Croatian Post and Electronic Communications Agency

Annual Activity Report for 2012

Zagreb, June 2013

Contents

INTRODUCTION

In 2012, Croatian Post and Electronic Communications Agency (hereinafter: HAKOM) continued with the activities aimed at the achievement of regulatory objectives and principles on the electronic communications and postal services markets. The objectives and principles include promoting competition, protecting uses of services and efficiently managing limited natural resources such as the radio-frequency (hereinafter: RF) spectrum and the addressing and numbering space. These objectives were defined in the 2012 HAKOM's Annual Work Programme[1]. Special emphasis was placed on the competition protection, 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 towards operators, ensuring a high level of user protection and efficient management of natural resources entrusted to HAKOM.

HAKOM achieved the set objectives and ensured preconditions for stable business operations on the electronic communications and postal services markets, while at the same time significantly improving the protection of users. HAKOM also focused on the achievement of objectives defined in the *Strategy for Broadband Development in the Republic of Croatia* (hereinafter: RoC) and in the Implementation *Programme for the Strategy for Broadband Development in the RoC for 2012-2013,* which includes the implementation of the *Internet and Broadband Development in Areas of Special State Concern, Mountainous Areas and Islands.* Activities aimed at the strengthening of HAKOM's own capacities for the benefit of end users through further development of the e-Agency, professional training and use of funds from the European Union pre-accession funds (hereinafter: the EU) were continued.

The report contains eight chapters preceded by the summary.

Chapter 1 gives an overview of the electronic communications market including: development and situation on the market, investments on the market, strategic activities and HAKOM's decisions, public telephone services in the fixed network, public telephone services in the mobile network, Internet access, television (hereinafter: TV) service, network and lines lease service, infrastructure and network access service and building of electronic communications infrastructure (hereinafter: ECI) and other services. This chapter gives information on the fulfilment of the *Strategy for Broadband Development in the RoC* and on activities for the implementation of the *Internet and Broadband Development in Areas of Special State Concern, Mountainous Areas and Islands.* There is an overview and analysis of the situation and tendencies in each sector, as well as the comparison with the EU and the implemented regulatory measures for further development of the market in question. And finally, the Chapter contains an overview of the situation and activities related to the management of limited resources: the RF spectrum and the addressing and numbering space.

Chapter 2 gives an overview of the situation on the postal services market which comprises both universal and other postal services. There is an overview and analysis of the situation and trends, as well as the comparison with the EU and regulatory measures ensuring further development of the postal services market.

Chapter 3 covers implementation tasks concerning consumer protection on the market of electronic communications and postal services. A special emphasis was placed on the protection of children and access to services for disabled persons.

Chapter 4 concerns transparency. It includes the imposed obligations and activities implemented for the purpose of more transparent business and facilitating communication with the public.

Chapter 5 deals with court proceedings initiated against HAKOM's decisions at the High Administrative Court of the RoC or proceedings initiated by HAKOM.

[1] http://www.hakom.hr/default.aspx?id=512

Chapter 6 covers HAKOM's cooperation abroad and at home and presents important activities conducted for the purpose of placing HAKOM as a relevant factor for the regulation of markets under its competence.

Chapter 7 describes HAKOM's activities aimed at building its own capacity for market regulation and market development by means of IT introduction into its processes and services, increasing regulatory competences, increasing productivity and efficiency and by facilitating access to HAKOM's regulatory activities.

Chapter 8 includes the financial statement and balance sheet for 2012. The Chapter contains the income statement, expenditure statement, overview of revenue surplus (deficit), investments statement, statement on revenue from the state budget and findings of an independent external audit.

The report ends with a list of abbreviations, figures and tables.

SUMMARY

Electronic communications and postal services market - summary and comments

Market Development

Electronic communications are experiencing significant transformation as a result of greater capacities of end-users and increasing demands for access to information. The key role in this transformation is played by communications services providers that have to ensure a flexible and high-speed network infrastructure, smart services and business excellence. Former dilemmas of "network edge intelligence" or in the network itself have been resolved by the "intelligence everywhere" concept surrounded by: a) broadband internet access (NGN+NGA), b) mobile internet, c) automated professional tasks, d) "internet of things" (including M2M), e) could computing, f) big data (including complex analytic), g) "social technologies" and h) IT introduction into public services.

Part of responsibility for successful transformation of electronic communications lies in the hands of national regulators. For that reason, aware of the importance of creating a favourable environment for the upcoming transformation of electronic communications, HAKOM has already launched a series of strategic activities with a view to timely ensure the necessary competences and creating preconditions for such environment.

Strategic activities

Among numerous activities undertaken for the purpose of successful transformation of the electronic communications market in the RoC, HAKOM places special emphasis on the following:

Allocation of the digital dividend - The allocation of the digital dividend to mobile network operators opens possibilities for significant investments into infrastructure and development of new applications and ensuring availability of high-speed broadband Internet access to a large number of citizens in the entire territory of the Republic of Croatia, with a special emphasis on access in rural and underdeveloped areas. One-time fees amounting to HRK 300 million and annual fees amounting to HRK 32 million have been paid into the State Budget. The payment thereof will continue until the expiry of licences in 2024.

Cost-models - the issue of determination of regulated prices on the basis of an internationally accepted methodology of cost models is of key importance for all participants on this market. The cost-models project enables, inter alia, the calculation of the actual cost of the service of unbundled access to the local loop, that is, wholesale services related to the wholesale network infrastructure access, including the calculation of cost of provision of bitstream access service at IP level. The project will be finished in 2013 and until then the majority of wholesale services will be based on the benchmark model.

State aid programme - in 2012 HAKOM started awarding state aid for the development of a broadband ecosystem in rural areas in accordance with the HAKOM's "Programme for Internet and Broadband Development in Areas of Special State Concern, Mountainous Areas and Islands" which was included in the Implementation Programme (measure 4) of the *Strategy for Broadband Development in Croatia for the period 2012-2013.* The objective and purpose of state aid is to achieve a balanced regional development, to connect target groups such as educational, health and public institutions to broadband access network and to introduce applications and services that make the economy more dynamic and improve the quality of life in the abovementioned areas.

Single request and fees - Definition of a uniform procedure for switching of users between operators enabled the establishment of equal rights and obligations of operators in the above-mentioned cases. A single request and fee represent a further step towards the improvement of competition in the RoC. Furthermore, the application procedure for HT's wholesale services has been additionally facilitated.

Network neutrality - In accordance with the *Implementation programme of the Strategy for Broadband Development in the Republic of Croatia for 2012-2015,* HAKOM established a system of continuous monitoring of possible difficulties related to network neutrality, such as user complaints concerning blocking or slowing-down of Internet access speed, as a precondition for the undisturbed development of applications and services of information society. A tool for measuring the speed of broadband Internet access was development and put into operation.

M2M (machine-to-machine) - Although communication between machines, M2M, as part of the "Internet of things" is an area which is currently in an initial stage of growth, and which is estimated to cover as many as 10 billion devices by 2020, HAKOM already defined the appropriate numbering for these services.

Electronic communications market.

Total market - According to the official data, the electronic communications market earned total revenue of HRK 12,327 billion in 2012, which is a 7.54 percent drop compared to 2011. There are several causes of the further fall in total revenue on this market. In HAKOM's opinion, based on similar examples in the world, the main reasons for the drop in total revenue include the economic crisis in the country and abroad and the decrease in operators' investments and network innovations.

The above-mentioned thesis is confirmed by the fact that the electronic communications market in the Republic of Croatia in 2012 was characterized by the development of broadband services and interactive television. The revenue from the Internet access service increased the share in total revenue of the electronic communications market from 15.89 percent to 18.49 percent and, together with the television services market, represents a growing segment of the electronic communications market. However, because of the mentioned reasons, the growth was insufficient to compensate for the fall in revenue from other services.

The increasing demand for Internet content and data services, and a continuous fall in revenue from telephone services in fixed and mobile network, represent a continuation of trends from the previous years.

Investments and innovation - there was a significant growth in investments in 2012 compared to the previous year by a little over 43 percent, that is, a total of HRK 2,251,382,535 was invested, out of which around 75 percent into telecommunications infrastructure and equipment. Investments per inhabitant in 2012 amounted to approximately EUR 69.89, which is more than the year before. Investments per inhabitant in 2011 amounted to EUR 47.70 and were significantly lower than the EU average. Since investments into new technologies made today, which could compensate for the fall in revenue in traditional communications, will yield results in a few years, further (slight) fall in total revenue in the next few years should not be surprising.

An encouraging fact is that operators showed more interest for innovations in 2012, that is, for the implementation of new technologies, which is why a series of pilot projects with LTE, NGN , NGA and IMS were initiated.

Fixed network - Total revenue from telephone services in the fixed network at the end of 2012 was lower by 7.69 percent compared to the year before. The fall in revenue partially results from the substitution of fixed public communications networks with mobile networks and increased use of broadband services. The number of telephone services in the fixed public communications network continued to fall in 2011 by 9.46 percent compared to the year before. It is to be expected that the number of users of telephone services in the fixed public communications network in the future period will continue to fall. HT maintained the leading position in the provision of telephone services in the fixed public communications network in 2012 as well.

HAKOM initiated a series of regulatory activities on the fixed communications market in 2012:

- A new round of market analyses closely related to telephone services in fixed networks was initiated. 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.
- Interconnection prices were defined and have been applied by operators since 1 January 2013.
- HAKOM conducted the Three Criteria Test on the market of network access for operators of services with a special tariff, and the Council of HAKOM adopted a decision that the network access market for operators of special tariff services over 06x numbers and network access market for operators of special tariff services for the provision of broadband Internet access (076 077) is no longer subject to ex ante regulation. This decision revokes regulatory obligations imposed on HT in the part referring to network access for service providers considering its status of an operator with significant market power on the relevant interconnection market.
- The switching-off of HT's local exchange Prečko was approved as part of a pilot project for the definition of wholesale conditions for the switching-off of all local exchanges. The switching-off of local exchanges means that PSTN network hierarchy is being replaced by NGN hierarchy and migration to IMS technology.
- Regulatory accounting documentation based on CCA/LRIC methodology was approved for HT which is obliged to implement accounting separation and cost accounting.

Mobile network - Around 11 percent less revenue was recorded at the end of 2012 compared to the end of 2012. The year 2012 was characterized by new, more affordable tariff bundles for many end users, which influenced the final revenue of operators. Currently the majority of revenue of operators of mobile public communications networks is based on telephone services. However, the increasing popularity of the so-called smart phones, which are squeezing out the traditional mobile devices, created greater demand for broadband service in mobile public communications networks. The number of users of telephone services in the mobile network fell by 2.81 percent compared to 2011. While the decrease in the number of users at the end of 2011 (compared to 2010) resulted in the first place from the change in the manner of collecting data by HAKOM, the decrease in the number of users at the end of 2012 was primarily caused by the fact that the majority of users, who used two or three different SIM cards at the same time, in 2012 decided to use only one SIM card or one operator. HT maintained its leading position at the retail level, while the third operator Tele2 significantly increased its market share compared to the same period of 2011 in relation to total outgoing traffic.

HAKOM started a series of regulatory activities on the fixed communications market in 2012:

- On 1 July 2012, the most recent EU Roaming Regulation III (*Regulation No 531/2012 on roaming on public mobile communications networks within the Union*) entered into force. This Regulation is the third in the row since 2007 adopted by the EU trying to resolve the problem of high prices of roaming in the EU member states which are slowing down the establishment of the single European market and to gradually harmonize roaming prices with national prices. Croatia will start implementing the provision of this Regulation after its accession to the EU resulting in the fall of prices for end users.

- HAKOM amended wholesale conditions on the market of call termination on the public mobile network. The price of call termination on HT's or Vipnet networks for 2012 was set at HRK 0.301 per minute, while, due to a 10 percent asymmetry, the price of call termination on Tele2's network amounts to 0.331 HRK per minute. The above-mentioned prices represent a 24 percent decrease for HT and Vipnet compared to 2011.

Broadband access - Internet use is a necessary part of modern society and an indispensable support for the development of information society. The technological basis of an information society is an electronic communications infrastructure based on broadband Internet access. The newest broadband services (education, health, IPTV, working from home and other) require certain transfer capacity which may be achieved by optical access infrastructure and appropriate wireless next generation technologies.

The continuous growth of this part of the market in the RoC is evidenced by a continuous increase in total revenue (from Internet access services) and the number of connections in the previous years. In other words, total revenue in 2012 increased by 10.95 percent compared to 2011 amounting to HRK 2,340 billion while the total number of connections in 2012 numbered 1,216,659 which is 5.87 percent more than the year before.

Broadband access is becoming one of the basic necessities of today's world, in particular for the economy. The share of mobile broadband access, in addition to optical access infrastructure, is increasing, which is illustrated by a constant rise in the number of mobile broadband users. A total of 326,335 broadband connections for data services were recorded at the end of 2012, which is 13.33 percent more than at the end of 2011. The reasons include increased traffic, strong services, attractive prices, a large number of accessible devices and users’ demands to always have Internet access regardless of where they are located.

The number of mobile broadband connections at the end of 2012 was 890,324, which means that the average broadband penetration rate is 20.78 percent. If mobile broadband connections with the penetration rate of 7.63 percent are added to this number, the total penetration rate of broadband connections in mobile and fixed networks reached 28.40 percent at the end of 2012. According to broadband penetration rate in the fixed network, the RoC is among less developed countries compared to the EU member states, but it is among more developed countries in relation to mobile broadband penetration rate. Regardless of the increase in the number of users, there is still room for a development in this segment, in particular in the area of optical access network. This type of growth in the RoC is necessary, among other things, because of the possible widening of the digital gap 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 it currently represents an even greater challenge than the increase in broadband penetration at the national level. As much as the availability of broadband Internet access is increasing on a regular basis, some regions (rural areas, islands etc.) can hardly expect to have broadband access in the near future without active involvement of the state in broadband penetration projects.

HAKOM initiated a series of regulatory activities on the fixed communications market in 2012:

- In 2012, HAKOM started a second round of analysis of the wholesale physical network infrastructure access market (final decision for the wholesale physical network infrastructure access market was adopted in June 2013) during which it continuously monitored the fulfilment of regulatory obligations imposed on the SMP operator (HT).
- In 2012, HAKOM completed the amendment of HT's Reference Offer for the wholesale broadband access service concerning the wholesale ADSL transport service. HT was previously imposed the obligation to provide the wholesale ADSL transport service and wholesale ADSL access service as a joint service of bitstream access and HAKOM decided to cancel the ADSL transport service as a

separate service by mid- 2013. After this date, HT will not be able to provide the wholesale ADSL transport service to beneficiary operators and operators will not be able to provide the independent ADSL transport service to their end users. In that context, HT must make possible the termination of contracts and waive the fee for early termination of subscription for ADSL access. The decision from November 2012 changed the conditions for services at the OLT level on the basis of the FTTH solution with the Reference Offer for Wholesale Broadband Access. The purpose of the amendments is easier bitstream access at OLT level since HT so far built its optical network on the basis of point-to-multipoint topology which technically does not allow the separation of the local loop. Furthermore, the Reference Offer for Wholesale Broadband Access was amended by incorporating conditions for broadband access service on the basis of vDSL technology (so that beneficiary operators could be timely informed about all technical conditions for the provision of services by means of VDSL technology).

- The Three Criteria Test established that all three criteria have been met on the retail broadband access market, that is, the presence of high and non-transitory market entry barriers of structural, legal or regulatory nature on these markets, a market structure which does not aim towards the development of effective competition within a certain time framework and that the application of relevant competition legislation alone does not make possible the elimination of market entry failures concerned. It was established that the retail broadband access market is subject to ex ante regulation and HT and Iskon were designated as operators with significant market power on this market.

Television services - Overall digitalization of broadcasting of TV content resulted in the growth of the Pay-TV market. At the end of 2012, around 41 percent of households used a Pay-TV service which shows that citizens are prepared to pay for the TV content regardless of the reduced purchasing power and the fact that they already paying for one TV subscription.

A significant share of households are using exclusively digital terrestrial signal for the reception of TV contents. Due to an increasing demand for service packages, it is expected that the number of connections based on other technologies will grow because operators will, due to the fact that end users prefer bundled services, start bundling the Internet service with the Pay-TV service. Furthermore, the Pay-TV service, EVO TV offered by HP Produkcija d.o.o., Odašiljači i veze d.o.o. and Hrvatska pošta d.o.o. is a new and unique service on the market which offers to users in the large part of Croatian territory the possibility to view television programmes on the basis of terrestrial digital TV signal. Since it was launched in December of 2012, the number of its users is expected to grow.

Infrastructure and network access services - The majority of users of broadband access in the RoC are using xDSL (ADSL) transfer technologies. For that reason, special attention in 2012 was dedicated to the analysis of parameters of the quality of service provided in this manner. Periodical measurements of parameter ADLS lines started in 2012 as well as the systematic measuring of quality of services in the unbundled environment in the RoC. Furthermore, the impacts of regulatory measures were analysed for the environment in question, which increase the degree of usability of the existing access network for the provision of new broadband services and contribute to energy efficiency at the same time.

HAKOM has been closely following the issues of network neutrality and actively participating in the work of BEREC, the Body of European Regulators, in the working group concerned with this issue. In 2012, HAKOM actively participated in the preparation of BEREC's recommendation for the monitoring of the minimum quality of service in the context of network neutrality. No problems with network neutrality were noticed at the national level. HAKOM maintained the strategy of monitoring the situation on the Croatian market and gradual introduction of measures for increased transparency, in the first place by introducing a new tool for measuring Internet access speed - HAKOMetar.

A pilot project on the ECI basis in a part of the city of Zagreb was prepared and implemented, where a model of the GIS database and a web application with individual functionalities were presented. The continuation of activities leads towards a single ECI database for the entire territory of the RoC. The alignment of the existing ordinances with the ECA and the relevant EU directives was completed.

Other services - HAKOM conducted numerous verifications of special tariff services in 2012 as in the previous period. The new Ordinance on the manner and conditions for the provision of electronic communications networks and services amended some of the obligations of providers of special tariff services to make the use of services more transparent for end users and thus achieve an even greater protection of end users.

The Council of HAKOM adopted at the end of the year a new Ordinance on Universal Services in Electronic Communications which had to be aligned with the amendments to the Act and the Universal Services Directive and adjusted to market needs. Certain quality parameters for universal services were amended as a result of the appearance of new technologies on the market (IMS), the provisions on coverage and removal of public pay phones, availability of networks and, most importantly, the provision obliging the universal service operator to ensure the speed of data transfer on subscriber access lines in its electronic communications networks at the minimum of 1 Mbit/s. The designated universal service operator must align the provision of universal services at the latest by 1 January 2015, and by then it must ensure data transfer speed of at least 144 kbit/s.

RF spectrum - A public consultation on the Allocation Plan for frequency bands 880-915/925-960 MHz and 1710-1785/1805-1880 MHz was conducted in early 2012 followed by the adoption of the Plan. The new Plan enabled the operators to use LTE technology in these frequency bands as well.

Two new networks of terrestrial digital TV with DVB-T2 standard were put into operation in 2012 and they are transmitting MUX C and MUX E signals. MUX C and MUX E multiplexes used MPEG 4 coding standard with conditional subscriber access (PAY-TV).

The majority of HAKOM's activities concerning spectrum monitoring, focused on the measuring of interferences by the Republic of Italy in the territory of Istria and in the Croatian coastal areas. All planned measuring campaigns and other measurements in the RF spectrum were successfully carried out in accordance with the measuring plan, with a special emphasis on the protection against interferences. Extensive measurements were carried out along the coast and on the islands in 2012 with the objective of monitoring and identifying interferences from Italy. The measuring resulted in 680 new international interference reports to the public administration bodies of the Republic of Italy. Italy did not resolve or eliminate any of the interferences reported in 2012.

In addition to this activity, HAKOM also carried out systematic measurements aimed at protecting the RF spectrum as a naturally limited resource of interest for the RoC. Everyday measuring was carried out from all for CMCs and seven remotely controlled CMSs, while measuring vehicles conducted periodic measurements. 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. Measuring results submitted by legal persons authorized for the activities of measuring electromagnetic radiation were checked on a regular basis.

HAKOM initiated a series of regulatory activities on the RF management in 2012:

- The frequency allocation table was amended in such a manner that it allows the issuing of licences for use of the RF spectrum on the basis of a public call and possibilities of transfer or leasing a certain radiofrequency band. This procedure replaced the old summary procedure which was a constituent part of the public tender and public auction.
- Provisions on amateur radiocommunications were merged and a single form for the licence for use of the RF spectrum in amateur service was prepared and aligned with CEPT recommendations.

- The former approach to limitations of strength of electromagnetic fields for radio equipment and telecommunications terminal equipment was replaced by the Ordinance on conditions for installation and use of radio stations and related with the Ordinance for the protection against non-ionizing radiation adopted by the minister competent for health. In this manner, redundant definitions of same concepts in different regulations was avoided thus facilitating the understanding of provisions by users and implementation by HAKOM.
- Different scenarios and associated processes were elaborated and fiscalization in cash transactions was introduced. The measure must permit efficient monitoring of cash turnover including procedures for the issuing of these certificates in case of impossibility to establish an internet connection or exchange data.

Addressing and numbering space - The changes of the existing emergency service numbering were prepared in 2012. The number for "Emergency medical assistance" was changed from 94 to the proposed new numbering 194 and the existing number of the "National Headquarters for Search and Rescue at Sea" was changed from 9155 to the proposed number 195 for the purpose of alignment with the provisions of the Plan. The numbering plan further regulated the availability of short codes for SMS/MMS to all operators, instead of to individual operators, which created problems to operators of special tariff services. Furthermore, the number for the universal access number was changed since the existing number 62 was unclear to users because it was within the 6x range with is dedicated to special tariff services in all other cases. The new number is 72.

In order enable simple and quick number porting for the end user, HAKOM focused the majority of its activities related to this issue on the improvement of the number portability process by focusing on the administrative procedure of number portability and the upgrading of the CABP was completed.

Postal services market

Market total - A total of 343,860,317 services was provided in the postal services market in 2012 with a decrease of 3.5 percent compared to the year before. Out of the total number of services in the market, HP's share was 67.5 percent, and the rest belonged to other providers. When the number of services provided by HP and other providers of postal services in 2012 is compared to the year before, HP's total number of provided services fell by nine percent, while the number of services provided by other service providers increased by approximately ten percent. HP remained the leading provider of postal services in 2012 but its share in the total postal services market decreased by four percent.

A total of 323.9 million of services or 94.2 percent were provided in national traffic, 13.3 million or 3. 9 percent in international incoming traffic and 6.7 million of services of 1.9 percent in international outgoing traffic. The mentioned shares did not change significantly compared to 2011. The structure of all provided postal services shows that universal postal services made almost 55 percent of all services, and the rest were other postal services.

Revenue reported by providers of postal services in 2012 amounted to HRK 1,464,786,871, which is four percent less than in 2011.

There were 21 postal service providers reported in late 2012 who provided postal services on the basis of a licence and/or application.

Universal services market - HP is the provider of all universal postal services and has the right and obligation to provide universal services in the entire territory of the Republic of Croatia, as opposed to the other three providers who have been granted a licence to provide universal postal services which covers the entire territory of the Republic of Croatia, but does not include all universal postal services. In addition to HP, universal postal services were provided in 2012 by two other providers (out of a total of three licensed providers) but their results in the total market were almost negligible.

Providers of postal services in 2012 provided a total of 189,848,574 universal postal services (which is ten percent less than in the year before). The share of universal postal services among total postal services was 55 percent (four percent less than in 2011). Approximately 90 percent of all universal postal services were reserved universal postal services, which is one percent less than the year before.

In 2012, providers of postal services reported revenue from the provision of postal services amounting to HRK 782.2 million, or nearly eight percent less than the year before.

Market of other postal services - Providers of postal services in 2012 provided a total of 154,011,743 other postal services according to the submitted data, which is almost six percent more than in the year before and a continuation of a positive trend from the previous years. The share of other postal services among total postal services was 45 percent, which is four percent less than in 2011. HP's share in the number of other postal services was 28 percent, and other providers of postal services provided the rest. HP recorded almost two percent less of provided other services compared to the year before, and other providers increased the number of these services by around nine percent.

If we observe the structure of the all other provided postal services, value added postal services accounted for almost 52 percent of all other postal services and non-universal other postal services accounted for the rest. Compared to 2011, the share of value added postal services decreased by nearly one percent.

In 2012, providers of postal services have reported revenue from the provision of other postal services amounting to HRK 674,160,942 million, which is nearly one percent less than the year before.

Regulatory measures on the market of postal services - the following regulatory measures were implemented in the market of postal services in 2012:

- Since 1 January 2011, pursuant to the PSA and the Ordinance on the provision of universal postal services, the public operator, HP, must ensure to all users one collection and one delivery of a postal item to the home address or premises of any natural or legal person for at least five working days a week. The CPA and the Ordinance on the provision of universal postal services leave the possibility for this provision not to apply fully to 10 percent of the total number of households in the RoC at the maximum. The public operator provided a list of all discrepancies in the provision of universal postal services for 2012 according to which the obligation of delivery during five working days to the home address, that is, to the premises of a legal or natural person does not apply to 9.66 percent of households in the RoC (142,531 out of a total of 1,476,042 households).
- The PSA imposes accounting obligation on all providers of postal services, and, in particular, on HP as the public operator. HAKOM received funds from EU pre-accession funds (within IPA 2009 programme) for the project "Support to HAKOM in the area of accounting separation of postal services". The project was completed in mid-2012, and the final result was the "Manual for Accounting Separation and Cost Accounting".
- The achievement of the prescribed quality of universal postal services is one of the primary objectives of the European postal system which is why special attention is paid to monitoring the quality of universal services. Monitoring includes independent, continuous measuring of time of delivery of regular postal items in accordance with the appropriate international norms. According to the 2012 annual report on the quality of provision of universal postal services, it is obvious that the public operator participated in several instances of measuring of the delivery of

postal items in international traffic one of which was the continuous measuring of the quality of transmission of priority test postal items with EU member states in accordance with European norms. In the majority of the EU member states, the measuring of quality is carried out by an independent measuring body (UNEX company). The results of the measuring show that the prescribed quality criteria have not been met. Independent continuous measuring of the quality of postal services in domestic traffic was carried out for the delivery of priority and non-priority postal items. According to independent measuring, priority test items were not transported and delivered on time.

- In 2012, HP received 23,100 customer complaints concerning the provision of universal postal service in domestic traffic, and 28 percent thereof were resolved on time. HP's responsibility was established for every seventh complaint or in 3,360 cases.
- In the course of 2012, HP closed a total of eighty-four (84) post offices and, at the end of 2012, it had a total of 1042 postal offices. When closing a post office with a delivery area, HP fully complied with the provisions of the Ordinance on the provision of universal postal services and users of postal services were ensured the minimum level of quality of universal postal services in accordance with the prescribed criteria.

Consumer Protection

Consumer protection is the most subtle manner of regulating a market. Trust of users in the services offered on the market depends on the efficiency of the protection of users. Without the trust from users, market growth is very questionable.

Protection of users of public communications services - In 2012, HAKOM continued with intense protection of users. The protection of end users is ensured by applying the principle of objectivity, transparency, non-discrimination and proportionality in the protection of competition including simple and accessible resolution of disputes and complaints. A lot of attention is devoted by HAKOM to preventive activities, instructions and advice to end users on how to protect themselves and avoid the problem, to an open and straightforward communication with the users. A quick and simple way of resolving a problem and dissatisfaction of end users is recognised under “Ask us". HAKOM answers questions of end users (and journalists) within the shortest possible time. In the majority of cases, users are instructed about further action and registration of users for initiating dispute resolution proceedings before HAKOM via the Internet application "e-Complaints": Registered users are able to follow the status of their complaint and to receive additional information and send supplementary information by means of the abovementioned application. Furthermore, HAKOM initiated the implementation of a programme simulator entitled "e-Tariffs". The e-Tariff simulator will provide users with the necessary information about the prices of public communication services and their amendments in real time with the offer on the market. In order to achieve a high level of user protection, HAKOM prepared and put at users’ disposal the tool for measuring the speed of Internet access, the so-called "HAKOMetar". The purpose of the tool is to prove the non-fulfilment of contractual obligations of operators if Internet access speed is too slow.

On the basis of the analysis of the total number of received requests for dispute resolution made by end users in 2012, it may be concluded that users are increasingly aware of the possibility for objective realization of their rights through dispute resolution before HAKOM. There was a total of 2314 different types of complaints, which is 30 percent more than in the year before with the biggest increase in the number of bill complaints of 23 percent (1392 complaints) and quality of service complaints of 70 percent (539 complaints). The decreasing trend indicates that operators adopted a new regulatory framework and started implementing systems for monitoring the increase in use and habits of end users. The number of quality complaints shows a considerable growth compared to the year before. This growth results from increased use of broadband Internet access and more advanced services based on broadband. Groups of complaints that required further regulation completely disappeared as separate groups (diallers, various games of chance - as a separate service with a special tariff). A very positive trend is a fall in the total number of special-tariff service complaints as a result of HAKOM's engagement.

For the purpose of protection of end users, HAKOM started monitoring the implementation of a series of regulatory obligations in 2012, in particular:

- After the expiry of contractual obligation or in case of early termination, the operator must enable the subscriber, upon his or her request, without compensation and within the shortest possible period of time, to continue using the device in other networks. Users of pre-paid services must be given the same possibility after 12 months of use of service provided that they demonstrate the receipt for the purchased mobile device.
- Operators must monitor the usual behaviour of end users and warn them of any unusual and sudden increase in cost of use of public communications services.
- The operator must ensure a trial period for use of mobile broadband access lasting for at least two days, and within that period, it must enable the subscriber to terminate the contract without paying the early termination fee.
- In case of roaming, operators of mobile public communication services must inform end users about prices of calls, SMS/MMS and data traffic by means of a text message every time the end user is registered on a roaming network.
- Operators must enable end users, upon their request and without compensation, to block the sending and/or receiving of text messages (SMS) and multimedia messages (MMS message) within the special tariff service.
- Operators in fixed public communications networks must advertise minimum broadband speed rates in the same manner as maximum broadband speed rates.
- In case of complaints of end users against the speed of fixed broadband Internet access, the end user must deliver to the operator the results of measuring conducted by using HAKOM's certified tool for measuring broadband access speed.
- When providing services by means of SMS/MMS messages, operators of special tariff services must notify the end user free of charge of his or her spending for every individual special tariff service.

Protection of users of postal services - There are differences in relation to dispute resolution with users and operators of electronic communications because, in accordance with the provisions of the PSA, HAKOM was designated as a second instance body in complaints proceedings, which means that the end user will contact the regulator after having received a reply from the service provider. In 2012, HAKOM received 49 requests for dispute resolution between users and providers of postal services. Out of the total number of complaints, 37 were resolved - 24 complaints were refused as unfounded, 6 complaints were accepted, 4 complaints were rejected, and 3 proceedings were suspended. No administrative disputes were initiated against HAKOM's decisions before the High Administrative Court of the Republic of Croatia.

Protection of children - bearing in mind that "children are in danger when crossing the street" and that some of the service providers treat them as a market, HAKOM intensified its activities related to protecting children when using the Internet and electronic communications services. For that reason, in 2012 HAKOM joined and supported the "Safer Internet for Children and Youth" campaign, when a brochure was prepared for children and parents with detailed instructions on protection during use of electronic communications services. Special attention was paid to the promotion of parents' responsibility and laying down the obligations of operators of electronic communications networks 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. Operators are requested to behave in a socially responsible manner in relation to children, beyond what is prescribed by the law.

As part of the project entitled "Number allocation for services of social value in the Republic of Croatia", HAKOM reserved six-digit short codes (numbers) 116XXX through primary allocation for services of social value. Services of social value include the following: hotlines for missing children, hotlines for crime victims, hotlines for assistance to children (16111), hotlines for medical and emotional assistance, which have been harmonized throughout Europe.

Access to services for disabled persons - Since a society which does not take care of its members with disabilities cannot be regarded as a humane society, HAKOM continued its participation in the advisory mechanism of the association of persons with disabilities, operators and HAKOM in 2012. The advisory mechanism discussed the possibilities for improving access to services for blind persons and persons with impaired hearing. Operators, HAKOM and associations reached an agreement on giving free mobile devices to the Croatian Association of the Blind, for the purpose of testing. The purpose of testing of mobile devices by the Croatian Association of the Blind is to establish which devices may be recommended to blind and visually impaired persons on the basis of their technical characteristics and simplicity of use. Work on the training of sales persons of operators for communication with blind and visually impaired persons has continued.

HAKOM

Cooperation - HAKOM actively participated in the work of European Commission's working groups (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. HAKOM's important role in the region was confirmed by an invitation for participation in several regional and international conferences where HAKOM's experts gave lectures.

At the national level, there was excellent cooperation with all ministries, in particular with the MSTI on joint activities, state administration bodies and other agencies. There was also significant cooperation with universities, especially with the Faculty of Electrical Engineering and Computing.

e-Agency - in 2012, it implemented several applications focused on improving business processes by using web-based technologies. In addition to e-applications intended for external users, HAKOM has also sped up internal processes by introducing new IT solutions and platforms. The introduced tools enable efficient cooperation in everyday processes of regulators, and communication with end users, which is why they are accepted by employees and users.

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

ISO 9001 - HAKOM has had a certificate of the quality management system HRN EN ISO 9001:2008 since 2009, and, after the recertification audit, the validity of the ISO certificate was extended for the next three years.

EU funds - in 2012, HAKOM managed to complete projects financed from European pre-accession funds worth over EUR 5.5 million. Two projects were implemented in 2012: "Support to HAKOM in the area of accounting separation of postal services" and "SEE Digi.TV".

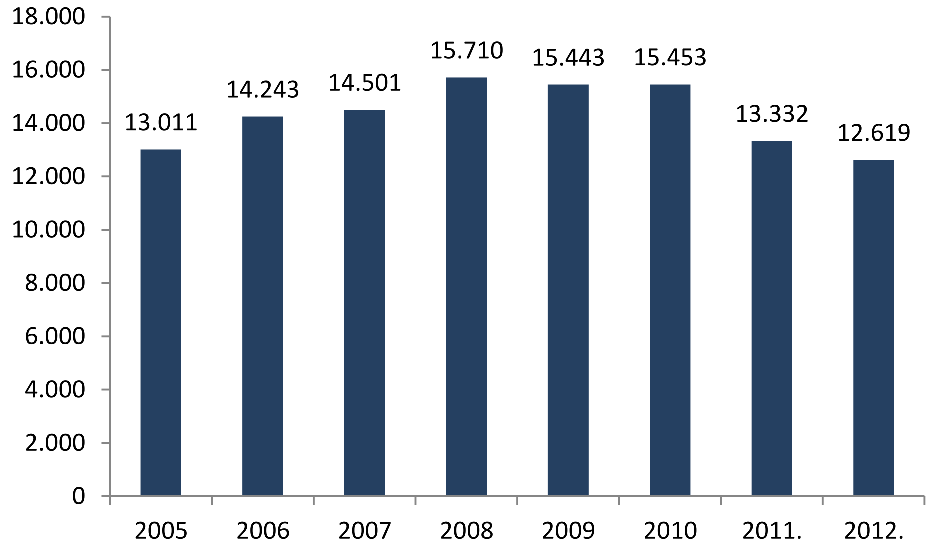
Staff - At the end of 2012, HAKOM employed 173 people. More than 82 percent of employees have university or college degrees, with electrical engineers prevailing at 36 percent, followed by economists at 16 percent, lawyers at 14 percent, transport engineers at 12 percent, and 21 percent have other degrees.

1 ELECTRONIC COMMUNICATIONS MARKET

1.1 Market Development

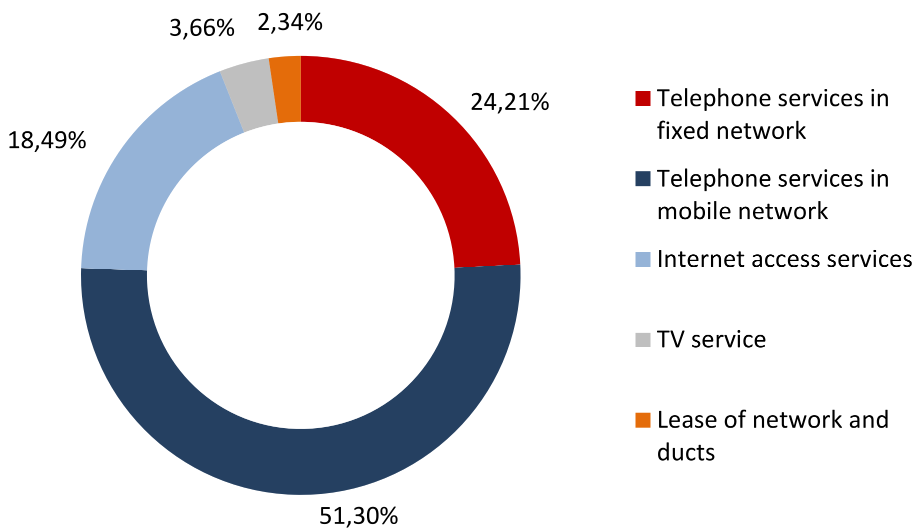
The electronic communications market in the Republic of Croatia in 2012 was characterized by the development of broadband services and interactive television. Increasing demand for internet content and data services is only a continuation of trends from the late 2011, as well as a continuous fall in revenue from telephone services in fixed and mobile network. On the basis of official data on the market of electronic communications, it may be concluded that the electronic communications market in 2012 recorded a total fall in revenue amounting to 7.54 percent compared to 2011.

Figure 1.1. Total fall in revenue on the electronic communications market (in millions HRK)



Revenue from Internet access service increased the share in total revenue of the electronic communications market from 15.89 percent to 18.98 percent.

Figure 1.2. Shares of services in total revenue on the electronic communications market



In spite of the fact that voice is the basic communication service, it is clear that data and image/video are increasingly gaining in importance. IP-based technologies represent an upgrade of the traditional approach to voice communication. However, the diversity of services and their price may have a significant impact on the future of the overall electronic communications market. The density of users in fixed public communications networks has been stagnant, while revenue from traditional voice communication has dropped.

Electronic communications operators have to search for new ways of increasing revenue, which may be found in broadband access and new services. This fact has an impact on the business model of electronic communications operators and encourages them to switch from short-term goals and results to long-term objectives, that is, to innovation and investment into new technologies and new services in order to achieve sustainable growth and development by means of transformation It is not only operators who are facing challenges. In the upcoming period, HAKOM has to continue with intense activities aimed at the development of market and competition.

Table 1.1. Basic data on the electronic communications market

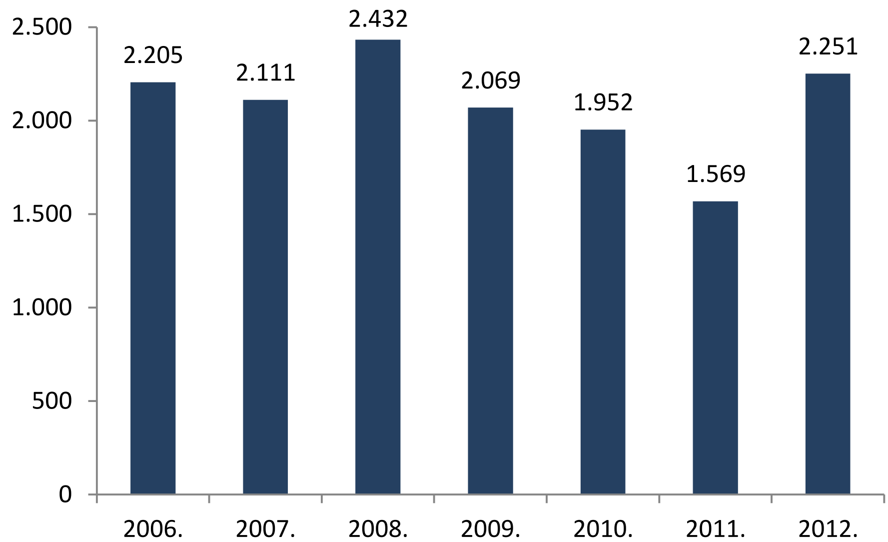
Basic data on the electronic communications market	
Registered telephone service operators in the fixed public communications network	**34**
Operators providing telephone services in a fixed electronic communications network[2]	**13**
Operators of mobile public communications networks GSM/DCS	**3**
Operators of mobile public communications networks UMTS	**3**
Radio networks	**170**
Television networks (digital television)	**7**
Users of telephone services in the fixed network	**1,454,133**
Users of carrier pre-selection services (CPS)	**165,679**
Users of leased line services (WLR)	**105,185**
Users of telephone services in the fixed network	**4,971,351**
Broadband Internet users - total	**1,216,659**
Broadband users via fixed public communications network	**890,324**
Broadband users via mobile public communications network	**326,335**
Cable television connections (CTV)	**148,062**
TV connections based on IPTV	**366,974**
Satellite television connections (SATTV)	**108,447**
Realised Co-locations	**565**
Active unbundled local loops	**323,233**
Ported numbers in fixed public communications networks	**799,844**
Ported numbers in mobile public communications networks	**476,281**

[2] Operators who reported revenue from the provision of telephone services in the fixed network in 2012 through the Indicator System (SPOK)

1.2 Investments and innovation

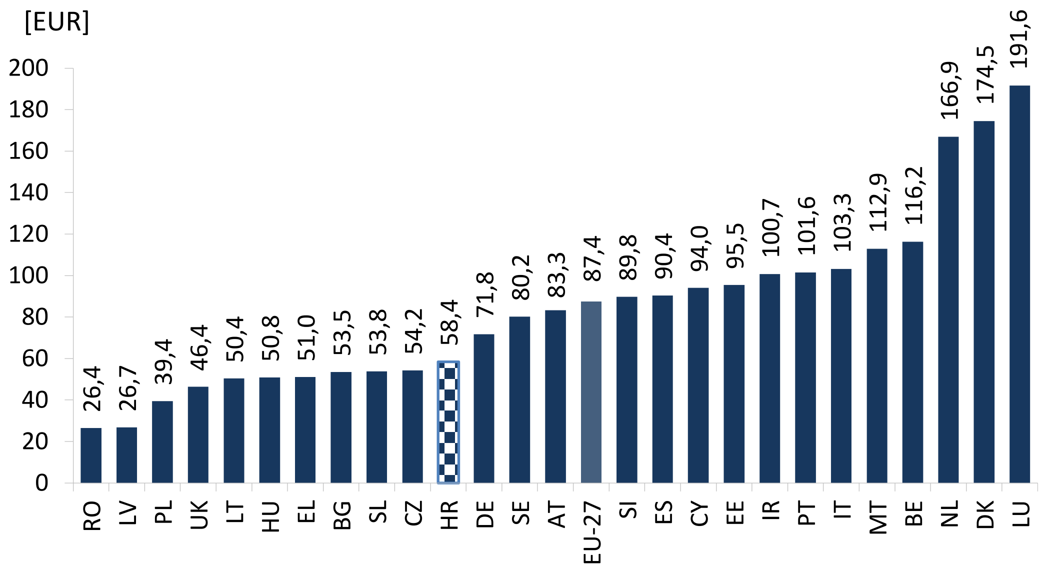
Promoting efficient investments into infrastructure and promoting of innovations, while at the same time preventing distortion and/or restricting competition is one of the basic regulatory objectives of HAKOM's activities laid down in the Electronic Communications Act. Therefore, when adopting regulatory decisions, HAKOM has to bear in mind the balance and fulfilment of both of the above-mentioned objectives, in order to avoid market distortions.

Figure 1.3. Total investments of electronic communications operators in the RoC



According to HAKOM's data, there was a significant growth in investments in 2012 compared to the previous year by a little over 43 percent, that is, a total of HRK 2,251,382,535 was invested, out of which around 75 percent into telecommunications infrastructure and equipment. It follows from the above that investments per inhabitant in 2012 amounted to EUR 69.89, which is more than in the year before when they totalled EUR 47.7.

Figure 1.4. Comparison of investments of electronic communications operators per inhabitant between Croatia and in the EU[3]



The latest available data on investments in the EU Member States date from 2010, when the RoC recorded investments of a little more than EUR 58 per inhabitant. This placed the RoC among countries with below-average investments.

Operators of public mobile communications tested the fourth generation mobile networks (4G) at 800, 1800 and 2600 MH in 2011 thus showing their intention to implement this technology in the above-mentioned bands, in the first place in 1800MHz. In mid-2012, that is, with the adoption of the Allocation Plan for the frequency band 791-821/832-862 MHz, HAKOM allocated the above-mentioned part of the spectrum for public mobile communications networks, that is, for the implementation of the LTE technology, thus satisfying all regulatory preconditions for the allocation of that part of the spectrum, depending on market interest. The spectrum at 800 MHz was allocated to interested operators in the last quarter of 2012.

The Croatian electronic communications market will experience an increase in investments after the commercialization of fourth generation mobile networks and continuation of investments into optical infrastructure. However, in addition to investments into electronic communications infrastructure, operators will have to invest into user satisfaction management systems, which disappeared in the recent years when operators mostly focused their investments into technology, and not into users. On the other hand, RoC is preparing a project for gathering all optical infrastructure owned by the state. Several big companies owned by the state, have at their disposal eight thousand kilometres of optical cables built for their own needs, that is, of infrastructure that could be put into operation.

New investments are expected in the upcoming period that will contribute to the development of electronic communications through the introduction of new technologies and increasing the density of Internet access, including the economy in general. A significant role in the development of infrastructure will be played by the state and HAKOM aiming to achieve the objectives of the EU Digital Agenda, while operators will have to invest into the quality of services that they will offer to their users and work on user satisfaction. It must be borne in mind that the level of investments cannot be predicted because the decision is based on business plans of operators themselves, which must satisfy shareholders' and owners' expectations.

[3] The most recent European data date from 2010

A positive fact is that operators showed more interest for innovations in 2012, that is, for the implementation of new technologies, which is why a series of pilot projects with LTE, NGN, NGA and IMS were initiated.

1.3 Strategic activities

As opposed to targeted regulation for individual segments of the market which contributes to the development of one market segment, which will be discussed in more detail in the following chapters of the report, HAKOM dedicated a lot of attention to decisions and activities that have a wider impact. Such decisions or activities have an impact on the entire market and have been underlined in this chapter.

1.3.1 Allocation of the digital dividend

The digital dividend is a relatively low frequency band (800 MHz) the features of which allow for the achievement of the best relationship between transfer speed and coverage. This means that less investments, that is, a smaller number of base stations are necessary for achieving a better quality of service. The allocation of the digital dividend to operators of mobile communications opens possibilities for significant investments into infrastructure and development of new applications and ensuring availability of high-speed broadband Internet access to a large number of citizens in the entire territory of the Republic of Croatia, with a special emphasis on access in rural and underdeveloped areas.

After the digital switch-over in 2010, the frequency band of the digital dividend in the RoC was freed for other uses. More concrete preparations for the allocation of the digital divided were initiated in 2011 during which HAKOM, as part of the Looking to the Future project[4] established cooperation with FER and EFZG, that is, with representatives of operators and industry and started dealing with the issue of cross-border cooperation at the international level.

With the adoption of the Allocation Plan for the frequency band 791-821/832-862 MHz, in mid-2012, HAKOM allocated the above-mentioned part of the spectrum for public mobile communications networks, that is, for the implementation of LTE technology. This created regulatory preconditions for initiating the allocation procedure for that part of the spectrum, depending on market interest.

The Frequency Allocation Table[5] prescribes that the digital dividend may be allocated by means of a public invitation, tender or auction. Taking into account the current situation on the market and interest expressed by the existing operators, a public call was published in 2012 for the allocation of the digital dividend. A total of 3 blocks of 2x10MHz were allocated for the territory of the RoC until 2024.

Two existing operators applied to the public call - Croatian Telecom (hereinafter: HT) and VIPnet. Since both operators satisfied all the prescribed requirements, HAKOM issued licences for use of the RF spectrum to the mentioned operators. Each operator was allocated 2x10 MHz as illustrated in Figure 1.5.

Figure 1.5. Allocated spectrum at 800 MHz

791-821			Duplex gap	832-862		
791-801	801-811	811-821		832-842	842-852	852-862
VIPnet		HT		VIPnet		HT

The licences also prescribed operators' obligations - the obligation to cover at least 50 percent of Croatian territory within five years from the date when HAKOM establishes that the 791-821/832-862 MHz band may be used in the territory of the Republic of Croatia with acceptable level of

[4] More about the project in Chapter 7.2.2.
[5] http://www.hakom.hr/default.aspx?id=190

interference from neighbouring countries and obligations related to avoiding the disturbance in receiving DVB-T signal in the 470 - 790 MHz.

Through this allocation, in accordance with the Ordinance on the payment of the fee for the right of use of addresses, numbers and the RF spectrum, one-off fees amounting to HRK 300 million and annual fees amounting to HRK 32 million have been paid into the State Budget. The payment thereof will continue until the expiry of licences in 2024.

1.3.2 Cost models

Cost-oriented prices served as an incentive to operators to maintain and invest into their own network. Promoting efficient and sustainable competition and ensuring the biggest benefits for users are three main HAKOM's objectives in the introduction of the measure of a cost-oriented determination of prices.

National regulatory authorities have a wide selection of tools that may be used for the calculation of costs of services of wholesale access and interconnection. In order to ensure fair and equal prices and alignment with the best international practice, in February 2012 HAKOM adopted a decision on the method for the development and application of cost models for the fixed and mobile network and universal services.

