

Croatian Regulatory Authority for Network Industries



2015 Annual Activity Report

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INTRODUCTION

Croatian Regulatory Authority for Network Industries (hereinafter: HAKOM), pursuant to its legal obligation, submits its Annual Activity Report for 2015. The report contains all the required information referring to the electronic communications, postal and railway services.

In 2015 HAKOM continued with its work on the achievement of regulatory objectives and principles on the electronic communications, postal and rail services markets. The objectives and principles of HAKOM's work were laid down in HAKOM's 2015 Annual Work Programme¹ and they include promotion of competition, ensuring the protection of users of services and efficient management of limited natural resources, such as the frequency (hereinafter: RF) spectrum and the addressing and numbering space. In its work HAKOM was particularly focused on the protection of competition, promotion of investments and innovation while ensuring the protection of competition and respect for the principle of non-discrimination, promotion of regulatory predictability, prevention of discrimination in relationships towards operators, ensuring a high level of user/passenger protection and efficient management of limited natural resources.

Through its regulatory activities HAKOM has achieved the set objectives and ensured the preconditions for stable business operations on the markets that it regulates. Special emphasis has been placed on user protection. HAKOM was not focused only on its regular regulatory activities but also on the implementation of HAKOM's Programme for Internet and broadband development in the areas of special state concern, hilly and mountainous areas pursuant to measures laid down in the *Action Plan for the Broadband Development Strategy in the Republic of Croatia for 2014 – 2015.*, which was adopted by HAKOM with a view to promoting the development of rural areas of the Republic of Croatia (hereinafter: RoC) and to stimulating a structurally balanced regional development of information and communication technology. The strengthening of its own capacity was continued through further development of e-Agency,

The report is divided into ten chapters preceded by the summary of the Annual Report. The statement of financial responsibility, a list of abbreviations, figures and tables are provided at the end of the report.

Chapter 1 covers electronic communications market divided into four parts – market overview, overview of regulatory measures, building, access to and use of the electronic communications infrastructure and inspection supervision in electronic communications. The Market Overview covers investments and revenue, telephone services in the fixed network, Internet access services, telephone services in the mobile network, television (hereinafter: TV) services, network and line leasing services and other services such as increased tariff services, universal services or cloud computing and M2m. The Overview of Regulatory Measures covers HAKOM's most important regulatory decisions on markets susceptible to ex-ante regulation. Particular emphasis is given to decisions on the definition of relevant markets, laying down of the monthly fee for the LLU service, laying down the conditions for IP interconnection, amendments to the RUO Reference Offer and decisions in the market analysis procedure on the market of call termination services on the mobile and fixed network. The part on the electronic communications infrastructure covers the overview of information on the use of infrastructure, including the right of way and adoption of spatial plans, and the quality of Internet access and network neutrality.

Chapter 2 covers management of limited resources - the RF spectrum and the addressing and numbering space. The management of the RF spectrum is presented in general and for individual radiocommunications networks. There is, in particular, an overview of RF spectrum control and R&TT equipment. The part concerning the management of the addressing and numbering space contains information on numbering plans and on number portability.

¹ <http://www.hakom.hr/default.aspx?id=512>

Chapter 3 contains an overview of the situation on the postal services market which comprises providers on the postal services market and individual types of postal services. It includes an overview of regulatory measures on the postal services market and information on the carrying out of inspection supervision and on the monitoring of market conditions and development. A special emphasis is placed on the monitoring of quality of provision of universal services and decisions on accounting separation.

Chapter 4 contains a description of the railways services market. Therefore, this part of the report includes a presentation of market subjects and offered services and an overview of HAKOM's regulatory activities. The chapter comprises an overview of the state of railway infrastructure in the Republic of Croatia and basic information on the transport of goods and services.

Chapter 5 contains an overview of implemented tasks concerning consumer protection on the market of electronic communications, postal and rail services. Every market is covered individually with data on the number of disputes and other activities in the area of user protection. A special emphasis was placed on the protection of children and access to services for disabled persons.

Chapter 6 concerns the publicity of work. It includes the imposed obligations and activities implemented for the purpose of transparent business and facilitating communication with the public.

Chapter 7 deals with court proceedings initiated against HAKOM's decisions at the High Administrative Court of the RoC or proceedings initiated by HAKOM.

Chapter 8 covers HAKOM's cooperation abroad and at home and presents important activities conducted for the purpose of cooperation on important projects and in order to designate HAKOM as a relevant factor in the area of regulation of markets under its competence.

Chapter 9 describes HAKOM's work on the development of capacity and upgrading of its own regulation and market development capacity or on special HAKOM's programmes. It includes an overview of the current state of IT introduction into processes and services, the development of regulatory competences and the aid programme for the development of broadband access in the RoC.

Chapter 10 contains the financial statement and final statement for 2015. This Chapter includes the income statement, expenditure statement, overview of revenue surplus /deficit, investments report, statement on revenue from the state budget and findings of an independent external audit.

SUMMARY

HAKOM's Annual Activity Report is a report of activities on the electronic communications, postal and railway services markets, that is, on activities on markets regulated by HAKOM and HAKOM's financial report for 2015.

Financial activities

HAKOM is not financed from the Croatian Budget but from the collection of fees on the markets it regulates and its accounting is kept in accordance with the Act on finances and accounting of non-profit organizations, the Electronic Communications Act (ECA), the Postal Services Act (PSA) and the Act on the Regulation of the Rail Services Market (ARRSM). Revenue and expenditure is shown according to the principle of occurrence of events regardless of collection or payment.

HAKOM conducted its business in 2015 diligently and responsibly and did not incur any losses. HAKOM's expenditure is fully covered by regular revenue collected by HAKOM, with consent of the Republic of Croatia, on the markets under its competence. HAKOM's material expenditure on HAKOM's staff in 2015 was lower than in 2014 and the total number of employees did not increase.

HAKOM had surplus funds in the previous years as well. Surplus on the revenue side resulted from additional and unplanned allocations of the available RF spectrum, and on the expenditure side from savings on public procurement and realization of projects. In other words, the surplus on the revenue side occurred because operators needed additional RF spectrum for the development and offer of new services and products to end users, while the surplus of funds on the expenditure side resulted from HAKOM's responsible business management and public procurement procedures as well as from realization of projects often with less funds than planned for individual activities. Furthermore, HAKOM continued to reinvest surplus funds earned during previous years into the market, pursuant to the ECA, through socially responsible regulation thus contributing to the development of the entire national economy.

By implementing socially responsible regulation, HAKOM returned HRK 32 662 298 to the market in 2015 through investments into networks, applications and services and into software and hardware. Investments are part of HAKOM's *Programme for the development of the Internet and broadband access in the areas of special state concern, hilly and mountainous areas and on islands*.

Furthermore, in addition to the expansion of high-speed internet availability in Croatia to areas where it did not exist, an additional value of the above-mentioned projects was a positive impact on the economic development in the Republic of Croatia and outside of the electronic communications sector. Croatian companies that were successful in tenders for the implementation of this Programme employed new people and secured references for jobs carried out in an EU Member State.

HAKOM's total revenue in 2015 amounted to HRK 80,012,683.00, which is higher than planned by 1 percent. HAKOM's total expenditure in 2015 amounted to HRK 113,753,454.00, which is 12 percent lower than planned. Out of the capital donations expenditure envisaged in the financial plan a total of HRK 44,092,481 was spent for the Programme for Internet and Broadband Development in Areas of Special State Concern, Hilly and Mountainous Areas and Islands and the Programme for the Elimination of Interferences and Improvement of Reception of Television. The remainder of the savings was achieved as a result of HAKOM's good management, in particular because after the merger of ARTZU with HAKOM, the total number of employees did not increase and the total cost of merger was minimum. The negative accounting result derives from the fact that in compliance with the 2015 financial plan capital donations and part of HAKOM's investments and revenue were financed from collected funds in previous years, which was, in compliance with the ECA, transferred to 2015 and not from operating revenue in 2015.

HAKOM's total investments in 2015 amounted to HRK 8,276,882, which is less than planned, primarily because the building of a new control and measuring centre in Split started in the second half of 2015 which is why the planned building funds amounting to HRK 5,500,000 have not been realized. Surplus future revenue, which is transferred to 2016 in compliance with the Financial Plan, totals HRK 58,164,294.00. The surplus will be primarily used for the aid programme for the development of broadband access in rural and underdeveloped areas.

In compliance with the applicable legislative provisions, HAKOM collected in 2015 a total of HRK 901,875,318 of State Budget funds on the basis of fees for use of the RF spectrum, addresses and numbers and fees for authorities and licenses. Collection process was difficult because of many bankruptcy settlements of stakeholders on the electronic communications market. A total of 36 enforcement proceedings was initiated in 2015 the total value of which amounted to HRK 2,949,041.00, out of which HRK 650,612.00 was collected.

Activities on the markets regulated by HAKOM

In 2015 HAKOM continued with its work aimed at the achievement of regulatory objectives and principles on the electronic communications, postal and rail services markets. Objectives and principles include competition protection, protection of users of services and efficient management of national resources, such as the frequency spectrum and the addressing and numbering space. These objectives and principles have been laid down in HAKOM's 2015 Annual Work Programme. The main focus of HAKOM's activities is the promotion of efficient investments and innovation while ensuring the protection of competition and respect for the principle of non-discrimination, promotion of regulatory predictability, prevention of discrimination in dealings with operators, ensuring a high level of user protection and efficient management of limited natural resources. A special emphasis was placed on the development of broadband and increased investments in infrastructure and new technologies on the electronic communications market, and on consistent implementation of the Postal Services Act and the Act on the Regulation of the Rail Services Market with a view to achieving complete liberalization of these markets as part of the EU single market as soon as possible.

Electronic communications market

Total revenue on the electronic communications market in 2015 amounted to HRK 11 billion with investments totalling more than HRK 2.5 billion, which is around 3 percent lower revenue than the year before and increased investments by as much as 35 percent compared to the year before. There are several causes of the continued fall in total revenue on this market. In HAKOM's opinion, which is based on similar examples in the world, the main causes of a fall in total revenue in particular include increased competition and regulatory decisions at the EU level, which the Republic of Croatia must implement. Users are using services much more than before while paying a lower total amount since the unit price of the service decreased. Another cause is the economic crisis in the country and its surroundings and many years of operators' savings on investments and innovations in networks. The electronic communications market was fully and timely ready for Croatia's accession to the EU but operators' revenue in Croatia dropped, among other things, due to automatic application of lower roaming and wholesale prices regulated at the EU level. At the same time, users have been increasingly using the OTT services such as, Skype, Viber, WhatsApp and other similar services, thus resulting in lower revenue from traditional services, such as the public voice service, SMS and MMS. Furthermore, negative indicators for 2015 are also a direct consequence of pre-bankruptcy settlements of some fixed communications operators and higher fees for use of radio frequencies that operators of mobile communications had to pay in 2015. However, in spite of all the difficulties during 2015, market consolidation has continued and the market as a whole remained stable, with a high level of protection of end users.

The above-mentioned claim is confirmed by the fact that the electronic communications market in the Republic of Croatia was characterized in 2015 by further development of broadband services and

increased revenue from Internet access services. Revenue from Internet access service increased by 13.26 percent compared to 2014, and its share in total revenue on the electronic communications market grew from 28 percent to more than 33 percent. However, as a result of the above, the growth was insufficient to compensate for the fall in revenue from other services.

It is encouraging that in 2015 operators showed increased interest in innovations, that is, in the implementation of new technologies, resulting in the launching of a series of pilot projects for testing the possibilities of these technologies. Furthermore, operators of mobile communications networks purchased the remaining spectrum in the 1800 MHz band due to the need for more capacity, which, in addition to creating preconditions for growth, resulted in new, significant revenue in the state budget.

In relation to the broadband penetration rate over the fixed network, the RoC is among less developed countries compared to the EU member states, while its mobile network penetration rate places it among more developed countries. Regardless of the increase in the number of users, there is still room for a stronger growth in this segment, in particular in the area of fibre access network. This growth in the RoC is necessary, among other things, because of the possible widening of the digital divide between the RoC and Member States.

There are significant regional differences in the RoC in relation to the number and penetration of broadband connections in the fixed network and this currently represents an even greater challenge than increased broadband penetration at the national level. Regional differences were somewhat mitigated in 2015 by investments into rural areas and islands through HAKOM's aid programme, and by means of regulatory measures and allocation of the digital dividend and the introduction of the LTE technology into mobile networks.

HAKOM's Programme for the development of a broadband ecosystem in rural areas, that is, HAKOM's "Programme for Internet and Broadband Development in Areas of Special State Concern, Hilly and Mountainous Areas and on the Islands" was included in the Implementation Programme (measure 4) for the *Strategy for Broadband Development in Croatia for the period 2014-2013*. The objective and purpose of those aid programmes is to achieve balanced regional development, to connect the target groups such as educational, health and public institutions to the broadband network and to introduce of applications and services that make the economy more dynamic and improve the quality of life in the above-mentioned areas.

The number of broadband connections over fixed communications networks increased slightly in 2015 together with significant increase of data traffic. The number of connections by means of data cards in mobile communications networks decreased in statistical terms, in the first place because foreign tourists have been taking advantage of low EU roaming prices and have, therefore, stopped buying pre-paid cards of Croatian operators. Another reason is that almost three out of four end users in mobile communications networks own a „smart phone“ and use tariffs including significant data traffic, which is why their needs for a special broadband connection have decreased.

One positive market indicator that must be singled out is the increased number of users of bundled services, around 17 percent, and the increased share of other operators offering internet access over fixed communications networks, besides the HT. Revenue from leased networks and lines also increased. All this is proof of efficient competition and good regulatory decisions adopted by HAKOM.

Overall digitalisation of TV broadcasting resulted in significant growth of the market of transmission of pay-per-view channels. At the end of 2015, around one half of households were using pay-tv services offered by one of the operators. This shows that citizens are willing to pay for TV content in spite of their decreased purchasing power and regardless of the fact that they are already paying for one TV subscription to HRT.

Although communication between machines, M2M, as part of the "Internet of Things" (IoT) is currently in initial stages of development, and it is estimated to cover as much as up to 10 billion devices by 2020, HAKOM already defined the appropriate numbering for these services in its *Numbering Plan*. Among these new services, special attention in the preparation of the regulatory framework was dedicated to cloud computing, as one of the fastest growing areas of modern IT technology. HAKOM has been dedicating more attention to the area of "smart cities", primarily because of regulatory challenges brought about by this topic.

The majority of activities concerning spectrum management focused on the measuring of the RF spectrum owned by the Republic of Croatia which is being unlawfully used by Italy thus interfering with Croatian signals not only in some areas of Istria but also in the entire coastal Croatia. All planned measuring campaigns and other measuring activities in spectrum were successfully carried out in accordance with the measuring plan, with a special emphasis on the protection against unlawful use of Croatian radio frequencies by Italy. Extensive measurements were carried out along the coast and on the islands in 2015 with the objective of monitoring and identifying interferences from Italy. The measuring resulted in the submission of more than 890 international reports of interference to the Italian administration. Italy has not eliminated or solved any of the reported interferences during 2015. HAKOM notified both the EC and the ITU of this problem, independently, and in cooperation with competent Croatian ministries. The first concrete results of the elimination of interferences from Italy may be expected in the second half of 2016.

In addition to the measuring of Italian interferences, HAKOM also carried out systematic measuring aimed at protecting the spectrum as a naturally limited resource of interest for the RoC. Daily measuring was carried out from all for CMCs and seven remotely managed CMSs, while measuring vehicles conducted periodic measuring. The RF spectrum monitoring also included measuring the level of electromagnetic fields for the purpose of efficient protection of human health from the influence of the electromagnetic field. The results of measuring submitted by legal persons authorised for measuring of electromagnetic fields have been regularly verified. The building of a new control and measuring centre in Split started during 2015.

Upgrading, introduction of new functionalities and regular maintenance of a database of ported numbers, management of the addressing and numbering space, inspection supervision in the area of electronic communications networks and services and radio and telecommunications networks and services and the radio and telecommunications terminal equipment are some of the activities under HAKOM's competence that have contributed to successful market development in 2015.

HAKOM's regulatory measures in 2015 focused on the definition of wholesale conditions in compliance with market interests in the Republic of Croatia and further development of competition. They were all approved by the EC and successfully implemented on the market, which is a great success and another confirmation that Croatia was fully prepared for entry on the EU single market in this respect.

Other HAKOM's activities during 2015. included, among other things, the issuing of certificates for the right of way, preliminary opinions on spatial planning documents and special building conditions and confirmation of main designs, which, in addition to the building of the base electronic communications infrastructure, contributes to the regulation of this area. In cooperation with operators and local and regional self-government units, it prepares projects for building, access to and use of electronic communications infrastructure and networks, which will directly contribute too faster and more efficient use of EU funds and projects of public private partnerships.

Postal services market

Complete liberalization of the market reversed the multiannual fall in total revenue on the postal services market, and the entry of new postal services providers enriched the offer with new services. In addition to reduced prices of individual segments of postal services, the number of packages and

value added services increased accompanied by a simultaneous drop in traditional postal services, which is a continuation of a current trend in the EU and in the developed EU countries.

Revenue reported by providers of postal services in 2015 amounted to HRK 1,443,477,659.00, which is around one percent more than in 2014. The number of services on the postal services market was 3 percent lower compared to the previous year. Out of the total number of services on the market, HP's share increased by 8 percent to slightly under 78 percent at the end of 2015. Universal service made up almost 57 percent of all provided postal services, other postal services around 25 percent and interchangeable postal services around 18 percent. Bigger revenue results from the increased share of value added services and development of e-trade, which includes the delivery of packages.

At the end of 2015, there were 22 registered postal service providers in the Republic of Croatia who provided postal services on the basis of an application. HP is the only provider of universal postal services and it acquired its right and obligation to provide universal services on the entire territory of the Republic of Croatia on the basis of the PSA for 15 years. The most important regulatory activities include accounting separation with revision of the regulatory report and HP's cost model and the calculation of net cost of universal service provider. The above-mentioned activity was very important since sustainable universal service is one of the main preconditions for the improvement of living conditions in rural areas of the Republic of Croatia.

HAKOM's activities on the postal services market were proactive including the implementation of measures for the preservation of the universal service and organization of around tables with all market stakeholders and corrective measures consisting of the carrying out of inspection supervision, thus aimed at the regulation of a completely open market with a view to creating equal conditions for all providers, in particular to sustainable provision of the universal service. The emphasis is on quality, affordability and availability of universal service thus offering to equal rights to all users and the possibility to use that service the continuous provision of which is guaranteed by the RoC on its entire territory. Bearing in mind the importance of post offices for the quality of life in rural areas, HP kept 300 post offices more than the minimum prescribed in the Act and the Ordinance. Therefore, at the end of 2015 there were a total of 1016 offices, which is the same number as at the end of 2014. HP did not decide to close individual offices but focused on finding new locations, that is, on the relocation of postal offices thus preventing their closing.

Rail services market

HAKOM has been proactively and correctively adopting regulatory measures aimed at promoting competition and interests of users of rail services. It mediated between the infrastructure manager, HŽ infrastruktura d.o.o. and railway undertakings and operators of service facilities, in the first place in relation to Network Report.

The liberalization of the freight rail transport market resulted in the emergence of new railway undertakings. However, more competition did not result in increased amounts of carried freight in 2015 or in the increased usage of rail services. Rail traffic did not become more competitive compared to other types of transport of goods. In 2015 HŽ Infrastruktura d.o.o. reported the revenue from the provision of rail services totalling HRK 154,488,000, which is a 1 % drop compared to the previous year. Passenger traffic recorded a continuous decrease in the number of carried passengers. Reasons for that include, among other things, multiple repairs of railway tracks and the old rolling stock.

Nearly a billion HRK was invested in the reconstruction and modernization of railways in 2015. A positive sign is an increase in the average speed of transport and length of railways allowing speeds greater than 100km/h. This must be supplemented by increased competition on the part of the rail services market related to freight traffic and HAKOM's efforts aimed at eliminating the obstacles for access to service railway facilities. There were 14 operators of service facilities, 1 passenger railway undertaking and 6 freight railway undertakings, which is two more than in 2014.

Consumer Protection

A special emphasis was placed on ensuring a high level of protection of users of services in their dealings with operators/service providers/railway undertakings, in particular by making available simple and inexpensive dispute resolution procedures.

Protection of users of electronic communications services - In 2015 HAKOM focused preventive activities, instructions and advice to end users on how to protect themselves and avoid the problem and to open and simple communication with the users. A quick and simple way of resolving a possible problem and dissatisfaction of end users is „Ask us“. HAKOM answers questions within the shortest possible time. In the majority of cases, users are instructed about further action and about initiating dispute resolution proceedings before HAKOM. A dispute may be initiated by means of a free Internet application "e-Complaints". Registered users can follow the status of the complaint and receive additional information and to send additional documentation by means of the above-mentioned application. HAKOM launched in 2015 a free application entitled "Cost Assessor". The Assessor provides to users the necessary information about prices and costs of public communications services according to selected or entered habits. With a view to achieving a high level of user protection HAKOM cooperates with the Ministry of the Economy on the establishment of the "Do not call" register the launching of which is expected in late 2016 or early 2017.

On the basis of the analysis of the total number of requests for dispute resolution made by end users in 2015, it may be concluded that users are increasingly aware of the possibility for objective realization of their rights through dispute resolution before HAKOM. The number of initiated disputes which amounted to 1338 in 2015, compared to 2014 when 1350 disputes were initiated and 2013 when 1696 disputes were initiated, indicates that the number of disputes is stable. The number of disputes rejected due to late submission of requests or incomplete documentation has been decreasing which means that consumers are becoming increasingly aware of legal deadlines and more familiar with the procedure.

Protection of users of postal services – The majority of complaints were resolved by providers of postal services themselves, among which HP was the most efficient. HAKOM received 70 requests in 2015, and a total of 55 were resolved. Users are becoming increasingly aware that certain rights may be realized before HAKOM which is why the number of disputes, although still small, is increasing.

Passenger protection- The provisions of the Act on the Regulation of the Rail Services Market on inspection supervision in the area of passenger protection entered into force on 1 January 2015. Disputes were resolved by HAKOM on the basis of an opinion issued by HAKOM's Consumer Protection Commission.

Protection of children – HAKOM intensified activities aimed at promoting the protection of children using the Internet and electronic communications services. Special attention was dedicated to the promotion of parent responsibility and to the laying down of obligations of electronic communications networks operators on the basis of which parents may request from their operators to ban access to certain content which is inappropriate for children, to restrict the use of special tariff services and to limit spending. In relation to children, operators are requested to exercise socially responsible behaviour which is beyond what has been prescribed.

Protection of people with disabilities - in 2005, HAKOM continued its participation in the advisory mechanism of associations of persons with disabilities, operators and HAKOM. In addition to its everyday activities, HAKOM also financed the development of three applications intended for persons with disabilities that were completed in 2015: personal therapist programme, adjustment of the website of the Croatian Institute of Public Health for disabled persons and Internet advertising for disabled persons. Applications „E-physical therapy at home/E-home care“ and „E-diagnostics and support for children with communications difficulties (eDD)“ are being developed.

HAKOM

Cooperation - With the framework of international cooperation, HAKOM actively participated in the work of international working groups in EC (COCOM, ERG, IRG, RSPG, RSC) and in the work of ITU's and CEPT's working groups in the sector of electronic communications market and in CERP's and UPU's working groups on the postal services market and ENRBB and IRG Rail in the rail services market. HAKOM's excellent performance and important role in the region have been confirmed by invitations to participate in several regional and international conferences where HAKOM's experts lectured. Cooperation with the so-called "Visegrad Group" improved resulting in, inter alia, a signature of a cooperation agreement with Czech and Polish regulatory authorities.

Cooperation at the national level is characterized by excellent cooperation with all ministries, state administration bodies, regional and local self-government units and other regulatory authorities and state agencies. HAKOM's experts represented Croatia at numerous international gatherings and meetings and participated in the development of strategic and operational documents adopted by the Government of the Republic of Croatia, and those related to the use of the EU funds. Cooperation with faculties of the Universities of Zagreb, Split and Osijek must also be mentioned.

e-Agency - in 2015, HAKOM implemented several applications aimed at improving business processes through use of web-based technologies. In addition to applications intended for external users, by introducing new IT solutions and platforms, HAKOM has also sped up the internal processes. The above-mentioned tools enable efficient cooperation in operators' everyday processes and in communication with end users, which is why they are promptly accepted by end users.

Development of competences - The most important programmes aimed at improving organization and individual and group regulatory capacities were the following: "Interdisciplinary postgraduate course in regulation of electronic communications market" at the University of Zagreb, "Looking to the Future" project in cooperation with the faculties in Zagreb, Split and Osijek and language training, in particular English.

Employees -At the end of 2015, HAKOM employed 174 people. Even though it took over new responsibilities, the total number of HAKOM's employees did not increase. Approximately 83 percent of employees have university or college education, and the majority are electrical engineers who make up 35 percent of all of HAKOM's employees. They are followed by economists who make up 24 percent of employees, lawyers and engineers make up 13 percent and 16 percent are employees of other professions. More than 60 percent of all employees are under 40 years old, and the average years of work experience amount to more than 10 years. HAKOM employs 6 PhD holders and 17 masters degree graduates. For the first time in history, the gender structure of HAKOM shows more female employees than male employees and HAKOM also a similar number of male and female heads of departments.

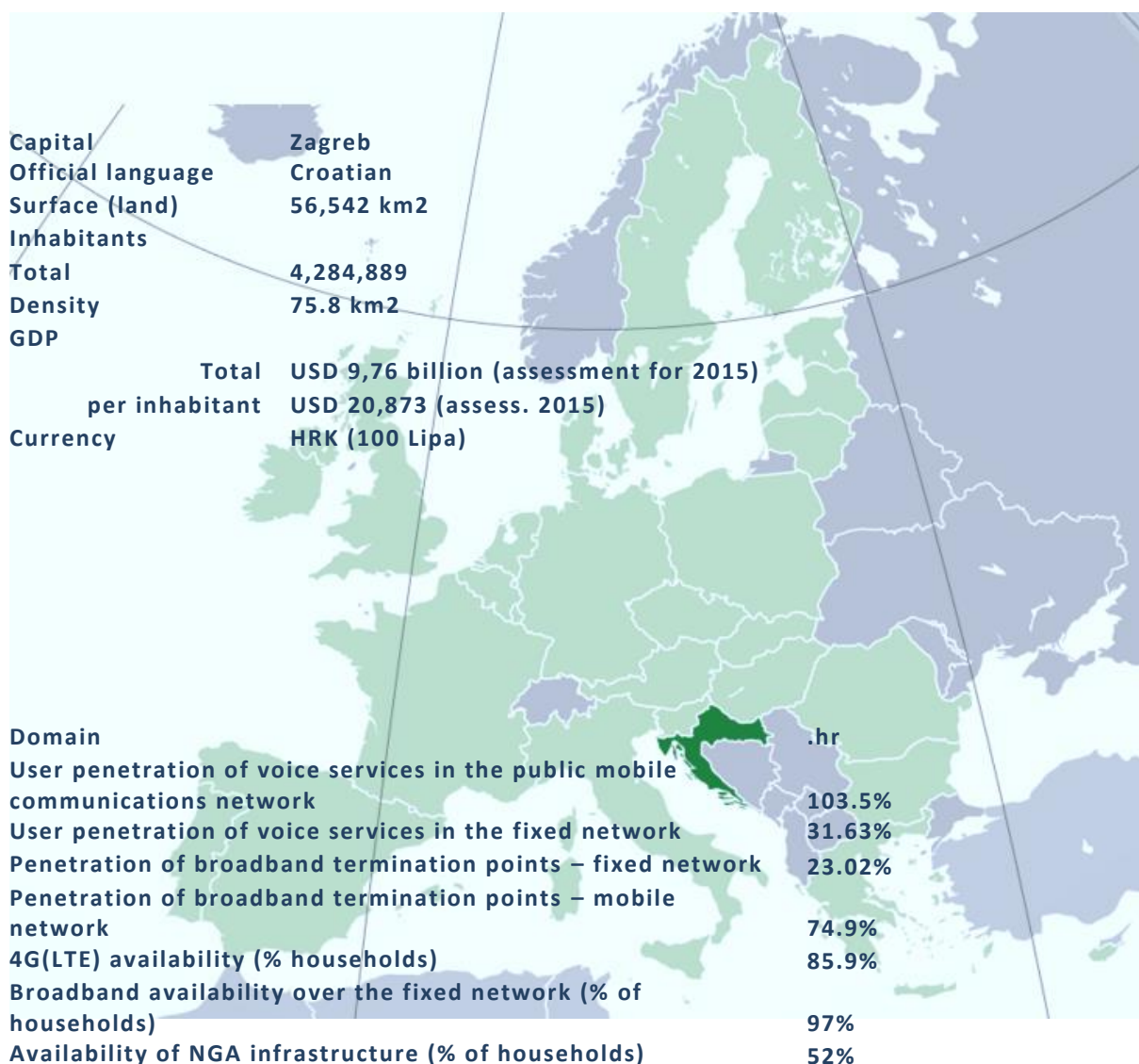
HAKOM employs a significant number of Homeland War volunteers and veterans or members of veteran families. Employee turnover in HAKOM has been low for many years and in 2015 it amounted a little over 5 percent. In 2015 a total of 10 employees left HAKOM out of which four relocated to other countries, two retired, one employee died, while one employee's employment contract was terminated. In 2015 HAKOM initiated one labour dispute and three criminal proceedings, and two labour disputes and three misdemeanour proceedings were initiated against HAKOM. Two labour disputes and one misdemeanour proceeding were completed in 2015. Out of those, one labour dispute and the misdemeanour proceeding were ended in HAKOM's favour while the decision adopted in only one labour dispute concerning the calculation of a salary amounting to several thousand kunas was in favour of the other party. Interests of HAKOM's employees are represented by the Employee Council. The cooperation between the management and the Employee Council was deemed excellent by both parties. The satisfaction of employees with the work conditions and labour rights is very high, with only a few exceptions.

1 ELECTRONIC COMMUNICATIONS MARKET

The electronic communications market is one of the strongest branches of the Croatian economy and it represents one of the pillars of development and progress in a modern society.

1.1 Market overview

Figure 1.1. Republic of Croatia – basic data



Last year was marked by decreased usage of voices services in the fixed network. There were more calls in the mobile network but overall revenue from voice services at the end of 2015 was lower. This partially resulted from the manner in which operators compete for attracting new and keeping the existing users. The tariffs offering free communication are a constituent part of operators' tariff policy on the electronic communications market. The most recent data indicate that the number of broadband termination points and traffic have increased. The availability of this technology is part of the EC initiative *Digital Agenda for Europe*. Croatia is lagging behind the EU average in the number of fixed broadband network termination points, but the situation is promising. There is room for

improvement, in particular in the area of optical access infrastructure. Moreover, the Republic of Croatia is closer to the EU average than some other countries that participated in the last enlargement round (for example, Romania and Bulgaria). This growth is necessary, *inter alia*, because of the possible widening of the digital divide² between the Republic of Croatia and EU Member States.

1.1.1 Investments and revenue

In 2015, operators on the electronic communications markets in the Republic of Croatia continued with investments into the development of infrastructure, advanced technology and innovative services. More than HRK 2,5 billion was invested last year into the electronic communications market, which is around 35 percent more than in 2014. Frequent changes and technological innovations on the electronic communications market indicate that there is a need for investments into research and development, development of infrastructure and introduction of new technologies. It is therefore important for operators to follow technology trends and invest into new technologies and into the structuring of the offer of services to enable successful business operations.

Figure 1.2. Total investments of electronic communications operators in the RoC (in HRK million)

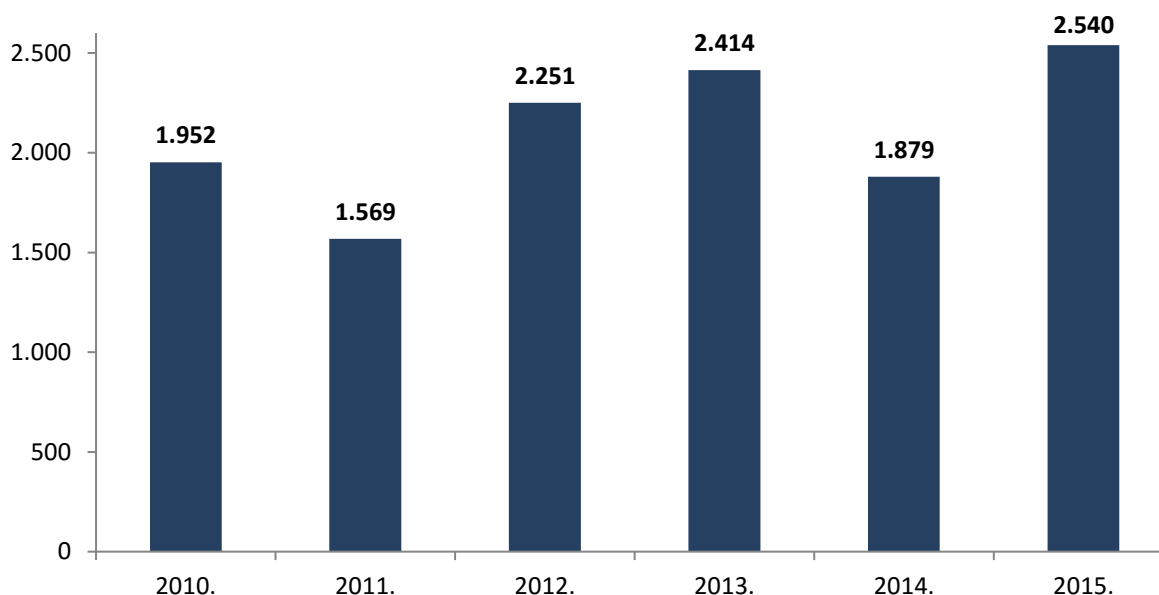
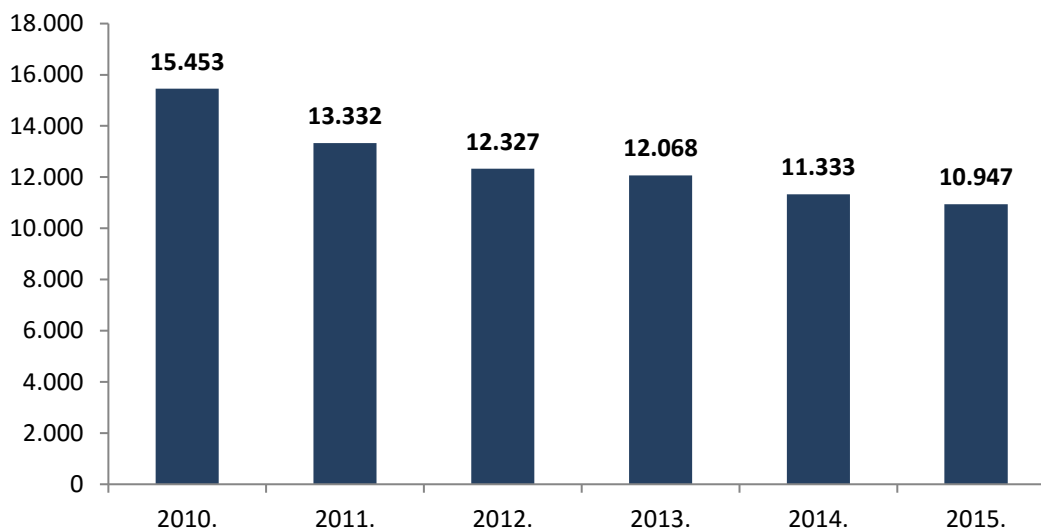


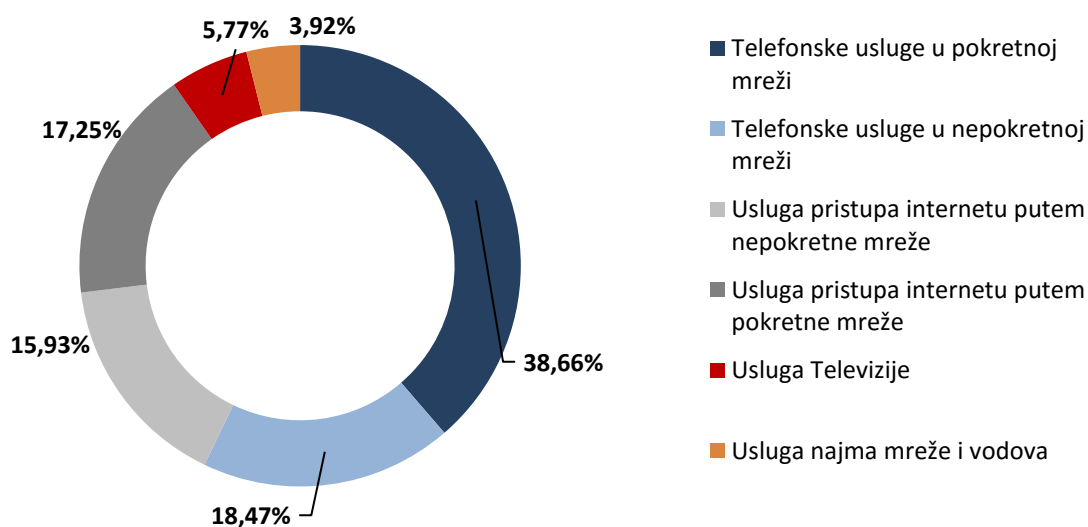
Figure 1.3. Total revenue on the electronic communications market (in HRK million)

² The digital divide is economic and social inequality related to access to, use or impact of information and communication technologies.



The electronic communications market in the Republic of Croatia earned HRK 10,947 billion in revenue, which is 3 percent less than in 2014. While total revenue from telephone services in the mobile and fixed networks is lower than in the previous period, the increased number of connections and internet traffic in 2015 resulted in the growth of total revenue from the provision of Internet access services by around 13 percent compared to 2014. Revenue in the mobile network increased by around 25 percent, which means that operators' revenue from mobile Internet access service became almost identical to revenue in the fixed network.

Figure 1.4. Share of services in total revenue on the electronic communications market

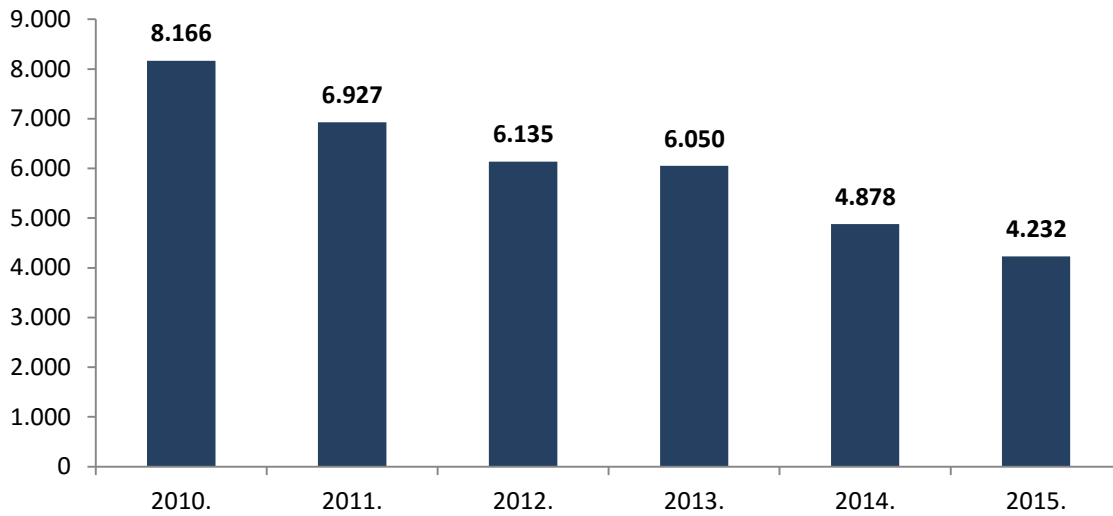


1.1.2 Telephone services in the mobile network

In addition to the telephone services in the mobile network which have the biggest share, data transfer services (documents, sound, image and other content) and internet access services are more frequently offered. As a result of the increasing use of smartphones and faster Internet, the citizens are able to use the so-called OTT (*Over the Top*) services. The OTT services include free voice calls through use of applications and various social networks. As a result, there was a slower growth of the total number of minutes realized in the mobile network (around 2 percent annually), while the total annual number of sent SMS messages fell by 9 percent and the number of MMS messages by 12 percent.

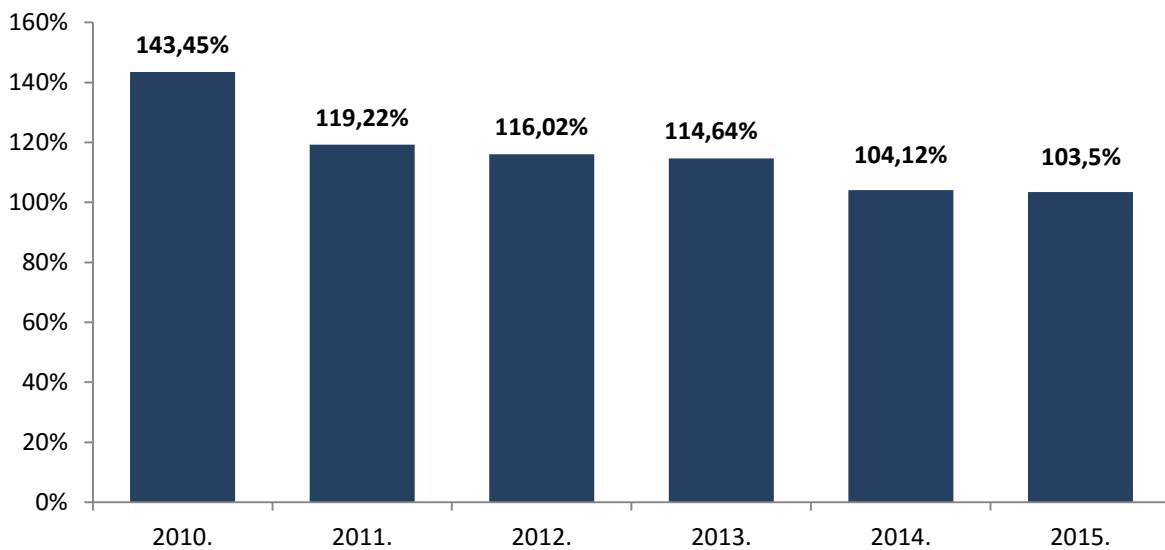
Revenue is around 13 percent lower compared to the previous year.

Figure 1.5. Total revenue from telephone services in the mobile network (in HRK millions)



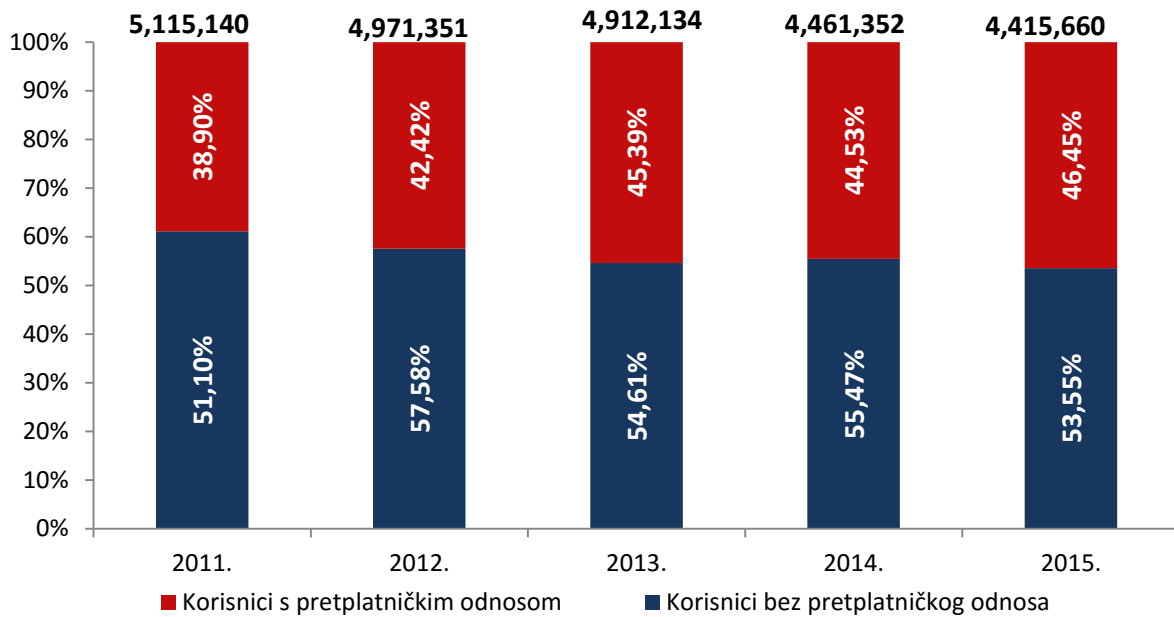
User penetration and the number of users of telephone services in the mobile network were 1 percent lower in 2015 compared to 2014 as a consequence of the introduction of tariff packages for end users, that is, of the introduction of tariff packages that do not differentiate between calls within the network or towards other networks.

Figure 1.6. User penetration in public mobile communications network in the RoC



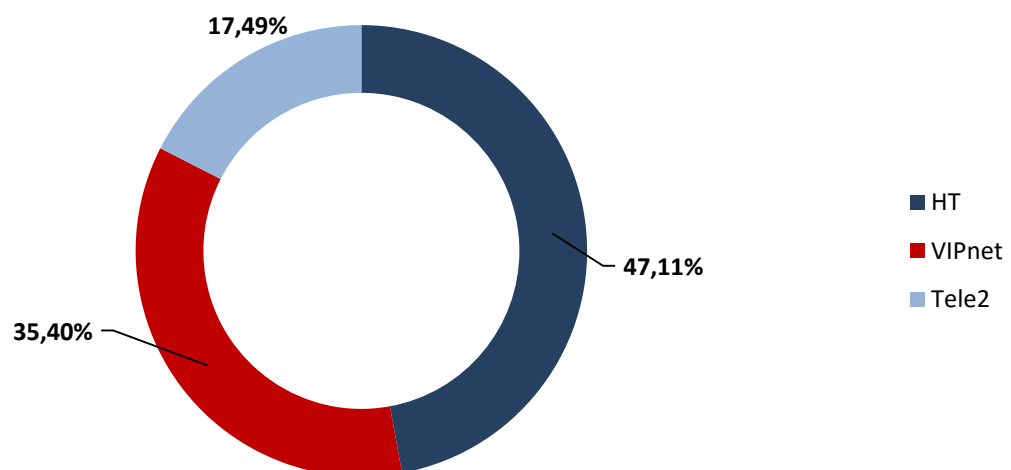
The number of subscribers is constantly on the rise. According to the gathered data at the end of 2015, the share of subscribers in the total number of users amounted to 46 percent.

Figure 1.7. Distribution of the total number of telephone services in the public mobile communications network in the RoC



In addition to the offer of various tariff packages with attractive offers of devices/tablets, the increased number subscribers resulted from the increased popularity of smart phones. Because of the increased importance of broadband Internet access, which is closely linked to greater use of smart phones, it is expected that the number of subscribers will continue to grow in the upcoming years. The mobile network segment maintained relatively stable market shares but competition has contributed to price wars.

Figure 1.8. Market shares of operators in relation to the number of users



At the same time, the decrease roaming prices resulting from the accession to the EU continued in 2015 with the simultaneous increase of traffic of own roaming users. HAKOM will continue to proactively follow the implementation of obligations of mobile network operators arising from the Roaming III Regulation³. HAKOM will also, in the upcoming period, follow the implementation of

³ Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union.

obligations that the EC is planning to adopt through its decisions and prescribing, *inter alia*, that mobile network operators will have to offer roaming services at the prices of domestic services on the basis of the reasonable use criterion.

Figure 1.9. Revenue and duration of calls of own users in roaming in international networks

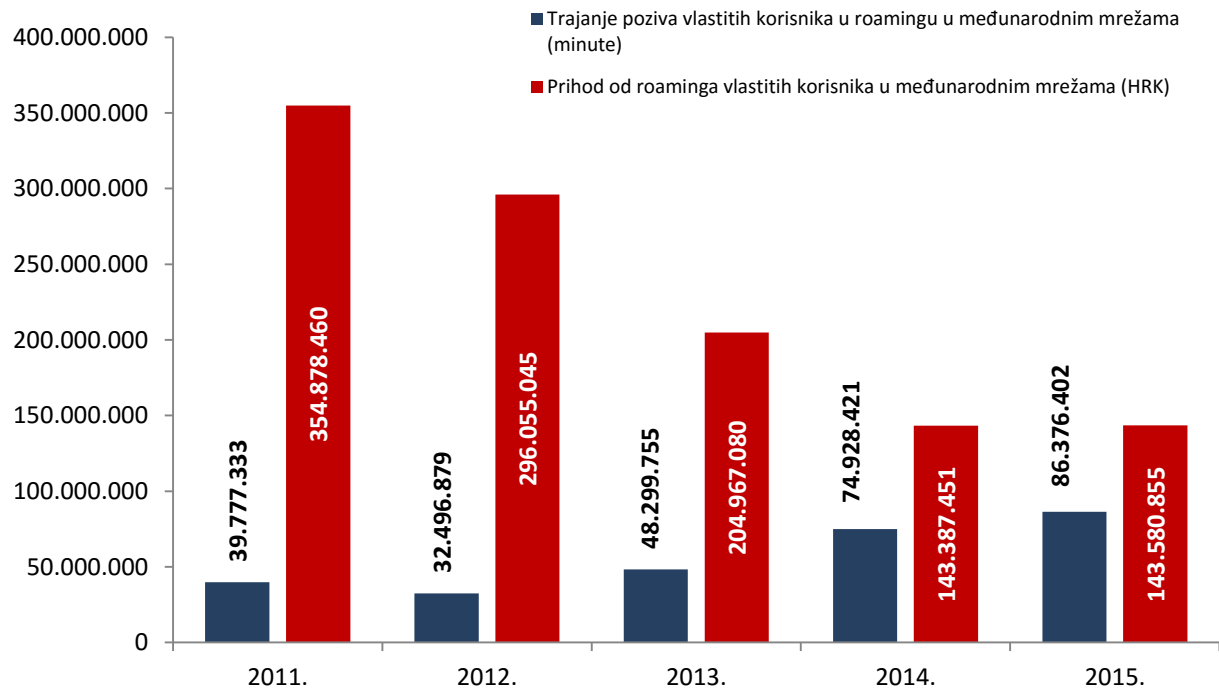
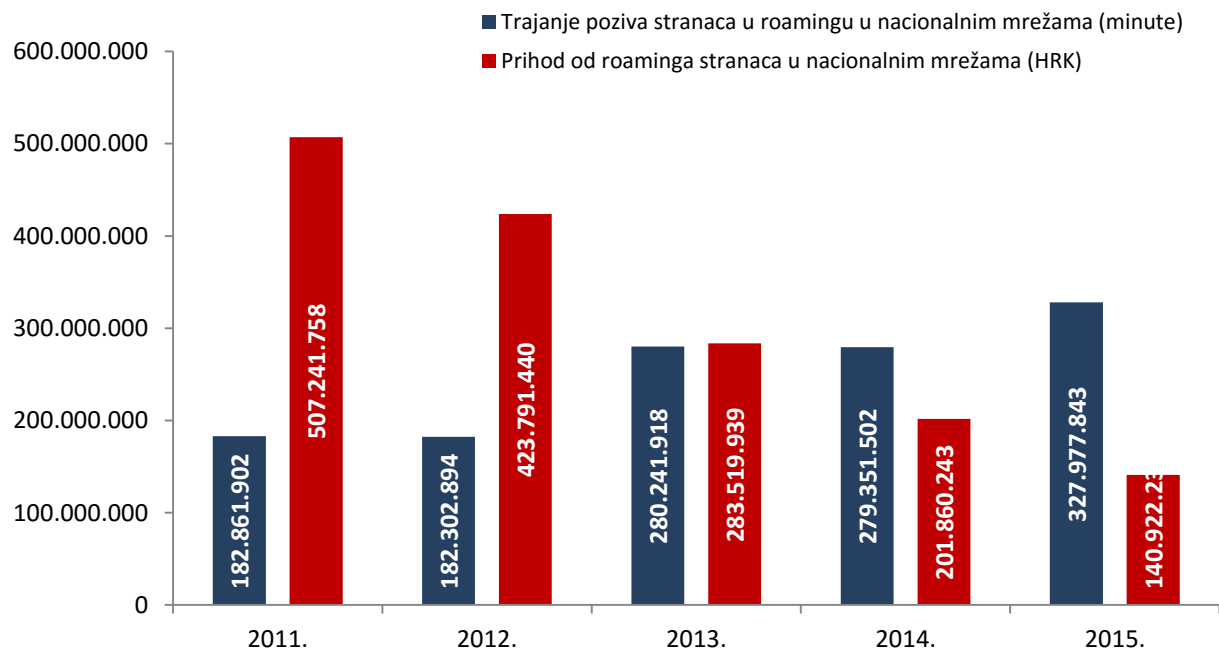


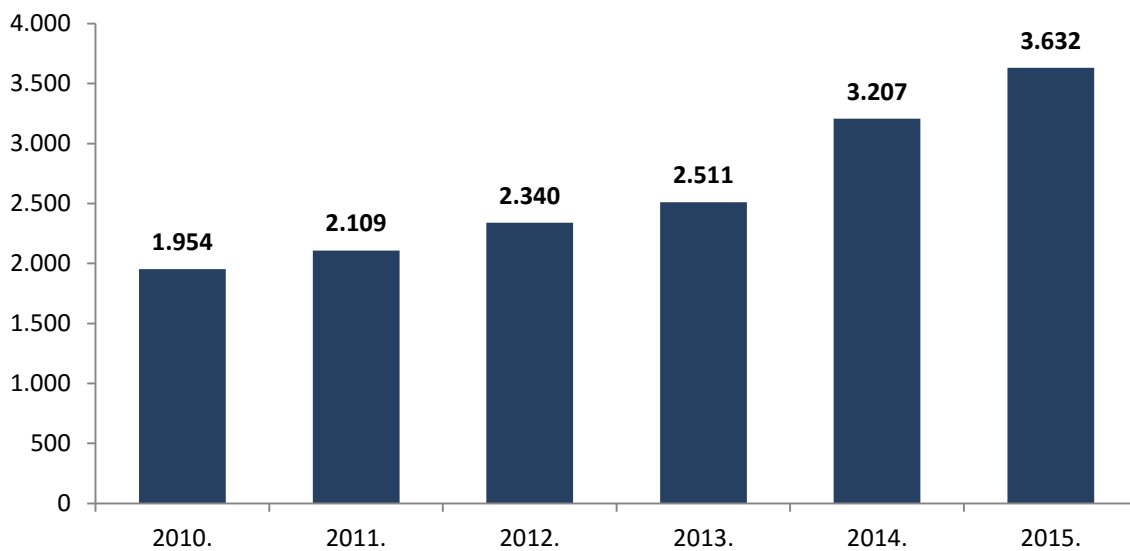
Figure 1.10. Revenue and duration of calls of own roaming users in international networks



1.1.3 Internet access service

Broadband access services are one of the fastest growing segments of the electronic communications market in the Republic of Croatia, which is demonstrated by the number of broadband connections and the amount of revenue earned in this market segment. Revenue has particularly grown in the segment of mobile broadband access. Total revenue from Internet access services increased by 86 percent since 2010.

