2014 RATEL carried out 3054 technical inspections of radio stations, out of 4014 requested technical inspections. Table 14 shows three users with the biggest number of technical inspection performed in 2014.

Table 14. RF spectrum users with the biggest number of technical inspections performed

RF spectrum user	Number of technical inspection performed in 2014
VIP mobile d.o.o.	872
Telekom Srbija a.d.	719
Telenor d.o.o	643

10.3 ELECTRONIC COMMUNICATION SERVICES AND NETWORKS QUALITY PARAMETERS MONITORING

Control of quality parameters for electronic communication services and networks is performed pursuant to the Rulebook on quality parameters for publicly available electronic communication services and monitoring of electronic communication activity (*Official Gazette of RS*, nos. 73/11 and 03/14).

The Rulebook stipulates quality parameters for the following electronic communication services:

1. public voice service on the public telephone network at a fixed location,
2. public services on the public mobile communication network,
3. public voice service provided via Internet,
4. broadband access,
5. media content distribution,

and for the following networks:

1. public mobile communication networks
2. public fixed wireless telecommunications networks (CDMA)

Electronic communication operators are required to provide on an annual basis, upon RATEL's request, a report on the values of the quality parameters for services and/or networks, on appropriate forms for each service or network. On the other hand, RATEL monitors quality parameters for services and networks, compliance with the technical and other requirements and the performance of the electronic communication activity, pursuant to the Law, the aforementioned Rulebook and other bylaws and national regulations.

The parameters provided in form of a report on an annual basis may be divided in three groups:

1. Parameters that involve different records kept by the operators, such as successful call rate, records on customer complaint, service setup requests, records on faults, etc.
2. Parameters evaluated based on surveys (customer relations, professionalism of help line)
3. Help line parameters, based on the Call Manager reports.

The reports on the values of quality parameters for electronic communication services and networks were submitted to RATEL by the operators. In 2013 and in 2014 RATEL performed the verification of the received reports on the quality parameters with a number of operators. The verifications was carried out in order to check the accuracy of the provided data.

In 2013 RATEL performed the verification of the received reports on the quality parameters for publically available electronic communication services and networks for 2012 with the following operators:

1. Orion telekom tim d.o.o. and Orion telekom d.o.o, for public voice service provided via Internet, broadband access and media content distribution, as well as for public fixed wireless telecommunications network (CDMA);
2. Telenor d.o.o, for public voice service on the public telephone network at a fixed location, public mobile communication network services, as well as for public mobile communication network;
3. Targo telekom, for broadband access and media content distribution;
4. Verat, for public voice service provided via Internet and broadband access;
5. VIP mobile d.o.o, public mobile communication network services, as well as for public mobile communication network;
6. I.KOM d.o.o, for public voice service provided via Internet, broadband access and media content distribution;
7. Telekom Srbija a.d, for public voice service on the public telephone network at a fixed location, public mobile communication network services, broadband access, media content distribution, as well as for public mobile communication network and public fixed wireless telecommunications network (CDMA);
8. Serbia broadband - Srpske kablovske mreže, SBB, for public voice service on the public telephone network at a fixed location, for public voice service provided via Internet, broadband access and media content distribution;
9. DOO Knight Development Support - K.D.S. Internet Novi Sad branch, broadband access and media content distribution.

In 2014 RATEL performed the verification of the received reports on the quality parameters for publically available electronic communication services and networks for 2013 with the following operators:

1. Telekom Srbija a.d, for public voice service on the public telephone network at a fixed location, public mobile communication network services, broadband access, media content distribution, as well as for public mobile communication network and public fixed wireless telecommunications network (CDMA);

2. Telenor d.o.o, for public voice service on the public telephone network at a fixed location, public mobile communication network services, as well as for public mobile communication network;
3. VIP mobile d.o.o, public mobile communication network services, as well as for public mobile communication network;
4. Orion telekom tim d.o.o. and Orion telekom d.o.o, for public voice service provided via Internet, broadband access and media content distribution, as well as for public fixed wireless telecommunications network (CDMA);
5. Serbia broadband - Srpske kablovske mreže, SBB, for public voice service on the public telephone network at a fixed location, for public voice service provided via Internet, broadband access and media content distribution;
6. Pogled Telekomunikacije d.o.o, Niš, for media content distribution;
7. I.KOM d.o.o, for public voice service on the public telephone network at a fixed location, for public voice service provided via Internet, broadband access and media content distribution;
8. Radijus Vektor d.o.o, for public voice service on the public telephone network at a fixed location, broadband access and media content distribution;
9. Invest-Inženjering d.o.o, for broadband access and media content distribution.

RATEL maintains an up-to-date database on the quality of the public communication networks and services. The operators are required, pursuant to Art. 106 of the Law, to make the agreement terms and conditions, including the minimum quality of service provision, publicly available in a suitable manner, so as to inform the users on the values of the quality parameters used for measuring the QoS of the electronic communication.

RATEL is currently collecting the data on the 2014 quality parameter values. The collected data on the quality parameters for the public communication networks and services need to be analyzed and additionally verified and, therefore, the data will be presented in the next Overview.

Average values of the results obtained based on the received quality parameters for electronic communication services and networks for 2012 and 2013 are given in Table 15.

Table 15. Average values of the quality parameters for electronic communication services and networks for 2012 and 2013

Values of the quality parameters for public voice service provided by public telephone network at a fixed location (Three operators provided the report for 2012 and four operators provided the report for 2013)

Parameter	Definition	Minimum value	Average value in 2012	Average value in 2013
Supply time for fixed network access	The duration from the instant of a valid service order being received by a direct service provider to the instant a working service is made available for use.	10 days for 50% of new connections a year	6.7 days	5.34 days
Fault report rate per fixed access lines	The number of fault reports per fixed access line refers to the total number of fault reports a year divided by the number of active lines	15% or 15 per 100 lines	8.75	10.17
Fault repair time for 80% of quickies repairs of access lines a year	The total duration of all faults (from the instant a fault report has been made to the instant when the service element or service has been restored to normal working order) divided by the number of faults.	36 hours	22.5 hours	17.5 hours
Unsuccessful call ratio	An unsuccessful call is a call attempt to a valid number, properly dialled following dial tone, which failed due to system failure or no capacities available. The case where the called party (B-Number) is busy or not responding is not regarded as a failed call. The measurement shall be performed on the biggest possible sample.	1%	0.94%	1.315%