For the time being, wholesale prices of services are based on the benchmark model, except for the price for access to ducts which is based on HT costs and price of the fully unbundled local loop which is based on HT's "*top down*" model. Although the comparable value approach and the retail minus method represented a useful transitional method, on several occasions HAKOM mentioned that the introduction of cost models would represent a final means for the implementation of the obligation of price control which was imposed on operators with significant market power on the relevant markets.

The issue of determination of regulated prices on the basis of costs is of key importance for operators and HAKOM: the cost-models project enables the calculation of the actual cost of the service of unbundled access to the local loop, that is, a wholesale services related to the wholesale network infrastructure access, including the calculation of cost of provision of bitstream access service at IP level.

The determination of the price of regulated services on the basis of cost models represents a final step in the alignment of the electronic communications market with the EU Member States.

1.3.3 Aid programme

In 2012, HAKOM started awarding state aid in the form of subsidies for the development of broadband networks in accordance with HAKOM's Programme for Internet and Broadband Development in Areas of Special State Concern, Mountainous Areas and on the Islands in accordance with Measure 4 of the Implementation Programme of the Strategy for Broadband Development in the Republic of Croatia 2012 to 2013 [6].

The objective and purpose of the aid is the achievement of a balanced regional development, faster development of broadband, and connecting of target groups such as educational, health care and public institutions to the broadband network which represents a broadband ecosystem. In 2012, locations were defined with representatives of a target group of users (CARNET, the Croatian Institute for Health Insurance, and the Croatian Firefighting Association) were it was necessary to ensure broadband access in areas of special state concern, mountainous areas and on the islands. Following the public tender in September 2012, HAKOM selected the best offers for the award of aid.

[6] http://www.mmpi.hr/UserDocsImages/Strategija-DTV-novo%2010.pdf

H1 Telekom and HT received HRK 14,463,076.80 for merging 109 out of the total of 381 target users. Contracts with selected bidders were signed in November 2012. The second round of the aid programme was initiated in December 2012, including broadband connection of target users not covered during the first round (the completion of the second round is planned at the end of June 2013).

A public invitation for proposals for software applications and services that will encourage faster development of areas of special state concern, mountainous areas and the islands was published at the same time and it was completed in late February 2012. The objective of a public invitation is to collect ideas for software applications and services supporting the development of the economy and quality of life in the mentioned areas, that is, supporting the development of agriculture, tourism, health, education etc. HAKOM received a total of 168 proposals from 125 different legal or natural persons. The following stage of programme implementation started after the completion of the public invitation which included the evaluation and selection of the best proposals by a Commission consisting of representatives of HAKOM and target groups of users. The received ideas were categorized according to groups and areas in accordance with the definition of the public tender, and they were given points according to the envisaged criteria. Ideas which did not qualify did not satisfy one or more of the four basic requirements, that is, did not cover users from target areas, required amendments of the legal framework, changed the existing or a similar solution that users were satisfied with or did not include a software application or service at all. The concrete implementation of the selected ideas and services will start in 2013, and tenders will be published individually or in groups after the completion of tender documentation. The selected ideas and services will be realized after the completion of the public tender procedure.

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.

1.3.4 Single request and fees

The definition of a uniform procedure for switching of users between operators enabled the establishment of equal rights and obligations of operators in the above-mentioned cases. Furthermore, the application procedure for HT's wholesale services has been additionally facilitated.

Since HT published the Reference Offer for Leasing Subscriber Lines in July 2011 divided according to market needs containing all the necessary deadlines, conditions and prices of services in accordance with the transparency obligation defined in the relevant analysis, HAKOM's activities in 2012 were focused on supervising the implementation of regulatory obligations and their amendments in accordance with interest and further development of competition. The procedure for aligning conditions and deadlines for the wholesale broadband access service, leased line service, service of unbundled access to the local loop and carrier pre-selection service was initiated in 2012, and HT was obliged to incorporate them into its reference offers with a view to defining uniform conditions and deadlines for the submission of requests for HT's wholesale services. For that purpose, HAKOM defined special forms - *single request for all HT's wholesale services* which replaced the existing individual requests for the corresponding wholesale services and the single statement of the end user that will be attached by users to the single request for all wholesale services, instead of separate statements of the end user from the existing HT's reference offers. The mentioned decision facilitated procedures and contributed to further development of efficient competition.

The final decision was adopted in August 2012[7]. The decision defined contractual fines/penalties, that is, it was laid down that each operator is entitled to a compensation for each day that the

[7] http://www.hakom.hr/UserDocsImages/2012/odluke_rjesenja/VL-AT-OD-OPR-kona%C4%8Dna%20odluka%20jedinstvena%20procedura-v1.pdf

existing operator is late in fulfilling the obligations within the defined time limits. The fee for every day of delay within the first 10 days is 50 percent of the monthly fee for the corresponding wholesale service, and in case of 11 or more days, it amounts to 150 percent of the fee. The monthly fee for the corresponding wholesale service is the monthly fee for the wholesale service requested by the new operator, that is, in case of return to HT's network (to HT's retail service), the monthly fee for the wholesale service provided by the existing operator to the end user. The new operator is the operator that received the end user's request for a retail service regardless of whether the end user is provided a service based on HT's wholesale or retail service.

1.3.5 Network neutrality

HAKOM has been closely following the issues of network neutrality since early 2010 and actively participating in the work of BEREC, the Body of European Regulators, in the working group focusing on this issue. HAKOM's activities in 2012 included cooperation with BEREC and participation in the preparation of BEREC's recommendation for monitoring the minimum quality of service in the context of network neutrality. HAKOM's experts were active members of a working group that prepared the recommendation. No problems with network neutrality were noticed at the national level. HAKOM maintained the strategy of monitoring the situation in the Croatian market and gradual introduction of measures for increased transparency, in the first place by introducing a new tool for measuring Internet access speed - HAKOMetar[8], at the end of 2012.

In accordance with the *Implementation programme of the Strategy for Broadband Development in the Republic of Croatia for 2012-2015* [9], HAKOM established the continuous monitoring of possible difficulties related to network neutrality, such as user complaints concerning blocking or slowing-down of Internet access speed, as a precondition for the undisturbed development of applications and services of information society.

1.3.6 M2M

Machine-to-machine communications (M2M) is a new area of development which is currently in the initial stage of significant growth, and experts estimate that up to 10 billion devices will be connected by 2020. M2M communication comprises automated communication (data transfer) between two or more communications (ICT) entities. Due to increased demand for data traffic and requirements for enabling wholesale data traffic bundles, the monitoring of the situation of M2M services on the market started in 2011. If necessary, and for the purpose of development of this market, HAKOM is ready to take steps to avoid the closing of the market, that is, to achieve market dynamics and strengthening of competition between operators. Based on the predicted growth of M2M services, more numbers will be necessary because they are allocated to each individual device and HAKOM, in accordance with needs and European practice, defined the appropriate numbers for these services in the Numbering Plan. Furthermore, the growth of M2M services will also require HAKOM to pay more attention to problems of privacy and data security.

The objective is to create stable and sustainable grounds for the regulation of M2M service. It is necessary to predict possible directions of market development and propose regulatory guidelines that do not prevent the spreading and progress of services and at the same time ensure security for users.

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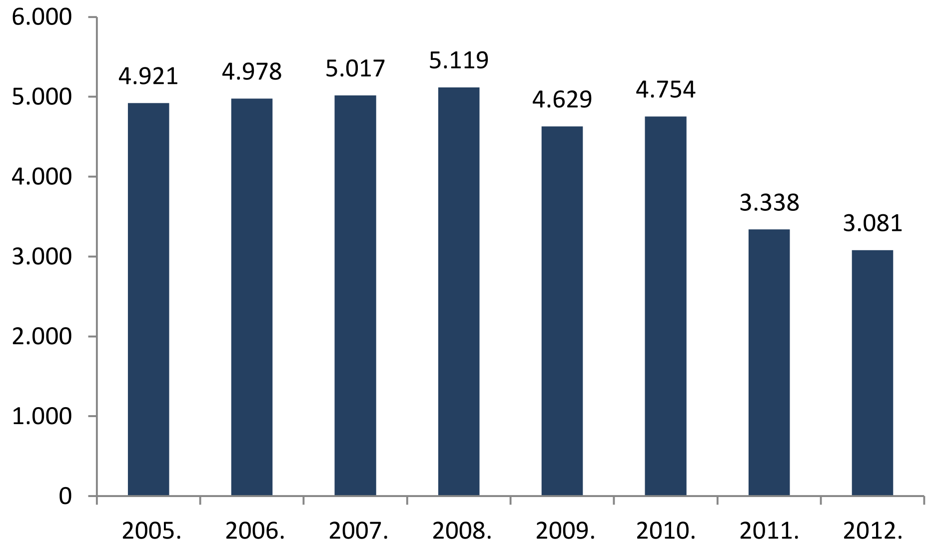
[8] More about the HAKOMeter in Chapter 3.1.1.
[9] http://www.mmpi.hr/UserDocsImages/Strategija-DTV-novo%2010.pdf

1.4 Telephone services in the fixed network

1.4.1 Overview of the market of public fixed communications networks

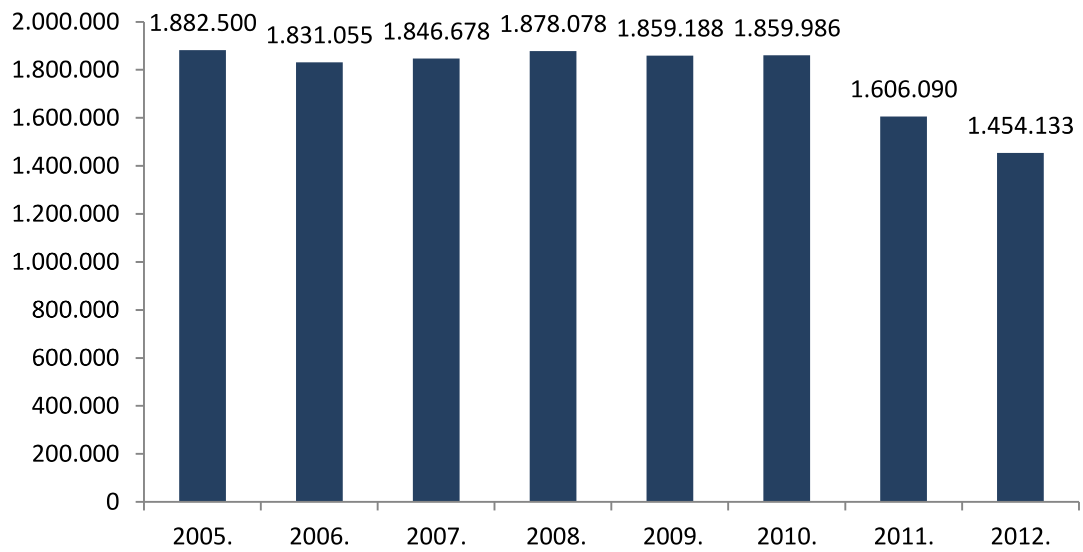
Since the end of 2008 until today, a slight rise in revenue was recorded only in late 2010 and the entire observed period was characterized by a fall in total revenue from telephone services in the fixed public communications network. The fall in revenue for the second consecutive year is in compliance with developments on the global market. Total revenue from telephone services in the fixed network at the end of 2012 was lower by 7.69 percent compared to the year before. The fall in revenue partially results from the substitution of fixed public communications networks with mobile networks and increased use of broadband services. The operators will have to introduce new applications and services such as cloud computing to compensate for the continuing fall in revenue from telephone services in fixed network with broadband access, IPTV service, and telephone services in fixed network.

Figure 1.6. Total revenue from telephone services in the fixed network (in HRK millions)



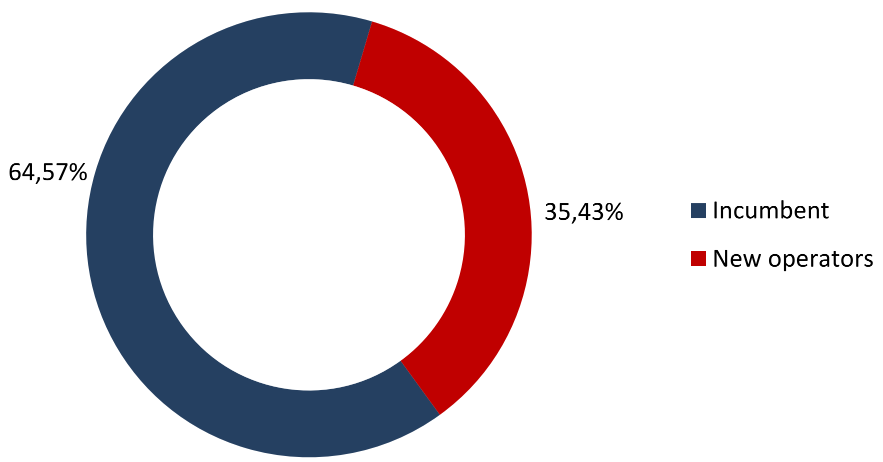
The number of telephone services in the fixed public communications network continued to fall in 2012 by 9.46 percent compared to the year before (Figure 1.7). It is to be expected that the number of users of telephone services in the fixed public communications network in the future period will continue to fall. The fall in the number of users, among other things, depends on the total number of private users of fixed public communications network.

Figure 1.7. Total number of users of telephone services in fixed public communications network[10]



The incumbent kept its leading position in 2012 in the part of the market concerning the provision of telephone services in the fixed communications network.

Figure 1.8. Market share of new operators and the incumbent in relation to number of users

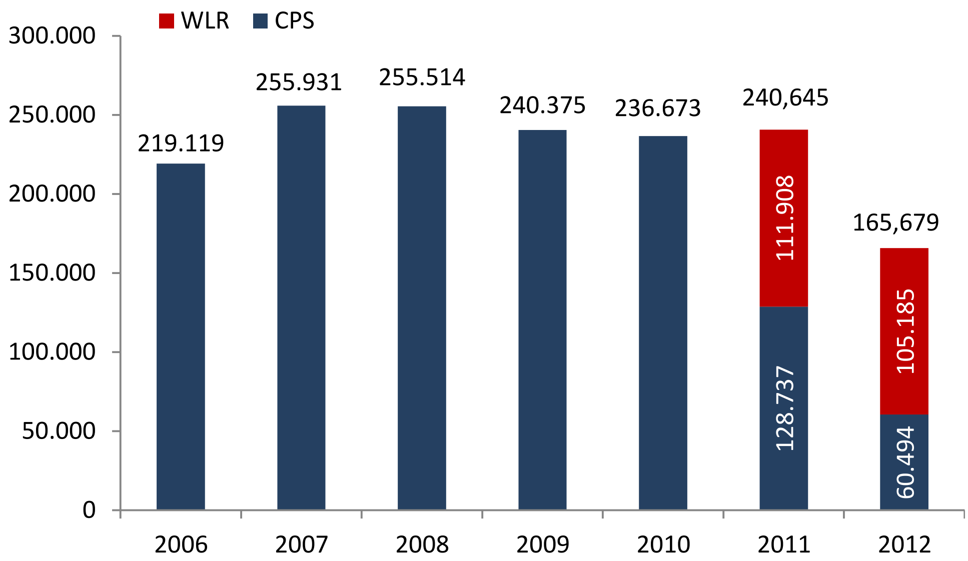


Taking into account the total number of users of telephone services in the fixed public communications network, the share of new operators (including Iskon Internet) decreased at the end of 2012 by 16.34 percent compared to the end of 2011 and amounted to 35.43 percent (out of which the share of Iskon Internet is 5.80 percent). The decrease in the share of new operators in the number of users resulted from problems with the provision of wholesale services, primarily with the wholesale line rental service (WLR). The wholesale line rental service is a very efficient means of market regulation and had a positive impact on the increase in the share of new operators in the number of users in a very short period of time since its introduction. However, problems with the realization of the service of wholesale line rental increased in 2012, which resulted in changes in the

[10] For years before 2011, HAKOM collected only the number of connections (number of B channels) As a single user can have several connections, since 2011, HAKOM has collected and showed the number of users of telephone services in the fixed network since this is considered to be a more realistic indicator.

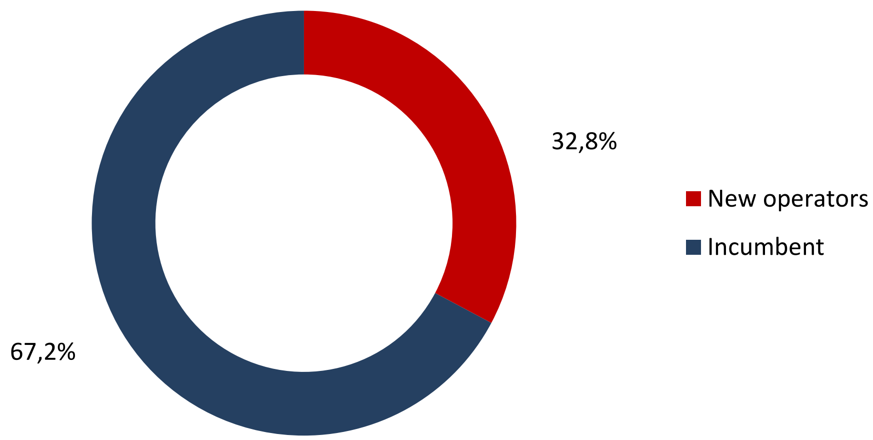
trend so that the significant growth recorded at the end of 2011 was stopped in 2012. The number of users of the service of wholesale line rental amounted to 105,185 at the end of 2012, that is, 6 percent less than at the end of 2011 (Figure 1.9).

Figure 1.9. Total number of users of CPS service



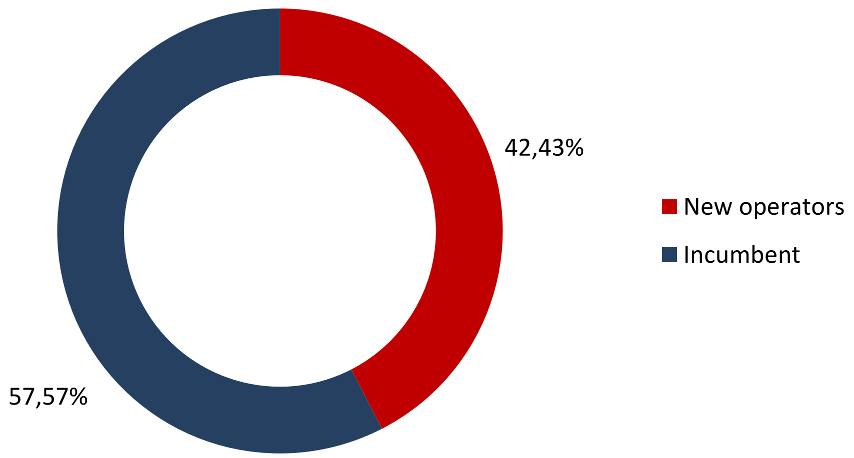
The disproportion between the share in total revenue and the number of users results primarily from three factors. The first one is that new operators offer lower prices, which is why they are more attractive to more prudent users. This fact is illustrated in Figure 1.11. which shows a greater share of the realized traffic of users compared to the share in the total number of users.

Figure 1.10. Market share of new operators and the incumbent in relation to total revenue



The second factor includes relatively unfavourable conditions for the operation of new operators, which has been significantly improved through HAKOM's activities. The third factor refers to the number of operators of fixed public communications network on a relatively small market of the Republic of Croatia. It is expected that new operators will consolidate and grow in the upcoming years.

Figure 1.11. Market share of new operators and the incumbent in relation to total outgoing traffic



1.4.2 Regulatory measures on the market of public fixed network services

In accordance with activities and objectives defined in the 2012 Annual Work Programme, HAKOM initiated a new round of market analyses which are closely related to the provision of a publicly available telephone service in fixed networks and continued with the implementation of the cost models development project that started in 2011.

The new round of market analyses initiated the procedure for the definition of relevant markets subject to ex ante regulation. 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 (final decisions in the mentioned procedure were adopted in May of 2013).

Markets of interconnection and access in the fixed network

New prices for wholesale services of origination and termination of calls on HT's public fixed communications network entered into force in early 2012 and remained in force until 31 December 2012. The price of 0.042 HRK/min for the service of call origination and call termination at local level, and the new price amounting to 0.054 HRK/min for call origination and to 0.062 HRK for call termination at regional level were calculated on the basis of a methodology defined during analyses of relevant markets in 2009. The premise for the calculation of prices was that prices during low traffic should amount to 50 percent of prices of services in periods of peak traffic. The prices for call origination and call termination at the local level recorded a slight increase of 7.69 percent compared to 2011, as well as the call termination service at the regional level of 5.08 percent, while the call origination service at regional level recorded a fall of 8.47 percent compared to 2011. Since it was determined that prices of the interconnection service at the national level have to keep the same ratio to the interconnection prices at the regional level, until they are based on the benchmark value method, operators applied 0.103 HRK/min for origination and 0.120 HRK/min for call termination at the national level.

As part of the regulatory obligation of price control, which was imposed on SMP operators on markets closely related to the provision of the publicly available telephone service in fixed networks, HT was obliged to conduct the price verification for the call origination and call termination services on a certain public fixed communications network every year, while HAKOM is obliged to verify the price. Consequently, interconnection prices were defined in 2012 and have been applied by operators since 1 January 2013. Although the currently valid interconnection prices for call origination, depending on the time of peak or low traffic, amount to 0.04 HRK/min and 0.020 HRK(min at the local level, that is to 0.058 HRK/min (0.029 HRK/min) at the regional level. At the same time, prices for local termination of calls amount to 0.037 HRK/min (0.0185 HRK/min), that is, 0.055 HRK/min (0.0275 HRK/min) for regional call termination. Also, the price for national call origination is 0.111 HRK/min (0.056) HRK/min, and for call termination 0.107kn/min (0.054 HRK/min).

HAKOM calculated the above-mentioned prices for HT but other SMP operators are obliged to apply them as well for traffic taken over at regional interconnection points. The asymmetry amount set for new operators for 2012 was 14 percent (in 2011 it was 28 percent) on the price of the service of regional HT's call termination which is why new operators in 2012 charged 0.071 HRK/min for call termination on their network. Symmetric prices for call termination have been in force since 1 January 2013 meaning that all operators charge the same price now. In a 2009 decision, HAKOM imposed asymmetric prices for call termination, that is, it enabled new operators to charge more for call termination on their own network for three years (until 1 January 2013). According to HAKOM, the use of asymmetric prices for more than three years is not the best solution for further development of efficient competition but should be replaced by cost-oriented prices arising from real cost of the provided service, that is, from cost models (completed by HAKOM in June 2013).

HT must apply the above-mentioned prices until the completion of cost-models, that is, until the date defined by means of a separate procedure for the definition of prices on the basis of real costs and, until then, the wholesale prices of services will be based on the benchmark method[11].

The High Administrative Court confirmed in its judgments[12][13] HAKOM's decision on the analysis and imposition of regulatory obligations on the market of wholesale (physical) network infrastructure access (including shared or full unbundled access) at a fixed location, and the decision on the analysis and imposition of regulatory obligations on operators with significant market power on the market of call termination on individual public communications network provided at a fixed location.

"Local exchange Prečko" pilot project

Further to HT's request and following a public call published by HAKOM in July 2012, a preliminary ruling was adopted in December 2012[14] approving the switching off of the Prečko local exchange in Zagreb by the end of March 2013 for the purpose of implementation of a pilot project to determine wholesale conditions for the switching-off of local exchanges. The procedure for the modernization of electronic communications network which includes switching over from PSTN hierarchy to NGN hierarchy and migration to IMS technology means that local exchanges will be completely switched off and that there will be no more taking over/delivering interconnection traffic on those exchanges. In order to ensure that HT and beneficiary operators may investigate and resolve all issues arising during the switching-off of local exchanges for the purpose of modernizing and rationalizing the network, which is HT's legitimate objective as part of the modernization, HAKOM adopted a preliminary decision defining the manner of access to end users. From the moment of switching-off of local access points, beneficiary operators will be able to get access to interconnection traffic covered by the individual local exchange (which has been switched off), through regional access points. It was also determined that interconnection traffic, from the area of coverage of the

[11] Benchmark method
[12] High Administrative Court's judgment US-10118/2009 (Official Gazette No. 76/12)
[13] High Administrative Court's judgment US-10120/2009 (Official Gazette No. 76/12)
[14] http://www.hakom.hr/UserDocsImages/2012/odluke_rjesenja/VL-AT-OD-OPR-kona%C4%8Dna%20odluka%20jedinstvena%20procedura-v1.pdf

switched-off local exchange and delivered from/to HT's network at the local level, is charged at prices applicable to local interconnection (All the requirements for the switching-off of the Prečko local exchange were fulfilled in April 2009 and it was switched off in April).

Market of network access for operators of special tariff services

The procedure for the definition of the relevant market of network access for operators of special tariff services for the purpose of providing special tariff services started in April 2012. Since the Numbering Plan[15], in the part prescribing the numbering for special tariff services, includes the 076 and 077 numbering ranges (numbering range envisaged for narrowband internet access service) in addition to the 06x numbering range, it was necessary that the procedure for the definition of the relevant network access market for operators of special tariff services includes the market of network access for the purpose of providing narrowband Internet access services. Since the network access market for operators of special tariff services by means of 06x numbers and network access market for operators of special tariff services for the purpose of providing narrowband Internet access service were not defined in the European Commission's Recommendation on relevant markets from the ECA, HAKOM applied the Three criteria test[16].

In September 2012, HAKOM's Council adopted a decision[17] laying down that network access market for operators of special tariff services over 06x numbers and network access market for operators of special tariff services for the provision of broadband Internet access (076 077) is no longer subject to ex ante regulation. This decision revokes regulatory obligations imposed on HT in the part referring to network access for service providers and arising from the Telecommunications Act considering its status of an operator with significant market power on the relevant interconnection market.

Market of publicly available telephone service

In mid-2011, HAKOM's Council adopted a decision identifying the following relevant markets, *the market of publicly available telephone service in local and/or long-distance traffic provided at a fixed location for private users, and the market of publicly available telephone service in local and/or long-distance traffic provided at a fixed location for business users* as subject to ex-ante regulation and a decision designating HT and its affiliated company Iskon as SMP operators on the above-mentioned relevant markets. The mentioned operators were imposed the regulatory obligation of retail price control and the prevention of market entry or restriction of competition by setting low prices of services as well as giving unfair advantage to certain end users of services, which was confirmed by the High Administrative Court in its judgment[18] HT and ISKON are obliged to submit to HAKOM the conditions and prices of their packages to verify their cost-orientation, that is, to check that they are such as not to distort effective competition. Therefore, HAKOM's activities in 2012 were focused on the implementation of regulatory obligations, that is, on the verification of cost-effectiveness of retail prices of the publicly available telephone service in the fixed network of an SMP operator (HT and Iskon Internet).

Because of the regulatory obligation of price control of retail prices of services, which was imposed to HT and Iskon Internet as SMP operators on the markets of access to the public communications network at a fixed location for private and business users and of publicly available telephone service in local and/or national traffic, HAKOM continued to receive prior notifications about prices of

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[15] "Official Gazette" No. 154/09 and 41/12

[16] http://www.hakom.hr/UserDocsImages/2013/analiza_trzista/Pristup%20mreži%20za%20VAS%20operatore-v1.0.pdf

[17] http://www.hakom.hr/UserDocsImages/2013/analiza_trzista/Odluka%20ANALIZA%20VAS%20deregulacija-v1.0.pdf

[18] High Administrative Court's judgment US-8239/2011 (Official Gazette No. 61/12)

services provided by the operators in question on the mentioned markets. These included a total of five prior notifications made by HT, that is, one package for private users and eight packages for business users, that is, two tariff options of a publicly available telephone service in local and/or national traffic for private users and seven tariff options for business users. HAKOM based the analysis of cost orientation of the user service packages and tariff options on traffic data received from operators, on the characteristics of end users, interconnection prices and other associated costs.

In addition to the already mentioned user packages and tariff options of a publicly available telephone service, in 2012, HAKOM received two prior notifications about prices of a total of fifteen new HT's service packages – nine packages for private uses and six packages for business uses. HAKOM based the analysis of cost-orientation of prices of bundled services on data on total and unit wholesale and retail costs of the provision of bundled services by operators, as well as data delivered in regulatory financial statements. In the procedure for the verification of cost-orientation of prices of packages of related services, the Council of HAKOM adopted one partial decision, one preliminary decision and one decision revoking the prices of a total of five service bundles due to the non-fulfilment of the obligation of cost-orientation of prices. Furthermore, one prior notification by Iskon was received for a total of fourteen bundled services (four for private users and ten for business users).

The number of service packages and tariff options for which prior notification was received shows market dynamics and is a confirmation of the appropriate regulation carried out by HAKOM.

Accounting separation

In a 2008 decision, HAKOM imposed on HT deadlines and the manner of implementation of accounting separation and cost accounting in compliance with the document "*Instructions for accounting separation and cost accounting*[19]*"*. This decision imposes on HT, as the SMP operator, the contents and manner of collecting accounting data and the manner of preparing regulatory financial statements in order to ensure equal and transparent competition conditions for all participants in the electronic communications market. HT's activities, for which HT was identified as the SMP operator, were divided into separate business units. This facilitated the analysis of information from the official HT's accounting system and for regulatory purposes.

The keeping and presenting of accounting data separately for regulated services from accounting data for other HT's activities ensures transparency of all wholesale prices charged by HT to other operators for its services and transfer prices charged by HT to its retail arm and affiliated companies.

Furthermore, in March 2012, HAKOM's Council gave its consent to the regulatory accounting documentation based on CCA/LRIC [20] methodology. In accordance with the Council’s decision and documentation for which the consent was granted, HT submitted revised regulatory financial statements based on CCA/LRIC methodology in September 2012. The purpose of current cost accounting is to provide useful, reliable data, which the historical cost accounting may not provide since it does not take into account the changes in prices, that is, inflation effects. Furthermore, current cost accounting takes into account current conditions on the market in terms of prices and technology. In that sense, the value of assets on the basis of current costs reflects its value for overall business operations, which results in a net cost base and profitability level that might be expected in conditions of full competition.
Telephone services in the mobile network

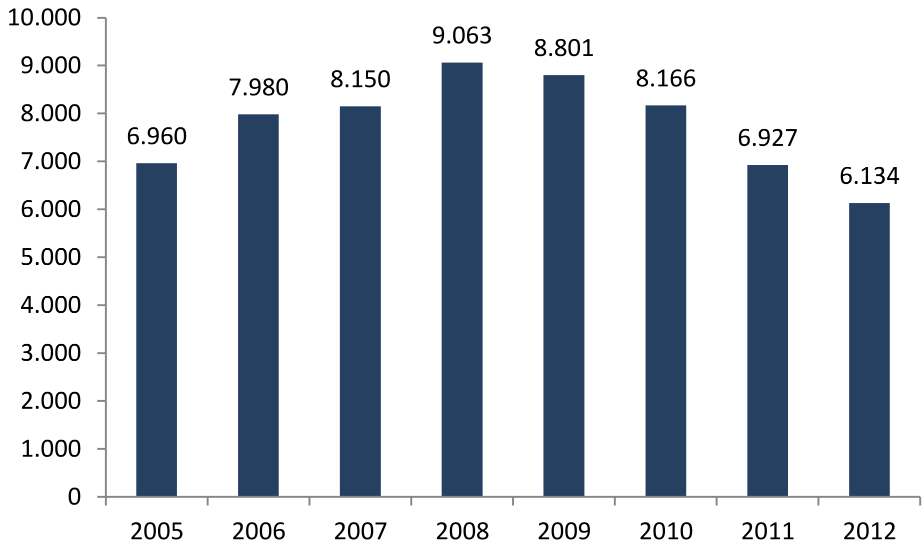
19 http://www.hakom.hr/userDocsImages/dokumenti/Naputci%20za%20računovodstveno%20odvajanje%20i%20troškovno%20računovodstvo.pdf

20 CCA/LRIC-Current Cost Accounting/Long Run Incremental Cost

1.4.3 Overview of the market of public mobile communications networks

Changes in total revenue in the last seven years show that the global economic crisis has a strong impact on the mobile communications market. The growth of total revenue on the mobile communications market was last recorded in 2008 followed by a downward trend in total revenue from telephone services in the mobile public communications network. Around 11 percent lower revenue was recorded at the end of 2012 compared to the end of 2011. The year 2012 was characterized by new, more affordable tariff packages for many end users, which influenced the final revenue of operators. Tele2's intention to attract new users by new tariff packages with lower prices for calls and a significant amount of free airtime and to increase revenue was reciprocated by the two remaining operators with similar tariffs. New tariffs only managed to increase total outgoing traffic without any significant impact on the total revenue. Drop in total revenue at the annual level could not be stopped in spite of the repeal of the law on fees for the provision of services in mobile networks (amounting to 6 percent of revenue from voice service, SMS and MMS) in the middle of the year.

Figure 1.12. Total revenue from telephone services in the mobile network (in HRK millions)



Currently the majority of revenue of operators of mobile public communications networks is based on telephone services. However, the increasing popularity of the so-called smart phones, which are squeezing out the traditional mobile devices, created greater demand for the use of broadband access service in mobile public communications networks.

The market of mobile communications is well developed in the RoC, which does not necessarily mean that there is no need to improve quality, prices and diversity of services. In order to increase revenue in spite of the continuous fall in prices, operators will have to offer broadband access and new services in compliance with user requests and desires with a view to encouraging greater spending per average user. In the majority of countries, including the RoC, user penetration is more than 100 percent in relation to the number of inhabitants (Figure 1) and will not grow forever. Croatia even recorded a decrease in the number of users in the last two years. The number of users of telephone services in the mobile network at the end of 2012 fell by 2.81 percent compared to 2011 (Figure 1.14).

Figure 1.13. User penetration in public mobile communications network in the EU

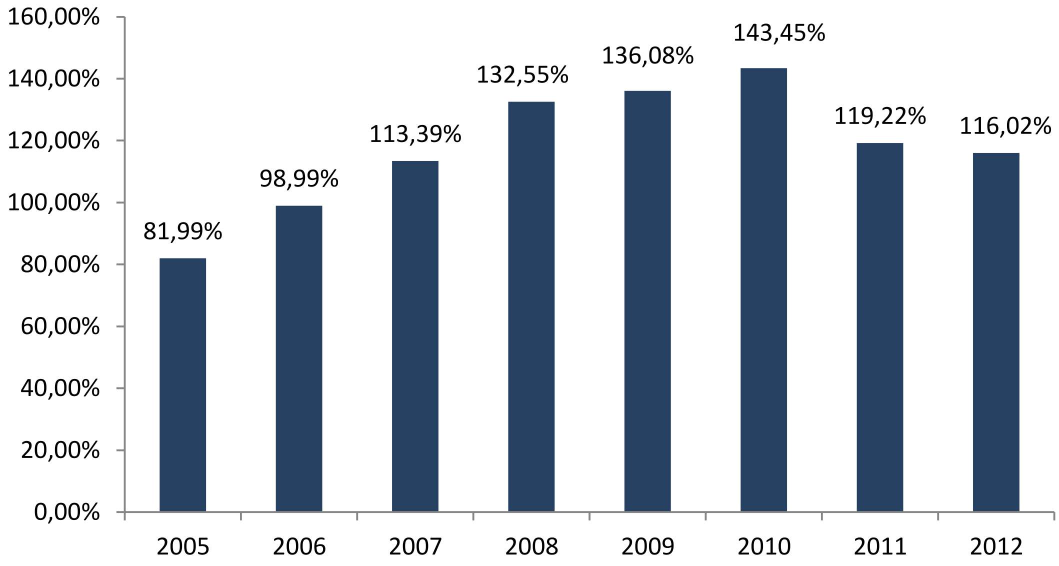
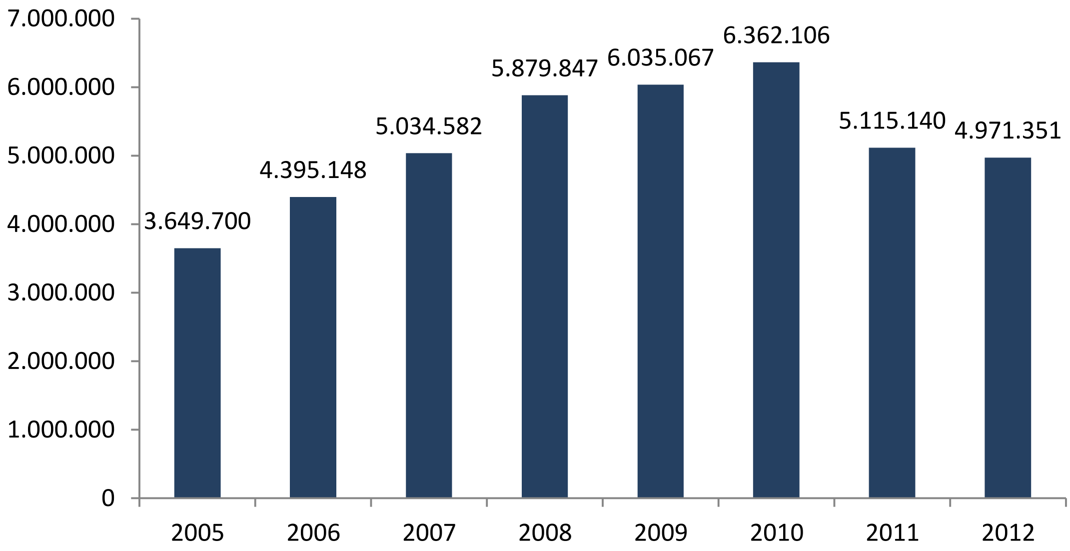


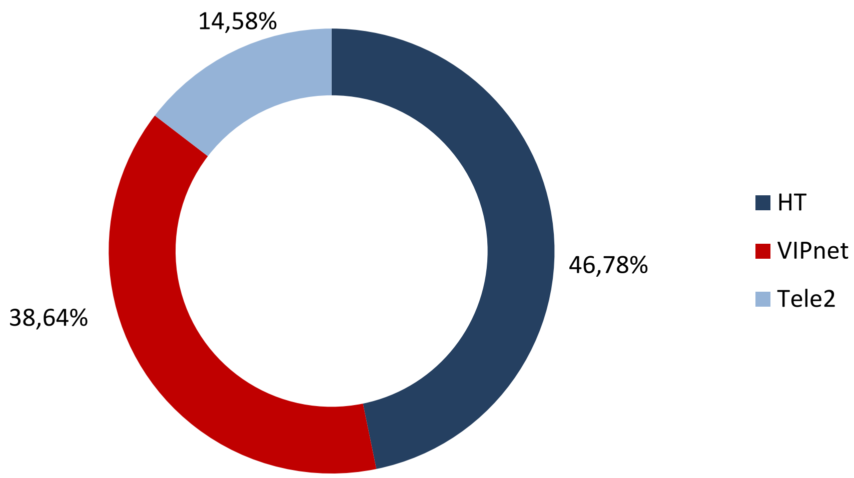
Figure 1.14. Number of users of telephone services in the mobile network



While the decrease in the number of users at the end of 2011 (compared to 2010) primarily resulted from the change in the manner of collecting data by HAKOM, the decrease in the number of users at the end of 2012 was mostly caused by the fact that the majority of users, who used two or three different SIM cards at the same time, decided to use only one SIM card or one operator in 2012. The introduction of new tariff bundles for users of public communications services which include a significant amount of free minutes and data traffic in the tariff, as well as lower or same prices of telephone calls towards other national mobile and fixed networks made it unnecessary to use several different SIM cards. Savings resulting from calls within the same network were no longer sufficient to justify multiple payments of fixed costs (radio frequency fees, additional device etc.) and many users decided to use only one operator. Consequently, it may be said that the decrease in the number of users at the end of 2012 is only apparent since those users never stopped using services in the mobile network or substituted them for another service but only changed their habits in order to save.

HT maintained its leading position in the retail market in all three segments under observation (Figures 1.15, 1.16 and 1.17) while the third operator Tele2 significantly increased its market share compared to the same period of 2011 in relation to total outgoing traffic. This is due to the introduction of new service packages which significantly reduced the prices of calls to other networks.

Figure 1.15. Market shares of operators in relation to number of users



With the introduction of a tariff with lower prices of calls and significant amounts of "free" minutes, text messages and data traffic included in the tariff, Tele2 managed to increase its market share and encourage its competition to reciprocate by offering their retail services under more favourable conditions. This resulted in the offer of new, better quality and, for many users, more affordable products from which, eventually, the operators themselves benefited the most.

The reasons for the development of this market segment include, in the first place, the lowering of prices of telephone services in the mobile network as a result of existence of the third operator of public mobile communications network, which means more competition, as well as greater use of services in mobile than in fixed public communications networks.

Figure 1.16. Market shares of operators in relation to revenue

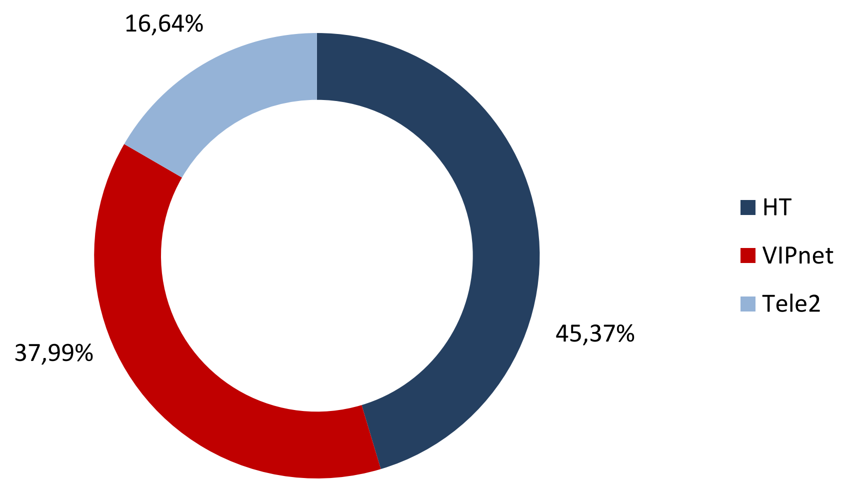
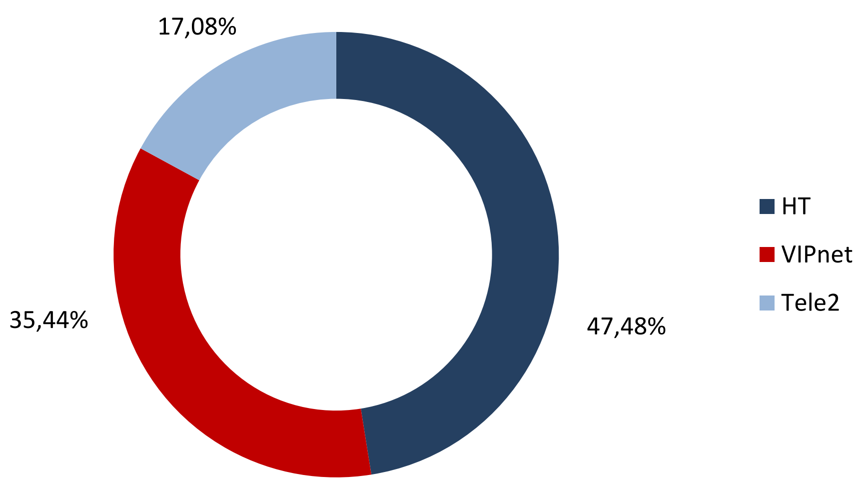


Figure 1.17. Market shares of operators in relation to outgoing telephone traffic



The increase in the third operator's share was influenced by, *inter alia*, HAKOM's regulatory decisions concerning the introduction of asymmetrical prices of 10% for call termination on the network of the third operator of the public mobile communication network for the entire 2012. Decisions were adopted in order to create a structure aiming towards the development of sustainable competition. As a result of its regulatory activities, HAKOM created such conditions on the upstream wholesale markets that operators were able to offer more attractive packages at lower retail prices, in order to attract end users.

1.4.4 Regulatory measures on the market of mobile network services

Since three years have passed from the adoption of decisions on completion of market analyses, in 2012 HAKOM started with the definition of relevant markets subject to ex ante regulation. In 2009, as part of the first round of market analyses, HAKOM identified the relevant market of call termination on an individual public communications network and, on the basis of criteria necessary for assessing SMP operators, it defined t-Mobile[21], Vipnet and Tele2 as operators with significant market power and imposed regulatory obligations on the basis of the identified obstacles on the market. This was elaborated in detail in the document *"Analysis of the market of call termination on an individual mobile public communications network"*[22] (final decision in the "second round" of market analyses was adopted in June 2013).

Market of call termination on an individual mobile public communications network

HAKOM's activities on the market of call termination on an individual mobile public communications network were focused on amending wholesale conditions pursuant to the 2009 decision, market interests and further development of competition. In accordance with the methodology defined by the analysis of the relevant market, operators with significant market power must set prices at the European average until HAKOM is able to apply cost-oriented prices. The price of call termination on HT's or Vipnet networks for 2012 was set at HRK 0.301 per minute, while, due to a 10 percent asymmetry, the price of call termination on Tele2's network totals 0.331 HRK per minute. The mentioned prices for HT and Vipnet are lower by around 24 percent compared to 2011, and for Tele2 about 30.31 percent (compared to the second half of 2011).

In order to ensure more favourable wholesale conditions and considering significant differences between Tele2 and HT and Vipnet, HAKOM determined the price for call termination on the network of operator Tele2 as a percentage amount added to the price for call termination which was imposed on HT and Vipnet. In accordance with the 2009 market analysis, since early 2010 Tele2 has been charging the price for call termination service on its own network 30, 20 and 10 percent higher for each subsequent year. Price asymmetry ends on 1 January 2013 (application of asymmetric prices for a period exceeding three years does not promote further development of efficient competition). Call termination prices based on cost-oriented prices and arising from actual costs of the provided service, that is, from cost models, constitute a much better basis for market development.

Until the completion of the project for the development of cost models that will enable the implementation of the principle of cost-orientation of prices, the obligation of price control will be based on the benchmark method, that is, starting from 1 January 2013 SMP operators, HT, Tele2 and Vipnet will apply the call termination price amounting to 0.195 HRK/min (cost model was completed in June 2013 and operators will apply the price based on the cost model since 1 July 2013).

Roaming regulation

The most recent so-called EU Roaming Regulation III (*Regulation No 531/2012 on roaming on public mobile communications networks within the Union*) entered into force on 1 July 2012. This Regulation is the third in a row since 2007 adopted by the EU with a view to resolving the problem of high prices of roaming in the EU member states which are slowing down the establishment of the single European market and gradually aligning roaming prices with national prices.

The Roaming Regulation III envisages further annual decrease of wholesale and retail roaming prices in the EU by 2016. The Regulation also prescribes the obligation of transparency towards end users, that is, at the moment of entry of users into a country, operators must notify them about the prices of roaming services in that country. This obligation also includes automated notification of users when they reach a certain spending limit for data services after which the user is unable to use the services, unless explicitly approved by the user.

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[21] Legal predecessor of the company HT d.d. since 1 Januay 2010. T-Mobile merged with HT

[22] http://www.hakom.hr/UserDocsImages/2012/analiza_trzista/Odluke_i_rjesenja_analize_2009/Analiza%20tržišta%20završavanja%20poziva%20u%20pokretnoj.pdf

In addition to the previously mentioned measures for restricting the prices of roaming and transparency obligations, for the first time, EU Roaming Regulation III introduces the so-called structural measures aimed at increasing competition on the roaming market. One of the structural measures is providing wholesale access to providers of roaming services and the obligation to sell roaming services separately from services in domestic traffic since 1 July 2014.

With a view to familiarizing the operators with the obligations from the Roaming Regulation III, and for the purpose of easier alignment with the Roaming Regulation III that must be applied by Croatian mobile network operators on the date of accession of the RoC into the EU, HAKOM started organizing regular workshops with operators of mobile networks in 2012. HAKOM also participates in the work of BEREC, the body of European regulators, which deals with the preparation of guidelines for the implementation of obligations arising from Roaming Regulations. Since the latest Roaming III regulation envisages the introduction of a series of structural measures that should result in the improvement of competition on this part of the market, there is a series of open issues on the manner of implementation of the obligation of open sale of roaming services. HAKOM actively participated in the discussions on all open issues as part of BEREC and notified national mobile network operators thereof in order to assist them in fulfilling their obligations in the best possible manner.

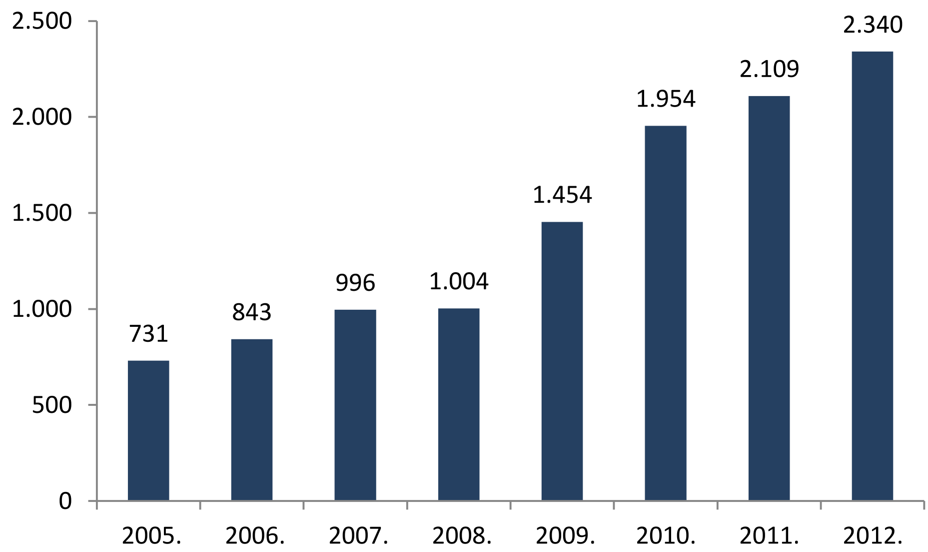
Furthermore, HAKOM started monitoring the process of preparation of mobile network operators for the implementation of obligations arising from the Roaming Regulation III. As part of preparations for the implementation of the Roaming Regulation III, HAKOM's representatives held a preparatory meeting with representatives of the European Commission in October 2012. Meetings continued in the first half of 2013. In order to facilitate the signing of new roaming agreements between Croatian mobile network operators and operators in the EU member states, which are a precondition for the implementation of the new Roaming Regulation III, HAKOM sent an official letter in December 2012 via BEREC to all regulatory authorities in the EU and they forwarded it to operators in their own countries reminding them that the RoC will become the EU Member State on 1 July 2013 and that the existing agreements between operators in those countries and Croatian mobile network operators need to be corrected in that sense. The accession to the EU will bring a significant fall in roaming prices that will enable Croatian citizens to make phone calls and use data traffic abroad at lower prices.