Figure 1.11. Total revenue from Internet access services (in millions of EUR)



Fixed broadband penetration at the end of 2015 amounted to 23,02 percent.

Figure 1.12. Fixed network broadband penetration rate

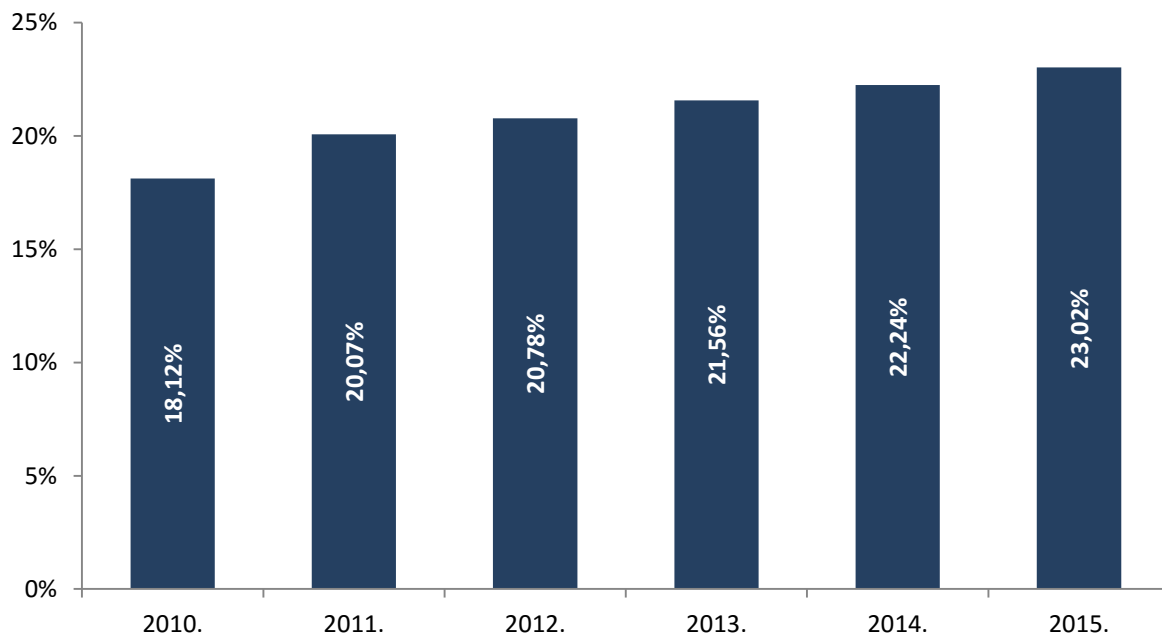
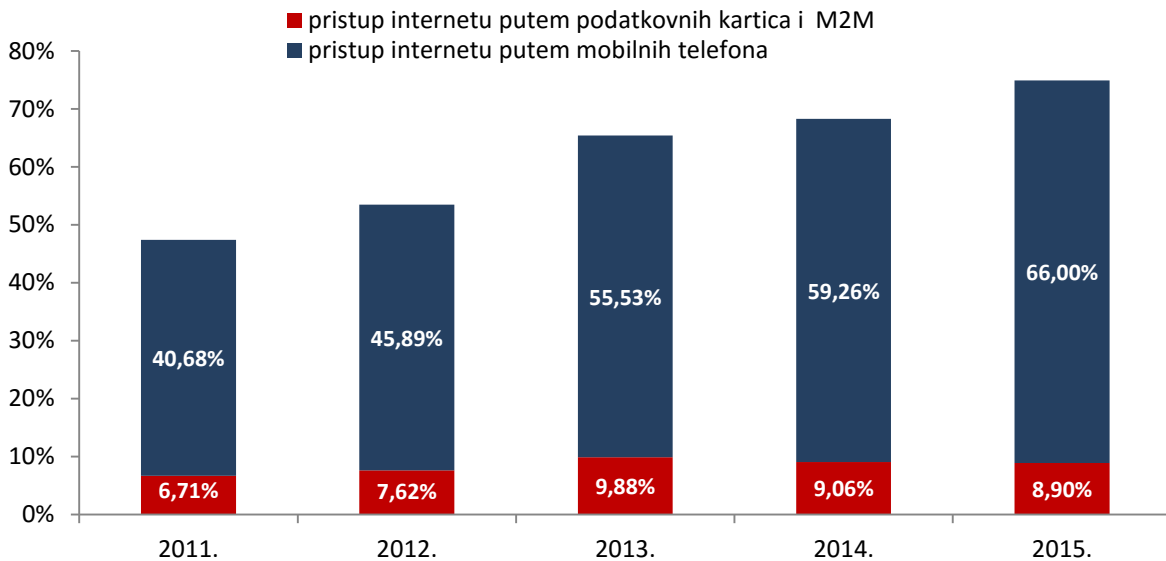


Figure 1.13. Fixed broadband penetration rate



At the same time, almost 75 percent of Croatian inhabitants access the Internet over the mobile network, out of which 8,9 percent by using data cards and M2M. That percentage has dropped for third year in a row, in the first place as a result of use of "simpler" access on smartphones and as a result of different offers of mobile tariff packages by operators. Such data is to be expected considering the increase in data traffic and demands of end users for 24 hour Internet access, regardless of time and place. Considering the importance of broadband access for the development of economy in the upcoming years, it is expected that its penetration will increase both in fixed and mobile networks.

Images 1.14 and 1.15 show a comparison between broadband penetration in the Republic of Croatia and the EU. Fixed network penetration is significantly below the EU average, while mobile network penetration is close to it. Demands of business and private users for the transfer of more data and faster transfer of data resulted in a growing need for faster development of broadband Internet that will be able to satisfy such requirements.

Figure 1.14. Broadband penetration rate over the fixed network in the EU⁴ and RoC

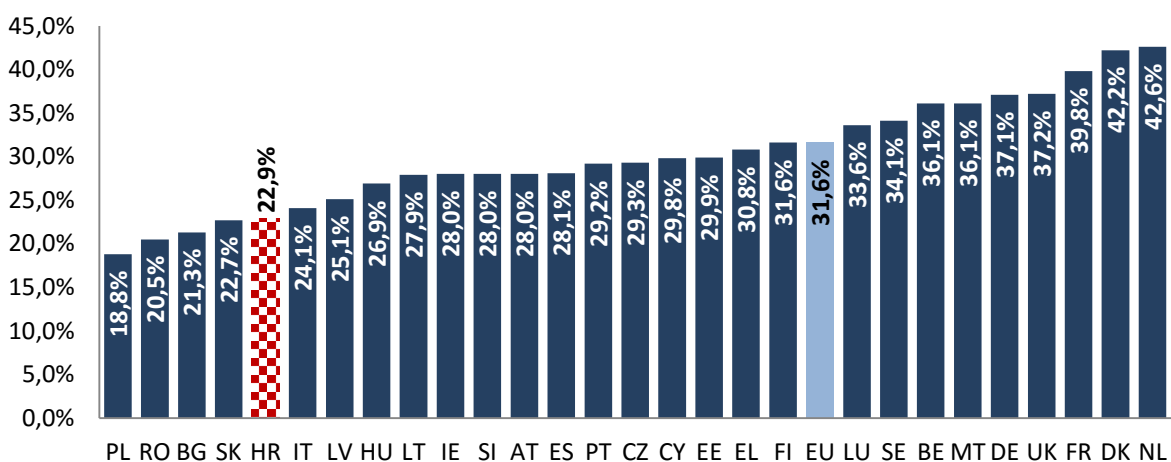
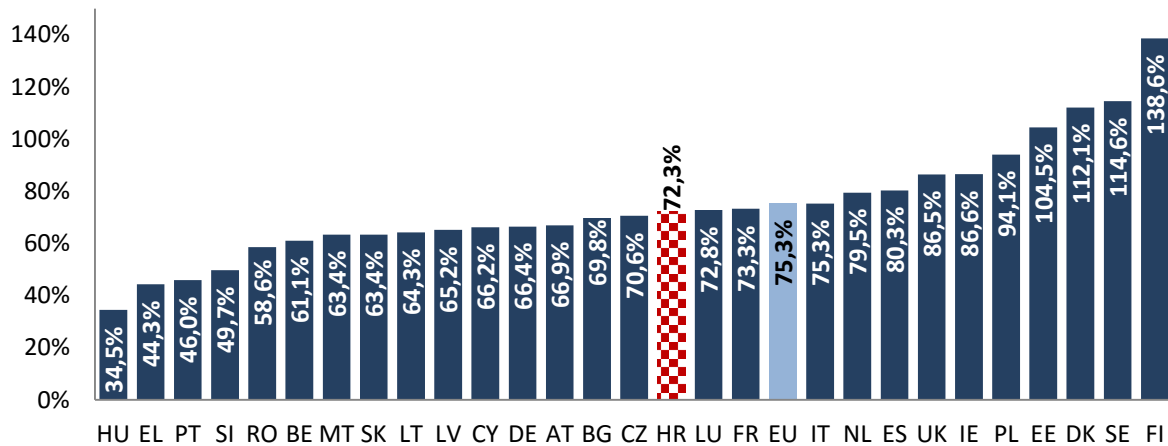


Figure 1.15. Mobile broadband penetration rate (all active users)⁵ in the EU⁶ and RoC

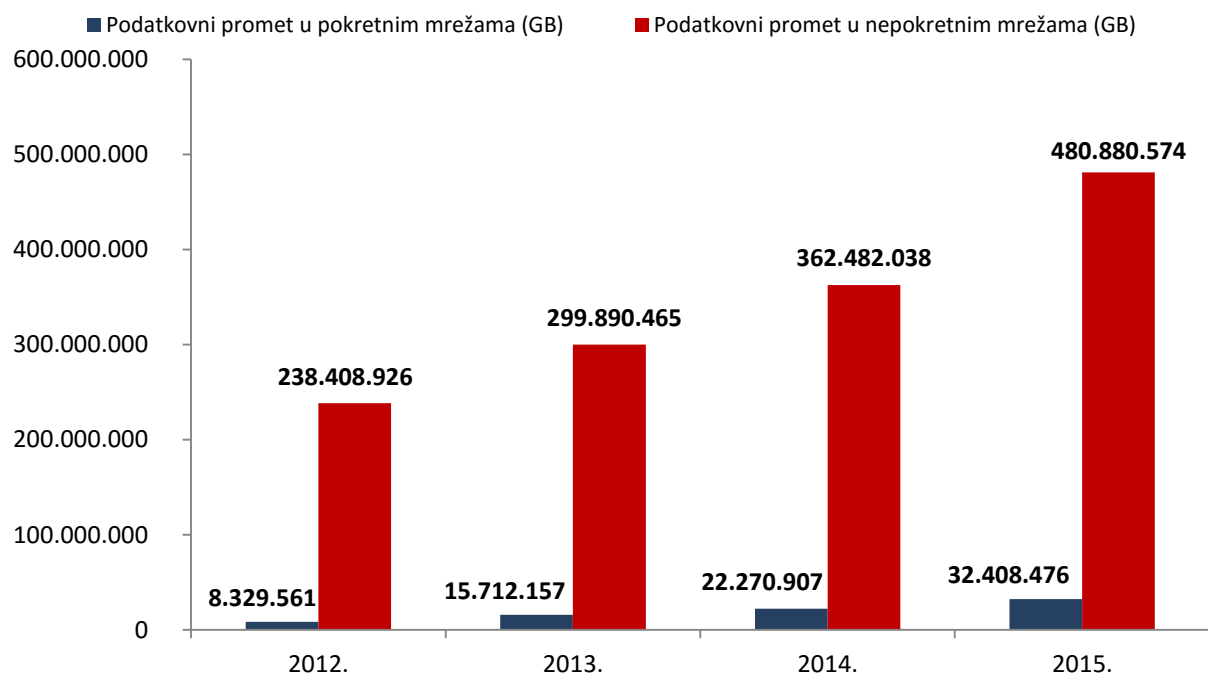
⁴ Source: *Digital Agenda Scoreboard, June 2015.*

⁵ by means of data SIM cards (USB, PC card), mobile phones (various tariffs that include broadband access in addition to voice services), M2M



Data traffic over mobile and fixed networks has been growing exponentially and in the last three years it has doubled. Traffic in mobile networks increased by almost four times in the same period.

Figure 1.16. Data traffic [GB]



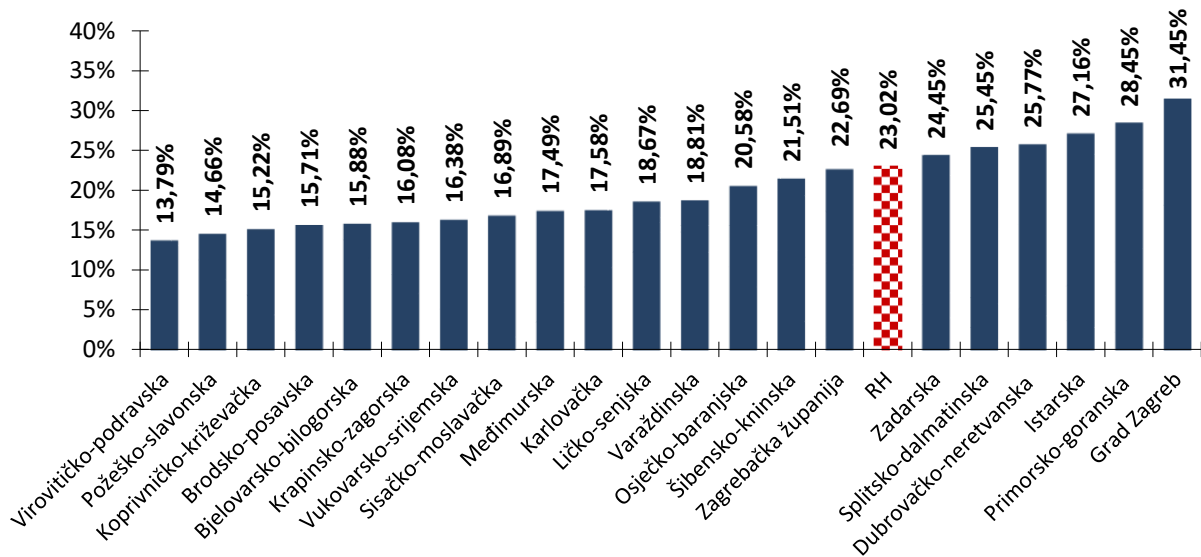
The availability of broadband Internet access is increasing on a daily basis. However, there are differences in the distribution of broadband termination points between urban and rural parts of the country. The greatest penetration of broadband termination points was recorded in the City of Zagreb which, at 31.45%, is slightly below the EU average of 31,6%, while penetration is at the lowest level in the Virovitičko-podravaska County. In order to decrease the digital divide between Croatian citizens in different regions and stimulate economic development and long-term strengthening of the society in general, it is of particular importance to stimulate the development of broadband access in rural and underdeveloped areas.

There are plans to intensify the development of broadband access infrastructure in areas lacking sufficient commercial interest for investments with the principal objective being the introduction of NGA networks with a minimum of 40 Mbit/s download speed and a minimum of 5 Mbit/s upload speed in those areas of the Republic of Croatia which are currently lacking broadband infrastructure

⁶ Source: *Digital Agenda Scoreboard, June 2015.*

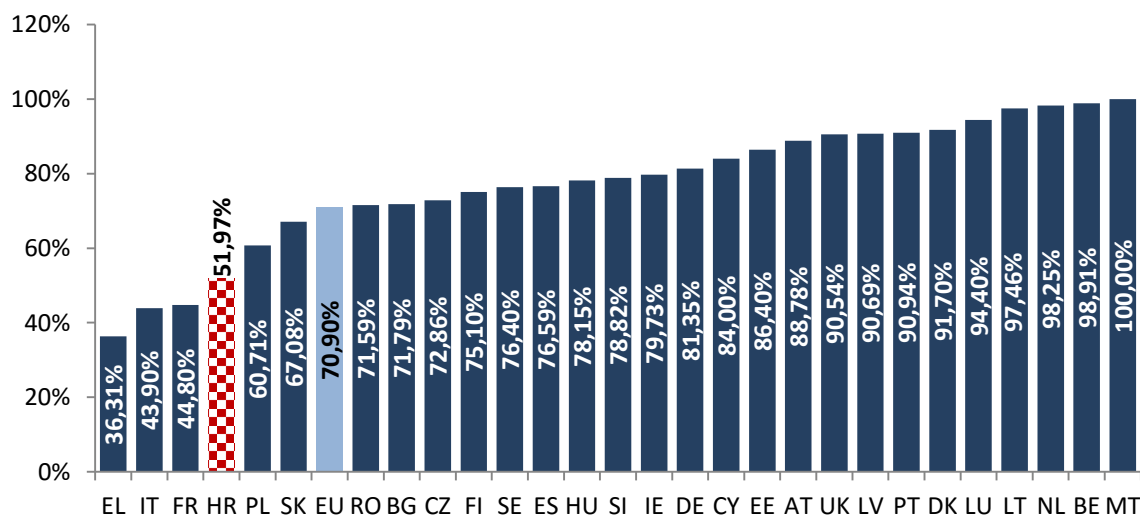
or where the development of such infrastructure is planned in the following 3 years. This refers to the so-called white areas covering mostly rural and suburban areas of the Republic of Croatia. The plan envisages the access of local self-government units to the financing of projects from the EU funds and to the national public co-financing of the development of NGN networks.

Figure 1.17. The penetration of fixed broadband termination points in the Republic of Croatia per counties



Broadband access over xDSL technology provided by the majority of operators is prevalent in the RoC. The above-mentioned technology for the most part satisfies current user needs. However, considering the objectives of the Digital Agenda which are reflected in the Strategy for Broadband Development in the Republic of Croatia, operators will have to continue their investments into next generation access, that is, into fourth generation mobile networks (LTE). Furthermore, investments into technology contribute to improvement of the quality of service which contributes to user satisfaction. Figure 1.18 shows the percentage of households covered by NGA access, which means that such households may benefit from the NGA speed.

Figure 1.18. Coverage with NGA access⁷



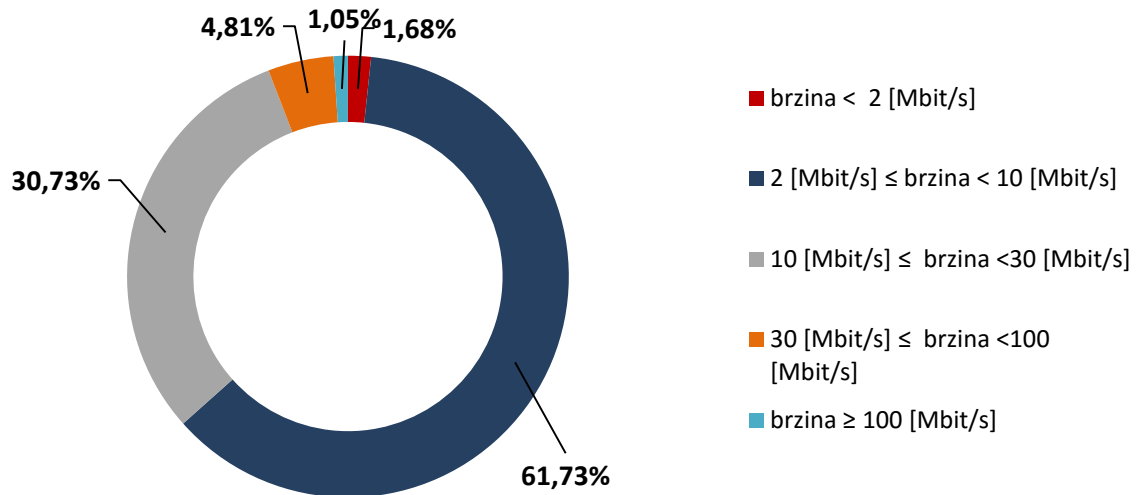
According to the relevant indicators from June of 2015, in terms of availability of NGA infrastructure the Republic of Croatia is among EU Member States that must increase their efforts to achieve the

⁷ Digital Agenda Scoreboard, June 2015.

European average. The availability of NGA infrastructure in the Republic of Croatia was 52% in urban areas.

Only 5,86% of users use Internet speed of 30 Mbit/s or greater. The share of users using speed of 2 Mbit/s or lower is decreasing, and the majority of users, around 61,73%, use speed in the range between 2 and 10 Mbit/s.

Figure 1.19. Distribution of fixed broadband connections per speed



The EU structural funds offer a great opportunity to increase the NGA coverage. It is expected that the Government of the Republic of Croatia will adopt a Framework National Programme for the Development of Broadband Infrastructure in Areas Lacking Sufficient Commercial Interest for Investments. The main objective of the programme is the introduction of NGA networks with a minimum of 40 Mbit/s download speed and a minimum of 5 Mbit/s upload speed in those areas of the Republic of Croatia which are currently lacking broadband infrastructure or where the development of such infrastructure is planned in the following 3 years. This refers to the so-called white areas covering mostly rural and suburban areas of the Republic of Croatia and which do not have NGA access. The Framework National Programme will enable local self-government units to finance projects from the EU funds and to the national public co-financing of the development of NGN networks.

Figure 1.20. Distribution of fixed broadband connections per operators

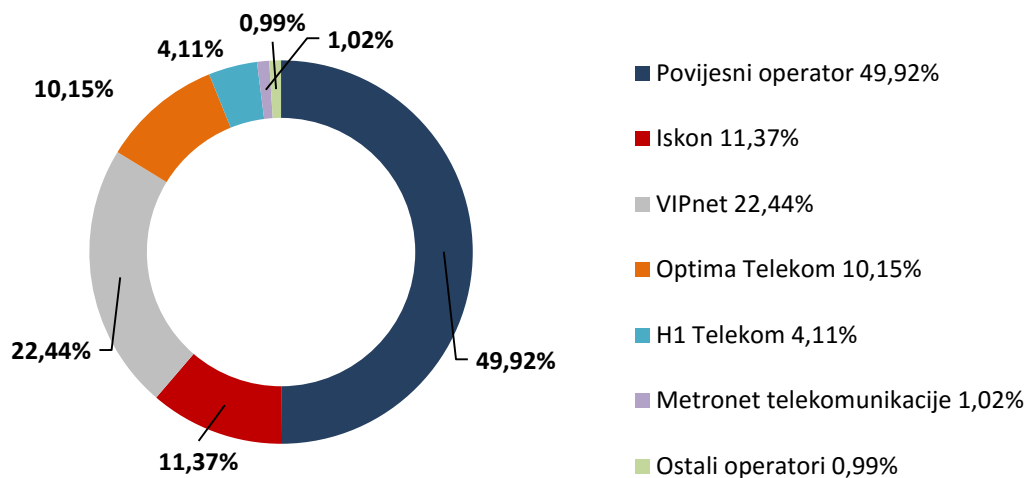
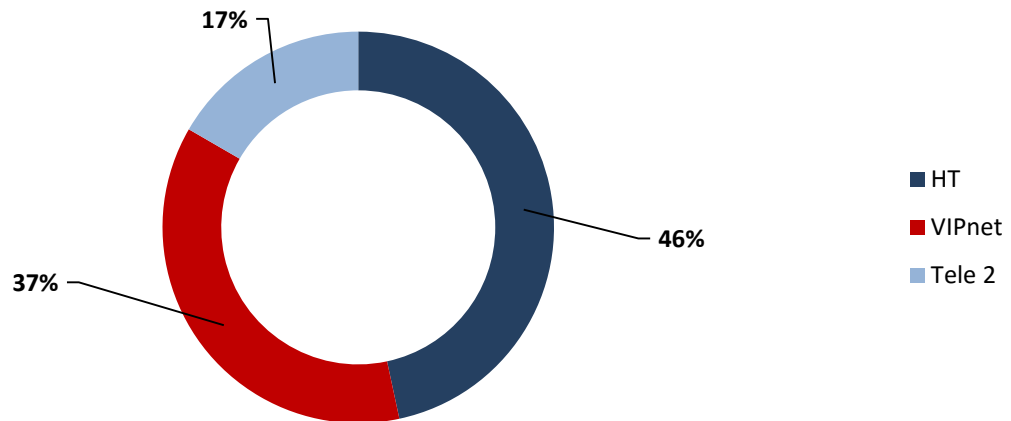
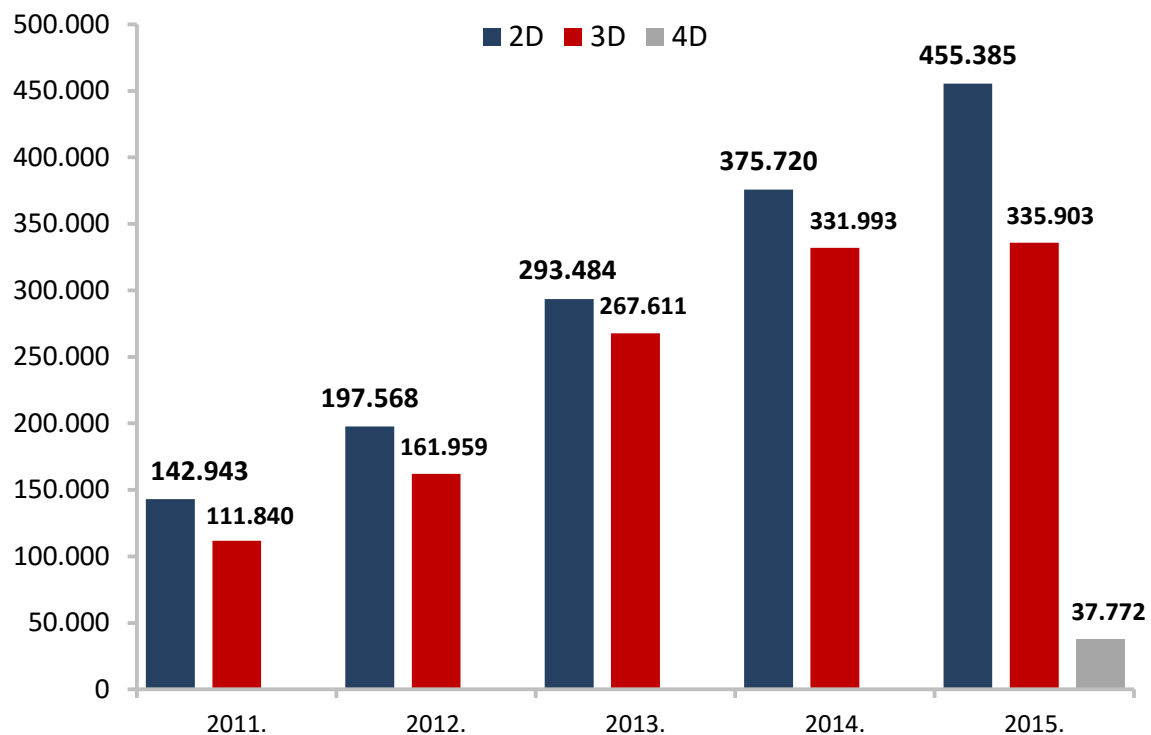


Figure 1.21. Distribution of mobile broadband connections per operators



Taking into account operators' activities related to the creation of a greater number of different packages of services and creation of a diverse offer of several services, the number of users of bundled services is still growing. After 2D and 3D bundles, operators have offered 4D bundles of services which, in addition to fixed network, Internet and television services, also include mobile network services. Thus the number of users of bundled services increased in 2015 by 17.15% and it is expected that the growth trend will continue the following year.

Figure 1.22. Number of users of bundled services

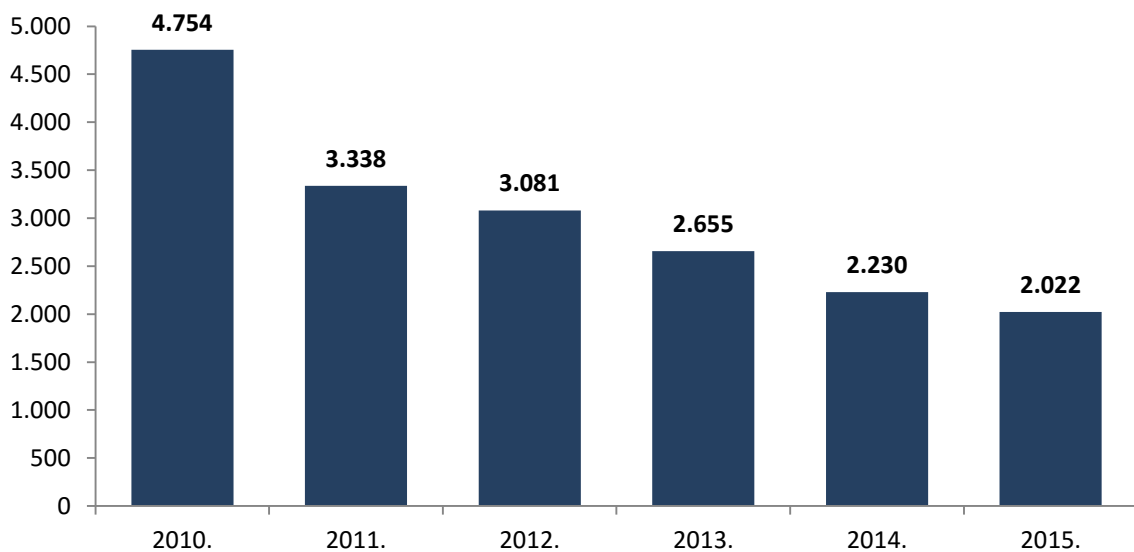


1.1.4 Telephone services in the fixed network

The market of telephone services in the fixed network is strongly influenced by the overall economic situation in the Republic of Croatia and by changing habits of users in relation to use of the fixed network. Broadband is the prevailing way of service provision in fixed networks. Due to increased competition and more intense struggle for market shares, operators are forced to maintain high quality of their services and offer those services at more favourable prices, which contributes to the increasing importance of bundled services (packages) and tariff models with unlimited traffic.

National operators recorded a 9 percent drop in revenue in the segment of telephone services in the fixed network in 2015.

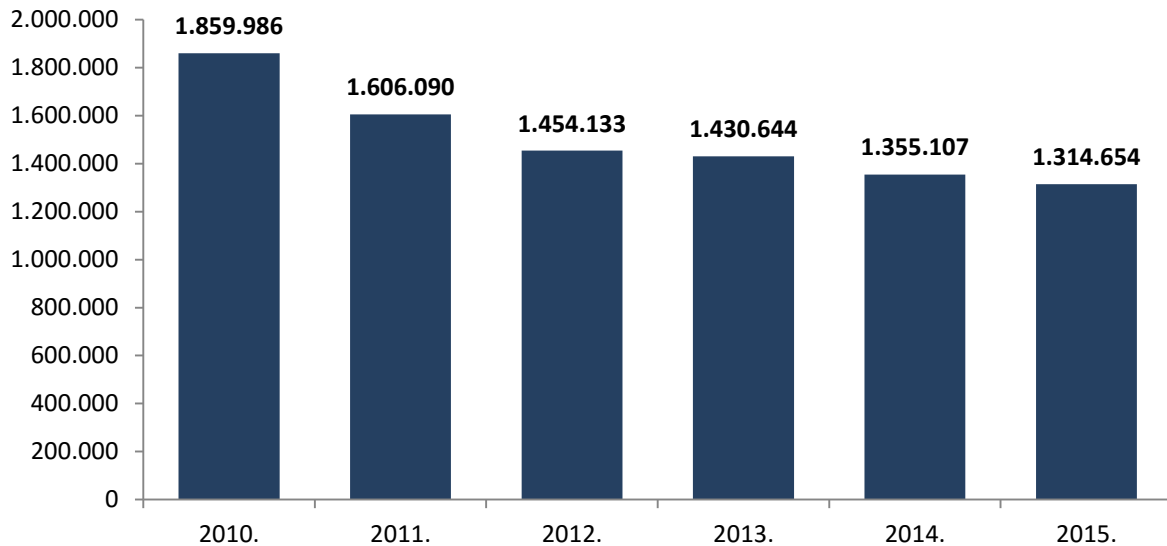
Figure 1.23. Total revenue from telephone services in the fixed network (in HRK million)



The number of users is expected to remain stable and operators will begin to look at the telephone service less as a profitable service and more as a service to be offered to users as part of a bundle of services at small fee or without a fee.

Figure 1.24. Total number of users of telephone services in the fixed public communications network⁸

⁸ For years before 2011 HAKOM collected the number of connections (number of B channels). Since one user may have several telephone connections, since 2011 the number of users of telephone services has been collected and recorded by HAKOM.



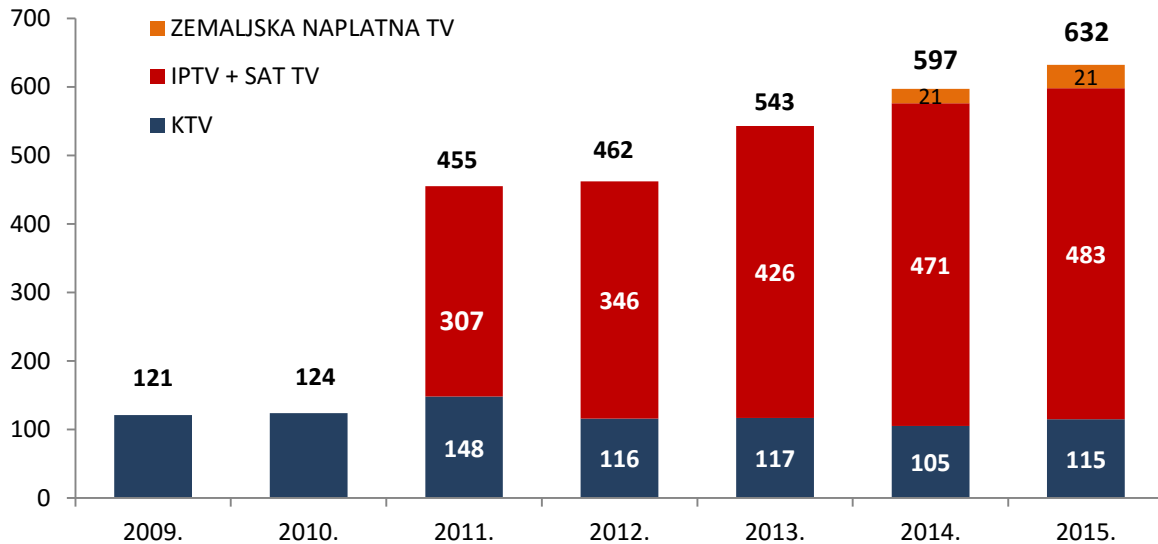
Increasing competition and greater willingness of users to change operators create pressure on telephone service providers to improve their services and reduce prices. The number of users of carrier pre-selection service (CPS) has been continuously decreasing in the observed period. New operators have been increasingly transferring users to their own infrastructure, which is illustrated by the increase of LLU users)

Concerning the market share of fixed network operators in relation to the total number of users of telephone services in the fixed network, the market share of HT amounted at the end of 2015 to 53.30% while the market share of Iskon (which is 100% owned by HT) amounted to 11.32%. The market share of Optima Telekom at the end of 2015 amounted to 13.38 percent. In March 2014 the Competition Protection Agency conditionally approved the merger of HT and Optima Telekom for the duration of a maximum of four years. HT must comply with a series of measures ensuring independent business operations of Optima Telekom in accordance with the principle of impartiality and, after the expiry of a three-year period, it is obliged to initiate the sale of all of its shares in Optima.

1.1.5 Television services

The market of pay-tv services in the Republic of Croatia shows great potential for growth. Due to an increasing demand for bundled services it is expected that, in accordance with the existing trends, this market segment will continue to rise in the future. According to 2015 data, revenue from the television service increased by about 5.8 percent compared to 2014.

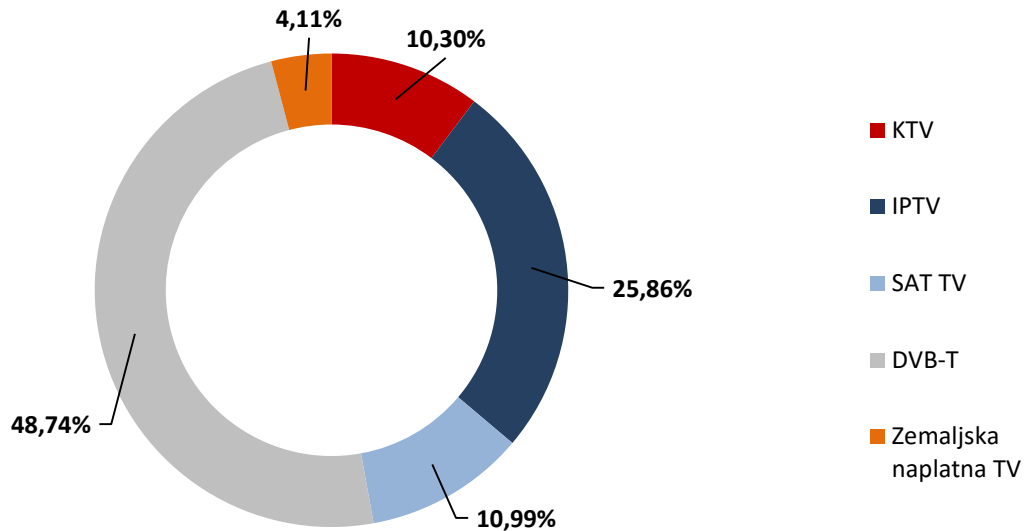
Figure 1.25. Total revenue from TV service⁹



IPTV platform covers the largest share of TV services with 26.97% share in the total offer of alternative platforms. Excluding the digital terrestrial pay-tv, the most significant individual annual growth was recorded in the segment of SAT TV connections amounting to more than 11 percent. Almost all operators of electronic communications services offering IPTV services also offer SAT TV services in places of insufficient internet bandwidth, which is one of the reasons behind the increase in the number of SAT TV connections. The digital terrestrial platform is represented in 50,83% of households, which is an indication of the potential of this market.

Figure 1.26. Share of households according to technologies used for receiving TV contents

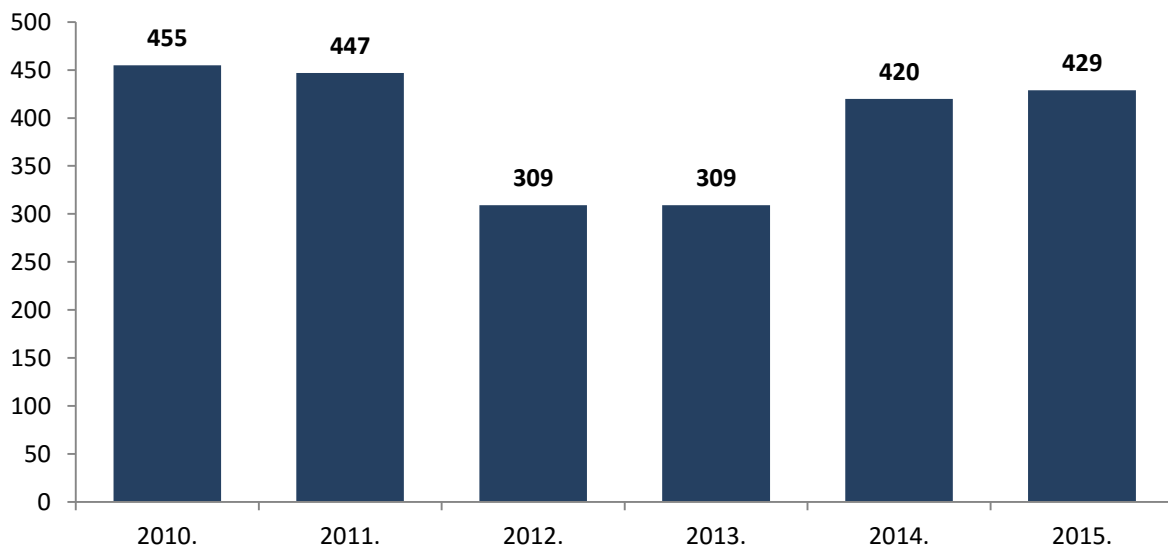
⁹ Before 2011, data were collected only for KTV which is why revenue illustrated in Figure 1.22 for the period between 2009 and 2011 refers only to revenue from KTV.



1.1.6 Network and line leasing

Network and line leasing continues to be the smallest market segment on the electronic communications market in terms of total revenue. Thus total revenue at the end of 2015 amounted to HRK 429 million which is 3.92 percent of the total revenue on the electronic communications market.

Figure 1.27. Total revenue from the leased network and line services



1.1.7 Other services

1.1.7.1 Special tariff services

In 2015, HAKOM has been taking actions to prevent breaches of laws by service providers and to prevent possible financial damage for subscribers. Furthermore, HAKOM received, to its e-mail address for reporting unsolicited SMS messages, reports on actions of operators that are unlawful in accordance with the ECA and inspection supervision has been conducted to stop the sending of unsolicited electronic communications.

1.1.7.2 Universal services

Ensuring access to universal services for all users of electronic communications services is one of the main principles and objectives of regulation of the electronic communications market in the Republic of Croatia. HAKOM regularly conducted checks of universal service operators in 2015 related to the provision of the above-mentioned services to end users. In 2015 HAKOM received several complaints concerning the provision of the universal Internet access service. Users complained about the decreased speed of the Maxnet Mini package to the minimum speed of 1 Mbit/s after exceeding a certain usage limit (40 and 100 GB). Since HT, as the universal service operator, is obliged to ensure the minimum speed of the universal Internet access service of 1 Mbit/s, there were no grounds for further proceedings against HT and the above-mentioned complaints were rejected as unfounded. As of 1 January 2015 HAKOM is obliged to ensure minimum data transfer speed of 1 Mbit/s for the above-mentioned service.

Universal services in electronic communications are the smallest set of electronic communications services of a certain quality that must be available to all end users at an affordable price in the entire territory of the Republic of Croatia regardless of their geographical location with the least possible degree of distortion of competition. The Council of HAKOM adopted in 2015 decisions on the designation of universal service operators on the territory of the Republic of Croatia for a period of four years. The company Imenik d.o.o. was designated as the universal service operator for the service of access of end users to a comprehensive directory of all subscribers of publicly available telephone services which may be printed and / or electronic and which must be regularly updated and the universal service operator for the service of access of end users, including users of public pay phones, directory enquiry service about subscribe numbers. HT was designated as the universal operator for the following services:

1. access to a public communications network and publicly available telephone service at a fixed location
2. installation of public pay phones or other publicly available access points for the public voice service on public places available at any time
3. special measures for disabled persons, including access to emergency services, access to directory enquiry service containing subscriber number and to the subscriber directory in the same manner as other end users of services
4. special tariff systems adjusted to socially disadvantaged groups of end users of services.

On the basis of HT's annual reports HAKOM has been following the fulfilment of obligations concerning the provision of universal services and the quality of provided universal services in the previous year, which is published on HAKOM's official websites.¹⁰

¹⁰ <https://www.hakom.hr/default.aspx?id=323>

1.1.7.3 New services

M2M/IoT

Machine-to-machine (M2M) communication refers to automated communication (data transfer) between two or more communications (ICT) entities. In 2015 HAKOM amended the Numbering Plan of the Republic of Croatia and the Ordinance on the payment of fees for the carrying out of activities of the Croatian Regulatory Authority for Network Industries and additionally prescribed a special range of numbers for M2M services. It also reduced the fee for use of M2M numbers in order to additionally stimulate increased use of M2M services.

HAKOM has been actively participating in the work of BEREC's M2M project team and CEPTS working group, WGNan, dealing with M2M topics. Furthermore, "M2M communications" are a constituent part of the "Looking to the Future -2020" project.

Cloud computing

Cloud computing continues to be one of the fastest growing branches of information and communication technology. HAKOM has been following the development of cloud computing services in the RoC and on the international market. The Croatian market has been following international trends in this area as well which is why numerous national telecommunications operators have expanded the offer of various cloud services and solutions for their clients. Although this market is not regulated neither in the Republic of Croatia nor in the rest of the EU, HAKOM will continue to monitor cloud accounting in order to be able to timely react in case of problems.

1.2 Overview of regulatory measures

During the past year HAKOM has continued its activities related to the procedure for the designation of relevant markets susceptible to ex-ante regulation in compliance with the provisions of the ECA and objectives laid down in the 2015 Annual Work Programme.

Since national regulatory authorities of EU Member States are obliged to, within two years from the accession to the EU, submit to the EC draft decisions of all relevant market analyses for approval (the so-called decision notification procedure, HAKOM's activities in the first half of 2015 have been mostly oriented towards notification of all relevant market analyses which started in 2014. The notification procedure is a standard procedure for the submission of draft EC decisions for approval in compliance with Articles 7 and 7a of the Framework Directive in order to ensure that decisions adopted at the national level do not have a negative impact on the single EU market and objectives to be achieved in compliance with the current regulatory framework.

Furthermore, during 2015 HAKOM initiated the procedure for updating cost models data. The promotion of efficiency and of sustainable competition and ensuring of the biggest benefits for users are three of HAKOM's objectives related to the introduction of the measure of cost-orientation of prices. A clear forward looking vision ensures market stability and business planning of market participants, which has proven to be of key importance for the development of efficient competition.

HAKOM has also been following obligations arising from the Roaming III Regulation which entered into force on the date of accession of the Republic of Croatia to the EU. In addition to the measures for capping of *roaming* prices and transparency obligations, the EU Roaming Regulation III introduces, for the first time, the so-called structural measures aimed at increasing competition on the roaming market. HAKOM will maintain its proactive approach towards mobile network operators aimed at following the implementation of obligations arising from the Roaming III Regulation in order to achieve flawless implementation of the new Roaming Regulation in the Republic of Croatia. Furthermore, HAKOM will follow the implementation of obligations that the EC is planning to adopt through its decisions during 2016 which will prescribe *inter alia*, that mobile network operators will have to offer roaming services at the prices of domestic services on the basis of the reasonable use criterion. HAKOM's experts will participate in many working groups dealing with the development of a series of documents related to the roaming market which will serve as a basis for the adoption of EC decisions in that area.

In addition to the mentioned decisions concerning the analysis of the relevant markets, what follows is an overview of the most important HAKOM's decisions adopted in the previous year on markets susceptible to ex ante regulation with a view to preserving efficient competition.

Table 1.1 Overview of the most important decisions in 2015

Regulatory decisions concerning the definition of the relevant markets
<u>Decision laying down that the relevant market of call origination from public communications networks provided at a fixed location is susceptible to ex ante regulation and imposing regulatory obligations on HT as a SMP operator on that relevant market</u>
<u>Decision in the procedure for market analysis of the market of wholesale trunk segments of leased lines (M14/2003)</u>
<u>Decision in the market analysis procedure of wholesale high-quality access provided at a fixed location (M4/2014)</u>
<u>Decision in the market analysis procedure of wholesale broadband Internet access market</u>
<u>Decision in the market analysis procedure of wholesale central access provided at a fixed location for mass-market products (M3b/2014)</u>
<u>Decision in the market analysis procedure of wholesale local access provided at a fixed location (M3a/2014)</u>
<u>Decision laying down that the relevant market of wholesale call termination on an individual public telephone network provided at a fixed location is susceptible to ex ante regulation and imposing regulatory obligations on SMP operators on the relevant market</u>
<u>Decision laying down that the relevant market of wholesale voice call termination on an individual mobile network is susceptible to ex ante regulation and imposing regulatory obligations on operators HT, Tele2 and Vipnet as SMP operators on the relevant market</u>
Overview of the most important decisions on markets susceptible to ex ante regulation
<u>Decision laying down the conditions for IP interconnection</u>
<u>Decision on amendments to the RO RUO – FTTN type 1 exemptions</u>
<u>Decision on the monthly fee for the LLU service</u>

1.2.1 Regulatory decisions concerning the definition of the relevant markets

The definition of the relevant market is a basis for conducting market analysis which consists of the definition of the relevant market and assessment of the existence of one or more operators with significant market power on that market and of the imposition of regulatory obligations on operators with significant market power. For that reason, HAKOM continued in 2015 carrying out activities concerning the procedure for the definition of relevant markets susceptible to ex-ante regulation.

Regulatory obligations prevent the occurrence of possible problems on markets lacking effective competition, that is, SMP operators are prevented in advance from exploiting their dominant position on the market. During 2016 HAKOM will regularly monitor whether SMP operators are implementing the imposed regulatory obligations.

1.2.2 Decisions in the procedure for the analysis of relevant markets of call termination on the fixed and mobile network

These HAKOM's decisions have changed the previous manner of regulation based on the EU rules placing Croatian operators on equal footing with non-EU operators. Former regulation, based on EU recommendations, discriminated against non-EU operators, including their users, compared to EU operators. This refers to prices imposed by operators for calls between their users. In that case, a call originating from a user from a non-EU country transited by an EU operator was regulated at a wholesale level with the highest permissible prices. Where a call was transited by a non-EU operator, operators were able to agree on the market-based call termination price. It has been demonstrated in practice that entire traffic of Croatian operators, including traffic in non-EU countries, was transited exclusively by EU operators. This meant that non-EU operators were circumventing the European regulatory framework by transiting the traffic through one of the EU Member States thus automatically achieving guaranteed EU call termination prices, which are significantly lower than prices they are allowed to charge pursuant to rules in their countries. At the same time, they had no interest in commercial negotiations with European operators, including Croatian operators, to lower their wholesale call termination prices to similar levels based on real costs.

HAKOM recognized this discriminatory relationship and established that price asymmetry resulted in users calling non-EU countries paying higher retail prices, that is, costs of calls are significantly higher than costs of calls to EU countries. At the same time, a non-EU user calling a Croatian number pays a lower price, in this case a regulated price, since in practice all those calls are calls transited through EU operators.

New regulation of call termination prices is based on the originating traffic, regardless whether it was transited from the EU or outside of the EU. This means that Croatian operators do not have to charge regulated prices to other operators for any call from a non-EU number which gives them greater negotiating power and better position for negotiating prices, in particular in the neighbouring countries. Since new regulation may result in the lowering of prices paid by Croatian operators for international calls of their users and thus in the lowering of operators' costs for calls of their users, the decisions will also contribute to the lowering of prices of international calls of Croatian operators' users, in particular of calls to neighbouring countries.

The EC previously confirmed the mentioned HAKOM's decisions which was welcomed by other EU Member States because the Croatian regulatory decisions now represent EU practice to be followed by many other Member States. Such regulation will have a significant financial impact on all national operators, while an indirect impact is expected in the sense of the lowering of retail prices of calls to non-EU countries.

1.2.3 Decision laying down the conditions for IP interconnection

HAKOM's decision on conditions for IP interconnection places Croatia among a small number of EU Member States which have laid down rules for IP interconnection between operators. The above-mentioned conditions will ensure that users of all operators have guaranteed interoperability when switching their operators to IP interconnection. It is not justified neither from economic nor from technological side for every operator individually to implement its protocols for IP - IP interconnection because in this manner they would not ensure interoperability between services and connectivity of end users of services of different market operators. This being a new and especially important topic, the above-mentioned decision is a result of numerous workshops between operators organized by HAKOM in 2014 and 2015 in order to take into account the positions of all operators. The IP interconnection document will be updated depending on market needs and HAKOM will, for every scheduled update, continue its practice of workshops between operators and the adoption of decisions that will take into account opinions of operators to the greatest possible extent.

1.2.4 Decision on amendments to the RO RUO – FTTN type 1 exemptions

In its analysis of the market of wholesale local access provided at a fixed location HAKOM divided the territory of the Republic of Croatia into two areas and it defined different regulatory conditions for those two areas related to the modernization of the copper access network through the implementation of the FTTN concept. The FTTN concept implies the building of a new independent node, which is more economical than the modernization of the copper access network by building independent nodes.