Values of quality parameters for public service provided by public mobile communication network (For both 2012 and 2013 the report was provided by three operators: Telenor, Telekom Srbija and VIP Mobile)

Parameter	Definition	Minimum value	Average value in 2012	Average value in 2013
Call/Packet Session Success Rate for GSM network	$CSSR = \frac{successful\_call\_attempts}{all\_call\_attempts} * 100[\%]$	> 98% At network level	99,32%	99,29%
Call/Packet Session Success Rate Applicable for UMTS network	$CSSR = \frac{successful\_call\_attempts}{all\_call\_attempts} * 100[\%]$	> 98% At network level	99.64%	99.67%

Telephony Setup Time for GSM network	Time between sending of complete address information and receipt of call setup notification	-	4.6 s	5.31 s
Telephony Setup Time for UMTS network	Time between sending of complete address information and receipt of call setup notification	-	3.7 s	4 s
DL Throughout for Packet Interactive	Average throughput towards user (DL) for packet interactive	> 128 Kb/s DL	3280 Kb/s	4515 Kb/s
Bill Correctness Complaints	Percentage of bills followed by user complaint (% of complaints that result in bill correction)	≤1%	0.39%	0.21%
Response time for operator services	The duration from the instant when the address information required for setting up a call is received by the network to the instant the human operator answers the calling user to handle the	20 s in 60% of cases	59 s	49 s
Values for quality parameters for public voice service provided over the Internet (For voice service provided via Internet, the report was submitted by 30 operators for 2012 and by 26 operators for 2013)				
Service Supply Time	The duration from the instant of a valid service order being received by a direct service provider to the instant a working service is made available for use for 95% of requests	8 days for more than 95% of requests	4.5 days	2.3 days
Customer Complaints Resolution Time for 80% of complaints	Resolution time for 80% and 95% of complaints from the moment of complaint submission.	1 day	2 days	3 days
Values of the quality parameters for broadband services Reports on quality parameters for broadband services were submitted by 164 operators for 2012. and by 138 operators for 2013.				
Service Supply Time	Average time between sending of complete address information and receipt of service setup notification for 95% of requests	8 days for more than 95% of requests	4 days	4 days
Quality parameters for media content transmission services Reports on parameters for media content transmission services were submitted by 60 for 2012, and by 62 operators for 2013.				
Service Supply Time	Average repair time refers to period between malfunction being reported and being repaired for 95% of requests	8 days for more than 95% of requests	4 days	3 days

QoS Complaints	Number of complaints in proportion to total number of users (%)	-	3.9%	3.8%
Fault Repair Time	Average repair time refers to period between malfunction being reported and being repaired	48 hours	16 hours	24 hours
Values of quality parameters for public mobile communication network Report on quality parameters for public mobile communication network both for 2012 and 2013 was submitted by three operators: Telekom Srbija a.d., Telenor d.o.o. and VIP Mobile d.o.o.				
GSM coverage	GSM network signal coverage may be expressed as the percentage of the entire territory of the country covered, percentage of the population covered, or there may be specific requirements such as coverage of specific roads. GSM network should be regarded as a whole, and the coverage should be measured simultaneously in all frequency bands for RxLev > -95 dBm	-	85%	85.5%
UMTS coverage	UMTS network signal coverage may be expressed as the percentage of the entire territory of the country covered, percentage of the population covered, or there may be specific requirements such as coverage of specific roads for CPICH RSCP > -105 dBm	-	48.7%	55.86%
Peak Hour Handover Success Rate Applicable to GSM network	Percentage of successful handovers in GSM network in peak hour.	≥95%	97.52%	97.74%
Network load for GSM network voice traffic	Erlang/TRX (mean value and standard deviation)	-	2.27 Erlang/ TRX	2.34 Erlang/ TRX
Network load for UMTS network voice traffic	Erlang/cell (mean value and standard deviation)	-	1.82 Erlang/ TRX	2.34 Erlang/ TRX

Values of the quality parameters for public fixed wireless telecommunication networks (CDMA):

The report on the CDMA network quality consists of the overview of the coverage in 5 districts in Srbija: Pčinja District, Jablanica District, Raška District, Pirot District and Zlatibor District. The reports on the CDMA network coverage by district have been provided by Telekom Srbija and Orion telekom. The operators fulfilled the criteria for the network coverage set under the licence for public fixed wireless telecommunications network (FWA) in the frequency band 411.875-418.125/421.875-

428.125 MHz and voice service, data transmission, and simultaneous voice and data transmission. The lowest coverage of the localities in districts needs to be 40% for the transmission signal power above -94 dBm. The CDMA coverage is has not increased, since the demand for this service has been decreasing.

The operators generally fulfil the set minimum value, with some exceptions. The parameter-related irregularities found during control were indicated. The parameter values are reliable even though they are still below minimum values set. However, with the innovated monitoring, management and surveillance systems the values were improved compared to 2012. In 2013, a number of operators was preparing for the provision of public voice service at a fixed location, as a new service offered. Such operators submit the reports on the values of quality parameters for public telephone network at a fixed location for 2014.

There are fewer operators with a small number of users providing reports on quality parameters, compared to the operators with a large number of users. The operators with a small number of users are often unaware of the set quality parameters that they are required to provide values for to RATEL. Also, the values they provide are often unreliable. On the other hand, the operators with a large number of users have professional software for quality parameter monitoring, as described in the reports on verification of the data on quality parameters for electronic communication services and networks for 2012 and 2013, and are constantly investing in CRM software tools due to complexity of the monitored process.

11. POSTAL SERVICES

11.1. ANALYSIS OF THE POSTAL SERVICE MARKET IN THE PERIOD 2010 – 2014

11.1.1. VOLUME OF POSTAL SERVICES

Approximately 322 million services were realized on the postal market of the Republic of Serbia in 2014, which is by 2% less compared to the previous year, following the trend of decline in the volume of services.

Out of 322 million services, almost 94% (around 301 million) account for universal postal service (UPS). The volume of UPS is in decline by 2%, second year in a row now. Commercial services continue their five year growth trend. In 2014, however, this growth line reaches only 12% compared to the previous year, representing the lowest growth rate in the analyzed period.