1.5 Internet access service

1.5.1 Overview of the Internet access market

Internet use is a necessary part of modern society and indispensable for the development of information society. The technological basis of an information society is an electronic communications infrastructure based on broadband Internet access. The newest broadband services (online education, IPTV, cloud computing, working from home and other) require certain transfer capacity which may be achieved by means of optical access infrastructure and appropriate next generation wireless technologies. The continuous growth of this segment of the market is demonstrated through continuous increase in total revenue (from Internet access service) and in the number of connections in the previous years. Total revenue increased in 2012 by 10.95 percent compared to 2011 and amounted to HRK 2,340 million.

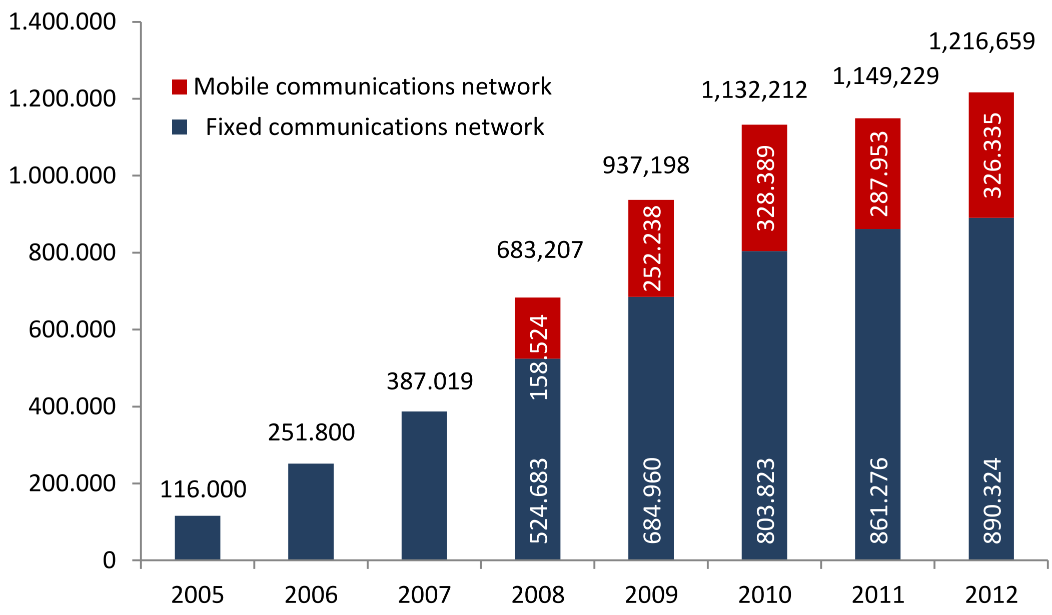
Figure 1.18. Total revenue from Internet access services (millions of EUR)



The total number of broadband connections in the RoC in 2012 amounted to 1.216.659 , which is 5,87 percent more than in 2011. Broadband access is one of the basic needs of today's world and mobile broadband plays a very important role in its development, which is illustrated by a constant rise in the number of mobile broadband users. After ADSL access via copper pair ,mobile broadband is the most widespread Internet access method. 326,335 broadband connections were recorded at the end of 2012 exclusively for data services over mobile networks[23] which is 13.33 percent more than at the end of 2011. From the technological point of view, a significant increase in the number of mobile network connections is the result of the acceptance of 3G high-speed access technology. The reasons for that may be found in the increase of traffic, affordable prices and a large number of available devices. However, development is fostered by the users' desire to always have Internet access wherever they are.

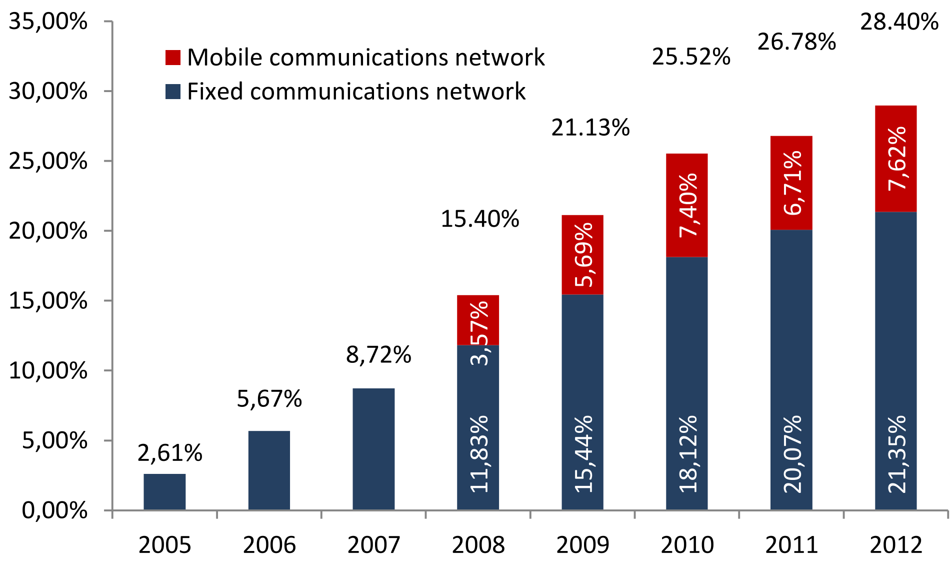
[23] Number of connections based on data SIM cards (USB, PC cards)

Figure 1.19. Number of broadband connections



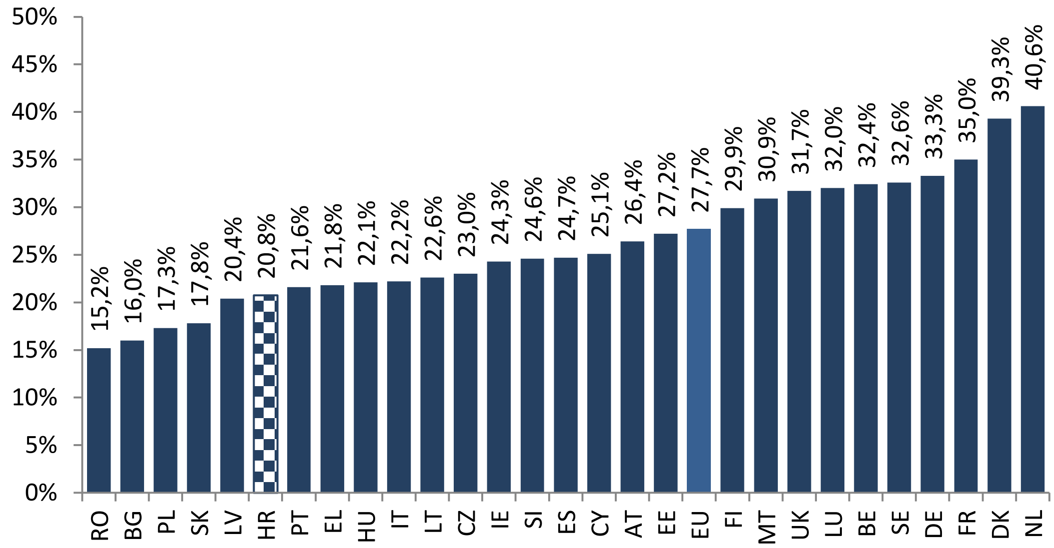
The broadband penetration rate is the main indicator of broadband development.. This indicator shows the share of broadband connections in the total population.

Figure 1.20. Broadband penetration rate



According to collected data, the number of mobile broadband connections at the end of 2012 was 890,324, which means that the average broadband penetration rate is 20.78 percent. If mobile broadband connections, the penetration rate of which is 7.63 percent, are added to this number, the total penetration rate of broadband connections in mobile and fixed networks reached 28.40 percent at the end of 2012. Figure 1.20 shows the penetration of broadband connections in the RoC in the period between 2005 and 2012.

Figure 1.21. Fixed broadband penetration rate in the EU and RoC



According to the broadband penetration rate in the fixed network, the RoC is among less developed countries compared to the EU member states[24]. Regardless of the increase in the number of users, there is still room for a stronger growth in this segment. This type of growth in the RoC is necessary, *inter alia*, because of the possible widening of the digital divide between the Roc and the Member States.

The comparison of indicators for broadband access over mobile networks has ranked Croatia among the top half of the EU Member States, that is, according to this indicator, Croatia is among more developed European countries.

Figure 1.22. Data cards broadband penetration rate in the EU and RoC

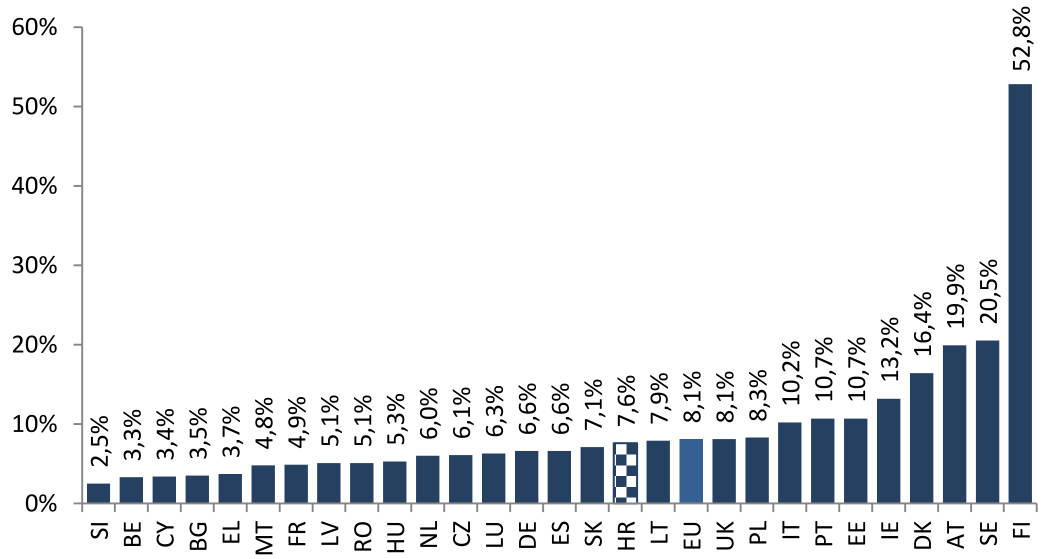
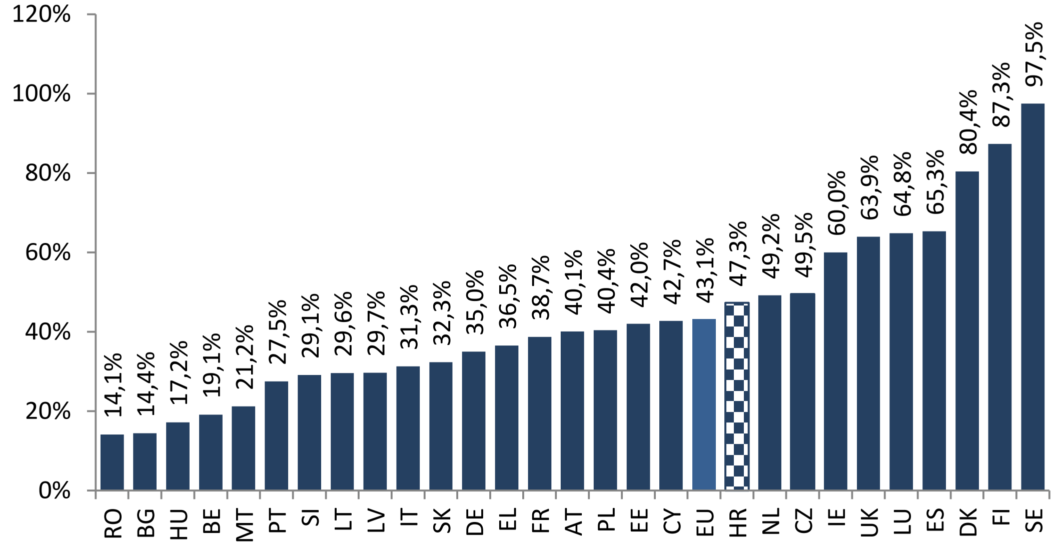


Figure 1.22 illustrates the position of the RoC compared to the EU Member States according to the penetration rate of connections used for Internet access via data cards, and Figure 1.23 shows its position according to all active users who accessed the Internet over mobile networks.

[24] Source of data for EU member states: European Digital Agenda Scoreboard 2012. Data refer to January 2012

Figure 1.23.[25] Mobile broadband penetration rate (all active users) in the EU and RoC[26]

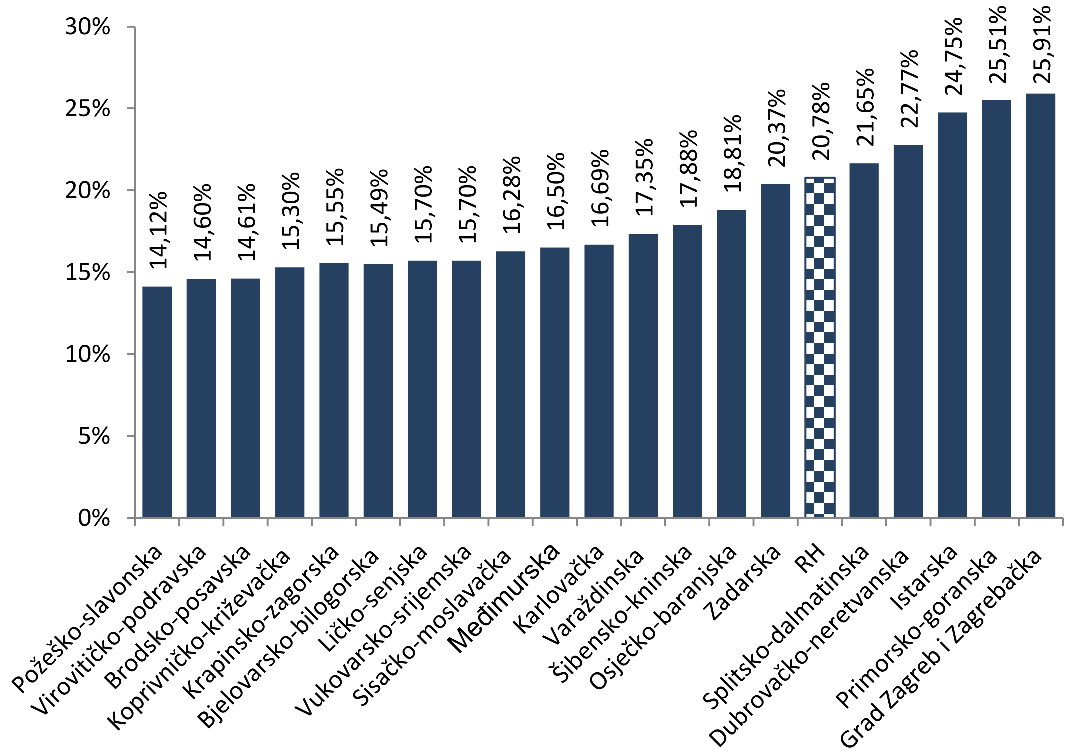


The total number of Internet users and the broadband penetration rate in the EU Member States and the RoC is growing. However, there are differences in the share of broadband connections in individual countries, and differences between individual regions in countries, depending on whether the part of the country is urban or rural. As much as the availability of broadband Internet access is increasing on a regular basis, some regions (rural areas, islands etc.) can hardly expect to have broadband access in the near future without an active involvement by the state in broadband penetration projects.

There are significant regional differences in the RoC in relation to the number and penetration of broadband connections in the fixed network and it currently represents an even greater challenge than the increase in broadband penetration at the national level. The biggest penetration was recorded in the City of Zagreb and in the County of Zagreb, while Požeško-Slavonska County has the lowest penetration rate. On the basis of fixed broadband penetration rate of 20.78 percent, it may be concluded that fixed broadband penetration is below average in the majority of Croatian counties.

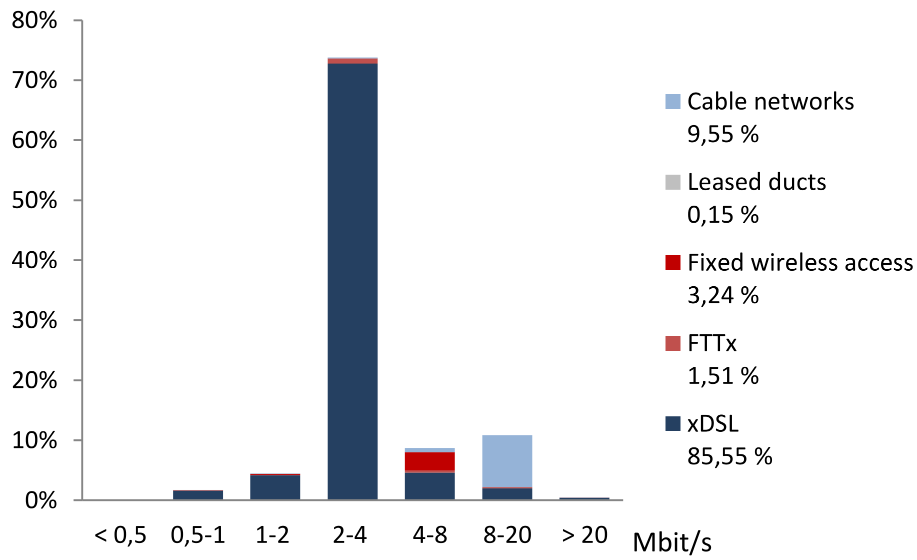
[25] Source of data for EU member states: European Digital Agenda Scoreboard 2012. Data refer to January 2012
[26] Data for RoC at the end of 2012 is 53.51%

Figure 1.24. Fixed broadband penetration rate in the RoC per county



Broadband Internet access may be achieved by means of different technologies: xDSL access over copper pair[27], cable access, mobile access, fixed wireless access, leased lines access, fibre to the x - FFX access and satellite access.

Figure 1.25. Share of broadband connections according to access technology and connection speed



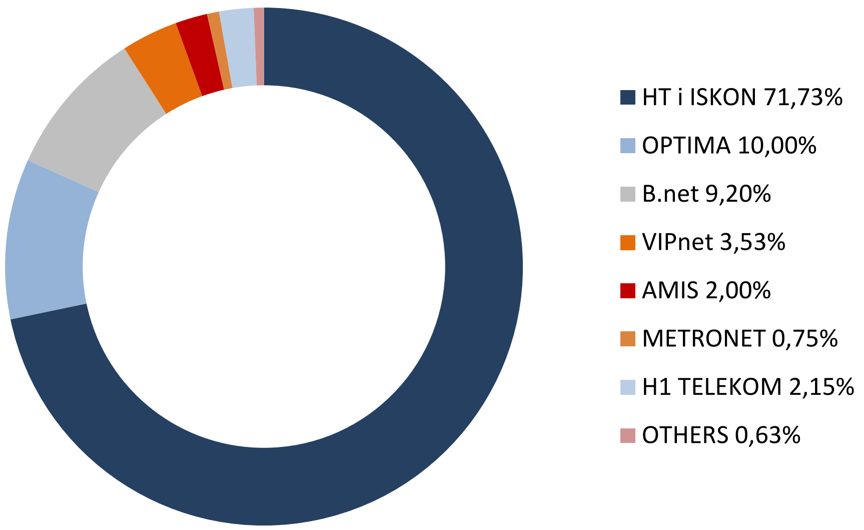
In terms of technical presence, broadband access over xDSL technology[28] provided by the majority of operators is dominant in the RoC. This type of access satisfies immediate needs of users but does not

[27] ADSL, VDSL, and their varieties

[28] ADSL (*Asymmetric Digital Subscriber Line*) is the name for a subscriber line (DSL) where data transfer speed towards the user is higher than the other way around.

allow for any significant changes in availability of broadband Internet and access speed. The most prevailing access technology in relation to distribution of the number of access points for broadband Internet access in fixed communications network in the Republic of Croatia is ADSL, which is represented by 85.55 percent. Out of other access technologies, cable access is represented by 9.55 percent, as illustrated in Figure 1.25

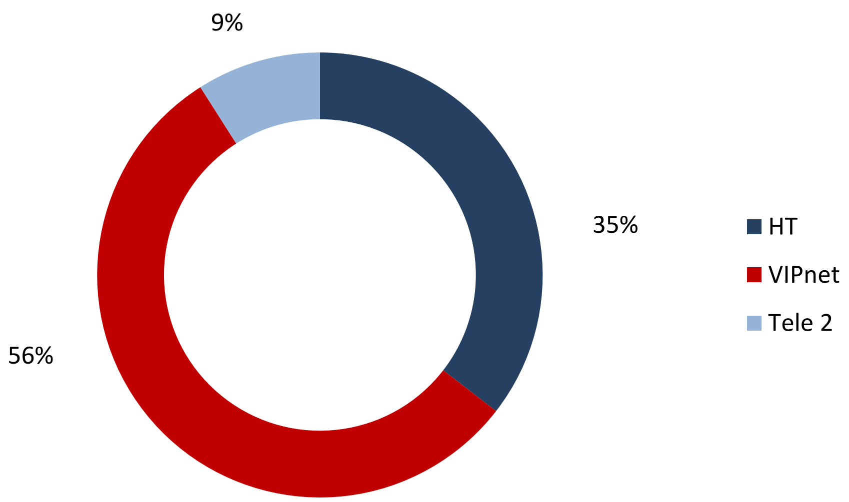
Figure 1.26. Distribution of fixed broadband connections per operator



Although HT and ISKON lost a part of their market share in the previous period, this did not have a significant impact on the position of operators on the market, that is, on their market power. HT and Iskon had the largest market share at the end of 2012 which amounted to 71.73 percent according to the collected data, while the market share of other operators amounted to 28.27 percent.

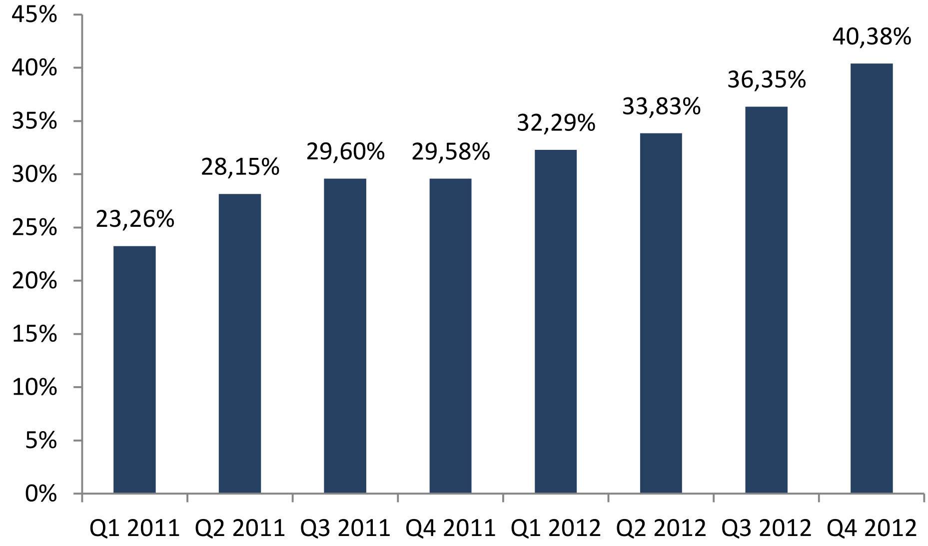
A decreasing trend in relation to HT and Iskon's market share (5.8 percent less than the year before) shows that the market is gradually becoming more competitive. However, it is also obvious that HT and its affiliated company, Iskon, still have significant market power.

Figure 1.27. Distribution of mobile broadband connections per operator



Operators nowadays usually offer bundled services (2D, 3D, 4D) - single access: bundled voice, data and TV.

Figure 1.28. Share of the number of users of bundled services in the number of fixed broadband connections per quarter



The total number of users of bundled services amounted to 359,527 which is 40.38 percent of the total number of fixed broadband connections. Figure 1.28 illustrates user preferences, that is, a high market potential of the Croatian market offered to operators for bundling services to be offered to end users. Since this is cheaper and more affordable from the users' point of view, it is to be expected that the number of users of packages, and of operators' promotional offers, will increase.

1.5.2 Regulatory measures on the Internet access market

A precondition for the use of the broadband Internet access service by the end user is the existence of a certain infrastructure up to the end user's location. Operators may build their own infrastructure to the end user or may use wholesale services of the former incumbent to provide retail services. The necessary capital investments for building and putting to use of access network infrastructure are high and require a reasonable rate of return on the invested funds. Market entry requires significant investments from new operators mostly in the form of sunk costs[29] that operators will not be able to recover in case of market failure or exit the market. However, the previous period was marked by the growth of broadband access in the RoC and in the world. The development of this segment of the market is caused by stronger competition between operators and by regulatory measures imposed by HAKOM in the interest of both operators and users, which, through a series of regulatory decisions on the wholesale broadband access market, created conditions for further development of competition.

Market of wholesale access to network infrastructure

HAKOM's activities in 2012 were primarily focused on monitoring the implementation of regulatory obligations imposed on the operator with significant market power (HT) in the previous years. HAKOM has also started the second round of the analysis of the market of wholesale access to network infrastructure (final decision for the market of wholesale access to network infrastructure was adopted in June 2013).

Market of wholesale broadband Internet access

The High Administrative Court adopted a judgment[30] confirming HAKOM's decision from the first round of analyses and imposition of regulatory obligations on the market of wholesale broadband access, and HAKOM initiated the second round of analysis of the market of wholesale broadband Internet access (the final decision on the mentioned market was adopted in June 2013). Activities on this market mostly focused on the achievement of the already established principles and objectives of regulation of the electronic communications market and on the amendment of regulatory obligations imposed on HT as the SMP operator on the market of wholesale broadband access.

Consequently, in 2012, HAKOM completed the amendment procedure of HT's Reference Offer for the wholesale broadband access service concerning the wholesale ADSL transport service. Following the analysis of the market of wholesale broadband access in 2009, HT was imposed the obligation to provide the wholesale ADSL transport service and wholesale ADSL access service as a joint bitstream access service. HAKOM ordered the withdrawal of the ADSL transport service as a separate service. HAKOM expected HT and beneficiary operators to agree upon the migration to the bitstream access service which is why it did not specify the deadline for the migration of users.

In its decision on amendments to HT's Reference Offer for wholesale broadband access, the Council specified 1 July 2012 as the final deadline for the migration of users from ADSL transport service since beneficiary operators had enough time to carry out the migration of all users from the ADSL transport service to bitstream access service (almost three years after the adoption of the analysis and provisions on the withdrawal of ADSL transport service). Upon request of beneficiary operators, in order to leave enough time to beneficiary operators and to HT for technical and other preparations and to enable gradual migration, the deadline for migration was extended until 30 June 2013 by a decision from May 2012. After this date, HT will not be able to provide the wholesale ADSL transport service to beneficiary operators and operators will not be able to provide the independent

[29] sunk costs
[30] High Administrative Court's judgment US-10117/2009 (Official Gazette No. 55/12)

ADSL transport service to their end users. An exception are contracts concluded by 30 May 2012 on the basis of a public tender enabling the continuation of use of ADL transport service until the expiry of individual contracts. HT is obliged to enable the termination of the contract without the payment of the fee for early termination of subscription for ADSL access for end users for which the beneficiary operators submitted a correct request for the wholesale broadband service. HT is obliged to enable the termination of the contract without the payment of the fee for early termination of subscription since the retail ADSL service was a precondition for the end user to be able to use the retail Internet access service based on the wholesale ADSL transport service.

The decision from November 2012[31] changed the conditions for services at the OLT level on the basis of the FTTH solution in the Reference Offer for Wholesale Broadband Access. The purpose of the mentioned amendments was to facilitate bistream access at OLT level. Until now, HT built the optical access network on the basis of point-to-multipoint topology. Since local loop currently cannot be unbundled if the above-mentioned topology was applied in the access optical network, HAKOM believes that the service of wholesale broadband access at OLT level is an appropriate substitute for the service of unbundled local loop until the development and/or introduction of other technical solutions. Due to previously built collocations for the purpose of unbundling of local copper loops, the service of wholesale broadband access at OLT level represents an appropriate manner of migration towards FTTH network while securing former investments and principles of regulatory predictability and keeping the achieved position at the investment ladder. Furthermore, by using the above-mentioned wholesale service operators have more space for retail margins on the bitstream access service at IP access level.

The same decision amending the Reference Offer for Wholesale Broadband Access was amended by incorporating conditions for broadband access service on the basis of vDSL technology (so that beneficiary operators could be informed on time about all technical conditions for the provision of services by means of VDSL technology). In this manner, operators were allowed to prepare their equipment for the provision of services to end users. Amendments were introduced on the basis of HT's proposal and operators' comments since HT requested for amendments to be able to provide services over the VDSL technology at the retail level and to offer identical download and upload access speed at the same prices as over the ADSL technology. HT will not automatically migrate users to VDSL technology but each new user needing individual services or a combination of services with access speed of 5 Mbit/s will be realized over VDSL technology. Migration will be possible if the user is in the area covered by the central location where VDSL is available and if the user is at the same time at the short loop (up to 1000m). Furthermore, services over VDSL technology will be provided to the existing users as well who will have to change their packages to achieve the sum of download speed for broadband services of at least 15 Mbit/s and meet the requirements for VDSL realization of service. The same rules will be applied at the wholesale level if the operator requests for the realization of services by means of VDSL technology. VDSL provides end users with a high-speed data transfer at shorter distances compared to data transfer over ADSL.

Retail broadband access market

Since it was established on the basis of the Three Criteria Test that all three criteria have been cumulatively met on the retail broadband access market, that is, the presence of high and non-transitory market entry barriers of structural, legal or regulatory nature on these markets, a market structure which does not aim towards the development of effective competition within a certain time framework and that the application of relevant competition legislation alone does not make possible the elimination of market entry failures concerned, the retail broadband access market was identified as the market subject to ex ante regulation.

[31] http://www.hakom.hr/UserDocsImages/2012/odluke_rjesenja/IZ-AT-OD-HT-Izmjena%20BSA%20ponude%20-%20201211107.pdf

The final decision in this procedure was adopted in March 2012[32] and HT and ISKON were designated as SMP operators on the retail broadband access market and on the related pay-TV market . After the designation of the SMP operator on the basis of barriers that may appear on the market in question, regulatory obligations were imposed on HT and its affiliated company Iskon. For the purpose of control of retail prices of services, regulatory obligations of prohibition of market entry or restriction of competition by setting too low prices of services, prohibition of giving an unfair advantage to end users of services and prohibition of unjustified linking of certain types of services were imposed and measures of control of individual prices of services and cost-orientation of prices of services were imposed for the purpose of monitoring the implementation of regulatory obligations on HT and ISKON. In addition to these regulatory obligations, rules for promotional offers related to the retail broadband access service were set prohibiting the operators to repeat promotional offers for the same services during one calendar year, and amounts of benefits were limited in relation to the retail price of the contracted service. Measures, manner, conditions and deadlines for the implementation of regulatory obligations were laid down in the document "*Analysis of the retail broadband access market*"[33]"

The procedure for the verification of cost orientation of prices of the existing broadband access and IPTV services was initiated in 2012, and the analysis was based on data from all HT's regulatory financial statements for 2011 and the revised financial statement of Iskon Internet from 2011. HAKOM completed the procedure in April 2013.

The number of service bundles and tariff options for which prior notification was received shows market dynamics and is a confirmation of the appropriate regulation carried out by HAKOM on the electronic communications market.

Strategy for Broadband Development in the Republic of Croatia

The Strategy for Broadband Development in the Republic of Croatia for 2012-2015[34] was intended for the economy, civil society, state administration bodies and other public administration bodies, research and educational institutions, that is, all participants on the electronic communications market that are involved or will be involved in the development and promotion of information society. The Strategy defines strategic objectives for the development of broadband networks and services as one of key branches of economic development. The main objective of this Strategy is to create preconditions for accelerated development of infrastructure for broadband Internet access and of services requiring high access speed, as a basis for further development of information society and knowledge society while ensuring the availability of broadband access services under equivalent conditions in the entire territory of the Republic of Croatia.

The Implementation Programme for the Strategy for the period 2012 - 2013[35]defines state administration bodies and other public bodies competent for the implementation of the Strategy and elaborates a total of 21 measures with the relevant activities for the implementation of the Strategy's objectives, according to competent authorities for the implementation of measures, expected outputs, success indicators, sources and amounts of the necessary funds. HAKOM has been entrusted with the following measures:

- Measure No. 1 - *Ensuring access to data about the existing electronic communications infrastructure and available electronic communications capacity in the Republic of Croatia;*

[32] http://www.hakom.hr/UserDocsImages/2012/odluke_rjesenja/IZ-PP-OD-OPR-odluka%20za%20analizu%20tržišta%20MŠPI-v1.0.pdf
[33] http://www.hakom.hr/UserDocsImages/2012/odluke_rjesenja/IZ-AT-AN-OPR-Analiza%20tržišta%20maloprodaje%20širokopojasnog%20pristupa%20Internetu-v1.0.pdf
[34] http://www.mppi.hr/UserDocsImages/VRH-Strategija-sirokopojasni-pristup2011.pdf
[35] http://www.mmpi.hr/UserDocsImages/Strategija-DTV-novo%2010.pdf

- Measure No. *2 - Ensuring preconditions for RF spectrum allocation in the 790-862 MHz band (digital dividend) for broadband access on a technologically neutral basis;*
- Measure No. 3- *Increasing the availability and speed of broadband access over the existing copper network in accordance with the analysis of the relevant market of wholesale network infrastructure access - the measure is not in compliance with the deadlines and the plan,*
- Measure No. 4 - *Building of multipurpose and multiuser centres in areas of special state concern, mountainous areas and islands - A total of HRK 463,076.80 million was awarded (109 target users)*,
- Measure No. 11 - *Continuous monitoring of possible difficulties related to network neutrality, such as user complaints against blocking or slowing-down of internet access:*
- Measure No. 20 - *IPv6 forum.*

HAKOM launched the Programme for the development of a broadband ecosystem with a view to aggregating the allocated measures and the internal initiatives with a defined project structure and project teams and systematic monitoring of the execution of activities and coordination with other stakeholders. The objectives of the programme include the fulfilment of the allocated measures from the Implementation Programme of the Broadband Development Strategy and further improvement of the regulatory framework and creation of preconditions necessary for promoting investment projects for the development of broadband access in the Republic of Croatia.

In 2012, HAKOM fulfilled Measure No. 2 (digital agenda was allocated in October 2012 to HT and Vipnet) and Measure No. 11 (Certified tool for measuring broadband speed "HAKOMetar" put into operation on 5 November 2012).

Inspection supervision

In November 2012, following the completed procedure for inspection supervision over HT for violation/non-fulfilment of the obligation of access to and use of special network facilities that was imposed on the wholesale broadband access market, it was established that HT did not act in compliance with the obligations from HT's Reference Offer for the wholesale broadband access service, that is, did not allow to H1 to realize the service of wholesale broadband access within the prescribed time limits to connect 22 users, to OT-Optima Telekom to realize the service of wholesale broadband access to connect 2 users and to VIPnet to realize the service of wholesale broadband access to connect 2 users. In this manner it violated the regulatory obligation of access to and use of special network facilities imposed during the analysis of the relevant market.

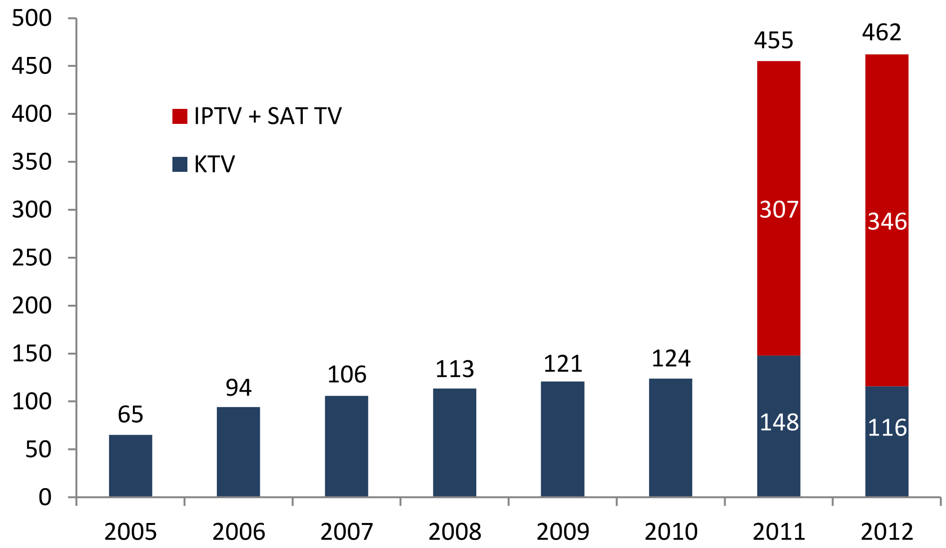
1.6 Television services

The TV market has been changing rapidly as a result of digitalisation of audiovisual content. The digitalisation of audiovisual content allows the introduction of many new services based on personalisation and interactivity, such as personal selection and programme schedules, postponed reception, video on demand, interactive voting, and participation in game shows, elimination or viewing of selected commercials only. All these activities are increasingly accompanied by the so-called second screen (smart phones, tablets or laptops) by means of which the user controls, actively participates in the creation or comments on current content by means of social networks and portals. The convergence of networks and services continues, new stakeholders appear on the market, and traditional TV providers and producers of content change to be able to survive on the market. In addition to offering their own digital channels, they are expanding their activities to broadband Internet and mobile communications and offering new services over different TV platforms.

1.6.1 Overview of the television services market

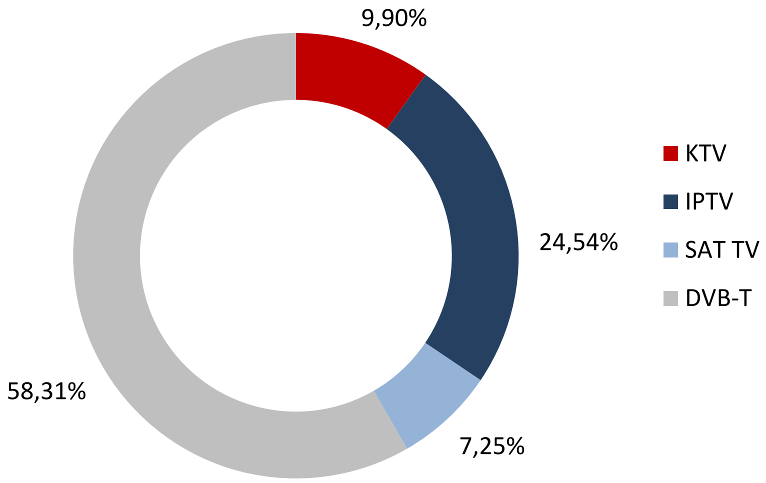
Overall digitalisation of TV broadcasting resulted in a significant growth of the market of transmission of pay-per-view channels. Taking into account the fact that an increasing number of end users have been using TV service based on the Internet protocol (IPTV), in addition to the publicly available telephone services and broadband Internet access, it has become necessary for HAKOM to collect data on TV service accordingly, that is, the number of connections and revenues from all technologies used for the provision of TV services (cable TV connections (KTV), IPTV connections, satellite TV connections (SAT TV) and terrestrial TV connections). Before 2011, data were collected only for CTV which is why revenue illustrated in Figure 1.29 for the period between 2005 and 2010 refers only to revenue from CTV.

Figure 1.29. Total revenue from TV service



At the end of 2012, around 41 percent of households used the Pay-TV service which shows that citizens are prepared to pay for the TV content, regardless of the reduced purchasing power and the fact that they are already paying for one TV fee.

Figure 1.30. Share of households according to technologies used for receiving TV contents[36]

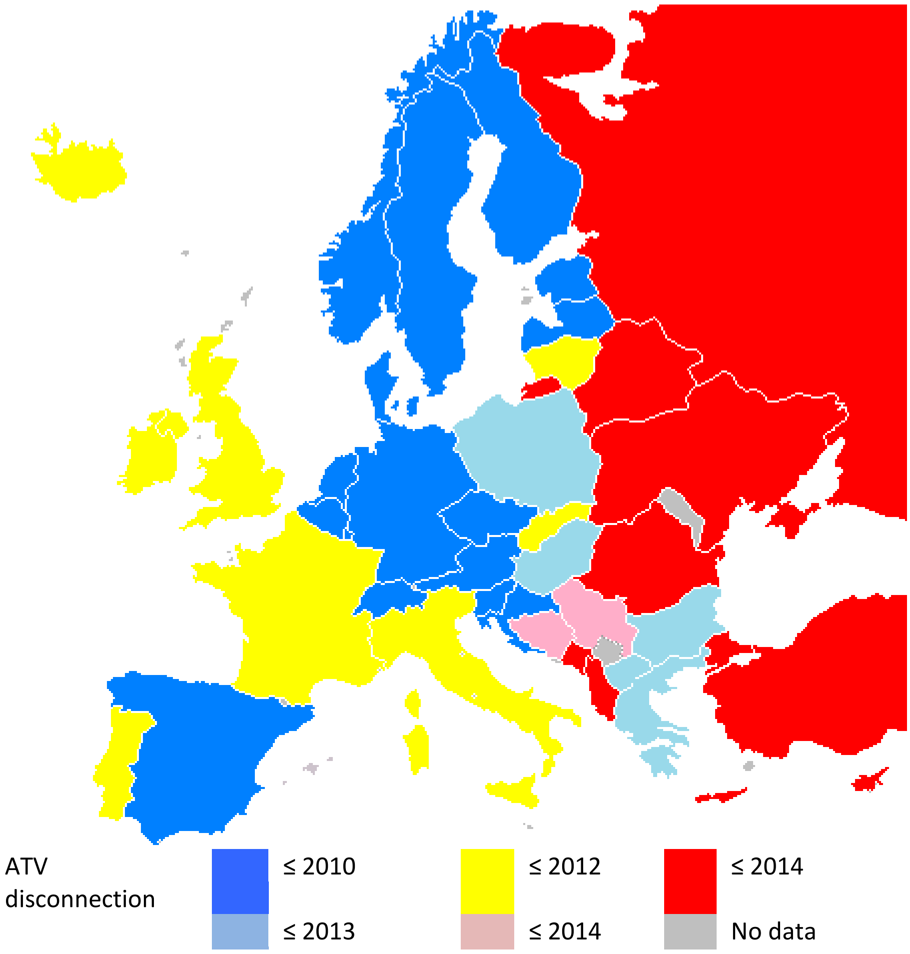


A significant share of households are using only digital terrestrial signal for the reception of TV contents, which represents a great market potential. In accordance with development trends, that is, due to an increasing demand for service packages, it is expected that the number of connections based on other technologies will grow because operators will, due to the fact that end users prefer bundled service, start bundling the Internet service with the pay-TV service. Furthermore, the pay-TV service of EVO TV provided by HP Produkcija d.o.o., Odašiljači i veze d.o.o and Hrvatska Pošta d.d. (hereinafter: HP) is a new and unique service on the market providing many users throughout the Republic of Croatia with the possibility to watch television channels by means of the digital TV signal. Since its launch in December 2012, the number of its users is expected to grow.

The digitalisation of the audiovisual content enables the increase in the quality and number of the existing, so-called linear services of audiovisual content, as well as the introduction of numerous new services based on personalization and interactivity. In spite of efforts and EU recommendations to ensure switchover to digital television by 2012 (hereinafter: “DTV”) in order to free the RF spectrum and ensure the so-called "digital dividend" for additional TV contents and new information and communication services, not all EU Member States managed to complete the digital switchover process and switch off analogue television. During 2012, digitalization was successfully completed by Italy, the United Kingdom, Lithuania, Portugal, Slovakia and Ireland, while the remaining EU Member States, such as Hungary, Poland, Romania and Bulgaria, asked for postponement of one to two years. Some other European countries, such as Ukraine and Russia, are also running behind with the switchover and are planning to complete it in 2014 or 2015, together with some countries from this region - South-East Europe: Serbia, Montenegro, Bosnia and Herzegovina, Macedonia and Albania. The fact that the neighbouring countries are running behind also prevents further development and implementation of new broadcasting networks and services as well as the introduction of mobile communications in the frequency band of the digital dividend 790MHz-862MHz.

[36] Number of digital terrestrial connections = (Number of households in the RoC - number of households without TV) - number of CTV connections + number of IPTV connections + number of SAT TV connections)

Figure 1.31. Overview of digital switchover per country



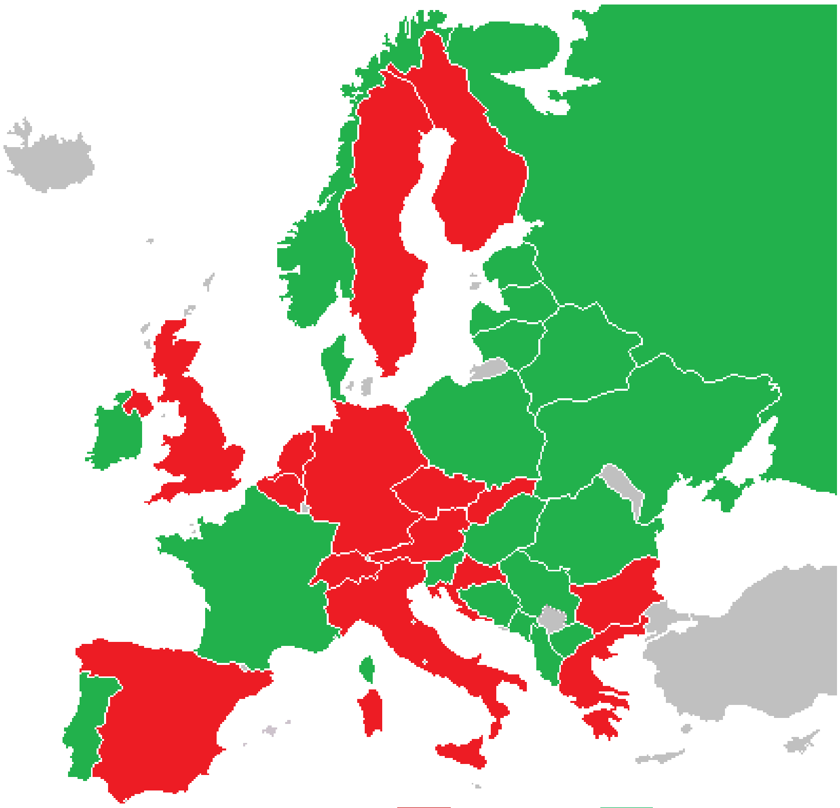
With the implementation of the Analogue to Digital Television Broadcasting Switchover Strategy in the RoC, successful switchover to DTV in 2010 was followed by further DTV network development in 2011 and 2012 in accordance with trends of leading European countries.

The development of standard for second generation digital terrestrial television (DVB-T2) ensured more efficient use of the RF spectrum, that is, greater transfer capacity which is able to satisfy an increasing number of market requirements for transferring more SDTV and HDTV channels and introducing 3D video contents and multichannel audio.

Those European countries that started introducing DTV earlier, such as Austria, Finland, Croatia, Italy, Germany, the United Kingdom, Sweden and others, have decided to use MPEG 2 standard for encoding video contents in addition to the DVB-T standard. Countries that opted for a delayed beginning of introduction of DTV chose MPEG 4 standard.

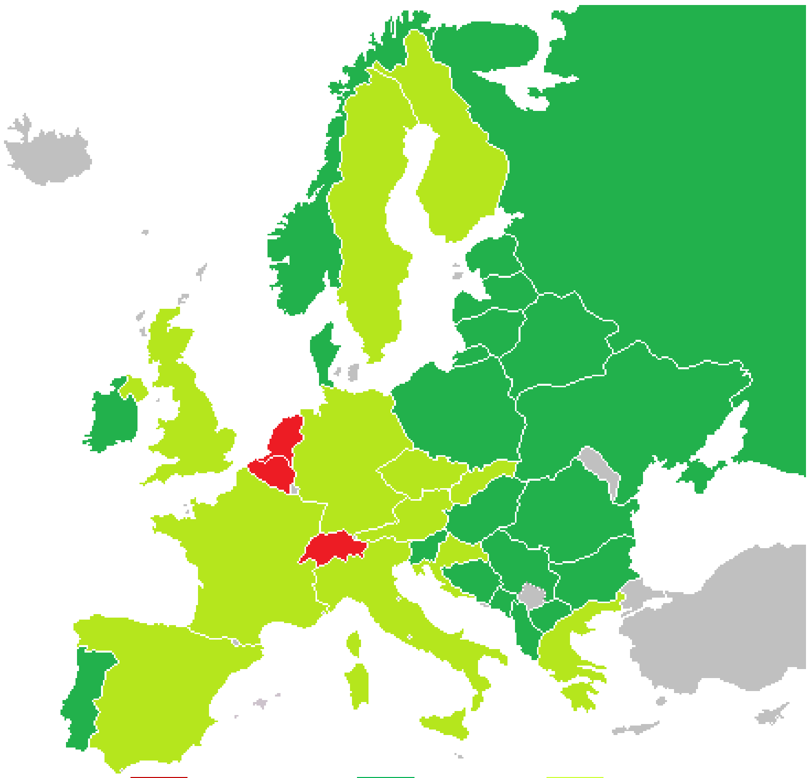
Further development of digital terrestrial TV in the majority of countries that started with MPEG 2 standard for encoding video contents when they started introducing DTV included the introduction of new SDTV and HDTV channels on the basis of the MPEG 4 standard, in particular for "PAY-TV" services. The overview of the situation in 2012 concerning the decisions and implementation of MPEG 2 and MPEG 4 standards is illustrated in Figure 1.32.