This decision created preconditions for faster reconstruction of copper access networks offering high-speed internet access to users who didn't even have access to basic internet speed or broadband services. HAKOM's decision creates preconditions for quicker modernization of HT's copper access network for other local loops. These are copper pairs that are mostly located in the wider area of big cities where there are alternative operators as well but which are unable, due to their length, to offer basic broadband internet speed which is why users of those areas are unable to access today's high-speed internet and TV services.

The reconstruction of such access networks will result in the improvement of network quality for users on long pairs, that is, in the improvement of user services not only for HT users but also for users of alternative operators. Operators will be able to offer more quality services and greater possibilities to their users in terms of scope of services or access speed.

Since the reconstruction of long pairs means that, for such users, HT will have to provide the service to alternative operators in a different manner with a view to protecting competition, HAKOM defined that HT was obliged to offer a substitute solution to alternative operators in terms of price and features contracted before network reconstruction for the duration of two years. This will reduce negative impacts on alternative operators and end users will not be left without services that have been provided by the alternative operator until that moment.

1.2.5 Decision on the monthly fee for the LLU service

In December 2015 HAKOM adopted a decision on the price for the LLU service. HAKOM's decision from December of 2013 laid down that HAKOM might charge HRK 57.30 for the LLU service since that price represented HT's cost for the above-mentioned service. HT requested the application of the new price in the second half of 2015

In its decision HAKOM defined the deadline for the beginning of application of the above-mentioned price. This being a significant change in the price of the LLU service, which currently amounts to HRK 43.61, the HRK 57.30 price cannot be applied within the short time limit since the submission of the request. Since the increase of the price for the LLU service has an impact on another wholesale service (NBSA service) and since both wholesale services are of significant importance for the existence of alternative operators on the market, it is necessary, in order to ensure regulatory predictability and adjustment of business operations of operators, to enable a reasonable period for adjustment of all market stakeholders to the new circumstances. In this manner operators will be able to include increased wholesale fees into their business plans for the following year, which is important because this is a considerable increase. Since HT submitted its request for price increase in the second half of 2015, operators could not include the increase of wholesale prices into their 2016 business plans which is why HAKOM prescribed that new prices will enter into force on 1 January 2017.

Furthermore, the increase in the price for the LLU service may also influence the formation of retail prices offered by operators to end users. If Iskon and Optima Telekom increase their retail prices because HT's business decisions, these companies, as opposed to other operators, may not refer in their contracts with users to the provision of Article 42a (10) (3) of the ECA laying down the cases in which a user is not entitled to early termination of the contract without compensation, since these

are not price changes out of their control. Prices are increased upon HT's request and, since Iskon and Optima Telekom are under its control and make up the HT group together with HT, that is, a single economic operator, it cannot be interpreted that the price change was out of their control.

1.3 Building, access to and use of electronic communications infrastructure and network

In 2015 special attention was dedicated to activities including monitoring of the joint use of the existing cable ducts, surveying of electronic communications infrastructure (hereinafter: ECI) and the resolution of property related issues with owners of land on which the ECI was built. The end objective of all of these activities is the establishment and ensuring of network security, network integrity and interoperability of electronic communications security.

Table 1.2 Electronic communications infrastructure and network in the RoC

Type of electronic communications infrastructure	Quantity
Cable television pathway (km)	21,800
Cable pathway in the country (km)	26,300
Pathway of surface electronic communications network (km)	33,000

Surveying of electronic communications infrastructure

The analysis of the collected data led to the conclusion that out of the total ECI the following has not been surveyed and migrated into the integral on-line database:

- 6,346 km of cable ducts
- 9,923 km of underground cables without ducts
- 33,000 km of surface cables.

With a view of establishing an integral database, HAKOM initiated surveying activities in the entire territory of the Republic of Croatia, the drafting of geodetic surveys for the cadastre of lines and entry of data into a single on-line database. The following has been surveyed until 31 December 2015:

- 2,564 km of cable ducts
- 5,907 km of underground cables without ducts
- 21,180 km of surface cables with the associated poles.

In the Act on the National Infrastructure of Spatial Data (hereinafter: NISD), the State Geodetic Administration (hereinafter: SGA) was defined as the National Contact Point for NISD. The above-mentioned Act resulted from the alignment of the EU acquis in the area of establishment of spatial data infrastructure. The same or similar spatial data is often collected and kept at several different addresses in the state administration system and local self-administration units (hereinafter: JLS) enabling their transparent use with a direct negative impact on the State Budget. Centralized searching of spatial data under the competence of NISD subjects will enable simpler browsing and downloading of data. The development of the same or similar set of spatial data will not be financed by several institutions but only in one institution which will share data with other institutions thanks to the establishment, maintaining and supervision of the operation of the NISD portal. The main objectives of the Croatian NISD include the support to the national economic development and the improvement of good management.

The State Geodetic Administration is competent for the establishment of the National Integrated Geoinformation System of Utilities Infrastructure with a module for geographic information system of the electronic communications infrastructure and other associated facilities (hereinafter: GIS ECI), that is, of a single GIS ECI database that should provide access to data on the existing electronic communications infrastructure and available electronic communications capacity in the Republic of Croatia. The purpose of the above-mentioned project is to enable access to spatial data on the entire ECI, network and other associated facilities in the territory of the republic of Croatia by means of a single GIS ECI database. The analysis of the existing state of construction of the ECI and broadband

communications network at the regional and local level, along with other available infrastructure data, will serve as a basis for the building of broadband communication networks.

1.3.1 Regulation of property law relations between infrastructure operators and managers of common good or real estate owners

Designation of an infrastructure operator and of the amount of the fee for the use of real estate containing the electronic communications infrastructure and other associated facilities

In 2015 HAKOM received a total of 327 requests for designation of the infrastructure operator and the amount of the fee for use of real estate on which the ECI had been installed. Out of that number a total of 297 requests were resolved. The resolution of the above-mentioned requests by HAKOM depends on the existence of proper investment and ownership documentation.

Regulation of property law relations between the local self-government units and infrastructure operator

In 2015, HAKOM received a total of 180 requests for mediation in the regulation of property-law relations between local self-government units and the infrastructure operator. In this manner, local self-government units wish to regulate, on the basis of the usufruct right or under HAKOM's authority, property-law relations with infrastructure operators who own the ECI on real estate in their ownership with a view to achieving monetary compensation for use of their real estate. In 2015 property-law issues were resolved for 1,895 km of ECI.

Right of way

The certificate of the right of way is issued by HAKOM on the basis of the ECA and the Ordinance on right of way certificate and fee further to requests submitted by infrastructure operators, common good managers and real estate owners. In 2015 a total of 276 right of way certificates for a total length of 155,365.91m.

Table 1.3 Developments in the number of issued certificates on the right of way

	2010	2011	2012	2013	2014	2015
Number of issued	2654	1254	255	1700	1050	276
Total length of	153,394.36	95,548.69	24,008.25	114,395.1	77,480.15	155,365.91

Removal of electronic communications infrastructure and other associated facilities

In 2015, a total of 110 requests for removal of ECI were submitted to HAKOM on the basis of which procedures were conducted for designating the infrastructure operator, the type and size of the ECI, for checking the reasoning and credibility of requests and priorities of submitted requests. The requests were submitted to the infrastructure operator for resolution and the dynamics of resolution was monitored. A total of 66 were resolved while the remaining 44 cases are in one of the resolution stages. It must also be mentioned that 23 cases received in 2014 were resolved in 2015. Therefore, a total of 89 cases were resolved in 2015. It must be mentioned that procedures conducted pursuant to a submitted request for the removal are long-lasting procedures which are faced by numerous obstacles and restrictions that are out of HAKOM's control from unresolved land registration issues, to unresolved ownership relations, procedures related to the obtaining of various consents and approvals, development of technical solutions and other. HAKOM has invested significant efforts to resolve the requests for the removal of the ECI within a reasonable time limit which is acceptable to

the person who submitted the request and to avoid putting at risk the ECI and the provision of EC services at any time.

Relocation of connections, repairs of faults and damage caused to the network by third persons and regular maintenance of the network and equipment

Within the framework of its authority and obligations, in 2015 HAKOM has been continuously monitoring and checking procedures and deadlines related to physical relocation of fixed connections, removal of faults arising as a consequence of various types of damage on the network and it took timely action to shorten the deadlines as much as possible and prevent possible financial damage for users who are unable to use the electronic communications services. During the carrying out of its activities, HAKOM paid special attention to network maintenance.

1.3.2 Preliminary opinions on physical planning documents

In accordance with the legal obligations pursuant to the Spatial Planning Act (OG No. 153/13) HAKOM participates as a public law authority in the area of the ECI and other associated facilities in the adopted of spatial plans at all levels. In 2015 HAKOM issued 285 guidelines defining the requirements to be complied with during the development of spatial plans of all levels and 302 opinions during public consultations concerning proposals for spatial plans of all levels. In 2015 HAKOM conducted the procedure for the adoption of the Regulation on the criteria for the development of electronic communications infrastructure and associated facilities (OG No. 92/15) enabling uninterrupted development, planning and building of the mobile communications infrastructure and ECI in broadcasting networks.

1.3.3 Special building conditions and approval of main projects

HAKOM establishes and publishes special conditions and approvals of major projects for all interventions into space within the zone of electronic communications infrastructure and in the safety zone and the radio corridor of certain radio stations in compliance with the Physical Planning Act (OG 153/13) and the Building Act (OG No. 153/13). In 2015, HAKOM issued special conditions in 5930 cases out of which in 1094 cases special conditions were issued on the basis of requests submitted to HAKOM through the "e-Conditions" application. In 2015, on the basis of requests for the issuing of approvals of major projects, HAKOM issued 6062 acts in 4991 cases.

Table 1.4 Special building conditions and decisions on building conditions

Year	2013	2014	2015
Number of cases concerning special conditions	4731	5832	5930
Special conditions issued on the basis of requests submitted through the web-application on "e-Conditions".	-	-	1094
Number of cases concerning approvals of main projects	-	2304	4991

1.3.4 Quality of broadband access in the Republic of Croatia

Detailed measuring of transmission parameters of all subscriber loops of users who complained about the quality of services was also conducted. The analysis of the quality of services on the basis of DSLAM measuring for VDSL2 transfer technology continued (profile 8b and 17a). A prediction algorithm for upload/download transfer speed for ADSL2 plus technology was created, tested and implemented and it will enable better usage of the existing access network, that is, it will reduce the number of requests for the broadband access service that have been rejected without any grounds

for rejection. All preliminary actions have been carried out (analyses, testing and measuring) in order to carry out UPBO regulation, which is the basic precondition for ensuring the necessary quality of symmetrical broadband services that will be increasingly offered by means of VDSL2 technology. In cooperation with the operators (HT that is, OT-Optima Telekom) two FTTB pilot projects have been analysed in Zagreb (Jablanovačka 8 and Krčmarići 22) with G.fast transfer technology (Recommendations, ITU-T G.9700 and ITU-T G.9701). The achieved download speed was 400Mbit/s, and the quality of service mostly depended on the quality of the existing house wiring. It may be concluded that the technology in question still is not ready for mass implementation in our network. The appropriate measuring equipment was procured (HST3000) with a view to achieving more efficient measuring and testing of key ADSL or VDSL transfer parameters defining the quality of service. A pilot project has been initiated for the modernization of the existing copper access network on the basis of a depended note FTTC concept, Jordanovac 8) with complete protection of the quality of the introduced broadband services from the CO location (Peščenica) through use of VDSL2-8b transfer technology.

1.3.5 Internet neutrality, openness and quality

The Internet has become an indispensable tool in everyday life and work. Such success of the Internet results for the most part from its openness as a platform which enables the development of innovative services and applications. Therefore, regulatory objectives such as the preservation of openness of the Internet, the promotion of end users' freedom to access the Internet and distribute its content and to start the applications of their choice, and the freedom to promote innovations are of great importance. Those objectives can be achieved if the Internet is managed according to the principle of „network neutrality“.

Internet was originally envisaged as neutral and open. Neutral means that all traffic on the Internet is treated equally, that is, all packages entering the Internet are treated in the same manner while travelling through the network from their source to their destination. Open means that any device which is compatible with a defined standard may be connected to the Internet. HAKOM has been monitoring these issues since the beginning of 2010. In 2015 the majority of HAKOM's activities concerned the assistance with the development of the TSM Regulation¹¹ within the framework of BEREC's work. The main purpose of the TSM Regulation is to protect the end users' rights related to Internet use. The Regulation provides for the rights of end users to be entitled to use their Internet access service to access and distribute information and content and to use and provide applications of their choice, regardless of the end user's or providers location and of the origin or destination of information, content, application or service. HAKOM is obliged to monitor and ensure the alignment of the Regulation and to promote continuous availability of Internet access service of a quality level that reflects technological progress.

In 2015 HAKOM did not receive any user complaints concerning difficulties with Internet access service concerning the blocking or slowing down of use of certain applications or services or concerning price discrimination thereof.

With a view to achieving better monitoring of the quality of service (speed) of broadband Internet access, HAKOM has, since 2012, ensured to end users and operators a free certified tool for measuring access speed **HAKOMetar**¹².

HAKOMetar is available to end users who may use it to test broadband speed in the fixed network and compare it to the speed agreed with the service provider. Furthermore, the results of the

¹¹ Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union

¹² <http://www.hakom.hr/default.aspx?id=1144>

measuring serve at the same time as the basis for complaints to operators if such speed is lower than agreed. More than 17,000 individual measuring activities have been carried out in 2015, that is, more than 12,600 measuring cycles have been initiated and 218 completed measuring cycles initiated by the users fulfilled the requirements for submitting the complaint to the operator by the end user. All of these data show that the majority of operators provide Internet access speed that has been agreed in subscription agreements.

1.4 Inspection supervision in electronic communications networks and services

Inspection supervision in the electronic communications and services sector was focused in 2015 on the protection of users of electronic communications services with a view to improving the operators' procedures for dealing with user complaints and providing complete information to future end users when submitting the request for an electronic communications service. The object of supervision were operators' background offices and external selling points. Special attention was focused on the resolution of requests for the removal of ECI and for ensuring the security of the electronic communications network on the basis of the Ordinance on right of way certificate and fee.

All of the above was carried out with a view to dealing with systematic problems occurring on the market during use of the electronic communications networks and while providing electronic communications services, universal services and protecting the rights of users of services, building, installation, maintenance and use of electronic communications infrastructure and associated facilities, conditions of fair competition and rights and obligations of participants on the market of electronic communications networks and services, data protection and safety of electronic communications, protection of security and integrity of networks and the similar.

This also included inspection supervision of the fulfilment of regulatory obligations and the continuation of activities and measures started in 2014 concerning the fulfilment of obligations laid down in the ECA concerning the functioning of emergency service numbers and number portability service, and in order to achieve harmonized provision of electronic communications services in compliance with the provisions of the ECA and implementing legislation. One of the strategic activities included supervision over providers of universal services aimed at ensuring the prescribed quality of universal services in the entire territory of the Republic of Croatia in terms of quality of services and network accessibility.

In addition to regular activities, activities carried out in 2015 included inspection supervision of implementation of B2B functionality, the functioning of routing of emergency services numbers, quality of Internet access, handling of traffic data from a publicly available telephone service, actions undertaken by operators to resolve user complaints concerning bills or quality of provided service in order to assess the compliance with deadlines for the resolution of bill complaints or quality complaints, complaints against fees for delayed number porting, updating of the directory of subscribers, verification of the directory of a publicly available telephone service and director of special tariff services, proper functioning of pay phones, advertising of services, manner of providing special tariff services and other..

Other activities carried out in 2015 included inspection supervision related to the participation in the work of the Commission for Communication and Coordination of Inspections Competent for Market Supervision in the Republic of Croatia, participation in court proceedings on the basis of summons or as expert witnesses, other organizational and technical activities aimed at achieving functional unity and the necessary cooperation and coordination with other authorities competent for supervision in the Republic of Croatia (AZTN, MINGO, MUP, MPPI, etc.).

For that reason quarterly inspection supervision of operators' sales points and their sales representatives was carried out in 2015. During the above-mentioned supervision irregularities were found related to the change of services of the same operator. Operators HT and VIPnet used the number porting forms for cases when users changed the services (brand) of the same operator, which is contrary to the Ordinance on number portability. HAKOM ordered the above-mentioned operators to change the forms, which they did during inspection supervision. Furthermore, during supervision inspectors checked the compliance with number portability procedures when porting numbers from one network to another and procedures related to operator change and they also inspected the expertise of sales representatives and the way in which they informed users about the conditions of use of the service.

On the basis of received complaints from users, inspection supervision was carried out concerning fees for delayed number porting pursuant to the Ordinance on number portability and appropriate solutions were adopted ordering the operators to correct mistakes when resolving user requests. Furthermore, a series of supervisions were carried out concerning compliance with provisions prescribing appropriate advertising of special tariff services.

Furthermore, in 2015 inspections were carried out upon user requests concerning the removal of the ECI and the payment of the fee pursuant to the Ordinance of the right of way certificate and fee.

In the summer of 2015 HT was subject to supervision concerning the interruption of telecommunications traffic in the islands of Lastovo, Pelješac and Korčula after fires of 21 July 2015 pursuant to the Ordinance on the manner and deadlines for the implementation of measures for the protection of security and integrity of networks and services.

In 2015 several comprehensive inspection supervisions of the existing access networks (hereinafter: existing networks) were carried out in the territory of the Splitsko-Dalmatinska County which focused on quality of service, transfer parameters of subscriber loops, type of interferences and their duration, maintenance (preventive and corrective), accuracy of the existing technical documentation and other information system data of crucial importance for the removal of interferences. The existing situation and the analysis of the measuring results showed, in general a poor state of those networks. Therefore, deadlines have been defined (6 months) for the removal of the noticed deficiencies. In the territory of Dalmatinska zagora, due to a series of objective and subjective factors, there are significant issues with the influence of atmospheric on NGN access networks and systematic and detailed resolution of that problem would require the taking of certain general steps. Especially since the first analyses of the above-mentioned programme show that the realization of a completely optical NGN network does not eliminate the problem in its entirety but only mitigates it to a certain extent. The number of such inspection supervisions should be increased in 2016 in order to force the infrastructure operator (network owner) to quality maintenance, in particular since it is planned that the NGN network will be realized in suburban and rural areas through use of advanced DSL technologies (Vdsl2, Vplus and the similar) in the first place for economic reasons.

User complaints because of unsatisfactory transfer speed mostly resulted from problems caused by excessive length of subscriber loop. These problems were resolved by means of the universal service and additional regulatory measures facilitating the incumbent's modernization (reducing the price of modernization per termination point) of the existing access network in rural and sparsely populated areas (subscriber loop length exceeding 2,5 km).

2 MANAGEMENT OF LIMITED RESOURCES

HAKOM is in charge of efficient management of the spectrum and the addressing and numbering space which are naturally limited resources. The efficient use of these goods is of national interest in the Republic of Croatia and it enables the introduction of new technologies and services and the development of the economy in its entirety.

2.1 Spectrum Management

Efficient spectrum management is one of HAKOM's main tasks. On the territory of the RoC, spectrum management refers to the planning and preparation of technical parameters, the granting of licences for use of the RF spectrum and control of the spectrum. At the international level this refers to the coordination of use of the spectrum in accordance with the valid International Telecommunications Union (ITU) and the European Conference of Postal and Telecommunications Administrations (CEPT) decisions and recommendations and the valid international agreements. By means of its activities in the area of spectrum management HAKOM ensures uninterrupted operation of radiocommunications services and the protection of health and safety of users and other persons.

2.1.1 Efficient spectrum management

Important events in the area of spectrum management in 2015 included the participation of HAKOM's experts in the work of the World Radiocommunications Conferences (WRC-15) and the preparations for the freeing and allocation of the 700 MHz band (the so-called second digital dividend - DD2). In order to align the use of the spectrum in the Republic of Croatia with amendments of international regulations and recommendations and with regulations at the EU level, a proposal of amendments to the Radio Frequency Allocation Table was drafted and the necessary general licenses were amended and /or prepared.

The structure of spectrum usage is not static and it is constantly developing due to changes, in particular in the technology sector. The purpose and allocation of the spectrum for different uses must keep abreast of the changes. In early 2015 HAKOM drafted a new proposal for amendments to the Radio Frequency Allocation Table which comprises the coordination of use of individual frequency bands for certain uses in compliance with European decisions and recommendations thus stimulating the development of those changes and fulfilling the requirements of the market and the industry. Amendments most refer to short range devices (hereinafter: SRD) for various new uses, for mass-consumption products that may easily be carried over borders and used in the entire territory of the EU or even further. Furthermore, the proposal for amendments to the Allocation Table also included additional access technologies and frequency bands for mobile communications services on airplanes and vessels.

HAKOM organized a public consultation on the proposal for amendments to the Allocation Table in May 2015 which was followed by the adoption of the Ordinance on amendments to the Ordinance on the use of the radiofrequency spectrum.

For the purpose of coordination of use of the spectrum at the EU level, the use of the spectrum was coordinated for SRD devices, ultra-wideband technology equipment (UWB) and wireless audio equipment for the production of Programme Making and Special Events (PMSE). Furthermore, additional access technologies (UMTS and LTE) and frequency bands for mobile communications services on airplanes (MCA services) were included and the use of mobile communication services on ships (MCV services) was enabled.

In 2015, HAKOM amended the technical requirement for spectrum use in 20 existing general licence and prepared 16 new licences. On the basis of general licences, the devices in question may freely be

used in the entire territory of the Republic of Croatia without the need for an individual license for use of the RF spectrum. All issued general licenses have been published on HAKOM's website.

In October of 2015 HAKOM allocated a license for the spectrum in the 3410 - 3600 MHz frequency band to a company NOVI-NET TELEKOMUNIKACIJE d.o.o., a regional electronic communications operator from Čakovec. Licences were issued for the region comprising the Međimurska County and Varaždinska County for a period of 8 years for 2x14 MHz and 2x21 MHz frequency blocks. Licences enable the operation of the broadband wireless access network, that is, of a network that may achieve Internet accessibility and voice transfer in areas without appropriate wire or optical infrastructure. The former operator's license, which was allocated for the territory of the Republic of Croatia, was revoked and since this operator had users in North-Western Croatia, this new allocation is of particular importance for the survival of the regional operator. Users from that area will at the same time have a greater selection of operators and services in their area. Since this is a rural part of Croatia, for a large number of users this might be the only operator who will be able to offer to them electronic communications services at an acceptable price.

In the Allocation Table the spectrum in the 3410-3600 MHz band was intended for IMT, which includes different technologies, including LTE. Taking into account the technological development and market needs, in order to prepare for the enabling of the LTE technology in this frequency band in the future, in November 2015 HAKOM signed an agreement with Austria, Hungary, Serbia, Slovakia and Slovenia which was based on 5MHz channel width. In this manner operators in border areas will be able to use certain channels in the future.

In October of 2015 HAKOM organized in cooperation with the Agency for Electronic Media (hereinafter: AEM) a meeting on the topic of "Digital radio in the City of Zagreb" which was attended by representatives of state administration bodies, the scientific community and radio broadcasters from the Zagreb area. The participants of the meeting learned about technical possibilities to launch digital radio in the city of Zagreb.

The planned improvement of the procedure for the electronic issuing of licenses and certificates of compliance will be possible when HAKOM fully implements the use of the electronic signature which requires certain subordinate legislation at the level of the Republic of Croatia.

In 2015, HAKOM issued, pursuant to the Ordinance on fiscalization in cash transactions, 14 certificates of inability to establish an internet connection for the exchange of data with the Ministry of Finance and the Tax Administration. By issuing such certificates HAKOM participates in the implementation of measures for efficient supervision of cash transactions.

Within the framework of its regular activities concerning the issuing of licences for the use of the RF spectrum, HAKOM issued 4688 licenses in 2015, which is a 16 % increase compared to 2014.

The Second digital dividend

In the previous year HAKOM has started with the preparations for the switchover of the digital terrestrial television to the DVB-T2 system and for the allocation of the 700 MHz band for mobile communications networks. In February of 2015 HAKOM organized a "Second Forum on the Future of the UHF Band (second digital dividend and digital terrestrial television). This event gathered representatives of participants on the electronic communications market and the media, of state administration bodies, of the economic community and of the scientific community with a view to informing and continuing the discussion on the future of use of the UHF frequency band, "the second digital dividend" and on the needs, perspectives and possibilities for the development of television, that is, of mobile communications and other services in the 470-790 MHz frequency band. The discussions in the two thematic parts focused on technical, regulatory and economic aspects of the switchover of the digital terrestrial television to DVB-T2 standard and the future digital dividend. In the first part of the forum HAKOM presented the regulatory framework related to DD2 and the company Odašiljači i veze d.o.o. presented their view of technical and cost aspects from the point of

view of a network operator of terrestrial digital television. Advantages of the DD2 were pointed out that will enable further increase of availability of broadband internet access in the entire Republic of Croatia and the development of new services and the fact that the allocation of DD2 is closely related to the switchover to a more efficient and more advanced digital terrestrial television system DVB-T2 that will enable lower broadcasting prices for broadcasters and better picture quality (HD) for end users. A round table was also held which included discussions on preparations and costs of switchover to the DVB-T2 standard, about media needs in the Republic of Croatia, new technologies and trends and their future in the UHF band. The topic of the second part of the forum was related to interests and possibilities for investments into DD2. The round table, which was attended by representatives of mobile communications operators, covered the need of individual operators for the DD2 spectrum, the possibilities for investment, uses for end users and new services that occurred after the allocation of the DD2 spectrum.

In order to free the 700 MHz band, it is necessary to completely re-plan the entire spectrum in the 470-790 MHz band and enable easier optimization and international coordination of the remaining spectrum for broadcasting at the regional level. For that purpose the South European Digital Dividend Implementation Forum (SEDDIF) was established comprising, inter alia, the regulatory authorities of Albania, Austria, Bosnia and Herzegovina, Bulgaria, Montenegro, Croatia, Macedonia, Hungary, Moldova, Romania, Slovenia, Serbia and Turkey. The results of the SEDDIF will contribute to the process of international coordination of frequencies necessary for the switchover to DVB-T2 and the freeing of the DD2 spectrum for services in mobile communications networks.

By using the 470-790 MHz band for digital television and receivers adjusted for reception in the entire 470-862 MHz band, the use of LTE may cause interferences with the reception of television channels by end users in the 790-862 MHz band. Interferences resulting from the installation of base stations are under the competence of mobile communications operators. In its 2015 Financial Plan HAKOM envisaged funds for the financing of the purchasing and installation of filters for the elimination of interferences caused by outdated TV receivers to end users (TV viewers). In 2015 two requests were received for such elimination of interferences. The small number of requests is a consequence of the installation of base stations by operators at locations where no interferences are expected.

The Commission for the drafting of the proposal for the Strategy for Switchover of Digital Terrestrial Television to DVB-T2 and for the allocation of the 700 MHz frequency band was established in October 2015 and it is presided by HAKOM. This Commission is tasked with drafting the proposal for the Strategy whose objectives and action plans will be completely aligned with the European Commission objectives and strategic documents and with the definition of measures and activities that will ensure the implementation of the Strategy, that is, of its main objectives – the development of new services in mobile communications networks and the preservation of competitiveness of the digital terrestrial television as well as ensuring the efficient management of the spectrum. Pursuant to international guidelines, the freeing and allocation of the 700 MHz frequency band is expected around 2020 which is the deadline for the replacement of digital terrestrial television services in the 470-694 MHz band. The Republic of Croatia has envisaged a digital switchover to the DVB-T2 system which could ensure the competitiveness of the terrestrial distribution platform in the long run but it is a long-lasting and financial demanding process which influences all participants on the terrestrial digital television market that must be carefully planned. The Commission has started its work and the final proposal for the Strategy is envisaged by the end of 2016.

WRC

The World Radiocommunication Conference (WRC-15) was held in Geneva in November 2015 and it was attended by HAKOM's representatives. WRC is the most important international gathering in the area of radiocommunications where amendments to ITU Radio Regulations are adopted and the international Spectrum Allocation Table is established which is very important because of global

coordination of the RF spectrum. The WRC was attended by more than 3800 delegates from the entire world and decisions were adopted on around twenty topics related to the use of the spectrum by various services, from broadcasting and mobile communications networks to the satellite spectrum necessary for pilotless aircraft operation.

One of the most important topics was the introduction of the Global Flight Tracking – GFT system as a result of crashes of Air France in 2009 and Malaysia Airlines in 2014. The countries agreed that the spectrum in the 1087.7-1092.3 MHz band would be reserved for the Aeronautical mobile-satellite service (Earth-Space) for the satellite reception of ADS-B emissions (Automatic Dependent Surveillance-Broadcast) from airplanes in accordance with the standards laid down by the International Civil Aviation Organization (ICAO).

The most discussion focused on the planned allocation of new frequency bands for broadband mobile communications networks and the digital dividend. The lower part of the broadcasting UHF spectrum (470 - 694 MHz) in Region 1 (Europe, Africa, Middle East west of the Persian Gulf, including Iraq, former Soviet Union countries and Mongolia) continued to be reserved exclusively for television thus ensuring regulatory security for further investments and development of audiovisual services and electronic media.

The 694 MHz frequency was defined as the border for the digital dividend, thus confirming the allocation of the 694 - 862 MHz band for the development of 4G networks. The L band (1427-1525 MHz) was allocated for mobile broadband networks at the international level as well as the C band (3400-3600 MHz), which was aligned for use of mobile IMT services. The international coordination of additional frequency bands for mobile broadband networks created technical preconditions for the introduction of additional services and for greater speed of mobile networks.

The 694-894 MHz band was coordinated in all regions for the Public Protection and Disaster Relief (PPDR) systems.

Frequency bands at 12, 14, 20 and 30 GHz were allocated for satellite operation of pilotless aircraft (drones) at great distances.

The allocation of the 1715-1800 kHz band for amateur service and of the 47-68 MHz band for the mobile service were important for the Republic of Croatia which needed to adjust its needs within the framework of Radio Regulations.

Furthermore, the Director of the Radiocommunications Bureau, Mr. Francois Rancy informed of activities undertaken concerning the elimination of interferences from Italy in other countries. The Croatian delegation stressed that the Republic of Croatia, like other neighbouring countries, has significant problems with TV and FM interferences from Italian transmitters which are not part of the international plan and are not coordinated. The Republic of Croatia welcomed measures undertaken by ITU and the Director of the Radiocommunications Bureau which have to be continued in any case. The Croatian side also requested from Italy to continue, in cooperation with the neighbouring countries, with the activities that will contribute to faster and permanent elimination of interferences.

Topics for the next world conferences to be held in 2019 and 2023 were defined which include, inter alia, the allocation of additional bands for 5G networks.

2.1.2 Public mobile communications networks

In late 2015 HAKOM allocated the remaining part of the spectrum in the frequency band for mobile communications networks 1805-1880/1710-1785. Since this was the last free part of the spectrum in the above-mentioned frequency band, the allocation was carried out in the public auction procedure. The auction was launched in early October and the entire procedure was successfully completed with the adoption of the award decision and the issuing of the license for use of the spectrum, which was

adopted in mid-November. VIPnet d.o.o. was allocated two frequency blocks from 2x3 MHz and 2x4,8 MHz This allocation will bring additional one-time revenue for the State Budget amounting to HRK 141.4 million and the annual fee amounting to 0.5 % of the annual gross revenue from the provision of electronic communications networks and services on the market on the basis of the allocated spectrum for the public mobile communications network until 2024.

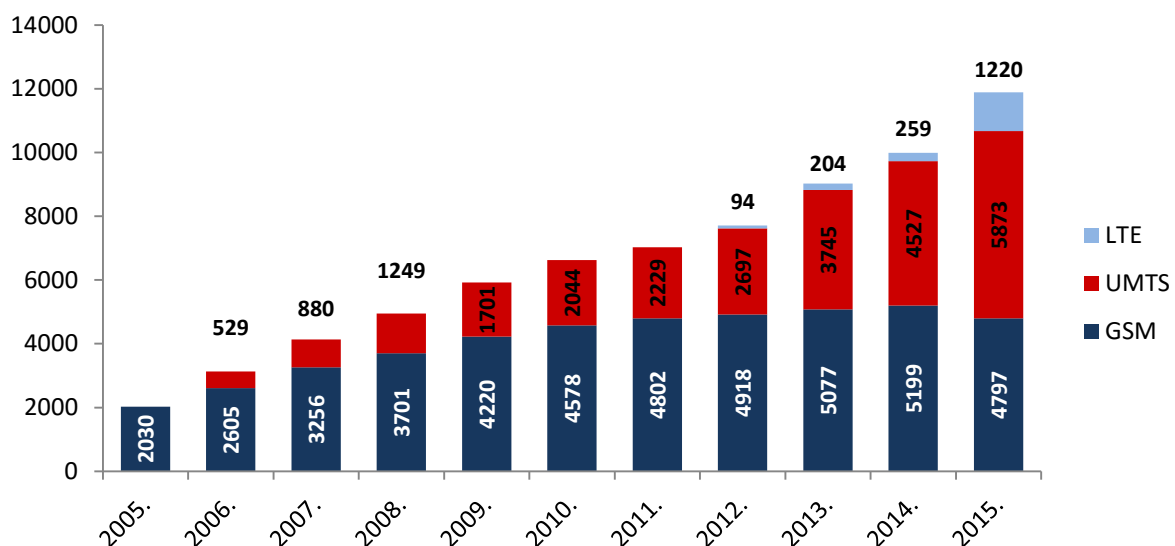
All valid licenses for use of the RF spectrum issued to mobile communications operators are technologically neutral and the corresponding allocation plans permitted a flexible implementation technology, which means that operators are free to use all existing technologies permitted for mobile communications (GSM, UMTS or LTE) even in the previously allocated bands.

In 2015 HAKOM adopted allocation plans for frequency bands 1920-1980/2110-2170 and 1452-1492 MHz The allocation plan for the 1920-1980/2110-2170 MHz band enabled the use of the LTE technology in that band and the adoption of the Allocation Plan for the 1452-1492 MHz band ensured the possibility for the expansion of download capacity of mobile communications operators.

An agreement between Bosnia and Herzegovina, Montenegro and Croatia on the allocation of preferential frequencies and coordination of the HSM system in the 880 – 915 / 925 – 960 MHz and 1710 – 1785 / 1805 – 1880 MHz frequency bands was signed in June 2015. This Agreement is based on the existing European decisions and recommendations and it enables more efficient use and simpler planning of the spectrum in border areas.

During 2015, as part of its regular activities, HAKOM issued certificates of compliance for radio stations complying with restrictions laid down in the Ordinance on protection against electromagnetic fields. In the verification process special attention was usually dedicated to areas of increased sensitivity (residential areas, schools, pre-school facilities, hospitals and the similar). In case of need of public interest, HAKOM also carried out additional measuring in order to verify the compliance with regulations, that is, in order to make the entire verification procedure more transparent. Figure 2.1. shows an increase in the number of notified base stations according to technology in the RoC.

Figure 2.1. Number of base stations



2.1.3 Private mobile communications networks

The same number of licences for private mobile networks (PMR) was issued in 2015 as in the previous years. There was a significant growth in use of digital technology which is expected to additionally grow during 2016 and to achieve the same share as analogue technology.

Measuring of the spectrum was carried out in 2015 in the 136 – 174, 410 – 430 and 440 – 470 MHz bands with a view to implementing smaller PMR networks and, in particular, the network of the company Odašiljači i veze d.o.o. (hereinafter: OIV). Details of a multilateral agreement (Croatia, Hungary, Serbia) in the 410 – 430 MHz band were agreed, and its signature is expected in February 2016. This agreement will enable the realization of the Croatian electricity provider's (HEP) TETRA network and the possible beginning of development of OIV's DMR Network.

Negotiations continued concerning the recognition of registers of coordinated frequencies with the Republic of Slovenia. An agreement was signed with Slovenia, and the signature of an annex to this agreement is expected in the first half of 2016.

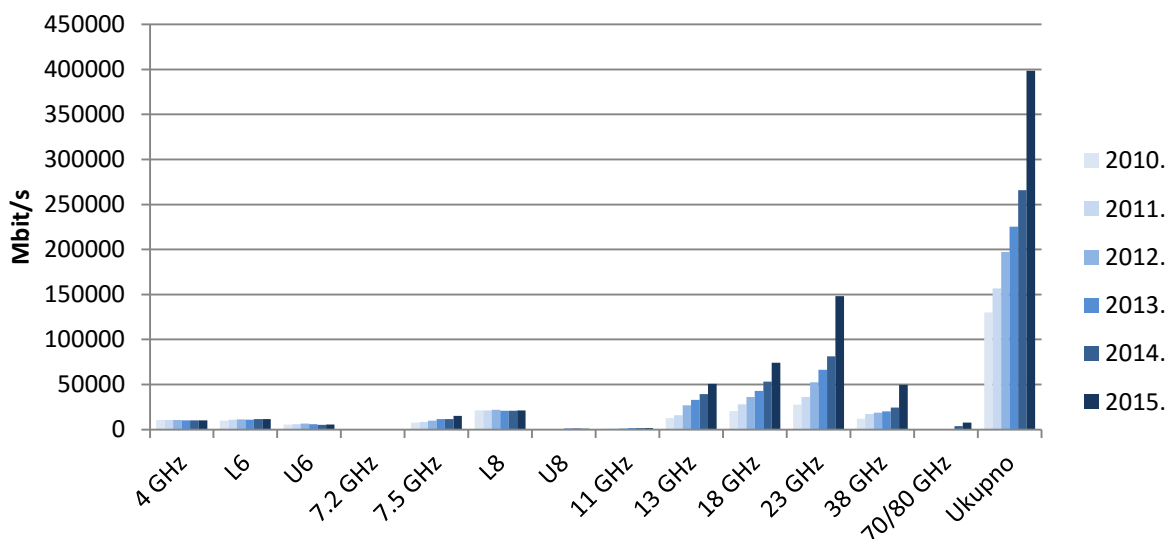
Cooperation with the Ministry of Defence was intensified with a view to achieving a more rational use of the spectrum and the elimination of interferences that may occur in the frequency bands intended for civil and military use.

2.1.4 Microwave and satellite networks

Efficient management of the spectrum is one of HAKOM's basic activities, including in the area concerning microwave and satellite links. The activities of frequency planning and international coordination of microwave links were carried out as part of regular HAKOM's activities in 2015. The purpose of international coordination, which is carried out pursuant to the provisions of the HCM agreement, is to ensure uninterrupted operation of microwave links within the Republic of Croatia and with the neighbouring countries, while frequency planning is carried out as part of the procedure for the issuing of licenses for microwave links and must ensure their continuous operation in the Republic of Croatia.

A significant increase of the number of issued licenses for microwave links was recorded in 2015 – a total of 1558 were issued, compared to 1033 issued during 2014. The number of active microwave links in the Republic of Croatia increased in the same period by 3,7 %, while the biggest number of issued licenses is related to amendments of the existing microwave links. This primarily referred to the improved transfer capacity of links.

Figure 2.2. Total transfer capacity of links per frequency areas



As illustrated in Figure 2.2., the capacity of microwave links increased most significantly during 2015 in a great number of frequency bands, in particular in those which are to the greatest extent used by mobile communications operators. Transfer capacity increased on average by 50% and it results from preparations of mobile communications operators to switch from third generation networks (3G) to fourth generation mobile communications networks (4G). Coverage with 4G signal outside of larger cities in the Republic of Croatia requires more transfer capacity in the transport network. Thus the average microwave link capacity in 2014 amounted to 79 Mbit/s, while for 2015 it amounted to 114 Mbit/s.

HAKOM followed the above-mentioned trends and adjusted the relevant regulations (e.g. the Allocation Plan for Microwave Links) in order to satisfy market needs for additional transfer capacity.

As part of its regular activities, HAKOM processed requests for satellite links and applications for installation of radio stations in the satellite service operating on the basis of issued licenses. The received coordination requests for satellite networks were analysed and processed pursuant to ITU's procedures.

In 2015 HAKOM worked on the adjustment of regulatory provisions with a view to enabling the introduction of new systems in the satellite service. For that reason, it is envisaged that in the future years and in the territory of the Republic of Croatia parts of a hybrid satellite system with a

complementary ground component (CGC) will be built enabling broadband communications with aircrafts.

HAKOM also regularly kept and maintained a list of registered installed radio stations for fixed and satellite systems operating on the basis of the issued basic licenses.

2.1.5 Radio networks

In compliance with obligations laid down in the ECA, 2015 saw the continuation of activities of planning and optimization of FM radio networks in the 87,6 MHz – 107,9 MHz frequency band, as well as activities of international coordination of radio stations, of ensuring technical conditions for new concessions for the provision of media radio services and improvement of coverage of the existing broadcasters.

Give FM radio stations stopped their operation in 2015, and four new were started. At the end of 2015 the Republic of Croatia has 155 active analogue radio networks: 11 public (HRT: 3 state and 8 regional levels) and 144 commercial (3 state, 3 regional, 20 county and 118 city / local level). There is interest for the starting of new radio stations and, on the basis of a request submitted by the Agency for the Electronic Media (AEM), HAKOM initiated a procedure for the international coordination of technical parameters of radio stations in areas where this was possible due to the density of the radio spectrum.

Data on free frequencies for new networks, and on the allocated frequencies for the existing networks, are published by HAKOM in the database for the RF spectrum for radio which is publicly available at HAKOM's website. In 2015, HAKOM regularly updated the mentioned data on the basis of results of international coordination, planning and optimization, that is, on the basis of cooperation with the AEM.

HAKOM's regular activities included the submission of notifications to EAM on amendments to technical parameters of existing broadcasters and it replied to questions concerning the existence of conditions for the granting of concessions in individual areas. As a precondition for the signature of the concession agreement, HAKOM carried out technical evaluations of the fulfilment of minimum conditions for the carrying out of media activities. Furthermore, HAKOM processed requests for the granting of licenses for use of the RF spectrum in broadcasting and issued new licenses for the putting into operation of new broadcasters, the amendment of data from the existing licenses and the renewal of validity of licenses for transmitters with expired licenses.

As part of international activities related to the coordination of technical parameters of radio stations, HAKOM organized a bilateral coordination meeting with the Hungarian administration in February 2015.

International cooperation continued through the coordination of radio frequencies by means of correspondence in accordance with international agreements. HAKOM thus initiated a series of procedures for the coordination of technical parameters of radio stations and received and replied to a number of requests from the neighbouring countries (Austria, Bosnia and Herzegovina, Germany, Italy, Hungary, Slovenia and Serbia).

FM/T-DAB radio stations published in the ITU BRIFIC (Radiocommunication Bureau International Frequency Information Circular) notification were analysed on a regular basis for their possible influence on internationally harmonized rights of the Republic of Croatia.

2.1.6 Television networks

In Croatia there are 4 operational terrestrial digital television networks with national coverage, 1 network with national and regional coverage and 3 networks with local coverage. Out of those, two national networks transfer the DVB-T2 signal of the MUX C and E multiplexes, which are coded in the

MPEG-4 standard, while the remaining networks transfer DVB-T signals f MUX A, B, D multiplexes (national- regional and local level) and L-ZA, free for public reception, which have been coded according to MPEG-2 standard. Pay TV programmes of the EVO TV platform are broadcasted within the MUX C and E.

In accordance with the issued licences for use of the RF spectrum for digital television, an operator of digital television networks may optimize the network by putting into operation new transmitters or by changing the parameters of the existing networks. In 2015 HAKOM issued the necessary parameters and certificates of compliance of the radio station for all transmitters put into operation.

HAKOM continued with preparatory activities for the freeing of the spectrum in the 694-790 MHz band which is currently used by digital television and which will be used at the European level for mobile communications networks. HAKOM started developing the international frequency plan for digital television in the 470-694 MHz band, which is based on the DVB-T2 standard. The procedure for the international coordination of Croatian DVB-T/DVB-T2 stations with the neighbouring countries continued in 2015 and HAKOM participated in the work of the international group SEDDIF. The database of the RF spectrum for TV was updated on the basis of the results of the planning and optimization of FM networks and international coordination of frequencies.

2.1.7 Control and supervision of the spectrum

With a view achieving the alignment of the use of radio frequencies at the national and international level, carrying out of control of the RF spectrum, measuring, testing, establishing and removing causes of interferences as well as other technical tasks within the framework of efficient management of the RF spectrum, HAKOM has developed a control and measuring system in the territory of the RoC.

Four control and measuring centres were established in the territory of the Republic of Croatia in HAKOM's headquarters in Zagreb, and stations were established in Osijek, Rijeka and Split, representing an optimum geographical distribution of HAKOM's control and measuring system for everyday efficient control of the RF spectrum and the carrying out of other technical activities.

Control and measuring centres are supplemented by ten remotely controlled control and measuring stations distributed around the continental Croatia and along the Adriatic Coast thus enabling quality measuring of radiofrequency signals in the entire territory of the Republic of Croatia and the neighbouring countries and the quality and possibility for protection of the RF spectrum, a limited natural resource of interest for the Republic of Croatia.

Everyday control of the RF spectrum and other technical tasks under HAKOM's competence are carried out with the assistance of five measuring vehicles equipped with the measuring equipment.

Since the existing location and facility of the Split station and centre do not fulfil all the measuring and location requirements in terms of equipment and employees, HAKOM established, after years of searching for a suitable location, that the most efficient solution would be the building of a new station and the centre on a new location in Split, the Vrh Visoka street, which fulfils all the measuring (location of land, altitude, height of the surrounding buildings) and business conditions for the location of equipment and employees). After having found the appropriate location, and having prepared and acquired the necessary documentation and licenses and after having concluded contracts for the building of the facilities, HAKOM started the building of the station and centre in 2015 and the completion of the building, equipping and moving in are expected by the end of 2016.

During 2015, like in the previous years, the majority tasks concerning spectrum control referred to the measuring of interferences from Italy that have been interfering with the reception of radio and television programmes in the coastal area of Croatia, from Savudria in the north of Istria to Prevlaka in the South.

Measuring aimed at protecting the spectrum was also carried out as part of everyday supervision and control of the RF spectrum. Everyday measuring was carried out from all four control and measuring centres and ten remotely controlled control and measuring stations, while the measuring vehicles carried out periodic measurements in areas where the immobile part of the measuring system does not provide satisfactory control.

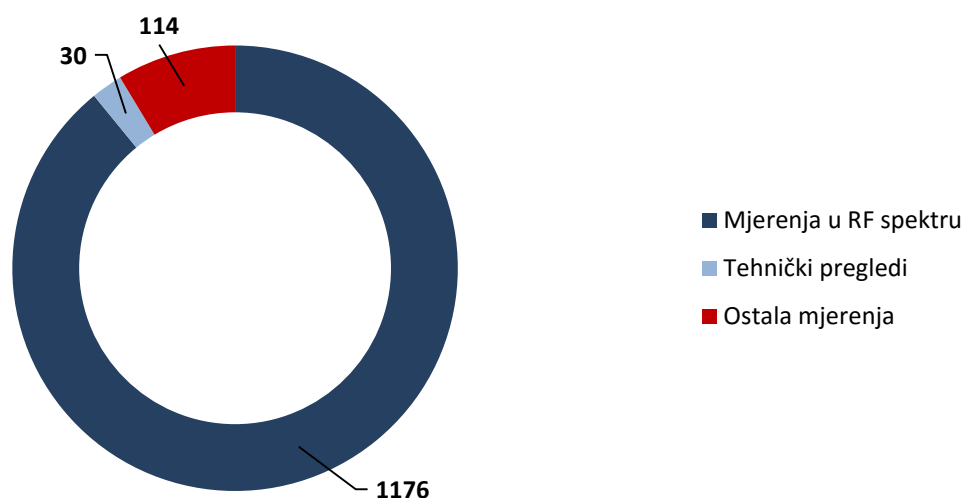
In addition to measuring aimed at the protection or control of the spectrum, measuring for frequency planning and international coordination were also carried out.

In compliance with the 2015 Measuring Plan, all planned measuring campaigns and other measuring activities in the spectrum were carried out successfully, with a special emphasis on the protection against interference. The operation of radio stations in microwave links and radio stations in broadcasting was tested in accordance with the prescribed licences. Figure 2.3 shows the distribution of measuring not covered by everyday and periodic measuring from control and measuring stations.

As part of everyday and periodic measuring from control and measuring stations, more than 4000 measuring activities were carried out in 2015 for the purposes of control of the RF spectrum.

The results of the measuring show further increase in the number of interferences, primarily from internationally uncoordinated radio and television transmitters from the territory of the Italian Republic, while the number of interferences from other neighbouring countries was the same as in the previous years and it included the appropriate cooperation on their removal.

Figure 2.3. Measuring



Measuring of electromagnetic fields

Spectrum control also included the measuring of the size of electromagnetic fields in areas of increased sensitivity for the purpose of efficient protection of human health from the influence of the electromagnetic field. The results of measuring submitted by legal persons authorised for measuring of electromagnetic fields were regularly checked. It was established during the conducted measuring that electromagnetic fields levels are significantly lower than the maximum permitted levels. All the measuring results are published and are available on HAKOM's website¹³

Interferences

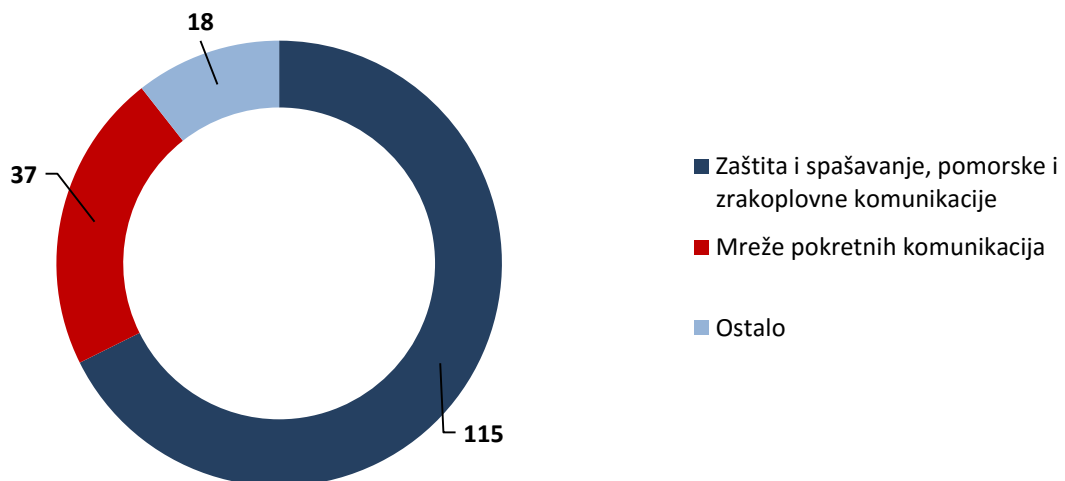
The protection from interferences in radio communications is one of HAKOM's most important tasks, including the ensuring of uninterrupted operation of electronic communications systems and the

¹³ <http://www.hakom.hr/default.aspx?id=1119>

provision of services in the territory of the Republic of Croatia. Special attention is given to state administration bodies in charge of search and rescue, emergency services, maritime and air traffic control radio communications which are important for the safety of human lives and protection of property and operators of electronic communications.

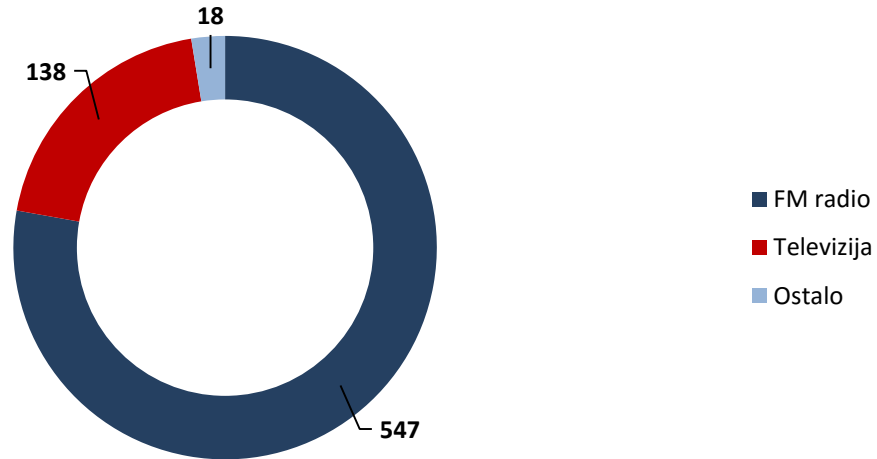
The number of reported and removed domestic interferences or interferences reported by domestic users of the spectrum increased in 2015 compared to 2014. The biggest increase in the number of reported interferences was recorded in the frequency band of maritime and air traffic services, twice as many compared to the year before, while mobile communications networks and other frequency bands recorded a slight increase in the number of reported interferences. Of the total number of reported interferences in the area of maritime and air traffic services, two thirds refer to interferences in the air traffic service, while the rest refers to the maritime service. It may be concluded on the basis of structure of reported interferences in the air traffic service that the increased number of reported interferences is a consequence of better procedures and communication with spectrum users where the biggest number of reported interferences is based on airplane reports and a smaller number of interferences in the terrestrial radio station.