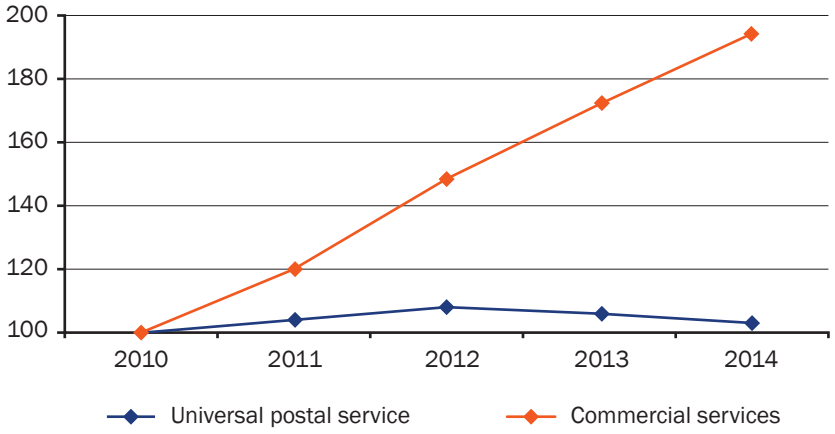
Table 16. Volume of postal services 2010-2014

Type of service	VOLUME in thousands of units					Variations in volume							
						pcs	%	pcs	%	pcs	%	pcs	%
	2010	2011	2012	2013	2014	2011-2010		2012-2011		2013-2012		2014-2013	
UPS	293,580	304,537	314,865	308,923	301,542	10,956	4	10,328	3	-5,942	-2	7,380	-2
Commercial services	10,528	12,632	15,613	18,104	20,350	2,104	20	2,981	24	2,490	16	2,246	12
TOTAL	304,108	317,169	330,478	327,026	321,891	13,060	4	13,309	4	-3,452	-1	5,134	-2

The Public Enterprise “Pošta Srbije” (public postal operator – PPO) is the only universal service Provider (USP) on the postal service market of the Republic of Serbia, while express services, as part of commercial services, are performed by other postal operators, in addition to the PPO. In the previous period, postal services were provided by up to 46 postal operators. The declining number of operators on the postal market continued to drop in 2014 as well, when express service were performed by 31 postal operator.

The public postal operator realized over 307 million postal services (95.5%), which is by 2% less compared to year 2013. Private operators performed 14 million services (4.5%), which is by 19% more compared to the previous year.

Figure 90. Trend of the universal postal service and commercial service volumes



In the PPO's total postal service volume, UPS accounts for somewhat over 98%. The share of the reserved services remains fairly high, over 97%, highlighting the need of redefining the set limits for the reserved area, as well as possible reduction of the weight down to 50 grams.

Table 17. Volume structure by operators 2010-2014

Operators	VOLUME in thousands of units					Variations in volume							
						2011-2010		2012-2011		2013-2012		2014-2013	
	2010	2011	2012	2013	2014	pcs	%	pcs	%	pcs	%	pcs	%
PPO	296,948	308,776	320,079	314,605	307,422	11,828	4	11,303	4	-5,474	-2	-7,183	-2
Private operators	7,160	8,393	10,399	12,421	14,470	1,233	17	2,006	24	2,022	19	2,048	16
TOTAL	304,108	317,169	330,478	327,026	321,892	13,061	4	13,309	4	-3,452	-1	-5,135	-2

Other particularities of UPS are:

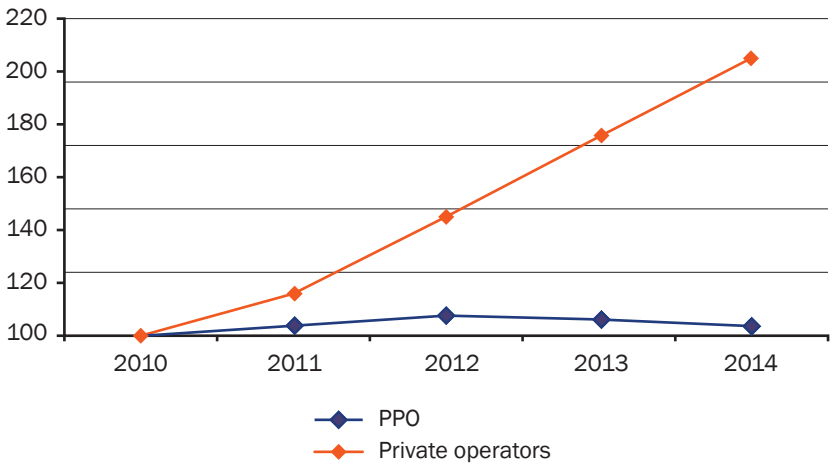
- the share of letter post services in the UPS domain is over 98%,
- the biggest volumes are those of letters up to 20 grams (their share in the total letter post items structure is 91%),

- extremely low share of parcels (less than 0.1%),
- constant drop in parcel volumes (by 9% in 2014, compared to 2013),
- the share of postal money orders is almost 1.4%, representing the growth by more than 9% compared to year 2013.

The PPO's express items display constant growth, however, with a growth rate decrease, from 24% to 3.56%.

The PPO's commercial services are still VAT exempt, therefore an objective analysis of these services on the postal market is not possible.

Figure 91. Trend of the PPO's and private operators' postal service volumes



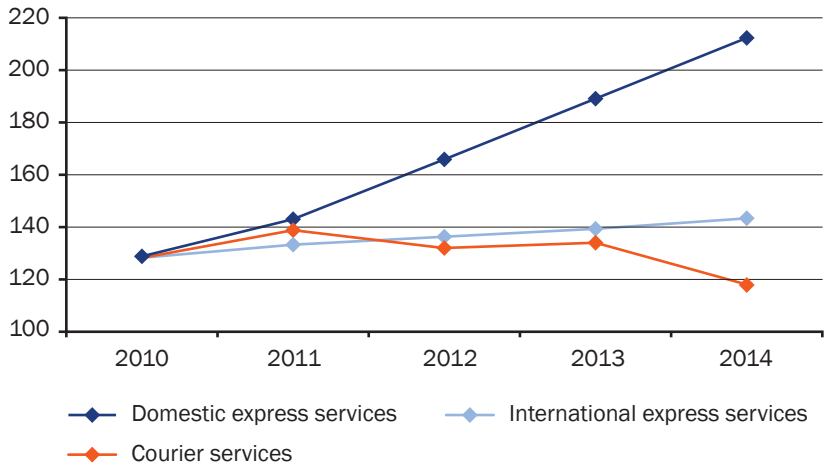
Within the private operators' service volume growth (by 16%), the highest growth rate pertains to domestic express services (by 18%). A growth in the international traffic by 6% was recorded, while courier services account for a drastic decline by 20%. Difficult economic situation is causing further reduction in the volume of services in this domain and subsequently, reduction in number of operators – courier service providers.