Figure 1.32. Selection of the encoding standard per country at the start of introduction of DTV



Encoding standard MPEG 2 MPEG 4

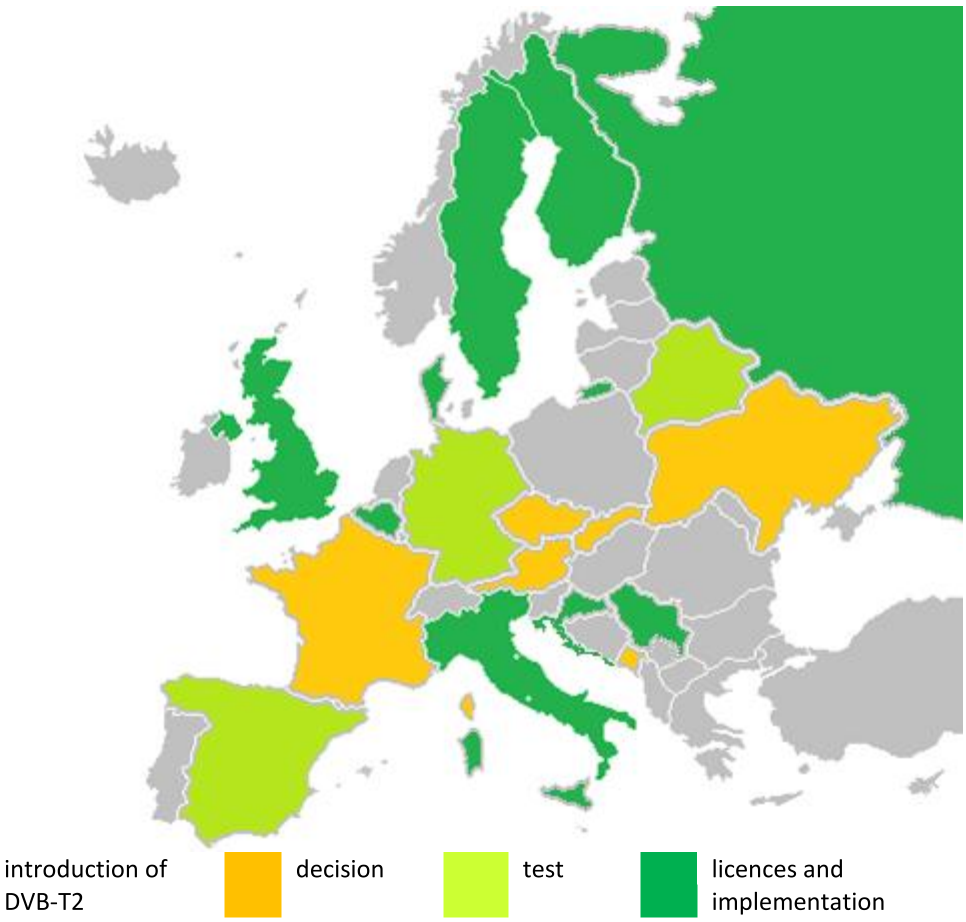
Figure 1.33. The application of the standard for encoding video contents per county in the course of 2012



Encoding standard MPEG 2 MPEG 4 in addition to MPEG 2 and MPEG 4.

In addition to introducing a more advanced encoding system, MPEG 4, some of these countries have simultaneously started introducing the second-generation digital terrestrial DVB-T2, which is a logical continuation of the development of DTV and more efficient use of the RF spectrum. On the other hand, some of the countries which have only started introducing DTV, such as Serbia or Montenegro, used this opportunity to directly introduce DVB-T2 and MPEG 4 standards as basic DTV standards in their countries, thus skipping standards of first generation digital terrestrial television TV DVB-T and MPEG-2. Some countries, such as Austria, Slovakia, the Czech Republic, Montenegro, Ukraine and Denmark, adopted decisions on the introduction of new multiplexes and services in DVB-T2 standard, and intensive testing is in progress in Germany and Spain, while commercial services are already available in Finland, Italy, the United Kingdom and Sweden. Croatia also started testing DVB-T2 standard in September 2012, and what followed in 2012 was the building and launching of the first terrestrial pay-per-view ("PAY TV") service by means of two new DVB-T2 networks, MUX C and MUX E multiplexes.

Figure 1.34. Introduction of DVB-T2 standard per country in the course of 2012



In order to harmonize various extents of digitalisation in the countries in the region and to decrease the digital gap between the countries in the region (and in relation to EU Member States), regulatory agencies for electronic communications and the media in Slovenia, Austria, Hungary, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Albania, Macedonia and Italy in 2011 initiated a regional and cross-border cooperation project "South-East European Digital Television" (SEE Digi.TV) as part of a transnational cooperation programme for South East Europe. The main project objectives are the following:

1. speeding up the process of switching off analogue television and ensuring further development of digital television,
2. alignment of legislation and technical framework with the EU digitalisation process,
3. avoiding fragmentation of the market, of politics and technology,
4. preparing a regional strategy for efficient use of the RF spectrum and introducing new services and managing the digital dividend.

Considering the envisaged duration of the project (until April 2013), the majority of envisaged activities and defined results were realized in 2012, which is elaborated in more detail in Chapter 7.4 and all project results are publicly available on the official website www.see-digi.tv

1.6.2 Regulatory measures on the television services market

Pay-TV market

In addition to the broadband access service, operators are today providing other electronic communications services to users as well, including the Pay-TV service, among others. Since the above-mentioned services are provided to the same end users and the same network infrastructure may be used during their provision, HAKOM deemed it necessary to establish the connection between the identified relevant market and the market on which the service of Pay-TV is provided that would enable the leveraging of significant market power from the identified retail broadband access market to the closely related horizontal market. The European Commission's Recommendation on relevant markets subject to ex ante regulation does not recognize the market of Pay-TV as a market subject to ex ante regulation. The European Commission believes that efficient regulation on the wholesale level may ensure competition at the retail level. However, national regulatory authorities of Member States are authorised to determine on their own that certain markets, different from those on the list of markets in the valid Recommendation, are subject to ex ante regulation, depending on the situation in each individual country provided that they prove that three criteria have been cumulatively met on these markets (The Three Criteria Test). Consequently, following the Three Criteria Test, the market of pay-TV was identified as a market subject to ex-ante regulation.

Pay-per-view is a type of service that, in addition to broadband, will represent a basis for the growth of fixed network operators in the future. In accordance with the recognized obstacles, and in relation to the conducted market analysis procedure, HAKOM imposed on HT and Iskon, as operators with significant market power on the relevant market, regulatory obligations such as preventing market entry or restricting competition by setting too low prices, the prohibition of giving unfair advantage to individual end users and unjustified linking of certain types of services.

As part of the obligation of price control, since there is a smaller number of IPTV users compared to broadband access users, and bearing in mind that it is logical to promote services with fewer users, HAKOM imposed a greater number of promotional offers for the IPTV service (two within a year) than for the broadband Internet access service. In this manner, Iskon was able to use promotional offers that will have a positive impact on attracting users and enable efficient competition for operators on the retail broadband access market and on the horizontally related market on which IPTV service is provided.

Since HAKOM proved and identified HT and its affiliated company, Iskon, as SMP operators, it was necessary to set the level of material content as such that will not disrupt efficient competition since material content, which may be "given" to the user together with the tariff package, according to HAKOM, plays a very important role in user preferences when selecting the package.

DVB-T

Following the successful implementation of the Analogue to Digital Broadcasting Switchover Strategy in the RoC, within the framework of which HAKOM granted licences for use of the RF spectrum enabling the provision of the service of management of electronic communications networks of DTV for MUX A and MUX B, for contents at the national level, and MUX D for contents at national, regional and local level, HAKOM continued with ensuring technical and regulatory preconditions for further development of digital broadcasting.

After the procedure for the collection of opinions on possibilities and interest for the implementation of new contents and services that would provide additional value to the users in relation to the existing services and following the issuing of the licence for use of the RF spectrum for the provision of the service of management of two DTV electronic communications networks (MUX C and MIX E) in the territory of the RoC at the end of 2011, holders of licences, HP Produkcija d.o.o., Odašiljači i veze d.o.o. i HP started with the construction of DVb-T2 networks in 2012. In the first stage of implementation, 80 percent of population was covered by the signal of DTV networks of MUX C and E thus for the first time offering to users of terrestrial DTV 40 new SD, HD and 3D channels through terrestrial PAY-TV. In accordance with the granted licenses and plans of licence holders, the DTV network coverage of MUX C and E will increase by 2014 meaning that more than 94 percent of the population will have access to the service.

Unfortunately, significant interference from the territory of the Republic of Italy, which was for the first time recorded by HAKOM in December 2010 in the territory of Istria, continued in 2012. The interferences are a consequence of Italian digital switchover during which the Italian government allowed to operators of DTV networks to use frequencies belonging to the RoC contrary to international agreements and the 2006 Geneva Agreement and Plan. Interferences from Italy prevent the reception of Croatian DTV channels for 30.000 to 50.000 inhabitants of Istria. With further progress of digitalization in Italy, interference recorded in the territory of Istria spread to a certain extent to the territory of Dalmatia as well.

For that reason, HAKOM has been carrying out intense measuring on-the-spot on the basis of which, in accordance with international regulations, it reports the identified interferences to the competent authority of the Republic of Italy asking for their elimination and notifies the competent international body of ITU thereof. Since 2009 until today, more than 1750 official interference reports were submitted asking the Italian side to eliminate the interferences, and 680 reports were submitted only in 2012 (484 for radio networks and 196 for DTV). Numerous bilateral and multilateral meetings were held and some were even attended by ITU's representatives. Since these are international interferences, HAKOM used all of its legal authority and legal possibilities arising from international radio regulations and agreements and, in cooperation with the MSTI, asked the Ministry of Foreign and European Affairs for assistance. Several bilateral meetings between the two countries resulted merely in promises from the Italian side and there was no significant progress in the resolution of the problem in question.

In early 2012, during the World Radio Conference (WRC 2012) in Geneva, HAKOM and MSTI, with the assistance of the Ministry of Foreign and European Affairs, managed to have the mentioned issue put on the agenda of the conference and a special working group was established chaired by the chairman of the conference (T. Al Awardhi) with a view to defining the course of activities for the elimination of disturbances caused by Italy to countries such as Croatia, Slovenia, Malta, Monaco, Austria, Montenegro, Sweden, France, Albania, the Vatican, San Marino and Algeria One of the conclusions of the working groups and obligations undertaken by Italy is the elimination of the majority of disturbances caused to Croatian television and radio stations by 15 April 2012 and the definition of deadlines and activities for the elimination of the remaining disturbances. Unfortunately, the deadlines have expired and Italy, even after repeated reports of disturbances and HAKOM's interventions, has not eliminated the interferences.

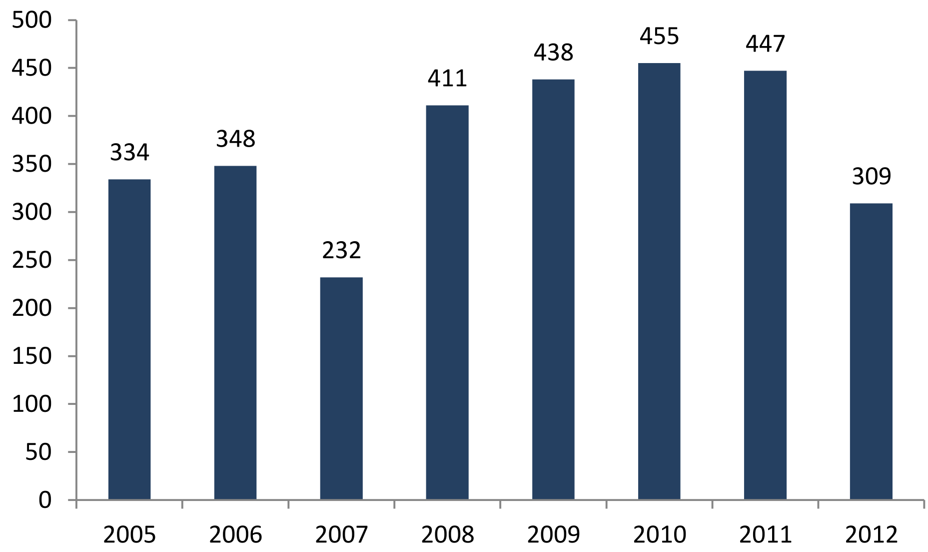
HAKOM participated in the public consultation on the allocation of the RF spectrum published by the Italian regulatory authority for electronic communications and the media (AGCOM). On that occasion, emphasis was placed on television channels that the Republic of Italy is planning to use in further procedure for the allocation of available frequencies for terrestrial broadcasting and which, according to the international Plan Geneva 2006 and international radio regulation, it is not entitled to use. This HAKOM's international intervention temporarily stopped the allocation of that part of the spectrum to Italian broadcasters.

1.7 Network and line rental service

1.7.1 Overview of the network and line rental market

Total revenue from network and line rental service amounted to HRK 309 million at the end of 2012 which is about 2.51 percent of total revenue on the electronic communications market (Figure 1.35).

Figure 1.35. Total revenue from the service of network and line rental



1.7.2 Regulatory measures on the market of network and line rental

Analysis of the market of leased lines

In accordance with obligations imposed on the wholesale market of terminating segments of leased lines and wholesale market of trunk segments of leased lines, in 2012, HT amended the Reference Offer for Leased Electronic Communications Lines.

One of the amendments is the definition of regulated conditions for Ethernet lines in the terminating and trunk segments and of regulated conditions for xWDM lines in the trunk segment. The Ethernet technology enables the provision of data services of the same quality and identical or even greater transfer speed at the retail level. There is also a greater offer of data transfer speed of Ethernet lines compared to possible transfer speed of traditional digital lines. xWDM technologies are used for increasing transfer capacity of optical cables, primarily in core networks of operators.

An important change is the new manner of calculation of the monthly fee. By October 2012, HT charged for leased lines according to geographical and political division (local network, national network within a county, national network between two counties). HAKOM concluded in the analyses of the market of terminating segments of leased lines and on the market of trunk segments of leased lines that this manner of calculation was unjustified and the calculation was determined depending on the class of length of the leased electronic communications line in order to avoid the leveraging of significant market power on the basis of price.

When it establishes whether regulatory obligations on wholesale markets are sufficient for the achievement of efficient competition at the retail level, HAKOM will conduct the Three Criteria Test on the downstream retail market. Regulation of a retail market is justified only when regulation of the upstream wholesale market is not sufficient, in this case of the market of terminating segments of leased lines and the market of trunk segments of leased lines. Since the new manner of calculation at the wholesale level entered into force in October 2012, the Three Criteria Test will be carried out in 2013 on the downstream retail market.

1.8 Services of access to infrastructure and network and building of electronic communications infrastructure

1.8.1 Market overview

The monitoring of sharing of the existing ducts was continued in 2012. Activities focused on the gathering of information about infrastructure and associated facilities of infrastructure operators, legalization and introducing some order into irregular sharing.

Activities related to building and physical planning were carried out within the prescribed deadlines.

1.8.2 Regulatory measures for access to infrastructure and building of ECI

Within the framework of alignment of the existing ordinances with the ECA, the relevant European Parliament directives, HAKOM did the following:

- drafted a new Ordinance on amendments to the Ordinance on technical requirements for cable ducts, held a public consultation and asked for approval of the Ministry of Physical Planning and Construction;
- participated in the drafting of proposals of provisions of the Regulation on the criteria for the development of electronic communications infrastructure and other associated facilities (OG No. 131/12)
- drafted a new Ordinance on the manner and conditions for determining the zone of electronic communications infrastructure and associated facilities, the radio corridor safety zone and obligations of the investor of works or of the building and asked for MCPP's opinion.

Preliminary opinions on physical planning documents

In late 2012, a Government Regulation was adopted laying down the obligation of new access to physical planning and construction on the basis of the principle of building of integrated infrastructure. The principle includes the alignment of the planned paths of electronic communication infrastructure with utilities infrastructure in relation to physical planning and construction deadlines. The sharing of corridors and/or areas with a view to building an integrated infrastructure must be planned in strategic physical planning documents which leads to the lifting of obstacles for investors investing into the development of mobile or fixed electronic communications network. The development of broadband Internet access in the RoC depends on the fact of whether preconditions for its development exist in physical plans and whether efficient investments are possible. The uniting of costs of construction with the application of the principle of integrated infrastructure reduces total costs and provides more quality fulfilment of requirements for the protection of human health, space and environment. HAKOM inspects physical planning documents, verifies the alignment with the provisions of the Regulations and issues a preliminary opinion.

Quality of broadband access in the RoC

The majority of users of broadband access in the RoC are using xDSL (ADSL) transfer technology. For this reason, in 2012, special attention was paid to the analysis of parameters of the quality of service provided in this manner. DSLAM platforms of all operators enable the measuring of all key transfer parameters of a user line in the set time periods, and statistical processing of gathered data may assess the quality of broadband access. The procured measuring equipment (ADSL analyser) used for the mentioned measuring is put into operation. Periodical measurements of parameters of ADLS lines will start in 2011 as well as the systematic measuring of quality of services in the unbundled environment in the RoC. Furthermore, the impacts of regulatory measures were analysed for the environment in question, which increase the degree of usability of the existing access network for the provision of new broadband services and contribute to energy efficiency at the same time.

Measures for preservation of network neutrality

HAKOM pays a lot of attention to network neutrality. More in Chapter 1.3.5.

Development of an electronic communications infrastructure database

A pilot project on the ECI basis in a part of the City of Zagreb (Središće) was prepared and implemented in 2012, where a model of the GIS database and a web application with individual functionalities were presented. Internal testing of the functioning of the application was carried out and its functionality was confirmed together with the delivery of documents to the user in digital and analogue form. The training of users took place together with the presentation.

The basic concept of a single logical ECI database based on interfaces was changed into a concept of a single ECI database due to the infrastructure operators and beneficiary operators' lack of standardized and consistent data about ECI

Encouraging investments of local self-government units into electronic communications infrastructure

Several lectures and seminars for local and regional self-government units took place in 2012 to familiarize them with possibilities of efficient investments into optical infrastructure. In addition to operators, local government and self-government units represent potential new investors into optical distribution networks. It is in their interest to ensure quality communications infrastructure to their population, particularly to businesses, which will additionally contribute to the development of their community. It was emphasised at the lectures that the use of innovations (microducts and microholes) may reduce costs, in particular if ECI is planned and constructed together with other utilities infrastructures. The greatest progress was made in Zagreb (feasibility study was prepared and a pilot project for the building of optical distribution networks was developed), Krk (a project for the optical distribution network for the town of Krk and its surroundings was prepared) and the County of Istria (projects for the optical distribution network for 5 cities have been prepared, and the execution is envisaged together with gas infrastructure introduction).

Right of way

Pursuant to the Electronic Communications Act and to the Ordinance on the certificate and the fee for the right of way, certificates on the right of way are granted by HAKOM. The Ordinance on the certificate and the fee for the right of way describes in more detail the procedure for the submission of the application for the certificate of the right of way to HAKOM. Fees are determined according to the type of property.

The improvement of the process of the issuing of certificates on the right of way continued in 2012 and a total of 784 Certificates for the right of way were granted for a total of 80,000 m based on applications submitted by infrastructure operators.

1.9 Other services

1.9.1 VAS[37] services

HAKOM conducted numerous verifications of special tariff services in 2012, like in the previous period. The new Ordinance on the manner and conditions for the provision of electronic communications networks and services (OG 154/11) of 6 January 2012 amended some of the obligations of providers of special tariff services to make the use of services more transparent for end users and thus achieve an even greater protection of end users. For those reasons, HAKOM warned providers of special tariff services about the need for alignment with legal obligations and carried out additional inspection supervision and imposed on providers of special tariff services the obligation of alignment with legal obligations. A total of 18 inspections were conducted.

1.9.2 Universal services

One of the main principles and objectives of regulation of the electronic communications market in the Republic of Croatia is to ensure access to universal services for all service users. The Council of HAKOM adopted a new Ordinance on universal services in electronic communications on 28 December 2012 (Official Gazette, 146/12).

The old Ordinance on universal services in electronic communications (Official Gazette No. 23/09) had to be aligned with amendments to the Act and the Universal Services Directive and revised following the drafting of the new Ordinance on universal services in electronic communications. The Ordinance had to be adjusted to market needs and observed issues in the provision of universal services. Certain parameters related to the quality of universal service were amended as a result of the appearance of new technologies on the market (IMS). The part on public pay phones was also amended by a clear definition of the coverage by public pay phones that the universal service operator must achieve. Furthermore, the criteria for the removal of public pay phones were amended and made more precise since the conditions in the previous Ordinance were too general (the operator had to remove public pay phones without HAKOM's consent). Furthermore, the obligation according to which universal service operators must ensure the availability of their communications networks for 24 hours every day of the week was amended and the possibility was introduced that in case of force majeure (e.g. power outage), operators of universal services may be forced to temporarily suspend or limit a certain number or type of services under the condition that the universal service is made available within the shortest possible period of time. The provision obliging the universal service operator to ensure data transfer speed of at least 1Mbit/s on subscriber access lines in its electronic communications networks was amended. The reason for the amendment was the situation on the existing Internet access market where the current speed of 33.6Kbit/s did not represent efficient Internet access, taking into account the widespread technologies used by the majority of subscribers, as well as technical feasibility. The designated universal service operator must align the provision of universal services at the latest by 1 January 2015, and by then it must ensure the speed of data transfer of at least 144 kbit/s.

Universal services in electronic communications represent a minimum set of electronic communications services of a certain quality, which 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 and with the minimum possible distortion of competition. In 2012, there were two operators of universal services in the Republic of Croatia. Imenik d.o.o. is the universal operator of the service of access of end users to at least one comprehensive directory of all subscribers of publicly available telephone services, in a printed or electronic form, which must be updated on a regular basis, while HT was designated as the universal operator for the following services:

[37] VAS-Value added services

1. access to public telephone network and publicly available telephone services at a fixed location,
2. access of end-users, including users of public pay telephones, to a telephone directory enquiry service, installation of new public pay phones in public places available at any time;
3. special measures for disabled users including access to emergency services, directory enquiry services and directories, equivalent to that enjoyed by other end-users,
4. special tariff systems adjusted to needs of socially disadvantaged groups of end users of services.

1.9.3 New services

M2M

Machine-to-machine communication is a business sector in which HAKOM as a regulator has great importance. More about M2M may be found in the chapter on Strategic activities under 1.3.6.

Cloud computing

Cloud computing is one of the fastest growing technological solutions in today's information society. Great potential of cloud computing, in relation to the reduction of costs, improved accessibility and reliability, directing more resources towards the fulfilment of business objectives and increased flexibility and productivity, have resulted in cloud computing being more and more accepted by the public and private sectors. Cloud computing in general offers a wide spectrum of business opportunities that may be exploited only if a regulatory framework is created which ensures sufficient trust of users which is necessary for the cloud computing to reach its full potential.

The creation of the necessary regulatory framework for cloud computing is a very sensitive task which may influence the acceptance of the service itself and for that reason HAKOM is tackling it with great attention and care. This important feature of this approach is that geographical borders, when it comes to cloud computing, become irrelevant. The adoption of a stricter regulatory framework would jeopardize the sustainability of domestic companies offering the service of cloud computing because they would be unable to compete with big international companies. This would harm the national economy and nobody would benefit from it. As opposed to the stricter approach, there is a softer approach which represents a balance between strict regulation and complete freedom. This approach would regulate only those issues that stand in the way of greater acceptability and availability of cloud computing services and it may be referred to as the smart approach. This type of regulation would have to cover the following areas:

- relationship between users and providers of cloud computing services, including data security,
- relationship between providers of cloud computing services,
- different legal issues that providers of cloud computing services encounter in their everyday work.

1.10 Radio Frequency Spectrum Management

HAKOM manages the RF spectrum. On the territory of the RoC, this aspect refers to the planning and preparation of technical parameters, the granting of licences for use of the RF spectrum and spectrum control. In international terms, this refers to the harmonization of the use of the RF spectrum in accordance with the valid ITU and CEPT decisions and recommendations and the valid international agreements.

1.10.1 Efficient use of the radio frequency spectrum

The Frequency Allocation Table was amended in 2012. In March 2013, a public consultation was carried out about amendments that primarily referred to the alignment with amendments to the ECA adopted in July 2011. The amendments referred to the issuing of licences for use of the RF spectrum on the basis of a public invitation and possibilities for transfer or leasing of a certain radiofrequency band. HAKOM defined two categories for certain RF bands taking into account its former experience and experience of other countries with the award of certain parts of the spectrum. Furthermore, since the digital switchover was completed, analogue television was excluded from the table. The amended proposal for the Table was submitted to the MSTI for publication.

In the first half of 2012, on its website HAKOM launched an application for the Allocation Table through which data for certain frequency bands may easily be accessed by means of a graphic interface.

For the purpose of alignment of the existing regulations with the Act on amendments to the ECA (OG No. 90/11) .Three new ordinances in the RF management sector were prepared:

- The Ordinance on conditions for the assignment and use of the radiofrequency spectrum (OG No. 45/12 and 50/12),
- The Ordinance on amateur radio communications (OG No. 45/12)
- The Ordinance on special conditions for installation and use of radio stations (OG No. 45/12)

In the preparation of new ordinances special attention was paid to the specification and simplification of provisions and alignment of similar processes carried out by HAKOM pursuant to different ordinances. In accordance with the development of the e-Agency project and HAKOM''s orientation on electronic business, internet services were included in provisions of ordinances wherever possible. The submission of applications for use of the RF spectrum, different data notifications, public consultation are only some of the procedures that are available on HAKOM's website in the form of applications.

The Ordinance on conditions for the assignment and use of the radiofrequency spectrum contains provisions on the manner of granting licences based on a public invitation. This procedure replaced the old summary procedure which was a constituent part of the public tender and public auction. The public invitation simplifies and speeds-up the granting of licences in RF bands in which more requests may be satisfied because of the availability of the band. It also envisages the extension of the licence for use of the RF spectrum to the existing holder under the condition that a public consultation is held to establish interest for the RF spectrum in question. Furthermore, the RF band allocated by a license may be partially or fully transferred on or leased to another person with HAKOM's consent.

The new Ordinance on amateur radio communications consolidates the provisions on amateur radio communications that were contained in several different ordinances. A single form for the licence for use of the RF spectrum in amateur service was prepared and aligned with CEPT recommendations. The consolidation of previously used three forms into one form simplified the use of amateur radio stations because the same license is valid in the RoC and in countries that recognize individual CEPT recommendations.

The Ordinance on special conditions for installation and use of radio stations amends the Ordinance on limitations of the intensity of electromagnetic fields for radio equipment and telecommunications terminal equipment 183/04) The new Ordinance is linked to the Ordinance adopted by the Minister competent for health in relation to protection from non-ionising radiation. In this manner, redundant definitions of the same concepts in different regulations was avoided thus facilitating the understanding of provisions by users and implementation thereof by HAKOM. Security certificates were replaced by conformity certificates which, depending on the procedure for the granting of the licence for use of the RF spectrum, are issued as separate documents or entered into the licence itself. Through further development of e-services, HAKOM is planning to enable electronic notification of installed radio stations and granting of certificates of conformity in the electronic form.

As a result of HAKOM's inclusion into the European Frequency Information System (EFIS) in 2011, information about the allocation and use of a certain frequency band in the RoC were updated www.efis.dk, in accordance with amendments of the relevant national legislation.

In early 2012, HAKOM represented the RoC together with MSTI's representatives at the World Radiocommunications Conference in Geneva. The WRC was attended by more than 4000 delegates from more than 190 ITU member states, representatives of various international and intergovernmental organizations and telecommunications companies. In accordance with European Common Proposals (ECP), signed by the RoC in late 2011, and which could have been commented upon by stakeholders at previously conduced public consultations, HAKOM supported CEPT's views.

Arab and African countries unexpectedly requested the expansion of the digital dividend up to 700 MHz, which was not on the Conference's agenda. As a result of the pressure from those countries, the issue was discussed at the Conference. Members of CEPT, after long negotiations with other regions (CEPT is now ITU Region 1), changed their initial position "No change" for this frequency band and it was decided that all necessary studies will be collected by WRC-15.

The implementation of the project "Preparation for evacuation in case of nuclear disaster" was started in 2012 and HAKOM will participate in its implementation. The envisaged duration of the project is two years, and it is implemented by the Crisis Management Centre, Zagreb. The project is part of the European Union programme "Community Civil Protection Mechanism" aimed at improving the preparedness of the protection and rescue system, preparing the population for nuclear disasters and strengthening of international cooperation for the protection and rescue at the regional and local level. Systems for informing citizens and communication between different emergency services use the RF spectrum but there is no harmonized part of the spectrum at the European level for broadband data transfer for emergency services. Through its participation in the project, HAKOM gains a better insight into spectrum needs of emergency services, and into possible needs for amendments of the regulatory framework to enable easier communication between individual services in the RoC and at the international level.

HAKOM also participated in the work of the FM49 working group on broadband networks for emergency services (PPDR - *Public Protection and Disaster Relief*). The task of the group is to find the harmonized RF spectrum for the entire Europe that would be used by emergency services for their application and participation in the work of this group is directly related to participation in the project "Preparation for evacuation in case of nuclear disaster": "Report A" was completed in 2012 and it contained a calculation of the minimum quantity of the necessary RF spectrum on the basis of the necessary applications for emergency services. The next assignment of the group is to prepare "Report B" that would contain the analysis of the spectrum and the proposal for the most favourable part of the spectrum.

Allocation of the digital dividend

In October 2012, HAKOM allocated frequency bands of the digital dividend to HT and VIPnet on the basis of a public call. More about the allocation in Chapter 1.3.1.

Fiscalization

Fiscalization in cash transactions is a measure aimed at enabling efficient monitoring of cash transactions. The Ordinance on fiscalization in cash transactions elaborates in more detail the implementation of the Act on Fiscalization in Cash Transactions and HAKOM's direct obligation to issue certificates in case of inability to establish Internet connection for data exchange. As part of preparations for the issuing of new certificates, HAKOM elaborated internal procedures for different scenarios in 2012.

Prior to sending a request to HAKOM, a fiscalization subject must verify the availability of the Internet access service for its premises with the operator of fixed, cable and mobile network. Evidence on the inability to establish the connection must be enclosed with the request. If necessary, HAKOM will conduct the necessary measuring and testing of the availability of mobile network signal at the applicant’s location. For the purpose of more efficient measuring, HAKOM procured an application for the fiscalization of invoices that may be used to prove successful or unsuccessful fiscalization attempts by means of a mobile network of all three operators.

The mentioned activities were the precondition for HAKOM's readiness to fulfil its obligations within the appropriate time limits.

e-Licences

As part of the overall programme for the improvement of HAKOM's performance entitled **e-Agency**, through the application of information and communication technology, HAKOM's activities are more accessible to users and more user-friendly. As part of the programme, RF spectrum management and issuing of licences for its use are covered by a group of services offered to users under the title **e-Licences** launched by HAKOM in 2011. The first offered Internet application from the mentioned system, e-Vessels, simplified the submission of applications and accelerated the process for the granting of licences for use of the RF spectrum on vessels. This facilitated everyday business operations of natural and legal persons, in particular shipping companies and providers of charter services. The advantages of the service have been recognized by the users and 12 percent of all applications for licences for use of the RF spectrum on vessels were submitted on-line.

In the course of 2012, HAKOM continued with further development of on-line services within the framework of e-Licences. Thus, the service of e-Broadcasting intended for radio broadcasters and operators providing broadcasting services over a terrestrial network of transmitters was launched in April 2012. The online procedure for the submission of applications and granting of licences is on average twice as fast as the submission of written applications when the licence is issued within 10 to 15 days. The advantages of this service have also been recognized by the users because around 30 percent of all applications for the granting of licences for use of the RF spectrum and broadcasting were submitted and processed online in 2012.

The **e-Microwave link** service was launched in December 2012. The e-Microwave link service is intended for all users of microwave links and other services from e-Licences and it enables simpler and quicker submission and processing of applications for all users of microwave links. The peculiarity of this service is that it enables the issuing of licences for use of the RF spectrum in a simplified procedure for the 71-76 GHz and 81-86 GHz frequency band, the so-called "e-Band". This is a novelty in procedures for the granting of licences since this procedure was not applied so far. The introduction of a marketing application for the award of the spectrum in a simplified procedure represents the final stage in the introduction of this procedure prepared in 2011. The procedure enables the users to verify the availability of the frequency spectrum and ensure non-interference with the existing connections by examining the database of the existing licences in the 71-76 GHz and 81-86 GHz frequency band. In this manner, the procedure for the granting of licences for use of the RF spectrum is sped up and interferences are avoided by self-regulation between users of these bands and the RF spectrum.

1.10.2 Public mobile communications networks

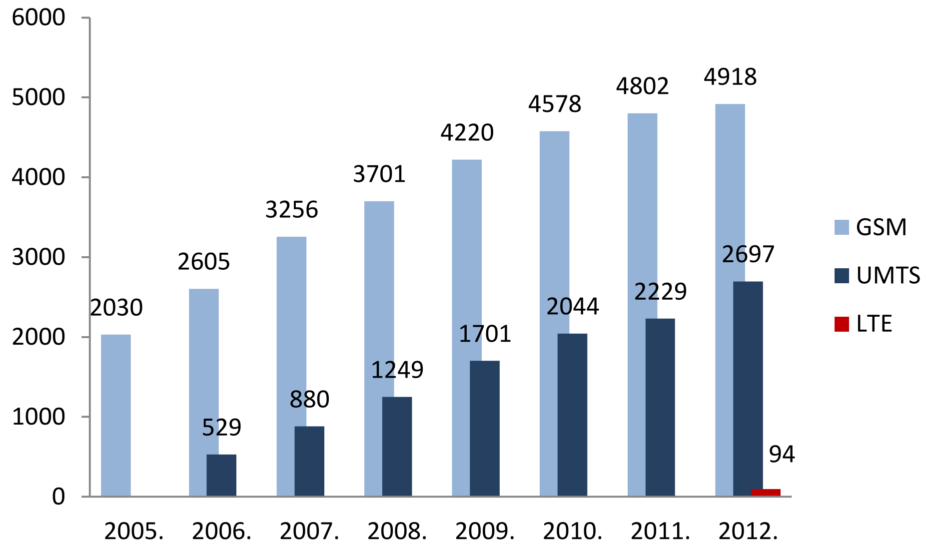
Public consultation on the Allocation Plan for 880-915/925-960 MHz and 1710-1785/1805-1880 MHz frequency bands was conducted in early 2012 followed by the adoption of the Plan. The new plan enabled the operators to use LTE technology in this frequency bands as well.

The implementation of the LTE technology in 880-915/925-960 MHz and 1710-1785/1805-1880 MHz and the allocation of the digital dividend for broadband access in rural and scarcely inhabited areas will enable the fulfilment of the requirements for appropriate speed and capacity in mobile communications networks. This directly influences the fulfilment of objectives for the development of mobile broadband in accordance with the Broadband Development Strategy in the Republic of Croatia for 2012-2015 adopted by the Government of the Republic of Croatia.

Concerning the LTE technology and in order to enable the use of mobile devices by users, 3 new general licences have been granted comprising the use of GSM, UMTS and LTE technologies.

During 2012, as part of its regular activities, HAKOM received notifications of base stations from operators, and, having verified the data about those stations, HAKOM issued certificates of compliance for these stations. During verification, special attention was paid to the areas of increased sensitivity (residential areas, schools, nursery schools, hospitals and similar) and additional measuring was conducted where necessary. Since licences for use of the RF spectrum and appropriate allocation plans facilitated flexible application of technologies, Figure 1.36 shows the growth in the number of notified base stations according to the type of technology in the RoC.

Figure 1.36. Number of base stations



1.10.3 Private mobile communications networks

For the purpose of ensuring efficient and economical use of the RF spectrum intended for private mobile communications networks (PMR), HAKOM takes into account other uses at the national and international level.

The use of digital technology compared to analogue technology continued to grow, which is obvious from the number of licences granted for private mobile communications networks. However, the capacity of the existing private networks continued to decrease and new users turned to services offered in public mobile networks. For this reason, HAKOM suggested reducing the fee for the use of the RF spectrum for personal needs networks by 20 percent in order to achieve the competitiveness of PMR networks compared to services provided by operators of public communications networks. The MSTI accepted the proposal and incorporated it into the Ordinance on the payment of the fee for the use of addresses, numbers and the radiofrequency spectrum.

The harmonization of frequencies at the international level took place in accordance with the signed HCM agreement and requirements of neighbouring signatory countries.

1.10.4 Microwave and satellite networks

The activities of frequency planning and international harmonization of microwave links were carried out as part of regular activities in 2012. For the purposes of microwave links the RF spectrum was allocated on the basis of received applications and pursuant to the principle of efficient use of the RF spectrum. International harmonization of allocated frequencies was carried out in accordance with the HCM agreement or, in case of international microwave links, on the basis of direct agreement between competent administrations.

HAKOM actively participated in the work of the SE19 working group in relation to the introduction of asymmetrical microwave links. The introduction of asymmetrical links has a significant impact on the existing principles of frequency planning and international harmonization and on the fees for use of the RF spectrum. The analysis of the impact of asymmetrical links on the overall use of the RF spectrum, which was conducted by HAKOM, indicated the existence of certain savings in the use of the RF spectrum, but lower than expected. The results of the conducted analysis were presented at this year’s ELMAR.

As part of international activities related to satellite networks, coordination requests were analysed and processed in accordance with ITU's procedures. Furthermore, requests for the granting of licences of use of the RF spectrum in the satellite services were received and processed, as well as notifications of installation of radio stations in the satellite service operating on the basis of granted general licences, which in the first place refers to SNG transmission.

HAKOM kept and regularly maintained a list of notified installed radio stations for fixed and satellite systems operating on the basis of granted general licences.

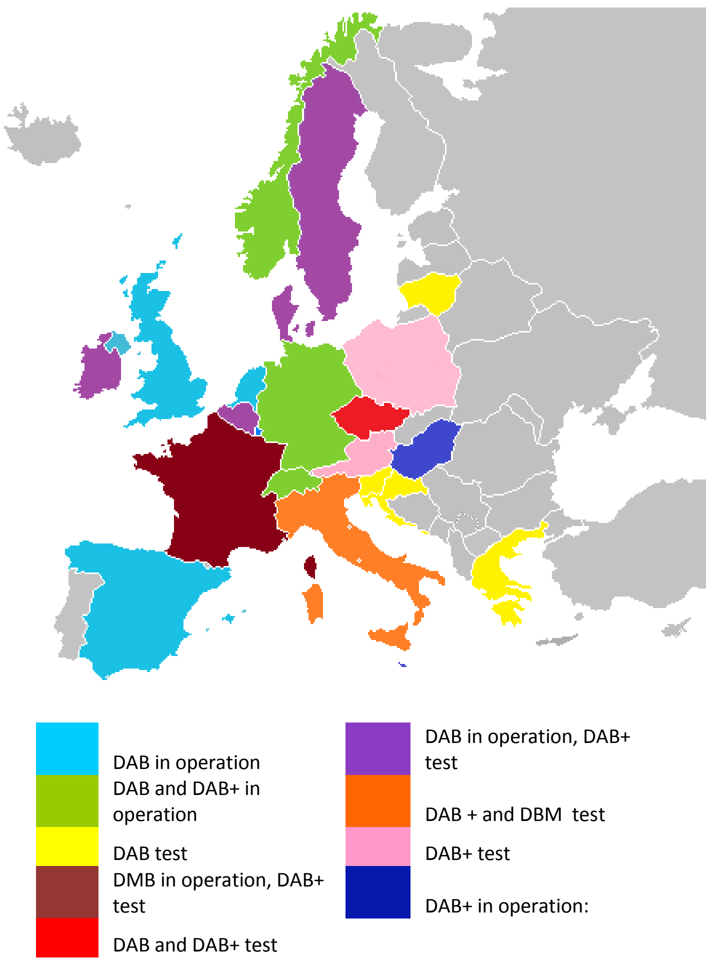
1.10.5 Radio networks

The work of the Digital Radio Forum, which was launched by HAKOM in 2009, continued in 2012. At the plenary session of the Forum which was held in March 2012, HAKOM presented a document giving an overview of available standards, network planning and use of the digital radio in Europe. The document was prepared in cooperation with the Faculty of Electrical Engineering and Computing, Odašiljači i veze d.o.o. and the Croatian Radiotelevision and it represents a technical and technological framework for the introduction of digital radio in the VHF III band in the RoC. Taking into account the efficient use of the RF spectrum, the available norms, availability and price of receiving and transmitting equipment and experiences of other European countries, it was concluded in the document that DAB+ standard is for the time being the best possible choice from the technical point of view.

Since the objective of the Forum is to prepare conclusions and basic guidelines for the adoption of the strategic decision on the introduction of digital radio in the RoC, in addition to technical aspects, aspects related to possible contents and services need to be taken into account, the appropriateness of the existing legislation for the development of broadcasting and other services in the digital environment and economic impact on all stakeholders in the process as a society in general. Therefore, in April 2012, a working group was founded as part of the Forum to discuss the content framework for the digitalization of the radio. The competent authority for this working group is the Electronic Media Agency (hereinafter: EMA), and HAKOM's representatives participate actively in its work.

At the end of 2012, Europe was increasingly oriented towards the DAB+ standard. The countries that were less affected by the crisis and recovering faster already have operating DAB+ networks. Together with the operation of DAB-, they have been testing DAB+ with a view to transferring to a more efficient standard. Even France, which adopted a provision on the use of the DMB standard, has been testing DAB+ and is introducing this standard into legislation. The overview of the application of the digital radio standard in European countries in 2011 is provided in Figure 1.37.

Figure 1.37. The application of the digital radio standard per country in the course of 2012



With the planning and optimization of networks of radio stations, work on ensuring frequencies for new concessions and improvement of coverage of the existing broadcasters continued in 2012.

Around 60 requests of radio broadcasters related to increasing coverage or possibility to amend technical parameters were processed.

As part of cooperation with the EMA, technical bases for the call for tenders for the provision of the radio media service were regularly defined and questions on the existence of technical conditions for the granting of concessions in individual areas were answered. As a precondition for the signing of the concession agreement, HAKOM carried out technical evaluations of fulfilment of minimum conditions for the carrying out of media activities. More than 40 cases were processed as part of the mentioned activities.

The procedure of international coordination of radio stations with the neighbouring countries, i.e. Austria, Bosnia and Herzegovina, Montenegro, Hungary, Slovenia, Serbia and Italy, was continued. More than 150 coordination requests for FM/T-DAB stations were sent and/or analysed as part of international coordination.

Furthermore, within the framework of cooperation with ITU, FM/T-DAB radio stations published in the BRIFIC (*Radiocommunications Bureau International Frequency Information Circular*) notification were analysed on a regular basis. Short-wave radio stations for the season A12 and B12 and coordinated FM radio stations were notified in the international frequency plan GE84. More than 400 radio stations were analysed as part of cooperation with the ITU.

In 2012, HAKOM participated in the work of the FM50 working group on the future use of the 1452–1492 MHz frequency band. Part of this band has currently been envisaged for S-DAB (*Satellite Digital Audio Broadcasting*), but the entire band is almost never used in the majority of European countries. The working group concluded that the best possible use of the mentioned frequency band is for mobile broadband while some countries, depending on their needs, may use part of the band for terrestrial broadcasting and other terrestrial services. The ECC report related to the future use of the 1452–1492 MHz band will be submitted to CEPT for adoption in 2013.

The database of the RF spectrum for radio, which is publicly available on HAKOM's website, was updated on the basis of the results of the planning and optimization of FM networks and international coordination of frequencies.

1.10.6 Television networks

Two new networks of terrestrial digital TV with the use of the DVB-T2 standard were put into operation in 2012 and they are transmitting MUX C and MUX E signals. MUX C and MUX E multiplexes used MPEG 4 coding standard with conditioned subscriber access (PAY-TV). In 2012, the holder of the licence for use of the RF spectrum, a consortium of companies HP Produkcija d.o.o., Odašiljači i veze d.o.o. i Hrvatska Pošta d.d., built a network of 24 transmitters and achieved 80 percent coverage of the Croatian population. In this manner, users could receive the "evotv" service which contains 35 SDTV programmes, 3 HDTV programmes and 1 3DTV programme. The "evotv" service is the first PAY-TV service in the terrestrial network, which started its commercial operation in late 2012. In addition to signals of the existing multiplexes, which are free for reception in the public with 98 percent coverage for MUX A, 96 percent coverage for MUX B and 90 percent for MUX D, this enriched the offer and competitiveness of terrestrial digital television.

HAKOM issued the necessary parameters and certificates of compliance of the radio station for all transmitters put into operation.

In relation to the freeing of the radio frequency spectrum in the 790-862 MHz band, the so-called digital dividend, which was envisaged for the introduction of mobile communications, that is, the termination of use of the above-mentioned frequency band for digital television, HAKOM carried out the re-planning of DVB-T networks in the 470-790 MHz frequency band in order to try to substitute for planned coverage that is being lost in the 790-862 MHz band (one to two coverages depending on the geographical area). International harmonization of Croatian DVB-T stations with neighbouring countries has continued and the coordination requests from administrations of Austria, Bosnia and Herzegovina, Hungary, Montenegro, Slovenia, Italy, the Czech Republic and Slovakia were analysed. More than 156 coordination requests for DVB-T stations were sent and/or analysed in the course of cooperation.

The database of the RF spectrum for TV, which is publicly available on HAKOM's website, was updated on the basis of the results of the planning and optimization of FM networks and international coordination of frequencies.

Cooperation on an international project entitled "Digital Television in South East Europe - SEE Digi.TV" was continued. The project was planned for the purpose of coordination of activities in the region of South East Europe in relation to the introduction of DTV services and reduction of the digital divide between the countries of the region and in relation to the EU Member States. Since the planned implementation of the project is 16 months, the majority of activities were planned for 2012. This topic is discussed in more detail in Chapter 7.4.1. EU funds.

1.10.7 Spectrum monitoring and supervision

For the purposes of radiofrequency spectrum monitoring and other expert and technical tasks within the framework of efficient RF spectrum management; HAKOM has established a system of monitoring and measuring centres (hereinafter: MMC), and monitoring and measuring stations (hereinafter: SMC).

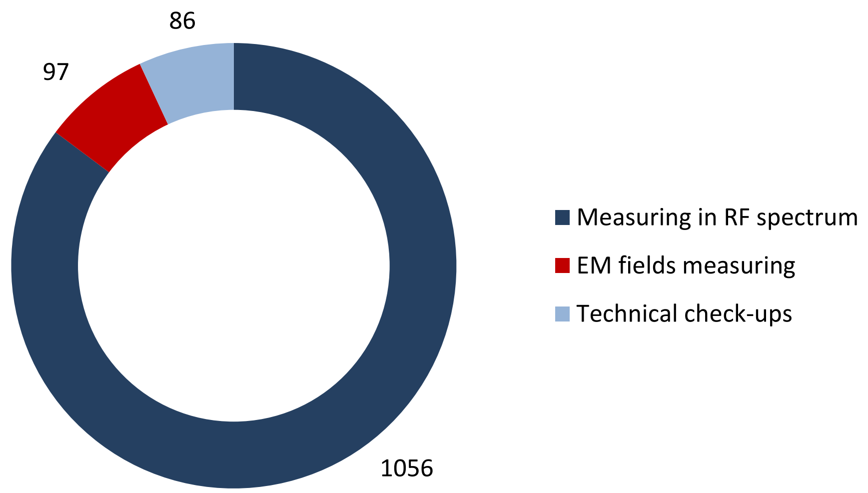
The monitoring and measuring stations were established in Zagreb, Osijek, Split and Rijeka, which is an optimal number considering Croatia’s geographical characteristics. In addition to monitoring and measuring stations, there are also seven remotely controlled monitoring and measuring stations. Furthermore, HAKOM has five measuring vehicles for measuring tasks in the RF spectrum and one mobile monitoring and measuring station (hereinafter: MMMS).

The modernization of the measuring system was continued in 2012 with the purchase of new measuring devices and putting into operation of MMMS. The MMMS will be installed in the territory of Istria for the purpose of frequent measuring of interferences from the Republic of Italy.

The majority of HAKOM's activities concerning spectrum monitoring focused on the measuring of interferences by the Republic of Italy in the territory of Istria and in the Croatian coastal area. In addition to this measuring, HAKOM also carried out systematic measuring aimed at protecting the RF spectrum as a naturally limited resource of interest for the RoC. Everyday measuring was carried out from all four control and measuring centres and six remotely controlled control and measuring stations, while the measuring vehicles carried out periodic measuring in areas where the fixed part of the measuring system does not provide satisfactory control. In addition to measuring aimed at protecting or monitoring the spectrum, measuring for frequency planning and international coordination were also carried out, where necessary.