Figure 2.4. Domestic interference



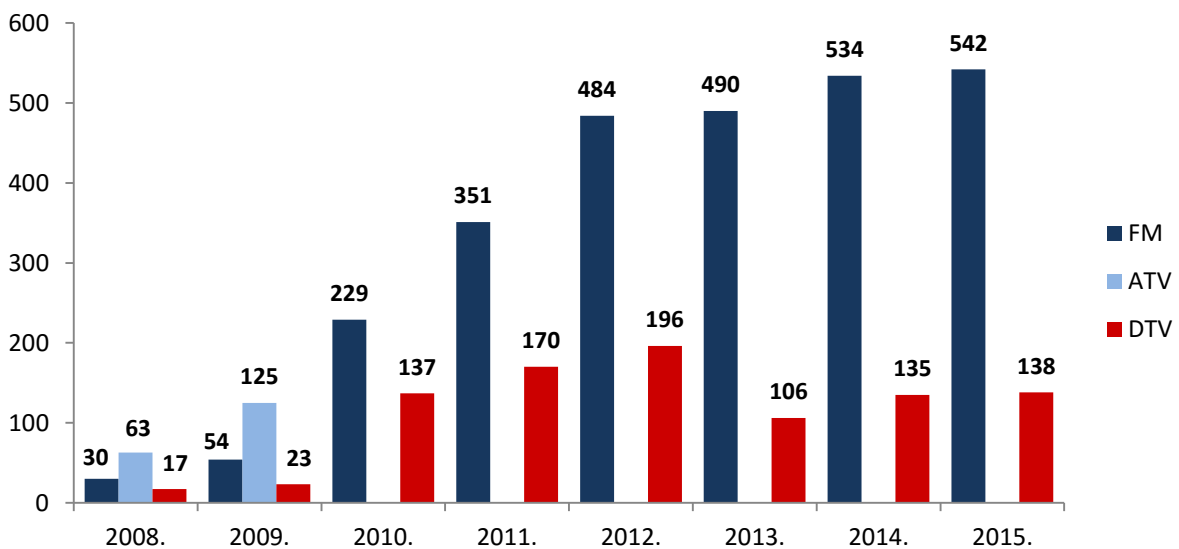
In addition to the above-mentioned domestic interferences, HAKOM also worked in 2015 on the detection and identification of domestic interferences through everyday control and monitoring of the spectrum in Croatia and it initiated procedures for their elimination in accordance with international regulations. Figure 2.5. shows a total number of recorded foreign interferences. The number of recorded interferences in 2015 was somewhat higher than in 2014 primarily due to more recorded interferences in the area of radio and television frequencies originating from Italy, while a smaller number of interferences was recorded in relation to other radio communications services.

Figure 2.5. Foreign interference



A regular signal measuring campaign for FM radio and TV was carried out summer months in the coastal area with a view to monitoring the situation and existence of interference at frequencies allocated to Croatia in accordance with international agreements and plans (GE84 and GE06). Measuring conducted in 2015 showed that significant interferences still originate from the Italian Republic which in summer months prevent quality reception of radio and television channels in majority of Istria and along the coast. The comparison of the number of reported interferences submitted to the Italian Government during 2015 compared to the previous years is illustrated in Figure 2.6. The illustrated data show a smaller increase in the number of reported interferences for FM radio and DTV compared to 2014, which confirms the significant number of interferences occurring in the RoC for a number of years.

Figure 2.6. Italian interferences



Italian interferences in the reception of radio and television programmes in the RoC

The problem of interference of Italian, internationally uncoordinated, transmitters with Croatian radio and television channels along the Adriatic coast has persisted for several decades. The digital switchover in Northern Italy and the beginning of operation of new internationally uncoordinated transmitters in December of 2010 contributed to additional deterioration of reception of digital television in the coastal part of Istria. Following further digitalization in Italy until the end of 2012

interferences spread to the rest of the Croatian coast up to Prevlaka, and the same level of interferences, with slight oscillations, persisted in the recent years.

FM radio interferences from Italy have also increased after year and every year, the level and number of interferences culminate in summer months when it is practically impossible to listen to Croatian FM radio stations in the coastal area.

In 2015, and in the years before, HAKOM invested significant efforts into elimination of the existing interferences with TV channels in the coastal area and into avoidance of further interferences from the Italian Republic.

As a result of an extensive media campaign conducted in the coastal area and on the islands with a view to monitoring and identifying interferences from Italy, 680 international interference reports were sent in 2015 to Italy and ITU, who is responsible for the implementation of international agreements in the electronic communications sector, was informed thereof.

HAKOM also continued its practice of regular reporting on the status of interferences and requested assistance in the resolution of this issue from competent ITU bodies, the Radio Regulations Board (RBB), the Director of the Radiocommunications Bureau (RB).

HAKOM also actively participated in the work of the Working Group for Crossborder Coordination ("Good Office") established by the Radio Spectrum Policy Group (hereinafter: RSPG) with the EC. The working group deals with issues of cross-border interferences from the Italian Republic towards the neighbouring countries and, as a result of activities of interested countries, in the first place of Croatia, Slovenia, France and Malta, the Italian administration adopted a new frequency plan the application of which should contribute to significant reduction of interferences to DTV networks in the Republic of Croatia. Funds amounting to EUR 51 million have been earmarked for the implementation of the measure of switching off and/or replacement of frequencies in Italy.

Since in 2014 the Italian Republic failed to comply with the deadline to switch-off the uncoordinated DTV transmitters causing interferences with Croatian television networks and networks of other neighbouring countries, a new deadline was defined in 2015, that is 30 April 2015, which was not complied with. By means of further activities in the above-mentioned international institutions and with the assistance of the Ministry of Foreign and European Affairs, HAKOM insisted on speeding up the switching off and/or substituting frequencies interfering with the work of DTV networks in Croatia. The Italian Republic finally initiated the planned procedure in the autumn of 2015. In accordance with the plan presented by the Italian administration, the first results of the elimination of interferences should be visible in late April of 2016. However, taking into account the previous experience and delays in implementation until the end of 2015, additional delays with realization can be expected in 2016 as well.

2.1.8 R&TT equipment

In 2015 HAKOM actively participated in the work of a working group for the transposition of the *acquis* in the area of electromagnetic compatibility and radio equipment. This included the drafting of two ordinances: Ordinance on electromagnetic compatibility and Ordinance on radio equipment. The Ordinances will prescribe the conditions that must be satisfied by the products so that an increasing number of users would be able to use the devices without interferences. Directives transposed by these Ordinances serve as a basis for further innovations and developments in the area of mobile communications. Reliable and fast wireless communications are of key importance for the development in industry, services, education, fun and other aspects of life. One of the most important changes should ensure common chargers. It also introduces rules aimed at improving compatibility and instruments for market control, such as monitoring of the responsibility of subjects and the possibility to require the registration of radio equipment of low level of compatibility. These

ordinances will enter into force in April or June 2016 and introduce new requirements for economic operators a products and ensure that only compliant products are placed on the market.

Electronic communications inspectors carried out 45 inspection supervisions in 2015 concerning the placing of R&TT equipment on the market. The inspections resulted in a prohibition to place on the marked and /or use of 5 pieces of R&TT equipment because of formal deficiencies which were not removed within the deadline. Continuous cooperation has been established between the electronic communications inspector's office competent for market supervision of R&TT equipment and the Croatian Customs Administration Inspection supervision is carried out on the basis of a received notification of a temporary suspension of the carrying out of the requested customs clearing of goods within the meaning of the provisions of Regulation (EC) No. 765/2008 of the European Parliament and Council of 9 July 2008. The participation in the work of the Commission for the Coordination between Inspections Competent for the Monitoring of Technical Products placed on the Croatian market resulted in several joint inspection supervisions in cooperation with other national competition protection authorities. Furthermore, there was continuous cooperation with the Customs Administration which includes, on a daily basis, administrative control of import of R&TT equipment originating from the EU.

Electronic communications inspectors organized in cooperation with the Directorate for Economic Inspection of the Ministry of the Economy a training on ICSMS (Information and Communication System on Market Surveillance). ICSMS is a system used by the EU Member States to exchange information about undertaken measures and supervision activities on the product market. In addition to representatives of the EC and HAKOM, the training was attended by representatives of inspection authorities competent for the control of products placed on the market in the role of a user of the ICSMS system.

2.2 Management of the addressing and numbering space

With a view to achieving more efficient use of the addressing and numbering resources in the Republic of Croatia, HAKOM is responsible for the following projects:

- amendments to the Addressing and Numbering Plan in accordance with market requirements and changes,
- supervision of the use and allocation of addresses and numbers to operators pursuant to the Addressing and Numbering Plan,
- number porting, in the sense of the maintenance, upgrading and operation of the central administrative database of ported numbers (CABP).

2.2.1 Addressing and numbering space

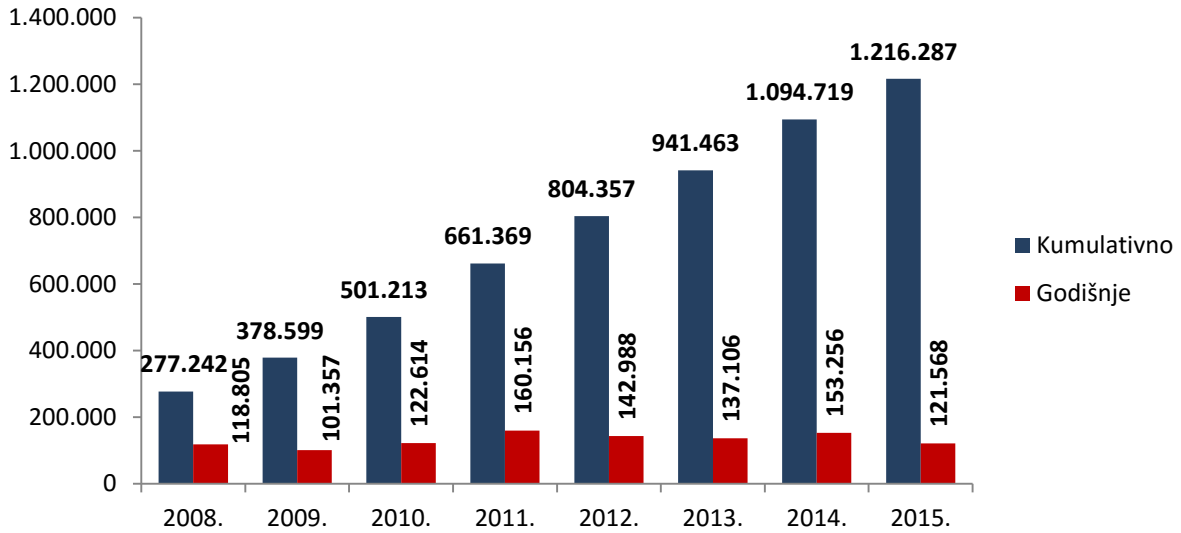
HAKOM initiated a new amendment to the Numbering Plan in 2015 by separating from the existing Numbering Plan the Dialling Plan comprising the possible ways of dialling numbers in the Republic of Croatia. Furthermore, in the past years, developments in electronic communications resulted in increased requests for the allocation of E.164 numbers. The lack of numbers in the existing plans or the lack of the free numbering space for new services resulted in the revision of the Numbering Plan by national regulatory authorities (NRA). Further to the above, HAKOM carried out a detailed analysis of the Numbering Plan in the Republic of Croatia in relation to E.164 numbers and the assessment of the need to close the Dialling Plan on the Croatian market. The analysis showed that the existing open Numbering plan fulfils all the requirements of a good, economical and efficient numbering plan and that the introduction of a closed Numbering Plan in our conditions would result in significantly more disadvantages than advantages.

Because of the growing demand for natural resources of the addressing and numbering space and in order to monitor the development of the market, new services and technologies on the EC market and the application of new ways and systems for the management of the addressing and numbering space, HAKOM has been constantly investing into education and training of the department staff.

2.2.2 Number portability

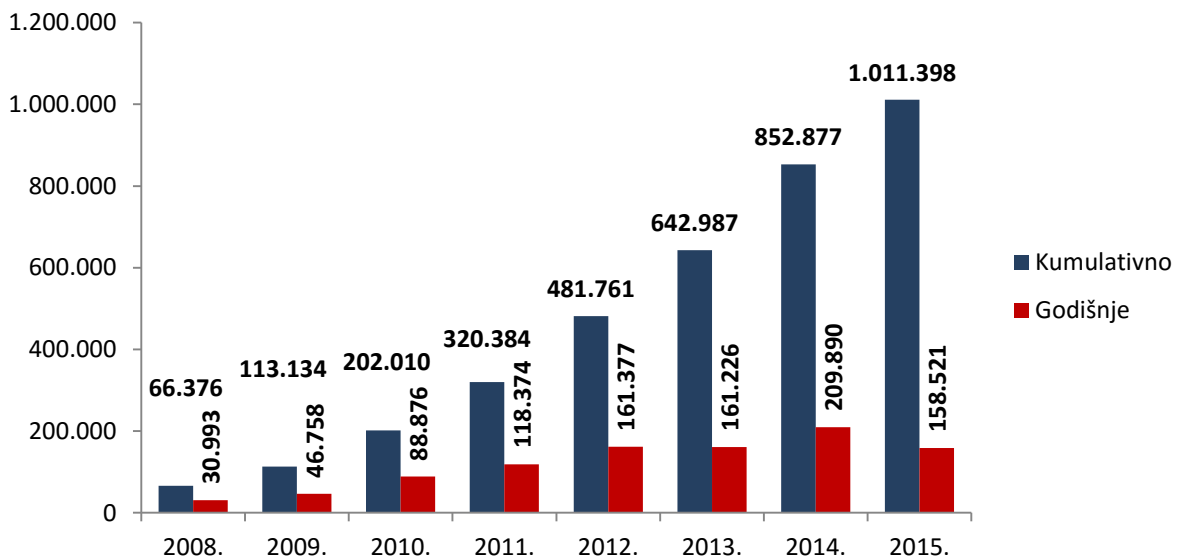
In accordance with market demands, HAKOM introduced the number portability service in 2015 enabling the users to choose the operator that best suits their needs and habits, that is, to transfer into the other operator's network while keeping the current number. Therefore, operators must allow users to keep the same number and the prefix regardless of the destination network.

Figure 2.7. Number of ported numbers in fixed networks



HAKOM is responsible for timely upgrading and regular maintenance of a central database of ported numbers in order to achieve more competition and more attractive services for end users, which must be accompanied by the appropriate number portability procedure.

Figure 2.8. Number of ported numbers in fixed networks



Since HAKOM develops its procedures with a view to achieving user satisfaction, HAKOM's web portal contains a very popular e-Portability application allowing the user to follow the status of the number portability procedure and get information about the network in which the number is located.

3 THE POSTAL SERVICES MARKET

The importance of postal services has not declined in the age of information society but, on the contrary, they remain an important instrument for communication and exchange of information and have an important role in the achievement of social, territorial and economic connection of any country.

3.1 Overview of the postal services market

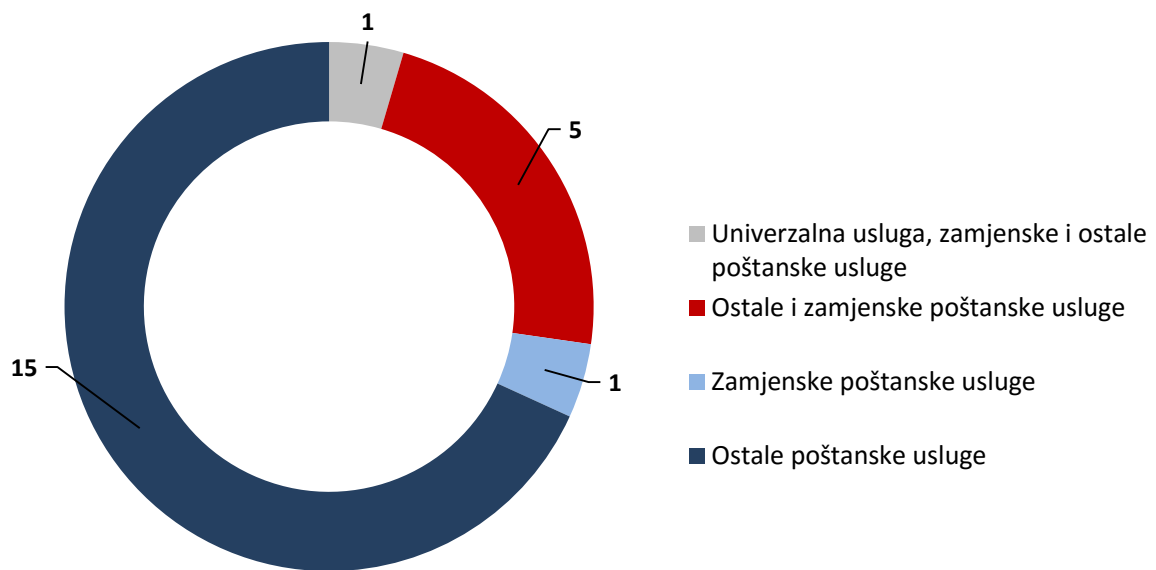
The postal services market in the Republic of Croatia is completely liberalized and it forms a part of the EU single market which in a certain way means that certain movements on the EU market are present on our market as well. Since this country was one of the last ones in the EU to complete liberalization, certain processes that occurred on other markets have not been completely introduced into our market which in the end resulted, in addition to the general economic crisis, in delayed positive effects of liberalization. Furthermore, the progress of information and communication technologies in the previous period resulted in the total fall in the number of postal services but it also started new trends in the provision of postal services enabling the spectrum of new postal services offered by providers to end users, which also influences market development. Like other markets the postal market of the Republic of Croatia recorded a drop in the total number of services with the decreased quantity of postal items and increased amount of package services that are continuously growing, in the first place due to the increase of e-trade and need for physical delivery of goods and products. It may be realistically assumed that the trend will continue in the future as well. Positive effects of the open market are obvious in the international traffic where the number of services increases year after year, while the delivery of packages related to e-trade additionally stimulated growth by eliminating certain barriers to cross-border transport of goods. Considering the envisaged annual growth rate of e-trade and the indispensable role of parcel delivery in that chain, it is expected that the services in international traffic will increase, in particular in services related to parcels. Regardless of the decrease in the total number of services, the revenue from the provision of postal services has slightly grown and the positive trend has continued. This shows that the increased revenue is a consequence of the provision of value added services and that this is the direction that should be followed by providers in the future. It may be realistically assumed that this will be achieved since all the possibilities offered as part of e-trade services have not yet been exploited and they have the greatest potential for growth.

3.1.1 Providers on the postal services market

As in the previous years, the liberalization of the postal services market influenced in 2015 certain changes that took place in all market segments, including with postal service providers. During 2015 the number of postal service providers continuously changed since one provider who did not find his place on the market stopped providing services, while, on the other hand, new operators appeared whose business operations were based on postal services either as a basic activity or as an expansion of the existing business operations with the postal services activity. Therefore, at the end of 2015 there were a total of 22 postal service providers, which is one more than at the end of 2014. It is envisaged that a smaller number of providers will stop working since they would not be able to adjust to the market and that new providers will appear who will look for their place on the postal services market. With a view to expanding their operations in international traffic, it is possible that individual providers will establish cooperation, in particular some international postal companies and providers active on the territory of the Republic of Croatia, which happened during the previous years as well. Furthermore, individual providers expanded the provision of postal services which included the expansion of from domestic to international traffic, and the other way around, from the international to the domestic traffic.

HP is the only provider in the Republic of Croatia providing the universal service who acquired this 15-year obligation on the basis of the PSA. In addition to the universal service, HP also provides interchangeable and other postal services. Out of the total number of providers notified to HAKOM 20 were notified for the provision of other postal services and five of them provide interchangeable postal services as well. Only one provider was notified for the provision of interchangeable postal services (Figure 3.1.). It may be assumed that in the future more providers will be notified for the provision of interchangeable postal services since new amendments to the PSA were adopted in 2015¹⁴. The above-mentioned amendments repealed the provisions on obligatory payments of providers of interchangeable postal services into the compensation fund in order to settle the unfair financial burden for the universal service provider which will be, in compliance with new provisions, compensated from the State Budget funds.

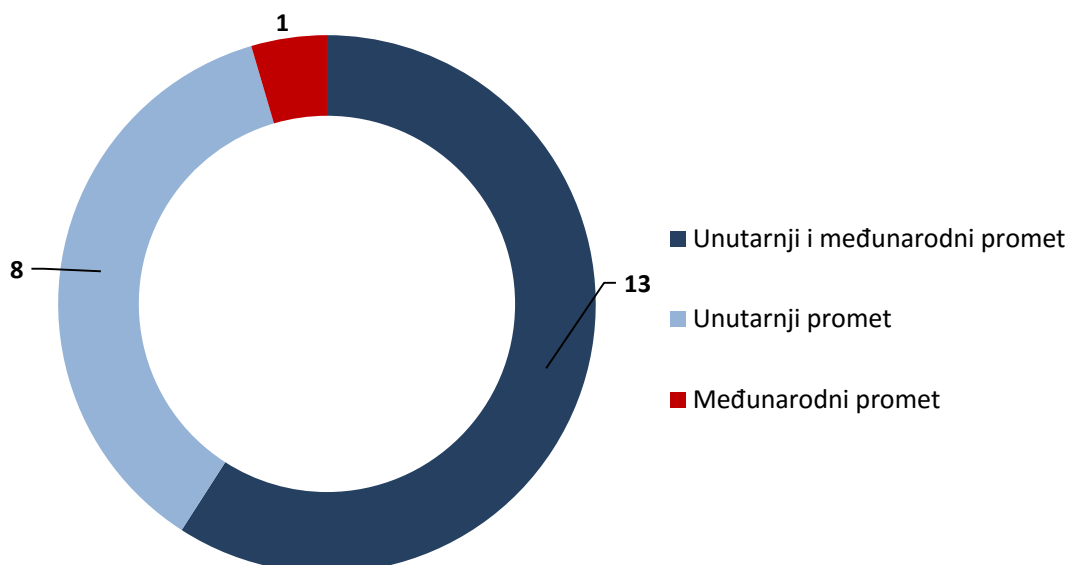
Figure 3.1. Number of providers per types of service



Services in domestic and international traffic are provided by the majority of providers, that is 13 of them, eight providers provide services only in domestic traffic while only one provider provides services in international traffic (Figure 3.2.).

Figure 3.2. Number of providers per area of provision of service

¹⁴ (OG No. 78/15)



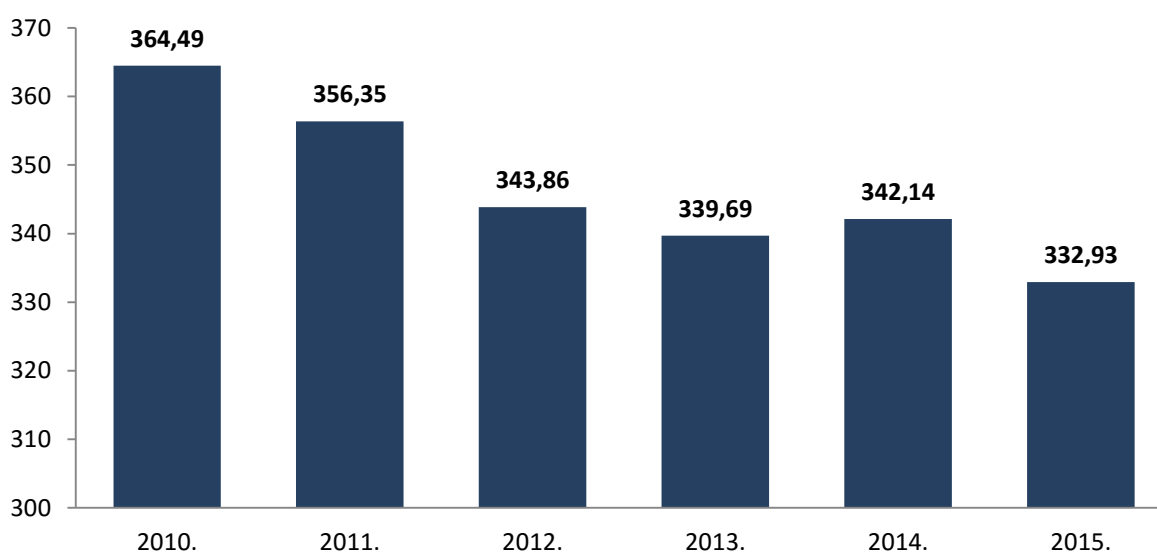
The biggest provider is HP, who was also designated the universal service provider. There are also several alternative providers and providers appearing on the global market (DHL, DPD, FedEx, USP, TNT, GLS and other) who provide their services in their own network or network of other providers. The list of all authorized providers of postal services is available on HAKOM's website¹⁵.

Postal service providers employed a total of 9,600 postal employees at the end of 2015, which is two percent more than the previous year. However, the number of employees in a smaller share of providers decreased while in others it increased, while other providers employ around one fifth of all employees.

3.1.2 Postal services

In 2015 a total of 332,931,212 services were provided on the postal services market, which is 2,7 percent less than in the previous year, which is similar to EU trends but with a smaller decrease than in the EU (Figure 3.3.).

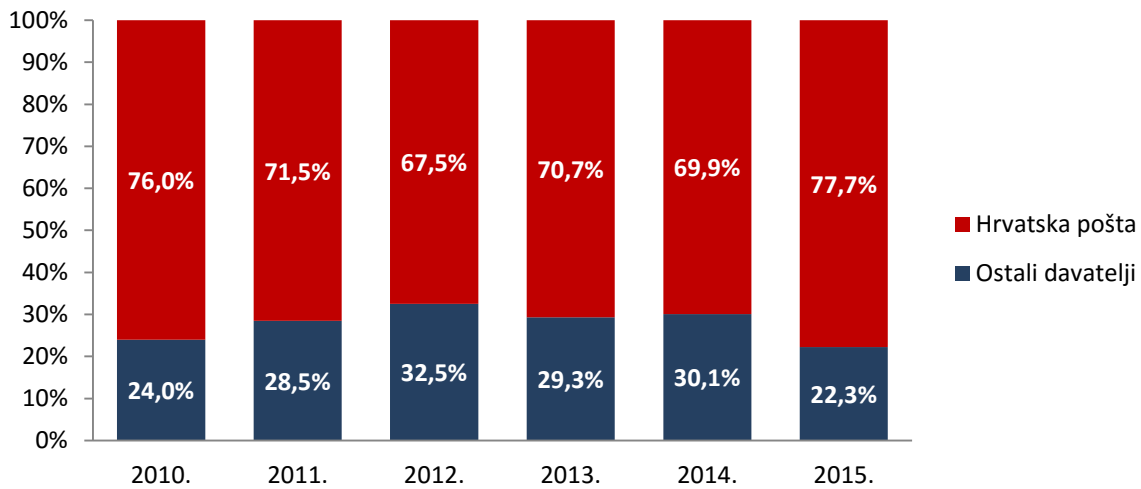
Figure 3.3. Total number of postal services (in millions)



¹⁵<http://www.hakom.hr/default.aspx?id=2637>

The leading provider of postal services was HP who provided 258,779,456 or a total of 78 percent of all services on the market, while other providers provided the remaining 74,151,756 services.

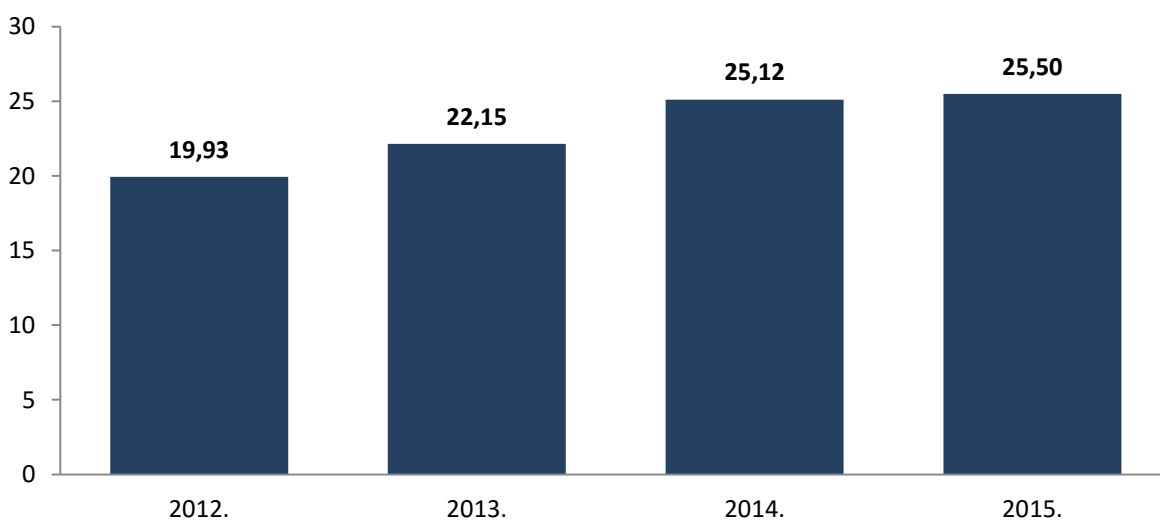
Figure 3.4. Market shares of providers per number of provided services



It must be stressed that HP increased the number of its services by eight percent compared to the year before, while other providers recorded a 28 percent drop, which resulted in the increase of HP's market share by approximately eight percent.

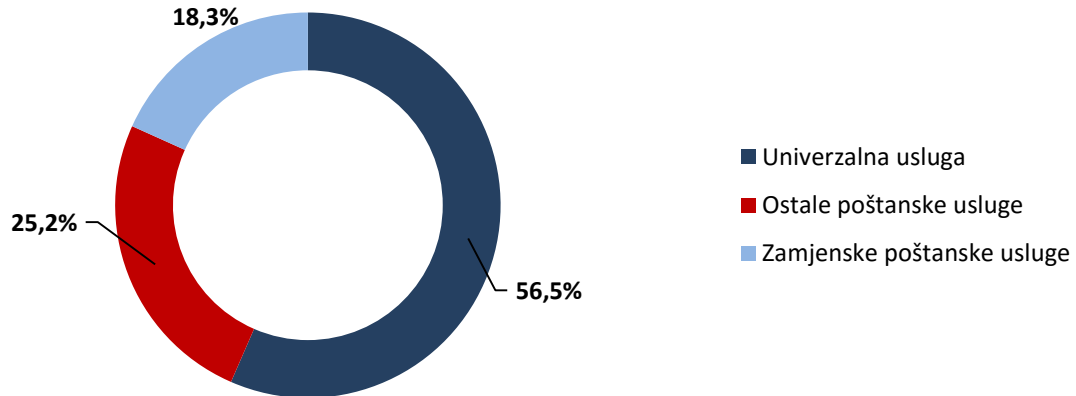
Market liberalization and entry of the RoC on the EU single postal market had a positive influence on international traffic resulting in the increase of cross-border trade year after year. Year 2015 was no exception since the number of international services continued growing although at a smaller rate than in the previous years (Figure 3.5.). The increase of service in international traffic contributed to the increase of share of international traffic in total services which is at 7,7% in 2015 two percent greater than at the beginning of liberalization. The greater share of international traffic is realized through incoming traffic where the majority belongs to e-trade services. It is to be expected that this trend will continue in the future since all the potential offered by the open market and e-trade has not been exploited.

Figure 3.5. Total number of postal services in international traffic (in millions)



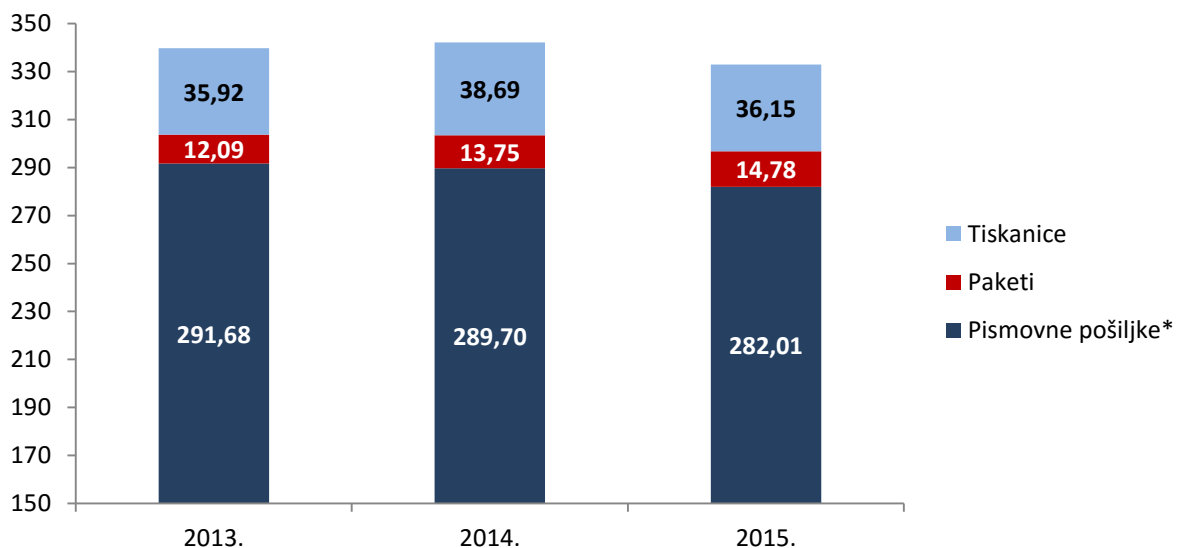
The biggest share in the total number of provided postal services in 2015 belongs to universal services amounting to approximately 58 percent, followed by other postal services¹⁶ with 25 percent, and the rest are interchangeable postal services.

Figure 3.6. Share of types of services



The decreasing trend in the number of postal services¹⁷ together with the increased number of packages present on other markets was present on the postal market services in the RoC (Figure 3.7.). The number of letter parcels decreased by a little less than three percent while the number of packages increased by approximately seven percent and such market changes are expected in the upcoming years. Communication by letters is replaced by new forms of communication, in particular electronic communication, which is why the decrease in those services is understandable. On the other hand, parcel services do not have an alternative and it is to be expected that those services will increase considering the increasing share of e-trade with parcel delivery is an indispensable link in the chain connecting the buyer and the seller and also due to the increase in economic activities as a generator of demand for the above-mentioned services.

Figure 3.7. The number of postal services per type (in million)

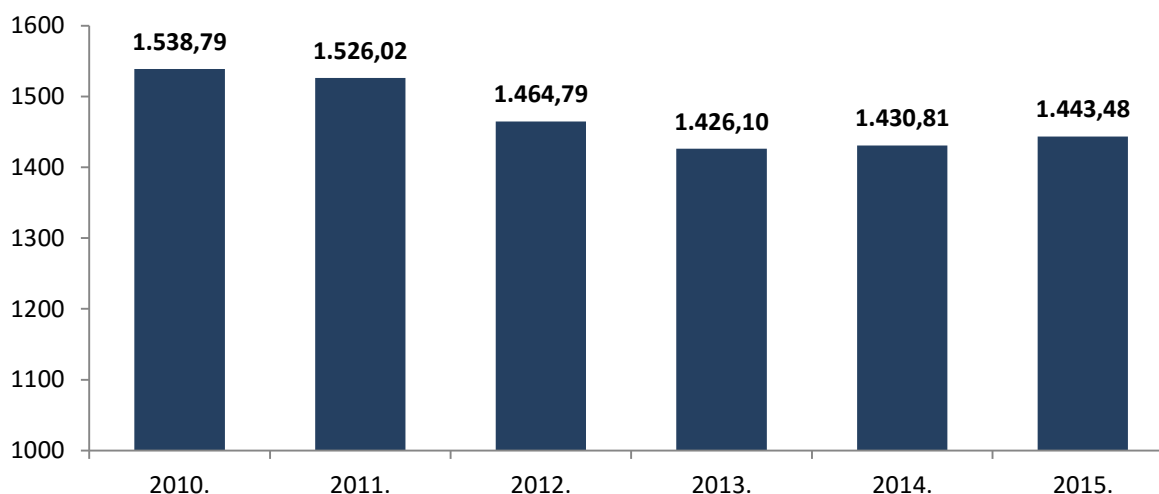


¹⁶ Postal services include reception, sorting, transport and delivery of postal services, in domestic and international traffic, which are not covered by the universal service or by the interchangeable postal services.

¹⁷ letters + registered letters + insured letters + cecograms + direct mail

The decrease in the total number of services did not influence the postal revenue which is why providers earned HRK 1,443,477,659 in revenue from the provision of postal services in 2015, that is, around one percent more than in the year before, which is a continuation of a positive trend (Figure 3.8.). The increase in the total amount of revenue was mostly influenced by a greater number of parcel services, that is, services with some added value.

Figure 3.8. Total revenue from postal services (millions of EUR)



In addition to increasing the number of services, HP increased its revenue and it was around five percent higher in 2015 compared to the year before. Other providers' revenue was approximately seven percent lower which resulted in the increased share of HP in total revenue by 2,6 percent. Other providers realized the majority of their revenue by providing services with certain added value which are present on the free market, as opposed to HP which realized the majority of its revenue from the provision of "traditional" services within the framework of universal services and it is possible that the situation will be similar in the future as well. However, as a result of the increase in the number of "high-value" services and decrease in the number of lesser value services, it is expected that the difference between the realized revenue from such services will be smaller, that is, that one day there will be a change for the benefit of revenue from „high-value” services. Therefore, if they wish to increase their revenue in the future, postal service providers must base their business operations on the offer of services with added value, which implies a higher price of such services.

3.1.2.1 Universal service

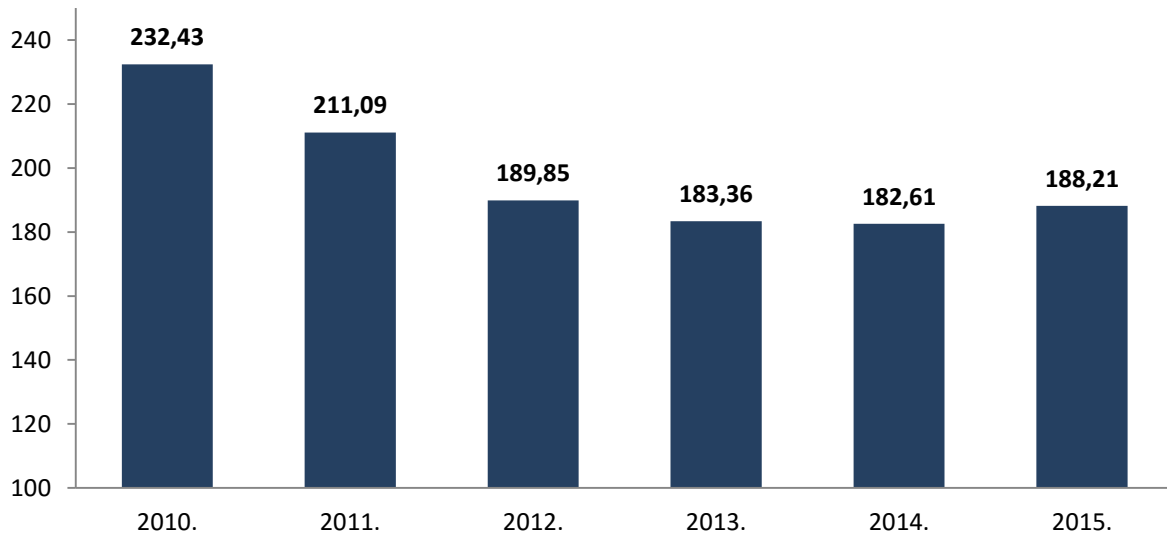
Universal service is a set of postal services that are available to all users of postal services on the entire territory of the Republic of Croatia at an affordable price and the universal service provider must ensure the quality of provision of the universal service laid down in the PSA by means of its postal network.¹⁸

HP is the only universal service provider in the Republic of Croatia and in 2015 it provided 188,206,093 services within the framework of universal services, which is three percent more than in the previous year. This is a slight departure from the trends with these services in the EU since the EU has recorded a continuous drop (Figure 3.9.). A part of the explanation may be found in the fact that

¹⁸ Universal service comprises postal services in internal and international traffic: clearance, sorting, transport and delivery of items of correspondence up to 2 kilograms, parcels up to 10 kilograms, certified postal items and insured items, cecograms up to 7 kilograms and sorting, transport and delivery of packages up to 20 kilograms in international incoming traffic.

one part of services "spilt over" from the domain of interchangeable postal services because there are very similar services but with certain differences, and, on the other hand, the traditional means of communication are still very present in the Republic of Croatia and the negative trend was not as significant in the previous years as in the other EU Member States. The universal service share amounted to approximately 57 percent in total services, which is a three percent increase compared to 2014. In addition to a greater number of services, the revenue from the provision of universal service also increased which amounted to a total of HRK 818,97 million, which is approximately 14 percent more than in the previous year.

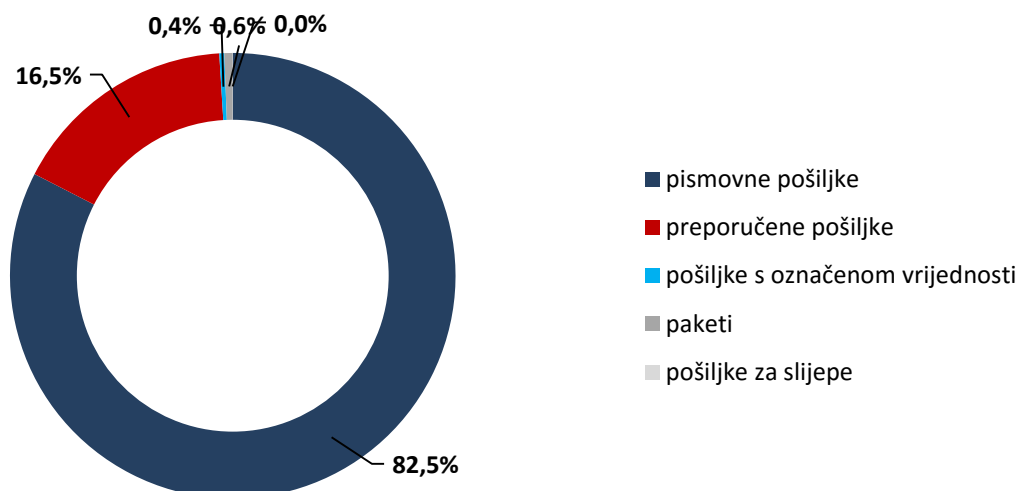
Figure 3.9. Total number of services covered by universal service (in million)



Demand for universal service will exist in the future as well considering their affordability in terms of price and a satisfactory quality level of those services. However, it is expected the demand will decrease in the future, in the first place because these services are substitutable with new forms of communication, which is an international trend.

Letters have the greatest share in the universal service amounting to approximately 83 percent, and they are followed by registered mail (Figure 3.10.).

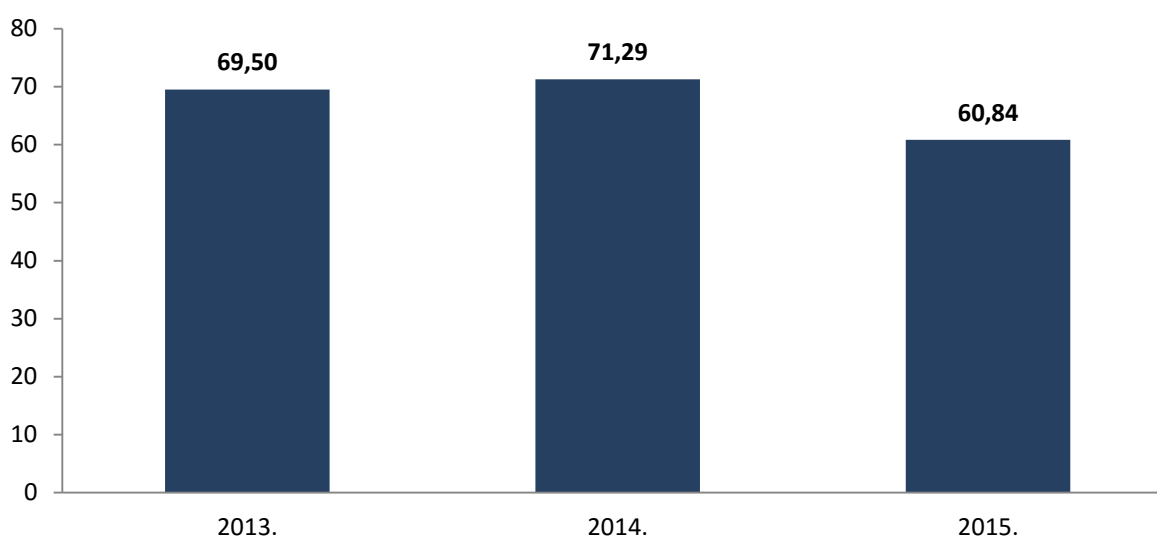
Figure 3.10. Shares of provided services covered by universal services per type



3.1.2.2 Interchangeable postal services

Interchangeable postal services, although under the scope of universal services, may be provided by other providers in addition to the universal service provider and such services were provided in 2015 by six providers. A total of HRK 60,839,526 interchangeable services were provided, which is 15 percent less than in the previous year (Figure 3.11.). A slightly smaller decrease was recorded in relation to revenue which in 2015 amounted to HRK 113.4 million. The above-mentioned "spill-over" of those services into the universal services had, as it was already mentioned, the greatest influence on the drop in these services. The share of interchangeable postal services on the total market of postal services in 2015 was almost 18 percent, which is almost three percent less than the previous year.

Figure 3.11. Total number of interchangeable postal services (in millions)



According to the shown data, that is, according to the visible growth in one year, and decrease in the following year, it is hard to predict further changes in relation to these services. However, since these services are provided on the free market, it can be assumed that the number of those services will increase since there is more providers who may attract users who are currently using services from the scope of universal services. This primarily applies to users of service for whom the quality conditions prescribed for universal service are not important, which also means that the quality of these services is lower.

3.1.2.3 Other postal services

Other postal services¹⁹ are part of postal services and include basic postal services (letters and parcels) which have additional value²⁰, that is, express parcels and printed matter or direct mail²¹.

These services are provided by almost all notified providers and the majority provides only other postal services, which means that this market segment offers the greatest competition. Furthermore, other postal services there offer to providers more possibility to adjust their offer to user needs and requests, by means of completely new services or the improvement of the existing services. In this

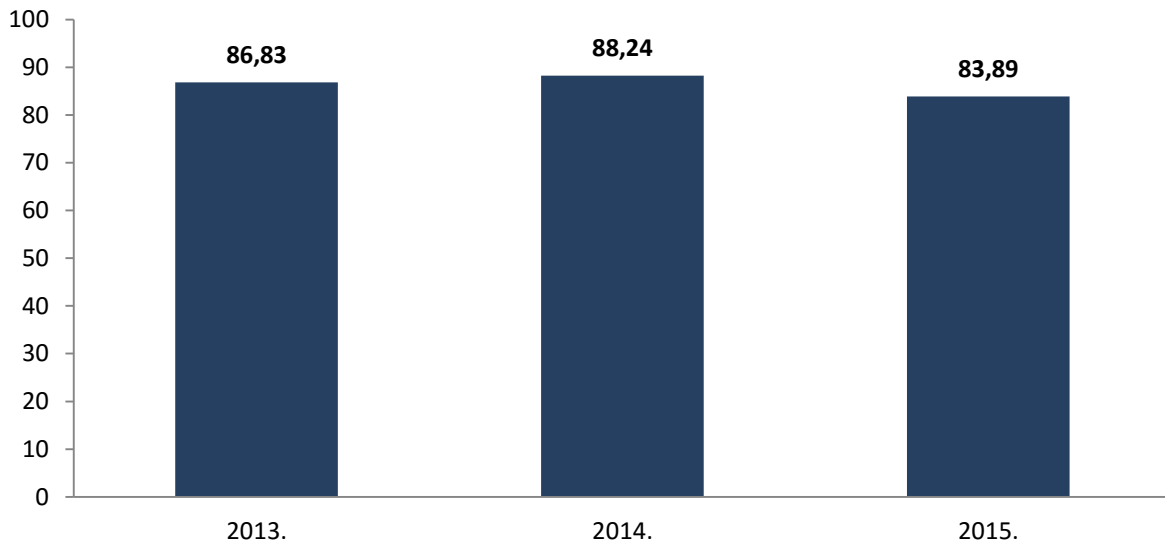
¹⁹ Postal services refer to the service of sorting, transport and delivery of postal services, in domestic and international traffic, which are not covered by the universal service or by the interchangeable postal services.

²⁰ Added value includes parcel pick-up ordering by users, possibility of tracking, scheduled delivery time etc.

²¹ Direct mail – a postal item communication consisting solely of advertising, marketing or publicity material and comprising an identical message, except for the addressee's name, address and identifying number as well as other modifications which do not alter the nature of the message, which is sent in at least 500 copies.

manner, providers may increase revenue by means of innovative services, in particular in the part of other postal services which is based on value added parcels, that is, on express parcels, since these are services with greater potential for growth and development in the future. This is confirmed by the fact that approximately five percent more high-value services were provided in 2015 than in the previous year, even though the total number of services within the framework of other postal service decreased by five percent (Figure 3.12.)

Figure 3.12. Total number of other postal services (in millions)



Other postal service has a 25 percent share on the total market, which is a little bit less than in 2014. Among those services printed matter has the greatest share of 43% followed by direct mail with 34 percent and with value added services whose share increased by three percent compared to the previous year.

A total of HRK 511.09 million was earned from the provision other postal services, that is more than 35 percent of total revenue, although those services make up only one fourth of total postal services. This only confirms previous claims that more revenue can be earned with a smaller number of services. This is even clearer from the data showing that 30 percent of total revenue is generated by only six percent of services on the postal market with some added value. Therefore, postal service providers must exploit the opportunities offered within the framework of new services in order to ensure further growth, in particular the possibilities related to e-trade. E-trade is one of the fast-growing segments in all developed countries of the world influencing economic growth, including postal activity as an indispensable link in the e-trade value chain. Since the e-trade in the Republic of Croatia is insufficiently developed, we may optimistically expect the increase of the total volume and revenue.

Therefore, bearing in mind the existing trends on the world market, providers must exploit the potential offered by these services to promote their further growth, which refers in the first place to potential offered by e-commerce services, which has been underutilized in the Republic of Croatia. The use of e-commerce services has been growing year after year in the rest of the world resulting in the increase of the number of delivered mail. This is an opportunity that needs to be exploited by providers in Croatia and expectations in this respect are very optimistic.

3.2 Overview of regulatory measures on the postal services market

Like in the previous years, HAKOM in 2015 continued its proactive and corrective activities on the postal services market which were aimed at stimulating competition and investing into the postal sector, at the protection of users of all postal services and at ensuring the efficient provision of the universal service of guaranteed quality and accessibility in the entire territory of the Republic of Croatia. Activities were focused on all stakeholders on the postal services market on the training of postal service users and the protection of their rights, on the supervision over postal service providers, in particular over the universal service provider in relation to the quality of provision of the universal service, accounting separation and net cost of the universal service provision.

3.2.1 Regulatory activities in the sector of postal services

HAKOM's regulatory activities are provided on the basis of two basic principles:

1. proactive – by undertaking various initiatives with a view to further stimulating the development of the postal services market in compliance with the current market trends.
2. corrective – by undertaking adequate reaction to noticed situations and development trends on the postal services market.

As part of the proactive component, HAKOM collects and publishes data, notifications and documents related to the state and development of the postal services market. Last year HAKOM strengthened its position of an independent regulator by means of frequent contact and cooperation with all postal system stakeholders. What must be mentioned is the intense and continuous cooperation with all postal service providers with a view to achieving further development of a market by means of investments of providers into new technologies thus with creating an offer of new and inventive postal services adjusted to user demands. HAKOM organized three round tables of postal service stakeholders in 2015 which included discussions on topics and issues which are common to all market stakeholders.

The majority of HAKOM's activities were focused on the alignment of notifications and the general terms and conditions of postal service providers, including the existing providers who are changing their business activities. HAKOM also focused its activities on ensuring the sustainability of provision of the universal services with a special emphasis on maintaining its quality, accessibility and affordability for all users in the entire territory of the Republic of Croatia so that all users could have equal rights and possibilities to use this basic postal service.

For the second year in a row HAKOM every day provided services to users on its helpline by answering questions related to the provision of postal services and other issues related to the postal activity. Last year users of postal services also asked various questions and submitted information requests concerning the manner of provision of individual types of postal services, the notification procedures for the provision of postal services, services of individual providers, the possibilities to complain against the provision of postal services. Frequently questions were not directly under HAKOM's competence but were related to the provision of postal services (public procurement of postal services, customs procedures in postal traffic, general level of rights and protection users and other). Natural persons asked more questions than legal persons. HAKOM provided concrete answers to all questions, that is, it advised users where they could find detailed explanations. The majority of users were satisfied with the provided information.

Under the corrective component of its activities, HAKOM took appropriate measures to direct the development of the postal services market in compliance with the PSA with a view to ensuring the protection of rights of users of postal services, efficient provision of the universal service and elimination of systematic problems on the market that might distort competition. HAKOM's postal inspector carried out 48 inspections in 2014 over 16 providers of postal services concerning the

provision of the universal service and interchangeable and other postal services. Furthermore, the postal inspector adopted two decisions concerning two postal service providers, CITY EX d.o.o. and WEBER ESCAL d.o.o.

The universal service provider CITY EX d.o.o. was ordered in the decision to comply with the provisions of the contract on access to the provision of postal services. The universal service provider WEBER ESCAL d.o.o. was ordered in the decision to align the provision of interchangeable postal services in domestic and international traffic with conditions stated in the notifications and decisions on the provision of interchangeable postal services.