In 2014, five operators ceased their business activities, procedures on authorization revocation were initiated against two operators, while authorizations were withdrawn from two operators performing courier services.

Table 18. Private operators' volumes of services 2010-2014

Operators' services	VOLUME in thousands of units,					Variations in volume							
						2011-2010		2012-2011		2013-2012		2014-2013	
	2010	2011	2012	2013	2014	pcs	%	pcs	%	pcs	%	pcs	%
Domestic express services	6,564	7,747	9,758	11,764	13,837	1,182	18	2,011	26	2,006	21	2,072	18
Intl. express services	371	391	404	417	440	20	5	12	3	12	3	12	6
Courier services	225	255	237	241	193	30	13	-17	-7	4	2	-4	-20
TOTAL	7,160	8,393	10,399	12,422	14,470	1,232	17	2,006	24	2,022	19	2,022	16

Figure 92. Trend of the private operators' service volumes



11.1.2. INCOME FROM POSTAL SERVICES

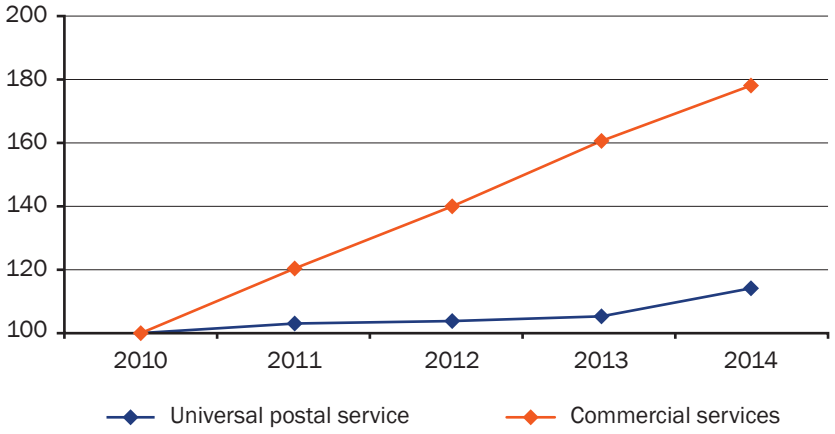
In 2014, the income stemming from postal services participated with approximately 0.39% in the projected GDP. Even though a drop in the volume of services was recorded, the generated income of almost 15 billion dinars proved to surpass the last year's income by 10%. The UPS income, as well, grew by 9%, even though a drop by 2% in the volume of services was recorded. This disproportion is the consequence of the PPO's price augmentation, applying as of the second quarter of 2014. The prices of the reserved postal services grew on average by 5.5%.

The income from the commercial services marked a rise by 11%. The growth trend continues, but with lower rates (from 20% to 11%).

Table 19. Structure of income from UPS and commercial services 2010-2014

Service	INCOME in million dinars					Variations in income							
						RSD	%	RSD	%	RSD	%	RSD	%
	2010	2011	2012	2013	2014	2011-2010		2012-2011		2013-2012		2014-2013	
UPS	6,868	7,057	7,119	7,245	7,871	189	3	616	1	126	2	626	9
Commercial services	3,971	4,777	5,573	6,396	7,099	806	20	795	17	823	15	703	11
TOTAL	10,839	11,834	12,692	13,641	14,970	995	9	857	7	949	7	1,329	10

Figure 93. Trend of the income from the UPS and commercial postal services



The PPO generated an income of about 9.67 billion dinars (65%), while the private operators created an income of over 5.3 billion dinars (35%). The PPO's generated income grew by 8%, while the private operators' income augmented by 12%.

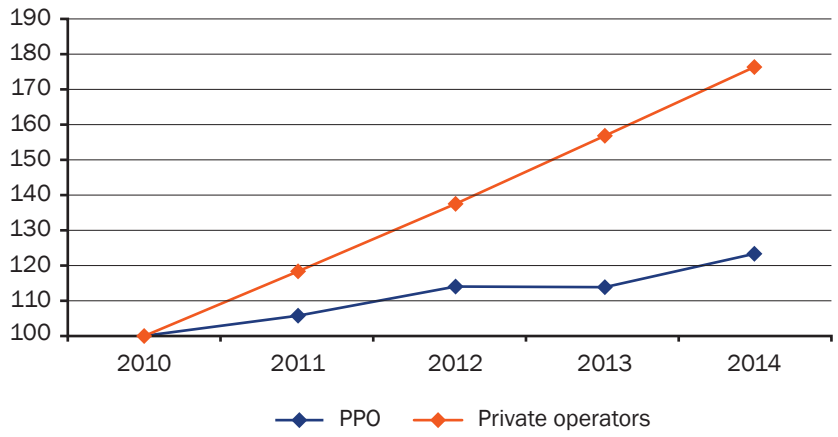
In the PPO's postal service income, the income from the reserved area participates with approximately 75.7% (letter post items with 68.9%, postal money orders with 6.8%). The declining trend of the reserved area share in the total income has continued.

The growing trend of the private operators' share in the total income continues (in 2011, this share was 30%, in 2012 it was 33%, in 2013 it was 34.65% and in 2014 the share was 35.4%), showing

Table 20. Structure of the operators' income 2010-2014

Operators	INCOME in million dinars					Variations in income							
						2011-2010		2012-2011		2013-2012		2014-2013	
	2010	2011	2012	2013	2014	RSD	%	RSD	%	RSD	%	RSD	%
PPO	7.838	8.288	8.563	8.920	9.671	450	6	275	3	357	4	752	8
Private operators	3.001	3.546	4.129	4.721	5.299	545	18	582	16	592	14	578	12
TOTAL	10.839	11.835	12.692	13.641	14.970	995	9	857	7	949	7	1.329	10

Figure 94. Trend of the PPO's and private operators' postal service income



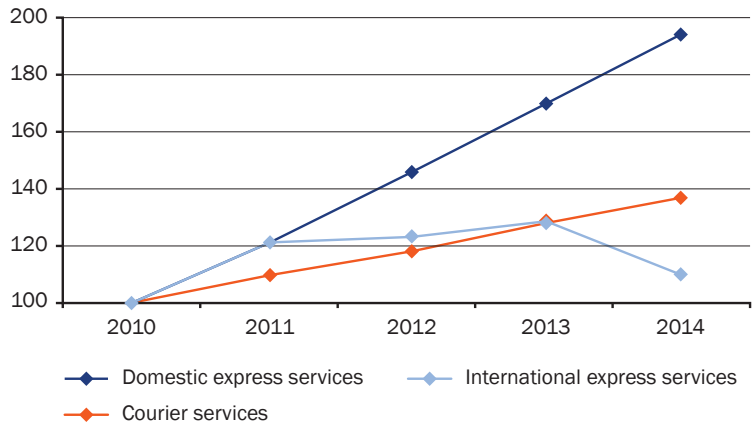
that more than one third of the postal service related income on the entire market of the Republic of Serbia is generated by the private postal operators.