All planned measuring campaigns and other measurements in the RF spectrum were successfully carried out in accordance with the measuring plan, 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. HAKOM also paid special attention to the measuring of the radio and TV signals on the coast and in coastal areas. Measuring results indicate further increase in the number of unharmonised broadcasting signals coming from the Republic of Italy. Cooperation with other neighbouring countries was adequate and successful. Figure 1.38 shows the distribution of measuring not covered by daily and periodic measuring.

Figure 1.38. Measuring



Due to the non-compliance with laws and subordinate legislation on the use of the RF spectrum, nine inspection supervision procedures were initiated resulting in the prohibition of operation of illegal radio stations and in ordering them to comply with the law.

Measurements of electromagnetic fields

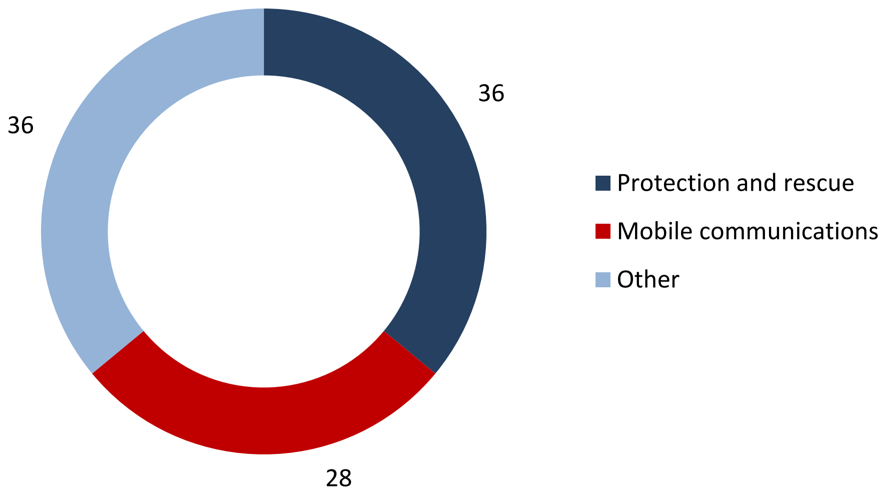
The RF spectrum monitoring also included measuring the level of electromagnetic fields for the purpose of efficient protection of human health from the influence of the electromagnetic field. Measuring results submitted by legal persons authorized for the activities of measuring electromagnetic radiation were checked on a regular basis. Measuring at 86 locations has shown that levels of electromagnetic fields are significantly below the prescribed levels at all locations where measurements were carried out. All results of measuring were published on the website[38].

Protection from interference

The protection from interference in radio communications is among more significant HAKOM's tasks. Special emphasis is placed on state administration bodies in charge of search and rescue, emergency services, maritime and air traffic control radio communications (whose purpose is the safety of human lives) and operators of electronic communications.

[38] http://www.hakom.hr/default.aspx?id=1119

Figure 1.39. Domestic interferences



The number of notified and eliminated interferences in mobile networks has been decreasing while the number of interferences in other frequency bands recorded a slight increase compared to 2011.

A regular measuring campaign of FM radio and television signal conducted on the coast and in the coastal areas indicated an increasing trend in the number of interferences from the Italian Republic. Regular measuring was carried out in Istria with a view to following the situation and presence of interference in frequencies allocated to the Republic of Croatia (the so-called Geneva frequencies entered into ITU frequency plans). The existence of illegal TV signals from Italy interfered with quality reception of Croatian DBV-T multiplexes in a large part of Istria, while reception in the rest of the coastal area was for the most part possible with occasional interferences. All the measured interferences referred to Italian signals. Figure 1.41 shows the number of submitted reports of interferences to the Italian government in 2012 and the comparison with the previous years.

Figure 1.40. Foreign interferences

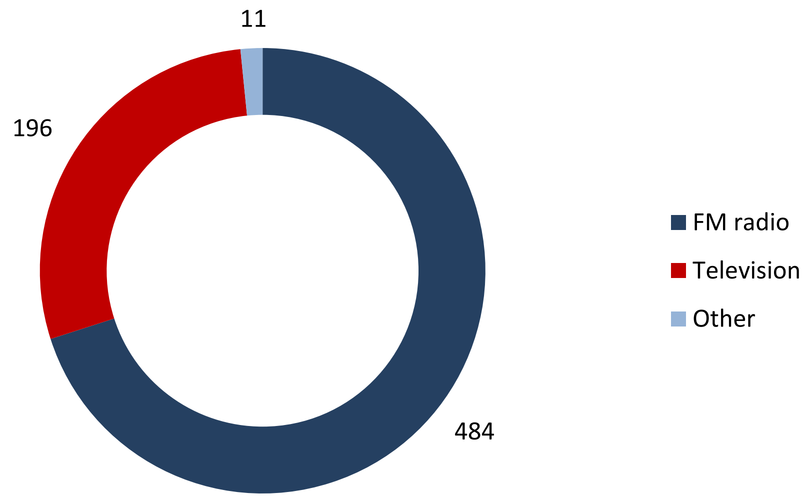
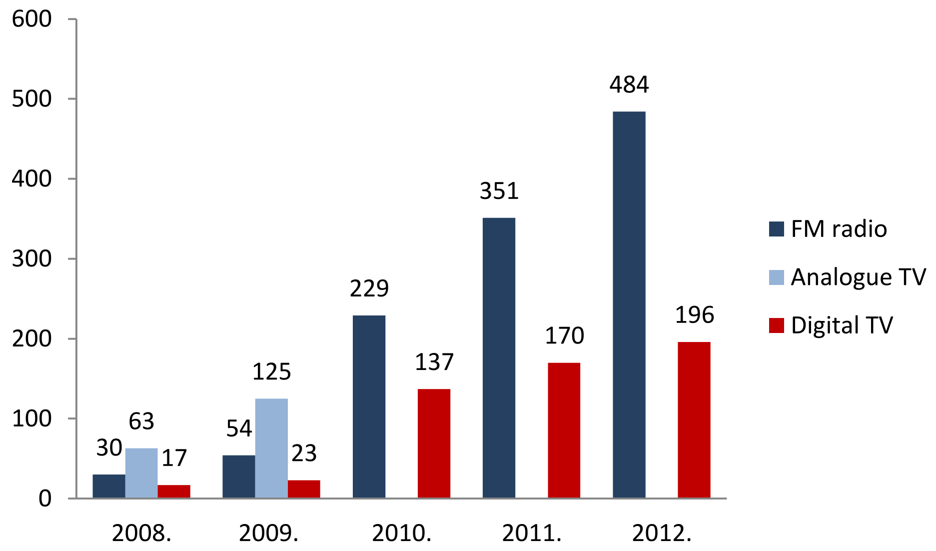


Figure 1.41. Interference reports to Italian state administration



Radio frequency spectrum interferences from the Italian Republic

The digital switch-over process in the territory of the Italian Republic was completed in June 2012. The beginning of digitalization in December 2010 in northern Italy resulted in the putting into operation of interfering transmitters that started to distort the quality of reception of Croatian channels in the coastal part of Istria. HAKOM invested significant efforts in the elimination of interferences of TV channels in Istria and avoiding new interferences during the continuation of Italian digitalization towards the south of Croatia. The digital switchover in the Italian Republic finished in the same way in which it started, by taking over the Croatian channels in the entire coastal area which is reflected on the quality of reception of TV channels in that area. In 2012, Italy proved its ability to regulate the RF spectrum management by "clearing" and selling the digital dividend (UHF channels above 60) and by granting to Italian TV operators broadcasting on these channels licences for further use of the frequencies on which there are no international rights in accordance with the relevant frequency plans, and which are used in the Republic of Croatia at the same time.

In addition to problems with the reception of TV channels in the coastal area of the Republic of Croatia, there are also other long-term interferences in the reception of Croatian FM radio stations. The situation is deteriorating year after year and culmination is reached in summer months when it is practically impossible to listen to Croatian FM radio stations in the coastal area.

Italy's behaviour, ignoring and arbitrary management of the RF spectrum, which is contrary to all undertaken international obligations, jeopardizes Croatian rights to the RF spectrum ensured at the Regional Radiocommunications Conferences in Geneva in 1984 (RRC'84) and 2006 (RRC'06).

In addition to the digital dividend, the Italian Republic is not using 5 TV channels in the UHF frequency band to which it is entitled in accordance with international plans, while it uses all other channels at the same time, including those to which the Republic of Croatia has all the rights.

HAKOM carried out comprehensive measuring along the coast and on the islands in 2012 with the objective of monitoring and identifying interferences from Italy. The measuring resulted in 680 new international interference reports to the public administration bodies of the Republic of Italy. Italy did not resolve or eliminate any of the interferences reported in 2012.

1.10.8 R&TT equipment

Radio and telecommunications terminal equipment (R&TT) equipment, which is placed on the market and used in the RoC, may not interfere with other devices and systems and must make efficient use of the RF spectrum.

Since short-range devices are a significant part of R&TT equipment, HAKOM participated in the work of the working group SRD/MG in 2012. The RF spectrum for SRD devices is allocated on the basis of a general license, and several million of such devices are sold in the EU every year. Due to their wide and innovative use, the economy of scale and use on the basis of the general license, the interest for SRD frequency bands has been increasing. With a view to improving the functioning of the internal market, harmonized access to the spectrum for SRD devices must be ensured. The following of adoption of EC decisions on the use of the spectrum for these type of devices, enables HAKOM to adopt legislation and market regulation aligned with the EU.

In addition to the normative alignment of legislation on R&TT with the *acquis*, HAKOM actively participated in the work of the working group for the preparation of the draft new Ordinance on R&TT equipment adopted by the MSTI in early 2012.

The new Ordinance lays down conditions that must be satisfied by R&TT equipment placed on the market and /or into operation in the RoC, the manner and procedures for the assessment of compliance of R&TT equipment, the markings and the manner of marking the R&TT equipment and supervision of the relevant market.

The Ordinance entered into force on 1 March 2012 and changed and facilitated the import and placing on the market of the equipment in question. As part of this process, HAKOM suspended all procedures related to R&TT equipment that were initiated by 1 March 2012 and equipment which complies with the provisions of the Ordinance could be freely placed on the market, which is also the case for future imports of R&TT equipment. Natural and legal persons importing such equipment or placing it on the market are no longer obliged to obtain prior approval from HAKOM before the first import. This eliminated an administrative barrier for entrepreneurs and the related costs, which, in the end, has a positive impact on the market of R&TT equipment and indirectly on the Croatian economy in general.

The Ordinance changed HAKOM's role in the above-mentioned process. HAKOM is responsible for inspection supervision of the equipment that has already been placed on the market which is carried out by the competent electronic communications inspectors. Safeguard measures in the new Ordinance are stricter, in accordance with the provisions of the relevant Directive and aligned with the provisions on market control and with the Act on Technical Requirements for Products and Conformity Assessment. Therefore, the new Ordinance brings more freedom, but also more responsibility, on the other hand.

In 2012, electronic communications inspectors carried out 30 inspections of R&TT equipment that was placed on that market. Furthermore, 2 decisions on the removal of R&TT equipment were adopted because it was put into operation without the appropriate license, and 2 motions were filed because of the possession of devices for interfering with public communications networks without the prescribed license.

Electronic communications inspectors implemented and started market control procedures in cooperation with the State Inspector's Office on the basis of reports from the RAPEX system, and they have been actively participating in the implementation of the ICSMS system which becomes an obligation after the accession of the Republic of Croatia to the EU.

Furthermore, inspectors conducted joint inspections in 2012 in cooperation with other inspection bodies in the RoC as part of the Commission for coordination and communication between inspections competent for supervising products placed on the market and/or at disposal on the market in the Republic of Croatia.

1.11 Management of the addressing and numbering space

One of HAKOM's tasks is to ensure efficient use of addresses and numbers and to manage the addressing and numbering space in the RoC. HAKOM is therefore carrying out the following activities:

- assigns addresses and numbers to operators on the basis of the Addressing Plan and the Numbering Plan,
- supervises number portability and carrier preselection,
- monitors the work of the Central Administrative Database of Ported Numbers (CADPN) and takes into account the necessary changes to ensure its proper functioning,
- controls the use of addresses and numbers,

1.11.1 Addressing and numbering space

One of HAKOM's important tasks is efficient management of the addressing and numbering space in the RoC. Only transparent, objective, proportionate and unbiased allocation of addresses and numbers to operators at any time fosters fair competition on the market of electronic communications. According to the Numbering Plan of the Republic of Croatia, short codes (numbers) 192, 193, 194 and 1987 are reserved for future needs of emergency services (police, fire department, emergency medical assistance and the National Headquarters for Search and Rescue at Sea, HAK Roadside Assistance[39]). On the basis of that, the former number for emergency service of "Emergency medical assistance " 94 was changed to the proposed new number 194, and the former number of the emergency service of the "National Headquarters for Search and Rescue at Sea" 9155 was changed to the proposed new number 195 for the purpose of alignment with the provisions of the Plan (the implementation of numbers 194 and 195 took place in the first half of January and in February 2013).

The numbering plan (which entered into force in February 2013) further regulated the availability of the short codes for SMS/MMS to all operators, instead of individual operators, which created problems to the work of operators of special tariff services. Furthermore, the number for the universal access number was changed since the existing number 62 was unclear to users because it was within the 6x range with is dedicated to special tariff services in all other cases. The new number is 72.

The increase in the number of operators in the EU results in the increased demand for resources in the addressing and numbering space. A similar trend may also be noticed in the Republic of Croatia which requires continuous training of employees in the department to keep up to date with international trends in the introduction of new technologies on the EC market and with the application of new IT aids for the management of the addressing and numbering space. Consequently, in 2012 HAKOM improved the management of a list of the allocated addresses and numbers by offering the possibility for browsing the allocated addresses and numbers on HAKOM's website. Furthermore, numbers may be searched by operator and by prefix, and the results of the search show currently allocated and active addresses and numbers. It is also possible to search operators and activities, that is, to search by operator or by activity. Active activities will be presented for the selected operator. All operators registered for the provision of the activity in question will be displayed for the selected activity.

As parts of its competence, HAKOM actively participates in different activities related to the promotion of protection of children and safe use of the Internet and electronic communications services. During the implementation of the project "Allocation of numbers for services of social value

[39] In accordance with the Ordinance on the use of number 112, HAK's number belongs to emergency service numbers

in the Republic of Croatia", HAKOM allocated the number 116111 for child helpline as part of harmonized European short codes from the 116XXX range intended for services with special social sensitivity. The right of use was granted to the Brave telephone for 3 years.

In order to achieve the objective of "same number-same service" throughout the EU, the European Commission adopted on 15 February 2007 a Decision on reserving the national numbering range beginning with "116" for harmonized short codes for services of social value (2007/116/EC). According to this decision, services of social value are very important for visitors from other countries. The mentioned decision clarifies the meaning and importance of services of social value.

The harmonization of numbering resources is necessary so that services provided in different Member States may be available to end users by using the same number. The combination "same number - same service" will ensure that a certain service is always linked to a certain number in the EU, regardless of in which Member State the service is provided. This will provide a service with pan-European identity to the benefit of the European citizen who will know that by dialling the same number in different Member States they can get the same service. This measure will encourage the development of pan-European services.

1.11.2 Number portability

In order to remove barriers to entry of new participants in the market, it is very important to offer the number portability service to all users of services. An increasing number of market participants requires continuous upgrading of the portability database while taking into account the demands of market participants and making number portability much simpler in the administrative sense. In order to enable simple and quick number porting for the end user, HAKOM focused the majority of its activities in 2012 on the improvement of the number portability process in the manner that it paid special attention to administrative procedure of number portability, and the upgrading of the CADPN was completed.

Figure 1.42. Number of ported numbers in the mobile network

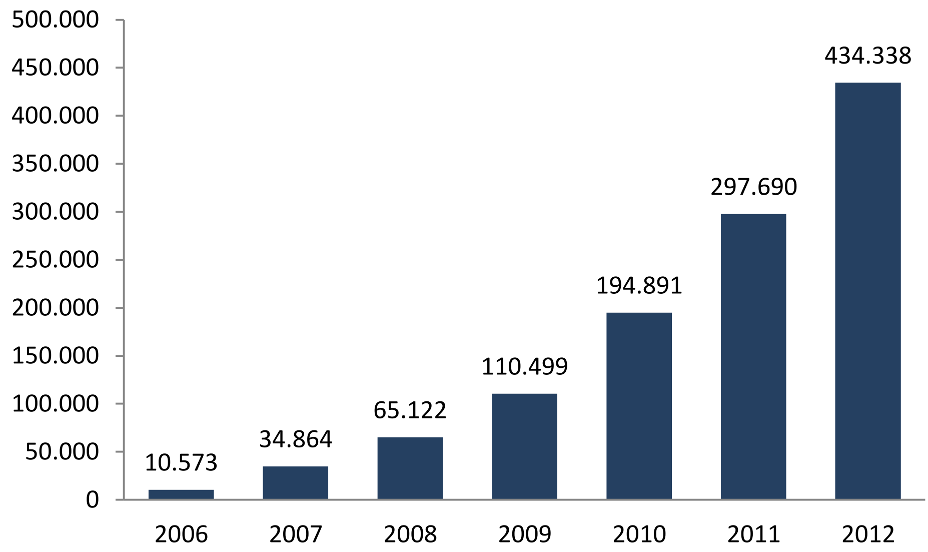
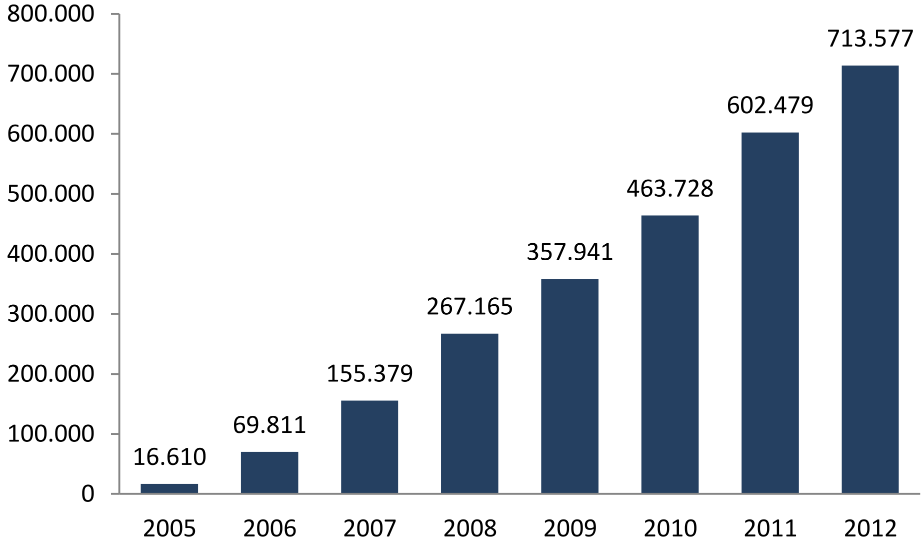


Figure 1.43. Number of ported numbers in the fixed network



e-Portability, the application on HAKOM's portal which is most used 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.

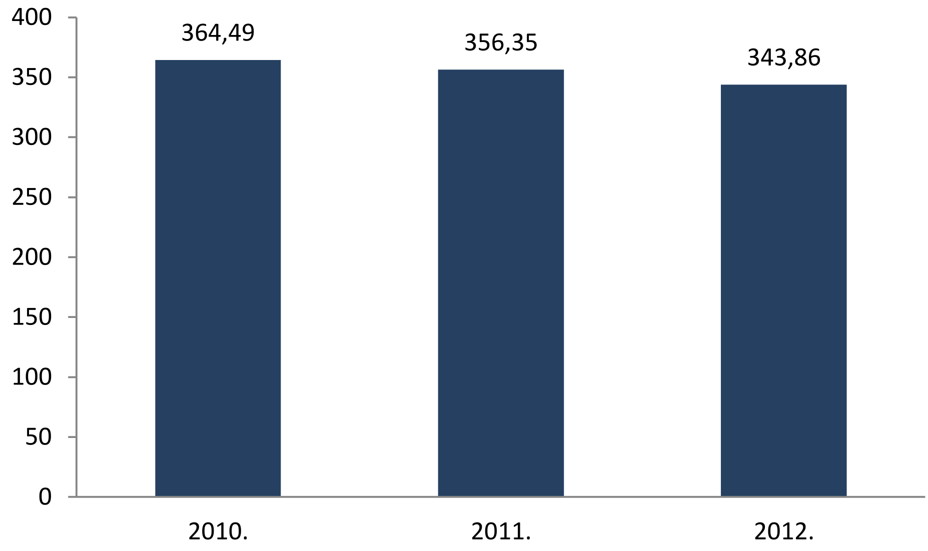
2 POSTAL SERVICES MARKET

2.1 Development of the postal services market

The unfavourable economic situation influenced the postal services market as well so that total indicators about the situation on the postal services market in 2012 are somewhat poorer that in the previous years, that is, a negative trend from the previous years was continued. If the economy does not recover, it is to be expected that the trend will continue in the future. Indicators about the postal services market have been presented in the Report for the public operator HP and collectively for all other providers of postal services.

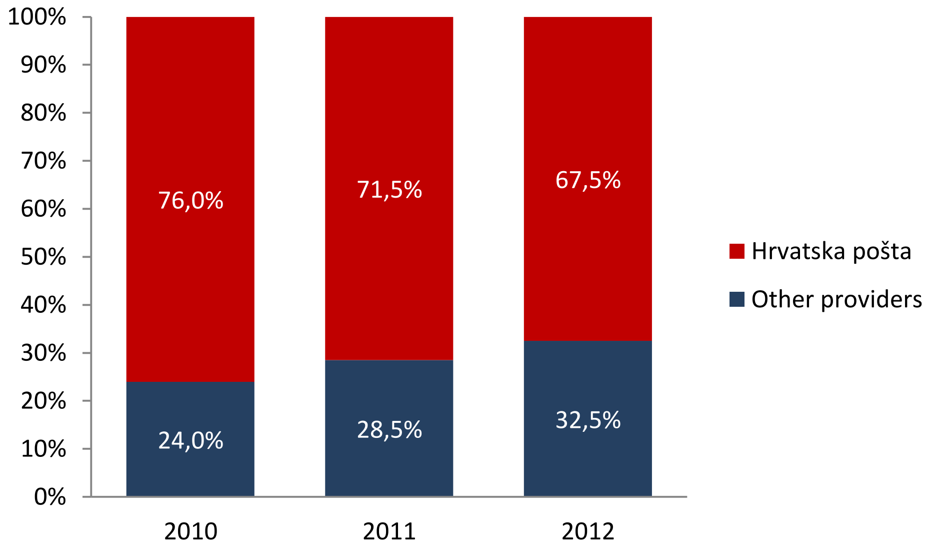
A total of 343,860,317 services was provided on the postal services market in 2012 with a decrease of 3,5 percent compared to the year before (Figure 2.1.)

Figure 2.1. Total number of postal services (in millions)



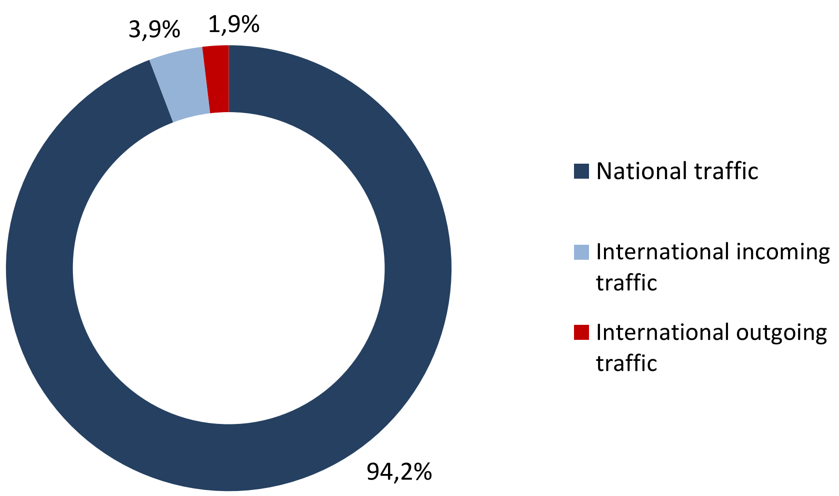
Out of the total number of services on the market, HP's share with 231,933,859 services was 67 percent, while other providers provided 111,926,458 services. When the number of services provided by HP and other providers of postal services in 2012 is compared to the year before, HP's total number of provided services fell by nine percent, while the number of services provided by other service providers increased by approximately ten percent. HP remained the leading provider of postal services in 2012 but its share on the total postal services market decreased by four percent (Figure 2.2.)

Figure 2.2. Market shares in the total number of provided services



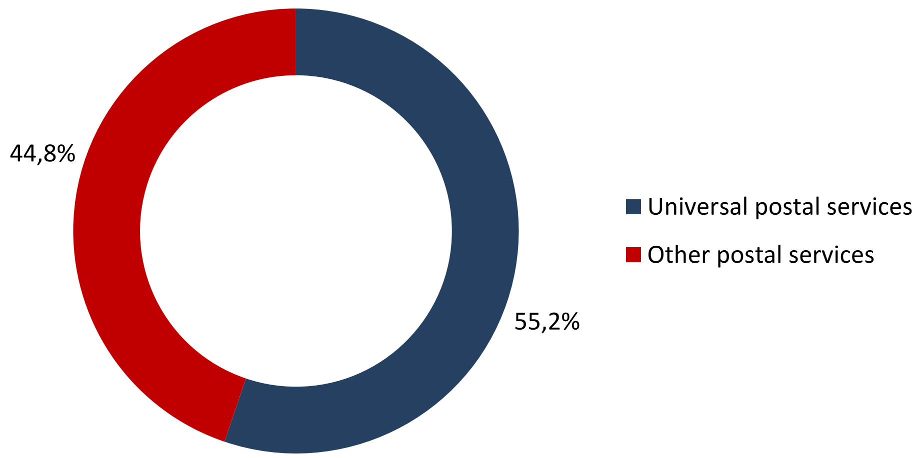
A total of 323.9 million of services or 94.2 percent were provided in national traffic, 13.3 million or 3.9 percent in international incoming traffic and 6.7 million of services of 1.9 percent in international outgoing traffic (Figure 2.3.) The mentioned shares did not change significantly compared to 2011.

Figure 2.3. Shares of postal items per type of traffic



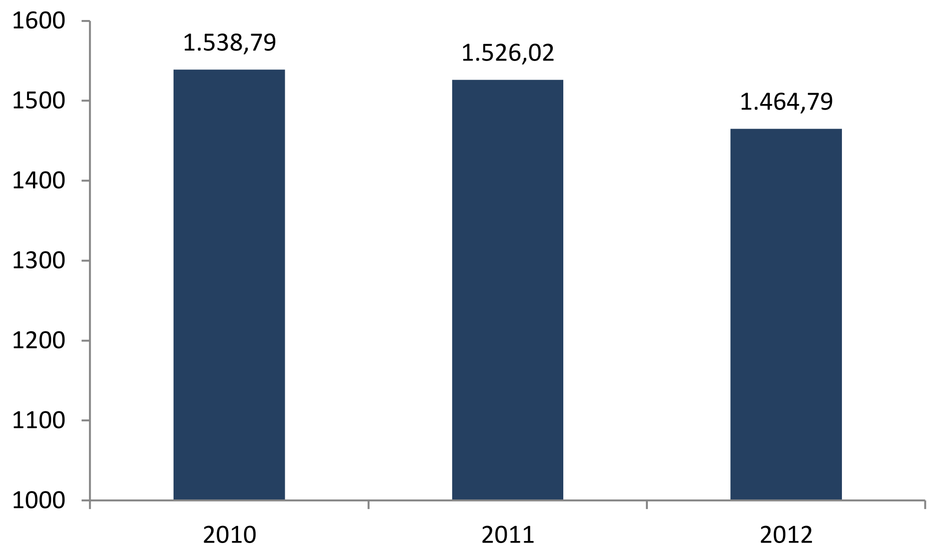
Out of the total number of services in domestic traffic, HP's share was about 66 percent , in the total number of services of international traffic, HP's share was around 97 percent, and the rest was provided by other operators. The structure of all provided postal services (Figure 2.4) shows that universal postal services made almost 55 percent of all services, and the rest were other postal services.

Figure 2.4. Share of types of services



Revenue reported by providers of postal services in 2012 amounted to HRK 1,464,786,871[40] which is four percent less than in 2011 (Figure 2.5). The decrease in revenue is partially due to the fall in the total number of services and partially due to the fall in prices of services as a result of increased competition on the market of postal services.

Figure 2.5. Total revenue from postal services (millions of EUR)

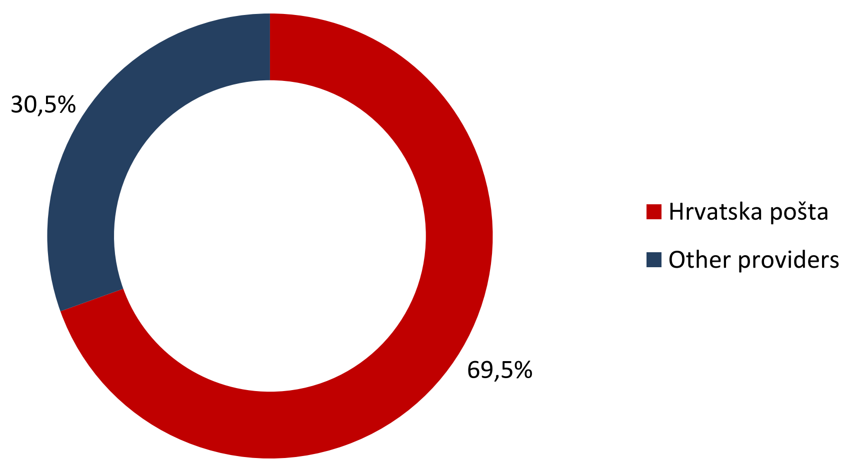


Out of the total revenue reported in 2012, HP earned a total of HRK 1,018,399,606 in revenue or nearly 70 percent, while other providers earned the remaining HRK 446,387,265 (Figure 2.6).

Compared to 2011, HP's revenue fell by nearly seven percent, while the revenue of other providers increased by nearly four percent. HP's share in the revenue on the entire market decreased by around two percent compared to the year before.

[40] Revenue from the provision of postal services only

Figure 2.6. Share of revenue of postal service providers



In early 2012, there were 23 notified providers of postal services providing postal services on the basis of a license and/or a notification and at the end of the year, there were 21 providers (Table 2.1.): One new notification for the provision of other postal services was received in 2012 and one application for the granting of the licence for the provision of universal services of a provider who already provided postal services on the basis of a notification. Since three providers of postal services informed HAKOM about the termination of provision of other postal services, they were removed from the register and from the list of providers that are published on HAKOM's website.

Out of all providers listed in Table 2.1., only HP is the provider of all universal postal services pursuant to the Postal Services Act (hereinafter: the PSA) with a right and obligation to provide all universal postal services in the entire territory of the Republic of Croatia, while the remaining three providers of universal postal services provide only a part of universal postal services in accordance with the licence. The remaining 17 providers, as well as HP and providers who have been granted the licence for the provision of universal postal services, have been notified for the provision of the remaining postal services.

In relation to the type of service they provide, 16 providers have been notified for all remaining postal services, four providers only for value added services and one provider for other postal services which are not universal services. In relation to the area in which they provide their services, 11 providers have been notified for the provision of services in the territory of the RoC and in international traffic, and nine providers for the provision of services only in the territory of the RoC.

According to data delivered by providers at the end of 2012, a total of 10,895 people worked on the provision of postal services, out of which 8,137 were employed by HP, that is, about 75 percent, while other providers employ 2,758 people. It must be underlined that, compared to the year before, other providers of postal services increased the number of employees by 22 percent, while HP's number of employees decreased by approximately one percent.

Table 2.1. List of providers of postal services at the end of 2012

Postal service providers		
Providers of universal postal services		
HP - HRVATSKA POŠTA d.d.	Jurišićeva 13	Zagreb
POST d.o.o.	Zastavnice 38	Hrvatski Leskovac
LIDER EXPRESS d.o.o.	Ulica Sv. Roka 3, Donje Sitno	Žrnovnica
CITY EX d.o.o.	Donje Svetice 40	Zagreb
Providers of other postal services		
HP - HRVATSKA POŠTA d.d.	Jurišićeva 13	Zagreb
DHL – INTERNATIONAL d.o.o.	Utinjska 40	Zagreb
DPD CROATIA d.o.o.	Franje Lučića 23	Zagreb
LAGERMAX AED CROATIA d.o.o.	Franje Lučića 23	Zagreb
INTEREUROPA d.o.o.	Josipa Lončara 3	Zagreb
IN TIME d.o.o.	Velika cesta 78	Zagreb
RHEA d.o.o.	Buzinski prilaz 36/a	Zagreb
LIDER EXPRESS d.o.o.	Ulica Sv. Roka 3, Donje Sitno	Žrnovnica
ZUM DISTRIBUCIJA d.o.o.	Slavenskog bb	Zagreb
BICIKL EXPRESS d.o.o.	Radićev odvojak 37	Velika Gorica
OVERSEAS TRADE Co. Ltd d.o.o.	Zastavnice 38a	Hrvatski Leskovac
TISAK d.d.	Slavonska avenija 2	Zagreb
NOVA DISTRIBUCIJA d.o.o.	Između dolaca 11	Nova Mokošica
A1 DIREKT d.o.o.	Majstorska 6	ZAGREB
POST d.o.o.	Zastavnice 38a	Hrvatski Leskovac
NADA, obrt za usluge prijevoza, Goran Andrašec	Vukomerec 26	Zagreb
CITY EX d.o.o.	Donje Svetice 40	Zagreb
A2B EXPRESS d.o.o.	Bani 108	Zagreb
ZUM 2010 d.o.o.	Jelkovečka 5	SESVETE
PRINT CENTAR KRAPINA d.o.o.	Slatina Svedruška 39	Petrovsko
VUK-COM d.o.o.	Ogulinska 6A	Novi Vinodolski

2.2 Overview of the postal services market

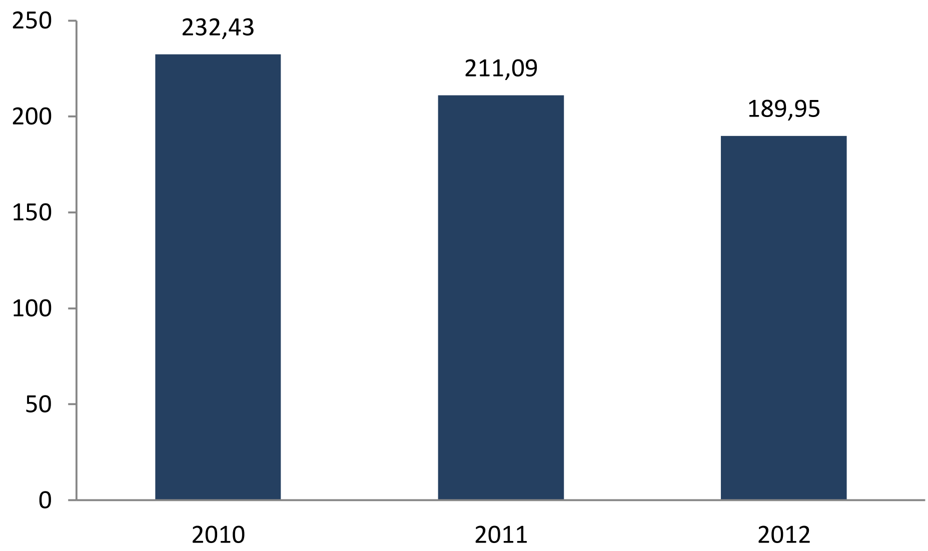
2.2.1 Universal postal services

Universal postal services represent a set of postal services of a certain quality which are available at an affordable price to all users of postal services in the area where the licence has been issued, whereby the public operator must ensure availability of these services under equal conditions to all users in the entire territory of the Republic of Croatia. Universal postal services include the following services in domestic and international traffic: clearance, sorting, transfer and delivery of postal items, registered items and insured items up to 2 kilograms; clearance, sorting, transport and delivery of packages up to 10 kilograms in domestic traffic and clearance, transport and delivery of packages up to 20 kilograms in international traffic and clearance, sorting, transport and deliver of cecograms up to 7 kilograms, free of charge.

HP is the provider of all universal postal services and has the right and obligation to provide universal services in the entire territory of the Republic of Croatia, as opposed to other three providers who have been granted a licence to provide universal postal services which covers the entire territory of the Republic of Croatia, but does not include all universal postal services. In addition to HP, universal postal services were provided in 2012 by two other providers (out of a total of three with a licence) but their results on the total market are almost negligible and data and indicators for universal postal services are almost identical to data and indicators of the public operator.

Providers of postal services provided a total of 189,848,574 universal postal services in 2012 which is almost ten percent less than the year before when a total of 211,085,855 services were provided. The decrease is a continuation of a downward trend from the previous years (Figure 2.7.)

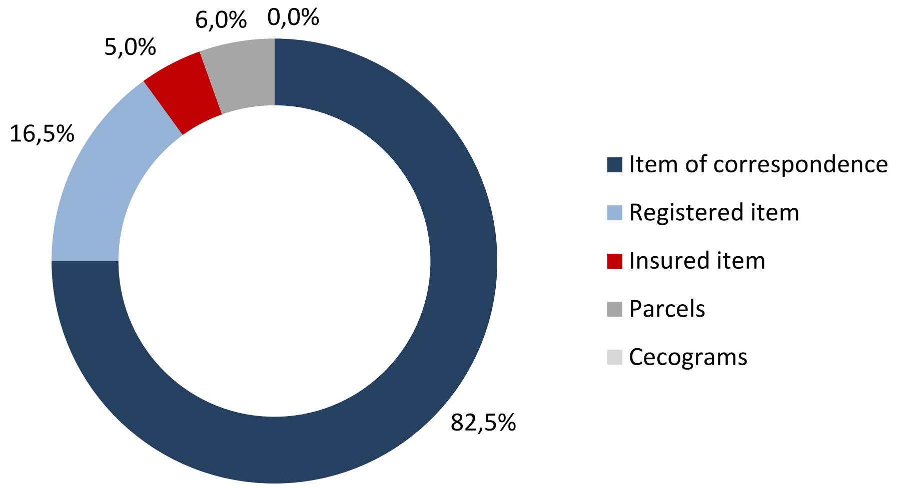
Figure 2.7. Total number of postal services (in millions)



The share of other postal services among total postal services was 55 percent in 2012, which is approximately four percent less than in 2011. Out of the total number of universal postal services, a total of 171.5 million, or almost 90 percent, were reserved universal postal services, which is a decrease of approximately one percent compared to the year before. A total of 91 percent of postal services were provided in domestic traffic, 3.3 percent in international outgoing traffic and 5.8 percent in international incoming traffic.

It is obvious from the structure of provided universal postal services (Figure 2.8.) that items of correspondence, which amounted to 156.5 million made up almost 82 percent of all universal postal services, registered items with 31.3 million made almost 16 percent, and packages with 1.1 million of provided services and insured items with 0.9 million made up less than one percent, while the share of cecograms in the total number of universal postal services was almost completely negligible. Compared to 2011, the share of items of correspondence was decreased by approximately one percent, and the share of registered items was increased.

Figure 2.8. Shares of provided universal postal services per type



In 2012, providers of postal services reported revenue from the provision of postal services amounting to HRK 782.2 million, or almost eight percent less than the year before.

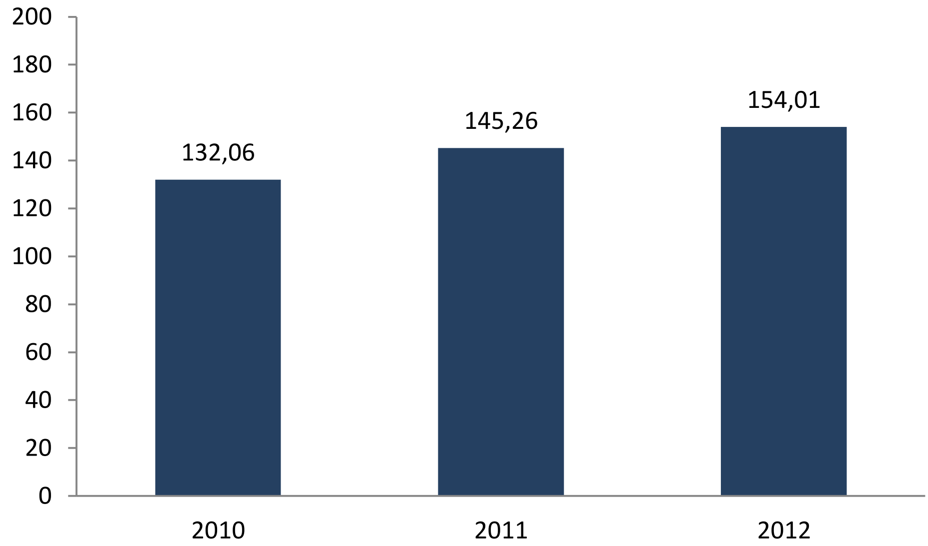
2.2.2 Other postal services

Other postal services include value added postal services and other postal services which are not universal postal services[41].

In 2012, providers of postal services provided a total of 154,011,743 other postal services according to the submitted data, which is almost six percent more than in the year before and a continuation of a positive trend from the previous years (Figure 2.9)

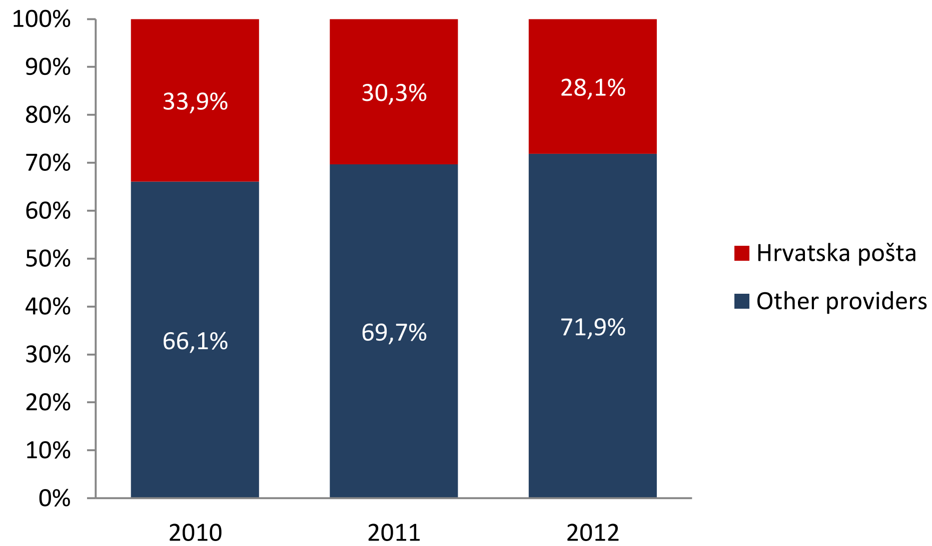
[41] Definition from the Postal Services Act

Figure 2.9. Total number of other postal services (in millions)



The share of other postal services among total postal services was 45 percent, which is four percent less than in 2011. HP's share in the number of other postal services was 28 percent or 43,307,169 services and other providers of postal services provided the rest with 110,704,574 provided services. HP recorded almost two percent less of provided other services compared to the year before, and other providers increased the number of these services by around nine percent. Thus, other providers not only maintained the leading position in the provision of other postal services but also increased their market share by almost two percent (Figure 2.10)

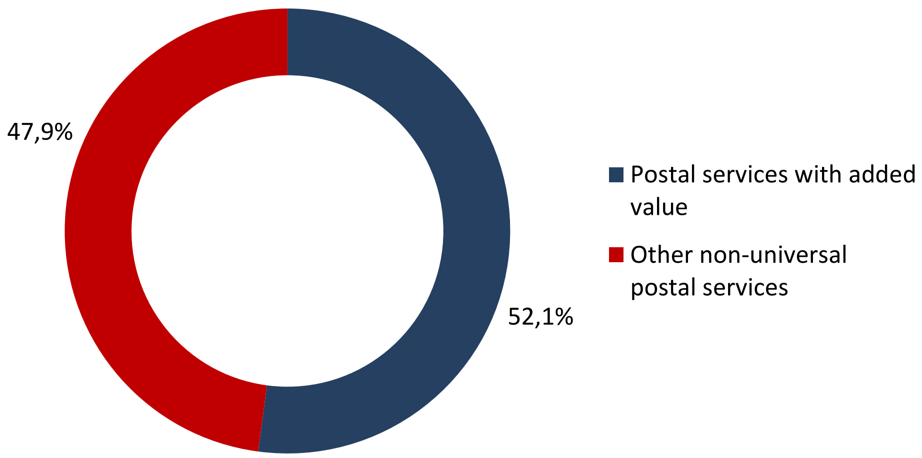
Figure 2.10. Market shares of providers according to total number of provided services



The majority of other postal services, nearly 98 percent, were provided in domestic traffic, 0.3 percent in international outgoing traffic and 1.4 percent in international incoming traffic.

It is obvious from the structure of the total provided postal services (Figure 2.11.) that value added postal services with 80.3 million of services made up nearly 52 percent of all postal services, and other postal services, which are not universal, made up almost 48 percent with 73.7 million. Compared to 2011, the share of value added postal services increased by nearly one percent.

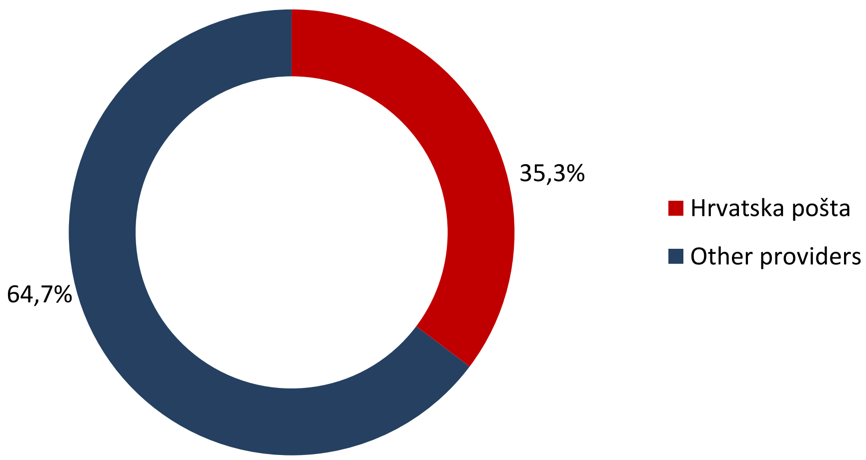
Figure 2.11. Shares of provided other postal services per type



Within the framework of other postal services which are not universal, the greater share was taken by the delivery of printed matter with almost 46 percent share, and direct mail with 42.3 percent share, where the share of the delivery of printed matter decreased by almost six percent compared to the year before, and the share of direct mail services by three percent.

Providers of postal services reported total revenue of HRK 682,589,832 million in 2012, which is about one percent more than the year before, out of which HP made HRK 240.8 million in revenue or almost 35 percent, and other providers earned HRK 441.8 million (Figure 2.12).

Figure 2.12. Share of revenue of providers of other postal service



Compared to 2011, HP's revenue from the provision of other services decreased by almost four percent, while other providers increased their revenue from those services by almost three percent. Therefore, the share of HP in the total 2012 revenue from the provision of postal services which are not universal services dropped by one percent compared to the year before.

2.3 Regulatory measures on the postal services market

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

- proactively – by giving initiatives for further development of the postal services market;
- correctively – reaction to noticed situations and development trends on the postal services market.

Within the proactive component of its activities, HAKOM collects, analyses, directs and publishes data, information and documents on the situation on and development of the postal services market. HAKOM strengthened and confirmed its role of the market regulator by means of frequent contacts and cooperation with all providers of postal services on the market and by guiding postal services providers towards complete market liberalisation.

The corrective component of HAKOM's activities includes the undertaking of appropriate measures to guide the development of the postal services market in accordance with the PSA.

Regulatory activities in the sector of universal postal services

Since 1 January 2011, pursuant to the PSA and the Ordinance on the provision of universal postal services (OG 37/10), the public operator, HP, must ensure to all users one collection and one delivery of a postal item to the home address or premises of any natural or legal person for at least five working days a week. The PSA and the Ordinance on the provision of universal postal services left the possibility for excluding the maximum of 10 percent of the total number of households in the RoC (according to the results of the census) from the application of this provision and in special geographical conditions or other circumstances. The public operator provided a list of all discrepancies in the provision of universal postal services for 2012 according to which the obligation of delivery during five working days to the home address, that is, to the premises of a legal or natural person does not apply to 9.66 percent of households in the RoC (142,531 out of a total of 1,476,042 households).

In 2012, HAKOM received an application from the company CITY EX d.o.o. for the granting of the licence for the provision of universal postal services in the territory of the Republic of Croatia and in international traffic. HAKOM's Council adopted a decision on the granting of the license.

The analysis of tariffs for the provision of universal postal services of Lider Express d.o.o. revealed that prices are contrary to the provisions of the CPA and HAKOM initiated expert supervision *ex officio*.