Postal service providers covered by the inspection supervision of the postal sector in 2015 were the following: CITY EX d.o.o., WEBER ESCAL d.o.o., TISAK d.d., CASH ON DELIVERY EXPRESS d.o.o., TRAST LOGISTIKA d.o.o., IN TIME d.o.o., LIDER EXPRESS d.o.o. Split, GENERAL LOGISTICS SYSTEMS d.o.o., DPD CROATIA d.o.o., NADA, small business for transport services, DHL INTERNATIONAL d.o.o., OVERSEAS TRADE Co LTD d.o.o., INTEREUROPA d.o.o., ORBIS EXPRESS d.o.o., A2B EXPRESS LOGISTIKA d.o.o. and HP-HRVATSKA POŠTA d.d.

Inspection supervision of the above-mentioned providers covered, *inter alia*, the manner of resolving user complaints and the majority of providers aligned their actions with the provisions of the PSA which regulated the procedure for the protection of postal service users (two providers will align their business in the I. quarter of 2016).

The postal inspector continuously carried detailed inspection supervision over HP, as the universal service provider in the domestic postal traffic, with a special emphasis on timely delivery, that is, on the delivery of parcels in the entire territory of the Republic of Croatia, in particular in the rural areas and on the islands.

The postal inspector resolved all complaints submitted by natural (8) and legal (1) persons concerning the violations of the provisions of the PSA by individual postal service providers.

3.2.2 Accounting separation (Regulatory accounting)

One of important HAKOM's regulatory activities is the supervision of the accounting separation obligation which is aimed at creating the relevant basis for monitoring and/or executing the prescribed obligations, that is, for the adoption of regulatory decisions, or as a source of information for the calculation of net cost of universal service. Pursuant to the PSA, a universal service provider must keep separate accounting of income and revenue earned from the provision of universal service and must present them separately from income and revenue earned from interchangeable postal services and separately from income and revenue earned from other services, per type of service and product.

Furthermore, the Instructions for Accounting Separation and Cost Accounting (hereinafter: the Instructions) – contains a detailed description of the manner of accounting separation, lays down a framework of necessary information for the regulatory report and the frequency of submission of the report, that is, all provisions that must be applied with a view to fulfilling the regulatory obligations.

In June 2015 HAKOM received documentation on the cost model and HP's 2014 regulatory financial report. After having received the documentation, HAKOM carried out the audit of HP's regulatory report and cost model. HAKOM tasked an independent audit company BDO Hrvatska d.d. to carry out the audit of HP's regulatory report and cost model. (hereinafter: BDO) in order to verify the compliance of the HP's regulatory report a cost model with the provisions of the Instructions.

The independent auditor BDP, after having conducted an independent audit procedure, delivered to HAKOM a final audit report confirming that HP's regulatory report and cost model for 2014 had been prepared in compliance with the provisions of the Instructions and with the accounting documentation in all the important aspects.

Therefore, in October 2015 HAKOM adopted a compliance statement confirming that the form, content and the methodology used in HP's 2014 regulatory financial report are in compliance with the requirements laid down in the Instructions.

3.2.3 Net cost of the universal service provider

In compliance with the PSA, if the universal service obligation creates net cost, which represents an unfair financial burden on the universal service provider, the universal service provider shall be entitled to a compensation of the unfair financial burden (hereinafter: unfair burden).

Since the PSA and the Ordinance on the provision of the universal service (hereinafter: the Ordinance) do not lay down the procedure for the calculation of net cost and constituent parts of the net cost, in June 2014 HAKOM adopted the Instruction on the calculation and compensation of net cost of universal service and on the assessment of unfair financial burden (hereinafter: the Instructions). The above-mentioned Instructions lay down the manner of calculation of net cost of universal service provision and details on the establishment of unfair financial burden of net cost of universal service provision on universal service provider and principles for the compensation of unfair financial burden of net cost of the universal service provider.

In June 2015, HP, as a universal service provider, submitted to HAKOM, in compliance with these acts, a request for the compensation of costs of universal service provision representing unfair financial burden in 2014 with the associated annual financial report and the report of the independent auditor for 2014 and the calculation of real net cost. As a result, the difference between HP's financial results with the universal service obligation and without that obligation would amount to HRK 97,287,103, which is, according to HP, the amount of net cost of universal service provision in 2014.

In order to verify the grounds for the calculation enclosed with HP's request, HAKOM asked for the opinion on the delivered calculation from an independent auditor, BDO. In addition to that, HAKOM held a series of workshops with representatives of the independent audit company and HP were individual elements of the calculation of net cost were discussed. On the basis of the delivered data and the organized workshops, the independent auditor submitted a report on the Commercial scenario and calculation of HP's net cost for 2014. It may be concluded from the submitted report that HP's calculation is incorrect in certain elements, that is, the independent auditor thinks that the cost is HRK 94,383,17, and not 97,287,103, as illustrated in the enclosed Commercial Scenario and calculation of net cost for 2014., that is, that it is less than HRK 15,490,349.

Consequently, in October 2015 HAKOM adopted a decision establishing that the amount of HRK 81,796,754 in 2014 represented an unfair financial burden for the universal service provider HP.

3.2.4 Quality of provision of universal service

One of HAKOM's more important regulatory activities in the postal services sector in 2015 was related to the supervision and monitoring of the quality of universal service provision considering the increasing importance of that service. The achievement of the appropriate quality is a very important objective on the single postal market of the EU, including on the market of the Republic of Croatia. The CPA and the Ordinance prescribe the manner of measuring and the quality criteria that must be fulfilled by an universal service provider in domestic and international traffic. The universal service provider is obliged to deliver to HAKOM a report on the quality of universal service provision for the previous year including the measuring results.

HP, as the universal service provider, delivered to HAKOM in March of 2016 a Report on the quality of universal service in 2015 (hereinafter: the Report) showing that HP was subject to several quality measuring activities in 2015.

Continuous measuring of the quality of carriage of postal items in international traffic carried out between the RoC and Member States showed that 64,7 percent of parcels were carried within D+3 days, that is 90,8 percent of postal items within D+5. The results are somewhat better than in the previous year, in particular in D+3 transfer. However, the prescribed quality criteria in international traffic have not been fulfilled yet and one of the reasons for non-fulfilment lies with the (non) action of other postal administrations, which is out of HP's control.

The measuring of the universal service quality in domestic traffic was carried out by independent and continuous measuring of the transfer of priority and non-priority postal items. The measuring results according to which 86.4 percent of priority mail was delivered within D+1, 98.1 percent within D+2 and 95.2 percent of non-priority mail items was delivered in D+3 show that all the prescribed criteria were met in 2015. Like in the previous years, HAKOM conducted an audit of the submitted Report with a view to checking the alignment of the methodology with the prescribed norms and the accuracy and reliability of the achieved results, and the undertaking of corrective measures. Therefore, several measures and activities were undertaken on the basis of the audit result with a view to improving the measuring system in 2016.

In 2015 HP carried out the measuring of the number of complaint and compensation of damage related to the universal service provision. Out of the total number of user complaints, which amounted to 35,609 in 2015, more than 72 percent or 25,729 referred to complaints in internal traffic, and the rest to complaint in international traffic. The majority of complaints referred to the loss of parcels, to incorrect delivery or to exceeding the delivery deadline. A total of 97 percent of complaints were resolved within the legal time limit, out of which 17 percent were justified complaints and in 10 percent of cases own responsibility was established.

On the basis of the above it may be concluded that the quality of provision of universal services is at an admirable level and that it has been improving year after year.

3.2.5 Postal network of the universal service provider (postal offices, postal boxes etc.)

The postal network means the system of organization and all types of facilities interconnected into a single technical and technological whole which are used by the universal service provider in particular for the provision of this service in the entire territory of the RoC. The universal service provider must establish, maintain and develop a postal network so as to ensure the provision of postal services in the entire territory of the Republic of Croatia in the manner prescribed in the PSA and in the Ordinance. The Ordinance prescribes the density of access points network and lays down that the postal offices network must be established in such a manner that one postal office covers a maximum of 80 km², that is, a total of 6 000 inhabitants, and that there must be a minimum of 700 regular postal offices.

HP completely complies with the prescribed density of the access point network and in 2015, as opposed to the previous years, it did not close a single post office which is why it had total of 1,016 post offices at the end of 2015 distributed throughout Croatia. The above-mentioned number of offices is significantly above the prescribed minimum which, in addition to the increased quality of postal service provision, also shows HP's social sensibility since the closing of non-profitable post offices would cause a deterioration in the quality of life in certain areas, in particular in less inhabited areas such as islands or mountain areas. This is particularly obvious on the islands where approximately 12 percent of the total number of post offices are located with one office covering on average 1000 inhabitant resulting in the greater density of post offices than prescribed. In order to rationalize the non-profitable post offices, HP did not decide to close individual post offices but it focused on finding new locations, that is, on the relocation of post offices into newly opened or existing malls. This would contribute to maintaining the existing quality of the universal service provision, to bringing post offices closer to users and to better business results because of a greater number of provided services and revenue since these are places with greater fluctuation of people.

HP, as a universal service provider, is obliged to ensure access to its postal network to postal service providers, consolidators and user of postal services covered by the provision of interchangeable postal services. In 2015 there were no new "users" of the network access service but this right was used by only one provider of postal services who acquired that right in 2014.

With a view to achieving further rationalization of business operations and adjustment to organizational changes, working hours of many post offices changed in 2015, that is, shortened, which did not have a significant impact on the quality universal service provision.

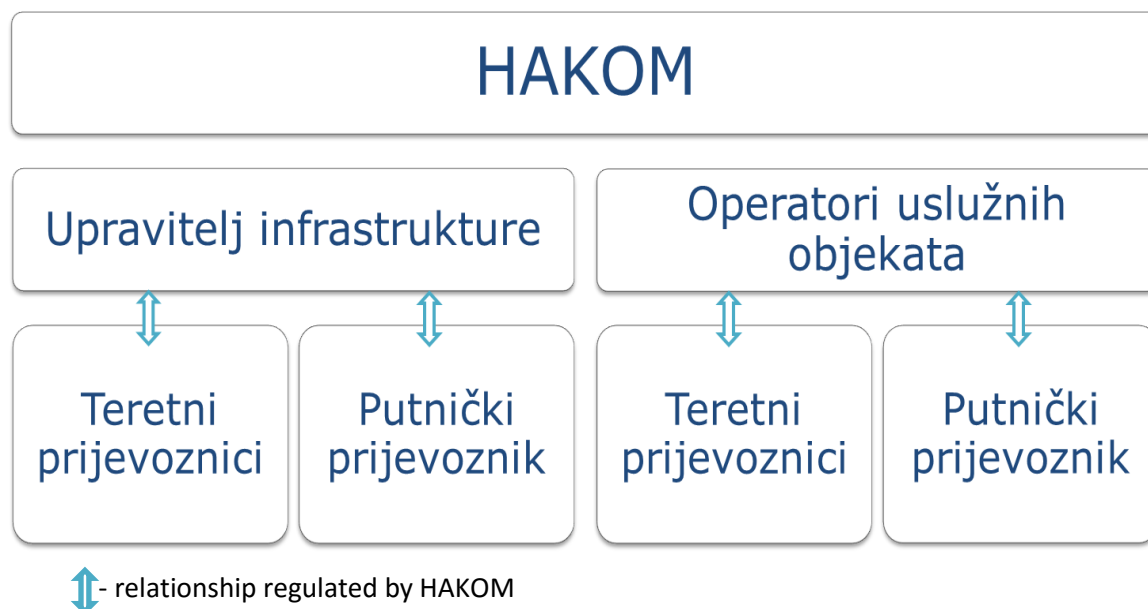
3.2.6 Monitoring of the situation and the development of the postal services market

The monitoring of the situation on the postal services market and its development are under HAKOM's competence and in 2015 the collection of statistical and other data from postal service providers continued. Market data were regularly collected for each individual quarter and at the annual level and the coverage was aligned with the PSA. The collected and processed data were used in various analyses which allowed HAKOM to gain insight into the situation and developments on the postal services market in the Republic of Croatia and to fulfil various requirements of European authorities dealing with the monitoring and analysis of the situation on the common European market (EC, ERGP). The gathered data were also submitted to the Croatian Bureau of Statistics which used them for the preparation of its analyses and reports. HAKOM continuously published on its website data on the situation on the postal services market together with an overview of the main indicators and a list of postal service providers. Quarterly data and indicators of the situation on the postal services market were presented to the public and in press releases.

4 RAIL SERVICES MARKET

One year after HAKOM's competence expanded to include the regulation of the rail services market, that market experienced positive changes which are reflected in increased activity of freight railway undertakings. A greater number of active freight railway undertakings resulted in increased usage of rail infrastructure which in the end resulted in increased operation of the railway undertaking on the railway infrastructure of the Republic of Croatia. New railway undertakings in rail traffic started to participate more actively on the market by mid-2015 and thus contributed to the total realized train kilometres²² (hereinafter: vlkm) with 1.2 percent. A seemingly small change in the market share on the railway infrastructure use market in reality represents practical liberalization and an evidence of availability of rail services, which was so far shown only as legal liberalization (there were more freight railway undertakings on the market of rail services who complied with all transport requirements, but they did not operate). The analysis of indicators about railway undertakings' operations in 2015 show a certain increase in the realized train kilometres and in the amount of realized tonne kilometres (tkm²³) compared to 2014 thus leading to the conclusion that new railway undertakings operated on longer routes. Activities of new railway undertakings are the result of a transparent and predictable user-oriented market, which is obvious from published data on service facilities and services of infrastructure managers and service facilities operators and has been achieved through HAKOM's regulatory activities. This creates preconditions for future expectations concerning the increase in the share of new freight railway undertakings on the rail services market and the increase in the share of rail traffic in the total freight traffic. HAKOM undertakes the relevant regulatory measures with a view to promoting competition on the rail services market and interests of users of rail services, thus contributing to the development of a single European rail services market. HAKOM's role as a regulator is also obvious through the publicity of work and communication with stakeholders on the rail services market by participating in round tables where challenges on the market were indicated and certain improvements were proposed which were also implemented.

Figure 4.1. HAKOM's role in the rail market regulation



²² Train kilometres (vlkm) is a measure expressing the movement of one train at the distance of one kilometre.

²³ Tonne kilometre (tkm) is a measure expressing the movements at a distance from one km to one t of freight.

The rail services market is a market on which the infrastructure manager HŽ Infrastruktura Ltd., as the only rail infrastructure in the RoC and operators of service facilities (ports and inland waterway ports, commercial terminals, marshalling yards, maintenance facilities, passenger terminals etc.) provide rail services referred to in Article 24 of the Railway Act (OG No. 94/13 and 148/13, hereinafter: RA)²⁴.

The rail services market should be distinguished from the rail transport market where railway undertakings provide the service of passengers or freight transport. The rail transport market implies a relationship between a passenger railway undertaking and passengers and a relationship between a freight railway undertaking and end user of services in freight transport. The existence of an efficient rail services market is necessary for the functioning of the rail transport market which is regulated by HAKOM as illustrated in Figure 4.1.

4.1 Stakeholders on the rail services market

The only railway infrastructure manager is HŽ Infrastruktura Ltd., which is at the same time the biggest service facilities operator. Rail services are also provided by railway undertakings (e.g. manoeuvring, technical checks of carriages, brake checks etc.) and other legal persons whose primary activities does not include rail transport activity (e.g. washing and cleaning of passenger cars and motor rains, maintenance of rail vehicles etc.) which contributes to the complexity of this specific market. The increase in the number of railway undertakings contributed to the increased need for the development of the rail services market in the sense of provision of additional services necessary for auxiliary actions and preparation of trains.

Users of rail services are mostly railway undertakings, and the request for the use of the infrastructure capacity (train path) may be submitted, in addition to the operator, an international group or another natural or legal persons, such as competent authorities laid down in the Regulation (EC) No. 1370/2007 on public passenger transport services by rail and by road, ship operators, shipping companies and combined transport operators with sufficient interest for the provision of the public service and business interest for the allocation of infrastructure capacity, who are jointly referred to as applicants for infrastructure capacity. If the applicant is not a railway undertaking, he must appoint in the request for the allocation of infrastructure capacity a railway undertaking who will conclude an access agreement with the rail infrastructure manager. The applicant who is not a railway undertaking concludes with the infrastructure manager a contract regulating the use of rail infrastructure. The applicant may, with prior consent of the infrastructure manager, contract a different railway undertaking.

Access to rail infrastructure and use of rail services is completely open to new freight railway undertakings, regardless of whether operators are registered in the territory of the Republic of Croatia or if they operate on the basis of a license issued in one of the EU Member States. A railway undertaking holding a licence and a safety certificate may carry out transport services in the railway infrastructure provided that it concluded an agreement on access to rail infrastructure with the infrastructure operator.

In 2015, before the entry into force of the Train Schedule for 2015/2016, all railway undertakings concluded a contract on the access to rail infrastructure with the infrastructure manager. According to the RA, the infrastructure manager is obliged to conclude a written contract on the access to rail infrastructure with railway undertakings which should be a precondition for the use of the infrastructure but that was not the case in 2015.

²⁴ Article 24.1 of the RA Services provided to railway undertakings (rail services) include a minimum access package, access to service facilities and services provided in those facilities, including railway access to service facilities, additional services and auxiliary services.

Within the framework of regular activities concerning the monitoring of the situation on the rail services market, HAKOM instructed the infrastructure manager to submit the contracts on access to rail infrastructure to railway undertakings for the purpose of comments and alignment so that they can be aligned and signed by the entry into force of the Train Schedule for 2015/2016, which was in the end implemented. HAKOM continuously stressed the need to comply with all the legal provisions requiring the signature of the contract before the entry into force of the Train Schedule, which was done in 2015. It must be stressed that the above-mentioned practice was not applied in the previous years which resulted in legal insecurity and use of rail infrastructure without signed access contracts.

In addition to the incumbent freight railway undertaking, HŽ Cargo Ltd. from Zagreb, there were five active freight railway undertakings in 2015, out of which two were registered in the Republic of Croatia and the others had a license issued by competent authorities in one of the EU Member States.

The new freight undertakings are the following:

- PPD TRANSPORT Ltd. (former ADRIA TRANSPORT Ltd. Zagreb
- Rail Cargo Carrier Croatia Ltd. (RCC Croatia), Zagreb
- Rail Cargo Carrier Kft (RCC), Budapest
- Rail Transport Services (RTS), Graz
- Train Hungary Magánvasú Ipari, Kereskedelmi és Szolgáltató Korlátolt Felelősségű Társaság (THM) – Zagreb branch office, Zagreb.

In passenger rail transport there was still only one railway undertaking, HŽ Putnički prijevoz Ltd, because the passenger transport market was not open for domestic rail transport²⁵, but only for international passenger transport.

4.2 Rail services

According to the Railway Act, the rail services market comprises relations between infrastructure managers, service facility operators and applicants for infrastructure capacity, who are mostly railway undertakings. HŽ Infrastruktura Ltd., as the only railway infrastructure manager, is obliged to provide rail services to everybody fulfilling the requirements for requesting the provision of those services, under equal condition.

Rail services have been defined in the Railway Act in the following manner:

1. minimum access package
2. access to service facilities and services provided in those facilities, including rail access to service facilities,
- 3 additional services
- 4 accompanying services

A minimum access package consists of the following:

processing of requests for infrastructure capacity, rights of use of allocated infrastructure capacity, use of infrastructure (including railroad crossovers and hubs), train traffic management (including signals, regulation, handling of trains and communication and provision of information on train movements), use of equipment for the power supply necessary for power engines and all other

²⁵ Article 23. 2 RA Any railway undertaking is entitled to access the rail infrastructure under fair, non-discriminating and transparent conditions for the provision of services of international passenger transport. Right of access includes cabotage and access to service facilities referred to in Article 24.3 of the RA. The introduction of a new, open access to services of international passenger transport including cabotage may not be used to open the market to domestic passenger transport services. The main purpose of international passenger transport must be the provision of passenger transport services between stations located in different member states.

information necessary for the provision or exercise of the service for which the capacity ways granted. The only provider of the minimum access service is HŽ Infrastruktura Ltd., Zagreb

service facilities include the following:

passenger terminals, terminal buildings and other facilities, including information displays about trains and the appropriate facilities for selling tickets, cargo terminals, marshalling yards and classification yards, including manoeuvring facilities, stabling tracks, maintenance facilities, except for facilities for regular maintenance in particular intended for high-speed trains or other types of rolling stock requiring special facilities, other technical facilities (including cleaning and washing facilities), sea and inland waterway ports connected to the railway network, additional facilities and facilities for fuel supply and fuel supply in those facilities.

Additional services may include the following:

power necessary for pulling the trains, preheating and precooling of passenger cars, special contracts on the following: supervision during transport of dangerous substances in trains with emergency parcels,

Auxiliary services may include the following:

access to the telecommunications network, provision of additional information, technical check of rolling stock, sales of tickets at passenger terminals, regular maintenance provided in maintenance facilities intended particularly for high-speed trains and other types of railway vehicles requiring special facilities.

Table 4.1 Use of rail services in the Republic of Croatia provided by HŽ Infrastruktura Ltd.

Usage of rail services	Total in 2013	Total in 2014	Total in 2015
Minimum access package			
travelled Vtkm	21,019,458	20,320,062	20,378,684
Use of service facilities			
number of services used in service facilities	9,850,913	7,238,516	12,773,660
use of passenger terminals (number of stops)	0	136,335 ²⁶	2,933,973
number of assembly/disassembly of trains	1,193,010	946,617	2,047,847
garage services [vehicle*hours]	8,643,663	6,146,501	7,784,000
amount of weighted cars	14,240	8,334	7,411
realized gross tonne kilometres ²⁷ of supplied power for train haulage ²⁸	74,182,396	75,940,622	77,388,751
Transport of extraordinary postal items (number of trains)	890	729	429

The number of realized passenger and freight train kilometre in 2015 is a little bit higher compared to the previous year while the use of service facilities and services in service facilities exceeded the previous year. The above-mentioned service were used by railway undertakings according to data listed in Table 4.1. and they were provided by the infrastructure manager. The use of passenger

²⁶ Data from 14/12 to 31/12 2014

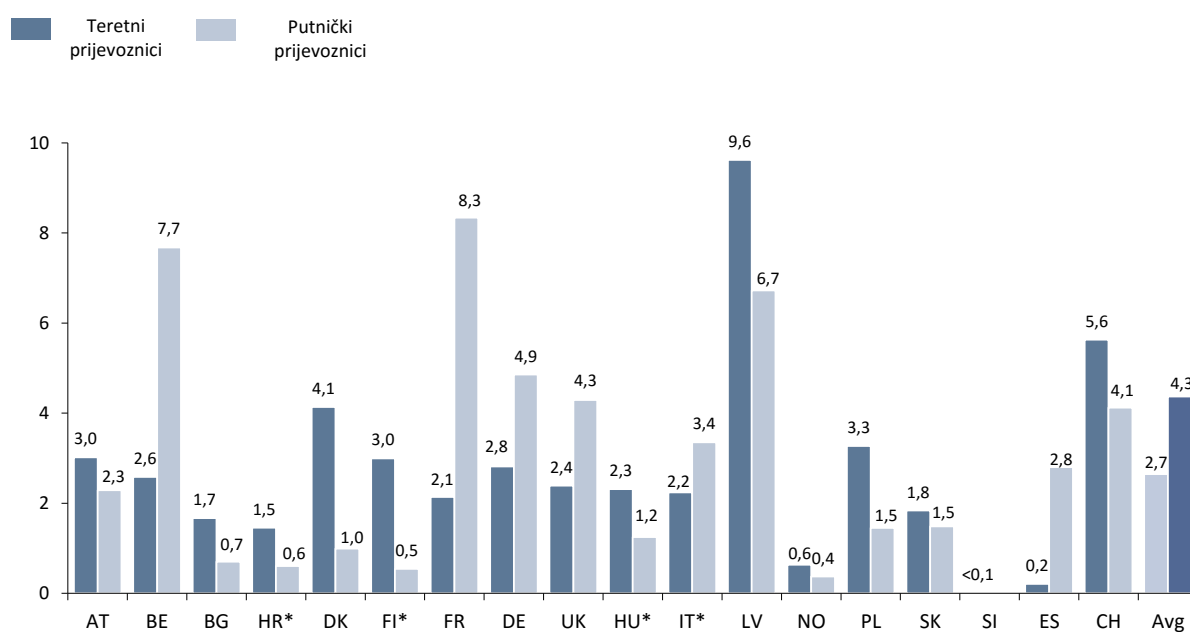
²⁷ Gross tonne kilometre (tkm) is a measure expressing the movements at a distance from one km to one t of freight.

²⁸ The included data on the alignment of the difference between the calculated power and actually ue dpower for train haulage.

stations was excluded from the minimum access package and the HŽ Infrastruktura Ltd. started providing the above-mentioned service with the start of application of the 2014/2015 Train Schedule which entered into force on 14 December 2014, which is why data for 2015 represent the first data for the entire year of using this service. The increase in the number of used services of train assembly/disassembly is a result of the amended service provision methodology, and not of the actual increase in service usage.

Out of the total number of realized train kilometres, 76% were realized by the passenger carriers and 24% by cargo carriers. The use of rail services increased slightly compared to the previous year, but the total revenue from the provision of rail services decreased by 1 %. Data illustrated in Figure 4.2. represent data on average prices for minimum access package, for freight and passenger transport, of infrastructure managers in member states of IRG Rail²⁹ for 2014. The Figure shows that the average price for minimum access package in the Republic of Croatia is significantly lower than the average of IRG Rail member states.

Figure 4.2. Overview of average prices for minimum access package (€/vlkm)



* Naknada za minimalni pristupni paket za putnički prijevoz, uključuje i naknadu za kolodvore.

Source: Fourth Annual Market Monitoring Report, www.irg-rail.eu/public-documents/2016/

Revenue from the minimum access package for HŽ Infrastruktura Ltd. represents 55% of revenue earned from the provision of rail services. In addition to revenue earned from the provision of rail services, HŽ Infrastruktura Ltd., inter alia, earns revenue from the State Budget as well. In 2015 a total of HRK 1,062,249 was earmarked from the State Budget for the needs of HŽ Infrastruktura Ltd.³⁰, while HRK 544,000 was allocated from the State Budget to HŽ Putnički prijevoz Ltd. for the provision of public passenger transport service³¹.

²⁹ The following are members of IRG Rail Austria, Belgium, Bulgaria, Denmark, Estonia, England, Finland, France, Macedonia, Germany, Greece, Croatia, Hungary, Italy, Kosovo, Latvia, Luxembourg, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and Switzerland.

³⁰ Funds for the maintenance of railway infrastructure and traffic regulation, funds for modernization and building of rail infrastructure, fee in the amount of fuel price for HŽ Infrastruktura and funds for EU funds.

³¹ Funds for promoting passenger transport and funds for the modernization of rail vehicles.

4.3 Regulatory activities in the rail service sector

HAKOM carries out its regulation of the rail services market in the two basic ways:

1. proactively - by taking initiative in compliance with its basic mission and current market demands,
2. correctively - by adopting decisions on certain measures for established irregularities on the rail services market³².

As part of the proactive component, HAKOM collects, publishes and analyses data, notifications and documents related to the monitoring of the situation on the rail services market. The role of an independent rail market regulator implies cooperation with all market stakeholders, in particular with the infrastructure manager, service facilities operators, applicants for infrastructure capacity, authority competent for the granting of licenses for the provision of rail transport services (MMATI) and the authority competent for safety and interoperability of the railway system (Railway Safety Agency, hereinafter: RSA) with a view to further market development.

With a view to eliminating the challenges on the rail services market in the Republic of Croatia, HAKOM has, through its proactive activities, successfully organized three round tables in 2015 which gathered all market stakeholders. As part of its regular business activities HAKOM stimulates mutual interactive communication of stakeholders on the rail services market. The first round table gathered representatives of users of rail services, MMATI and RSA. The round table was organized with a view to stimulating mutual communication between market stakeholders, to representing and stimulating discussion about some of the current topics and present the situation on the market for 2014. The first round table was already followed by significant stakeholder interest who accepted HAKOM's representatives proposal to continue the practice of organizing round tables of stakeholders on the rail services market.

After an excellent acceptance of HAKOM's idea to organize thematic round tables, HAKOM organized its second round table in cooperation with the RSA and the MMATI. The second round table contained more topics, some of which concerned managers of infrastructure facilities and the provision of services in those facilities. The round table was also attended by representatives of all ports and inland waterways and by representatives of freight terminals in the Republic of Croatia. At the second round table the first designated body (hereinafter: DeBO) presented its work to the participants. DeBO is in charge of implementation of compatibility assessment of subsystems with national technical rules in compliance with the EC examination of subsystem for structural subsystems: electrical and engineering infrastructure subsystem and the vehicle subsystem. The Agency for the Investigation of Air, Maritime and Rail Traffic Accidents (hereinafter: AIA) presented its work by explaining security recommendations. The presentation of electronic communications operators on RAIL HOT SPOT greatly exploited the synergy contained in HAKOM which also regulates the electronic communications sector.

The main topic of the third round table was the preparation and publication of the 2017 Network Report. Representatives of all carriers, infrastructure managers, the Ministry, RSA and AIA were invited to the round table with a view to discussing potential problems and eliminating them before the preparation of the above-mentioned report.

As part of the corrective component, appropriate measures are taken (e.g. amendments to the Network report) which result from requirements of an individual party (objection) or ex officio activities in order to direct the development of the rail services market in compliance with the regulations and the best regulatory practice.

³² Acting on the basis of the *ex ante* and *ex post* regulation principle.

4.3.1 Overview of regulatory measures

An important part of HAKOM's work includes procedures initiated on the basis of objections submitted by rail carriers and resulting in the adoption of decisions containing the relevant measures for ensuring fair, non-discriminating and transparent conditions. HAKOM conducted proceedings initiated on the basis of an objection to the 2014/2015 Contract on Access to Rail Infrastructure of the Republic of Croatia (hereinafter: the Access Contract) and the Contract on Use of Service Facilities, Services in Service Facilities and Auxiliary Services for the 2014/2015 Train Schedule (hereinafter: the Contract on Use of Service Facilities). The objection was partially adopted and decision was adopted ordering HAKOM's infrastructure manager to introduce amendments to Article 9.2 of the Access Contract defining the time and conditions for the calculation of the fee for train parking caused by works which have not been announced at least six months in advance. It was also ordered to amend Article 10 of the Access Contract by prescribing that in case of delay or interruption of traffic caused by malfunction of devices or on the railway track interfering with the regular traffic or some other harmful event caused by the infrastructure manager, in addition to the provisions of Article 35 of Terms and Condition of the Contract on Access to Rail Infrastructure, the railway undertaking is entitled to a compensation pursuant to the provisions of Article 9.3. of the Access Contract and, if the railway undertaking is responsible for the delay or interruption of traffic, the infrastructure manager shall be entitled to the compensation of damages by the carrier who caused the delay in the amount of the fee charged by the infrastructure manager to other carrier. Furthermore, amendment to Article 6.2. of the Contract on Use of Service Facilities was also requested by adding a possibility for subsequent complaint by the railway undertaking and by setting a time limit for the submission of complaints by both parties to the Contract and Article 7.8. of the Contract on Use of Service Facilities by deleting the request for the submission of a certified written statement that there was not change of the authorised person of the railway undertaking.

The procedure was initiated by the railway undertaking's objection requesting the establishment the existence of discrimination in relation to the setting of priorities in conditions for restriction of infrastructure capacity in cross-border traffic on the Koprivnica – Gyekenyes border crossing. Following the conducted procedure and the gathered necessary evidence from HŽ Infrastruktura Ltd. and from the railway undertaking, the objection was rejected because the discrimination claimed by the complainant was not found. Furthermore, procedure was also initiated by a railway undertaking complaint concerning conditions of access to the industrial railway track Istočni matičnjak at the Zagreb Žitnjak station against the owner of the railway track. No discrimination against the complainant or any other user of the railway track in question was established during the proceedings since the terms and conditions and price were published and equal for all users resulting in the adoption of a decision rejecting the complaint.

In the part of its work concerning proactive actions with a view to ensuring a transparent and non-discriminatory access to the market and the removal of obstacles, HAKOM proposed certain amendments of the 2016 Network Report to the infrastructure manager. The amendments in question concerned the alignment of the contents with the regulations, the elimination of unclear and discriminatory provisions and publication of accurate information with a view to ensuring transparent and clear conditions for the provision of services. On the basis of this fact, the infrastructure manager published on its website on 28 July 2015 the First amendments to the 2016 Network Report and on 4 November 2015 the Second Amendments to the same report. HAKOM participated in the meeting that the infrastructure manager is obliged to hold with the participants who submitted their objections to the 2017 Network Report. The meeting was attended by all railway undertakings and only one of them submitted its objections to the 2017 Network Report. This is the second meeting of this kind since regulations that were former regulations did not prescribe such procedure for the adoption of the Network Report. All meeting participants found this to be a good solution for timely resolution of objections an direct communication with the infrastructure manager. The infrastructure manager accepted some objections at the meeting itself with HAKOM's

support and with a view to finding the best solution and achieving good communication between railway undertakings and infrastructure managers.

HAKOM continuously supervises providers of services on the rail services market in relation to their obligation to notify the infrastructure manager about the rail services they provide, so that they can be included in the Network Report that is, the obligation to publish the necessary information on their website containing the information on the Network Report. Railway incumbents, as providers of rail services, published at HAKOM's initiative the necessary information on their websites and thus made an important step in the strengthening of transparency on the rail services market.

Network Reports of service facilities operators in ports, inland waterways, maritime ports and freight terminals have been published for the second year in a row³³. Reports are available on websites of service facilities operators, in Croatian and English, which is an important step for the entire market since all useful information is publicly available. The Network Report of a service facility operator contains general information about the service facility such as contact information of service providers in the service facility, information about conditions for access, description of a service facility, data related to capacity allocation and information on services provided in the service facility and on fees for the services in question. This approach and the form for the report that were defined by HAKOM have been recognized by the EC as a positive example for transposition of Directive 2012/34/EU (Recast) and, on the basis of the EC's invitation, it was presented at the meeting of the European Network Rail Regulatory Bodies (ENRRB) as an example of good practice. At this meeting the EC recommended the use of this Report in all EU Member States.

Within the framework of supervision of the rail services market, HAKOM continued the analysis of the application of models for the calculation of power necessary for train haulage. With a view to establishing the adequacy of methodology the traffic data were compared to the previous data with a view to establishing the need to elaborate the models and to apply the improved methodology. The compared preliminary calculation by HŽ Infrastruktura Ltd. and amounts charged for power consumption by the power supplier necessary for train haulage were analysed in relation to total amounts of power charges and tested through the application of new models for the calculation of power necessary for train haulage. Due to model complexity and lack of data (two complete years) related to charges for power consumed for train haulage, the collection of data continued as well as their analysis with a view to achieving reliable testing results for new preliminary calculation model.

In 2015, in compliance with its authority laid down in the Act on the Regulation of the Rail Services Market (OG No. 71/14, hereinafter: ARRSM) HAKOM provided its opinion on the impact of the Government of the Republic of Croatia decision on the amount of the fee for rail services on the rail services market. The above-mentioned opinion expressed HAKOM's view that the proposed price correction coefficient (K) for the 2015/2016 Train Schedule amounting to 0.4 enables the keeping of the fee for the minimum access package of services at a level that is close to the previous Train Schedule. The proposed decision allows railway undertakings to pay lower fees for the minimum access package and it has the same effect on freight and passenger traffic and on all railway undertakings, which is why it is not discriminatory. It is HAKOM's opinion that it would be useful if the Decision on the amount of the price correction coefficient (K) was available already at the adoption of the Network Report, which means one year before the entry into force of the Train Schedule because the timely adoption of the decision in question has a positive impact on business plans of carriers which depend on the Train Schedule. Because of the Decision on the amount of the price correction coefficient (K) the infrastructure manager updated the 2016 Network Report in order to familiarize all potential applicants for infrastructure capacity with the above-mentioned Decision.

³³ Inland waterway ports are Osijek, Vukovar, Slavonski brod i Sisak. Maritime ports are Rijeka, Zadar, Šibenik, Split i Ploče. Freight terminals are the Container terminal Vrapče, freight terminals are Zagreb-Jankomir, Zagreb-Žitnjak, INTEREUROPA, MURASPID i Jadranska vrata.

HAKOM replied to all questions received from participants on the rail services markets concerning, *inter alia*, requests for the conclusion of contracts on access to rail infrastructure and leasing of a part of infrastructure within the legal time limit enabling the applicants to realize their rights more easily.

4.4 Infrastructure

The infrastructure in the sense of the RA is rail infrastructure and industrial tracks, including industrial tracks in sea ports and inland waterways ports. Rail infrastructure is generally used public resource owned by the Republic of Croatia and managed by the infrastructure manager. HŽ Infrastruktura Ltd. must enable all interested railway undertakings to use the railway infrastructure under equal, transparent and non-discriminating conditions. All freight rail carriers have unlimited access to Croatian rail infrastructure, while rail passenger carriers have access to this infrastructure for the provision of international passenger transport services³⁴. In addition to rail infrastructure which is a public good, industrial railways in sea ports and inland waterway ports are also available to all interested railway undertakings under equal, transparent and non-discriminating conditions. Industrial railway tracks, which are not part of ports or freight terminals when they serve or could serve the needs of more than one user, must also be available to all interested railway undertakings under equal, transparent and non-discriminating conditions. Positive legislation defined the manner of calculation, that is, the methodology for the calculation of fees for rail services thus preventing the infrastructure manager and / or the service facility operator to impose discriminatory fees and to restrict a specific market lacking alternative uses. The infrastructure manager is entitled to the compensation of costs of maintenance and regulation of traffic, that is, of costs belonging to the group of maintenance costs resulting from train operation. This is not the case in relation to the model for the calculation of fees for use of industrial railway tracks thus leaving room for owners and operators of industrial railway tracks to establish a market-based fee since these railway tracks are not part of railway services pursuant to the RA and therefore are not subjects to such methodology for the calculation of the fee for rail services. The conditions and manner of use of rail services and rail infrastructure have been prescribed in detail in the RA and in the Network Report of the infrastructure manager, and for industrial railway tracks in sea ports, inland waterway ports and freight terminals they have defined in the Network Report of the service facility operator. The above-mentioned documents contribute to transparency and predictability in the provision of services. Other owners of industrial railway tracks are not obliged to publish data on availability and access to their railway tracks and services provided on those tracks.

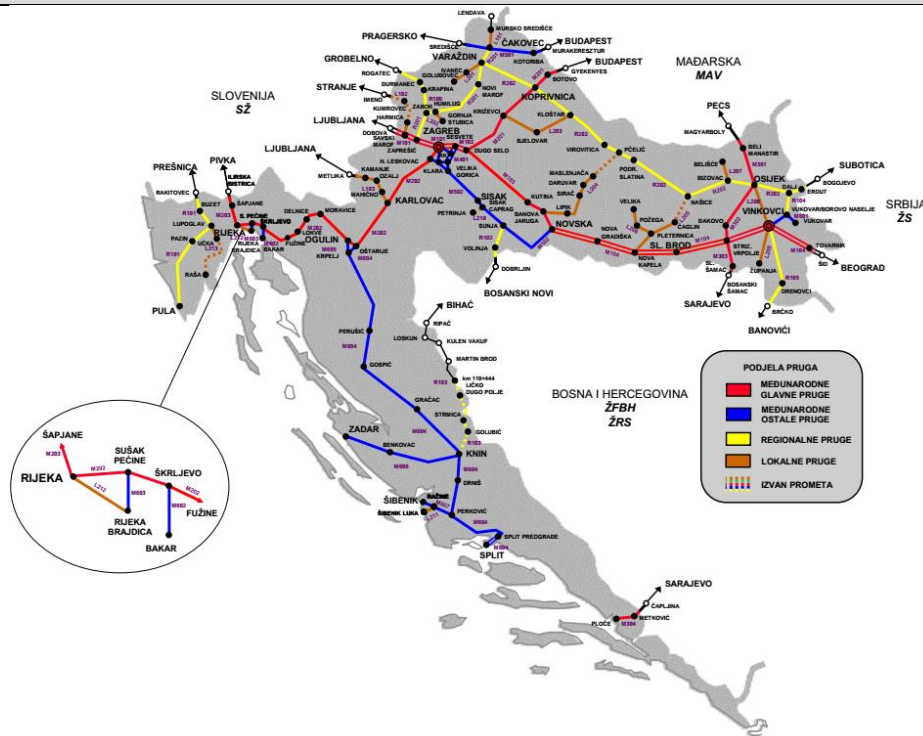
All service facilities operators of sea ports and inland waterway ports and of freight terminals published Network Reports of service facilities operators including a description of the equipment of maritime and inland waterways ports and freight terminals. Network Reports of service facilities operators of maritime and inland waterways ports have been unified and the provided services have been defined according to the service provider which is important for railway undertakings, in particular those who are new on the rail services market. In coordination with competent institutions for ports and freight terminals (MMATI and the RSA) and with service facilities operators and freight terminals operators, HAKOM in 2015 examined the consistency of network reports of service facilities operators providing support by educating the operators on the need to change and amend the content. Furthermore, at the initiative and with HAKOM's technical support, faster and more efficient procedures for the issuing of certificates of safety of railway tracks in ports and freight terminals by the RSA have been encouraged. According to the data from the network reports of service facilities operators, managers of the above-mentioned service facilities manage approximately 56.42 kilometres of tracks which is only a part of industrial tracks³⁵ on the territory of the Republic of Croatia but also a part of the total length of railway tracks in ports and freight terminals.

³⁴ The introduction of a new, open access to services of international passenger transport including cabotage may not be used to open the market to domestic passenger transport services.

³⁵ Other industrial tracks are part of factories, locomotive depots, industrial zones and the similar.

According to the 2015 Network Report, HŽ infrastruktura Ltd. managed the length of 2605 kilometres of tracks. The length of the rail infrastructure remained unchanged compared to the previous year, and preparations for the building of the railway track Sveti Ivan Žabno – Gradec started in 2015. An overview of rail infrastructure according to the 2015 Network Report is illustrated in image 4.3.

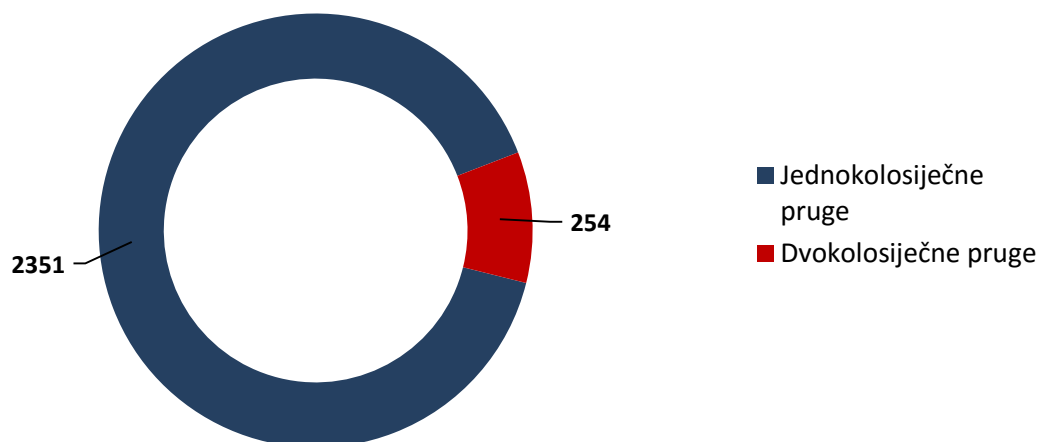
Figure 4.3. Map of rail services in the Republic of Croatia



Source: HŽ Infrastruktura d.o.o., 2015 Network Report

Rail infrastructure, that is, railway tracks and rails on the territory of the Republic of Croatia of the entire railway network are standard gauge tracks³⁶. Out of the total length of railways 2351 km or 90.25 % are single track and 254 km or 9.75% are double track. The share of double track railway tracks in the total sum of track lengths compared to the year before remained the same. Double-track railways are important for transportation because they contribute to greater usage of train paths and better transport capacity (Figure 4.4.)

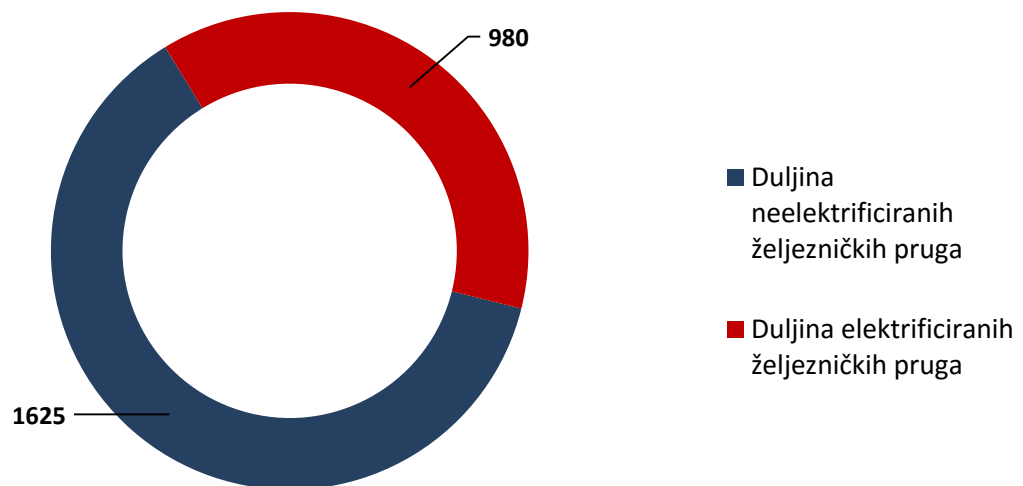
Figure 4.4. Length of single track and dual track railways in the Republic of Croatia (km)



³⁶ Standard gauge track - track od 1435 width

Railway electrification for the purposes of train haulage additionally increases the competitiveness of railway traffic compared to other transportation modes and haulage of diesel trains which is an economically and ecologically positive aspect of a more acceptable transportation system. In spite of the above-mentioned advantages, the electric system has not been changed compared to 2014 and out of the total length only 980 kilometres of tracks have been electrified (Figure 4.5.) which is 37.62 percent. Although this percentage is the EU average, the need for further electrification and the modernization of the power supply systems for trains are necessary in a modern and developed transportation market. The manner of charging for electricity necessary for train haulage is another issue that is necessary for the competitiveness of the rail electric train power systems by introducing measuring devices that will enable a credible calculation of consumed electricity.

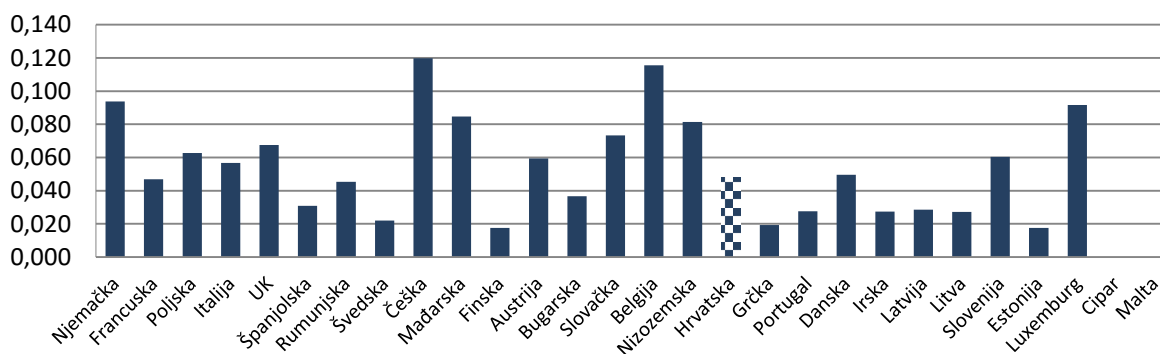
Figure 4.5. Length of electrified and non-electrified railways in the Republic of Croatia (km)



Out of the total length of electrified railways 977 kilometres of track were electrified with the alternating current of 25kV 50 HZ and 3 kilometres of track were electrified with the direct current system of 3kV. The change in the electrification system and its unification in the entire territory of the Republic of Croatia created preconditions for the use of haulage means of a power system which is also more affordable for users. This also enabled the reduction of transport time which were caused in duo haulage systems by changes in locomotives at borders where to types of power supply interact.

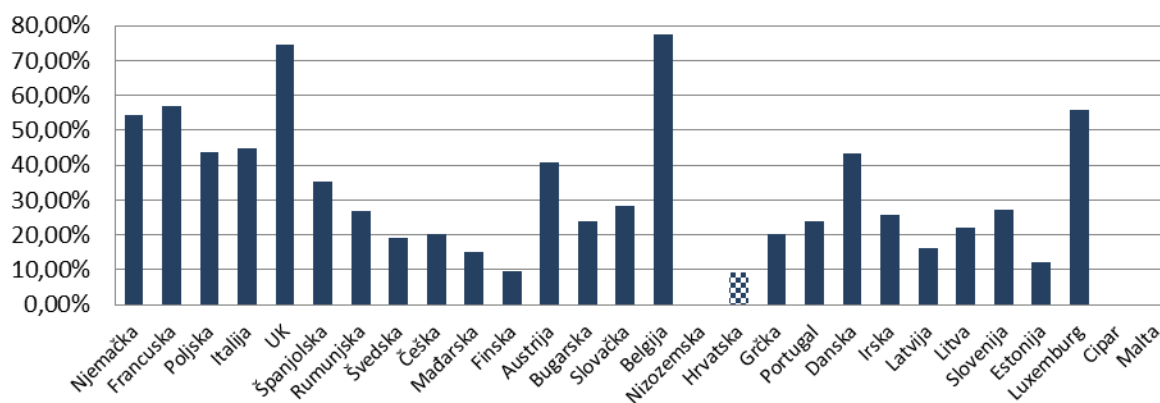
Rail infrastructure of the Republic of Croatia is part of the European rail infrastructure of the total length of about 215 thousand kilometres. If the length of the rail infrastructure of the Republic of Croatia is compared to the total length of rail infrastructure in the EU, it is obvious that the share of the Republic of Croatia is only 1.3 percent. The comparison of average track lengths per country surface and length of electrified railways shows that Croatia is among the average of the EU Member States (Figure 4.6. to 4.8.)

Figure 4.6. Length of railways per surface of EU Member States (km/km²)



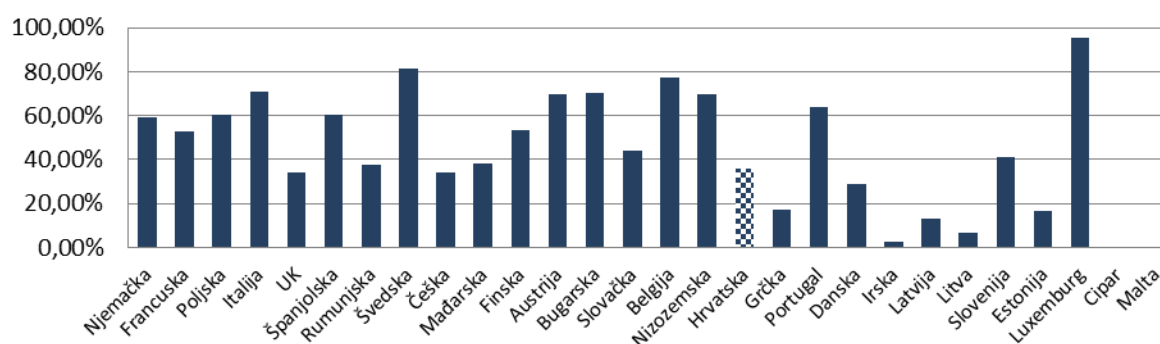
Source: HAKOM prepared the graph on the basis of data with www.uic.org

Figure 4.7. Share of double-track railways in the total length of railways per EU Member States



Source: HAKOM prepared the graph on the basis of data with www.uic.org

Figure 4.7. Share of electrified railways in the total length of railways per EU Member States



Source: HAKOM prepared the graph on the basis of data with www.uic.org

During 2015 a total of HRK 457,531,000 was invested into the renovation and modernization of railway tracks³⁷ out of which the majority of funds were invested into international railways, that is 71.45% followed by investments into activity programmes for the purposes of infrastructure and traffic in the network as a whole. Investments into building of new railway tracks amounted to 5.89 percent of total investments in 2015, while the rest was invested into the renovation and modernization of railways for regional and local traffic and into renovation and modernization of the railway node Zagreb.

³⁷ Data provided by HŽ Infrastruktura used as a basis of the preparation of HŽ Infrastruktura d.o.o.'s 2015 Corporate Report (deadline for the publication of the Corporate Report is 30 June 2016).

Table 4.2 The maximum permissible speed of trains according to railway capacity (km/h)

The maximum permissible speed of trains according to railway capacity (km/h)	Length of network in relation to maximum permissible speed of trains (km)			
	2012	2013	2014	2015
from 20 to 60 km/h	1107.9	1023.2	996.1	1005.3
from 61 to 100 km/h	1124.3	1157.8	1162.4	1158.9
from 101 to 160 km/h	367.7	463.2	485.7	497.7
garaged	324.9	332	213.1	196.3

Source: HŽ Infrastruktura d.o.o.

Investments into building of new railway tracks amounted to 5.89 percent of total investments in 2015, while the rest was invested into the renovation and modernization of railways for regional and local traffic and into renovation and modernization of the railway node Zagreb. A positive trend is obvious in the increased length of railways upgraded for speeds up to 100 km/h and speeds above 100 km/h.