At the express service operators, a growth in volume of services by 16% was recorded, while the income grew by 12%, and price per service was reduced on average by 3%. A continuous decline in average price per service suggests that the conditions and prices on the market are governed by the competition.

Table 21. Private operators' income 2010-2014

Private operators' services	INCOME in million dinars					Variations in income							
						2011-2010		2012-2011		2013-2012		2014-2013	
	2010	2011	2012	2013	2014	RSD	%	RSD	%	RSD	%	RSD	%
Domestic express services	2.087	2.541	3.049	3.547	4.063	453	22	509	20	498	16	516	15
International express services	861	942	1.015	1.107	1.179	81	9	72	8	93	9	71	6
Courier services	52	63	65	67	57	11	21	1	2	2	3	-9	-14
TOTAL	3.001	3.546	4.129	4.721	5.299	545	18	582	16	592	14	578	12

Figure 95. Trend prihoda poštanskih usluga kod privatnih poštanskih operatora



11.1.3. POSTAL SERVICE MARKET IN 2014

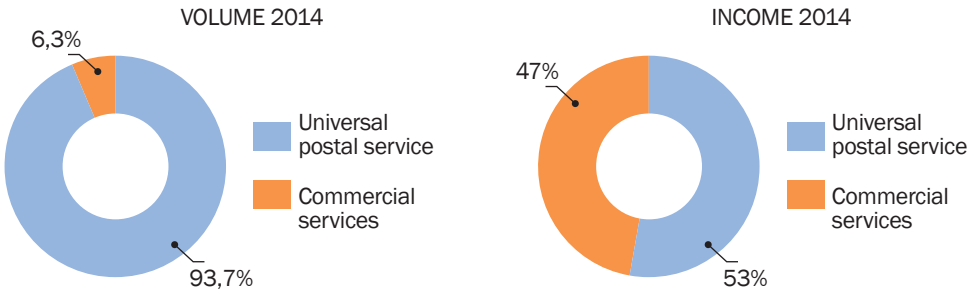
Since 2010, after the regulator's analysis of the postal service market was put in place, the shares of the UPS volume and income in the totality of postal services, have marked a steady decline (approximately 3% in volume and 11% in income, during the observed period).

In the same period, the commercial services generated nearly half of the total income, even though their participation in the total volumes is slightly over 6% of all the postal services on the market of the Republic of Serbia.

Table 22. Postal service market 2014

Type of service	VOLUME in thousands of units	INCOME in thousands of units	VOLUME	INCOME
	2014	2014	%	%
Universal postal service	301,542	7,870,747	93.7	52.6
Commercial services	20,350	7,099,378	6.3	47.4
TOTAL	321,892	14,970,125	100.0	100.0

Figure 96. Shares in the volume and income on the UPS and commercial services markets in 2014

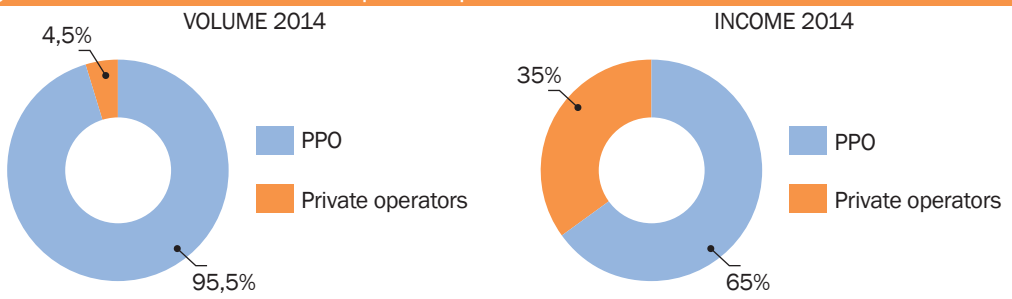


Even though the private operators, exclusively providing commercial services on the postal market of the RS, participate with 4.5% in the volume of services, their share is more than one third of the total generated income (35.4%).

Table 23. Participation of postal operators in the market in 2014

Operators	VOLUME in thousands of units	INCOME in thousands of units	VOLUME %	INCOME %
PPO	307,422	9,671,302	95.50	64.60
Private operators	14,470	5,298,823	4.50	35.40
TOTAL	321,892	14,970,125	100	100

Figure 97. Shares in the PPO's and private operators' volume and income in 2014

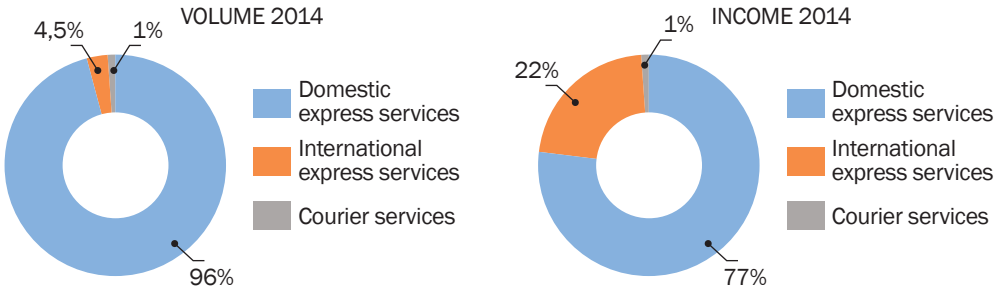


Domestic express services still have a dominant share, both in the volume of services and in income, as far as private operators' business is concerned. Detailed view is shown in the table and chart below.