Regulatory accounting

The PSA imposes accounting obligation on all providers of postal services, and, in particular, on HP as the public operator. From the regulatory point of view, "accounting separation " or "separation of accounts" are two different activities which are included among accounting activities of a postal services provider in order to obtain the appropriate basis for monitoring and/or fulfilment of prescribed obligations, that is, for the adoption of decisions under their competence. "Accounting separation", that is, the keeping and allocating revenue and expenditure according to precisely defined categories, subcategories, groups and types of services and according to activities undertaken for the purpose of providing such services, represents a long-lasting and exceptionally demanding business project.

HAKOM used the opportunity to absorb EU pre-accession funds (under IPA 2009 programme) for the project "Support to HAKOM in the area of accounting separation of postal services". The project was completed in mid-2012. was The producing of the "Manual for Accounting Separation and Cost Accounting" was the main project deliverable:

After public consultation and publication of HAKOM's decision, this document will prescribe detailed and transparent procedures for accounting, separation and reporting. The document will help HP to fulfil its legal obligations and to HAKOM to direct and supervise their fulfilment.

Accounting separation on the part of HP will satisfy HAKOM's need for financial information that will ensure:

- proving that HT complies with cost orientation and non-discrimination,
- investigation of possible non-compliance with the above-mentioned conditions, including distorting competition,
- monitoring the fulfilment of obligations by HP in order to ensure the fulfilment of HAKOM's requirements, including preventing the distortion of competition,
- establishment of price control.

Quality of universal postal services

The achievement of the prescribed quality of universal postal services is one of the primary objectives of the European postal system which is why HAKOM focused in particular on monitoring the quality of provided postal services, pursuant to the CPA and the Ordinance, by means of independent continuous measuring of the time of delivery of regular items of correspondence pursuant to HRN EN 13850 (for priority mail) and HRN EN 14508 (for non- priority items) and HRN EN 14012 (which measures the number of submitted complaints and their resolution). The PSA prescribes the quality criteria for the provision of universal postal services in domestic traffic according to which 85 percent of priority items of correspondence must be delivered within one day, and 95 percent within 2 days, while 95 percent of all other items must be delivered within 3 days. On the other hand, criteria for delivery in European postal traffic are laid down in the second Annex to the Postal Directive only for priority mail, which is accepted in the PSA, and 85 percent of priority postal items must be delivered within 3 days and 97 percent within 5 days. HP has a legal obligation to deliver to HAKOM the annual report on the quality of provision of universal postal services at the latest by 1 April for the previous year. The CPA lays down penal provisions if HP does not deliver the report in question, that is, if it does not satisfy the prescribed quality criteria for the provision of universal postal services.

HP started the first independent and continuous measuring of delivery time of postal items and the measuring of the number of complaints and compensation of damage in accordance with the prescribed standards. On 30 March 2012, it delivered to HAKOM its Report on the Quality of Universal Postal Services for 2011. It was obvious from the Report that the measuring results did not satisfy the legally prescribed criteria because HP satisfied only one criteria out of 5. Taking into account the achieved results and uncertainties with the application of the valid standards by an independent measuring body in domestic traffic, HAKOM conducted the review of the methodology and results used by the independent measuring body in 2012 in order to verify the compliance of the measuring system with the set standards and the accuracy of the results from the Report and to undertake corrective measures to make the quality of universal postal services compliant with the PSA: in late December 2012, HAKOM received an Audit Report stating that data received by a test model in a predetermined delivery time are credible, but it was also established that the measuring system for the quality of delivery of priority and non-priority postal items in domestic traffic is not in compliance with HR EN 13850:2007 and HR EN 14508 which is why it is not possible to verify the reliability of measuring, which, in the end, brings into question the results of measuring of the actual quality of delivery.

According to the 2012 annual report on the quality of provision of universal postal services, it is obvious that the public operator participated in several instances of measuring of the delivery of postal items in international traffic one of which was the continuous measuring of the quality of transmission of priority test postal items with EU member states in accordance with European norms. In the majority of the EU member states, the measuring of quality is carried out by an independent measuring body (UNEX company). The mentioned measuring shows that the prescribed quality criteria were not fulfilled because 58.45 postal items were delivered within D+3 , and 88.4 postal items within D+5.

Independent continuous measuring of the quality of postal services in domestic traffic was carried out for the delivery of priority and non-priority postal items. The independent measuring body provided the following information: a total of 77.99 percent of priority postal items were delivered within D+1, 95.26 percent within D+2, and 95.01 percent of non-priority postal items were delivered within D+3. It is obvious from the above-mentioned indicators that priority test postal items were not delivered within the prescribed D+1 limit.

In 2012, HP received 23,100 user complaints concerning the provision of universal postal service in domestic traffic, and 28 percent thereof were resolved on time. HP's responsibility was established for each seventh complaint that is, in 3,360 cases. The majority of accepted complaints referred to non-delivery (loss) of postal items and to damage to postal items and delayed delivery. In international postal traffic, HP solved 5,124 complaints out of which users submitted 3,499 complaints to HP, while 1,625 complaints came from other countries. HP accepted a total of 943 complaints or 18.4 percent.

Finally, it needs to be mentioned that HAKOM and HP continued their cooperation in 2012 on a series of activities aimed at preparation and quality measuring of quality of provision of universal services in 2013.

Postal network

In early 2012, HP had 1126 postal offices, while, at the end of 2012, a total of 1042 postal offices remained. In 2012, HP closed a total of eighty four (84) postal offices out of which two in the County of Zagreb, five in Vukovarsko-srijemska County, one in Virovitičko-podravska County, two in Varaždin County, three in Šibensko-kninska County; 12 in Splitsko-dalmatinska County, six in Sisačko-moslavačka County, seven in Primorsko-goranska County, one in Požeško-slavonska County, seven in Osječko-baranjska County, two in Ličko-senjska County, two in Krapinsko-zagorska County, six in Koprivničko-križevačka County, ten in Karlovačka County, one in Istarska County, six in Dubrovačko-neretvanska County, three in Brodsko-posavska County, six in Bjelovarsko-bilogorska County. Out of the total number of closed postal offices, one was a seasonal postal office (21237 Okrug Donji), and two were contractual postal offices (52110 Pula-Banjole and 22220 Bilice) and the rest were regular postal offices.

In closing the above-mentioned postal offices, HP fully complied with the provisions of Article 16 of the Ordinance on the provision of universal postal services and ensured a minimum level of quality of provision of universal postal services for users of postal services in accordance with the prescribed criteria. Since the new manner of organisation of business operations did not place users into a less favourable position compared to the previous organisation, that is, the prescribed quality of the provision of postal services was not jeopardised, HAKOM agreed with the proposed closing of postal offices.

Working hours of around a hundred postal offices changed in 2012 with the majority of changes referring to shortened working hours and justified by optimization and uniformity of working hours pursuant to Article 17, paragraph 1 of the Ordinance on the provision of universal postal services.

The shortening of working hours did not have a significant impact on the quality of provision of the universal postal service.

Expert supervision

Due to their complexity, expert supervision initiated over HP, LIDER EXPRESS d.o.o. from Gornje Sitno and CITY EX d.o.o. from Zagreb in 2011 was completed in 2012. Expert supervisions over HP and LIDER EXPRESS d.o.o. were terminated by a decision because it was established that the mentioned providers provided postal services in compliance with the PSA and the granted license for the provision of universal postal services and submitted applications for the provision of other postal services. CITY EX d.o.o. was issued a decision by the postal inspector ordering it to align the provision of value added postal services with Article 10, paragraph 2 of the PSA within 90 days. CITY EX d.o.o. complained against the decision. Concerning the complaint, HAKOM's Council established that it was unfounded and confirmed the postal inspector's decision.

HAKOM began supervision over thirteen providers of postal services in 2012. The subject of expert supervision was the implementation of provisions of the PSA and regulations adopted pursuant to the PSA under HAKOM's competence. Expert supervision in providers of postal services, It was established that A1 DIREKT d.o.o. from Zagreb, RHEA d.o.o. from Zagreb, IN TIME d.o.o. from Zagreb, PRINT CENTAR KRAPINA from Petrovskog, A2B Express d.o.o. from Zagreb, DHL International d.o.o. from Zagreb, INTEREUROP, logističke usluge d.o.o. from Zagreb, BICIKL EXPRESS d.o.o. from Velika Gorica, NOVA DISTRIBUCIJA d.o.o. from Nova Mokošica and the public operator HP Hrvatska pošta d.d. The above-mentioned supervision was suspended by a decision and the postal inspector at the Ministry of the Sea, Transport and Infrastructure was informed thereof accordingly.

It was established during expert supervision of LIDER EXPRESS d.o.o. from Gornje Sitno that the price for delivery of universal postal services was not in compliance with the PSA and a decision was issued ordering to the provider to align its prices with the PSA.

Expert supervision over the provider of postal services ZUM DISTRIBUCIJA d.o.o. was not possible because this provider does not exist at the given address and since it was not possible to establish contact with the provider, it was proposed that the provider be removed from the register of providers of postal services and removed from the list of providers of postal services published on HAKOM's website.

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

Pursuant to the PSA, HAKOM is, among other things, competent for monitoring the situation and development of the postal services market. Therefore, in 2012, HAKOM continued collecting statistical, financial and other data from providers of postal services, and data were collected quarterly and annually. A part of data was collected as part of the statistical survey of the postal services market carried out by the EC and EUROSTAT, with HAKOM as the competent authority for the project in the RoC. Data collected and processed in this manner is used for monitoring and analysis of the situation on and development of the postal services market and for the purposes of comparison with previous periods.

3 CONSUMER PROTECTION

The implementation of the established principles and objectives of the policy for the development of the electronic communications and postal services markets under the competence laid down in the ECA, PSA and special laws promotes giving clear and transparent information to end users. The benefit of end users is ensured by applying the principle 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, in particular by making available simple and inexpensive dispute resolution procedures pursuant to the provisions of the ECA and the PSA.

3.1 Protection of users of public communications services

HAKOM further ensured conditions for high level of user protection in 2012 by controlling General Terms and Conditions of operators and the implementation of provisions of the Ordinance on the manner and conditions for the provision of electronic communications networks and services. The alignment of bylaws with the above-mentioned amendments was carried out within the legal time limits by all operators of electronic communications.

3.1.1 Legislative and regulatory measures aimed at the protection of users

The Ordinance on the manner and conditions for the provision of electronic communications networks and services entered into force in early 2012 aligning the obligations and procedures of operators pursuant to the amendments to the ECA. Following detailed analyses of market requirements and changes in accordance with development trends on the electronic communications market for the purpose of additional, increased protection of users, operators are obliged to provider services in such a manner that.

- Operators may limit a mobile device or a data Internet access device (USB stick) for operation only within its own network provided that it is taken by the subscriber on the basis of a signed contract of obligatory duration. After the expiry of contractual obligation or in case or early termination, the operator must enable the subscriber, upon his or her request, without compensation and within the shortest possible period of time, to continue using the device in other networks. Users of pre-paid services must be given the same possibility after 12 months of use of service provided that they demonstrate the bill for the purchased mobile device.
- Operators must monitor usual behaviour of end users when using public communications services and notify them as soon as possible of any unusual or sudden increase in costs of use of public communications services during any individual billing period. The end user of services must be warned if the cost of use of public communications services is double the average amount of the bill for public communications services in the previous three (3) months.
- If an end user has been using the service for less than three (3) months, he or she must be notified within the shortest possible period of time when the total cost of use of public communications services is double the contracted amount of the minimum monthly spending or monthly subscription.
- In case of justified suspicion of abuse in use of public communications services, an operator of public communications services may suspend the provision of the service to the end user if the use exceeds the usual amount of the bill for public communications services by four times in the previous three (3) months.

- Operators shall be obliged to inform their end users on time and free of charge about the usage of the contracted amount of the tariff package, tariff model and tariff option, pursuant to the agreement with end users.
- In case of contracts for use of mobile broadband services with a USB stick with obligatory minimum duration of contract, the operator must ensure a trial period for use of the service in the duration of at least two (2) days and make possible to the subscriber to cancel the contract within that period of time and waive the penalty for early termination of contract. A subscriber shall be obliged to pay for the traffic in the trial period.
- In case of roaming, operators of mobile public communications services must inform end users about prices of calls, SMS/MMS and data traffic by means of a text message every time the end user is registered on a roaming network. If a user is registered several times within the period of seven (7) days on a same roaming network, the operator shall no longer be obliged to inform the above-mentioned by means of a SMS message. Automatic information messages may be disconnected upon user request.
- Operators must enable end users, upon their request and without compensation, to block the sending and/or receiving of text messages (SMS) and multimedia messages (MMS message) within the special tariff service.
- Operators in fixed public communications networks must advertise minimum broadband speed rates in the same manner as maximum broadband speed rates.
- Operators must define the minimum broadband speed for all of their packages which contain the broadband access service up to 10Mbit/s in such a manner that it represents at least 50% of the maximum (advertised) broadband speed during peak traffic (19-23h) or maximum speed of the previous lower retail package, depending on what is more favourable for the end user.
- Operators must define the minimum broadband speed for all of their packages which contain the broadband access service up to 10Mbit/s in such a manner that it represents at least 70% of the maximum (advertised) broadband speed during peak traffic (19-23h) or maximum speed of the previous lower retail package, depending on what is more favourable for the end user.
- If he or she has complaints about fixed broadband speed, the end user must submit to the operator the results of at least seven (7) tests conducted during peak traffic (19-23h) in a period of ten (10) consecutive days and at least one test must be carried out every 24 hours. Measuring is carried out by means of a certified tool for measuring broadband speed developed by the Agency. The mentioned measuring results represent the appropriate evidence in the complaints procedure and measuring may be repeated, if necessary, by the operators and/or by HAKOM.
- Operators must clearly inform the end user at the moment of signature of the subscription contract of the obligation to test broadband speed in case of complaints.
- If the operator did not ensure to the end user the contracted, i.e., minimum broadband access speed, the operator must offer to the end user the possibility to change his package to the package which is closer to realistic broadband speed or to terminate the contract without compensation, whatever the user decides.
- When providing services by sending/receiving SMS/MMS messages, operators of special tariff services must notify end users free- of -charge about usage for each individual service with a special tariff (one-time or subscriber) used by the end user after every HRK 150.00 spent or every 30 SMS/MMS messages billed, whichever is earlier. The usage report must contain the total amount spent up to the moment of sending the report. In case of subscription services, following the fulfilment of previously prescribed circumstances, the operator of special tariff services must request from the end user an SMS/MMS confirmation for further use of the service. If the end user did not use a certain service provided by

sending/receiving SMS/MMS messages in a period longer than six (6) months for a certain service, the monitoring of usage costs must start from the beginning.

Pursuant to the Ordinance on the manner and conditions for the provision of electronic communications networks and services (OG, 154/11), which entered into force on 6 January 2012, that is, pursuant to the obligations referred to in Article 37, paragraph 10, HAKOM was obliged to develop a tool that will enable users to measure Internet access speed in fixed electronic communications networks. In early November 2012, the tool (**HAKOMetar**[42]) became available to end users who may use it to test the speed of broadband Internet access and compare it with the speed agreed with the provider of the service. Furthermore, the speed testing results also serve as a basis for complaints to operators in case of speed that is slower than the agreed speed, i.e., than the minimum speed the value of which depends on the agreed maximum speed. From the beginning of availability until the end of 2012, it is obvious from statistical data that the tool justified its purpose since 15 thousand tests were conducted.

3.1.2 Dispute resolution between users and operators

Analysis of received user complaints in 2012

From the analysis of the total number of received requests for dispute resolution made by end users in 2012, it may be concluded that users are increasingly aware of the possibility for objective exercise of their rights through dispute resolution before HAKOM. In accordance with the complaints procedure laid down in the ECA on the basis of received documentation and comments of end users and operators and after having received a proposal by the Consumer Protection Commission, HAKOM resolves the dispute by adopting a decision. The Commission consists of seven members two of whom are representatives of the Union of Consumer Protection Associations and five are HAKOM’s employees.

Pursuant to the law, the end user may file the following:

1. a complaint against the amount charged for the provided service,
2. a complaint against the quality of the provided service,
3. a complaint due to the violation of provisions of the subscription contract or operator's omissions.

Below is an overview of registered cases classified by the reason for the submission of the complaint with statistical indicators of received complaints since 2008 when the market was additionally regulated and operators were imposed certain obligations for the purpose of high user protection. The growth trend in the number of complaints (Table 3.1.) from 2008 until today shows that this particularly demanding market is developing quickly and that users are more involved in the protection of their rights.

The number of bill complaints in 2012 was proportionate, while the number of quality complaints increased significantly which shows that users have become more demanding and more sensitive in relation to the quality of service. The increase in the number of quality complaints also resulted from a greater offer of 3 in 1 packages of services, including voice service, broadband access service and IPTV service. Insufficient Internet speed is a justified cause of user dissatisfaction in the use of 3 in 1 packages of services. Special attention is dedicated to general questions of users who sometimes demand additional interpretation of regulations and actions of operators in accordance with the law.

[42] http://www.hakom.hr/default.aspx?id=1144

Table 3.1. Number of registered cases

Year	Number of cases	Bill complaints for the provided service	Quality complaints for the provided service,	Complaints for violation of provisions of the subscription contract or operator's omissions
2008	915	654	261	
2009	930	687	243	
2010	1011	764	247	
2011	1783	1129	316	338[43]
2012	2314	1392	539	383[44]

On the basis of the received complaints, HAKOM monitors problems on the electronic communications market and acts within its competence by carrying out inspection supervision.

Complaints per type

The detailed analysis of complaints per type (Table 3.2), except for bill complaints and quality complaints and violations of provisions of the contract or operator's omissions, resulted in the classification of complaints to complaints against operator's business procedures, carrier pre-selection, number portability or general questions.

Table 3.2. Complaints per type

Type of complaint	2009	2010	2011	2012
Bill complaints	687	764	1129	1392
Quality complaints	111	124	138	224
Carrier pre-selection complaints	24	37	39	32
Number portability complaints	77	50	68	205
Complaints against business procedures	31	36	71	383
General questions			338	78
Total complaints	**930**	**1011**	**1783**	**2314**

The introduction of new benefits for users resulted in a significant increase in complaints related to number portability. If the operator ports a number to a new operator, the user is entitled to a compensation amounting to HRK 10.00 for each started hour outside the agreed number portability framework. A significant share are user complaints concerning operator's omissions which are used by users as a basis for asking for the termination of subscription and number porting, which are received and processed via e-applications. Complaints against business procedures of operators as a rule refer to non-transparent information about services and conditions for use of the selected service provided by sales representatives or customer service representatives.

Analysis of bill complaints

Compared to the year before when an increase of 47 percent in bill complaints was recorded, in 2012 the number of these complaints increased by 23 percent only. This relatively small increase indicates that operators adopted a new regulatory framework and started implementing systems for

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[43] General questions on contract termination and enforcement after the amendments to the ECA
[44] General questions on contract termination and operator's omissions

monitoring the increase in use and habits of end users. On the other hand, the number of complaints increased only slightly as a result of education and information of end users about prices and possible costs before they travel abroad.

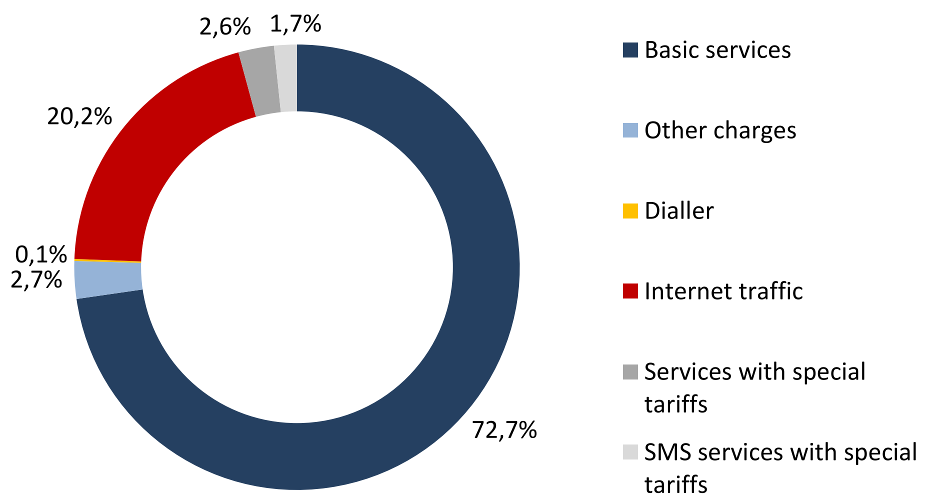
Table 3.3. Structure of bill complaints

Type of complaint	2009	2010	2011	2012
Basic services (monthly fees, tariffs, packages and	216	391	684	1013
Other charges (dunning letters, interests and due	20	15	29	38
Dialler	15	6	3	2
Internet traffic	187	186	266	281
Special tariff services	248	74	71	36
SMS services with special tariffs	156	127	78	23
Total	**687**	**764**	**1129**	**1392**

The number of complaints related to internet traffic has also increased slightly compared to the year before although the number of users in fixed and mobile networks is growing. HAKOM stresses the need for thorough checks of availability of mobile broadband Internet access service and for that purpose it has laid down the obligation for operators to offer a trial use of the service for at least two days and to enable the subscribers to terminate the contract during that period of time without paying the fee for early termination. End users may use HAKOMetar to test the quality of broadband access service, that is, to test the speed of useful data transfer to their computer (fixed network). The results of these tests may be used by end users as evidence in the quality complaints proceedings. Operators are obliged to offer a lower tariff package with a lower price.

Groups of complaints that required further regulation completely disappeared as separate groups (diallers, various games of change - as a separate service with special tariff). A very positive trend is a fall in the total number of special-tariff service complaints as a result of HAKOM's engagement. The most efficient way for the resolution of the problem of non-transparent information in the provision of special tariff services is inspection supervision. All shortcomings laid down in subordinate legislation are established on the basis of inspection supervision.

Figure 3.1. Bill complaints



Analysis of quality complaints

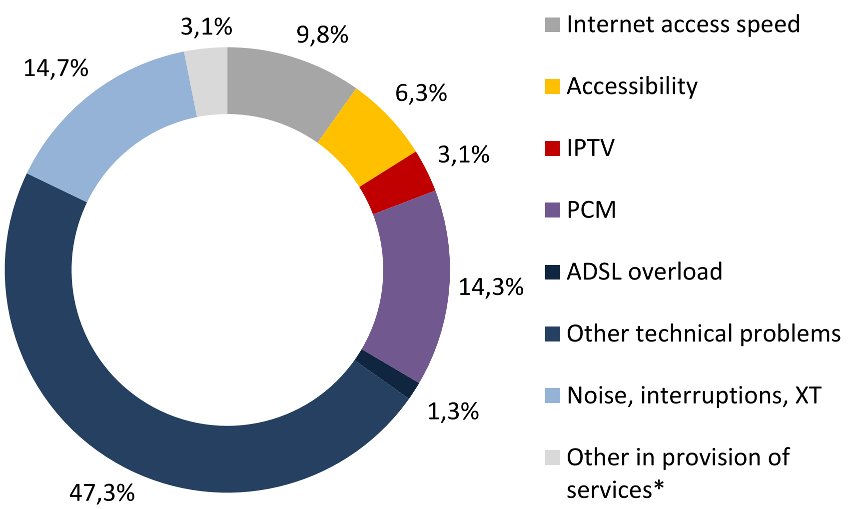
The number of quality complaints is again on the increase compared to the year before. The most significant growth in the structure of complaints (Table 3.4) was recorded as a result of increased use of broadband and more advanced services supported by broadband. The end result is technical impossibility to ensure a better quality service for all potential users.

Table 3.4. Structure of quality complaints

Subject of complaint	2009	2010	2011	2012
Internet access speed	1	4	11	22
Accessibility	7	8	12	14
IPTV	44	2	36	7
Lack of technical possibility to remove PCM devices	20	53	23	32
Inability to use ADSL due to network overload	3	16	1	3
Other technical problems	20	3	22	106
Noise, interference, crosstalk and signal interruption	16	15	26	33
Other in provision of services	0	23	7	7
Total	**111**	**124**	**138**	**224**

The type of quality complaints that increased refer to other technical problems, which are mostly internet access services, network failure and equipment failure. When ensuring the quality of service, an important element is the equipment chosen by the operator to provide the service.

Figure 3.2. Quality complaints



Analysis of complaints against operators' business practice

With a view to preventing possible omissions in operators’ business practice, HAKOM particularly focuses on control of operators' bylaws and their application in practice. Since a significantly smaller number of complaints against false advertising of operators was received compared to 2011, it may be concluded that the operator is offering services in a transparent manner. An increased number of complaints concerning the number portability service is proportional with the number of number portability requests.

Table 3.5. Complaints against operators' business practice

Type of complaint	2009	2010	2011	2012
Misleading advertising by operators	31	36	71	44
Number portability complaints	24	37	39	32
Number portability complaints	77	50	67	205

User complaints through e-applications

A quick and simple way of resolving a possible problem and dissatisfaction of end users is “Ask us"[45]. HAKOM answers questions of end users and journalists within the shortest possible time. In the majority of cases, users are instructed about further action and registration of users for initiating dispute resolution proceedings before HAKOM via the Internet application "e-Complaints"[46]. Registered users are able to follow the status of their complaint and to receive additional information and send supplementary information by means of the abovementioned application.

Table 3.6. Questions over the Internet

Type of question	2010	2011	2012
"Ask us"	162	380	804
e-Complaints	206	436	732
Questions over the CISUP[47]	0	251	220

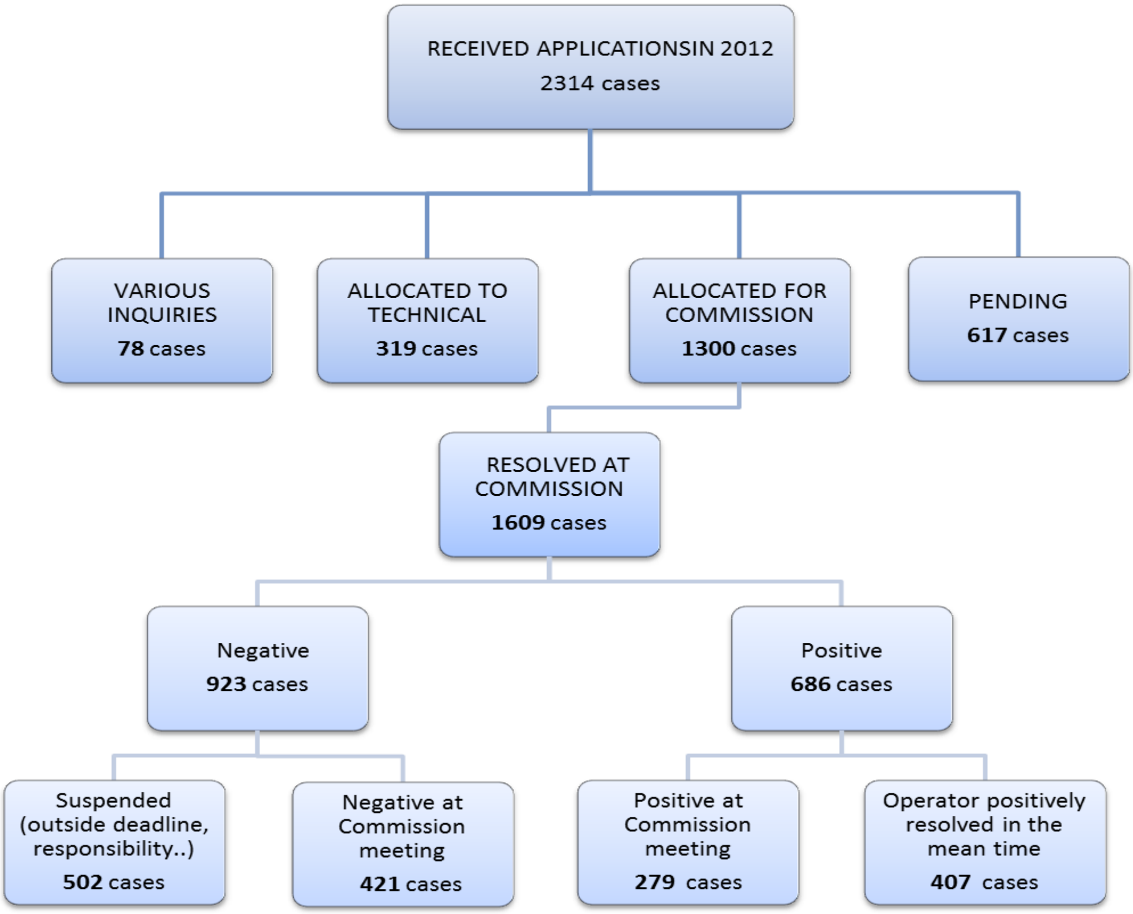
Successful cooperation with the Ministry of the Economy was achieved in 2012 for the implementation of the National Consumer Protection Programme. HAKOM has been actively participating in the information of users through various workshops organized by the Ministry of the Economy.

Overview and analysis of resolved complaints

A total of 12 sessions of Consumer Protection Commissions were held in 2012. There were 1609 cases processed at the above-mentioned sessions. Since the prescribed time limit for the resolution of a case is 4 months, this number includes a part of received cases from 2011 (309 cases). Below is an overview of the structure of resolution of cases in 2012 (Figure 3.3.).

[45] http://www.hakom.hr/default.aspx?id=59
[46] http://www.hakom.hr/default.aspx?id=61
[47] Central Information System of the Ministry of the Economy, Labour and Entrepreneurship

Figure 3.3. Structure of resolution of cases



Out of the total number of classified cases in 2012, a total of 319 cases were processed by technical departments and they were solved directly with operators. 78 requests belonged to the category of general questions related to contract termination and operators' omissions. The Consumer Protection Commission received 1300 cases in 2012. Considering the fact that a part of cases received in the year before is always transferred to the following year, the Commission was also dealing with 309 cases from 2011, that is, a total of 1609 cases. Table 3.7. shows a structure of resolved complaints at the meetings of HAKOM's Commission.

Table 3.7. The structure of resolved complaints at the meetings of HAKOM's Commission

Structure of resolved complaints	2009	2010	2011	2012
Positively	193	408	(40)75	(96)279
Operator positively in the meantime	98	185	(51)285	(74)407
Dismissal of proceedings	62	171	(92)380	(102)502
Negatively	217	255	(119)311	(217)421
Total	**570**	**1019**	**(302)1051**	**(489)1609**

Among resolved complaints in 2012, there was a noticeable increase in the number of resolved complaints in favour of end users, and there were also positively resolved complaints by operator on the basis of HAKOM's opinion. In 407 cases (25 percent) operators reconsidered the subject of the complaint and on the basis of HAKOM's opinion, they changed their initial negative decision. A total of 279 complaints (17 percent) were positively resolved with the direct basis in HAKOM's regulations, and a part refers to a positively resolved complaints based on other regulations. A new regulatory framework which entered into force in early 2012 contributed to a positive growth trend and increase in the number of positively resolved complaints. Out of a total number of complaints, 421 (26 percent) had a negative result. Those were the cases in which HAKOM did not have a legal basis to accept the complaint or users misinterpreted their rights or obligations. In case of 502 complaints (31 percent) a decision was adopted on the dismissal of proceedings for formal or legal reasons (the user did not conduct the prescribed proceedings, exceeded deadline, non-competence). The increase in the number of dismissed cases indicates to the fact that users are aware that HAKOM exists but they are not completely familiar with its role and do not comply with the prescribed procedures and competences.

3.1.3 Preventive activities in consumer protection

HAKOM regularly conducts preventive activities with a view to achieving a high level of consumer protection,. One of the most important activities initiated by HAKOM in 2012, and continued in 2013, is the implementation of an IT system entitled "e-Tariffs":

The e-Tariff simulator will provide the users with the necessary information about the prices of public communications services and their amendments in real time with the offer on the market. For that purpose, HAKOM will offer to end users on its website an independent assessment of charges arising from the prices of public communications services. For that reason, HAKOM started developing and implementing and the IT system for collecting, simulating and presenting data about the prices of services on the electronic communications market in the Republic of Croatia. The e-Tariff system will also enable HAKOM to supervise, in a simple and transparent manner, the offer of public communications services of operators on the market and to promote the development of competition and greater transparency of prices.

The following is an overview of other preventive activities carried out by HAKOM in 2012 to increase the efficiency of consumer protection:

- control and alignment of terms and conditions of operators (terms and conditions of business and pricing systems) defining their business operations and special obligations concerning consumer protection in electronic communications; the terms and conditions for 26 biggest operators were reviewed, aligned with the new law, and approved.
- investigation and control of 459 requests for the existing and new prices and service packages and promotional services of operators;
- operators' questions related to the interpretation of regulations and expert opinions were processed,
- questions from the media and consumer protection associations related to changes in terms and conditions of use of tariff models and consumer protection were processed,
- consumer education through the website and the "Ask us", HAKOM answered all questions under its competence within the shortest possible time,
- the filing of requests for dispute resolution by means of e-applications was enabled,
- contact number for information about specific cases, i.e., assistance and instructions on what and how to act in the case of problems in use in public communications services, the total of 5165 calls were received,
- HAKOM established a new communication channel with citizens and other interested parties by creating its own Facebook page. This page serves as an instant and relevant source of

information about the situation, trends, news and changes on markets of postal services and electronic communications services. It is a place where users may find answers to frequently asked questions about rights and obligations related to the use of postal services and electronic communications services and ask questions and receive advice for actions in specific situations and cases,

- HAKOM's experts provide advice and instructions about protection and information about users' rights and directly answer questions in TV shows on consumer protection including user protection: "Svi smo mi potrošači (We are all consumers)" on Channel 2 of Croatian Radio, "Se bum vas tužil (I'm going to sue you all)" on radio Sljeme and "Cijena prava sitnica"(It’s a bargain!) on Channel 1 of CR.
- a brochure with instructions for the protection of children on the Internet on the occasion of Safer Internet Days in February 2012.
- actively participates in the work of other state institutions on projects concerning user/consumer protection (round table of the Ministry of the Economy on consumer protection, participation in the work of the National Consumer Protection Council).

3.2 Protection of users of postal services

Pursuant to the provisions of the PSA, HAKOM is competent for protecting the rights of users of postal services and for resolving disputes between users and providers of postal services. In accordance with the provisions of the PSA, a user of postal services may submit a written complaint to a provider of postal services if a postal item was not delivered to the recipient, or if it was delivered with delay, or it was not provided, or not provided in its entirety or if the contents of the postal item were damaged or alienated. In case of dispute between users and providers of postal services in relation to the resolution of a complaint, a user may, before initiating proceedings before the competent court or before initiating some other out-of-court proceedings, submit the request for dispute resolution to HAKOM.

HAKOM resolves disputes on the basis of a final decision adopted on the basis of an opinion of the Consumer Protection Commission. 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 before the High Administrative Court of the RoC.

There are differences in relation to dispute resolution with users and operators of electronic communications because, in accordance with the provisions of the PSA, HAKOM was designated as a second instance body in complaints proceedings, which means that the end user will contact the regulator after having received a reply from the service provider. The ECA prescribes that a user is entitled to file a complaint to the operator's Consumer Complaints Commission, and, subsequently to HAKOM as the third instance in the complaints resolution procedure.

In 2012, HAKOM received 49 requests for dispute resolution between users and providers of postal services. Out of the total number of received requests, 47 referred to disputes with the public operator HP- Hrvatska pošta d.d., and the remaining 2 to disputes with other providers of postal services. 40 disputes referred to domestic traffic, and 9 to international traffic.

Out of the total number of complaints in 2012, 37 were resolved in a manner that 24 complaints were refused as unfounded, 6 complaints were accepted, 4 complaints were rejected, and 3 proceedings were suspended. No administrative disputes were initiated against HAKOM's decisions before the High Administrative Court of the Republic of Croatia.

In relation to types of complaints, 25 dispute resolution requests referred to contracted services that were not provided out of which 17 resulted from lost or undelivered registered items. A total of 4 disputes were initiated due to non-fulfilment of a contractual obligation, 3 disputes referred to non-compliance with deadlines for delivery, and 17 disputes were initiated because of damage or loss of contents of a postal item.

3.3 Protection of children

HAKOM actively participates in different activities related to the promotion of protection of children and safer use of the Internet and electronic communications services. For that reason, in 2012 it joined and supported the action "Safer Internet for Children and Youth " which was held on 4 February 2012. A brochure for children and parents was prepared on that occasion with detailed instructions on protection during use of electronic communications services.

With a view to additionally strengthening the protection of children during Internet use, parents may ask from their operators to ban access to contents which are not appropriate for children.

A special focus was placed on promoting parental responsibility and on prescribing the obligations of operators of fixed electronic communications networks.

- Operators of public communications services must, in accordance with the Act, provide to end users, upon their request and free of charge, the following:
    1. barring of sending and/or receiving of SMS messages and MMS messages as part of special tariff services.
    2. offer to all end users the possibility to ban access to contents which are not appropriate for children (if technically feasible); Operators of fixed electronic communications networks or their authorised retailers must offer this possibility at the moment of signature of the subscription contract. If the subscriber chooses to use this possibility, the use of the service may start at any time during the validity of the contract and it will remain in force until its cancellation is requested by the subscriber,
    3. ensure special protection of children.
- An operator of special tariff services must ensure that services intended for children are interrupted when the spending exceeds the amount of HRK 50.00.

Concerning the protection of children, this is undoubtedly the protection of a sensitive group of end users. Inspection supervision was conducted for that purpose and it was established that the placing on the market of the "SMSFlert" services does not violate the provisions of the ECA but proves sensitivity to issues of protection of children. The application of the above-mentioned service in practice revealed "faultiness" that resulted in a child who did not hide information about his or her age, and who wished to communicate with his or her peers, being exposed to inappropriate messages. The operator is obliged to and accepted to implement a functionality for the "SMS Flert" service that will prevent users who state that they are younger than 18 years of age from using that service. This example should serve as a guideline for operators when providing services because socially responsible behaviour sometimes needs to exceed what is allowed by the law.

During the implementation of the project "Allocation of numbers for services of social value in the Republic of Croatia", HAKOM allocated the number 116111 for child helpline as part of harmonized European short codes from the 116XXX range intended for services with special social sensitivity. The right of use was granted to the Brave telephone for 3 years.

In accordance with Commission Decision 2007/116/EC on reserving the national numbering range beginning with‘116’for harmonised numbers for harmonised services of social value (2007/116/EC) and Commission Decision of 30 November 2009 amending Decision 2007/116/EC as regards the introduction of additional reserved numbers beginning with '116' (2009/884/EC) and European recommendations in the relevant field, HAKOM's Council adopted the Numbering Plan in which it reserved in advance six-digit short codes (numbers) 116XXX for services of social value. Services of social value include the following: Hotline for missing children Victims of crime hotline Child helpline Non-emergency medical services Emotional support helpline which were harmonized in the entire territory of Europe.

European Commission legislation is aimed at making services of social value available on the same, easily recognizable telephone numbers in all Member States of the European Union. There are many helplines for these services who are available throughout Europe. However, hotlines for these services differ between different countries, which makes them difficult for visitors from EU member states to remember so that visitors are unable to make the call, i.e., call the number for a service at the moment when they need assistance or advice.

Such services are intended for individuals by satisfying a certain social need which contributes to the well-being and safety of citizens, or particular groups of citizens, and may be useful to foreign visitors. Furthermore, these services are used for the provision of information, support and for public information. Moreover, these services are accessible by all citizens without prior request or registration for access the above-mentioned services. The use of these services is not limited and excludes temporary services (e.g. services related to an event). These services are not intended for commercial purposes and are accessed by means of a free number.

3.4 Access to services by disabled persons

The work of an advisory mechanism between associations of disabled persons, operators and HAKOM is continued in 2012.

The advisory mechanism discussed the possibilities for improving access to services for blind persons and persons with impaired hearing. Operators, HAKOM and associations reached an agreement on giving free mobile devices to the Croatian Association of the Blind, for the purpose of testing. The purpose of testing of mobile devices by the Croatian Association of the Blind is to establish which devices may be recommended to blind and visually impaired persons in relation to their technical characteristics and simplicity of use. Work on the training of sales persons of operators for communication with blind and visually impaired persons has continued.

4 PUBLICITY OF WORK

The obligation of publicity of HAKOM's work was defined in Article 14 of the ECA and other special regulations, such as 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 the course of 2012, HAKOM kept the basic structure of its website which is easy to use and provides a user-friendly overview of data on the website, from strategic documents such as annual work plans and reports to detailed databases in registers kept by HAKOM.

The basic structure of the website was upgraded in 2012 in the part referring to the publication of decisions where decisions and rulings adopted by HAKOM are separated from judgments and decisions adopted by the High Administrative Court.

The following were regularly published on the website:

a) all adopted decisions and other administrative acts, and all judgements of the Administrative Court of the Republic of Croatia;
b) pursuant to Article 22 of the ECA, 35 public consultations were organized on regulations adopted by HAKOM under its competence, and on proposals of regulatory measures;
c) public consultations on important issues which are not covered by formal procedures were carried out, such as consultations on network neutrality;
d) available databases on registers were regularly updated and made available;
e) statistical data on markets of electronic communications and postal services were published regularly;

In addition, HAKOM publishes information on important decisions, judgements and regulations on the electronic communications and postal services markets. HAKOM's representatives participate in radio and TV shows intended for informing the public about important issues in the electronic communications and postal services markets. The majority of public appearances referred to user protection.

As a special form of publicity of its work, HAKOM answers all questions asked on the "Ask us" application on its website[48]. A total of 1681 questions were asked in this manner during 2012. HAKOM's Facebook page[49] was created in June 2012 with a view to informing users and the public about rights of users and implemented activities.

During 2012, HAKOM resolved all 16 requests filed pursuant to the Act on the Right of Access to Information.

[48] http://www.hakom.hr/default.aspx?id=59
[49] http://www.facebook.com/HAKOM

5 COURT PROCEDURES

HAKOM's judicial proceedings are administrative proceedings initiated against HAKOM's final decisions and misdemeanour proceedings initiated by HAKOM against legal and natural persons violating the provisions of the ECA. HAKOM is also in charge of enforcement proceedings against legal and natural persons for non-payment of fees.

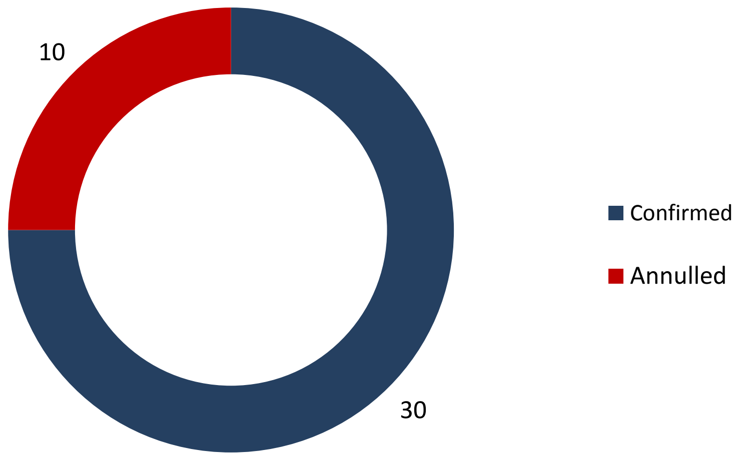
Administrative disputes

Pursuant to the provisions of the ECA, all HAKOM's decisions are final in the administrative procedure and may not be appealed. They may be disputed in an administrative dispute, in a procedure before the Administrative Court of the Republic of Croatia.

A total of 35 administrative proceedings were initiated against HAKOM in 2012.

In the course of 2012, the High Administrative Court adopted 40 judgments in administrative disputes initiated against HAKOM's decisions out of which 39 judgements refer to disputes initiated in 2011, and 1 to a dispute initiated in 2012. A total of 30 HAKOM's decisions were confirmed, and 10 were annulled.

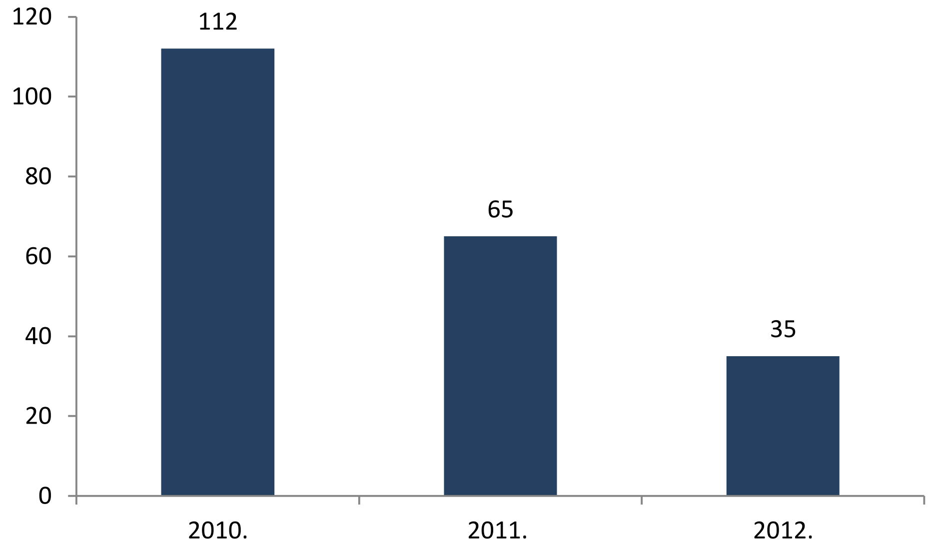
Figure 5.1. Result of High Administrative Court judgments



At the end of 2012, a total of 47 disputes against HAKOM's decisions were in progress before the High Administrative Court of the RoC, out of which 34 disputes were initiated in 2012, and 13 by 31 December 2011.

In relation to 2011, the number of filed administrative disputes against HAKOM was almost two times lower meaning that HAKOM and the Administrative and High Administrative Court developed a consistent practice that parties are familiar with and therefore give up the unnecessary filing of administrative disputes. However, compared to 2011, the High Administrative Court adopted fewer judgments, particularly in disputes initiated in the same year (nineteen in 2011 compared to one in 2012). This is partially due to the lack of repetitive cases, that is, those when more complaints have been filed for the same issue and solved in the same manner. This results from the application of the new Administrative Disputes Act whose procedural provisions, in particular the requirement for a hearing in all cases, slowed down the work of the court.

Figure 5.2. Number of filed administrative complaints



Misdemeanour proceedings

In accordance with its legally prescribed authority, in 2012, HAKOM issued a total of 10 misdemeanour orders and submitted 14 misdemeanour motions.

Taking into account the previous years, HAKOM currently has 95 first-instance misdemeanour proceedings before the competent misdemeanour courts.

In relation to misdemeanour proceedings initiated in the previous years, two final guilty judgments and 16 non-final guilty judgments were adopted in 2012.

Hrvatski Telekom d.d. was fined with HRK 40,000 for preventing access to the unbundled local loop, and the responsible person in this company was fined with HRK 15,000.

A special tariff operator, MAG DRIVE d.d. was fined with HRK 17,000 for failing to broadcast the prescribed introductory message, and the responsible person in this company was fined with HRK 1,700.

Enforcement and other proceedings

A total of 71 enforcement cases were instigated against various companies in 2012:

Sigurnost, Foša 7, Žuto nebo, Tigar Cikatić, Croal smok, Hrvatski Telekom, Šimunović & Farkaš, TV Jadran, Bunarina, Grand marina Lav, Avangard, Planet, Kanal RI, TV Primorja i Gorskog kotara, Sigurnost, Udruženje obrtnika Split, Fenice telekom, Metronet telekomunikacije, OT-Optima telekom, Telenet, Galapagos, Proba, Omega produkcija, Relax, Tel mar net, Jasmina Madunić, It sense studio, Dalekovod, Dina-petrokemija, HRT, Brodosplit-brodogradilište, Dioki, Adriatic Security, Telenet, Tim grupa, Fenice telekom, Radio 052, Radio Donji Miholjac, Mt eter, Gradski radio, Reful radio, Radio brod – informiranje i marketing, Radio Kaštela, Radio Biokovo, Radio makarska rivijera, Arena radio, DTR, Informativni centar, Hrvatski radio Valpovština, Rapsodija, E-radio, Studio Minsk, Fenice telekom grupa, RVG, ZET, Akton, Dina – petrokemija, Cammeo taxi, Televizija Šibenik, NIT, HOC Bjelolasica, HEP, Am lupa promocija, Vodovod, Otočni radio Kornati, Radio Sisak, Primorski radio, Selec, Optima osn – inženjering, Imenik, Softnet, Istarska kabelska, Agro – ing, Tele sat, Primatel, Quastel, Lider express, ZUM 2010, Dalamacijavino. The total claimed amount was HRK 1,773,158,78.

Taking into account the previous years, HAKOM currently has 126 open enforcement and civil proceedings, and 2 civil proceedings in which HAKOM is the defendant.

6 COOPERATION

6.1 International cooperation

With a view to promoting efficient regulation of the market of electronic communications and postal services, the RF spectrum management and numbering resources, and HAKOM as an active and modern regulator in the network of European regulators in relation to the application of the regulatory framework and market development, HAKOM participates in the work of EC's working groups (COCOM, BEREC, ERGP, IRG; RSPG) and in the work of ITU and CEPT working groups on the electronic communications market and CERP and UPU working groups on the postal services market.

HAKOM kept its observer status in BEREC in 2012 (until accession of the RoC to the EU): Through cooperation with BEREC and active participation in working groups, HAKOM has access to the best European practice which, bearing in mind national peculiarities, assists in the adoption of decisions enabling further development of efficient competition on the market of electronic communications in the Republic of Croatia.