An important fact in the quality of traffic is the commercial speed of trains. The limiting of speed to speed below the maximum permissible on the railway infrastructure increases the duration of travel thus influencing the transport capacity of railways and the attractiveness of railway traffic

Table 4.3 Average commercial speed of trains (km/h)

Speed of trains in km/h	2012	2013	2014	2015
Average commercial speed of trains	33.43	32.76	33.53	34.70
passenger trains	44.81	44.35	46.36	47.82
freight trains	21.04	21.17	20.67	21.57

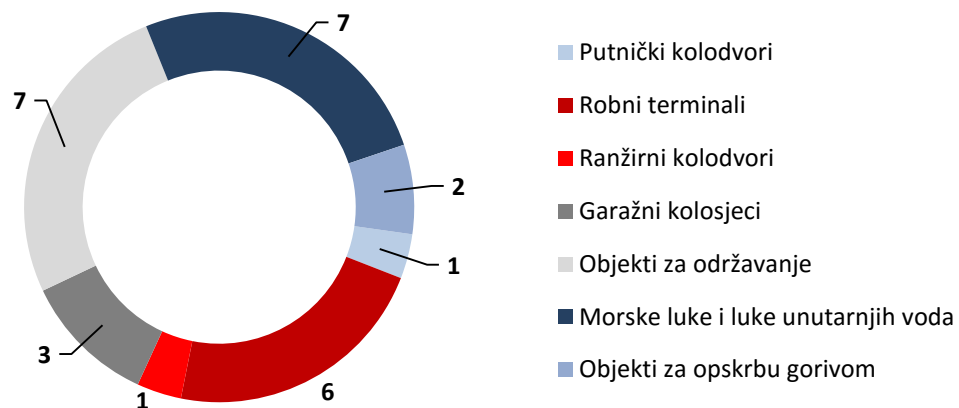
Source: HŽ Infrastruktura d.o.o.

The appearance of new freight railway undertakings creates the need for a greater number of services that used to be provided by the incumbent operators for their own needs only. Service facilities operators in ports provided their rail services mostly to the freight incumbent who provided services in service facilities for its own needs (e.g. manoeuvring, assembling, disassembling etc.). A part of rail services continue to be provided by the incumbents while in 2015 they were unable to give a positive reply to the interested rail carriers for the provision of services due to lack of capacity.

HAKOM has intensively worked in 2015 on the removal of possible obstacles to market development in relation to access to services facilities and training services for service facility operators by providing guidelines and continuous monitoring of the market situation in relation to service facilities who prepared network reports of the service facility operator. The result of the removal of obstacles is noticeable in the use of the rail infrastructure in ports by new carriers. In addition to the incumbent who is also the service provider, new carriers who provided the services of initial and final actions, such as manoeuvring, break tests, assembly and disassembly of trains, on the basis of their own capacity were also able to work in ports. HAKOM will continue to work on the regulation of the rail services market including the supervision of the provision of services by the service facilities operator. The improvement of the situation on the rail services market has a direct impact on the transport market, which is reflected in the increased transparency of the provision of services of the service facilities operators. HŽ Infrastruktura Ltd. provided in the 2017 Network Report data on the providers of service facilities at ports and freight terminal, although it was not legally obliged to do

so. Such actions indicate that HŽ Infrastruktura Ltd. is oriented towards market development and is an example of good business practice.

Figure 4.9. Number of operators of service facilities

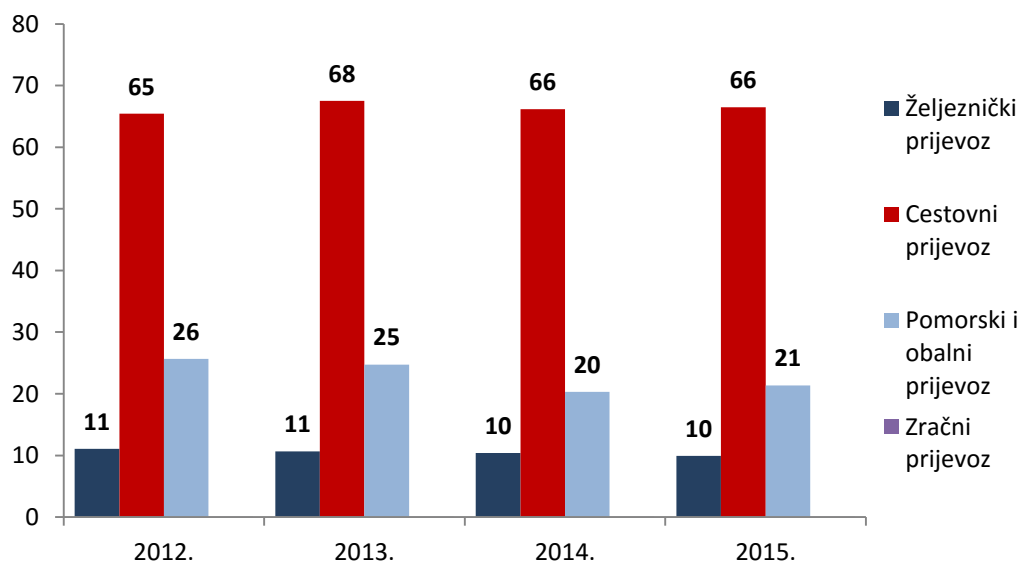


According to the definition of a service facility operator on the rail services market, HŽ Infrastruktura Ltd. is the operator with the biggest number of service facilities and the greatest number of service provided on the rail services market. In its capacity as the service facility manager and/or service provider, HŽ Infrastruktura Ltd. is obliged to provide its services to all interested parties under equal conditions from the Network Report.

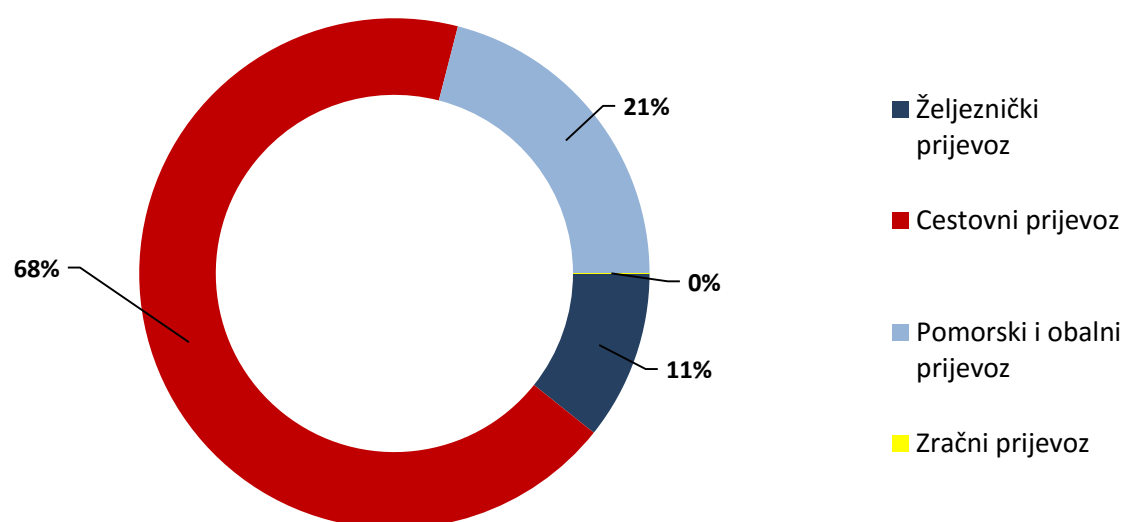
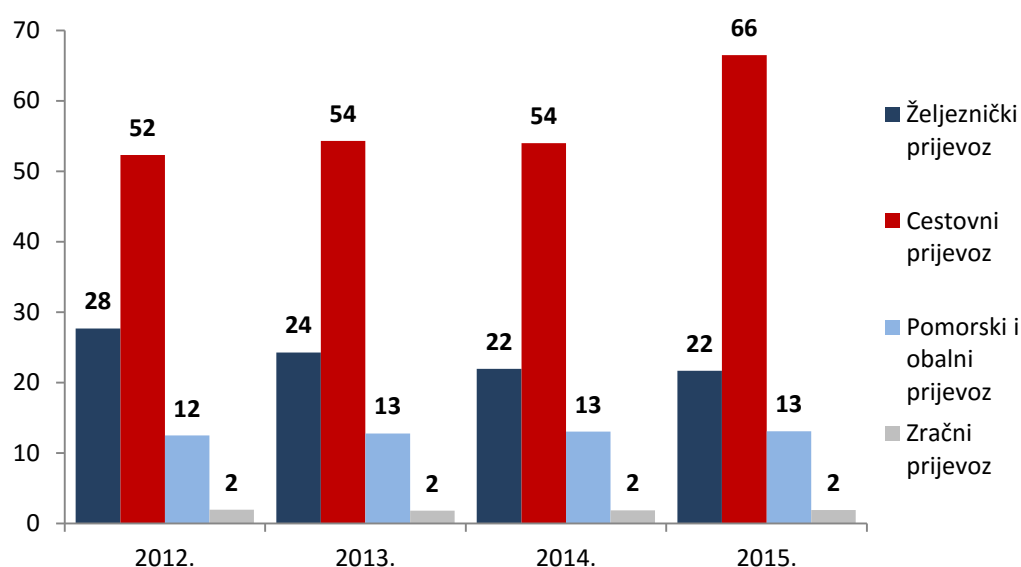
4.5 Transport

Although the monitoring of the situation on the rail transport market is not under HAKOM's competence, data on the number of carried passengers and goods are an important indicator of the situation on the rail transport market, which is dependent on the rail services market and interrelated with it. The appearance of competition on the rail services market in 2015 does not indicate that progress was achieved in market development and competition on the rail transport market compared to other modes of transport, which is illustrated by data published by the Croatian Bureau of Statistics and data collected by HAKOM. The transport data indicate the dominance of road transport (Figures from 4.10. do 4.12.).

Figure 4.10. Amount of carried goods per modes of transport (millions of tons)



Source: www.dzs.hr

Figure 4.11. Share of carried goods per modes of transport in 2015**Figure 4.12.** Number of carried passengers per modes of transport (millions of passengers)Source: www.dzs.hr

The number of passengers in rail passenger transport decreased by one percent compared to the previous year. A total of 21,683,048 passengers were carried in 2015 covering 951,235,602 passenger kilometres (Pkm)³⁸. The number of carried passengers³⁹ in 2015 includes the number of carried migrants and refugees. In 2015 a total of 468,557 migrants and refugees were carried.

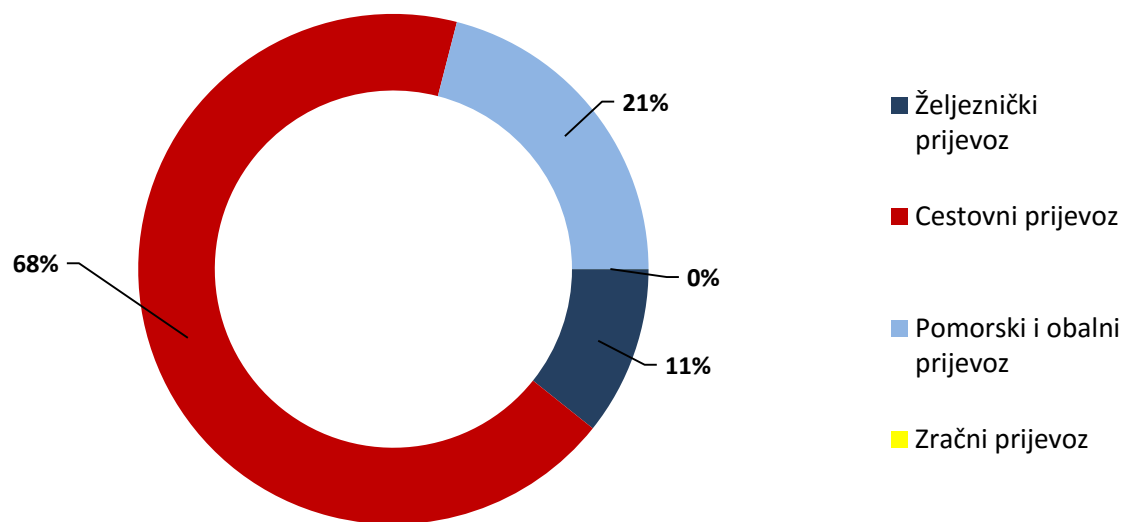
The renovation of many railway tracks continued in 2015 which is why on some parts of the route passengers were transported by buses. It is to be expected that renovation will in the long run result in the improved quality of infrastructure which will lead to better transport services. The quality of the transport service is significantly influenced by the putting into operation of ten new low-floor

³⁸ Passenger kilometre (Pkm) is a measure expressing the movement of one passenger at the distance of one kilometre.

³⁹ Out of the total number of carried passengers two percent were international passengers who covered four percent of passenger kilometres (Pkm).

trains which was the first step of the company HŽ Putnički prijevoz Ltd. towards making its offer more quality for passengers.

Figure 4.12. Share of carried passengers per modes of transport in 2015



Source: www.dzs.hr

5 USER PROTECTION

User protection is one of pillars of regulation, and the user benefit is ensured through the application of principles of objectivity, transparency, non-discrimination and proportionality in the protection of competition. A special emphasis was placed on ensuring a high level of protection of users of services in their relations with operators/service providers/carriers, in particular by making available simple and inexpensive dispute resolution procedures.

5.1 Protection of users of electronic communications services

The area of electronic communications is one of the most dynamic Croatian markets with various services that are frequently used by almost all citizens in the Republic of Croatia. As a reminder, there are over 4.4 million users of mobile communications networks in Croatia, around 1.3 million phone connections in the fixed public communications networks, almost 4.2 million connections for broadband internet access, and over 800 thousand of households that watch TV programmes over cable networks, IPTV or satellite. The electronic communications market has the biggest user or consumer base in the Republic of Croatia and the dynamics of market changes, from new products to technological progress, also represent a challenge for the protection of user rights. Furthermore, users of electronic communications are often more familiar with the protection of their rights than consumers on other network service markets. Considering the nature of the service, all operator mistakes will be easily noticed by users.

The existing legislative framework is optimum, it is aligned with the *acquis* and enables satisfactory protection of such a large number of users.

5.1.1 User objections, complaints and disputes

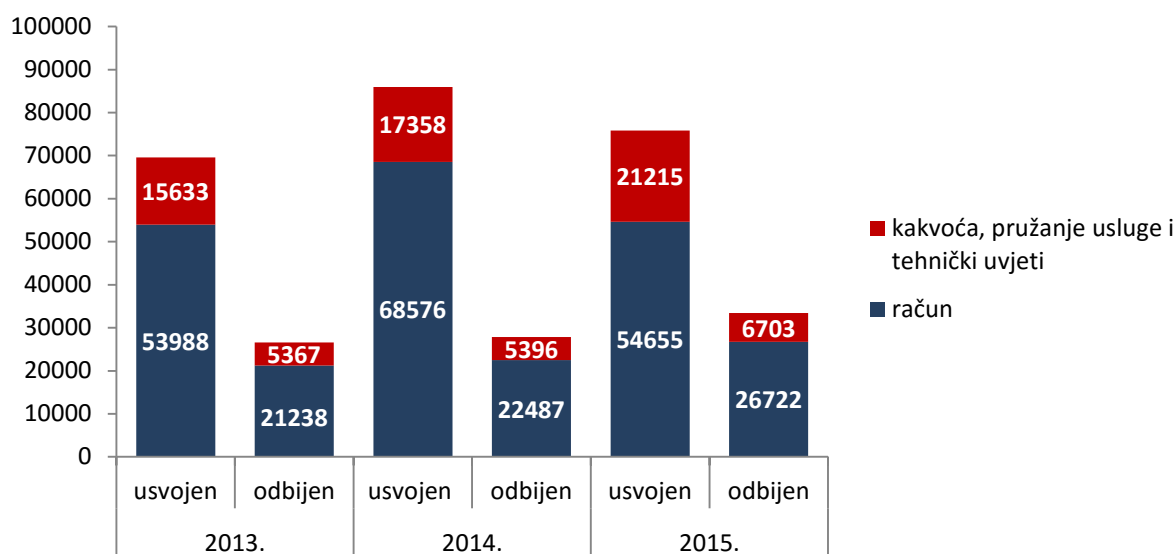
The rights of end users of electronic communications to complain in case of unsatisfactory service provision are regulated by the ECA as an out-of-court proceedings of three instances. If the user is unsatisfied with the amount of the bill, with the quality of the provided service, with the service or with the violation of the provisions of the subscription contract, he must submit a written objection to the operator within 30 days. If the user did not receive a satisfactory reply from the operator, the user may file a complaint to operator's Consumer Protection Commission. If the user is not satisfied with the Commission's reply, he or she may initiate dispute resolution proceedings before HAKOM aimed at examining all the available facts and adopting a binding decision. An administrative claim may be filed against HAKOM's decision.

This manner of out-of-court or alternative dispute resolution procedure between users and operators appears to be an efficient manner of protecting users' rights because it is much shorter than a regular court proceedings and does not incur costs for the user.

Complaints to operators

Complaints are the first instance in the procedure for the resolution of complaints submitted by users to their operators. Figure 5.1 shows a total number of adopted and rejected complaints submitted to operators per type of complaint Data were received from operators.

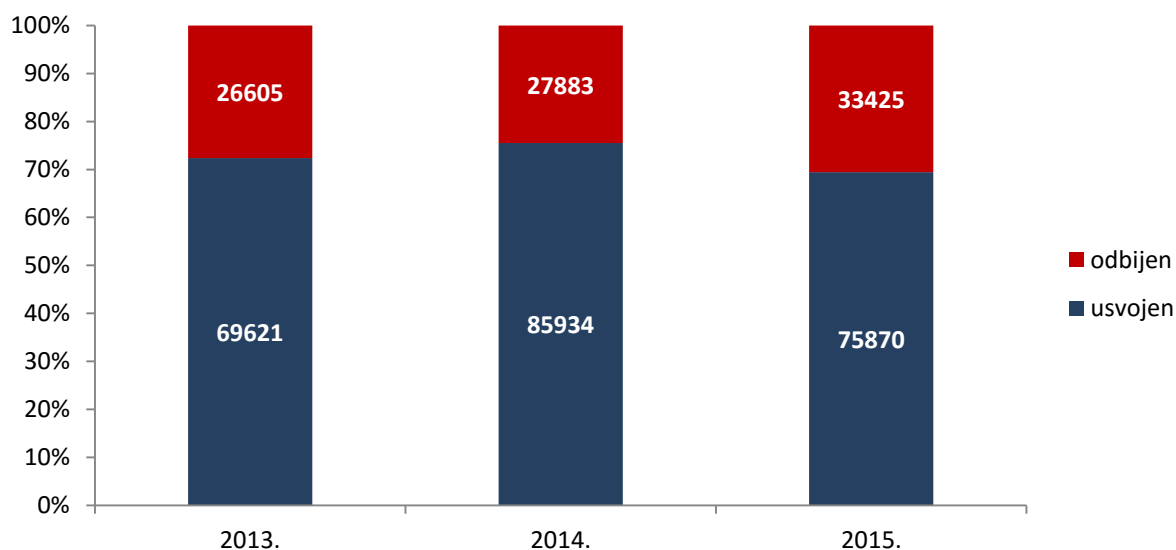
Figure 5.1. Number of accepted and rejected complaints (1st instance)



The percentage of accepted complaints in the first instance is still very high. Operators accepted almost 70 percent of all user complaints in the first instance of the procedure for the resolution of users complaints, and a similar ratio between accepted and rejected complaints was recorded in the previous years as well. This fact indicates that operators understand that a satisfied user is a basis for a successful business model and that there are many cases when operators will accept the user's complaint although the users were not completely right because they were not fully familiar with their rights and operator obligations. Many complaints in this instance could be avoided if users were more familiar with all aspects of the service they use.

Although the number of complaints in the first degree seems to be high, if it is standardized to a total number of basic electronic communications services (telephone, TV and the Internet), users have the need to complain to their operator on average for every hundredth service in a year. The majority of complaints still refers to debts on accounts.

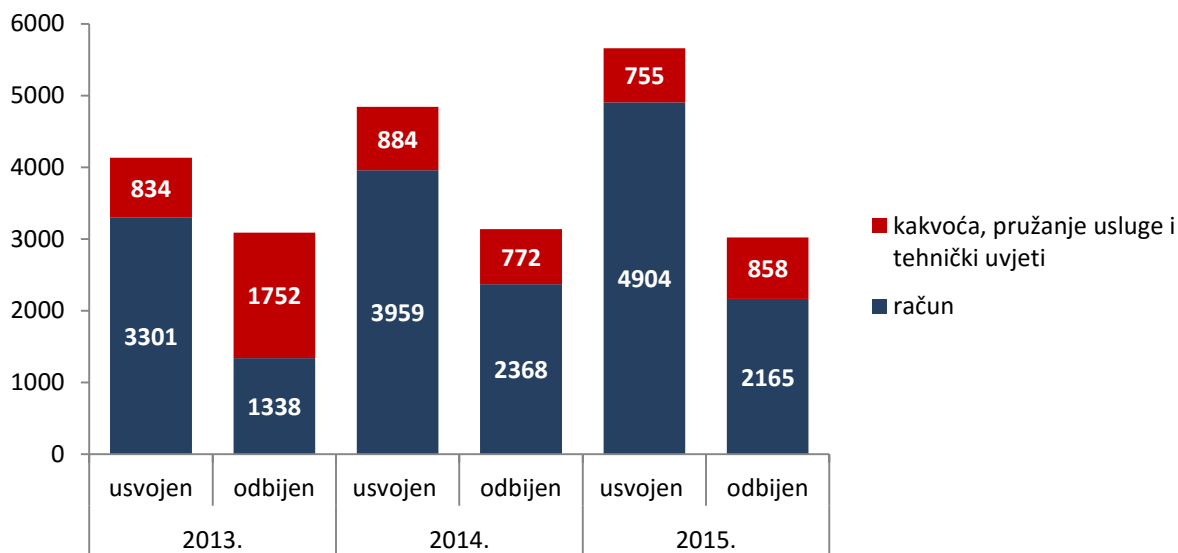
Figure 5.2. The share of accepted and rejected complaints



Claims to operators

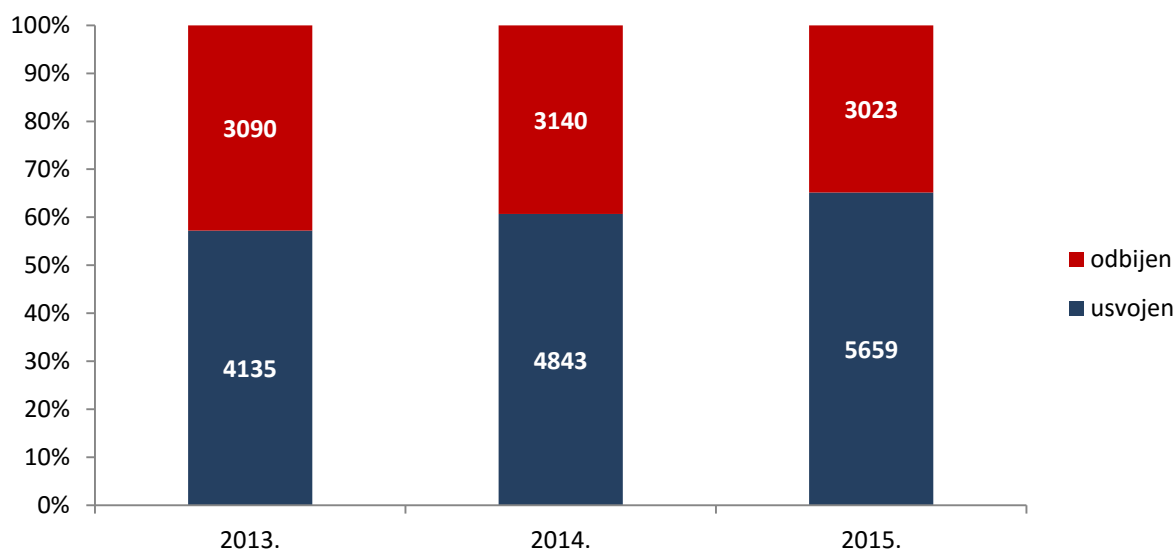
If the user's complaint was rejected by the operator, the user continues his or her complaint resolution procedure by submitting a claim to the operator's Consumer Complaint Commission. The operator's Commission consists of representatives of consumer protection associations.

Figure 5.3. Number of accepted and rejected claims (2st instance)



A significantly smaller number of users continue the complaint proceedings in the second degree than the number of users whose complaint in the first degree was rejected by the operator, that is, less than one fourth of users were unsatisfied with the operator's reply and decided to further pursue the case. The percentage of accepted claims in the second degree has slightly decreased compared to the percentage of accepted first degree complaints. This situation is to be expected and the share of accepted claims has grown compared to the year before and it exceeded 65 percent. The result of an increasing share of adopted and rejected claims is the acceptance of HAKOM's practice in the adoption of decisions on individual types of disputes in the third degree. Claims make less than 0.1 percent of all services.

Figure 5.4. The share of accepted and rejected complaints



Disputes before HAKOM

By filing a complaint and a claim to its operator, the user fulfils a legal requirement for initiating a dispute before HAKOM. The dispute is the third and last instance in complaint resolution procedure. If the user filed a complaint followed by a claim within the deadline because he is unsatisfied with the amount of the bill, quality, service or due to the violation of the subscription agreement, and believes that his or her rights have been violated, the case may be brought before HAKOM by submitting a dispute resolution request. If it is established that all the legal preconditions for dispute resolution have been fulfilled, the case is examined and a binding decision is adopted. HAKOM's Consumer Protection Commission participates in the adoption of rulings and decisions of suspension or rejection with its proposal for proceedings. The Commission is composed of HAKOM's experts and representatives of the Union of Consumer Protection Associations. The dispute does not represent a direct expense for the user since it is free of charge and it may be initiated electronically by using HAKOM's web application e-complaints.

Table 5.1 Analysis of disputes solved by the Consumer Protection Commission

Disputes	Positive	Negative	Subsequently positive ⁴⁰	Suspension/rejection
1338	429	471	244	194

Table 5.1. presents an analysis of resolution of dispute resolution requests at sessions of HAKOM's Consumer Protection Commission. It is clear that the ratio between positively and negatively solved disputes is below 35 percent. That shows that operators have been more frequently adopting adequate decisions in complaint proceedings. A part of disputes, that is 244 disputes, were solved positively without the need to adopt a decision. During the procedure when the subject of the dispute is presented, when HAKOM underlines the mistake, operators often change the original opinion themselves and accept user's complaint. In this manner the procedure is quickly terminated by adopting a satisfactory decision for the user. A total of 194 disputes had to be rejected or suspended because the claims were submitted after the deadline, due to incomplete documentation or other procedural conditions. One of the reasons for the rejection/suspension of disputes is because users are unfamiliar with the regulations, that is ,with prescribed deadlines for the submission of complaints, objections or for initiation of dispute resolution procedures. There were 248 such disputes in 2014 and their number decreased by 20% in 2015 and has been dropping continuously, which is proof that consumers are more aware of legal deadlines and more familiar with the procedure.

Table 5.2 The analysis of disputes completed with a decision per operators

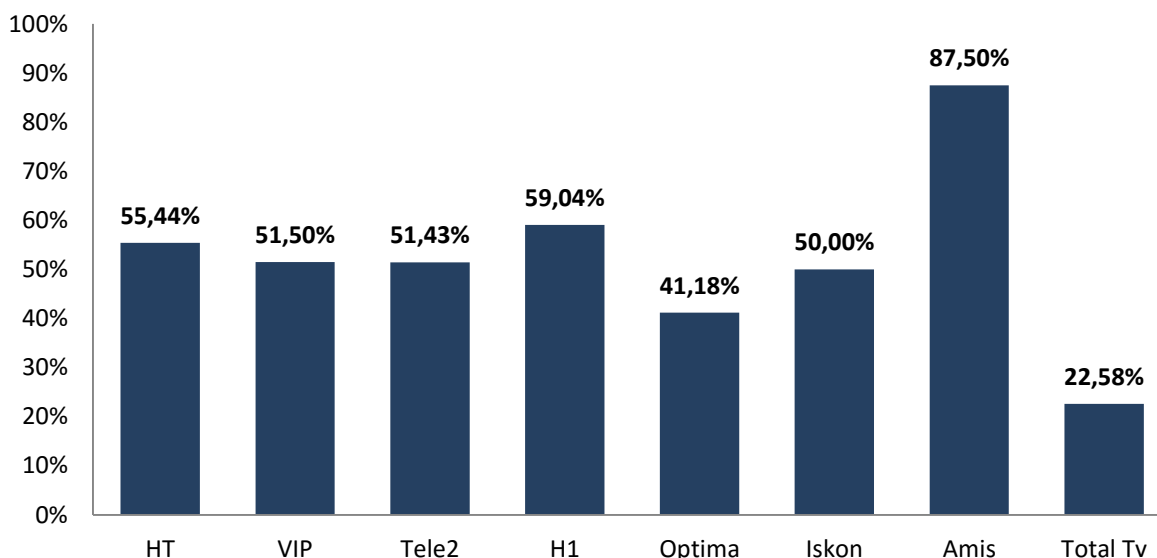
Operator	Number of disputes			Shares of operators in disputes[%]			Share of disputes compared to the number of users [%]			↗ ↘
	2013	2014	2015	2013	2014	2015	2013	2014	2015	
HT	269	218	386	30.06	31.78	42.89	0.01	<0.01	0.01	↗
VIP	227	150	200	25.36	21.87	22.22	0.01	<0.01	0.01	↗
Tele2	239	156	105	26.70	22.74	11.67	0.03	0.02	0.01	↘
H1	42	86	83	4.69	12.54	9.22	0.05	0.09	0.06	↘
Optima	74	34	51	8.27	4.96	5.67	0.04	0.02	0.03	↗
Iskon	37	22	26	4.13	3.21	2.89	0.04	0.02	0.02	↘
Amis	4	6	8	0.45	0.87	0.89	0.02	0.03	0.04	↗
Total TV	-	-	31	-	-	3.44	-	-	0.09	
Other	3	13	10	0.34	0.73	1.11	-	-		

⁴⁰ Disputes were positively solved by the operator in the dispute resolution procedure, that is, the operator accepted the user's complaint before adopting HAKOM's binding decision.

The analysis of initiated disputes per operators is illustrated in Table 5.2. HT has the biggest share in disputes which is to be expected because it has the largest user base but it is not sufficient to present this data separately. Therefore, the share of disputes in relation to the user base of individual operators has also been shown as a measure of frequency of requests for the protection of rights submitted to HAKOM. It is obvious that it changes from one to nine users out of 10 000 users, depending on the operator.

An interesting measure that can be used for comparing and evaluating the work of the operator's complaint service is illustrated in Figure 5.5

Figure 5.5. Shares of operator's decisions that that have not been confirmed by HAKOM in disputes



It has already been mentioned that in the 3rd instance of user complaint resolution procedure, that is, in dispute resolution procedure, HAKOM receives only cases rejected by operators as unfounded complaints and objections. If user protection services of operators, and their commissions, acted in the same way as HAKOM would act in an individual case, then HAKOM's decision is negative for the user. It is obvious that the percentage of negative decisions is more than 50 percent on average, and in the remaining decisions HAKOM concluded that operators were wrong that the user should have been treated differently. Comparison with previous years shows a slight drop in the number of disputes.

Table 5.3 The structure of resolved disputes at the meetings of HAKOM's Commission per years

Structure of resolution of	2011	2012	2013	2014	2015
Positive	75	279	306	202	429
Subsequently positive	285	407	589	417	244
Suspension of proceedings	380	502	393	248	194
Negative	311	421	408	483	471
Total	1051	1609	1696	1350	1338

5.1.2 Complaints to HAKOM

Dispute resolution requests are not a representative sample for detecting and prevention of certain market issues since they are part of prescribed proceedings and the third instance in the resolution of the user's complaint. For that reason, some market occurrences may be unnoticed or their importance not revealed if the analysis does not include all HAKOM's contacts with users.

Therefore, data from all user cases or inquiries are used in the analysis of complaints in HAKOM's new business system e-complaints. The basic division is illustrated in Table 5.4. and represents types of complaints/questions addressed to HAKOM in the last 5 years.

Table 5.4 Types of complaints

Type of complaint	2011	2012	2013	2014	2015
Bill complaints	1129	1392	1217	1267	1118
Quality complaints	138	224	229	233	324
Complaints against carrier pre-selection	39	32	34	43	18
Complaint against number porting	68	205	199	177	111
Business practice complaint	71	383	475	619	916
General questions by users	338	78	137	147	155
Total complaints	1783	2314	2291	2486	2642

A total number of user complaints in 2015 grew to around 2650 cases in which users contacted HAKOM directly. The number of bill complaints decreased compared to the year before, while the number of business practice complaints and quality complaints increased. The reason for the increase in complaints in these categories is an increased number of cases where users complain against a contract or a termination of a contract with the operator.

Bill complaints

Bill complaints are the most frequent category of complaints and their share in the total number fell under 50 percent.

Table 5.5 Structure and number of bill complaints

Type of complaint	2011	2012	2013	2014	2015
Basic services ⁴¹	684	1013	939	1073	1002
Other debts ⁴²	29	38	45	54	36
Internet traffic	269	283	199	116	59
Special tariff services	71	36	24	17	10
Special tariff SMS services	78	23	10	1	1
Total	1129	1392	1217	1267	1118

The number of bill complaints is lower than in all the previous years.

Quality complaints

Table 5.6 Structure and number of quality complaints

Subject of complaint	2011	2012	2013	2014	2015
Internet access speed	11	22	18	10	14
Availability	12	14	26	34	37
IPTV	36	7	20	8	1
user line	24	35	23	28	6
Other technical problems	22	106	103	141	250
Interferences, crosstalk, signal interruption,	26	33	31	5	6
Other	7	7	8	7	10
Total	138	224	229	233	324

⁴¹ Monthly fees, tariffs, packages and contracts.

⁴² Dunning letter, interests rates and past due payments.

The number of quality complaints increased compared to the year before and the reason for it is the increased number of technical interferences. Other categories are comparable to previous periods.

Analysis of complaints against operator's business practice

In order to prevent possible omissions in the behaviour of operators, HAKOM dedicates special attention to complaints against business practice of operators because they may indicate system or intentional issues. One of such categories is the operators' advertising, that is, failures that lead the users to draw wrong conclusions.

Table 5.7 Complaints against operators' business practice

Type of complaint	2011	2012	2013	2014	2015
Operator's advertising	71	44	136	156	100
Carrier preselection	39	32	32	40	18
Number portability	67	205	181	163	107

Number porting is a second category of complaints in which the decreasing trend from 2013 continue. Operators pay compensation to users for delayed number porting which is why there is less and less of cases of delay. The amount of the fee is HRK 10 for every delayed hour of number porting into another network. Problems concerning carrier preselection are less frequent than in 2014 and are a negligible category.

5.1.3 Preventive activities in user protection

HAKOM pays special attention to the prevention of noticed problems in relations between users and operators. One type of prevention is the adoption of provisions in laws and subordinate legislation defining certain market sectors more clearly, in particular since HAKOM adopts binding decisions in disputes on the basis of provisions of not only the ECA but also other regulations such as the Consumer Protection Act (hereinafter: CPA). Since distance selling and selling outside of the business premises in electronic communications have been identified as one of the most problematic areas which are regulated by the CPA which is under the competence of the Ministry of the Economy, HAKOM adopted in April the amendments to the Ordinance on the manner and conditions for the provision of electronic communications networks and services. The amendments regulated more clearly the sale of operator's services with a view to preventing misleading sale and business practice, in particular outside of the business premises. From the beginning of June, operators must state on all requests for subscription or contracts all fixed costs included in the selected service so that the sales agent's offers of lower prices than actual prices would seem meaningless. In HAKOM's opinion users will not sign a contracts stating a different price than the one mentioned in the conversation with the sales agent and the decision has so far proven to be excellent. Following the adoption and entry into force of the Act on amendments to the CPA in October 2015, further amendments to regulation have been initiated that should similarly contribute to the regulation of the distance sales area.

One of the most important activities continued by HAKOM in 2015 was the IT system entitled "Cost Assessor". The system provides to users the necessary information about the prices of public communications services and their amendments in real time with the offer on the market. The system allows users to use the Internet to make an independent assessment of charges arising from the prices of public communications services. Furthermore, HAKOM may in a simple manner supervise the offer of public communications services of market operators.

It must be mentioned that HAKOM and the Ministry of the Economy jointly closely cooperate on the "Do not call" public register. It was decided in June that HAKOM can establish a public register of all consumers who do not wish to be called for the purpose of sales or promotion, the so-called "Do not

call" register, which was laid down and adopted with the last amendments of the CPA. It is expected that the Ordinance on the register will be adopted in 2016 which will serve as a basis for the development of a database with all the necessary functionalities. The launching of the "Do not call" register is expected in late 2016.

What follows is an overview of other preventive activities used by HAKOM in 2015 to increase the efficiency of user protection:

- control and alignment of operators' bylaws (general business terms and conditions, conditions of use and prices) defining their manner of doing business and the special obligations related to the protection of users of electronic communications. The general business terms and conditions have been reviewed, aligned and approved with the new subordinate legislation
- all requests for existing and new prices, service bundles and operators' promotional offers have been examined and checked
- operators' questions concerning the interpretation of regulations and expert opinions have been processed
- questions of the media and consumer protection associations concerning the amended conditions of use of tariff models and user protection have been processed
- training users via the web-site and the "Ask us" section of the website; HAKOM answered 854 questions in the area of user protection within the shortest possible time;
- training of users through Facebook: publication of rights of users and obligations of operators and replies to users' questions;
- preparation and distribution of leaflets for users; more than 400000 leaflets⁴³ with useful information have been inserted into the national editions of daily newspapers
- a direct telephone line for contacting HAKOM's experts during regular business hours for information about specific cases, that is, assistance and instructions on what and how to act in case of problems encountered by users when using public communications services
- a direct telephone line was introduced for helplines for consumers so that employees in help centres could quicker and easier get information from HAKOM
- HAKOM's experts answer users' questions about protection and about their rights and they also participate in TV shows about user protection which include user protection: radio shows "Svi smo mi potrošači" on Croatian Radio's second channel, "Se bum vas tužil" show at Radio Sljeme, "Glas potrošača" at Channel One of the Croatian Radio and TV shows "Vita jela, zelen bor" i "Potrošački kod"
- active participation in the work of other state institutions on projects concerning user/consumer protection.

⁴³ the leaflet is available to all citizens in the pdf format at <http://www.hakom.hr/default.aspx?id=1504>

5.2 Protection of users of postal services

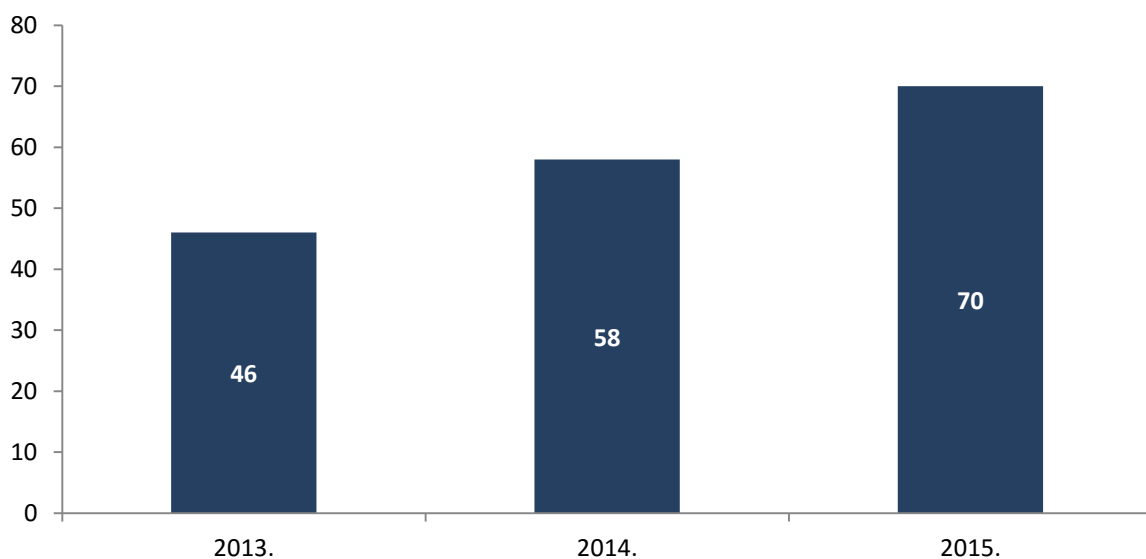
Pursuant to the Postal Service Act, HAKOM is competent for the protection of users of postal services and the resolution of disputes between users and postal service providers. The procedure for the resolution of complaints made by users of postal services is a three-instance procedure harmonized with the procedure for the protection of rights of end users of public communications services in disputes with operators of public communications services pursuant to the ECA.

Pursuant to the provisions of the PSA, a user of postal services may submit a written complaint to a postal service provider in a complaint resolution procedure in case of loss of a postal item, non-compliance with the deadline for the delivery of a postal item, if the postal service provider did not provide the service or did not provide it entirely or in case of damage or loss of contents of a postal item. A user may submit a claim to the Consumer Complaints Commission of the postal services provider against the written reply of the postal services provider. In case of a dispute between the user and the provider of postal services concerning the resolution of the complaint, the user may submit to HAKOM a dispute resolution request within 30 days from the submission of the written reply to the Consumer Complaints Commission of the postal services provider.

HAKOM resolves disputes by adopting a decision, on the basis of the opinion of the Consumer Complaints Commission, an advisory body established with HAKOM, in accordance with act regulating consumer protection. HAKOM's decisions in disputes between users and providers of services are final and may not be appealed but an administrative dispute may be initiated.

The annual number of received requests has been growing since 2010 when HAKOM started resolving disputes between users and providers of postal services. In 2015 HAKOM received 70 requests for the resolution of disputes between users and providers of postal services, which is a significant increase compared to 58 requests received in the previous year but this was the expected outcome of the efforts that are invested into familiarizing users with their rights. The number of disputes is not significant if taken into account that more than 330 million services were provided in 2015. Out of the total number of requests, 65 refer to disputes with universal service provider, HP, and 5 to other postal service providers.

Figure 5.6. Dispute resolution request per years



A total of 55 disputes were resolved in 2015 on the basis of submitted user requests, out of which 47 were received in 2015, and 8 were transferred from 2014 with 48 disputes referring to domestic and 7 to international postal traffic.

A ruling was adopted in 13 out of that total number of resolved disputes and the requests have been rejected as inadmissible mostly because they were submitted by unauthorised persons. Other conducted proceedings were completed with decisions. Thus 13 user requests were rejected as unfounded and 28 were adopted, or partially adopted. Concerning the types of complaints, 15 requests referred to unfulfilled contractual obligations, that is, to obligations that were not fulfilled in their entirety, and 12 to registered mail. A total of 11 disputes were initiated due to loss of postal items, 5 disputes referred to non-compliance with deadlines for delivery, and 21 disputes were initiated because of damage or loss of contents of a postal item.

Only 2 administrative disputes were initiated against HAKOM's decisions in 2015.

5.3 Passenger protection

Pursuant to the provisions of the Act on the Regulation of the Rail Services Market (ARRSM), HAKOM is competent for the protection of passenger rights and for resolving passenger complaints against railway undertaking's decisions. Pursuant to the provisions of the ARRSM, a passenger may submit a written complaint to the railway undertaking for the protection of his or her rights prescribed by the Regulation (EC) No. 1371/2007 of the European Parliament and of the Council of 23 October 2007 on rail passengers' rights and obligations, the AARSM, the general terms and conditions for passenger transport, the law regulating the railway traffic area and other regulations regulating passenger rights. Pursuant to the Consumer Protection Act (OG No. 41/14) and the AARSM, a passenger may submit a claim to the Consumer Complaints Commission of the railway undertaking and HAKOM within 15 days from the date of receipt of the railway undertaking's decision. HAKOM will act upon the passenger's complaint only after the passenger has exhausted all the remedies offered by the railway undertaking.

HAKOM resolves disputes by adopting a decision, on the basis of the opinion of the Consumer Complaints Commission, an advisory body established with HAKOM, in accordance with Consumer Protection Act. HAKOM's decisions in disputes between passengers and railway undertakings are final and may not be appealed but an administrative dispute may be initiated.

In 2015 HAKOM resolved five passenger complaints. Passenger complaints referred mostly to fare evasion, compensation for damages on personal property, compensation for delay (domestic passenger traffic) and compensation for non-provision of the service pursuant to the transportation contract. Compared to the number of complaints submitted to the railway undertaking as the first-instance body, HAKOM did not resolve a significant number of complaints. A total of 2251 complaints were submitted to the railway undertaking's Commission. The majority of complaints referred to the work of employees, followed by complaints about the train schedule and the delays.

The provisions of the AARSM on inspection supervision in the area of protection of passenger rights have been in force since 1 January 2015 which is why the first inspection supervision over the railway undertaking was conducted in 2015. Pursuant to Article 28 of the AARSM HAKOM conducted inspection supervision over the company HŽ Putnički prijevoz Ltd. established in Zagreb in order to gain an insight into the implementation of Regulation 1371/2007, General Terms and Conditions of Carriage, Tariffs for the transport of passengers in domestic traffic (Tariff 101), Ordinance on the development and publication of the train schedule in railway traffic (OG No. 128/09, 56/12, 82/13 and 94/13) and the Act on Transportation Contracts in Railway Traffic (OG No. 87/96).

Inspection supervision pursuant to Article 33 of the AARSM was conducted by the inspector for the protection of passenger rights in railway transport. On the basis of conducted inspection supervision HAKOM adopted a decision ordering the elimination of the noticed irregularities with a view to achieving a more quality passenger transportation service through timely and accurate information of passengers.

5.4 Protection of children

HAKOM continued with its activities aimed at the protection of children and youth on the internet and during use of electronic communications services. A conference on "Child Safety on the Internet" was organized which included a series of lectures on safety and responsible behaviour on the Internet. HAKOM prepared a brochure "How to protect a child in the world of the Internet, network technologies and mobile phone" which is intended for parents and children. It is important to raise parent awareness about safe internet use and about dangers lurking on the Internet because it will be easiest for them to transfer their knowledge and skills to their child and teach him or her the best and most appropriate manner of communication with children and adults. HAKOM also sponsored a brochure "Protection of Safety on the Internet" which was issued by CARNet and which described dangers that users face when providing their personal data and contents on their Facebook profile and the way to adjust the profile to protect privacy. Another application that was developed was the "Privacy Calculator" that may assist children and parents to see the dangers of leaving their private data on the Internet. The children protection system covers many areas and in this manner training may be conducted through the family, educational institutions, social, health and judicial institutions. The Safe Internet Centre continued various trainings aimed at raising the awareness of parents and children. The emphasis was placed on the protection of personal information of children and youth by teaching them not to provide their personal information, information about their family and friends, address, date of birth, user names and passwords used, their photographs and video clips because they may be abused by other persons.

5.5 Protection of disabled persons

In order to ensure access to services by disabled persons, HAKOM provides expert opinions and explanations on the implementation of the ECA and regulations adopted pursuant to the ECA. Furthermore, HAKOM also makes sure that universal service providers and all other operators, within the framework of their technical abilities, comply with their obligation to ensure the following to disabled persons:

- equal access to public communications services
- appropriate equipment adjusted to specific needs of persons with impaired hearing, sight or limited motor skills
- ability to receive subscription contracts and bills in alternative forms
- access to user services, in particular to employees trained to work with disabled persons
- access to emergency services for hearing-impaired persons.

In addition to regular activities aimed at ensuring access to disabled persons, within the framework of the Programme for Internet and Broadband Development in Areas of Special State Concern, Hilly and Mountainous Areas and Islands, HAKOM in 2015 financed the procurement of two applications indented for disabled persons.

e-Physical therapy at home/e-House care is a programme application promoting and facilitating therapy work and communication with patients, doctors, providers of care at home/physical therapy at home. It creates preconditions for the improvement of quality of health care and enables the preparation of a summary of medical information collected while providing home care/physical therapy at home.

e-diagnostics and support for children with communications difficulties (eDD) makes it possible for users to timely discover of communications difficulties (autism, intellectual difficulties, language and speech disorders) in children in the sense of making possible the diagnostics of expert employees in nursery schools and schools and by paediatricians and general practitioners and providing insight into basic support strategies.

Delayed or late diagnostics of difficulties have direct negative consequences on development, social inclusion and quality of life of children and the family in general. Difficulties discovered too late result in more costs for the society and, at the human level, in poorer development of children and lower quality of life of the child and his or her family.

6 PUBLICITY OF WORK

HAKOM's work must be public pursuant to Article 14 of the ECA and Article 9 of the PSA and Article 8 of the ARSM. The obligation of publicity also arises from the Right of Access to Information Act, General Administrative Procedure Act and Public Procurement Act.

Restrictions in relation to public access to HAKOM's work exist only to the extent to which this obligation refers to the obligation to respect confidentiality of certain data and to protect personal data.

In 2015, HAKOM maintained the basic structure of its website that is simple to navigate and provides a clear overview of data. The published documents are structured in such a manner that HAKOM's decisions and rulings are separated from rulings and decisions adopted in relation to HAKOM's decisions. In addition to all subordinate legislation under HAKOM's competence, unofficial consolidated versions were also published.

The following were regularly published on the website:

- a) all adopted decisions and other administrative acts, and all judgements of the Administrative Court and the High Administrative Court of the Republic of Croatia as well as the final misdemeanour rulings,
- b) proposals for regulations, measures and decisions that must be subject to public consultation, and other documents for which this was not prescribed but it was assessed that there is a need for public consultation on those documents,
- c) available databases on registers were regularly updated and made available;
- d) statistical data on markets of electronic communications, postal and rail services were published regularly;

Furthermore, HAKOM publishes news releases about important decisions, judgements and regulations on the electronic communications and postal services markets and activities that HAKOM focuses on. Last year it published 262 such news releases.

HAKOM's representatives participate in radio and TV shows intended for informing the public about important issues in the electronic communications, postal and rail services markets. The majority of public appearances referred to user protection.

As a special form of publicity, HAKOM replies to all questions received through the "Ask us" application on its website. In this manner a total of 1434 questions were asked in 2015.

HAKOM continued using its Facebook page with a view to informing the users and the public about user rights and activities carried out by HAKOM.

In 2015 HAKOM received 26 requests for access to information pursuant to the Act on the Right of Access to Information. Those requests were resolved within the time limit and the Commissioner received a report on the implementation of the Act on the Right of Access to Information.

7 COURT PROCEEDINGS

Court proceedings covered by this report include administrative disputes initiated against HAKOM's final decisions, misdemeanour proceedings initiated by HAKOM against natural or legal persons due to violations of laws under HAKOM's competence and enforcement proceedings against legal and natural persons for non-payment of fees for the right of use (State Budget) and for HAKOM's work.

Administrative disputes

All of HAKOM's decisions in administrative disputes are final and may not be appealed but legal protection is ensured in an administrative dispute.

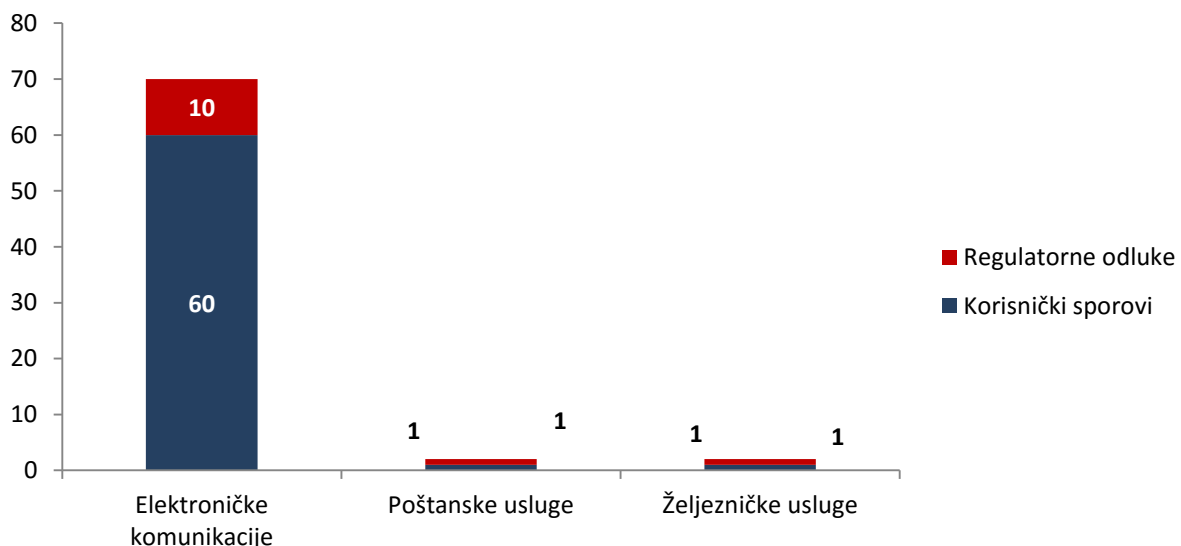
Jurisdiction is divided in the following manner:

The High Administrative Court is directly competent for disputes against decisions adopted by the Council of HAKOM in the electronic communications and postal services sectors and against decisions adopted by HAKOM's inspectors in case of very serious and serious violations of the ECA and the PSA.

The first instance Administrative Court (Split, Osijek, Rijeka and Zagreb) are competent for disputes against decisions adopted in disputes between users of electronic communications services and postal services and operators, that is, between providers of services and the railway services sector.