Table 24. Private operators' structure of services in 2014

Private operators' services	VOLUME 2014	INCOME 2014	VOLUME 2014	INCOME 2014
	in thous.	in thous. RSD	%	%
Domestic express services	13,837	4,062,734	95.62	76.67
International express services	440	1,178,654	3.04	22.24
Courier services	193	57,435	1.33	1.08
TOTAL	14,470	5,298,823	100.00	100.00

Figure 98. Shares in the private postal operators' volume and income in 2014



In the structure of postal services provided by the PPO, the most dominant is universal postal service, the share of which declined by merely 0.8% in volume during the last five years, whereas the share in the income dropped by over 6%, despite the price augmentation at the beginning of the second quarter of 2014.

At the same time, the share of the commercial services, above all Post Express, has marked a growth by nearly 5%.

Table 25. Share of the PPO's UPS and commercial services

Type of service	Volume	Income	Volume	Income	Volume	Income	Volume	Income	Volume	Income
	2010		2011		2012		2013		2014	
UPS	98.87	87.62	98.63	85.15	98.41	83.13	98.19	81.22	98.09	81.38
Post Express	1.10	9.63	1.31	11.53	1.51	13.40	1.75	15.15	1.85	14.50
Other commercial services	0.04	2.74	0.06	3.32	0.08	346	0.06	3.63	0.06	4.12
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

During 2014, 17,630 workers were employed in this industry segment, making approximately 1% of the total number of employees in the Republic of Serbia.

Table 26. Employees in the postal sector

	2010	2011	2012	2013	2014
PPO	14,981	14,939	15,068	15,115	15,015
Postal operators	1,747	2,048	2,618	2,464	2,615
TOTAL	16,728	16,987	17,686	17,579	17,630

During the last five years, there were no significant changes in the number of employees. At the PPO's, the number of employees is almost invariable, whereas at the private operators', an increase in the number of employees has been recorded.

Not unlike the five previous years, this year's analysis of the share of the UPS performing employees in the total pool of employees once again failed to be delivered by the PPO.

On the postal service market, in 2014, a drop in the UPS volume of services was recorded. The UPS share in the total volume of services remains extremely high (94%). Having in mind the above, as well as the planned activities regarding the elaboration of the new law, in accordance with the EU integrations, redefinition of the UPS scope becomes a necessity.

The Department for postal services of RATEL has initiated a research on the redefinition of the UPS scope, which is intended to provide a national consensus on this important issue.

11.2. QUALITY OF THE PROVISION OF POSTAL SERVICES IN 2014

Quality of the provision of universal postal service is measured based on the internal act of the Public Enterprise of "Pošta Srbije" – Methodology of the postal traffic quality monitoring (hereinafter: Methodology) and is established based on the following parameters:

- availability of postal services,
- speed and reliability of the transmission and delivery of items,
- security of items,
- efficiency of complaint handling,
- service users' satisfaction and availability of information, etc.

11.2.1. AVAILABILITY OF UNIVERSAL POSTAL SERVICE

The availability of postal services is assessed based on the territorial accessibility of post offices, postal letter boxes, working hours of post offices, availability of postal office counters and delivery of items.

Table 27. Availability of post offices and letter boxes

	Year				Trend (%)		
	2011	2012	2013	2014	12/11	13/12	14/13
Number of post offices	1507	1499	1489	1478	-0.53	-0.67	-0.74
Number of letter boxes	2062	2087	2072	2052	1.21	-0.72	-0.97

In comparison with the year 2013, the total number of post offices, in 2014, was reduced from 1489 to 1478. The declining trend of the number of post offices has continued, resulting in the number of post offices being reduced by more than 1.9% during 2014 compared to 2011.

The average number of inhabitants per post office is 5000, which is by approximately 10% more than the EU average (4500 inhabitants per post office). Out of 1478 post offices, 964 (65.2%) belong to rural and 514 (34.8%) to urban areas.

The number of postal letter boxes in 2014 was reduced by nearly 1% compared to 2013 (from 2072 to 2052), which is also a decline by 0.5% compared to 2011. The coverage comprises three postal letter boxes per thousand inhabitants, which is by far below the EU average, i.e. 15 letter boxes per 1000 inhabitants.

11.2.2. WORKING HOURS

Working hours of post offices are set according to the urban and rural area requirements, as well as the population needs for the UPS provision. Subsequently, in urban areas, 35.6% post offices work with customers up to 7 hours a day, 61.9% between 7 and 12 hours a day and 2.5% over 12 hours a day.

In rural areas, 93.9% post offices work with customers up to 7 hours a day, 5.7% between 7 and 12 hours a day, 0.1% work over 12 hours a day and 3 post offices (0.3%), situated at the border crossings, work with customers around the clock.

Working hours are harmonized with the Methodology.

11.2.3. WAITING TIME OF CUSTOMERS IN LINE

During the observed period, from 2011 to 2014, the independent internal screening indicated that the average waiting time of customers in line was approximately 3 minutes, which is considerably above the limit value (10 minutes).

11.2.4. AVAILABILITY OF THE DELIVERY OF POSTAL ITEMS

The fourth criterion of the UPS availability, availability of the postal item delivery is not possible to be captured, due to the lack of data on the volumes in the local, larger and the largest delivery area. In lieu of these data, only the shares of PACs (postal address codes) respectively on the local, larger and the largest delivery area levels were provided, but are unfortunately not relevant for the analysis.

11.2.5. SPEED AND RELIABILITY OF THE TRANSMISSION AND DELIVERY OF ITEMS

Speed and reliability of the transmission and delivery of postal items is measured by the transmission and delivery times of domestic non-recorded letter post items and international priority and air letter post items. The delivery standards for the domestic traffic are prescribed by the regulator (Table 2).

In the international traffic, the delivery standards are prescribed by the Universal Postal Union (D+5 from 85%) or by the Association of European Public Postal Operators (PostEurop) – D+3 of at least 85% (speed indicator) and D+5 of at least 97% (reliability indicator).

Table 28. Transmission and delivery times

	Domestic traffic				Prescribed standard	International traffic				Prescribed standard
	Independent measurement					PostEurop				
	2011	2012	2013	2014		2011	2012	2013	2014	
D+1	78.18%	79.93%	82.27%	71.81%	/					
D+2	96.05%	96.46%	95.86%	93.63%	90.00%					
D+3	98.57%	98.84%	98.74%	99.14%	98.50%	60.25%	63.70%	66.50%	67.95%	85%
D+5	99.85%	99.87%	100%	100%	99.50%	87.60%	90.25%	92.50%	87.50%	97%

During the analyzed period, the implementation of the independent measurement of transmission and delivery times in the domestic traffic produced measured values which proved to be above the prescribed standard levels.