HAKOM's participation in this body was recognized and resulted in the assignment of the organization of BEREC's plenary session which was held in Dubrovnik in May 2012. In addition to heads of national regulatory bodies of member states of BEREC and observers in BEREC ,participants of the European Commission and the head of the Directorate for Communications networks, content and technologies (DG CONNECT) covering all procedures related to the regulation of the electronic communications market also participated in its work. The plenary session was attended by EFTA's (European Free Trade Association) and ITU's (International Telecommunications Union) representatives and this important international gathering included more than a hundred participants. On that occasion, HAKOM had an informal meeting with European Commission representatives with a view to agreeing upon the manner of alignment of key regulatory procedures, the implementation of which will start after the expected accession of the RoC to the EU. In October 2012, the first meeting with European Commission representatives was held and further steps and meetings (which took place in the course of the first half of 2013, that is, before accession of the RoC to the EU) aimed at preparing HAKOM for procedures implemented by regulatory authorities from the EU Member States.

International cooperation and participation in the work of international institutions from the radio communications sector included the work of the Electronic Communications Committee which is an umbrella body developing joint strategies and regulation in electronic communications and coordinating the use of the RF spectrum for Europe.

In 2012, HAKOM participated in the work of the ECC Working Group Frequency Management - WGFM. The purpose of participation in the work of the mentioned group is continuous monitoring of development of use of the RF spectrum and the coordination of use of the RF spectrum in the RoC with international use at the level of CEPT.

Furthermore, HAKOM participated in the work of the WGSE (Working Group Spectrum Engineering) within the ECC. WGSE's main tasks include the development of guidelines for use and harmonization of the spectrum and the implementation of compatibility studies between different radiocommunications services within the same or different frequency band and the technical basis for the development of European reports, decisions and recommendations. A few topics were discussed last year that are particularly interesting for the RoC, including the reports of the SE19 working group on fixed network, SRD/MG (*Short Range Devices / Maintenance Group*) and ECC PT1 and SE/ on mobile communications networks.

HAKOM organized a special session on RF spectrum management at the international symposium ELMAR 2012 where papers from the radiocommunications and broadcasting sectors were presented. The Session entitled *Future Challenges in Spectrum Engineering* was organized with a view to promoting the importance of efficient RF spectrum management, as a limited natural resource of the RoC, and linking the academic community and industry into electronic communications fields. Several papers authored by HAKOM's employees were presented at the session. These papers resulted from active participation of HAKOM's experts in the work of international working groups (in the first place within CEPT) and expert analyses and measuring conducted regularly to protect radiocommunications systems and ensuring the efficient use of the RF spectrum.

Furthermore, it is important to mention that HAKOM's representatives represented RoC on the basis of the authorization issued by the Ministry of Foreign and European Affairs at the 25th Congress of the Universal Postal Union held from 24 September until 15 October 2012 in Doha, Qatar. UPU is an international organization regarded as the beginning of multilateral cooperation, founded in 1874, it is responsible for coordinating international postal policy and adopting rules and regulations applicable to postal services in international traffic. UPU covers 192 member states, and RoC has been a member of UPU since 1992, which is why it is obliged to ensure the functioning of postal traffic and services in national and international postal traffic pursuant to UPU's recommendations.

Electronic communications inspectors held an expert workshop entitled: "Implementation of the R&TT directive in Croatia, legislation and practice" organized by the Directorate for Inspection Affairs of the Government of Montenegro. The workshop was held in Podgorica. Inspectors and supervisors from Montenegro were familiarized with the principles and practical examples related to supervision of placing on the market of R&TT equipment, which was assessed as a positive example of good practice where HAKOM may assist the countries in the region by its former experience with regulation of the equipment market.

A meeting of the ECC working group for numbering and networks was organized by HAKOM on 10 and 11 May 2012 in Dubrovnik. A meeting on the same topic was held on 9 May and it covered the ECC Recommendation on Numbering for VoIP services and ECC Recommendation on best NP practices. The meeting was attended by 44 members from 28 national regulators (Austria, Belgium, Montenegro, Czech Republic, Denmark, Finland, France, Greece, Ireland, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Norway, Germany, Portugal, Romania, Slovakia, Slovenia, Serbia, Spain, Sweden, Switzerland, the United Kingdom, Ukraine and Croatia), the chairman of the project teams PT NP (Number Portability) and PT FNI (Future Numbering Issues) and the representative of the European Communications Office.

The meeting of the project team for technical regulation and interconnection standards (ECC PT TRIS) was held on 7 and 8 May 2012 in Dubrovnik and it was also organized by HAKOM. The meeting was attended by 27 representatives from 17 countries (Austria, Belgium, Germany, Norway, Ireland, Switzerland, Portugal, Poland, Romania, Slovenia, Luxembourg, Latvia, Lithuania, Finland, Montenegro, Serbia and Croatia), the EU representative, representatives of FTTH Council of Europe and the representative of the European Communications Office.

During 2012, a total of 42 HAKOM's representatives actively participated in different scientific and expert conferences, gatherings, workshops, working groups and similar. A total of 37 papers were published, including 29 at national and international conferences, 6 papers and presentations at different expert gatherings and two papers in magazines. A series of presentations at national and international events, workshops and round tables were held.

HAKOM's important role in the region was confirmed by an invitation for participation in several regional and international conferences where HAKOM's experts gave lectures. The Macedonian regulatory agency (Agency for Electronic Communications) organized for the first time a three day international regulatory conference (IRG) in Ohrid, Macedonia, from 16 to 18 May 2012. The objective of the conference was to analyse technological progress in the electronic communications and ICT sectors. Furthermore, the present experts were able to actively discuss and analyse solutions, potential problems, applications and experiences, as well as influence on future regulatory decisions. Leading international and regional ICT companies were gathered at the conference, international experts, engineers and employees in the ICT sector, as well as authors of expert papers and key users of IC technologies. HAKOM was represented by experts who gave a presentation entitled "The e-Agency in Croatia".

A forum on the electronic communications market was held in Dubrovnik on 21 and 22 May 2012 and it was hosted by HAKOM. The Forum represents a European Commission project on the monitoring of data on the development of the electronic communications market and information society in candidate countries and potential candidate countries for membership of the European Union and Republic of Croatia as the accession country. The meeting was attended by 60 participants At the Forum, experts from *Cullen International* company presented the latest reports from the electronic communications and information society markets of candidate countries and potential candidate countries and the discussion focused on current topics while representatives of regulatory authorities and the industry presented their views on the current and future development of the electronic communications market.

The second year of the "Looking to the future" project was presented at the 20th international symposium, SoftCOM2012, which took place in Split from 11 to 13 September 2012. Current results of this multidisciplinary research project, which is a continuation of successful cooperation between Croatian universities and HAKOM, were presented at the session organized by HAKOM. At this conference, HAKOM's experts, together with colleagues from the University, presented their research results on next generation networks and regulatory challenges, the broadband ecosystem for rural areas in the RoC, investments into next generation access network, Croatian access to the digital dividend, results of the public consultation on network neutrality in Croatia and switching from IPv4 to IPv6.

The European Bank for Reconstruction and Development (EBRD) organized a conference on electronic communications on 26 and 27 September in Amman, Jordan. Conference participants included representatives of regulatory authorities, ministries and companies from the electronic communications sector from about 20 countries in the Mediterranean region, including HAKOM. The main topic focused on the development and investments in electronic communications, efficient regulation, broadband development and efficient resource management.

At the Regional forum on broadband access in Europe, which was organized by the ITU and the Ministry for Innovation and Information and Communication Technology of the Republic of Albania on 6 and 7 September 2012 in Tirana, Albania, focused on the strategy and directions for development of broadband access in the region and about its economic and social aspects, on the regulatory process as the key parameters for broadband development and on increasing user demands as a challenge that needs to be fulfilled. The participants discussed the challenges and possibilities offered by high-speed networks, different e-services offered by the modern infrastructure, the most recent technological achievements in the broadband ecosystem and its numerous economic and social contributions etc.

The twelfth Global Regulators Symposium , GRS-12, was organized by the ITU in cooperation with the host regulatory agency of Sri Lanka (Telecommunications Regulatory Commission of Sri Lanka, TRCSL) from 2 to 4 October 2012 in Colombo, Sri Lanka . The symposium focused on topics related to the development of electronic communications in general and their influence on the society today and in the future. The gathered representatives of national regulatory authorities and the industry discussed the current topics in the electronic communications sector: technical neutrality, RF spectrum management strategy, roaming, cloud computing, Internet safety with emphasis on data protection and privacy, international and regional IP interconnections, public private partnership for investments into broadband NGN etc. A special emphasis was placed on the cooperation between the regulator and industry so that regulatory decisions and recommendations could follow and foster further development of technology.

The 31st meeting of the ETSI TC LI (Lawful Interception) working group was held in Split from 26 to 28 September 2012. ETSI (European Telecommunications Standards) is a global standardization body for information and communication technologies. LI technical committee deals with a wide range of topics on network and data supervision and closely cooperates with other project teams or technical committees within ETSI. One of the more important results of this working group are documents TS 101 671 and ES 201 671, which defined the interface for handover and described the course of data under surveillance.

HAKOM actively participates in the work of the Central and Eastern European Regional Working Group, which organized a gathering on the use and alignment of the digital dividend for mobile communications networks in the first half of 2012. Croatian representatives shared their experiences with the introduction of digital television and freeing of the frequency spectrum for the digital dividend. Croatian delegation discussed with the director of the radiocommunications sector of the International Telecommunications Union, Mr. Francois Rancey, further possible steps in the resolution of the problem of Italian interferences. The participants also discussed the issues of spectrum allocation on the basis of a public auction.

The workshop entitled DVB-T2 expansion in Europe and the CIS, Digital Dividend and Connected TV took place on 8 and 9 May 2012 in Vienna (Austria). The main objective of the workshop was the exchange of experiences related to the implementation of DVB-T2 technology and the future of terrestrial television with the application of Internet-connected TV, second screen, HBB and interactivity. The workshop was organized by DigiTAG (Digital Terrestrial Television Action Group) which gathers more than 40 representatives of content producers, network operators, producers of user equipment, regulators aimed at promoting and ensuring the introduction of digital television services on the basis of the DVB standard. Around 60 participants participated in the workshop, including representatives of regulators, operators, broadcasters, producers of TV receivers and broadcasters. A representative from HAKOM gave a presentation on the status of the terrestrial digital television in Croatia.

6.2 National cooperation

In 2011, HAKOM cooperated on a daily basis with electronic communications and postal services market players by resolving their requests, 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:

- MSTI
- MPPC
- Ministry of Foreign and European Affairs,
- Ministry of Defence,
- Ministry of Culture,
- Ministry of the Economy - the State Inspector's Office,
- Ministry of Public Administration,
- Agency for Electronic Media,
- Croatian Competition Agency (CCA),
- Central Office for Development Strategy and Coordination of EU Funds,
- Central Finance and Contracting Agency (CFCA),
- Croatian Standards Institute,
- Central Bureau of Statistics.

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 in broadband access and building of an integrated infrastructure.

In 2012, HAKOM's employees actively participated in several gatherings by participating at round tables and workshops and by presenting their activities. Furthermore, cooperation with universities, in particular with the Faculty of Electrical Engineering and Computing, must be stressed, as well as with the Zagreb Electrotechnical Society and the Croatian Chamber of Engineers and Electrical Engineering.

7 HAKOM

7.1 e-Agency

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. For that reason, operators and citizens have at their disposal applications developed through the e-Agency programme. Information and communication technologies are widely used in public bodies but e-Agency is more than a set of available tools. It includes or directly encourages changes at the level of organization of tasks and processes and changes in business practices of operators with a view to delivering public services quickly, accurately and in a sophisticated manner to users. Quality implementation of e-Agency solutions enables all citizens, companies and organizations to do business with the operator in an easy and quick manner with reduced costs. E-Agency has developed significantly in the previous four years and has been recognized by users of HAKOM's services. Although it has become an indispensable part of all main processes, further development is necessary to upgrade all interaction with users. Electronic business increases the availability of the regulator and makes public services more efficient and more attractive.

Several applications focused on improving business processes by using web-based technologies were implemented in 2012. In addition to e-applications intended for external users, HAKOM has also sped up the internal processes by introducing new IT solutions and platforms. The introduced tools enable efficient cooperation in everyday processes of regulators, and communication with end users, which is why they are accepted by employees who actively participate in further improvements and upgrades.

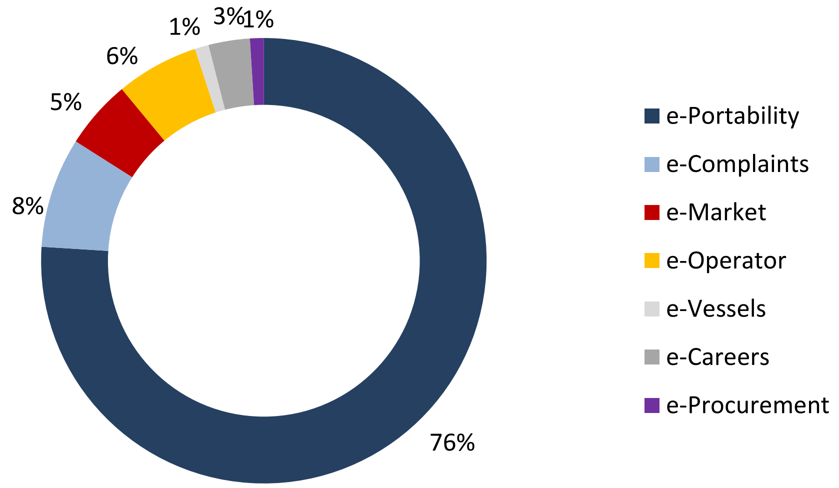
A special challenge is the development of a single data centre at HAKOM's new business premises. The infrastructure was replaced or upgraded in terms of the processing and storage capacity of the server, visualisation platform, platform for data storage and software updating. The solution for digital signatures and encrypting of documents enabling identification, authorisation and protection of communication is available to all employees. The main rules for encoding and changing access data, encrypting information and remote access and remote control of devices were defined in order to apply the existing safety requirements and protection of business data. In addition to designing the premises for the data centre and dimensioning of telecommunications capacity of all premises, solutions for air conditioning, power supply, protection from fire and structural cabling of premises were designed and implemented. All activities related to the migration of information systems have been planned in detail and carried out outside regular business hours, which is why there were no interruptions in HAKOM's operation. New network infrastructure and wireless network access in all working areas have been implemented. The old telecommunications system and the switchboard were replaced by a VoIP telephone system with video communication. All meeting rooms are now equipped with fixed presentation equipment, and management of rooms has been integrated with the MS Outlook system with presentations screens at the entrance. The data system itself was built on the basis of "Tier3" standards with an independent cooling system with redundant circles and continuous power supply with generator support. Additional safety is ensured by video surveillance of technological areas, in addition to controlled access to the data centre.

The background IT system has been upgraded through upgrades of the Enterprise Resource Planning (ERP), Document Management System (DMS), Data Warehousing System (DWH), Customer Relations Management System (CRM) and Human Resources Management System (HRM). HAKOM follows the efficiency of business operations which is why a group of internal applications was launched at the existing collaboration platform aimed at increasing transparency and speed of submission and processing of applications. The data warehouse system has been completely implemented and allows collecting and analysing data about markets.

E-Agency is a simple and modern portal with numerous web applications such as e-Vessels, e-Operator, Overview of Licenses, Public consultation, e-Complaints, e-Portability, e-Broadcasting, e-Microwave,, e-Market, e-Advice, e-Procurement, e-Careers. The following e-applications have been developed on HAKOM's website:

- e-Vessels - the process of electronic submission of requests and granting of licences for devices using the RF spectrum on vessels; a web-oriented application which integrates the functionality of a portal, Enterprise Resource Planning and Document Management System;
- Overview 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 with the possibility to download tender documentation;
- e-Complaints – an application allowing a user, after registration, to file a complaint electronically and 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 immediate notification of users;
- e-Certificates - a solution within the Document Management System which automates the process for the grating of the right-of-way certificate to infrastructure operators. It comprises the submission of the request, preparation of the certificate and its presentation on the portal;
- e-Portability - this application has been most used 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 concerning the situation on the market. It is carried out electronically with the authorisation of users from a remote location by means of a web service or a web portal. The application enables flexible 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-Careers - the application for online completion of forms for applications for employment at HAKOM. The solution was created on the website itself and offers the possibility for the publication of vacancies, enables prompt responses upon receipt of applications and browsing on the basis of several criteria;
- e-Broadcasting - the application is intended for radio broadcasters and operators providing the radio broadcasting service via a terrestrial network of broadcasters. It enables a simpler and faster submission and resolution of applications for licenses for use of the radio-frequency spectrum. The procedure for the submission of applications and granting of licences is on average twice as fast as the traditional hardcopy 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;
- e-Tariffs - the stage of implementation of a part of the system prepared for connecting with operators and calculation of prices was completed. The system will enable an overview of prices for services in mobile networks, services of calls in fixed network, Internet access services, IP television services, and packages of services fixed network + Internet, Internet + IP television and fixed network + Internet + IP television.

Figure 7.1. An example of use of e-applications



The "e-Broadcasting" services was put into operation on 20 April 2012 and it was accessed 975 times over the main menu on HAKOM's website. The service of "e-Microwave link" was launched on 17 December 2012.

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 Document Management System is used by all HAKOM's employees in everyday work. Business processes have been optimised and documented. Internal procedures have been additionally automated by means of own knowledge and standard office tools.

The platform for cooperation between employees has been launched and it comprises an organized portal with complete and updated documentation necessary in everyday work. The internal portal also includes applications for automation of internal processes in the form of travel orders and bills, as well as for public procurement processes and training of HAKOM's employees.

Although it was planned that the solution for keeping a database of infrastructure of electronic communications with space-related data will be implemented, it was decided that the design would be tested through a pilot project implemented in cooperation with the State Geodetic Administration by joint use of a part of bases of spatial data. The pilot project confirmed the accuracy of the concept and its applicability in everyday work.

E-Agency resulted from the ICT strategy of the Republic of Croatia and is a part of the e-business development strategy in the RoC. One of the tasks that need to be solved is connecting regulatory authorities with the related ministries and agencies, which is why we are participating in the development of a concept of electronic exchange of documents and information in office management. The E-Agency project is based on an integrated information system oriented primarily towards the web approach through the agency-citizens and agency-economy communication channels.

We have increased the number of web services in 2012. User-friendly and intuitive forms are available to end users. E-Broadcasting, e-Microwave and e-Complaints projects implemented the concept of open integration of the system by means of transaction interfaces in order to ensure automation of processes from one end to another. These applications offer an integral online service where e-applications lead the user in an intuitive manner through the procedure for the granting of licences or submitting documentation. The monitoring of the progress of activities and resolution of requests is very important for the transparency of procedures and assessment of the regulatory authority's efficiency. The user completes all activities at one time.

Figure 7.2. Example of duration of granting of licences as a result of the introduction of e-applications (in days)

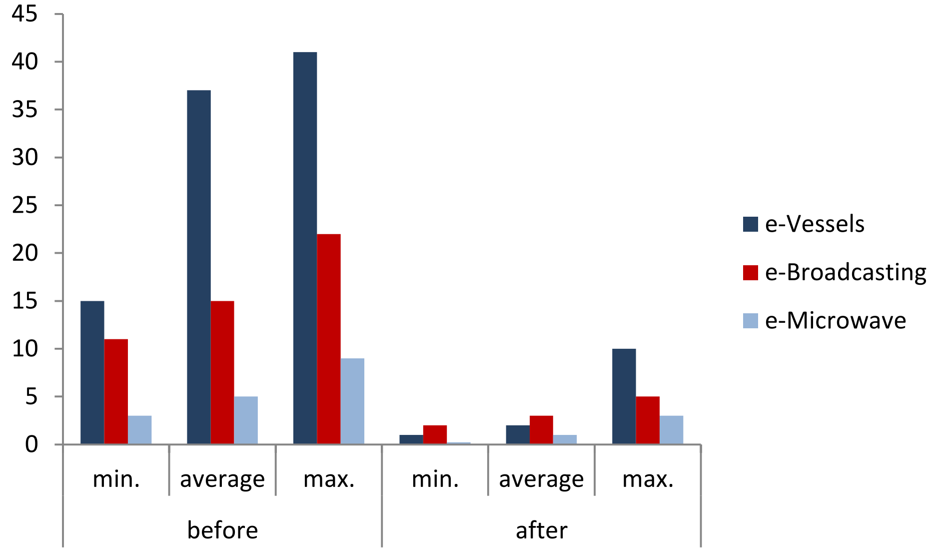


Table 7.1. Overview of visits to HAKOM's website

Country	Number of visits	Average number of visited web pages	Average time spent on a page
Croatia	304532	4.92	00:03:52
Bosnia and Herzegovina	6177	2.78	00:01:55
Serbia	2836	4.14	00:03:04
Latvia	1788	3.66	00:03:18
Slovenia	1597	4.53	00:03:27
Great Britain	1578	4.70	00:03:55
Germany	1445	4.80	00:03:35
USA	984	3.14	00:02:06
Austria	970	4.59	00:03:08

7.2 Development of competences

Since its beginnings, HAKOM has been striving to become a modern organization that adjusts well to change on the markets it regulates and is able to follow trends in the development of technology and of the market. Recognizing that human resources are a basis for efficient regulation of the market dominated by companies with highly-motivated, highly-educated and well-remunerated employees, HAKOM continued with continuous improvement of capacity and professionalism of its employees. The development of competences is based on continuous acquisition of knowledge and skills, appropriate attitudes and ethics and the development of capacity for analysis, that is, the ability to analyse past events and predict future events. Since modern and intelligent market regulation is closely related to the appropriate number of employees and their educational structure, high regulatory ability and experience may be achieved only through interdisciplinary approach with the participation of engineers, economists and lawyers and continuous training of all employees.

The approach to the development of competences that may be summed-up as life-long learning included professional training of HAKOM's employees through post-graduate studies, research projects, seminars, conferences, working groups, workshops and courses.

The most important programmes aimed at improving organizational and individual regulatory capacities included: the interdisciplinary post-graduate study, "Looking to the Future" Project and foreign language courses.

7.2.1 Multidisciplinary postgraduate studies

For the third consecutive year, HAKOM's employees have enrolled in the interdisciplinary postgraduate study "*Regulation of Electronic Communications Market*", which was initiated by HAKOM in cooperation with the Faculty of Electrical Engineering and Computing (hereinafter: EEC), the Faculty of Economics and Business (hereinafter: FEB) and the Zagreb Law School.

The requirements for enrolling in the postgraduate course include a degree in economics, electrical engineering, law or computing or the completion of some other four year undergraduate course which brings 300 ECTS points. The duration of the course is one academic year (two terms) where students acquire the following competences: a) economic, legal and technological aspects of market regulation and b) ability to apply the regulatory framework and resolve regulatory issues. Upon completion of the course, students acquire the title of a Specialist in Electronic Communications Market Regulation.

Including the third generation of students, a total of 25 of HAKOM's employees have enrolled in the course. The second generation of students includes six employees who have fulfilled the requirements of an internal competition, including a topics for the thesis which is of interest for HAKOM and criteria of the course.

7.2.2 “Looking to the Future” project

In late 2010, in cooperation with the academic community, the Faculty of Electrical Engineering and Computing in Zagreb, the Faculty of Electrical Engineering, the Faculty of Mechanical Engineering and Shipbuilding in Split, the Faculty of Electrical Engineering in Osijek and the Faculty of Economics and Business in Zagreb, HAKOM started a multidisciplinary research project "Looking to the Future". During 2012, other participants on the market of electronic communications were invited to join the project (operators and equipment producers). In this manner, HAKOM is trying to create a forum that could solve all upcoming challenges and predict new challenges in the next 5 years. In addition to the companies such as Ericsson Nikola Tesla and Nokia Siemens Networks that have been actively participating in the project from the very beginning, operators of electronic communications services, who see the possibilities in this project for easier introduction of new services on the market and for finding the best model for market regulation of new services joined the project in 2012.

General topics for the duration of the project:

A. Development of electronic communications sector up to 2016. Technological, business and market development incentives.
B. Next Generation Network, architecture and technology of access and core networks. Internet, migration towards IP networks, IMS (IP Multimedia Subsystem) Relation between network operators and service providers in NGN. Development of NGN in the world and in Europe, migration strategies, plans of Croatian network operators.
C. Theoretic postulates of NGN regulation. The analysis of regulatory aspects of introduction and development of next generation networks (competition, social needs, limited resources, net neutrality), problems in the initial stage and the transitional period. Value chain of contents, services and networks, market participants and their relations, sustainable competition.
D. Policy for building elements of communications infrastructure as part of international, national, regional and local infrastructure projects, in particular in the energy and transport sectors. Influence of the electronic communications sectors on overall social and economic development. Situation in the world, Europe and the RoC.

In addition to general topics, the project also tackles specific topics agreed upon at the beginning of every year. The specific topics that covered in 2011 include the following:

- Services to users of fixed, nomadic and mobile services, value added services, location-dependent services and location services, access to emergency services. Fixed-Mobile convergence, services on the retail market, representation in the world, in Europe and in the Republic of Croatia. Principles of regulation of converged services.
- Services in the NGN. The quality of point-to-point services, principles of management and charging of services in the NGN. Protection of users in the IP network, privacy and security in the NGN, lawful interception in the NGN. Interconnection in the NGN, collection concepts, influence on business operations of network operators, influence on wholesale and retail prices. Development of Internet and IP-based services, in particular VoIP (Voice over IP) and IPTV (IP television). Network neutrality and alignment of solutions at the global level. Services on platforms and outside the platforms.
- Digital dividend. Model of public auction for the allocation of the radiofrequency spectrum. HDTV.
- Business models in infrastructure with a special emphasis on the aspect of the public-public or public-private partnership. Building of the access and core networks, interoperability of networks, services and protocols in the transitional period since the introduction of NGN. Procedures for the analysis of the return on investment in access and core NGN networks
- Broadband ecosystem of the islands and coastal areas.

Project results are published on HAKOM's website and are available to all interested participants on the electronic communications market. The results for 2012 were presented at a special session during the Softcom conference which took place in Split.

7.2.3 Foreign languages

HAKOM's policy is to "permanently improve work processes, regulatory knowledge and skills of its employees for the purpose of creating the best solutions for the electronic communications and postal services market and for the society in general". The need for the improvement of language skills arises from needs for further education and continuous improvement in linguistic areas that are necessary for the implementation of HAKOM's policy, that is, for active participation in the work of international regulatory organizations, for the participation at conferences and for keeping up with literature from HAKOM's field of activities. For that reason, HAKOM continued with the organization of foreign language courses in 2012, or, more precisely, of English and French language courses for its employees.

In 2012, a total of 40 employees participated in foreign language courses, which were organized during two semesters in six groups for English language learners and in one group for French language learners.

7.3 ISO 9001 quality management system

HAKOM's activities in 2012 focused on preparations for recertification of the quality management system and further improvements of efficiency of the quality system.

HAKOM has held the certificate for the HRN EN ISO 9001:2008 quality management system since 2009, and in the three-year period underwent a certification audit, the first supervisory audit and the second supervisory audit. Certification is a procedure for independent evaluation of an organization, its products or services that confirms compliance with specification requirements defined in the form of a norm or a standard. Such specifications and norms are most frequently publicly available or internationally recognized standards. Certification procedures are conducted by independent certification authorities, as impartial organizations, that must necessarily be accredited and thus authorized to issue certificates of compliance. The Certificate is valid for 3 years followed by a recertification audit and issuing of new certificates.

The recertification audit was conducted in October 2012, that is, three years after the acquisition of the certificate and it covered all processes and departments of HAKOM covered by the certificate. The recertification audit was carried out in accordance with the audit plan and for the purpose of verifying the fulfilment of requirements of the HRN EN ISO 9001:2008 standard and improvements introduced compared to the certification audit. The recertification process was conducted by auditors of a well-known certification company "Bureau Veritas Croatia" which confirmed that HAKOM's quality management system is in compliance with the requirements of the H HRN EN ISO 9001:2008 standard and with regulations. For that reason, the recertification audit resulted in the extension of the validity of the certificate for additional three years.

Taking into account the fact that, in accordance with ISO 9001-2008, an organization has to aspire towards ongoing improvement of its business processes, HAKOM's activities related to quality system improvement in 2011 focused on further improvement of procedures and on the set-up and development of key objectives aimed towards quality improvement. HAKOM continued working on the improvement of the document management system by introducing further optimizations and upgrades in compliance with requirements of key users. In addition to that, individual HAKOM's procedures were improved for the purpose of shortening and speeding up of certain processes.

7.4 EU funds

In 2012, HAKOM managed to complete projects financed from European pre-accession funds worth over EUR 5.5 million. This fact proves the extent of HAKOM's competences and socially responsible approach to the absorption of pre-accession assistance funds. Two projects were implemented in 2012:

IPA 2009 - Component I (Transition Assistance and Institution Building)
Support to HAKOM in the area of accounting separation of postal services

The implementation of the project within the IPA 2009 Twinning light project "*Support to HAKOM in the area of accounting separation for postal services"* was completed at HAKOM in 2012. The implementation of this project started in November 2011.

The project was financed within the IPA 2009 programme amounting to EUR 191,609.40, that is, 90% was financed from European Union funds and 10% from national contribution.

The project consisted of two components: The first component entitled "Selection of accounting separation method and preparation of a manual for accounting separation" included the analysis of the application of models of cost accounting to the postal operator, the procedure for the distribution of costs and cost models, as a basis for the calculation of the universal service obligation, the analysis of obligations of cost accounting and accounting separation pursuant to the Third Postal Directive, the presentation of experiences of Spain and Bulgaria with the implementation of regulations on analytical accounting and accounting separation by postal operators in those countries. A model of cost accounting for the Croatian Post (the designated universal service operator) was developed, as well as accounting separation and distribution of their revenue and costs, the model of a detailed analytical structure, division of revenue to individual services and basic division of costs. The results of the project are summed up in a manual containing instructions, recommendations and best practice presented during the implementation of seven activities and it serves as a basis for the identification of activities of HAKOM as a regulator and obligations of the Croatian Post as the operator of universal service.

The second component entitled "Training of HAKOM's employees in accounting separation" included the training of employees for the development of methodology and tools from the point of view of accounting regulations and practice enabling HAKOM as a regulator to develop consistent regulation of universal postal services and control of calculations of the operator. Furthermore, within the framework of this component, HAKOM's employees participated in a study visit to Spain where they had the opportunity to learn about the operations of the Ministry of Transport and Public Works in Spain and the functioning of the Public Postal Operator.

IPA 2009 - Component II (Cross-border Cooperation)
SEE Digi TV

The signing of the contract on the grant from the European Pre-accession Programme IPA with the Agency for Regional Development on 28 December 2011 created preconditions for the beginning of implementation of the project entitled South-East European Digital Television - SEE Digi.TV[50] (hereinafter: See Digi.TV). Partners in the project include HAKOM and EMA and 13 other partners from 9 countries in the region: Austria (RTR), Hungary (IVSZ, NMHH-observer), Italy (INFORMEST and AGCOM), Slovenia (APEK and SINTESIO), Albania (NCRT), Bosnia and Herzegovina (RAK), Macedonia (SRD), Montenegro (BAM and EKIP) and Serbia (RBA). The total value of the project is EUR 1,987,230.50, out of which EUR 140,959.97 was allocated to HAKOM and EMA for the purpose of

[50] http://www.hakom.hr/default.aspx?id=989

joint implementation of the project in the RoC. The EU co-financed project activities with 85 percent of funds from the pre-accession instrument (IPA) in which HAKOM's and EMA's share accounted for 15 percent. The planned duration of the project is 16 months and the majority of activities were planned for and implemented in 2012.

The general objective of the SEE Digi.TV project is to implement a common and harmonized territorial development connected with the process of digital switchover and prevention of possible negative social, economic and technical consequences in case of failure of this process at the national or regional level. The digital switchover in the region of South-East Europe is a far more complicated process than in other European countries due to great differences in infrastructure, legislative framework, technology, economy, social and institutional differences. The harmonized digitalization opens the door to a diversity of services of information and communication technology, which significantly contributes to sustainable development in the region and reduces the digital gap between countries participating in the project and in relation to EU Member States.

HAKOM found its interest in the areas of implementation of the project by taking examples of best practices from the region and participating in the harmonization of important areas of regulation related to digital switchover, efficient use of the digital dividend and further development of new broadcasting and communications services in the RoC and in the region.

Project results include guidelines, the objective of which is to assist the countries in the region to improve their legal framework and ensure "smooth" digital switchover in technical and economic sense, and to ensure preconditions for continuous development and introduction of new broadcasting and communications services for the benefit of the entire society. One of the important project components is the raising of public awareness about digitalization and the project includes the development of tools and methods for measuring public awareness and guidelines that may assist the partner countries in the implementation of information and education campaigns, in particular towards the end user.

The analysis of legal frameworks for the digital switchover in partner countries in the project showed significant differences between national legal frameworks. Because of these differences, it is recommended that the planning and implementation of digital switchover take into account experiences of other countries that already completed the switchover, and the European legislative framework for electronic communications and audiovisual media. Considering the differences in the environment for switchover in each of the countries, it was proposed to establish a special digitalization fund that would be in charge of the distribution of aid and donations aimed at supporting the digital switchover.

The assessment of the technical framework included the description of the existing available technologies for terrestrial TV broadcasting and sound broadcasting and offered additional information for laboratory and field measuring and corresponding legislation. Regional guidelines for the development of digital switchover strategies were prepared for each country, which is of particular importance for countries that still have not completed this procedure.

A Communication Plan was prepared for the purpose of raising the awareness and informing the public about the project and project results and two brochures were prepared and distributed. The target audience of the communication aimed at raising the awareness about the importance of digital switchover includes not only partners on the project but other stakeholders as well, service providers, the industry of information and communication technologies, the representatives of national, regional and local authorities and population of countries participating in the project and the media.

In February 2012 , as part of project implementation, HAKOM and the EMA organized a meeting of the Management Board and a technical meeting of SEE Digi.TV project partners which was attended by 30 representatives and the purpose of which was to prepare documents defined by the project.

A workshop on digital television was organized for stakeholders on the Croatian market in December 2012. The objective of the workshop was to raise awareness about the digital switchover and possibilities offered through use of the freed part of the spectrum, the so-called, digital dividend. The workshop was attended by 80 representatives of television broadcasters (public and private), network and multiplex operators, mobile operators, representatives of the scientific community and public institutions.

As part of implementation of activities under SEE Digi.TV project, FER prepared a study[51] on the possibilities of use of the digital dividend which identified the possibilities for equal access to the spectrum freed by the digital switchover. In order for all interested stakeholders on the market to be able to improve the existing services and develop new services, the study shows the current situation on the market, provides an overview of the allocation and current use of the RF spectrum, assesses the "quantity" of the digital dividend in the RoC, and provides an overview of technologies and services that may be used in the digital dividend spectrum.

The implemented activities and results presented within the project are available on the official website www.see-digi.tv .

[51] The study is available on HAKOM's website.

7.5 Bylaws

HAKOM's implementing legislation[52]

Pursuant to the Act on Amendments to the ECA, in 2012, HAKOM's Council adopted amendments to the existing implementing legislation and new necessary implementing regulations:

- The Ordinance on conditions for the assignment and use of the radiofrequency spectrum (OG No. 45/12 and 50/12),
- The Ordinance on amateur radio communications (OG No. 45/12)
- The Ordinance on special conditions for installation and use of radio stations (OG No. 45/12)
- Ordinance on addressing and numbering (OG No. 85/12)
- Ordinance on comprehensive public directory and provision of directory inquiry services on subscribers (OG No. 137/12)
- Ordinance on manner and conditions for the implementation of measures for the protection of safety and integrity of networks and services (OG No. 109/12)
- Correction of the Ordinance on the manner and conditions of access to and sharing of electronic communications infrastructure and associated facilities (OG No. 44/12)
- Ordinance on number portability (OG No. 100/12)
- Ordinance on universal services in electronic communications (OG No. 146/12)

Licences for use of the RF spectrum and certificates of compliance of radio stations

Table 7.2. Licences for use of the RF spectrum

Types of licences	
Licence for use of the RF spectrum for a fixed radio station	814
License for use of the RF spectrum in microwave link	887
Licences for use of the RF spectrum for a mobile radio station	415
Licence for use of the RF spectrum in satellite service	8
License for use of the RF spectrum in broadcasting	258
Licence for use of the RF spectrum in amateur service	249
Licence for CEPT amateur license	7
License for use of the RF spectrum on a vessel	906
License for use of the RF spectrum on an aircraft	21
Total	**3565**

Out of the above-mentioned number of granted licences for use of the RF spectrum, according to Table 7.2, 196 licences were granted electronically

Table 7.3. Data on licences granted through e-Licences application

Types of e-Licences	
e-Vessels	**116**
e-Broadcasting	**76**
e-Microwave link	**4**
Total	**196**

[52] Legislation is available at http://www.hakom.hr/default.aspx?id=317.

Table 7.4. Data on issued certificates of compliance of a radio station	
Type of certificate	
Certificate of complaints of an ARP radio station in amateur service	**18**
Certificates of compliance of DVB-T radio station	**30**
Certificates of compliance of GMS/DCS/UMTS radio station	**1537**
Total	**1585**

Building conditions, requirements for physical planning, technical inspection of a building and rights of way certificates

Table 7.5. Information about building conditions, physical planning technical inspections and right-of-way certificates		
Type of procedure		
Conditions for building	5665processed cases	5658 issued
Conditions for physical planning	710 processed cases	871 issued
Technical inspections of buildings	731 calls	175 completed
Right of way	5526 issued certificates	415,073.56 m of

Table 7.6. Data on addressing and numbering and on number portability	
Type of procedure	
Primary allocation	114 decisions
Transfer of rights to numbers	66 decisions
Confiscation of numbers	46 decisions
Interventions in number portability	5250

7.6 Staff

HAKOM consists of the Council and of the administrative service. HAKOM is managed by the Council of HAKOM which consisted of seven members in late 2012, including the President and Deputy President of the Council. The administrative service carries out administrative and technical tasks and it is governed by the Executive Director appointed by the Council. At the end of 2012, HAMOM employed 173 people.

Figure 7.3. The structure of employees according to level of education and titles.

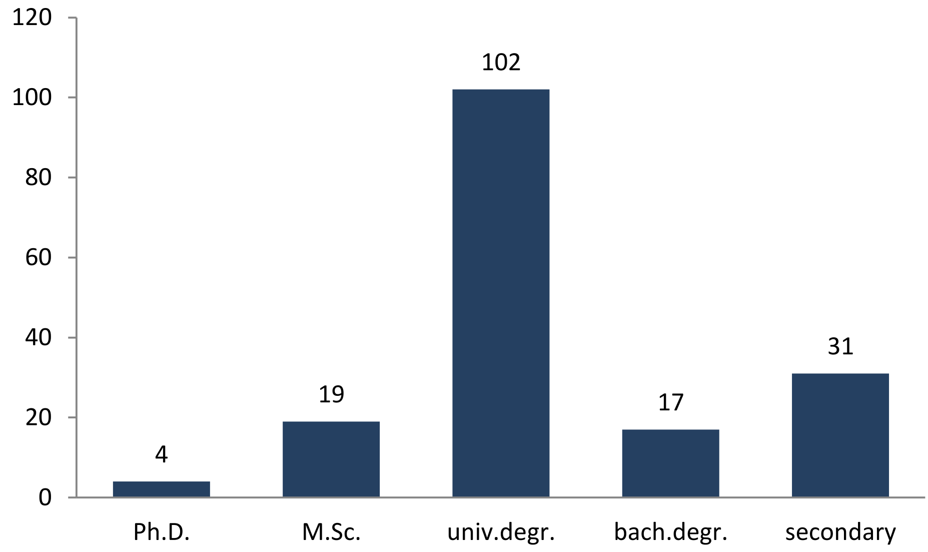


Figure 7.3 shows the structure of employees according to qualifications. It is obvious that only 18 percent of employees have secondary school education. Thirteen percent of employees have completed postgraduate studies in electrical engineering, transport, legal or economic sciences or hold a PhD title.

Figure 7.4. Structure of employees according to profession

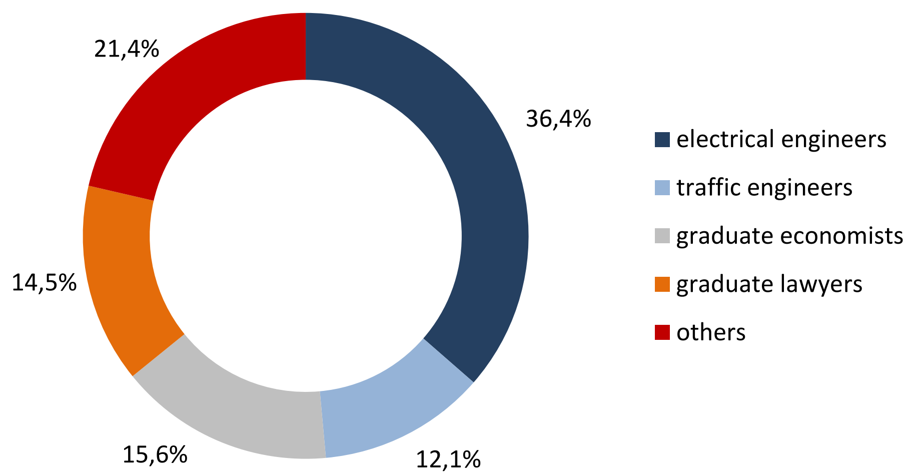


Figure 7.4. shows the structure of employees according to profession. Since HAKOM's main activity is the regulation of electronic communications and postal services markets, which requires engineering knowledge and skills, it is not surprising that electronic engineers make up 36 percent of the staff, followed by economists who make 16 percent, lawyers with 14 percent, traffic engineers with 12 percent, and 21 percent of staff with other professions. Taking into account that HAKOM needs to apply an interdisciplinary approach to the resolution of cases, this means that cooperation between engineers, economists and lawyers is necessary. It will be necessary to increase the number of workers with legal knowledge.

Figure 7.5. Structure of employees according to gender

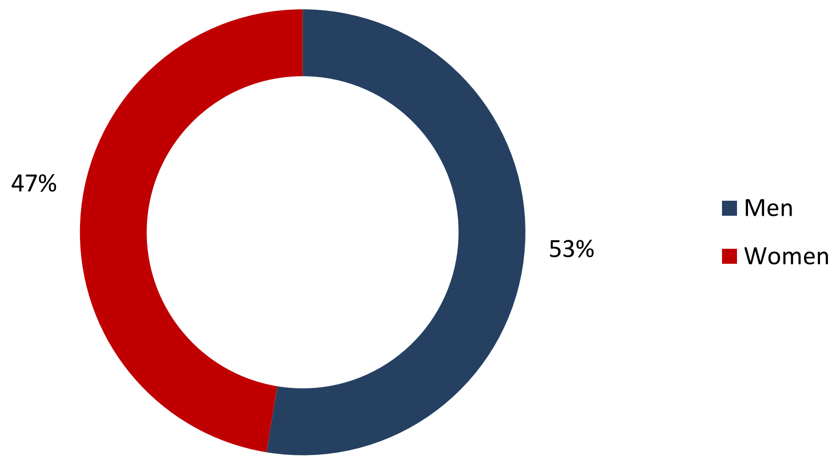


Figure 7.5 shows the percentage of workers per gender which shows that HAKOM pays special attention to non-discrimination during employment. 53 percent of staff are men, and the remaining percentage are women.

It is obvious from Figure 7.6 and 7.7 that the majority of employees are young with experience in activities under HAKOM's competence.

Figure 7.6. Structure of employees according to age

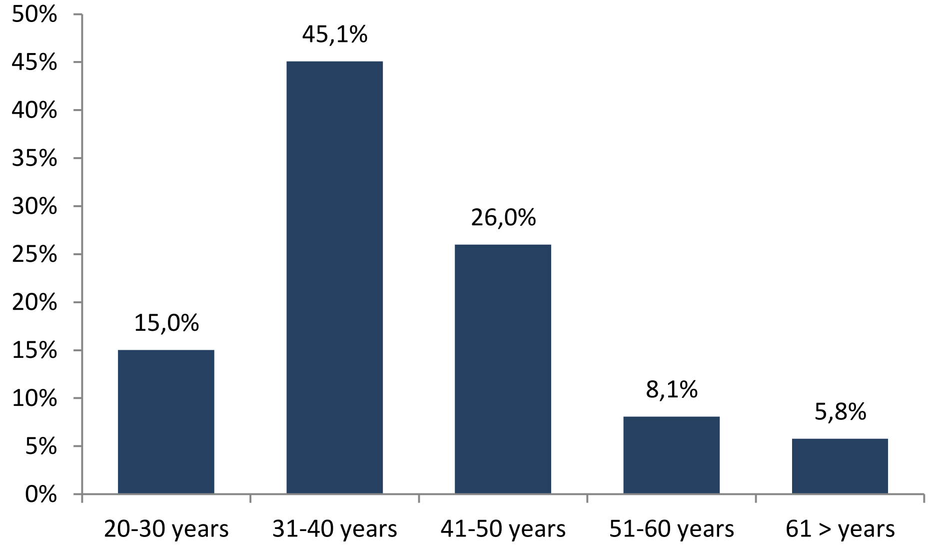
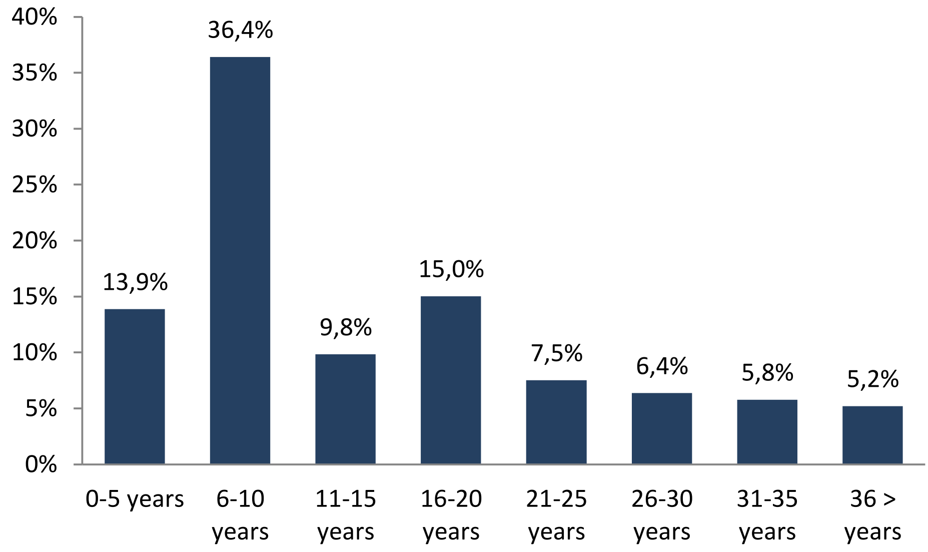


Figure 7.7. Structure of employees according to years of experience



8 FINANCIAL STATEMENT AND ANNUAL ACCOUNTS

8.1 Legislation

HAKOM applies legislation referring to non-profit organisations. The accounting of non-profit organisations is laid down by the Regulation on the accounting of non-profit organisations and it is based on generally accepted accounting principles of accuracy, authenticity, reliability and single recording of positions. Revenue and expenditure is shown according to the principle of occurrence of events regardless of collection or payment.

The ECA prescribes separate recording of accounting events related to electronic communications and postal services. Revenue, expenditure and business results for the electronic communications and postal services sectors are separated in the financial statements and annual accounts. The annual accounts consist of the analysis of revenue, expenditure and surplus revenue, the analysis of surplus of collected funds, the balance sheet as of 31/12/2012, the analysis of investments and analysis of revenue of the State Budget of the Republic of Croatia.

The ECA prescribes that HAKOM will carry forward the surplus of funds compared to the annual budget to the following calendar year. The Ordinance on payment of fees for the carrying out of tasks by HAKOM prescribes the amount and manner of payment of fees to HAKOM.

The ECA prescribes that HAKOM issues invoices on behalf and for the account of the State Budget. State Budget funds are kept in the off balance sheet records per vendors and issued invoices.

8.2 Revenue

Funds for financing of HAKOM's activities in 2012 were ensured in the following manner:

- for the electronic communications sector, on the basis of the approved HAKOM's annual financial plan from the fee for the use of addresses and numbers, fees for the use of the RF spectrum, fees for the carrying out of other HAKOM's tasks, fees for compliances, revenue from assets and revenue from applied and selected projects from pre-accession funds.
  Total revenue in the electronic communications sector for 2012 amounted to HRK 106,119,970.
- for the postal services sector, on the basis of the approved HAKOM's annual budget, as a percentage of the total annual gross revenue earned in the previous calendar year by providers of postal services.
  Total revenue in the electronic communications sector for 2012 amounted to HRK 3,814,989.