A total of 72 administrative complaints were submitted in 2015 against 1419 of HAKOM's adopted decisions out of which 60 administrative disputes relate to user disputes in the electronic communications sector and 10 refer to regulatory disputes. There were also two administrative complaints in the postal services sector and two from the rail services sector (Figure 7.1.).

Figure 7.1. The analysis of administrative disputes per type of decision



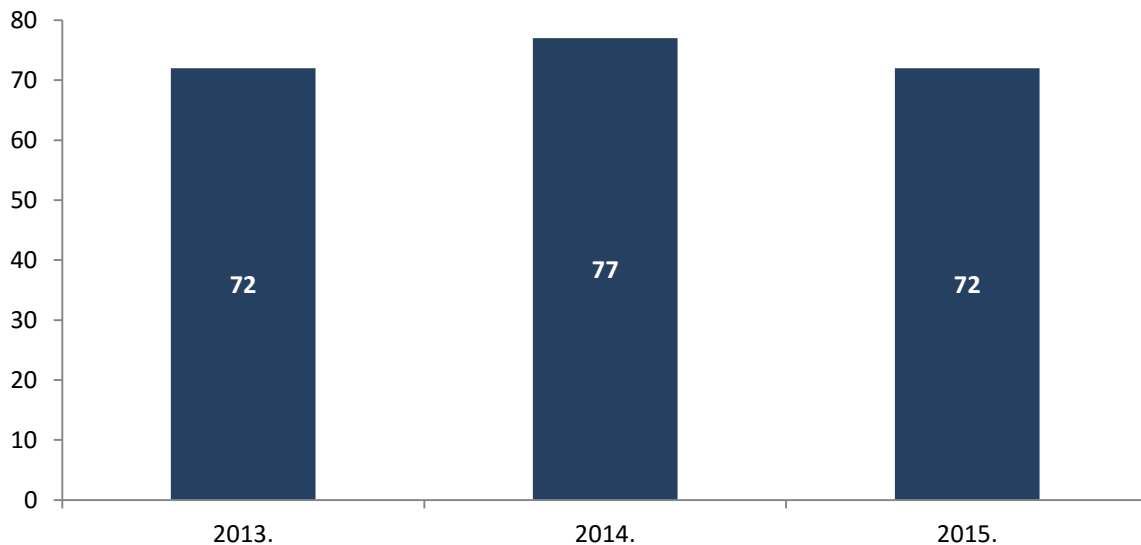
In 2015 the High Administrative Court of the Republic of Croatia adopted 55 judgments out of which 46 confirmed HAKOM's decisions and 4 annulled them. In 5 judgments the High Administrative Court of the Republic of Croatia confirmed the judgments of the first-instance administrative courts.

First-instance administrative court adopted a total of 36 judgments in 2015 which confirmed 25 of HAKOM's decision and annulled 11 decisions.

Since 72 disputes have been initiated until the end of 2015 against HAKOM's decisions before administrative courts and the High Administrative Court of the Republic of Croatia, there was a slight

decrease in the number of submitted administrative complaints compared to the previous period (Figure 7.2.).

Figure 7.2. Number of filed administrative complaints 2012 - 2015



Misdemeanour proceedings

In compliance with its legal competence, HAKOM initiated in 2014 a total of 4 misdemeanour proceedings in the area of electronic communications.

Between 2009 and 2015 a total of 36 final judgments were adopted out of which 10 by the High Misdemeanour Court of the Republic of Croatia. In the above-mentioned period 16 cases initiated by HAKOM are still pending before the first-instance court and 19 cases were initiated by an appeal to the High Misdemeanour Court of the Republic of Croatia.

A total of 8 judgments were adopted in 2015, out of which 7 first-instance court judgments and 1 judgment of the High Misdemeanour Court confirming the first-instance judgment.

In the above-mentioned final judgment, a legal person was fined with HRK 2,000,000.00, which is at the same time the biggest confirmed individual fine imposed on a legal person for the violation of regulatory obligations in the electronic communications sector.

Enforcement proceedings

A total of 36 enforcement proposals was submitted in 2015 against various companies and a total of HRK 3,334,638.72 were claimed, out of which HRK 765,010.28 were collected by 31 December 2015.

8 COOPERATION

8.1 International cooperation

European Union (European Commission, Council)

In 2015 HAKOM actively participated in the work of the Council of the EU at the expert level where it represented Croatian views at meetings of the Working Party on Telecommunications and Information Society (WP Tele) discussing the proposal of the TSM Regulation regulating the issues of roaming and network neutrality. Negotiations on the text of the Regulation were complete in June of 2015 and the regulation was adopted in November 2015. During the negotiation HAKOM represented the established views of the Republic of Croatia in the interest of the market and end users.

In 2015, HAKOM participated in the work of the RSC (Radio Spectrum Committee) which helps the EC to develop decisions for technical implementation ensuring harmonized conditions for availability and efficient use of the RF spectrum in the EU. RSC also deals with measures ensuring accurate and timely delivery of information about spectrum use. By participating in the work of this authority national regulators were able to discuss with the EC their proposals before implementation in order to ensure the optimization of measures depending on various situations in different countries.

HAKOM has also participated in the work of RSPG (Radio Spectrum Policy Group) which is a high-level advisory group assisting the EC with the development of the RF spectrum policy, in particular in relation to alignment with its approach, harmonized availability conditions and efficiency of use of the RF spectrum and establishment and functioning of the internal market. RSPG adopts opinions, views and reports and advises the EC at the strategic level.

Since EC's decisions refer directly to the RC which is obliged to implement them, the participation in the RSC and RSPG is of key importance to enable timely influence on the final decision, depending on the national situation for individual parts of the RF spectrum.

BEREC

HAKOM participates in the work of BEREC, the Body of European Regulators for Electronic Communications, and votes on all decisions adopted at BEREC's plenary meetings. In 2015 Domagoj Jurjević, Deputy President of the Council, represented BEREC at the 37th International Conference on the Future of the Digital Economy "Digiworld summit 2015" where he lectured on the topic of the "Digital revolution – OTT rule". The Conference was organized by the IDATE institute, one of the leading European centres for market analysis, and this role of HAKOM's representatives confirmed and recognised HAKOM's quality at the international level.

HAKOM's experts also had an important role in cooperation between BEREC and the EC on the development of a new regulatory framework for the electronic communications sector. Another important issue is the definition of services in the existing regulatory framework where HAKOM exceeds other EU Member States. HAKOM's experiences in the process of migration of operators to new technologies in the access network were presented at BEREC's plenary sessions and it was concluded that these experiences may help other operators in similar processes. Furthermore, since the Republic of Croatia was among the first in Europe to introduce new regulation of call termination prices, that is, to offer a new approach to one of the key challenges in today's mobile networks referring to the business relationship between EU operators and operators outside of the EU, HAKOM's expert was one of the lecturers at the IRG Workshop on roaming regulation and main challenges in mobile networks. The basic principles of Croatian manner of regulation were presented at the workshop with an overview of contributions of new regulation to the Croatian market.

In addition to the above, HAKOM's experts have been actively participating in the work of BEREC's working groups and in the development of documents for the regulation of the electronic

communications market at the EU level, in particular the documents concerning the analysis and establishment of oligopoly markets and machine-to-machine communication (M2M).

ITU

HAKOM's important role in the region was confirmed by an invitation for participation in several regional and international conferences where HAKOM's experts participated in round tables and gave lectures.

A gathering entitled "ICT Regulators' Leadership Retreat – Getting Ready for Tomorrow: Regulation in a Data-Driven Connected World" was organized by ITU from 18 to 20 March 2015. The gathering was attended by around thirty participants from all continents who discussed important issues concerning the future of regulation of the electronic communication market which were the basis for discussion at the Global Symposium of Regulators held in June 2015 in Gabon. HAKOM's representative participated in a discussion on the future of regulation of the electronic communications market and challenges resulting from that regulation.

HAKOM participated at the ITU Regional Development Forum for Europe which was held in Bucharest from 20 to 22 April 2015. The main topic of the event was broadband access for sustainable development and a HAKOM's representative participated in a panel discussion on the speeding up of the creation of a stimulating environment for quicker development of the ICT where it presented HAKOM's activities aimed at encouraging and speeding up the development of broadband infrastructure in the Republic of Croatia.

ITU organized in cooperation with the Gabonese Autorité de Régulation des Communications Electroniques et des Postes (ARCEP) the 15th Global Symposium for Regulators (GSR15) between 9 and 11 June in Liberville in Gabon. The Symposium was attended by more than 500 participants, representatives of national regulators, operators, state institutions and economic operators. HAKOM also participated in a panel discussion on new strategies for investing into electronic communications infrastructure, as a representative of Europe, and it chaired a panel discussion on the role of regulatory authorities in the promotion of use of services and applications over mobile communications network.

On the basis of ITU's invitation, which celebrated 150 years of existence in 2015, HAKOM participated at ITU's annual World Telecommunication Development Conference. The Conference was held in Budapest from 12 to 14 October. On that occasion HAKOM's representative participated in the "Ministerial Roundtable" on the topic of "Accelerating Innovation for Social Impact: mobilizing global entrepreneurship to support the Connect 2020 Agenda" and as a leader of panel session entitled "Establishing a level playing field to promote investment".

The World Radiocommunication Conference (WRC-15) was held in Geneva from 2 to 27 November 2015 and it was attended by HAKOM's expert. WRC is the most important international gathering in the area of radiocommunications where amendments to ITU Radio Regulations are adopted and the international Spectrum Allocation Table is established which is very important because of global coordination of the RF spectrum. More information about the WRC is provided in the part on the spectrum management.

HAKOM participated in ITU's World Telecommunications/ICT Indicators Symposium which took place in Hiroshima in Japan from 30 November to 2 December. A HAKOM's representative participated in the symposium as a guest speaker at the panel discussion "Leaders' Dialogue: Future ICT trends, policies and measurement challenges".

CEPT

CEPT's umbrella institution which manages the work of other working group within CEPT is the Electronic Communication Committee (ECC). HAKOM actively participated in ECC' work in 2015. ECC

was in charge of the development of the strategy and regulation in electronic communications in 48 European countries.

As part of preparation for the World Radiocommunications Conference (WRC-15) which took place in November of 2015 in Geneva, HAKOM's representatives participated at CEPT's preparatory meeting of the Conference Preparatory Group (CPG) which coordinates and adopts the European Common Proposals. Following the public consultation, the Republic of Croatia co-signed European Common Proposals that it represented at the conference together with other European Member States. The co-signing of CEPT's European Common Proposals enabled better representation of Croatian interests related to the conference topics at the international level.

In 2015 HAKOM actively participated in the work of the ECC's Working Group Frequency Management (WGFM) and continued to follow the development of use of the spectrum and its coordination in order to align the Croatian legislation with the legislation of the CEPT Member States.

In late April of 2015 HAKOM organized a meeting of the FM44 project team which was attended by twenty representatives of European regulators, the industry and international organizations. The FM44 project team deals with the issues of satellite links and HAKOM participates in its work in the first place because of the possible impact of new satellite systems to the existing microwave links in the Republic of Croatia.

HAKOM also participated in the work of the Working Group Spectrum Engineering (WGSE), and a HAKOM's representative, Krunoslav Bejuk, was at the same time a signatory of this working group. WGSE is one of ECC's working subgroups in charge of technical issues concerning spectrum management, which in the first place refers the analysis of possibilities for the sharing of this limited natural resource between among various radiocommunications services, including mobile, fixed, satellite and short-range devices.

In 2015 it was important to continue following the work of the ECC PT1 project team and the CPG PT working group in order to prepare for the World Radiocommunications Conference, WRC-15. The most significant topics of these two expert groups concerned regulatory framework for DD2 (694-790 MHz) and the additional spectrum for broadband Internet access. The project team ECC PT1 deals with IMT (*International Mobile Telecommunications*) technologies in the sense of development of regulations for future and new generations of mobile communications and radiofrequency planning, while the CPG PTD (Conference Preparatory Group PTD) deal with the preparation and coordination of European attitudes for the upcoming World Radiocommunication Conference (WRC-15).

In 2015 HAKOM continued its participation in the work of the working group for short range devices SRD/MG (Short Range Devices / Maintenance Group). The working group deals with mass-production devices which use the RF spectrum without the need for individual licences (alarms, medical devices, RFID, transport systems and communications equipment, such as WiFi). In accordance with the economic potential of short-range devices, the industry has shown significant interest for frequency options which may be used by short range devices. The working group is working on the new applications, technologies and coordination of the use of spectrum for those devices.

Reports of other working groups were followed in the year before as well, at the level of analysis of outgoing documents.

HCM

Based on the work of the ITU and the CEPT, the HCM (*Harmonized Calculation Method*) Agreement represents a separate body in the area of international cooperation in charge of cross-border coordination of the spectrum. The main objective of the Agreement is the establishment of common criteria and methods for international coordination of radiocommunications services. The Agreement describes in detail the issue of electromagnetic radiation and defines the procedures in the coordination process, including the format of the forms for the exchange of data between the

signatory countries. Furthermore, bilateral and multilateral agreements with neighbouring countries concerning coordination of spectrum use are based on the HCM Agreement. As a signatory of the agreement, the Republic of Croatia coordinates private mobile network and microwave links with the neighbouring countries exclusively on the basis of this agreement.

In 2015 HAKOM participated in a joint meeting of two separate HCM working groups (HCM-FS and HCM-MS) which discussed the content of future bilateral and multilateral agreements for frequency bands that will be the subject of public auction for the allocation of the spectrum until 2020, the compatibility of narrowband Private Mobile Radio (PMR) systems and broadband PPDR (Public Protection and Disaster Relief) systems using LTE technology and guidelines for coordination in bands above 43.5 GHz.

EMERG

EMERG (Euro-Mediterranean Regulators Group) is a body gathering regulatory authorities from the Mediterranean European countries and African Countries from the Mediterranean pool and its activities are an attempt at applying BEREC's manner of work to the broader Mediterranean region. Since March of 2015 HAKOM is full member of EMERG and has actively participated in plenary sessions, workshops and gathering organized by EMERG.

In June of 2015 EMERG organized a workshop aimed at creating a nucleus of a future EMERG working group that will deal with data collection authorities of regulatory bodies starting from the manner, type and frequency of data collection to the exchange of experiences in the carrying out of inspection supervision due to the rejection of the operator or failure to comply with the data submission obligation. HAKOM's representative held a presentation about HAKOM's experiences in the application of regulatory body's data collection authority.

The first joint meeting of BEREC, EMERG, regulatory authorities of the Eastern partnership countries (EaPeReg) and South American regulatory authorities (REGULATEL) was held in July of 2015. The main topic of the meeting concerned the challenges brought by the broadband ecosystem to the electronic communications sector. The meeting was followed by EMERG's plenary session where procedures were adopted which facilitate the adoption of decisions.

Furthermore, a HAKOM's representative participated at EMERG and BEREC's joint session which was held in the December of 2015 in Brussels where he presented the Croatian organization model, decision-making procedure and transparency of the regulatory authority in charge of the electronic communication sector.

ERGP

The European Regulators Group for Postal Services (ERGP) consists of a areas of working groups dealing with issues concerning the universal service, regulatory accounting, prices, situation on the postal services market, quality of services, user satisfaction, cross-border parcels and other. The objective is the development of a single European market for postal services and the harmonized application of the *acquis* on a fully liberalized market. HAKOM's expert actively participated in 2015 in the development of document for postal market regulation. One of the key issues discussed in 2015 concerned e-commerce on the EU digital single market. A joint BEREC and ERGP working group was established for issues of e-commerce. The objective is the amendment of the regulatory framework for postal and electronic communications services in accordance with the requirements and intentions of the EC for the elimination of cross-border barriers in parcel traffic and the development of e-commerce services.

CERP

HAKOM' experts continued to actively participate n in the work of the European Committee for Postal Regulation (CERP) and in 2015 they participated in the work of the 50th CERP Plenary Meeting in Sofia.

IRG Rail

HAKOM actively participated in the work of individual working groups of IRG-Rail, the independent regulators group for railway services. The issues covered by working groups include the definition of compensations for access to the rail infrastructure through the definition of direct costs for the definition of the amount of the fee, monitoring the situation on the rail services market, the legal framework and access to service facilities. The working groups' objective is to develop a single European market for rail services with unified methodologies for access to and calculation of fees and harmonized application of the *acquis* on a completely liberalized market. HAKOM's experts participated in the development of several different documents that were adopted by representatives of regulatory authorities from all Member States, including HAKOM, at IRG Rail's plenary sessions.

ENRRB (European Network of Rail Regulatory Bodies)

ENRRB is an European Commission advisory body which meets several times a year to discuss issues and practice under the competence of regulation of the rail services market. For the purposes of ENRRB's work, all regulatory authorities have to fill out a questionnaire used to reporting about the market situation and procedures conducted on the basis of complaints or *ex officio*. The meetings are used to present the important issues covered by work of the regulatory authority and to answer questions asked by colleagues from other regulatory authorities with a view to exchanging experiences and creating good practice in the area of regulation of the rail services market. The singled out positive examples in presentations are used to report about cases which are important for the practice of regulatory authorities with a view to harmonizing the decision-making practice and the establishment of a unified regulatory practice in the entire EU. In 2015 HAKOM actively participated in all meetings of the ENRRB and at the final meeting it presented its work related to the Recast transposition into its national legislation, in particular of the part related to the publication of the network report of the service facility operator.

HLIG

HAKOM continued its participation in the work of the High Level Group on Internet Governance (HLIG) with the European Commission. The focus of HLIG's activities are issues of Internet management concerning the public interest. The participation in the HLIG group enabled quick exchange information of information and knowledge with other members of the EU about issues concerning Internet management.

Other

HAKOM's employees continued in 2015 its active and successful participation in various national and international gatherings. A total of 57 HAKOM's representatives actively participated in 60 conferences, expert gatherings, workshops and similar events. In addition to a series of presentations given at the above-mentioned events, a total of 18 papers were published, including five articles in expert and scientific magazines and one book on the regulation of the electronic communications markets.

Upon invitation of the GSM Association (GSMA), the organizer of the international mobile communications congress which took place from 2 to 5 March in Barcelona, HAKOM's representatives participated in the 20th congress which included bilateral meetings with representatives of regulators, operators and the industry. Due to increasing user demands and the need to invest into networks and more competition from OTT providers of various Internet services, operators are starting to think about takeovers or mergers in order to strengthen or save their position on the market. In addition to the topics concerning the takeover and merger of operators, this year's programme also focused on the regulation of the Internet of Things (IoT) and on the allocation of the spectrum for various uses.

Belgrade hosted from 22 to 24 March the 12th Telecom, Media and Technology Arena 2015, a conference on electronic communications. HAKOM actively participated in this conference and in discussions on new opportunities on the electronic communications market and on the regulation of the above-mentioned market.

HAKOM participated at the 12th international conference on optical technologies, Fiber Week, which took place in Supetar (island of Brač) from 28 to 30 April 2015. Fiber Week is the leading conference on the latest research, development and implementation of optical technologies. HAKOM's representative presented at the conference on regulatory activities aimed at stimulating investments into broadband access infrastructure.

HAKOM was invited by the organizer, the Polish Economic Forum, to participate at the European Congress of Local Self-Government Units in the panel discussion on "Smart cities and metropolises of the 21st century: future or reality?". The Conference was held from 4 to 5 May in Krakow in Poland and gathered more than 800 politicians, economists and experts of various profiles and covered many important topics for local self-government.

Upon the organizer's invitation, the Turkish regulatory authority for electronic communications and postal services (Information and Communication Technology Authority – ICTA), HAKOM's representative participated in the 10th international regulators conference entitled "10th International Electronic Communications Regulators Conference – Trends in Future of Mobile". The Conference was held in Istanbul, Turkey, on 7 and 8 May and gathered more than 200 politicians, including several ministers, chiefs of regulatory authorities and operators and ITU from three continents.

The InfoCom Forum was held in Tirana (Albania) on 12 May 2015 gathering more than 300 politicians, economists, experts and heads of regulatory authorities and operators from South East Europe. HAKOM participated at the gathering in the regulatory part of the Forum concerning "Telecommunications and ICT as driver of innovation".

HAKOM's representatives also participated in the International Regulatory Conference 2015 in Skopje and Ohrid on 19 and 20 May 2015. The purpose of the Conference was to encourage public discussion on issues concerning the latest technological developments in the ICT sector.

HAKOM's employees participated in the 38th International ICT gathering MIPRO 2015 as authors of papers, participants in round tables, chairmen of plenary meetings and reviewers. The conference was held from 25 to 29 May in Opatija.

HAKOM was once again a co-organizer of the International Telecommunications Conference (ConTEL 2015) which was held from 13 to 15 May in Graz (Austria). In cooperation with the Faculty of Engineering and Computing and the Austrian national regulatory authority for electronic communications (Rundfunk & Telekom Regulierungs - RTR), HAKOM organized a part of the conference concerning the challenges in the regulation of the electronic communications market and a special workshop on that topic, the fifth one in the last five years. HAKOM's employees presented their papers and participated in the conference as members of the organization board, workshop leaders and panel discussion mediators.

The 25th Economic Forum took place in Krynica-Zdroj, "the Polish Davos" from 8 to 10 September 2015. This is one of the most important economic and political gatherings in the Central and Eastern Europe and HAKOM was one of the participants. HAKOM's representative participated in a panel discussion on the single digital market and postal services in the EU and in a panel discussion on "Disruptive innovations as opportunities for long run growth: business strategies and public policies".

Upon invitation of the Turkish regulatory authority for electronic communications and postal services, ICTA, HAKOM's representatives participated at the spectrum management seminar (Training Seminar on Spectrum Regulations), which took place in Istanbul in Turkey on 14 - 18

September. The seminar covered topics including spectrum management for individual radiocommunications services, spectrum control, R&TT equipment and fees for spectrum uses and it was attended by 52 representatives from 30 countries.

During the 23th international symposium SoftCOM, which took place in the town of Bol on the island of Brač between 16 and 18 September, HAKOM organized and moderated a round table on "Broadband internet access as a basis for successful inclusion of Adriatic islands into the digital market of the Republic of Croatia and the EU". The round table was part of the "Looking to the Future 2020" project which is implemented by HAKOM together with faculties of the University of Split, University of Zagreb and University of Osijek and network operators and companies from the telecommunications industry.

For the fourth year in a row HAKOM organized a special session on spectrum management during the ELMAR 2015 international conference which took place in Zadar between 28-30 September. This session was dedicated to the current topic of future of the UHF band, that is, to the development of digital terrestrial television and allocation of DD2. This special session was organized with a view to gathering representatives of operators, the industry and the academic community and to present scientific and professional activities in the field of the RF spectrum management.

HAKOM's representatives participated in the 22nd INFOFEST festival of ICT achievements in Budva from 27 September to 3 October which included the 13th International Conference on "Regulatory Activities in the Electronic Communications Sector" organized by the Montenegrin Agency for Electronic Communications and Postal Activity (EKIP) and ITU. The Conference, *inter alia*, covered the topics of expansion of broadband availability, its acceptance, the achievements in technological development, action plans, user protection and future development plans. INFOFEST included a "Cyberdrill event" which was also attended by HAKOM's representatives.

The Zagreb Faculty of Law and the Croatian Academy of Science organized under the auspices of MMATI and the MFEA in Zagreb the 1st International Transport and Insurance Law Conferences - INTRANSLAW Zagreb 2015 on 15-16 October. HAKOM was the institutional partner of the conference. The topic of the conference was the EU transport law and the discussions covered many current issues in this extensive and dynamic legal field.

8.2 Domestic cooperation

In 2015, HAKOM cooperated on a daily basis with stakeholders on electronic communications and postal services markets by resolving their requests, by organising public consultation on decisions which are important for market development, joint meetings, working groups and seminars.

HAKOM regularly cooperated with state bodies and ministries on joint activities and particular emphasis must be placed on cooperation with:

- Ministry of Maritime Affairs Transport and Infrastructure
- Ministry of Construction and Physical Planning
- Ministry of the Economy
- Ministry of Foreign Affairs and European Affairs
- Ministry of Defence
- Ministry of Culture
- Ministry of Public Administration
- Ministry of the Interior
- Ministry of Regional Development and EU Funds
- Ministry of Science, Education and Sports
- Ministry of Health
- Croatian Railway Safety Agency
- Electronic Media Agency
- Croatian Competition Agency
- Croatian Institute for Health Insurance
- Croatian Standards Institute
- Croatian Red Cross
- Croatian Firefighting Association
- Croatia Control
- Croatian Academic and Research Network, CARNET
- Croatian Bureau of Statistics
- Croatian Chamber of Electrical Engineers
- Zagreb Electrotechnical Society
- State Geodetic Administration.

HAKOM cooperates with the Ministry of the Economy in the area of consumer protection and is represented in the National Consumer Protection Council. Activities in the area of consumer protection focused on the work on the "Do not call" register. In addition to the Ministry of the Economy, HAKOM also participates with Consumer Protection Associations.

HAKOM actively cooperated with the Ministry of Physical Planning and Construction and units of local and regional self-government within a view to promoting investments into broadband access and building of an integrated infrastructure.

HAKOM actively participates with the State Geodetic Administration on joint projects such as the measures of the Implementing Programme of the Strategy for Broadband Development in the Republic of Croatia 2014-2015 including the following:

- Measure 1 Ensuring access to data on the existing electronic communications infrastructure and available electronic communications capacity in the Republic of Croatia
- Measure 5 Incorporating the design and financing of projects for the development of broadband

access infrastructure into projects for the building of transport and utilities infrastructure at the local and regional level.

Furthermore, on the basis of a Framework Agreement on Business Cooperation with the State Geodetic Administration, HAKOM has access to the digital orthophoto (DOF5) thanks to the WMTS service and graphic data from the register of business units and it uses those data as a cartographic basis for its publicly available "Interactive GIS portal" with a thematic browser "Overview of broadband access availability" and internal browser of GIS system of the transmitter list (GSPO).

Further to the National Infrastructure of Spatial Data (NIPP) where the State Geodetic Administration was designated as the national contact point for NIPP, HAKOM became a NIPP subject on the basis of its legal competence (Article 12.19 ECA) and the fact that HAKOM possesses spatial data belonging to NIPP under the "Group III" topic- Utilities and public services.

With the assistance of its employees who are participating in the NIPP working group for spatial data and the NIPP working group on joint use of spatial data, HAKOM is actively included in providing support to NIPP subjects for the documenting of metadata, interoperability of spatial data and alignment of national and INSPIRE data models.

In the procedure for the granting of licences for use of the RF spectrum and certificates of compliance for radio stations, HAKOM collects data on technical features of individual radio stations. A cooperation agreement was signed with the Ministry of Health in 2015 enabling access to data referring to its scope of operations within the protection from electromagnetic radiation, which sped up the exchange of information.

In addition to cooperation with different state administration bodies, HAKOM's employees actively participated in a series of national gatherings where they presented their work and activities through lectures, presentations, participation in round tables and workshops and participated with all stakeholders on the electronic communications market. Cooperation with the academic community must also be mentioned, in particular with the Faculty of Electrical Engineering and Computing from Zagreb and Osijek as well as with the EDZ and the Croatian Chamber of Electrical Engineers.

The cooperation with the academic community was most noticeable in the work on the "Looking to the Future" multidisciplinary project⁴⁴ and the interdisciplinary post-graduate course RTEK⁴⁵.

The first Croatian Internet Governance Forum CRO-IGF was organized by HAKOM and the Faculty of Electrical Engineering on 6 May at the Faculty premises in Zagreb.

The autumn gathering of users, the GDi Day 2015, which was organized by GDI GISDATA, took place at the HYPO centre in Zagreb on 15 September 2015. A HAKOM's representative participated in a round table where he discussed the implementation of GDi solutions in HAKOM.

Opatija hosted the 8th Days of Electronic Media on 20-22 October 2015, the 21st Days of Radio, the 8th Days of Television and the 8th Days of the Internet in cooperation with the Croatian Association of Radio Stations and Newspapers (HURIN), the National Television Stations Association (NUT), the Agency for Electronic Media (AEM) and HAKOM. HAKOM's representatives actively participated in the gathering, at its opening and in the programme, through active participation in panel discussions about analogue and digital radio and the allocation of the DD2.

The Croatian Chamber of Electrical Engineers (HKIE) organized the 8th Days of Electrical Engineers in Zadar from 24 to 26 September. The gathering was attended by HAKOM's experts as well who presented on "New regulations for the reduction of costs of investments into electronic communications networks".

⁴⁴ Looking to the Future was discussed in Chapter 9.3.2.

⁴⁵ The Interdisciplinary course RTEK was discussed in Chapter 9.3.1.

HAKOM participated at the 17th CARNET user conference CUC2015, which took place in Dubrovnik on 18-20 November. The Conference included a presentation of the "Privacy Calculator" application which was developed by HAKOM in cooperation with the Faculty of Electrical Engineering as part of the "Looking to the Future 2020" research programme.

The Croatian Association of Accountants and Financial Experts organized in cooperation with the Croatian Chamber of Auditors organized in Opatija the 50th symposium the main topic of which was the "Role of Regulators in the Development of Croatian Economy". One plenary part of the symposium was dedicated to Croatian regulatory authorities. A HAKOM's representative spoke about its regulatory role on the electronic communications, post and railways market.

At the KOM conference, which took place in Zagreb on 23 and 24 November, HAKOM's experts gave several lectures in the area of electronic communications and they also participated in the panel discussion on network security.

HAKOM continued strengthening its role and activities in the protection of users and children, which was presented at several expert gatherings and workshops. HAKOM participated in the development of the "Guide with useful advice 2" of the Croatian Tenants' Association and the Croatia Association of Municipalities. The purpose of the "Guide with useful advice 2" is to educate and familiarize all tenants with new rules concerning fibre introduction into the existing buildings and to raise the awareness of co-owners of residential/business buildings of the need to install fibre installations and to present the advantages of fibre installations, the conditions of placement, rules and obligations of all participants (co-owners, users, operators).

9 HAKOM

9.1 Aid programme

In 2015, HAKOM continued with activities concerning the allocation of state aid for high-speed broadband networks development in the areas of special state concern, hilly and mountain areas and on the islands (hereinafter: state aid): Activities are carried out pursuant to HAKOM's Programme for Internet and Broadband Development in Areas of Special State Concern, Hilly and Mountainous Areas and Islands (2011.) and in accordance with Measure 3 of the Implementation Programme for the Strategy for Broadband Development in the Republic of Croatia 2014 - 2015⁴⁶ The broadband ecosystem comprises the entire chain of broadband Internet access, which includes infrastructure for broadband access, broadband-based applications and services, and the necessary equipment for the realization of services and for use of Internet access. The aid programme was divided into three projects: access, equipment and services.

The objective and purpose of the aid is the balancing of regional development, faster development of broadband and the connection of target groups such a school and health and public institution to the broadband network as a broadband ecosystem.

9.1.1 Access infrastructure

The verification of compliance with conditions for payment of state aid on the basis of contracts on the granting of state aid from December 2014 was carried out in mid-2015. The seventh round of tenders for the remaining target users in the Dubrovačko-neretvanska, Ličko-senjska, Požeško-slavonska, Osječko-baranjska, Varaždinska, Zadarska i Zagrebačka Counties was carried out in late 2014 and the contract on the granting of state aid was signed in December with Hrvatski Telekom d.d. for target users from the Dubrovačko-neretvanska, Ličko-senjska, Požeško-slavonska i Zagrebačka Counties totalling HRK 5,761,872.13, and with VIPnet Ltd. for the territory of Osječko-baranjska, Varaždinska and Zadarske County totalling HRK 3,623,789.89. Pursuant to the contracts on the granting of state aid, in order to fulfil the requirements for state aid, companies have to ensure, within six months, the basic conditions for the connection of end users to the broadband network. The main conditions that need to be fulfilled for the payment of state aid include the requirement that all target users from the tender must be ensured a minimum speed of connection of 2 Mbit/s to broadband Internet access, and that the wholesale offer has been ensured and that further conditions have been ensured for increasing the access speed to a minimum of 30 Mbit/s at the latest by 31 August 2016. Following the verification of compliance with payment conditions, the state aid was paid in its entirety on the basis of contracts covering 52 target users. Table 9.1. provides an overview of paid state aid for the built infrastructure enabling broadband Internet access for target users in 2015.

Table 9.1. Overview of paid state aid in 2015

Tenderer	County	Paid amount (HRK)
HT - Hrvatski Telekom d.d. (Croatian Telecom)	Dubrovačko-neretvanska	748,583.04
	Ličko-senjska	1,580,976.52
	Požeško-slavonska	1,229,742.40
	Zagrebačka	2,202,570.17
Vipnet d.o.o.	Osječko-baranjska	354,774.82
	Varaždinska	1,532,511.18
	Zadarska	1,736,503.89

⁴⁶ <http://www.mmpi.hr/UserDocImages/Strategija-DTV-novo%2010.pdf>

Total paid in 2015	9,384,662.02
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9.1.2 Services (applications)

On the basis of previously conducted public invitations for the submission of projects for the development of software and services for promoting and balancing broadband development in the Republic of Croatia, in particular in areas of special state concern, mountain and hilly areas and on the islands, HAKOM publishes invitations to tender for the development and implementation of selected ideas, selects the contractor and contracts the delivery and implementation of applications. One public tender for the selection of contractors for 4 different projects that had been previously selected through public invitations for the delivery of ideas for software applications and the purpose of which is to stimulate and harmonize the development of broadband in areas of special state concern, hilly and mountain areas and on the islands was completed in 2015. A total of 4 contracts were signed with the tenderer for the procurement of software specified in the tender. The total value of the development of the agreed applications amounts to HRK 2.26 million without VAT.

The transfer of ownership of the remaining 18 applications out of the 35 that were originally contracted on the basis of public tenders from HAKOM's Programme for the development of the Internet and broadband access in the areas of special state concern, hilly and mountainous areas and on islands was completed in 2015 (total value - HRK 14.46 million, excluding VAT).

In the past 4 years total of 230 ideas for applications proposed by almost 170 different legal and natural persons were collected on the basis of four public invitations for the development of socially useful applications. The covered areas included e-Health, e-Government, Agriculture, e-Education, e-Shopping, e-Tourism, e-Safety, e-Justice and Humanity. After the further development of the idea and the definition of technical documentation, twelve rounds of public tenders were carried out resulting in more than 190 tenders of various tenderer and the contracting the development of 35 applications from various areas.

9.1.3 IT Infrastructure

In 2015, HAKOM participated in the aid programme for IT introduction into the work of the Ministry of the Interior aimed at the modernization of work as a precondition for ensuring quicker and more efficient carrying out of complex operational task.

Table 9.2. Published tenders for hardware

Title	Contractor	Status
Hardware procurement (HW) for the aid programme– stage 2	Ericsson Nikola Tesla Lt	Completed
Hardware procurement (HW) for the aid programme– stage 3	S&T Hrvatska Ltd.	Completed

Total value of the **procured** hardware amounts to HRK 4.28 million excluding VAT.

9.2 e-Agency

Through the e-Agency programme, HAKOM is striving to provide quality public service to all participants on the postal and electronic communications markets by using modern IT tools and IT systems E-Agency relies on the ICT strategy of the Republic of Croatia and is a part of the e-business development strategy in the RoC. The implementation of e-Agency project enables all citizens, companies and organizations to do business with the operator in an easy and quick manner with reduced costs. E-Agency has been developing intensively since 2010 and has been recognized by users of HAKOM's services. Although it has become a crucial part of all main processes, further

development is necessary in order to improve the electronic aspect of Agency's relations with citizens, business entities and the state administration and public services. Electronic business increases the availability of the regulator and makes public services more efficient and more attractive.

A publicly available application Cost Assessor, a free Internet service for all private users of electronic communications services, was implemented in 2015 in order to facilitate the users to select an optimum tariff in accordance with their habits and/or internet use.

Regular maintenance and quarterly updating of the interactive GIS portal with data on availability and use of broadband continued. The main objective and purpose of the Interactive GIS portal is to help the local self-government units to analyse the use of broadband access speed in their territory. In this manner the fulfilment of objectives of the Digital Agenda at the level of cities and municipalities in Croatia or residential communities of the City of Zagreb may be monitored and use of state and aid from the EU funds may be measured. In order to monitor the fulfilment of objectives of the Digital Agenda and the Republic of Croatia, HAKOM's plan was to upgrade the Interactive GIS portal with data on broadband percentage coverage in 2015. However, this was not possible due to the lack of availability of the official data of the Croatian Bureau of Statistics on the number of households at the address level.

E-Agency is a noticeable, simple and modern portal with numerous e-services and available applications implemented with a view to increasing efficiency and easier accessibility of HAKOM's services from any place at any time. All e-applications have been realised on the basis of the principle of a unique application which is momentarily activated on the basis of user account parameters. The following e-applications have been developed on HAKOM's website:

- e-Conditions - this application enables electronic submission of applications for the issuing of special conditions of building for the development of the main project. This type of automation speeds up the business processes from the submission to the issuing of general conditions for building.
- e-Guidelines -this application permits electronic submission of applications for the issuing of guidelines in the process for the development of business plans and their amendments. This contributes to significant optimization and transparency of the entire business process and, in the end, to faster issuing of guidelines for the development of business plans.
- e-Vessels - the process of electronic submission of requests and granting of licences for devices using the RF spectrum on vessels. A web application which integrates the functionality of a portal, Enterprise Resource Planning and Document Management System.
- List of licences- overview of granted general and individual licences for use of the RF spectrum and licences for approved radio and telecommunications terminal equipment with a possibility for browsing according to several criteria,
- e-Procurement - provides an overview of all of HAKOM's procurement cases and offers the possibility to download tender documentation,
- e-Complaints – an application allowing a user to file a complaint electronically, after registration, and to follow the status of the complaint The application was integrated with DMS and CRM systems in 2012 ensuring automatic registration of complaints, entry into the CRM and the immediate notification of users.
- e-Certificates - a solution within the Document Management System which automates the process for the granting of the right-of-way certificate to infrastructure operators. It comprises the submission of the request, the preparation of the certificate and its presentation on the portal.

- e-Portability - this application is the most popular one and it is used by users to follow the status of number porting and receive information about the current network, all in real time, all synchronized with the central number portability database;
- e-Market - application that allows the collection of information on the situation on the market. This is carried out electronically on the basis of user registration from a remote location and by using an internet service or an internet portal. The application also enables the analysis of market developments,
- e-Operator - the application which supports the management of data on electronic communications operators. The central register of operators has been established as well as the database of the addressing and numbering space, the interface for entry of the necessary data by operators and HAKOM's employees has been made and data processing has been automated by means of software integration with other business systems used in the process.
- e-Broadcasting- an application intended for radio broadcasters and operators providing the radio broadcasting service on the basis of a terrestrial transmitters network. It enables quicker and easier submission and resolution of requests for the granting of license for use of the spectrum. The procedure for the submission of applications and granting of licences is on average twice as fast than the traditional paper procedure.
- e-Microwave - an implemented application that significantly speeds up the business process of the submission of complaints and granting of licences, that is, of the authorizations for use of the radiofrequency spectrum in the microwave link,
- Cost Assessor – the application assesses the average monthly cost of all active tariffs and operators excluding the possible discounts. On the basis of data entered by the user himself, it shows every operator's best tariff on the scale from the cheapest to the most expensive.

9.3 Development of competences

HAKOM's policy is based on HAKOM's mission and vision and it is aimed at continuous improvement of work processes, regulatory knowledge and skills of employees with a view to creating the best solutions for the electronic communications, postal and rail services markets and for the society in general. Successful regulation of the above-mentioned markets depends in the first place on the knowledge, expertise, skills and competences of employees and it therefore requires continuous investment into their further training and development of competences achieved through the life-long learning programme.

Market development and the dynamics of technological changes on the markets under HAKOM's competence bring continuous challenges before HAKOM and need to change the organizational structure and processes and the development of competitive advantages of employees. With the view to gaining confidence and support of the public sector, economic operators and other participants, it is the regulator's obligation to show a high level of responsibility towards the surroundings and the community which may be achieved only by expert employees and the quality of business operations. HAKOM applies an integrated approach to education through the development of competences so that it can continue to exist as a modern organization that is able to adjust to frequent changes and follow changes in the development of technology and society.

HAKOM is aware of the importance of investing into the development of employees which is why knowledge, expertise and innovation are the key factor in the creation and stimulating of the desirable working climate and the improvement of business operations. Special attention is dedicated to education programme and they are carried out on the basis of cooperation with educational institutions, international bodies, by undergraduate and postgraduate studies, participating in research projects, seminars, conferences, workshops, courses and working groups in the EU institutions.

The most important programmes during 2015 were focused, like in the previous year, on the increase of organizational and individual regulatory capacity and the strengthening of expert knowledge and, in addition to expert educational programme, the workers were able to participate in workshop aimed at the improvement of the so-called "soft skills". In addition to the above, the strengthening of employee competence during 2015 was carried out by means of an interdisciplinary postgraduate course, the "Looking to the future project" and the learning of foreign languages.

9.3.1 Interdisciplinary postgraduate studies

HAKOM initiated the university interdisciplinary postgraduate course in the "Regulation of the electronic communications market" in cooperation with the Faculty of Electrical Engineering and Computing and the Zagreb Faculty of Law. The duration of the course is one academic year (two semesters) during which participants acquire knowledge and competences in economic, legal and technological aspects of market regulation and the competences for the implementation of the regulatory framework and for the resolution of regulatory problems. After the completion of the course, the students acquire the title of a "Electronic Communications Market Regulation Specialist." A sixth generation of employees was enrolled in this course in 2015.

Including the sixth generation, a total of 47 of HAKOM's employees took the course. The sixth generation of students are five employees who have fulfilled the requirements of the competition and the course, including a topics for the thesis which is of interest for HAKOM.

9.3.2 "Looking to the Future" project

Activities under the multidisciplinary research project "Looking to the Future 2020" continued during 2015 as well. In this manner HAKOM continued a very successful long-term cooperation with the

academic community, the Faculty of Electrical Engineering, the Faculty of Law and the Faculty of Economics and Business. This project is a continuation of a successful three-year multidisciplinary project "Looking to the Future" which comprises topics which are important for regulation of the electronic communications market. In addition to representatives of the academic community and HAKOM, operators and representatives of the industry also participate in the project. By launching the multidisciplinary research project "Looking to the Future" HAKOM earned its spot among the leading countries of the region and it was among the first in Europe to gather the industry, science and legislation into a single project of wider social importance.

The "Looking to the Future Project" covers topics concerning market regulation in the upcoming years and it includes general and specific topics with a special emphasis on the dominant topics of the project, future technology development, new regulatory issues opened by the new technology, their impact on the development of electronic communications and the economic and legal aspects of proactive, neutral and transparent market regulation, measures for stimulating investments and innovation and fair competition conditions.

One of the important topics covered by the project in 2015 was the "Privacy Calculator" which resulted from research activities included in the Looking to the Future project. The Privacy Calculator is an application the main purpose of which is to inform the end users of the Internet access service about possible risks of providing personal data on the Internet. The application was published on HAKOM's website and it was available to everyone. In addition to this application which has an important role in user protection, the project also dealt with the development of services for persons with complex communication needs, which is of significant social importance. Activities related to preparations for digital switchover of digital terrestrial television to the DVB-T2 system and the allocation of DD2. This project included subjective testing of the quality of image as a basis for the selection of an encoding standard that will be defined in Strategy for the Switch-over of Digital Terrestrial Television to the DVB-T2 system and the allocation of the 700 MHz frequency band. This also included an intense analysis of economic effects of the above-mentioned band to the economy of the Republic of Croatia as a whole. Activities related to the definition of the quality of service in mobile communications networks started in 2015, which will be one of the key parameters for future spectrum allocation.

In addition to the above, the project also covered other specific topics in 2015: provision of complex services based on machine to machine communication within the single European electronic communications market, the Digital Agenda 2020 in the Republic of Croatia, investment models and procedures for the analysis of cost-effectiveness of network investments, relationship between Internet access providers and providers of OTT services, challenges of the data protection regulatory framework in the area of new services and technologies, dominant position of operators on the electronic communications market and their abuse in the context of diversification of a service portfolio, universal services of general public interest in telecommunications, legal introduction of the financing of services, broadband Internet access and services in rural areas and the broadband ecosystem of the islands and the coastal area.

Besides on HAKOM's website, the results of the 2015 project were presented during special sessions of the Softcom conference which took place in Bol on the island of Brač and ConTEL in Graz (Austria). A part of the results was presented within the framework of ELMAR in Zadar.

9.3.3 Foreign languages

HAKOM's employees actively participate in the work of international regulatory organizations and at various international conferences and work meeting of EU bodies. Furthermore, HAKOM's employees are continuously following various European regulations, directives and other legal acts in the fields of HAKOM's competence which is why the knowledge of the English language in their everyday work is a precondition for quality work. Furthermore, literature in foreign languages are a

continuous source of new knowledge and continuous improvement of language skills for HAKOM's employees in a precondition for the following of trends on fast developing markets regulated by HAKOM. In order to realize its vision and mission, HAKOM continued in 2015 with English language learning courses which were attended by a total of 12 employees.

9.4 EU funds

Pursuant to its legal competence and its annual work programme, HAKOM participates in the drafting of proposals for strategies, studies, guidelines, programmes and implementing plans adopted by the Government of the Republic of Croatia establishing the basic principles and objectives of the policy for the development of electronic communications in the Republic of Croatia and defining national priorities in the planning of construction, installation and use of public communications networks and electronic communications infrastructure and associated facilities and the development of electronic communications services of particular interest for the Republic of Croatia. HAKOM actively participated in 2015 in the development of the Strategy for the Broadband Development in the Republic of Croatia for 2016-2020. The adoption of the Strategy is a precondition for the beginning of use of financial instruments of EU Funds in the development of broadband Internet access. By participating in the public consultation and with its advisory role in the process of development of the Framework National Programme for the development of broadband access infrastructure in areas lacking sufficient commercial interest for investments, HAKOM significantly contributed to the notification of the programme to the EU Commission and its approval by the Commission. With a view to preparing and familiarizing the local government and self-government units with objectives and tasks of project holders on the development of broadband access infrastructure within the Framework National Programme, in the second half of 2015 HAKOM carried out in 19 counties, in cooperation with representatives of the MMATI, workshops on the support to units of local and regional self-government in the launching and implementation of projects for the increase of availability of broadband access infrastructure. A total of 22 workshops were carried out which were attended by heads of municipalities, cities, counties and representatives of services dealing with spatial planning, utilities infrastructure and development plans of local government and self-government units.

In order to enable more efficient investments into broadband infrastructure from the EU Funds, HAKOM initiated amendments of several ordinances in 2015 and participated in the drafting of a legal solution for the implementation of Directive 2014/61/EC of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks. HAKOM also signed in November of 2015 with the Directorate for EU Funds of the MMATI a cooperation agreement on the fulfilment of obligations related to the development of electronic communications infrastructure and associated facilities (broadband networks) to assist in the implementation of the Competitiveness and Cohesion Operational Programme for investment priority 2a- Further development of broadband access and progress towards high-speed networks and support to the acceptance of new technologies and digital economy networks.

9.5 Staff

HAKOM consists of the Council and of the administrative service. HAKOM is managed by the Council of HAKOM which consisted of five members at the end of 2015, including the president and deputy president of the Council. The administrative service carries out administrative and technical tasks and it is governed by a Director appointed by the Council. At the end of 2015, HAKOM employed 174 people with the average number of 175 employees.

Figure 9.2. Structure of employees according to level education and title

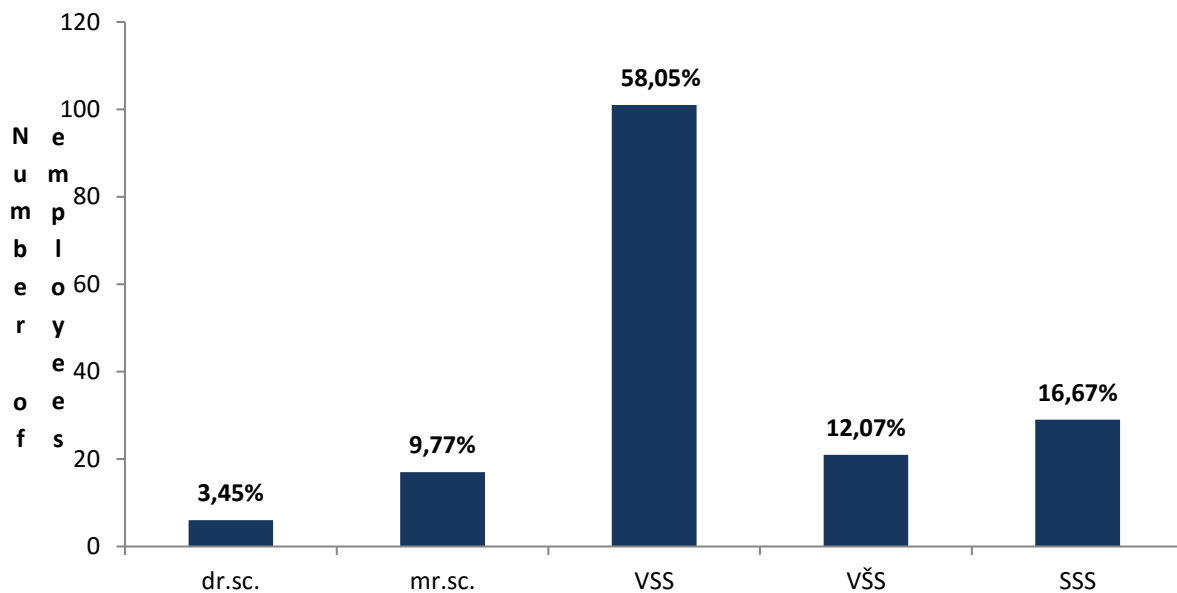


Figure 9.2. shows that the majority of HAKOM's employees are university graduates. A total of 13 percent of employees have completed post-graduate studies in electrical, transport, legal or economic sciences (PhD or MSc), as many as 70 % of employees have university education, while only 17 % of employees have secondary school qualifications.

Figure 9.3. Structure of employees according to profession

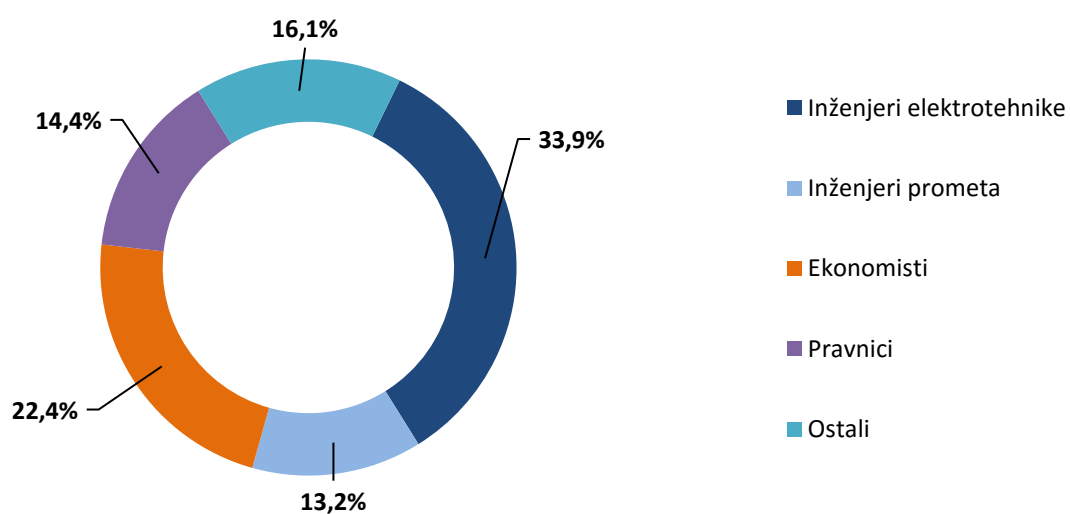


Figure 9.3. shows the structure of employees according to profession. Since HAKOM's main activity is the regulation of the electronic communications, rail and postal services market, its employees have to be in the first place engineers. Therefore, the majority of HAKOM's employees are electrical

engineers which make up 47.1 percent of employees, and they are followed by graduate economists which make 22.4 percent of employees followed by lawyers who make 14.4 percent of employees while 16.1 percent are employees from other professions.

Figure 9.4. Structure of employees according to gender

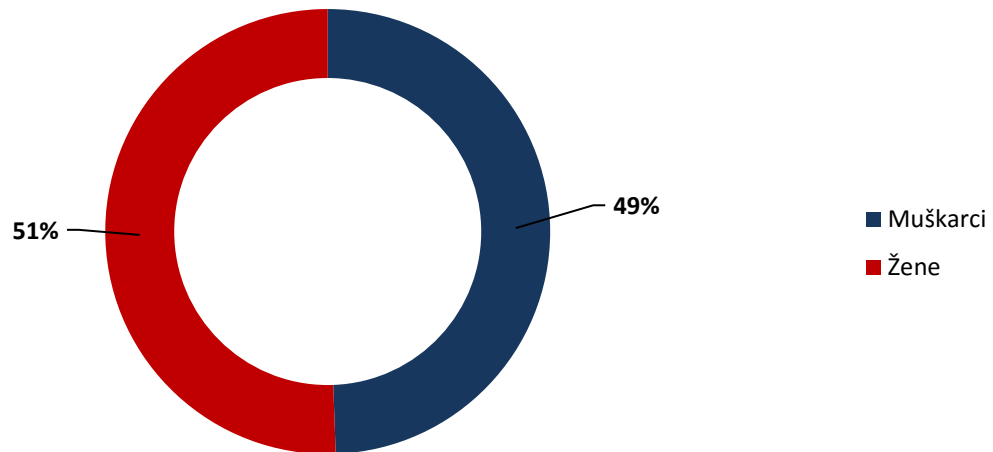


Figure 9.4 shows the percentage of workers per gender which shows that HAKOM pays special attention to non-discrimination during employment on all grounds. In 2015 the percentage of female employees exceeded the percentage of male employees, that is, HAKOM's employees consisted of 51 percent of women and 49 percent of men.