Even though D+1 standard was not prescribed on the national level for the year 2014, it is important to note that, after a three-year long growing trend for the items delivered within D+1, in 2014 there was a substantial decline in the D+1 delivery (10,46%).

Despite the fact that, in the international postal traffic, the prescribed PostEurop standards were not fulfilled, it is important to notice that the UPU prescribed standard was fulfilled for the international delivery.

11.2.6 SECURITY OF ITEMS

The number of lost, rifled and damaged items, as one of the basic indicators of the security of postal items, after two years of stagnation, showed improvement in 2014, reaching the same level as in 2011, i.e. presented an improvement rate by 0.002% compared to the previous year.

The determined percentage of 0.007% (7 lost, rifled and damaged items per 100,000 collected items) is higher than the reference value (0.005%), suggesting that special attention must be awarded to this quality segment.

Table 29. Lost, rifled or damaged items in the domestic traffic

TYPE OF POSTAL ITEM	2011	2012	2013	2014
REGISTERED ITEMS				
- lost per 100000 items	8	10	10	8
- rifled or damaged per 100000 items	0	0	0	0
INSURED ITEMS				
- lost per 100000 items	0	0	0	1
- rifled or damaged per 100000 items	0	0	0	0
PARCELS				
- lost per 100000 items	1	1	1	0
- rifled or damaged per 100000 items	4	3	2	1
MONEY ORDERS				
- lost per 100000 items	0	0	0	0
SECURITY LEVEL OF ITEMS	0.007	0.009	0.009	0.007

In total, it can be noticed that the security level of items in 2014 was improved by 42.7% compared to the previous year, and by 47.9% compared to year 2011. During the same period, the paid indemnities for the lost, rifled and damaged items were reduced by 34.9% compared to the previous year and by 44% compared to 2011.

The majority of postal items, as well as the highest amount paid under the indemnity for lost, rifled or damaged items was recorded in the domain of registered letters (Table 4). It is important to note that, in 2014, the volume of these items was reduced by 44.3% compared to the previous year, whereas the amount of indemnities paid dropped by 37.7%. This improvement was mainly the result of the new system of recording and tracking of the registered items. Unlike the previous period, when the items were recorded only during the collection and delivery, as of the second quarter of 2014, they are recorded during the whole transmission process (collection, sorting, transport, delivery).

The insured letters have experienced a considerable setback in the level of security: even though the total number of lost/rifled/damaged items is rather small (respectively 6 and 18 for the two previous years), the deterioration in the level of security of items reaches 200%. The amount of the paid indemnity for these items has risen by over 200% as well. With respect to the overall importance of this category of items and to the highest level of security required for their transmission, it is necessary, in the future period, to pay special attention to raising of the security level for these items.

Table 30. Paid indemnities by the types of postal items

Domestic postal traffic	2011		2012		2013		2014	
	pcs	RSD	pcs	RSD	pcs	RSD	pcs	RSD
Registered items	1,156	772,009.56	1,041	639,381.88	1,061	665,728.86	591	415,066.00
Insured items	4	3,780.00	8	10,552.52	6	9,978.00	18	31,036.00
Parcels	24	37,060.00	14	23,178.00	9	23,334.51	8	9,451.50
Money orders	0	0	0	0	1	900	0	0
TOTAL	**1,184**	**812,849.56**	**1,063**	**673,112.40**	**1,077**	**699,941.37**	**617**	**455,553.50**

During the year 2014, the security of postal handling deteriorated in the international traffic. During 2014, the indemnity was paid out for 27 postal items, in 2013 for 11 items, in 2012 for 14 items and in 2011 for 20 items.

Concerning the amount paid under indemnities during 2014, it was 3,5 times higher than the amount paid in 2013.

11.2.7. EFFICIENCY OF COMPLAINT HANDLING

Customer complaints in domestic traffic usually get resolved in 4 days on average, whereas the indemnity claims are paid out in 7 days. The delays for the international postal items are considerably longer, taking into account the fact that complaint procedures need to be carried out in at least two countries.

11.2.8. SERVICE USERS' SATISFACTION AND AVAILABILITY OF INFORMATION

In its annual report on the quality of service, the PPO regularly informs us about the level of service users' satisfaction and the availability of information on products and services. The research on the level of service users' satisfaction and the availability of information is carried out by means of an internal survey on customers' opinions, whether they be natural or legal persons. The measured parameters such as: reliability, speed, assortment, price and manner of service provision were commonly highly rated.

11.2.9. CONCLUSION

Based on the analysis of the provided data and according to the Methodology of postal traffic quality monitoring, it can be concluded that the quality of the performed universal postal service during 2014 was on a satisfactory level.

For the set quality to be comparable to the EU practice, Regulatory Agency for Electronic Communications and Postal Services adopted Rulebook on the quality parameters for the provision of postal services and on the minimum quality standards for the provision of universal postal service (*Official Gazette of RS*, no. 146/2014 of 30.12.2014) at the end of 2014. This Rulebook prescribes the most important and most applied quality standards for the provision of postal services. During 2015, the PE "Pošta Srbije" will be obligated to adapt the existing measurement procedures to those defined by the standards, whereas the implementation of the latter becomes obligatory as of 2016.

12. LIST OF BYLAWS

12. 1. LIST OF BYLAWS WITHIN RATEL'S COMPETENCE (ELECTRONIC COMMUNICATIONS)

- Rulebook on content and manner of notification of international interconnection agreements (*Official Gazette of RS*, no. 104/14)
- Rulebook on number portability for services provided via public mobile communications networks (*Official Gazette of RS*, no. 101/14)
- Rulebook on fee calculation for the provision of services within the competence of the Republic Agency for Electronic Communications (*Official Gazette of RS*, no. 34/13)
- Rulebook on the manner of radio frequency usage under general authorization regime (*Official Gazette of RS*, no. 28/13)
- Rulebook on the terms and conditions for access to and usage of the data from a public directory (*Official Gazette of RS*, no. 84/11)
- Rulebook on obligations of value added services provider (*Official Gazette of RS*, nos. 76/11 and 91/11-corr.)
- Rulebook on quality parameters for publicly available electronic communication services and monitoring of electronic communication activity (*Official Gazette of RS*, nos. 73/11 and 3/14)
- Rulebook on the minimum content, level of detail and manner of publication of reference offers (*Official Gazette of RS*, no. 70/11)
- Rulebook on the scope and content of the minimum set of leased lines (*Official Gazette of RS*, no. 70/11)
- Rulebook on the amount of annual fee for the use of numbering (*Official Gazette of RS*, no. 67/11)
- Rulebook on the manner of radio stations usage on the national and foreign aircrafts, locomotives, ships and other vessels (*Official Gazette of RS*, nos. 60/11

and 68/11-corr.)