Table 8.1. Actual revenue in 2012 compared to the annual budget (in HRK)

	DESCRIPTION	Budget 2012	Actual in 2012	Index
1	Revenue from frequency fees	41,485,500	60,866,955	147
2	Revenue from fees for the carrying out of other HAKOM's activities	34,815,820	31,761,807	91
3	Revenue from fees for use of addresses and numbers	6,669,680	6,797,519	102
4	Revenue from annual fees for the carrying out of activities in the postal services sector	4,488,000	3,814,989	85
5	Revenue from EU pre-accession funds	1,810,000	1,272,461	70
6	Other revenue	1,000,000	5,421,228	542
	TOTAL	**90,269,000**	**109,934,959**	**122**

Table 8.2. Actual revenue in 2012 compared to the previous year (in HRK)

	DESCRIPTION	Actual in 2011	Actual in 2012	Index
1	Revenue from frequency fees	62,209,619	60,866,955	98
2	Revenue from fees for the carrying out of other HAKOM's activities	37,247,532	31,761,807	85
3	Revenue from fees for use of addresses and numbers	6,938,862	6,797,519	98
4	Revenue from annual fees for the carrying out of activities in the postal services sector	4,332,308	3,814,989	88
5	Revenue from EU pre-accession funds	2,234,548	1,272,461	57
6	Other revenue	2,462,315	5,421,228	220
	TOTAL	**115,425,184**	**109,934,959**	**95**

Revenue from frequency fees

Revenue from frequency fees exceed the budgeted amounts by 47% percent. In 2012, two mobile communication networks operators (Croatian Telecom and VIPnet) were allocated additional radiofrequency spectrum in the 790-862 MHz frequency band (digital dividend). Novi-Net d.o.o. company was issued a licence for use of the radiofrequency spectrum in 2012 at 3.5 GHz for broadband wireless access for additional radiofrequency block. With the development of broadband technologies, there is increasing need for transfer capacity and the number of microwave links was increased in 2012 compared to the planned number. As a result, revenue from the radiofrequency spectrum is much higher than budgeted.

RF spectrum management is the subject of Chapter 1.11 of the Annual Report.

Revenue from fees for the carrying out of other HAKOM's activities

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.

The total amount of revenue depends on the annual prescribed percentage, the number of providers of services and the total annual gross revenue. The amount of the prescribed percentage decreases every year on the basis of the Ordinance on the payment of the fees for carrying out of HAKOM's tasks and the number of service providers and actual annual revenue are planned according to the actual of the current year.

The fall in revenue from the carrying out of other HAKOM's activities is mostly caused by the fall in annual gross revenue.

Table 8.3. The amounts of prescribed percentages for the electronic communications markets

Year	2009	2010	2011	2012	2013
Percentage	0.32 %	0.29 %	0.28 %	0.25 %	0.25 %

Revenue from fees for use of addresses and numbers

Actual revenue from fees for the use of addresses and numbers is slightly lower than budgeted. Since the exact number of addresses and numbers that will be taken or returned by operators cannot be known, slight differences are always possible.

Addressing and numbering space management is the subject of Chapter 1.12 of the Annual Report.

Revenue from fees for the carrying out of activities in the postal services sector

Providers of postal services are obliged to pay the annual fee for the carrying out of HAKOM's activities in the postal services sector as a percentage of the total annual gross revenue earned from the provision of postal services in the previous calendar year. The calculation and the amount of the fee as well as the manner of payment are laid down in the Ordinance on payment of fees for the carrying out of tasks by HAKOM.

The total amount of revenue depends on the prescribed annual percentage, the number of providers of services and the total annual gross revenue. The amount of the percentage is decreased every year on the basis of the Ordinance on the payment of the fees for carrying out of HAKOM's tasks and the number of providers of services and the annual revenue are planned on the basis of results of the previous year.

Table 8.4. The amounts of prescribed percentages for the postal services market

Year	2010	2011	2012	2013
Percentage	0.29 %	0.28 %	0.25 %	0.25 %

Revenue from annual fees for the carrying out of activities in the postal services sector amounted to HRK 4,332,308. The planned amount of this revenue for 2012 was HRK 4,488,000 with the percentage drop from 0.28 to 0.25 percent.

However, total actual gross revenue in the postal services sector in 2012 was lower than in 2011. Taking into account one additional reduction of the prescribed percentage, total revenue from fees for the carrying out of activities in the postal service sector are 15 percent lower than budgeted.

Postal services market is discussed in Chapter 2 of the Annual Report.

Revenue from EU pre-accession funds

The absorption of EU pre-accession funds is discussed in Chapter 7.4 of the Annual Report.

Table 8.5. Actual revenue from pre-accession funds (in HRK)

	DESCRIPTION	Actual in 2012
1	Revenue from the technical assistance component "Strengthening of HAKOM's institutional and administrative capacity"	948,958
2	Revenue from the project SEE Digi.TV "South-East European Digital Television"	323,503
	TOTAL	**1,272,461**

Other revenue

Other revenue is planned in the amount of HRK 1,000,000. This actual revenue is significantly higher than budgeted. The realization of exceptionally high revenue from financial assets is achieved by term deposits of available funds.

Other unmentioned revenue consists of revenue from compensations in kind, revenue from technical inspections and special authorizations.

Table 8.6. Other actual revenue (in HRK)

	DESCRIPTION	Actual in 2012
1	Revenue from financial assets	4,154,889
	- interest on term deposited funds and funds at sight	2,870,181
	- revenue from lawful interest rates	1,284,549
	- positive exchange rate differences	159
2	Revenue from damages and refunds	518,370
3	Revenue from sales of long-term assets	129,951
4	Revenue from compliance	113,221
5	Other unmentioned revenue	504,797
	TOTAL	**5,421,228**

8.3 Expenditure

8.3.1 Total HAKOM's expenditure per sector

HAKOM's total expenditure in 2012 amounted to HRK 96,374,047, out of which:

- HRK 86,224,332 refers to expenditure in the electronic communications sector,
- HRK 2,867,598 refers to expenditure in the postal services sector,
- HRK 7,282,117 refers to expenditure for capital donations.

If impact of capital donations on expenditure is taken into account, total HAKOM's expenditure for 2012 is 14 percent lower than approved in the annual budget.

Out of the total expenditure for the **electronic communications sector,** HRK 43,288,724 refers to staff costs, HRK 28,209,166 refers to material expenditure, HRK 14,385,984 refers to expenditure from depreciation, HRK 85,972 refers to financial expenditure, HRK 74,000 refers to current donations and HRK 180,487 refers to other expenditure.

Out of the total expenditure for the **postal services sector,** HRK 2,059,441 refers to staff costs, HRK 792,669 refers to material expenditure, HRK 13,507 refers to expenditure from depreciation, HRK 1,667 refers to financial expenditure, HRK 74,000 refers to current donations and HRK 314 refers to other expenditure.

Capital donations represent expenditure for assistance for the development of infrastructure for broadband access for connecting central and regional schools on the islands and for the establishment of distance learning, as well as for the purposes of maintenance and repair of equipment and for procurement and maintenance of new equipment for the existing and new projects on the islands and in other geographically remote areas.

8.3.2 Total HAKOM's expenditure by accounts from the chart of accounts

Total **employee expenditure** is 7 percent lower than approved in HAKOM's annual budget. Under expenditure sub-ledger for employees, other expenditure for employees increased over the budget.

Other employee expenses include retirement bonuses, financial aid in case of death of a close family member, aid to women who have given birth and presents for employee's children on special occasions.

Total **material expenditure** is 28 percent lower than approved in HAKOM's annual financial plan. This expenditure is 7 percent lower than in 2011. Only three accounts under material expenditure are higher than planned, including: 4212 fees for travel expenses by 4 percent, 4241 compensations to other unemployed persons by 79 percent and 4263 energy by 7 percent.

Travel expenses depend on transportation costs and on where the worker lives or stays. Energy fees are determined by energy prices that were continuously increasing in 2012. Compensations to other unemployed persons are higher than planned because of the obligation to conduct audit of IPA 2009 Twinning light project pursuant to the agreement between HAKOM and the Ministry of the Economy.

The following items under material expenditure were lower in 2012 compared to 2011: promotion and information services by 64 percent, representation by 31 percent, as well as other services, business travel services by 25 percent, office supplies by 24 percent, small inventory and car tyres costs by 22 percent, utilities by 17 percent, membership fees by 15 percent, telephone, post and transportation services by 9 percent, and insurance premiums by 7 percent.

The following items under material expenditure were higher in 2012 compared to 2011: fees to other unemployed persons by 92 percent (due to audit of the IPA project) energy by 47 percent, travel expenses by 19 percent, leases and rents by 13 percent, health services by 9 percent, and IT services by 4 percent.

Compared to the approved annual financial plan, business trip expenditure is lower by 33 percent, expenditure for professional training of employees by 38 percent, expenditure for telephone, post and transportation services by 14 percent, expenditure for services of current and investment maintenance by 31 percent, expenditure for promotion and information services by 65 percent, and expenditure for utilities by 24 percent.

Out of the total material expenditure, HRK 4,122,199 refers to reimbursements to employees, HRK 8,661 refers to compensation of costs to members of representative and executive bodies, HRK 125,002 refers to compensations to external contractors, HRK 21,851,788 refers to expenditure for services, HRK 2,028,586 refers to expenditure for material and power, and HRK 865,598 refers to other unmentioned expenditure.

Depreciation expenditure is slightly higher than approved in the annual budget.

Financial expenditure is slightly higher than planned in the annual budget, and the increase results mostly from negative exchange rate differences.

Donations include current and capital donations. Current donations are at the level approved by the annual financial plan.

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. Funds for the coverage of this expenditure are included under surplus funds. The surplus funds are discussed in Chapter 8.6. These funds are held in a separate giro-account increased by the regular interest rate on a vista funds.

Pursuant to a Government Decision from September 2011, the surplus of funds from 2006 amounting to 2,872,320 was spent on the development of infrastructure for broadband access for linking central and regional schools on the islands and the establishment of the distance learning system.

The 2012 Budget approved a total of HRK 54,131,100 for the state aid programme for the development of broadband networks. The aid programme was divided into three projects: access, equipment and services. In 2012, a total of HRK 4,409,797 was spent on Karlovačka County.

8.3.3 HAKOM's actual revenue compared to the annual budget

The Table below shows expenditure realized in comparison with HAKOM's annual budget in total and then separately for the electronic communications sector and separately for the postal services sector.

Table 8.7. HAKOM's actual expenditure in 2012 compared to the annual budget (in HRK)

Class	Subgroup	Section	TITLE	2012 BUDGET	ACTUAL in 2012	INDEX
41			Staff costs	48,967,740	45,348,164	93
	411		Salaries	39,201,140	36,091,348	92
		4111	Salaries for regular work	38,224,140	35,256,375	92
		4112	Payment in kind	830,000	817,682	99
		4113	Payments for overtime work	147,000	17,291	12
	412		Other employee expenses	3,080,000	3,594,705	117
		4121	Other employee expenses	3,080,000	3,594,705	117
	413		Contributions on salaries	6,686,600	5,662,111	85
		4131	Contributions for health insurance	6,036,900	5,082,087	84
		4132	Contributions for employment	649,700	580,024	89
42			Material expenditure	40,449,260	29,001,835	72
	421		Reimbursements to employees	5,879,060	4,122,200	70
		4211	Business trips	2,489,060	1,661,795	67
		4212	Travel expenses	840,000	877,323	104
		4213	Professional training of employees	2,550,000	1,583,082	62
	422		Reimbursement of costs to members in commissions and similar	20,000	8,661	43
		4221	Reimbursement of costs to members in commissions and similar	20,000	7,844	39
		4222	Reimbursement of business trip costs	0	817	-
	424		Compensations for external associates	70,000	125,002	179
		4241	Compensations for carrying out of activities	70,000	125,002	179
	425		Expenditure for services	30,584,200	21,851,789	71
		4251	Telephone, mail and transportation services	1,600,000	1,369,817	86
		4252	Services of current and investment maintenance	2,650,000	1,818,373	69
		4253	Promotion and information services	690,000	244,570	35
		4254	Utility services	840,000	636,373	76
		4255	Leases and rents	9,500,000	8,411,834	89
		4256	Health and veterinary services	430,000	412,621	96
		4257	Intellectual and personal services	9,224,200	5,169,234	56
		4258	IT services	2,900,000	1,823,186	63
		4259	Other services	2,750,000	1,965,781	71

	426		Expenditure for material and power	2,226,000	2,028,586	91
		4261	Office supplies and other material expenditures	806,000	585,945	73
		4263	Energy	1,230,000	1,310,200	107
		4264	Small inventory and car tyres	190,000	132,441	70
	429		Other unmentioned material expenditure	1,670,000	865,597	52
		4291	Insurance premiums	1,280,000	661,194	52
		4292	Entertaining	160,000	92,230	58
		4293	Membership fees	180,000	112,173	62
		4295	Other unmentioned material expenditure	50,000	0	0
43			Depreciation expenditure	14,000,000	14,399,491	103
	431		Depreciation	14,000,000	14,399,491	103
		4311	Depreciation	14,000,000	14,399,491	103
44			Financial expenditure	85,000	87,640	103
	443		Other financial expenditure	85,000	87,640	103
		4431	Banking services and payment transaction services	50,000	43,598	87
		4432	Negative exchange rate differences and currency clause	20,000	33,591	168
		4433	Penalty interest	1,000	281	28
		4434	Other unmentioned financial expenditure	14,000	10,170	73
45			Donations	58,492,958	7,356,117	13
	451		Current donations	75,000	74,000	99
		4511	Current donations	75,000	74,000	99
	452		Capital donations	58,417,958	7,282,117	12
		4521	Capital donations	58,417,958	7,282,117	12
46			Other expenditure	442,000	180,800	41
	461		Fines, penalties and damages	42,000	14,688	35
		4611	Compensation for damages to legal and natural persons	31,000	5,370	17
		4612	Penalties, storage charges and other	8,000	9,318	116
		4614	Contractual fines and other damages	3,000	0	0
	462		Other unmentioned expenditure	400,000	166,112	42
		4621	Value not written-off and other expenditure from alienated and depreciated long-term assets	200,000	115,588	58
		4622	Expired debts	200,000	30,324	15
		4623	Expenditure for other taxes	0	20,200	-
TOTAL				**162,436,958**	**96,374,047**	**59**

Table 8.8. Expenditure in electronic communications for HAKOM in 2012 compared to the annual budget (in HRK)

Class	Subgroup	Section	TITLE	2012 BUDGET	ACTUAL in 2012	INDEX
41			Staff costs	46,097,740	43,288,724	94
	411		Salaries	36,821,140	34,442,319	94
		4111	Salaries for regular work	35,924,140	33,638,017	94
		4112	Payment in kind	750,000	787,011	105
		4113	Payments for overtime work	147,000	17,291	12
	412		Other staff costs	2,950,000	3,444,529	117
		4121	Other staff costs	2,950,000	3,444,529	117
	413		Contributions on salaries	6,326,600	5,401,876	85
		4131	Contributions for health insurance	5,716,900	4,848,470	85
		4132	Contributions for employment	609,700	553,406	91
42			Material expenditure	38,729,260	28,209,166	73
	421		Reimbursements to employees	5,649,060	3,926,225	70
		4211	Business trips	2,379,060	1,557,474	65
		4212	Travel expenses	770,000	802,161	104
		4213	Professional training of employees	2,500,000	1,566,590	63
	422		Reimbursement of costs to members in commissions and similar	20,000	8,661	43
		4221	Reimbursement of costs to members in commissions and similar	20,000	7,844	39
		4222	Reimbursement of business travel costs	0	817	-
	424		Compensations for external associates	70,000	125,002	179
		4241	Compensations for carrying out of activities	70,000	125,002	179
	425		Expenditure for services	29,264,200	21,338,538	73
		4251	Telephone, mail and transportation services	1,500,000	1,327,176	88
		4252	Services of current and investment maintenance	2,600,000	1,811,484	70
		4253	Promotion and information services	650,000	236,580	36
		4254	Utility services	800,000	617,739	77
		4255	Leases and rents	9,000,000	8,155,567	91
		4256	Health and veterinary services	400,000	398,503	100
		4257	Intellectual and personal services	8,814,200	5,105,444	58

		4258	IT services	2,800,000	1,774,404	63
		4259	Other services	2,700,000	1,911,641	71
	426		Expenditure for material and power	2,116,000	1,972,490	93
		4261	Office supplies and other material expenditures	756,000	566,891	75
		4263	Energy	1,180,000	1,273,158	108
		4264	Small inventory and car tyres	180,000	132,441	74
	429		Other unmentioned material expenditure	1,610,000	838,250	52
		4291	Insurance premiums	1,250,000	645,881	52
		4292	Entertaining	140,000	83,594	60
		4293	Membership fees	170,000	108,774	64
		4295	Other unmentioned material expenditure	50,000	0	0
43			Depreciation expenditure	14,000,000	14,385,984	103
	431		Depreciation	14,000,000	14,385,984	103
		4311	Depreciation	14,000,000	14,385,984	103
44			Financial expenditure	78,000	85,972	110
	443		Other financial expenditure	78,000	85,972	110
		4431	Banking services and payment transaction services	45,000	42,057	93
		4432	Negative exchange rate differences and currency clause	19,000	33,587	177
		4433	Penalty interest	1,000	279	28
		4434	Other unmentioned financial expenditure	13,000	10,050	77
45			Donations	58,492,958	7,356,117	13
	451		Current donations	75,000	74,000	99
		4511	Current donations	75,000	74,000	99
	452		Capital donations	58,417,958	7,282,117	12
		4521	Capital donations	58,417,958	7,282,117	12
46			Other expenditure	441,000	180,487	41
	461		Fines, penalties and damages	41,000	14,485	35
		4611	Compensation for damages to legal and natural persons	30,000	5,370	18
		4612	Penalties, storage charges and other	8,000	9,115	114
		4614	Contractual fines and other damages	3,000	0	0
	462		Other unmentioned expenditure	400,000	166,002	42
		4621	Value not written-off and other expenditure from alienated and depreciated long-term assets	200,000	115,588	58
		4622	Expired debts	200,000	30,324	15

		4623	Expenditure for other taxes	0	20,090	-
			TOTAL	**157,838,958**	**93,506,450**	**59**

Table 8.9. Expenditure in postal services for HAKOM in 2012 compared to the annual budget (in HRK)

Class	Subgroup	Section	TITLE	2012 BUDGET	ACTUAL in 2012	INDEX
41			Staff costs	2,870,000	2,059,441	72
	411		Salaries	2,380,000	1,649,030	69
		4111	Salaries for regular work	2,300,000	1,618,358	70
		4112	Payment in kind	80,000	30,671	38
		4113	Payments for overtime work	0	0	-
	412		Other staff costs	130,000	150,176	116
		4121	Other staff costs	130,000	150,176	116
	413		Contributions on salaries	360,000	260,235	72
		4131	Contributions for health insurance	320,000	233,617	73
		4132	Contributions for employment	40,000	26,618	67
42			Material expenditure	1,720,000	792,669	46
	421		Reimbursements to employees	230,000	195,975	85
		4211	Business trips	110,000	104,321	95
		4212	Travel expenses	70,000	75,161	107
		4213	Professional training of employees	50,000	16,493	33
	422		Reimbursement of costs to members in commissions and similar	0	0	-
		4221	Reimbursement of costs to members in commissions and similar	0	0	-
		4222	Reimbursement of business trip costs	0	0	-
	424		Compensations for external associates	0	0	-
		4241	Compensations for carrying out of activities	0	0	-
	425		Expenditure for services	1,320,000	513,251	39
		4251	Telephone, mail and transportation services	100,000	42,641	43
		4252	Services of current and investment maintenance	50,000	6,889	14
		4253	Promotion and information services	40,000	7,990	20
		4254	Utility services	40,000	18,634	47
		4255	Leases and rents	500,000	256,268	51
		4256	Health and veterinary services	30,000	14,118	47
		4257	Intellectual and personal services	410,000	63,790	16

		4258	IT services	100,000	48,782	49
		4259	Other services	50,000	54,140	108
	426		Expenditure for material and power	110,000	56,096	51
		4261	Office supplies and other material expenditures	50,000	19,054	38
		4263	Energy	50,000	37,041	74
		4264	Small inventory and car tyres	10,000	0	0
	429		Other unmentioned material expenditure	60,000	27,348	46
		4291	Insurance premiums	30,000	15,313	51
		4292	Entertaining	20,000	8,636	43
		4293	Membership fees	10,000	3,399	34
		4295	Other unmentioned material expenditure	0	0	-
43			Depreciation expenditure	0	13,507	-
	431		Depreciation	0	13,507	-
		4311	Depreciation	0	13,507	-
44			Financial expenditure	7,000	1,667	24
	443		Other financial expenditure	7,000	1,667	24
		4431	Banking services and payment transaction services	5,000	1,541	31
		4432	Negative exchange rate differences and currency clause	1,000	3	0
		4433	Penalty interest	0	3	-
		4434	Other unmentioned financial expenditure	1,000	120	12
45			Donations	0	0	-
	451		Current donations	0	0	-
		4511	Current donations	0	0	-
	452		Capital donations	0	0	-
		4521	Capital donations	0	0	-
46			Other expenditure	1,000	314	31
	461		Fines, penalties and damages	1,000	204	20
		4611	Compensation for damages to legal and natural persons	1,000	0	-
		4612	Penalties, storage charges and other	0	204	-
		4614	Contractual fines and other damages	0	0	-
	462		Other unmentioned expenditure	0	110	-
		4621	Value not written-off and other expenditure from alienated and depreciated long-term assets	0	0	-
		4622	Expired debts	0	0	-

		4623	Expenditure for other taxes	0	110	-
			TOTAL	**4,598,000**	**2,867,598**	**62**

Table 8.9. HAKOM's expenditure in 2012 compared to the previous year (in HRK)

Class	Subgroup	Section	TITLE	ACTUAL in 2011	ACTUAL in 2012	INDEX
41			Staff costs	44,304,774	45,348,164	102
	411		Salaries	35,588,697	36,091,348	101
		4111	Salaries for regular work	34,855,975	35,256,375	101
		4112	Payment in kind	726,617	817,682	113
		4113	Payments for overtime work	6,105	17,291	283
	412		Other staff costs	2,611,996	3,594,705	138
		4121	Other staff costs	2,611,996	3,594,705	138
	413		Contributions on salaries	6,104,081	5,662,111	93
		4131	Contributions for health insurance	5,534,696	5,082,087	92
		4132	Contributions for employment	569,385	580,024	102
42			Material expenditure	31,187,191	29,001,835	93
	421		Reimbursements to employees	4,904,555	4,122,200	84
		4211	Business trips	2,212,122	1,661,795	75
		4212	Travel expenses	737,216	877,323	119
		4213	Professional training of employees	1,955,217	1,583,082	81
	422		Reimbursement of costs to members in commissions and similar	15,334	8,661	56
		4221	Reimbursement of costs to members in commissions and similar	10,298	7,844	76
		4222	Reimbursement of business trip costs	5,036	817	16
	424		Compensations for external associates	65,187	125,002	192
		4241	Compensations for carrying out of activities	65,187	125,002	192
	425		Expenditure for services	23,388,926	21,851,789	93
		4251	Telephone, mail and transportation services	1,506,825	1,369,817	91
		4252	Services of current and investment maintenance	2,164,550	1,818,373	84
		4253	Promotion and information services	674,303	244,570	36
		4254	Utility services	764,172	636,373	83
		4255	Leases and rents	7,472,301	8,411,834	113
		4256	Health and veterinary services	379,680	412,621	109
		4257	Intellectual and personal services	5,811,933	5,169,234	89

		4258	IT services	1,754,831	1,823,186	104
		4259	Other services	2,860,331	1,965,781	69
	426		Expenditure for material and power	1,829,795	2,028,586	111
		4261	Office supplies and other material expenditures	768,267	585,945	76
		4263	Energy	892,031	1,310,200	147
		4264	Small inventory and car tyres	169,497	132,441	78
	429		Other unmentioned material expenditure	983,394	865,597	88
		4291	Insurance premiums	713,845	661,194	93
		4292	Entertaining	134,091	92,230	69
		4293	Membership fees	131,616	112,173	85
		4295	Other unmentioned material expenditure	3,842	0	0
43			Depreciation expenditure	11,344,070	14,399,491	127
	431		Depreciation	11,344,070	14,399,491	127
		4311	Depreciation	11,344,070	14,399,491	127
44			Financial expenditure	78,221	87,640	112
	443		Other financial expenditure	78,221	87,640	112
		4431	Banking services and payment transaction services	47,646	43,598	92
		4432	Negative exchange rate differences and currency clause	18,910	33,591	178
		4433	Penalty interest	2,084	281	13
		4434	Other unmentioned financial expenditure	9,581	10,170	106
45			Donations	16,388,312	7,356,117	45
	451		Current donations	90,000	74,000	82
		4511	Current donations	90,000	74,000	82
	452		Capital donations	16,298,312	7,282,117	45
		4521	Capital donations	16,298,312	7,282,117	45
46			Other expenditure	14,757	180,800	1,225
	461		Fines, penalties and damages	14,757	14,688	100
		4611	Compensation for damages to legal and natural persons	10,140	5,370	53
		4612	Penalties, storage charges and other	4,617	9,318	202
		4614	Contractual fines and other damages	0	0	-
	462		Other unmentioned expenditure	0	166,112	-
		4621	Value not written-off and other expenditure from alienated and depreciated long-term assets	0	115,588	-
		4622	Expired debts	0	30,324	-

	4623	Expenditure for other taxes	0	20,200	-
		TOTAL	**103,317,325**	**96,374,047**	**93**

8.4 Operating result

Table 8.10. Results of HAKOM's business operations total and according to sectors (in HRK)

	DESCRIPTION	Actual 2012	Actual electronic communications sector	Actual sector postal services
	REVENUE	**109,934,959**	**106,119,970**	**3,814,989**
1	Revenue according to special regulations	103,391,191	99,576,202	3,814,989
2	Revenue from assets	4,154,889	4,154,889	0
3	Revenue from donations	1,272,461	1,272,461	0
4	Other revenue	1,116,418	1,116,418	0
	EXPENDITURE	**96,374,047**	**93,506,449**	**2,867,598**
1	Staff costs	45,348,165	43,288,724	2,059,441
2	Material expenditure	29,001,835	28,209,166	792,669
3	Depreciation expenditure	14,399,491	14,385,984	13,507
4	Financial expenditure	87,639	85,972	1,667
5	Donations	7,356,117	7,356,117	0
	- current donations	74,000	74,000	0
	- capital donations	7,282,117	7,282,117	0
6	Other expenditure	180,800	180,486	314
	Operating results	**13,560,912**	**12,613,521**	**947,391**

Total HAKOM's operating results amounted to HRK 13,560,912 in 2012. Results in the electronic communications sector amount to HRK 12,613,521, and in the postal services sector to HRK 947,391.

The Regulation on the accounting of non-profit organizations prescribes that revenue and expenditure is shown on the basis of **accrual** regardless of collection or payment, and business performance results do not represent a surplus of **collected** funds transferred to the next year. The surplus funds are discussed in the next Section.

8.5 Surplus collected funds

The ECA prescribes that HAKOM will transfer the surplus of funds compared to the annual budget to the following calendar year.

Table 8.11. Surplus collected funds (in HRK)

DESCRIPTION	Amount
Funds in the regular bank account, time deposited funds and petty cash on 31/12/2012	97,743,389
Transferred surplus collected funds, planned and distributed on the basis of HAKOM's financial plan for 2013	36,347,500
Unspent approved funds for the state aid programme	29,721,303
Unallocated surplus collected funds	31,674,586

Total surplus collected funds from 2008 amounts to HRK 97,743,389. A total of HRK 36,347,500 from this amount were already transferred to 2013 on the basis of HAKOM's Budget for 2013. In 2012, the unspent approved funds for the state aid programme amounted to 29,721,303. These funds will be carried forward to 2013 by amendments to HAKOM's budget.

The undistributed budget surplus amounts to HRK 31,674,586. This amount will also be carried forward to 2013 for the Programme for Internet and Broadband Development in Areas of Special State Concern by amendments to HAKOM's 2013 Budget.

8.6 Surplus funds (legislation up to 2008)

The TA (Article 16, paragraph 4), which was in force until 1 July 2008, prescribed that: "The amount and the methods of allocating the surplus of funds referred to in paragraph 1 of this Article and which represents the difference between the revenues and expenditure of the Agency at the end of the current budget year shall be defined by a decision passed by the Government of the Republic of Croatia within six months after the end of the current budget year."

Until 1 January 2008, the Regulation on accounting of non-profit organisations prescribed the accounting principle of recording economic events. Since revenue and expenditure was recorded in accordance with the accounting principle, business results, that is, revenue surplus/deficit represented the surplus of funds.

Table 8.12. Surplus funds as at 31/12/2012 (in HRK)

Surplus funds per year	Funds as at 31/12/2012
Surplus funds from 2005	222,801
Surplus funds from 2006	280,416
Surplus funds from 2007	320,753
TOTAL	**823,970**

Surplus funds from 2005, 2006 and 2007 are kept in a separate giro-account. As of 31 December 2011, the balance in the separate giro-account amounted to HRK 1,423,380, that is, the amount of the balance of surplus funds increased by the regular interest rate in the giro account.

8.7 Balance Sheet

8.7.1 Assets

Assets consist of resources controlled by HAKOM as a result of previous events and which are expected to give future benefits. Assets are observed by type, duration and function in the carrying out of activity, and, in the non-profit system, it is classified into:

- non-financial assets - class 0,
- financial assets - class 1.

Non-financial assets

Non-financial assets consist of produced and non-produced assets. The group of non-produced assets include investments into land and intangible assets. Produced assets are construction facilities, installations and equipment, means of transportation and software.

HAKOM's non-financial assets increased by only 3 percent in 2012 compared to 2011. More valuable investments in 2012 included investments in software and in installations and equipment.

Modernization of programmes also took place through the e-Agency project discussed in Chapter 7.1 of the Annual Report.

HAKOM owns a monitoring and measuring centre in Rijeka built in 2010 and a monitoring and measuring centre in Osijek acquired in 2011. Other monitoring and measuring centres are located in Zagreb and Split in rented business facilities.

HAKOM owns monitoring and measuring stations in Otok, Ravna Gora, Velik Bokolj, Degman and Ozljak, and mobile monitoring and measuring station Savudrija. There were no investments in buildings in 2012.

The group of means of transportation includes personal vehicles and special vehicles equipped with special measuring devices. A total of HRK 580,000 was invested into means of transportation in 2012. Three special terrain vehicles were depreciated.

Financial assets

Table 8.13. HAKOM’s financial assets (in HRK)

Calculation from the accounting plan	Balance as at 31/12/2011	Balance as at 31/12/2012	Index
11 cash in bank and petty cash	79,833,611	51,809,931	65%
12 deposits, guarantees	9,043,596	50,978,795	564%
16 liabilities	20,422,388	19,922,538	98%
TOTAL	**109,229,595**	**122,711,264**	**112%**

Cash in bank and petty cash

Less cash in bank on 31/12/2012 compared to 31/12/2011 is the consequence of term deposits of available funds.

Deposits and guarantees

As at 31/12/2012, total invested funds in the Croatian Postal Bank, HAKOM's bank, amounted to HRK 47,400,000. Term deposits of funds resulted in more favourable interest rates, which is obvious from the increase in revenue from financial assets.

Liabilities

Liabilities include HAKOM's liabilities for invoiced unpaid revenue.

Table 8.14. HAKOM's receivables (in HRK)

Description of receivables	Amount
Total receivables as at 31/12/2012	19,922,538
Outstanding receivables	12,887,641
Receivables	7,034,897

A total of 71 enforcement cases were initiated in 2012. Enforcement proceedings are discussed in Chapter 5 of the Annual Report.

Table 8.15. HAKOM's balance as of 31/12/2012 (in HRK) (in HRK)

Calculation from the	DESCRIPTION	As at 31 December 2011	As at 31 December 2012	Index
	ASSETS	**165,062,532**	**180,120,250**	**109**
0	Non-financial assets	55,762,937	57,408,986	103
01	Unproduced long-term assets	3,432,896	3,626,697	106
011	Material assets - natural resources	93,397	93,397	100
0111	Land	93,397	93,397	100
012	Intangible assets	19,444,140	20,721,417	107
0123	Licences	2,297,752	2,636,622	115
0124	Other rights	9,006	9,006	100
0128	Other intangible assets	17,137,382	18,075,789	105
019	Impairment of unproduced long-term assets	16,104,641	17,188,117	107
02	Produced long-term assets	52,330,041	53,782,289	103
021	Construction facilities	12,712,650	12,712,650	100
0212	Business premises	7,753,697	7,753,697	100
0213	Other facilities	4,958,953	4,958,953	100
022	Plants and equipment	127,355,572	134,536,300	106
0221	Office equipment and furniture	10,621,686	8,990,817	85
0222	Communications equipment	588,530	693,706	118
0223	Maintenance and protection equipment	311,984	333,706	107

0225	Instruments, devices and machines	111,337,962	120,022,661	108
0227	Devices, machines and equipment for other purposes	4,495,410	4,495,410	100
023	Means of transport	23,145,230	22,801,368	99
0232	Other means of transport	23,145,230	22,801,368	99
024	Books, works of art and other artefacts	28,174	28,174	100
0244	Other unmentioned artefacts	28,174	28,174	100
026	Intangible produced assets	22,371,941	25,575,752	114
0261	Investments in software	22,371,941	25,575,752	114
029	Impairment of produced long-term assets	133,283,526	141,871,955	106
042	Small inventory in use	600,542	561,570	94
049	Impairment of small inventory	600,542	561,570	94
1	Financial assets	109,299,595	122,711,264	112
11	Cash at bank and on hand	79,833,611	51,809,931	65
111	Cash at bank	79,827,472	51,798,465	65
1111	Cash in accounts at domestic commercial banks	79,827,472	51,798,465	65
113	Cash at bank	6,139	11,466	187
12	Deposits, guarantee deposits and receivables from employees and for overpaid taxes and other	9,043,596	50,978,795	564
121	Deposits in banks and other financial institutions	8,550,000	47,400,000	554
1211	Deposits in domestic banks and other financial institutions	8,550,000	47,400,000	554
122	Guarantee deposits	0	2,422,010	-
123	Receivables from employees	136	678	499
124	Receivables for overpaid taxes and contributions	0	7,974	-
1241	Receivables for overpaid taxes	0	7,974	-
129	Other receivables	493,460	1,148,133	233
1291	Receivables for refundable fees	32,919	69,987	213
1293	Receivables for advance payments	393,930	893,982	227
1294	Other unmentioned receivables	66,611	184,164	276
16	Receivables for revenue	20,422,388	19,922,538	98
163	Receivables for revenue pursuant to special regulations	19,757,409	17,687,164	90
164	Receivables for revenue from assets	664,979	2,235,374	336
	LIABLITIES AND OWN RESOURCES	**165,062,551**	**180,120,250**	**109**
2	Liabilities	49,756,456	52,436,120	105
24	Liabilities for expenditure	5,673,090	5,300,399	93

241	Employee liabilities	4,248,527	3,813,531	90
2411	Liabilities for net salaries	1,946,195	1,970,045	101
2412	Liabilities for net salaries	0	7,501	-
2414	Liabilities for income tax and surtax on salaries	633,014	664,737	105
2415	Liabilities for contributions from salaries	650,022	662,006	102
2416	Liabilities for contributions on salaries	556,699	503,337	90
2417	Other liabilities for employees	462,597	5,905	1
242	Liabilities for material expenditure	1,424,563	1,269,111	89
2421	Reimbursements to employees	63,981	77,138	121
2425	Liabilities towards domestic suppliers	1,360,582	1,162,168	85
2426	Liabilities towards foreign suppliers	0	29,805	-
245	Liabilities for collected assistance funds	0	39,225	-
249	Other liabilities	0	178,532	-
29	Delayed expenditure payments and future revenue	44,083,366	47,135,721	107
291	Delayed payment of expenditure	0	866,746	-
292	Unpaid future revenue	44,083,366	46,268,975	105
2921	Pre-paid revenue	49,281	57,857	117
2922	Delayed recognition of revenue	44,034,085	46,211,118	105
5	Own resources	115,306,095	127,684,130	111
51	Own resources	5,756,076	4,573,198	79
511	Own resources	5,756,057	4,573,198	79
5221	Surplus revenue	109,550,019	123,110,932	112
5222	Revenue deficit	0	0	-
Off-balance sheet records				
61	Off-balance sheet records -assets	50,261,176	58,617,042	117
62	Off-balance sheet records - liabilities	50,261,176	58,617,042	117

8.7.2 Liabilities

Account 24 contains Liabilities for expenditure referring to salaries for December 2012 and to trade account payables. Liabilities for salaries for December and trade account payables were covered in January 2013.

Account 2922 “Delayed recognition of revenue” contains delayed revenue, that is, revenue for 2013. Since a significant amount of fees are paid one year in advance (which does not correspond to a calendar year), the proportionate part of the fee represents income for the following business year. The amount of delayed revenue in 2012 amounts to HRK 46,211,118.

Account 51 -Own sources shows the decrease in own sources resulting mostly from value corrections and disposal of assets procured in 2007 and before.

The results of business operations on 31/12/2012 include cumulative surplus revenue over expenditure.

8.8 Investments

Table 8.16. Actual investments in 2012 (in HRK)

	DESCRIPTION	2012 Budget	2012 Actual	INDEX
I.	Business premises - SMC Split	5,600,000	0	0
II.	Investments in software	6,910,000	3,542,681	51
III.	Measuring and monitoring devices	10,000,000	8,698,885	87
IV	Computers and IT equipment	2,900,000	1,999,672	69
V.	Office furniture	1,500,000	292,028	19
VI	Other office equipment	449,653	406,094	90
VII.	Communications equipment	270,000	132,273	49
VIII.	Expenditure for development projects and studies	1,715,000	1,598,625	93
IX.	Investments in someone else's assets for the rights of use	250,000	0	0
X.	Devices, machines and equipment for other purposes	321,000	91,388	28
XI.	Means of transportation - personal vehicles	700,000	582,340	83
	TOTAL	**30,615,653**	**17,343,986**	**57**

8.9 State Budget revenue

Off-balance sheet records keep track of the assets of others. It records revenue of the State Budget of the RoC expressed as liabilities from users, which liabilities towards the budget of the RoC expressed at the same time. HAKOM only invoices these fees for the benefit of the State Budget, and amounts of the fees are paid directly to the State Budget. Off-balance sheet records are recorded analytically by buyers and issued invoices for the benefit of the budget.

The total of HRK 800,256,828 was invoiced in 2012 for the benefit of the State Budget. Out of the total invoiced amount, HRK 776,606,227 (97 percent) refers to fees for use of the radio frequency spectrum. Everything else refers to fees for authorisations and licences, addresses and numbers and legal penalty rates. The amount of HRK 300 million represents one-off fees in the allocation of the digital dividend.

According to our records, a total of HRK 791,650,001 were paid into the State Budget in 2012. Old liabilities which are paid into HAKOM's account (2008 and before) and funds paid by mistake to HAKOM's account instead of to the State Budget are regularly paid by HAKOM into the State Budget. HAKOM paid the total of HRK 2,579,250 into the State Budget in 2012.

Table 8.17. Realisation of State Budget revenue in 2012 (in HRK)

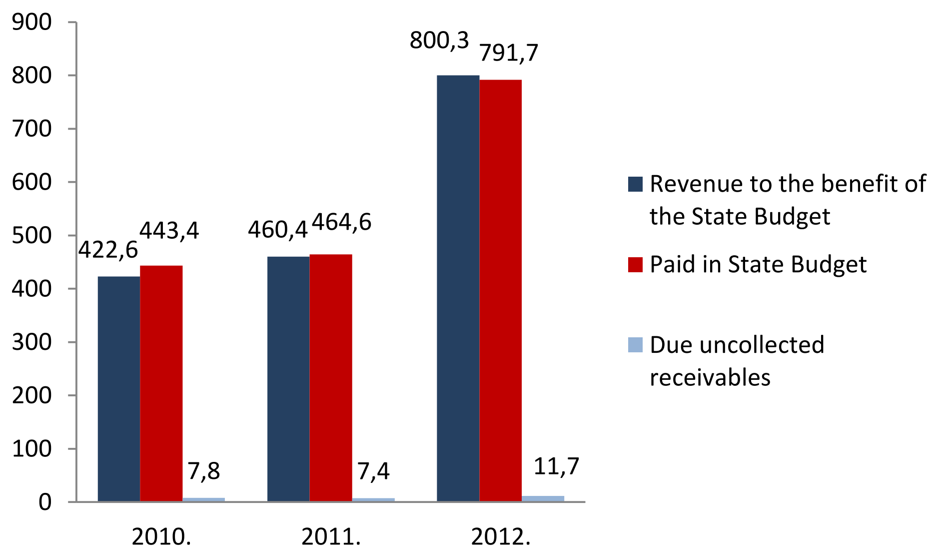
DESCRIPTION	2010	2011	2012
State Budget revenue	422,628,911	460,363,129	800,256,828
Paid into the State Budget	443,427,780	464,621,464	791,650,001

Table 8.18. Receivables - state budget (in HRK)

Description of receivables	Funds as at 31/12/2011	Funds as at 31/12/2012
Total receivables SB	50,261,176	58,617,042
Outstanding total receivables SB	42,900,619	46,874,985
Receivables SB	7,360,557	11,742,057

The increase in off-balance sheet records (total receivables for the benefit of the SB) compared to the previous year results from the increase in the State Budget revenue by 74 percent. The trend of increased collection of State Budget revenue continued in 2012 which is obvious from the fall in the share of unpaid receivables compared to total revenue. The increase in total State Budget revenue in 2012 compared to the year before amounts to 74 percent while due receivables increased by only 17 percent.

Figure 8.1. State Budget revenue, payments and receivables per year (in HRK million)



A total of 71 enforcements were initiated in 2012 for all receivables that were due even 30 days after the issued dunning letter. The recovery of HRK 1,419,469 for the benefit of the State Budget was attempted through court and HRK 1,322,294 were collected.

8.10 Independent audit report (summary)

An independent audit firm performed the audit of financial statements of the Croatian Post and Electronic Communications Agency covering the balance sheet as at 31 December 2012, and the revenue and expenditure accounts for the period from 1 January to 31 December 2011, and notes to financial statements. Financial statements were prepared in accordance with the prescribed legal form for non-profit organizations, and, according to the opinion of the audit company, present in a realistic and objective manner in all materially significant elements the financial position of the Agency as of 31 December 2011, as well as its business results in the year ending on that date.

Total assets of the Agency amounted to HRK 180.1 million as of 31 December 2011, out of which non-financial assets amounted to HRK 57.4 million and financial to HRK 122.7 million.

A total of HRK 17.3 million of non-financial assets were procured, and all investments were in compliance with amendments to the budget for 2012. The total value adjustment in 2012 amounted to HRK 15.5 million in 2012 while purchase value and value adjustment for depreciated non-financial assets amounted to HRK 5.8 million. A list of non-financial assets was published as at 31 December 2011, and decisions were adopted pursuant to the proposal of the commission for listing assets recorded in the Agency's accounts.

The most important item of financial assets is cash at bank and on hand. Balances in domestic currency accounts and petty cash balance are based on credible documentation (statements of commercial banks and a petty cash balance as at 31 December 2011). Financial assets also include deposits, guarantees and advance payments, as well as receivables shown in accordance with the provisions of the Regulation on accounting of non-profit organizations. The most important assets among deposits, guarantees and advance payments are deposits in domestic banks, advance payments for leasing business premises and advance payments for joint costs of Sky Office premises. The audit company verified the shown receivables on the basis of written confirmations from buyers.

Balance sheet liabilities as at 31 December 2011 consists of liabilities amounting to HRK 52.4 million, own sources amounting to HRK 5.9 million and business results amounting to HRK 123.1 million.

The most important item among liabilities is the postponed payment of expenditure and future revenue amounting to HRK 47.1 million. The company separated liabilities to revenues in the current and revenue in future periods.

The balance of own sources is the result of value adjustment and depreciation of assets purchased in 2007 and before.

Business results consist of cumulated surplus/deficit of revenue over expenditure in earlier years increased by the expressed surplus revenue in 2012 totalling HRK 13.6 million.

On 31 December 2011, the Agency has no significant contingent liabilities. According to the attorney and the Agency's legal service, three labour disputes are currently in progress against the Agency but positive outcome is expected.

Annexes:

A. List of abbreviations

ADSL - Asymmetric Digital Subscriber Line
AEM - Agency for Electronic Media
AGCOM - Autorità per le Garanzie nelle Comunicazioni
APEK - Agencija za pošto in elektronske komunikacije
ARS - amateur radio station
CCA - Croatian Competition Agency
BAM - Agency for Electronic Media of Montenegro
BEREC - Body of European Regulators for Electronic Communications
BRIFIC - Bureau Radio International Frequency Information CircularCABP - Central Administrative Base of Portability
CARNET- Croatian Academic and Research Network
CCA/LRIC - Current Cost Account/Long Run Incremental Cost
CEPT - European Conference of Postal and Telecommunications Administrations
CISMELP - Central Information System of the Ministry of the Economy, Labour and Entrepreneurship
COCOM - Communications Committee
CPS - Carrier Pre-Selection
CRM - Customer Relationship Management
DAB - Digital Audio Broadcasting
DAB+ - Digital Audio Broadcasting – an upgraded version of DAB system
DCS - Distributed Control System
DG CONNECT - Directorate General for Communications Networks, Content and Technology
DMS - Document Management System
DSLAM -Digital Subscriber Line Access Multiplexer
DTV – digital television
DVB-T - Digital Video Broadcasting – Terrestrial
DWH - Digital Warehouse
COCOM -Electronic Communications Committee
(ECC) PT FNI - ECC Project Team Future Numbering Issues
(ECC) PT FNI - ECC Project Team Number Portability
(ECC) PT TRIS - ECC Project Team Technical Regulatory Issues
ECO - European Radiocommunications Office
ECP - European Common Proposals
ECTS - European Credit Transfer System
EFIS - European Frequency Information System
EFTA - European Free Trade Association
FEBZ - Faculty of Economics and Business Zagreb
EC – European Commission
ECI – electronic communications infrastructures
EKIP – Electronic Communications and Postal Services Agency of Montenegro
ELMAR - International Symposium "Electronic in Marine"
ERGP - European Regulators Group for Postal Services
ERP - Enterprise Resource Planning
EU - European Union
EUROSTAT - Statistical Office of the European Union
FER- Faculty of Electrical Engineering and Computing
FM - Frequency Modulation
FMC - Fixed-Mobile Convergence

FTTH- fiber to the Home
FTTx - Fiber TO The x
GIS - Geographic Information System
GSM - Global System for Mobile Communications
HAKOM – Croatian Post and Electronic Communications Agency
HCM – Harmonised Calculation Method – international agreement for the harmonisation of frequencies for mobile and fixed terrestrial systems
HD- High Definition
HDTV - High Definition Television
HP - Croatian Post
HRM - Human Resource Management
HRN - Croatian Standard
HRN EN – Norm taken over from the CEN/CENELEC standardization system
HT - Hrvatski Telekom d.d. (Croatian Telecom)
CFC - Croatian Fire-fighting Community
CIHI - Croatian Institute for Health Insurance
ICSMS - Information and Communication System on Market Surveillance
ICT - Information and Communication Technologies
ICT - Information and Communication Technologies
IMS - Internet Protocol Multimedial Subsystem– IP multimedial subsystem
IP - Internet Protocol - Network protocol for data transfer which is used for source and destination computers for data communication over computer network
IPA - Instrument for Pre-Accession Assistance in the process of accession to the EU - one of the EU pre-accession cooperation and assistance programme
IPTV - Internet Protocol Television
IRG - Independent Regulators Group
ISO - International Standards Organization
IVSZ - Informatikai Vállalkozások Szövetsége- Hungarian Association of IT companies
ITU - International Telecommunication Union
MMS – Monitoring and Measuring Station
MMC – Monitoring and Measuring Centre
CTV - cable television
LTE - Long-Term Evolution - a technology which enables high transfer speed over 4th generation mobile communications systems
MMS - Multimedia Messaging Service
MPEG -Moving Picture Experts Group
MSTI– Ministry of the Sea, Transport and Infrastructure
MPPC - Ministry of Physical Planning and Construction
MUX - Multiplex a stream of digital signals containing several radio or television programmes and/or other data simultaneously transferred via one radio frequency channel;
M2M - Machine to Machine
NCRT - National Council on Radio Television
NGN - Next Generation Network
NMHH - Nemzeti Média és Hírközlési Hatóság
OG – Official Gazette
OLT - Optical Line Termination - Unit or device serving as terminating point for an optical line changing the optical signal into the electrical signal
PAY-TV - watching of paid TV programmes
PCM - Pulse Code Modulation
MCMS - Mobile control and measuring station
PMR - Private Mobile Radio
PSTN - Public Switched Telephone Network

RAK - Regulatory Agency of Bosnia and Herzegovina for Communications
RAPEX – Rapid Exchange of Information System
RBA - Republic Broadcasting Agency
RF - radiofequency
RRC – Regional Radiocommunications Conference
RSPG - Radio Spectrum Policy Group
RoC – Republic of Croatia
R&TT – Radio and telecommunications terminal equipment
RTR (Rundfunk und Telekom Regulirungs)
SAT TV - Satellite television
S-DAB - Satellite Digital Audio Broadcasting
SD- Standard Definition
SINTESIO - Non-profit institution for issues of compliance of NGN and laboratory for testing interoperability with headquarters in the Republic of Slovenia
SDTV- Standard Definition Television
SEE Digi.TV - South-East European Digital Television
SIM - Subscriber Identity Module
SMS - Short Message Service
SNG - Satellite News Gathering
SRD - Short Range Devices
T - DAB - Terrestrial Digital Audio Broadcasting
TV – Television
UHF - Ultra High Frequency: RF band between 30 MHz and 300 MHz
UMTS - Universal Mobile Telecommunications System (3rd generation mobile network)
UPU - Universal Postal Union
USB - Universal Serial Bus
VAS - Value Added Service
VDSL - Very-high-bit-rate Digital Subscriber Line
VHF - Very High Frequency: RF band between 300 MHz and 3 GHz
VoIP - Voice over Internet Protocol
WRC- World Radiocommunication Conference
WGFM - Working Group Frequency Management
WLR -Wholesale Line Rental
xDSL - x Digital Subscriber Line
xWDM -X Wavelength Division Multiplexing
ECA – Electronic Communications Act
PSA – Postal Services Act

B. List of figures

C. List of tables