Figure 9.5. Structure of employees according to age

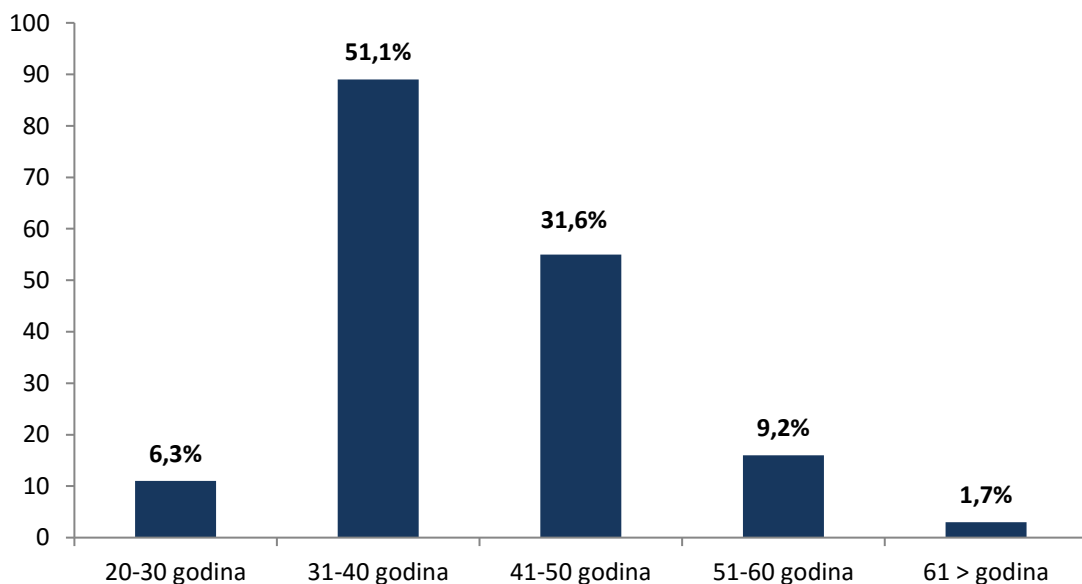
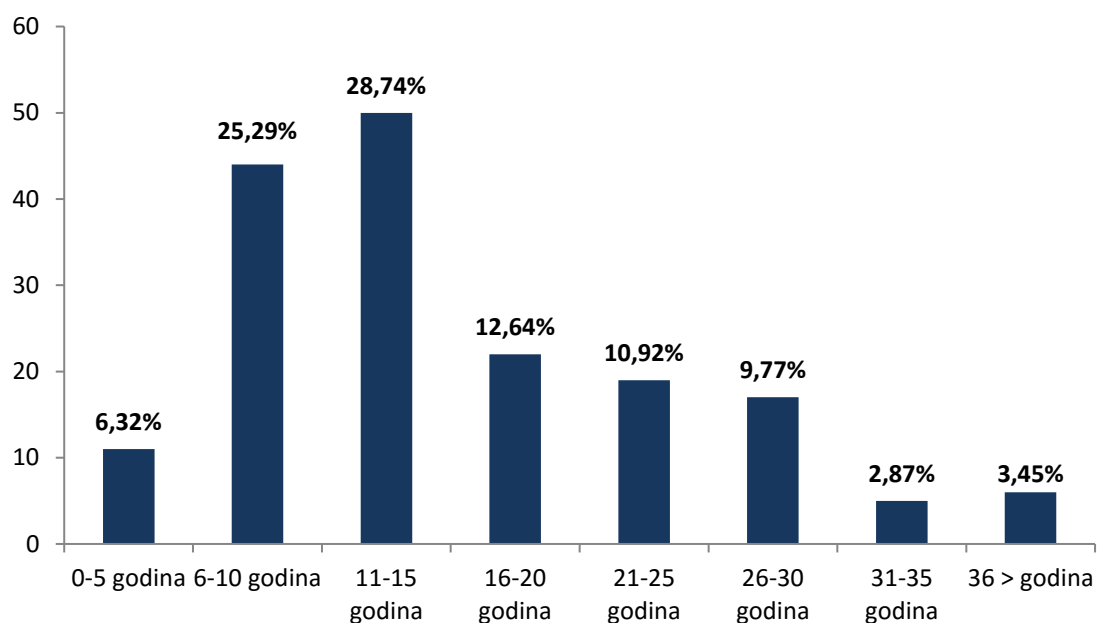


Figure 9.6. Structure of employees according to years of experience

Figures 9.5. and 9.6. clearly show that 57 percent of employees are younger than 40, while 29 percent have between 11 and 15 years of work experience. This shows that HAKOM's employees are mostly young people experienced in areas under HAKOM's competence.

HAKOM employs a significant number of Homeland War volunteers and veterans or members of veteran families. Employee turnover in HAKOM has been low for many years and in 2015 it amounted a little over 5 percent. In 2015 a total of 10 employees left HAKOM out of which four relocated to other countries, two retired, one employee died, while one employee's employment contract was terminated.

In 2015 HAKOM initiated one labour dispute and three criminal proceedings, and two labour disputes and three misdemeanour proceedings were initiated against HAKOM. Two labour disputes and one misdemeanour proceeding were completed with final judgment in 2015. Out of those, one labour dispute and the misdemeanour proceeding were ended in HAKOM's favour while the decision adopted in only one labour dispute concerning the calculation of a salary amounting to several thousand HRK was in favour of the other party.

Interests of HAKOM's employees are represented by the Employee Council. The cooperation between the management and the Employee Council was deemed excellent by both parties. The satisfaction of employees with the work conditions and labour rights is very high, with only a few exceptions.

10 FINANCIAL AND FINAL STATEMENT

10.1 Summary of significant accounting policies

HAKOM's accounting policies are established in accordance with Croatian accounting legislation which is based on the Act on Financial Operations and Accounting of Non-Profit Organizations. HAKOM keeps separate double-entry accounting in accordance with the schedule of accounts from the accounting plan for non-profit organizations.

Revenue is recognized on the basis of the principle of accounting events, which means the following:

- reciprocal revenue (revenue on the basis of delivered goods and services) is recognized in the reporting period to which they refer under the condition that they can be measured regardless of the payment;
- non-reciprocal revenue (revenue pursuant to special regulations, donations, membership fees, aid, contributions and other similar revenue) is recognized in the period to which it refers under the condition that it is available (collected) in the reporting period, and may be recognized in the reporting period if it has been collected at the latest before the moment of submission of financial reports for that same period;
- donations related to the performance of the contracted programmes (projects and activities) are recognized in the balance sheet as deferred income in the reporting period in proportion with implementation costs of the contracted programmes (projects and activities);
- donations related to non-financial assets that is depreciated are systematically recognized in the balance sheet as deferred revenue under the revenue of the reporting period in proportion with the costs of use of non-financial asset in the usage period.

Expenditure is recognized on the basis of the principle of accounting events, which means the following:

- expenditure is recognized in the reporting period to which it refers regardless of the payment;
- expenditure for cost of short-term non-financial assets is recognized at the moment of occurrence of the actual cost;
- purchasing cost of long-term assets are capitalized and recognized under expenditure during their useful life.

Assets are initially entered according to the purchase cost (purchase value), that is, according to the estimated value.

Long-term assets are financial and non-financial assets whose useful live is longer than a year and which maintain the same form for more than a year.

Investments prolonging the useful life, increasing capacity, changing the use or significantly improving functional properties such as, for example, investments into renovation, reconstruction or increase of long-term non-financial assets, which do not have to be conditioned by the state of the assets, are entered as increased value of assets that were the subject of investments.

Additional expenditure related to the recognized long-term non-financial assets are capitalized as increased property value when it is probable that the additional expenditure will bring additional future economic benefit and when that expenditure increases the value of assets above the initially recognized value. All other additional costs are recognized as expenditure in the period in which they occurred.

Earnings and losses from the alienation of long-term non-financial assets are recognized in the profit and loss account.

The value of a certain object belonging to long-term non-financial assets is depreciated, that is, corrected by a linear method during its useful life starting from the first day of the month after the month in which the assets were put to use. The value of land, renewable natural resources, books, works of art and other valuable exhibit and of precious metals and other values are not depreciated but corrected.

The basis for the correction of the value of long-term assets in its beginning or revalorized purchase cost (purchase value), that is, its estimated value.

For the calculation of depreciation legally prescribed depreciation rates apply according to group of long-term assets and estimated useful life of the long-term assets.

Short-term non-financial assets are assets intended for the carrying out of activity or further sale in less than one year. Purchase cost (purchase value) of non-financial assets is the purchase price increased by customs duties, non-refundable taxes, transportation costs and other costs that may be directly added to costs of purchase and preparation for use.

Expenditure for business revenue includes expenditure: for revenue according to special legislation, for revenue from assets and other revenue not mentioned elsewhere.

Deferred expenditure and outstanding collection of revenue (active time delimitation) contain the following:

- pre-paid revenue not referring to the reporting period
- revenue belonging to a certain accounting period but which has not been collected in that period or invoices could not have been issued.

Liabilities are outstanding debts resulting from previous events that are expected to be covered by the resources. They are expressed on the basis of the accounting events principle.

Postponed payment of expenditure and deferred revenue (passive time delimitation) contains the following:

- revenue that has not been invoiced and refers to the current period
- revenue that has been collected or charged in the current period and referring to the following accounting period.

Own resources are the remaining value of assets after the deduction of all liabilities.

The result is established at the end of the reporting period as a difference between the established revenue and expenditure in a certain period. The difference on the side of revenue represent the realized revenue surplus and the opposite represents revenue deficit. The surplus/deficit carried over is added to the above-mentioned revenue surplus/deficit and together they make up the surplus available in the following period or the deficit for coverage in the following period.

The situation established and expressed in financial report for a business year is distributed in the following business year pursuant to a Decision on the distribution of results.

The off-balance entries record revenue of the Croatian state budget expressed as liabilities from users with simultaneous entry of liabilities towards the State Budget of the Republic of Croatia. HAKOM only invoices these fees for the benefit of the State Budget and the amounts of the fees are paid directly into the State Budget. Off-balance records are entered analytically per buyers and issued invoices for the benefit of the State Budget.

10.2 Statement of revenues and expenditures

Name of position	2014 HRK	2015 HRK
REVENUE		
Revenue pursuant to special legislation from other sources	83,351,281	77,842,060
Revenue pursuant to special legislation	83,351,281	77,842,060
Revenue from financial assets	2,338,628	1,097,279
Revenue from assets	2,338,628	1,097,279
Revenue from damages and refunds	1,221,992	826,546
Revenue from sales of long-term assets	183,009	8,410
Other revenue	240,290	238,388
Other revenue	1,645,291	1,073,344
EXPENDITURE		
Salaries	33,031,035	30,993,966
Other employee expenses	1,307,428	1,412,696
Contributions on salaries	5,524,892	5,339,936
Employee expenses	39,863,355	37,746,598
Compensations of costs to employees	3,611,156	2,957,907
Compensations to members of executive and similar bodies	10,192	33,784
Compensations for other unemployed persons	59,767	53,365
Expenditure for services	22,961,899	20,963,114
Expenditures for materials and energy	2,471,575	2,239,101
Other unmentioned material expenditure	498,833	1,089,146
Material expenditure	29,613,422	27,336,417
Depreciation expenditure	17,110,504	14,824,040
Financial expenditure	96,930	100,641
Current donations	73,536	74,989
Capital donations	30,046,897	32,662,298
Donations	30,120,433	32,737,287
Other expenditure	3,017,771	1,008,471
TOTAL EXPENDITURE	87,335,200	80,012,683
TOTAL EXPENDITURE	119,822,415	113,753,454
SURPLUS (DEFICIT) OF REVENUE	(32,487,215)	(33,740,771)
Surplus revenue (revenue deficit) - carried over	125,467,476	91,905,065
Profit tax liabilities per calculation	-	-
REVENUE SURPLUS AVAILABLE IN THE FOLLOWING PERIOD	92,980,261	58,164,294

HAKOM's revenue is ensured on the basis of HAKOM's annual financial plan in compliance with the ECA and special laws regulating the postal services sector and the rail services market.

The calculation and amount of fees and the manner of payment of fees for the financing of HAKOM's work are laid down in the Ordinance adopted by HAKOM's Council. Fees are established in compliance with the principles of objectivity, transparency and non-discrimination.

Fees for use of the spectrum are laid down in the Ordinance on the payment of fees for the carrying out of HAKOM's activities. Fees for point-to-point links and in terrestrial broadcasting were lowered by 50 percent compared to the previous year or cancelled in areas with less than 300,00 inhabitants.

The fee for the carrying out of other HAKOM's activities is expressed as a percentage of total annual gross revenue which was earned by operators in the previous calendar year for the provision of electronic communications networks and services on the market.

Revenue earned fees for use of addresses and numbers was according to plan.

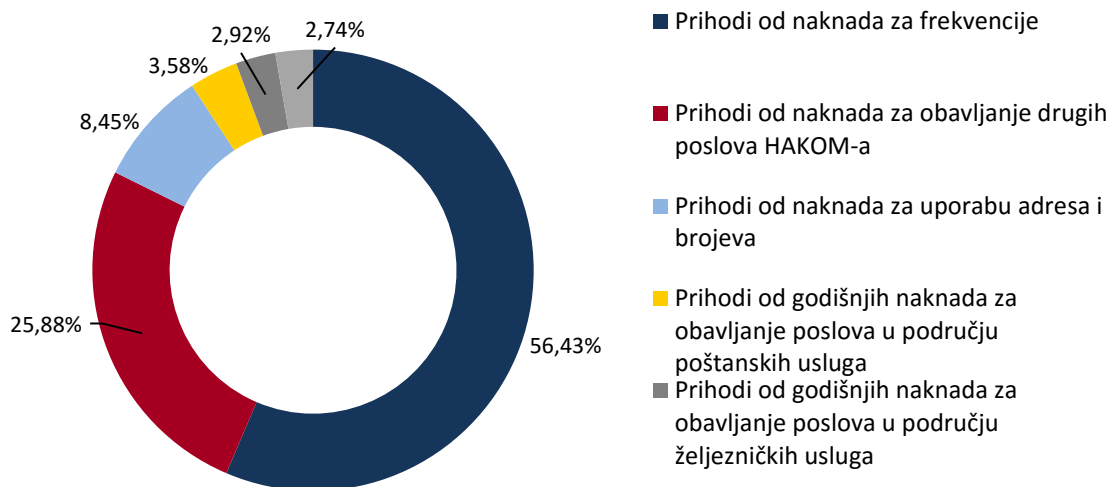
Postal service providers are obliged to pay an annual fee for the carrying out of HAKOM's activities in the postal services sector as the percentage of the total annual gross revenue earned from the provision of postal services in the previous calendar year.

Postal service providers are obliged to pay an annual fee for the carrying out of HAKOM's activities in the rail services sector as the percentage of the total annual gross revenue earned from the provision of rail services in the previous calendar year.

Revenue from the regulation of rail services is ensured on the basis of the annual HAKOM' financial plan in accordance with the ARRSM. Revenue in this area in 2015 refers to 2015 and six months of 2014. The RMRA was merged with HAKOM in 2014 and the regulation of the rail services market was financed in 2014 from funds allocated for the electronic communications sector.

Table 10.1 Earned revenue in 2015 compared to the annual financial plan (in HRK)

DESCRIPTION		2015 Plan	Realised in 2015	Index
1	Revenue from frequency fees	43,000,000	45,150,637	105
2	Revenue from fees for the carrying out of other HAKOM's activities	21,500,000	20,709,935	96
3	Revenue from fees for use of addresses and numbers	6,700,000	6,761,423	101
4	Revenue from annual fees for the carrying out of activities in the postal services sector	2,800,000	2,860,626	102
5	Revenue annual from fees for the carrying out of activities in the rail services sector	2,751,000	2,335,639	85
6	Other revenue	2,900,000	2,194,423	76
TOTAL		79,651,000	80,012,683	100

Figure 10.1. Diagram of Table 10.1. Revenue earned in 2015**Table 10.2** Comparison of amount of materially significant revenue in the three-year period (in HRK)

DESCRIPTION		Realised in 2013	Realised in 2014	Realised in 2015
1	Revenue from frequency fees	61,215,442	52,461,251	45,150,637
	Index	101%	86%	86%
2	Revenue from fees for the carrying out of other HAKOM's activities	30,184,762	21,300,429	20,709,935
	Index	95%	71%	97%
3	Revenue from fees for use of addresses and numbers	6,706,357	6,733,834	6,761,423
	Index	99%	100%	100%
4	Revenue from annual fees for the carrying out of activities in the postal services sector	3,661,967	2,854,067	2,860,626
	Index	96%	78%	100%
5.	Revenue annual from fees for the carrying out of activities in the rail services sector	0	0	2,335,639
	Index	0%	0%	0%
6	Other revenue	4,359,358	3,985,619	2,194,423
	Index	80%	91%	55%
7	Total revenue	106,271,386	87,335,200	80,012,683
	Index	97 %	82 %	92%

HAKOM's expenditure in 2015 amounted to HRK 113,753,454.

HAKOM's total expenditure consists of the following: expenditure for the electronic communications sector, expenditure for the postal services sector, expenditure for the regulation of rail services market and expenditure for capital donations.

HAKOM's total expenditure in 2015 was 5 percent lower than in 2014 and 12 percent compared to the 2015 Financial Plan. Expenditure for employees was 16 percent lower than in 2014 and 5 percent compared the year before.

Expenditure in the electronic communications sector amounted to HRK 77,677,486 and it was 10 percent lower than in 2014 and 18 percent lower compared to the Financial Plan. Employee expenditure is 15 percent lower compared to the financial plan.

Expenditure in the postal services sector amounted to HRK 2,281,695 and it was 12 percent lower than in 2014 and 26 percent lower compared to the Financial Plan. Employee expenditure is 25 percent lower compared to the financial plan.

Expenditure for the rail services sector amounted to HRK 1,131,975. Expenditure for regulation of rail services is lower than planned because of lower employee expenditure. A vacancy for a rail services expert was filled in in December 2015 while expenditure for this job was planned for the entire year.

Expenditure for capital donation refers to capital donation for the Programme for Internet and Broadband Development in Areas of Special State Concern, Hilly and Mountainous Areas and Islands and the Programme for the Elimination of Interferences and Improvement of Reception of Television.

Capital donations do not represent expenditure related to the carrying out of regular HAKOM's activities and are not financed from HAKOM's regular revenue, but from carried over surplus from previous periods.

Results in 2015 were better than planned. In 2014 a total of HRK 44,092,481 was planned for capital donations and HRK 30,046,897 was realized. Some projects planned for 2014 were realized in 2015. As a result, realization in 2015 is higher than the planned funds.

The internet development programme was divided into three projects: connection to broadband Internet access, installation of selected applications and installation of the appropriate computer equipment.

Table 10.3. Total expenditure - realization in relation to the annual financial plan

DESCRIPTION	2015 Plan	Realised in 2015	Index
Expenditure for the electronic communications sector	94,978,400	77,677,486	82
Expenditure for the postal services sector	3,101,000	2,281,695	66
Revenue in the rail services sector	1,851,000	1,131,975	61
Expenditure for capital donations	29,500,000	32,662,298	111
Total	129,430,400	113,753,454	88

Table 10.4 HAKOM's realized expenditure in 2015 compared to the annual financial plan
(in HRK)

Class	Sub group	Section	NAME	2015 Plan	Realisation 2015	Index
41			Employee expenses	44,914,600	37,746,598	84
	411		Salaries	37,028,500	30,993,966	84
		4111	Payments for overtime work	36,568,500	30,546,799	84
		4112	Payments in kind	450,000	447,167	99
		4113	Payments for overtime work	10,000	0	0
		4114	Salaries for special work conditions	0	0	0
	412		Other employee expenses	1,542,900	1,412,696	92
		4121	Other employee expenses	1,542,900	1,412,696	92
	413		Contributions on salaries	6,343,200	5,339,936	84
		4131	Contributions for health insurance	5,683,200	4,792,712	84
		4132	Contributions for employment	660,000	525,411	80
		4134	Special contributions for stimulating the employment of disabled person	0	21,813	0
42			Material expenditure	33,326,800	27,336,417	82
	421		Compensations of costs to employees	3,902,500	2,957,907	76
		4211	Business trips	2,300,000	1,783,798	78
		4212	Compensation for transportation, field work and separation from family	700,000	598,476	85
		4213	Professional training of employees	902,500	575,633	64
	422		Compensations to members of representative and executive bodies, commissions and the similar	20,000	33,784	169
		4221	Compensations to members of representative and executive bodies, commissions and the similar	20,000	13,883	69
		4222	Compensation of business travel expenses	0	19,901	0
	424		Compensations for other unemployed persons	52,500	53,365	102
		4241	Payment for the carrying out of an activity	52,500	53,365	102
	425		Expenditure for services	24,477,900	20,963,114	86
		4251	Telephone, post and transportation services	1,093,400	1,020,256	93
		4252	Current and investment maintenance services	1,958,100	1,465,572	75
		4253	Promotion and information services	814,500	535,286	66
		4254	Utilities services	1,305,300	1,347,503	103
		4255	Lease and rent expenditure	10,732,200	10,251,231	96
		4256	Health and veterinary services	420,000	409,650	98
		4257	Intellectual and personal services	2,076,000	1,677,795	81
		4258	Computer services	4,209,900	3,313,238	79
		4259	Other services	1,868,500	942,583	50
	426		Expenditures for materials and energy	3,336,200	2,239,101	67
		4261	Office material and other material expenditure	665,200	558,262	84
		4263	Energy	2,546,000	1,567,457	62
		4264	Small inventory and tyres	125,000	113,382	91
	429		Other unmentioned material expenditure	1,537,700	1,089,146	71
		4291	Insurance premiums	905,000	656,491	73
		4292	Entertainment	265,000	158,033	60
		4293	Membership fees	200,000	122,193	61
		4294	Participation fees	147,700	146,329	99
		4295	Other unmentioned material expenditure	20,000	6,100	31
43			Depreciation expenditure	18,820,000	14,824,040	79
	431		Depreciation	18,820,000	14,824,040	79

Class	Sub group	Section	NAME	2015 Plan	Realisation 2015	Index
		4311	Depreciation	18,820,000	14,824,040	79
44			Financial expenditure	120,000	100,641	84
	443		Other financial expenditure	120,000	100,641	84
		4431	Banking and payment services	50,000	60,943	122
		4432	Negative currency exchange difference and the currency clause	44,000	29,369	67
		4433	Penalty interest rate	6,000	617	10
		4434	Other unmentioned financial expenditure	20,000	9,712	49
45			Donations	29,575,000	32,737,287	111
	451		Current donations	75,000	74,989	100
		4511	Current donations	75,000	74,989	100
	452		Capital donations	29,500,000	32,662,298	111
		4521	Capital donations	29,500,000	32,662,298	111
46			Other expenditure	2,674,000	1,008,471	38
	461		Fines, penalties and compensation for damage	440,000	11,417	3
		4611	Compensation of damage to legal and natural persons	200,000	2,601	1
		4612	Penalties, storage charges and other	30,000	8,816	29
		4613	Compensation of damages to employees	200,000	0	0
		4614	Contractual fine and other compensations for damage	10,000	0	0
	462		Other unmentioned expenditure	2,234,000	997,054	45
		4621	Not written-off value and other expenditure from confiscated and depreciated long-term assets	150,000	10,540	7
		4622	Written-off liabilities	2,000,000	966,972	48
		4623	Expenditure for other tax obligations	60,000	19,542	33
		4624	Other unmentioned expenditure	24,000	0	0
TOTAL				129,430,400	113,753,454	88

Employee expenditure was lower than planned. The decision on the amount of the base for the calculation of salaries of civil servants of 17 December 2014 established a lower base for the calculation of civil servant salaries. Salaries for members of HAKOM's Council are established on the basis of this decision and they have been reduced since January 2015. The base salary of HAKOM's employees is a product of the number of points and point value established on the basis of a decision adopted by the President of the Council of HAKOM. In October 2014 the value of the point was reduced by a decision on the point value.

Material expenditure was lower than planned. Expenditure for telephone, post and transportation services decrease every year. Expenditure decreased in 2011 by 11 percent, in 2012 by 9 percent, in 2013 by 10 percent, in 2014 by 15 percent and in 2015 by 3 percent. 2015 was the printing of leaflets that were inserted into newspapers to inform users of electronic communications services and a brochure "*How to protect children in the world of the Internet, network technologies and mobile telephones*". HAKOM pays rent for its business premises in Zagreb and Split and for the premises for the installation of antennae and measuring equipment in Zagreb, at Sljeme, Labinštica, Vidova gora, Lončarski vis i Čilipi. Expenditure for consultancy services, audit services, legal services and other intellectual services are lower than planned. Other services refer to expenditure for costs of joint spending of the business premises of the headquarters, costs for registration of business vehicles, graphic and printing services, fees for use of the RF spectrum, HRT fees, services of keeping and archiving document and other unmentioned services. Insurance premiums refer to insurance of

HAKOM's employee, business vehicles and property (construction facilities, microwave digital communication networks, measuring equipment in facilities and measuring vehicles).

Depreciation expenditure was lower than planned because of completely depreciated software in 2014 (Software Argus 5.4 TIP C MMS - purchased by funds from the EU pre-accession instrument - Project IPA 2007).

Capital donations refer to the Internet development programme which is divided into three project: connection to broadband Internet access, installation of selected applications and installation of the appropriate computer equipment and the project for the removal of interferences and improvement of reception of TV viewers.

In 2015 a total of HRK 9,385,662 was spent for connections to broadband Internet in areas of special state concern, mountain and hilly areas and on the islands in the following counties: Osječko-baranjska, Varaždinska, Zadarska, Dubrovačko-neretvanska, Ličko-senjska, Požeško-slavonska and Zagrebača Counties.

A total of HRK 17,698,402 was spent for the installation of selected applications: obligatory reading on the palm of your hand, mobile application for use of e-textbooks/e-books, portal for access to public sector information - data.gov.hr, training of teachers in schools (TtT) and other employees from institution of special interest in relation to basics of digital competences, e-Security, e-Newborn, programme e-services of the Croatian Health Insurance Fund, Cro 112, system for the collection of data on ZiS resource, HCK - mobile technology for humanity, application for communication support to processes, prescription, approval and issuing of medical devices, monitoring of health of chronic patients by mobile technologies in the system of home care and connection to an integrated health system, web-application for the development of digital teaching materials, operational and communication system eOKC, e-diagnostics and support to children with communications difficulties (eDD), security and trust, management of fire-fighting interventions/application for keeping data about equipment, staff and interventions in fire-fighting, e-home care and interactive database of dangerous substance.

A total of HRK 55,576,205 was spent for the installation of computer equipment. Tablets were procured for IT introduction into schools in flooded area of Gunja and its surroundings and hardware for the needs of the Ministry of the Interior.

A total of HRK 32,660,269 was spent in 2015 for the Internet development programme and HRK 2,029 for the programme for the elimination of interference and improvement of reception of TV channels.

In 2015 expenditure amounting to HRK 966,972 was written off. It consisted of receivables resulting from pre-bankruptcy settlements amounting to HRK 647,266 and the remaining amount of HRK 319,706 refers to uncollected, claimed or barred receivables.

The financial result is established as a difference of total revenue and total expenditure on all bases in the reporting period.

The expressed revenue deficit in relation to expenditure for 2015 results from the financing of capital donations from surplus revenue in the previous years. Revenue deficit is covered by the carried-over surplus from the previous years.

Revenue surplus available in the following period amounted to HRK 58,164,294.

Surplus revenue available in the following period may be used for regular activity, for investments or for reserves. The decision on the use of the surplus revenue available in the following period is adopted by the Council of HAKOM with prior consent of the Government of the Republic of Croatia in the form of the approval of the financial plan.

HAKOM's 2016 Financial Plan defined the use of the surplus revenue available in the following period in the following manner:

- for the Programme for Internet and broadband development in the areas of special state concern, hilly and mountainous areas amounting to HRK 5,000,000,
- for the project for the elimination on interferences and improved reception of TV channels amounting to HRK 832,000,
- for investment HRK 22,758,750
- for reserves HRK 29,582,544

Revenue surplus available in the following period amounted in 2015 to HRK 92,980,261.

HAKOM's 2015 Financial Plan defined the use of the surplus revenue available in 2015

Significant items for which financing was approved in 2015 from the surplus revenue available in the following period are the following:

- Programme for the development of the Internet and broadband access in the areas of special state concern, hilly and mountainous areas and on islands.
- for the building of a branch office in Split,
- for the purchase of measuring and control device,
- for Investments into software,
- for Investments into means of transportation.

The reduction in the surplus deferred revenue did not result from the use of the surplus deferred revenue for regular activities but for the programme for Internet development and investments pursuant to the financial plan.

Surplus deferred revenue in the postal and rail services sectors will be used for regular activities in the area in which it occurred.

The financing from surplus deferred revenue reduces the above-mentioned surplus revenue. It is not allowed to express the surplus deferred revenue again through the current year revenue and the costs of the current period are not charged directly to the surplus deferred revenue. The financing from surplus deferred revenue results in the negative annual result. Negative result of a business year is covered by the carried-over surplus from the previous years.

The Table below shows expenditure realized compared to the financial plan in total and then separately for the electronic communications sector, the postal services sector and for the rail services market regulation sector.

Table 10.5 HAKOM's expenditure in the electronic communications sector in 2015 together with capital donations compared to the annual financial plan (in HRK)

Class	Sub group	NAME	2015 Plan	Realisation 2015	Index
41		Employee expenses	42,136,400	35,900,108	85
	411	Salaries	34,750,500	29,457,667	85
	412	Other employee expenses	1,425,500	1,367,838	96
	413	Contributions on salaries	5,960,400	5,074,603	85
42		Material expenditure	31,282,300	25,782,981	82
	421	Compensations of costs to employees	3,651,300	2,774,360	76
	422	Compensations to members of representative and executive bodies, commissions and the similar	20,000	33,784	169
	424	Compensations for other unemployed persons	52,500	53,365	102
	425	Expenditure for services	22,973,500	19,716,438	86
	426	Expenditures for materials and energy	3,168,100	2,153,382	68
	429	Other unmentioned material expenditure	1,416,900	1,051,652	74

43		Depreciation expenditure	18,720,000	14,824,040	79
	431	Depreciation	18,720,000	14,824,040	79
44		Financial expenditure	115,100	95,905	83
	443	Other financial expenditure	115,100	95,905	83
45		Donations	29,575,000	32,737,287	111
	451	Current donations	75,000	74,989	100
	452	Capital donations	29,500,000	32,662,298	111
46		Other expenditure	2,649,600	999,463	38
	461	Fines, penalties and compensation for damage	418,400	2,589	1
	462	Other unmentioned expenditure	2,231,200	996,874	45
TOTAL			124,478,400	110,339,784	89

Table 10.6 HAKOM's expenditure in the postal services sector in 2015 compared to the annual financial plan (in HRK)

Class	Sub group	NAME	2015 Plan	Realisation 2015	Index
41		Employee expenses	1,546,700	1,155,180	75
	411	Salaries	1,272,000	955,564	75
	412	Other employee expenses	61,000	34,605	57
	413	Contributions on salaries	213,700	165,011	77
42		Material expenditure	1,427,000	1,115,064	78
	421	Compensations of costs to employees	127,000	100,707	79
	425	Expenditure for services	1,122,500	943,432	84
	426	Expenditures for materials and energy	103,000	51,579	50
	429	Other unmentioned material expenditure	74,500	19,346	26
43		Depreciation expenditure	100,000	0	0
	431	Depreciation	100,000	0	0
44		Financial expenditure	2,900	2,520	87
	443	Other financial expenditure	2,900	2,520	87
45		Donations	0	0	0
46		Other expenditure	24,400	8,931	37
	461	Fines, penalties and compensation for damage	21,600	8,823	41
	462	Other unmentioned expenditure	2,800	108	4
TOTAL			3,101,000	2,281,695	74

Table 10.7 Expenditure from HAKOM's regulation of the rail services market in 2015 compared to the annual financial plan (in HRK)

Class	Sub group	NAME	2015 Plan	Realisation 2015	Index
41		Employee expenses	1,231,500	691,310	56
	411	Salaries	1,006,000	580,735	58
	412	Other employee expenses	56,400	10,253	18
	413	Contributions on salaries	169,100	100,322	59
42		Material expenditure	617,500	438,372	71
	421	Compensations of costs to employees	124,200	82,840	67
	425	Expenditure for services	381,900	303,244	79
	426	Expenditures for materials and energy	65,100	34,140	52
	429	Other unmentioned material expenditure	46,300	18,148	39
43		Depreciation expenditure	0	0	0
44		Financial expenditure	2,000	2,216	111

	443	Other financial expenditure	2,000	2,216	111
45		Donations	0	0	0
46		Other expenditure	0	77	0
	461	Fines, penalties and compensation for damage	0	5	0
	462	Other unmentioned expenditure	0	72	0
TOTAL			1,851,000	1,131,975	61

The following table shows HAKOM's realized expenditure in 2015 compared to 2014

Table 10.8 HAKOM's realized expenditure in 2015 compared to the previous year
(in HRK)

Class	Sub group	NAME	Realisation 2014	Realisation 2015	Index
41		Employee expenses	39,863,355	37,746,598	95
	411	Salaries	33,031,036	30,993,966	94
	412	Other employee expenses	1,307,428	1,412,696	108
	413	Contributions on salaries	5,524,891	5,339,936	97
42		Material expenditure	29,613,422	27,336,417	92
	421	Compensations of costs to employees	3,611,156	2,957,907	82
	422	Compensations to members of representative and executive bodies, commissions and the similar	10,192	33,784	331
	424	Compensations for other unemployed persons	59,767	53,365	89
	425	Expenditure for services	22,961,899	20,963,114	91
	426	Expenditures for materials and energy	2,471,575	2,239,101	91
	429	Other unmentioned material expenditure	498,833	1,089,146	218
43		Depreciation expenditure	17,110,504	14,824,040	87
	431	Depreciation	17,110,504	14,824,040	87
44		Financial expenditure	96,930	100,641	104
	443	Other financial expenditure	96,930	100,641	104
45		Donations	30,120,433	32,737,287	109
	451	Current donations	73,536	74,989	102
	452	Capital donations	30,046,897	32,662,298	109
46		Other expenditure	3,017,771	1,008,471	33
	461	Fines, penalties and compensation for damage	8,023	11,417	142
	462	Other unmentioned expenditure	3,009,748	997,054	33
TOTAL			119,822,415	113,753,454	95

10.3 Balance sheet

Name of position	31 December 2014 HRK	31 December 2015 HRK
ASSETS		
Material assets – natural resources	1,168,592	1,168,592
Non-material assets	22,982,753	23,932,753
Correction of value of non-produced long-term assets	-19,641,429	-20,864,540
Non-produced long-term assets	4,509,916	4,236,805
Construction facilities	12,168,891	12,168,891
Installations and equipment	150,731,542	153,800,846
Means of transportation	22,840,645	23,361,524
Books, works of art and other	28,174	28,174
Non-material produced assets	30,562,874	32,349,862
Value correction of produced long-term assets	-171,450,198	-184,526,061
Produced long-term assets	44,881,928	37,183,236
Small inventory in use	491,383	484,875
Value correction of small inventory	-491,383	-484,875
Small inventory	-	-
Non-financial assets in preparation	-	1,064,939
NON-FINANCIAL ASSETS	49,391,844	42,484,980
Cash in bank and petty cash	24,980,884	39,232,158
Deposits in banks and other financial institutions	31,600,000	-
Guarantee deposits	2,484,744	2,476,174
Receivables from employees	172	40
Receivables for excess taxes and contributions	20,581	64
Other receivables	2,886,415	89,413
Deposits, guarantees, receivables from employees and from the state	36,991,912	2,565,691
Receivables for revenue pursuant to special legislation	23,674,611	15,257,764
Receivables for revenue from assets	836,324	344,717
Receivables for revenue	24,510,935	15,602,481
Deferred revenue and outstanding collection of revenue	1,215,406	1,448,768
FINANCIAL ASSETS	87,699,137	58,849,098
TOTAL ASSETS	137,090,981	101,334,078
OFF-BALANCE SHEET ENTRIES	174,117,784	171,407,010

Name of position	31 December 2014 HRK	31 December 2015 HRK
LIABILITIES AND OWN SOURCES		
Employee liabilities	3,468,303	2,969,385
Liabilities for material expenditure	696,149	1,577,345
Liabilities for collected aid funds	1,075,303	51,431
Other liabilities	136,520	45,713
Liabilities for expenditure	5,376,275	4,643,874
Postponed payment of expenditure	-	-
Collected deferred expenditure	34,745,834	33,811,270
Delayed expenditure payments and future revenue	34,745,834	33,811,270
Own sources	3,988,611	4,714,640
Surplus revenue	92,980,261	58,164,294
Revenue deficit	-	-
Own sources	96,968,872	62,878,934
TOTAL LIABILITIES AND OWN SOURCES	137,090,981	101,334,078
OFF-BALANCE SHEET ENTRIES	174,117,784	171,407,010

There were no changes on the material revenue position in 2015. Material assets comprise four plots of construction land: construction land Otok (HRK 72,800), Ravna Gora (HRK 6,814), Kostrena - Rijeka (HRK 13,783) i Split (HRK 1,075,195). Other non-material assets were increased in 2015 for investments into HRK 950,000 for the "Looking to the Future" research project.

Construction facilities consist of branch offices and control and measuring stations (hereinafter: CMS). They comprise branch offices in Rijeka in the value of HRK 2,160,393 and Osijek in the value of HRK 3,529,586 and the Veliki Bokolj CMS the value of which is HRK 2,107,236, Ozljak CMS the value of which is HRK 356,448, mobile CMS located in Čilipi the value of which is HRK 658,420, Otok CMS the value of which is HRK 656,466, Ravna Gora CMS the value of which is HRK 2,335,240 and the Degman CMS the value of which is HRK 365,102.

The branch offices were equipped with four light delivery vehicles of the make Peugeot Partner Tepee whose individual value is HRK 130,220. The vehicles were purchased to cover the needs of HAKOM's employees in three branch offices in Osijek, Rijeka and Split and the headquarters in Zagreb, which was related to everyday field activities under HAKOM's competence (control and measuring in the spectrum and telecommunications, inspection supervision and other).

Non-financial assets in preparation refers to the construction of business premises of the branch office in Split on the land bought in 2014 from the State Office for State Property Management. After having found the appropriate location, and having prepared and acquired the necessary documentation and licenses and after having concluded contracts for the building of the facilities, HAKOM started the building of the business premises of the branch office in 2015 and the completion of the building, equipping and moving in are expected by the end of 2016. The construction works were contracted on the basis of an open public procurement procedure the planned value of which is HRK 5,500,000. The planned value includes the cost of construction, preparation of the design, services of expert and architectural supervision and water and power connection.

Financial assets- cash in bank and petty cash increased compared to the end of 2014 since all the funds deposited into business banks and transferred to a vista funds have been freed.

Receivables for revenue pursuant to special regulations refer to fees for use of radio frequencies, fees out of total annual gross revenue earned in the previous year from the provision of telecommunications services and activities by concessionaires and telecommunications services providers, fees for allocated addresses and numbers, receivables from special authorization, technical checks and fee from the provision of postal and rail services. Lower receivables are a result of better collection of receivables.

Employee liabilities refer to calculated salary for December 2015.

Liabilities towards domestic suppliers are expressed according to accounting events principle. All invoices received in 2016 for events in 2015 were entered in 2015. Supplier liabilities are paid at the latest by the due date.

Liabilities for collected aid funds refer to liabilities towards the State Budget.

Deferred revenue occurs because HAKOM issues bills for fees (based on the ECA) for period which are not identical to the business calendar year and the proportionate part of receivables is expressed as deferred revenue.

Own resourced are the remaining value of assets after the deduction of all liabilities. In 2015 surplus revenue carried over from previous years amounting to HRK 1,075,195 was allocated to own sources and invested into the purchasing of non-produced long-term material assets - land for the building of the Split branch office.

Value correction for produced long-term assets procured before 1 January 2008 was allocated to the source of financing in 2015.

10.4 Investments

Table 10.9 Realized investment in 2015 compared to the annual financial plan
(in HRK)

DESCRIPTION		Plan 2015	Realisation 2015	Index
I	Licenses	0	0	0
II	Other right - investments on the property of others for the purpose of the right of use	2,600,000	0	0
III.	Other non-material assets - expenditure for development projects and studies	950,000	950,000	100
IV.	Business facilities	5,500,000	0	0
V.	Computers and hardware	951,900	900,885	95
VI.	Other office equipment	87,500	70,779	81
VII.	Office furniture	0	0	0
VIII.	Communications equipment	37,500	35,067	94
IX.	Maintenance and protection equipment	0	7,568	0
X.	Measuring and control devices	3,775,000	2,890,244	77
XI.	Machine and equipment for other use	0	0	0
XII	Means of transportation - other vehicles	575,000	520,879	91
XIII	Means of transportation - utility vehicles	0	0	0
XIV	Investments into software	1,173,700	1,836,522	156
	Construction facilities in preparation	0	1,064,939	0
TOTAL		15,650,600	8,276,882	53

In 2015 investment into GIS ECI base was planned amounting to HRK 2,500,000 as an investment into unowned property for the purposes of the right of use. The State Geodetic Administration would be the owner of the database, and HAKOM would have the right of use. The project was not implemented in 2015.

The business facility amounting to HRK 5,500,00 refers to the building of a branch office in Split. In 2015 HAKOM started building the business premises of the branch office and its completion, equipping and moving in are expected by the end of 2016.

Construction facilities in preparation refer to the building of business premises in split.

Investments into computer programmes exceed the planned funds because the software ARGU which is used for the control of the spectrum has been planned under the item of measuring and control devices instead of under the item of software. For the same reason, investments into measuring and control devices were lower than planned.

10.5 State Budget revenue

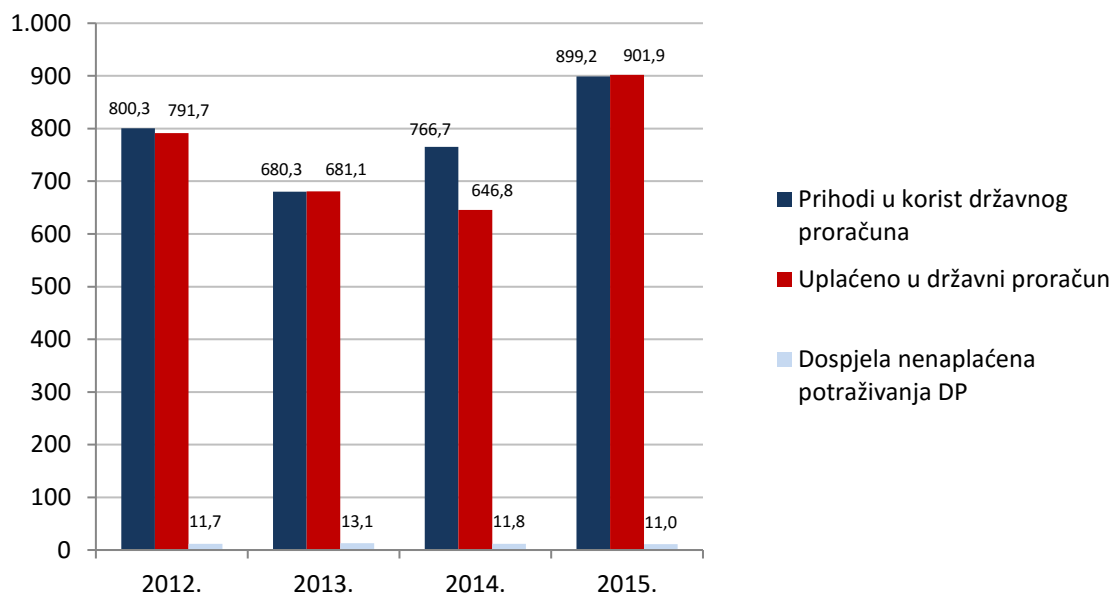
The off-balance records follow unowned assets. It records revenue of the Croatian state budget expressed as receivable from users with simultaneous entry of liabilities towards the State Budget of the Republic of Croatia. HAKOM only invoices these fees for the benefit of the State Budget and the amounts of the fees are paid directly into the State Budget. Off-balance records are entered analytically per buyers and issued invoices for the benefit of the State Budget.

A total of HRK 899,164,545 was invoiced in 2015 for the benefit of the State Budget. Out of the total invoiced amount, HRK 876,091,548 (97 percent) refers to fees for use of the radio frequency spectrum. Other refers to fees for authorisations and licences, addresses and numbers and legal penalty rates.

According to our records, a total of HRK 901,875,318 was paid into the State Budget in 2015. State Budget Funds paid into HAKOM's giro account by mistake are transferred by HAKOM into the State Budget.

DESCRIPTION	2012	2013	2014	2015
State Budget revenue	800,256,828	680,304,775	766,717,109	899,164,545
Paid into the State Budget	791,650,001	681,057,926	646,793,875	901,875,318
Mature outstanding receivables (State as of 31/12)	11,742,057	13,066,723	11,796,203	11,043,940

Figure 10.2. State Budget revenue, payments and receivables per years (in HRK million)



A total of 36 enforcements were initiated in 2015 for all receivables that were not paid even 30 days after the issued dunning letter. The recovery of HRK 2,949,041 for the benefit of the state Budget was achieved in court and HRK 650,612 were collected.

10.6 Independent audit report (summary)

An independent audit company audited HAKOM' financial statements including the Balance sheet as of 31 December 2015, the statement of revenue and expenditure for the period between 1 January and 31 December 2015 and notes supplementing the data from the Balance Sheet and statement of revenue and expenditure.

HAKOM's annual financial statements for the year ending on 31 December 2015 were prepared in the prescribed form on the basis of the Ordinance on reporting in non-profit accounting an register of non-profit organizations (OG No. 31/15) and in accordance with other legislation regulating HAKOM's business operation.

In accordance with an audit's firm opinion, financial reports are an accurate presentation, in all significant elements, of HAKOM's financial positions on 31 December 2015, as a result of its business operations for the year ending on that date, in accordance with the Act on the accounting of non-profit organizations. 121/14).

Report on the audit of HAKOM's 2015 annual financial statements and HAKOM's 2015 Final statement. (Balance sheet, statement of revenue and expenditure and notes to financial statements) were published on HAKOM's website⁴⁷.

⁴⁷ <http://www.hakom.hr/default.aspx?id=512>

Annexes

A. List of abbreviations

ADS-B- Automatic Dependent Surveillance-Broadcast
 ADSL - Asymmetric Digital Subscriber Line
 EMA - Electronic Media Agency
 AIA - Agency for the Investigation of Air, Maritime and Rail Traffic Accidents
 ARCEP - Gabonese Autorité de Régulation des Communications Electroniques et des Postes
 ARGUS – software
 RMRA - Rail Market Regulatory Agency
 CRSA - Croatian Railway Safety Agency
 CCA - Croatian Competition Agency,
 BEREC- Body of European Regulators for Electronic Communications
 BDO – Auditing company
 BR -Radiocommunication Bureau
 BRIFIC - Bureau Radio International Frequency Information Circular
 CADB – Central Administrative Database of Ported numbers
 CABP - Central Administrative Base of Portability
 CARNET- Croatian Academic and Research Network
 CEPT - European Conference of Postal and Telecommunications Administrations
 CERP - European Committee for Postal Regulation
 COCOM - Communications Committee
 CPG - Conference Preparatory Group – ECC group dealing with preparation of ECPs
 CPS - Carrier Pre-Selection
 CRM - Customer Relationship Management
 DAB – Digital Audio Broadcasting
 SGA – State Geodetic Administration
 DMS - Document Management System
 DMR – Digital Mobile Radio) – Standard for digital mobile radio
 DTV – Digital television
 DVB-T - Digital Video Broadcasting – Terrestrial
 CBS – Croatian Bureau of Statistics
 COCOM -Electronic Communications Committee
 EDZ – Zagreb Electrotechnical Association

EC – European Commission
 ECI – Electronic communications infrastructure
 EKIP – Montenegrin Agency for Electronic Communication and Postal Activity
 ELMAR – International scientific symposium"Electronic in Marine"
 EMERG Euro-Mediterranean Regulators Group
 EMP - electromagnetic field
 ENRRB - European Network of Rail Regulatory Bodies
 ERGP - European Regulators Group for Postal Services
 ETFOS – Faculty of Electrical Engineering in Osijek
 EU - European Union
 FEEC – Faculty of Electrical Engineering and Computing
 FM – Frequency Modulation

FTTB – Fiber To The Building
 FTTC – Fiber To The Curb, that is to cabinets on the outside of buildings

FTTN – Fiber To The Node, that is to cabinets located a a greater distance from residential and business premises and further distribution usually takes place by means of copper lines

GFT – Global Flight Tracking) GIS – Geographic Information System

GSM - Global System for Mobile Communications

GSM - R- Global System for Mobile Communications - Railway

HAKOM – Croatian Post and Electronic Communications Agency

HANFA – Croatian Financial Services Supervisory Agency

HCM – Harmonised Calculation Method – International agreement for the harmonisation of frequencies for mobile and fixed terrestrial systems

HEP – Croatian power company

EKIE – Croatian Chamber of Electrical Engineers

HLIG - High Level Internet Group

HP - Croatian Post

HRT – Croatian radio-television

HT - Hrvatski Telekom d.d. (Croatian Telecom)

HVZ – Croatian Fire-fighters Association

HZZO - Croatian Health Insurance Fund

HŽ - Croatian Railways

ICAO – International Civil Aviation Organization

ICSMS - Information and Communication System on Market Surveillance

ICT - Information and Communication technologies

IOT - Internet of Things

IP - Internet Protocol - Network protocol for data transfer which is used for source and destination computers for data communication over computer network

IPTV - Internet Protocol Television

IRG - Independent Regulators Group

IRG R - Independent Regulators Group- Rail

ISO - International Standards Organization

ITU – International Telecommunication Union

LSU – Local self-government unit

CMS - Control and measuring station

CMC - Control and measuring centre

CTV – Cable television

LLU - Local Loop Unbundling

LTE - Long-Term Evolution - A technology which enables high transfer speed over 4th generation mobile communications systems

MCV – Mobile Communications on Vessels

MCPP - Ministry of Construction and Physical Planning

ME - Ministry of the Economy

MD - Ministry of Defence

MPEG -Moving Picture Experts Group –.

MSTI– Ministry of the Sea, Transport and Infrastructure

MRFEU- Ministry of Regional Development and EU Funds

MI - Ministry of the Interior

MUX - Multiplex a stream of digital signals containing several radio or television programmes and/or other data simultaneously transferred via one radio frequency channel;

MFEA - Ministry of Foreign and European Affairs

M2M - Machine to Machine

NCRT - National Council on Radio Television

NGA - Next Generation Access

NGN - Next Generation Network

NIPP – National Infrastructure of Spatial Data

OG – Official Gazette
 NRA – National regulatory authorities
 NUT – National association of television stations
 OiV - Odašiljači i veze
 OLT - Optical Line Termination - Unit or device serving as terminating point for an optical line changing the optical signal into the electrical signal
 OTT – Over-the-top service
 PAY-TV - Television programmes with payment
 PCM Pulse Code Modulation –
 MCMS - Mobile control and measuring station
 PPDR - Public Protection and Disaster Relief
 AM – Access network
 PMR - Private Mobile Radio
 PMSE – Programme Making and Special Events
 RF - radiofrequency
 RRB - Radio Regulations Board
 RRC – Regional Radiocommunications Conference
 RSC - Radio Spectrum Committee
 RSPG - Radio Spectrum Policy Group
 RoC – Republic of Croatia
 R&TT – Radio and telecommunications terminal equipment
 RTR (Rundfunk und Telekom Regulierungs)
 SAT TV - Satellite television
 S-DAB - Satellite Digital Audio Broadcasting
 SD- Standard Definition
 SEDDIF – South European Digital Dividend Implementation Forum
 SMS - Short Message Service
 RUO – Reference Unbundling Offer
 SRD – Short Range Devices
 T- DAB – Terrestrial Digital Audio Broadcasting
 TKM - tonne kilometres
 TSM – Telecom Single Market
 TV – Television
 UHF - Ultra High Frequency: radiofrequency band between 30 MHz and 300 MHz
 UMTS – Universal Mobile telecommunications System (mobile network 3rd generation)
 UPU – Universal Postal Union
 USB – Universal Serial Bus
 UWB – Ultra Wide Band
 VAS – Value Added Service
 VDSL – Very-high-bit-rate Digital Subscriber Line
 VLKM - train kilometres
 VHF – Very High Frequency: radiofrequency band between 300 MHz and 3 GHz
 WGFM - Working Group Frequency Management
 WGSE – Working Group Spectrum Engineering
 WG NaN – Working Group Numbering and Networks
 WIFI – Local wireless network in the 2.5/5 GHz frequency band
 WRC- World Radiocommunication Conference
 WLR -Wholesale Line Rental
 xDSL - x Digital Subscriber Line
 ECA – Electronic Communications Act
 PSA – Postal Services Act
 RA – Railways Act

ARRSM - Act on the Regulation of the Rail Services Market
CPA – Consumer Protection Act

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