- Rulebook on the manner of monitoring the radio frequency spectrum usage, technical inspection procedure and protection from harmful interference (*Official Gazette of RS*, nos. 60/11, 35/13 and 16/15)
- Decision on designating relevant markets susceptible to ex-ante regulation (*Official Gazette of RS*, no. 59/11)
- Rulebook on manner of amateur radio station usage (*Official Gazette of RS*, no. 53/11)
- Rulebook on the application of the cost-accounting principle, separate accounts and reporting of an operator with significant market power in the electronic communications sector (*Official Gazette of RS*, no. 52/11)
- Rulebook on number portability on public telephone networks at a fixed location (*Official Gazette of RS*, no. 52/11)
- Rulebook on general terms and conditions for performing electronic communication activities under general authorization regime (*Official Gazette of RS*, nos. 38/11, 44/11-corr. and 13/14)
- Numbering Plan (*Official Gazette of RS*, nos. 32/11, 35/12 and 64/13)
- Rulebook on application form for the issuance of licence for the use of numbering (*Official Gazette of RS*, no. 32/11)
- Rulebook on application forms for the issuance of individual licence for the use of radio-frequencies (*Official Gazette of RS*, nos. 8/11 and 2/14)
- Rulebook on fees for the performance of electronic communications activities (*Official Gazette of RS*, no. 93/10)
- Rules on radio-frequency usage fees (*Official Gazette of RS*, nos. 93/10 and 15/15)
- Statutes of the Republic Agency for Electronic Communications (*Official Gazette of RS*, no. 59/10)
- Decision on keeping registers, records, data bases and other information within the competence of the Republic Agency for Electronic communications and

publishing thereof on RATEL's website (adopted on 11.02.2011 by RATEL's Managing Board, available at www.ratel.rs)

- Decision on designation of operators with the universal service provision obligation (*Official Gazette of RS*, nos. 15/10)

12.2. LIST OF BYLAWS WITHIN RATEL'S COMPETENCE (POSTAL SERVICES)

- Rulebook on the quality parameters for the provision of postal services and on the minimum quality standards for the provision of universal postal service (*Official Gazette of RS*, no. 146/14)
- Rulebook on the way and conditions for the access to the public postal operator's postal network (*Official Gazette of RS*, no. 146/14)
- Rulebook on the methodology of UPS Price Formation (*Official Gazette of RS*, no. 100/11)
- Rulebook on the establishment of tariff categories for UPS (*Official Gazette of RS*, nos. 34/10, 58/10, 2/11, 65/11 and 21/14)
- Rulebook on the requirements for the provision of UPS (*Official Gazette of RS*, no. 28/10)
- Rulebook on general terms and conditions for the provision of postal services (*Official Gazette of RS*, nos. 24/10, 58/10, 2/11, 13/11, 65/11 and 93/13)
- Rulebook on the establishment of costs for permit issuance and annual fee for the provision of postal services (*Official Gazette of RS*, nos. 14/10, 54/13 i 25/15)
- Technical Requirements for Residential Mailboxes (*Official Gazette of RS*, no. 95/10)

12.3. LIST OF BYLAWS PASSED BY THE RESPONSIBLE MINISTRY AND THE GOVERNMENT OF THE REPUBLIC OF SERBIA AT RATEL'S PROPOSAL PURSUANT TO LAW ON ELECTRONIC COMMUNICATIONS

- Regulation stipulating the Radio Frequency Band Allocation Plan (Official Gazette of RS, no. 99/12)
- Rulebook stipulating the radio frequency allotment plan for work in the 1710-1785/1805-1880 MHz frequency bands (Official Gazette of RS, nos. 112/14 and 125/14)
- Rulebook stipulating the allotment radio frequency plan for work in frequency bands 791-821/832-862 MHz (Official Gazette of RS, no. 94/14)
- Rulebook on analogue to digital TV programme broadcasting switchover and access to multiplex (Official Gazette of RS, nos. 86/14, 18/15 and 30/15)
- Rulebook stipulating the Radio Frequency Allocation Plan for public electronic communication service provision – broadband wireless access (BWA) systems, mobile/fixed communication networks (MFCN) in the frequency bands 3400-3600 MHz and 3600-3800 MHz (Official Gazette of RS, no. 10/14)
- Rulebook stipulating the Frequency/Location/Area Allocation Plan for terrestrial digital TV broadcasting stations in UHF band for the territory of the Republic of Serbia (Official Gazette of RS, no. 73/13)
- Rulebook on radio equipment and telecommunications terminal equipment (Official Gazette of RS, no. 11/12)
- Rulebook on Universal Service (Official Gazette of RS , no. 24/12)
- Rulebook on requirements in terms of staff, equipment and premises of an undertaking, company or other legal entity authorized for measuring and testing the operation of electronic communications networks and services, associated facilities, electronic communications equipment and terminal equipment (Official Gazette of RS, no. 13/12)

- Rulebook on stipulating Radio Frequency/Location Allotment Plan for Terrestrial Analogue FM and TV Broadcasting Stations for the Territory of the Republic of Serbia (Official Gazette of RS, nos. 9/12, 30/12, 93/13, 10/14 and 33/15)
- Rulebook on the manner and conditions for the determination of the zone of the electronic communications infrastructure and associated facilities, protected areas and obligations of investors during the construction of buildings and premises (Official Gazette of RS, no. 16/12)
- Rulebook on the technical and other requirements when building associated infrastructure necessary for installing electronic communication network, associated facilities when constructing commercial and residential buildings (Official Gazette of RS, no. 123/12)
- Strategy for the development of electronic communication in the Republic of Serbia from 2010 until 2020 (Official Gazette of RS, no. 68/10)