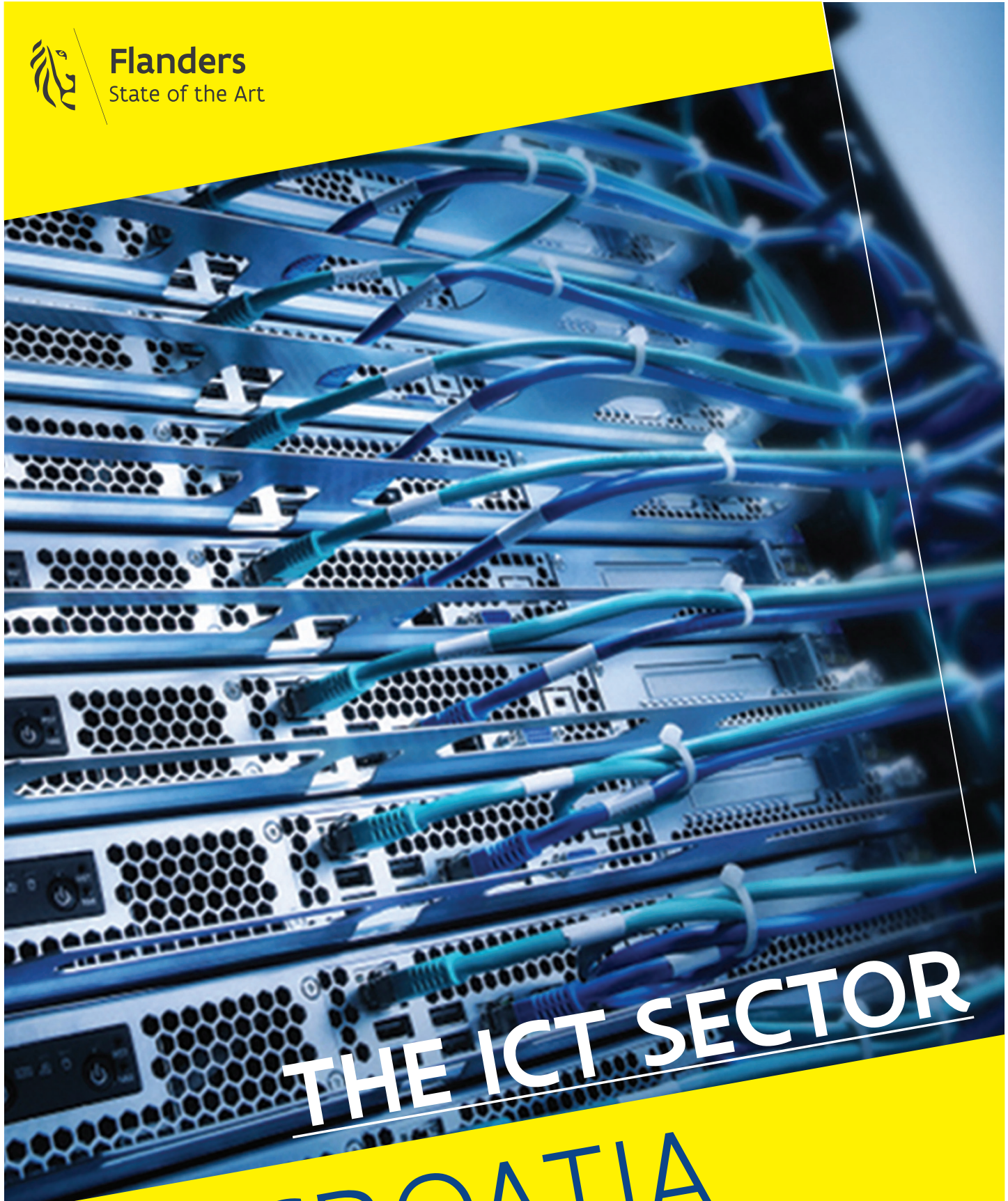




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THE ICT SECTOR

IN CROATIA

FLANDERS INVESTMENT & TRADE MARKET SURVEY

The ICT sector in Croatia



Updated: February 2017
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Executive summary

This paper opens with statistical data on the Republic of Croatia. These numbers are supposed to provide you with an overview of the local market and its tendencies. If you are looking for additional information you can find it here: http://www.dzs.hr/default_e.htm
(Croatia in figures: http://www.dzs.hr/Hrv_Eng/CroInFig/croinfig_2016.pdf)

Following the numerical introduction, you can find ICT regulations set up by the Republic of Croatia, protecting investors and the ICT sector respectively. If you are looking to get involved in the ICT sector, you're advised to consult the third section of the study, These businesses and cluster organizations are key to entering the ICT sector in Croatia.

The next section deals with technologies and the internet and combining these two elements in order to improve your enterprise once you are settled down in Croatia. The sixth part is concerned with telecommunications, providing useful information and contact details for telecommunication providers. This study also brushes on ICT in the educational sector.

Finally, the report is showing Croatia's future investments in the ICT sector.

If you are looking for additional information such as:

- wholesalers
 - software production companies
 - small shops
 - web design companies
- or any other type of ICT company

Please do not hesitate to contact us at office@beltrade-croatia.com

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1. Statistics of Croatia

On July 1st, 2013, the Republic of Croatia became the 28th member of the EU.

Croatia is a country of 4 429 000 inhabitants. It is a democracy whose official language is Croatian, but many people speak English (49%) and other foreign languages, mainly German (34%) and Italian (14%). The capital city is Zagreb, other major cities are Osijek, Rijeka and Split.

Croatia had a GDP growth of 2.9% (Q3 2016). In 2017, economic activity should accelerate mildly, to 2.1 percent. For 2017, IMF expects an increase in inflation by 0.8% and estimates that this year's surplus in Croatia's current account should slip to 2.2%.

Unemployment is relatively high and, according to official sources, reached 14.8% of the workforce in December 2016. Despite government efforts to stimulate employment with various programs of incentives for employers, the level of unemployment remains a significant social and economic burden. Nevertheless, it is worth to mention that Croatia has a high skilled and educated workforce in different fields, and in the field of IT, it is well known for having a good and competitive background.

The national currency is the kuna (HRK). The average monthly paid off net salary is 5 676 kuna HRK (760 euros). This represented a nominal increase of 0.1% and a real decrease of 0.4%, as compared to the first quarter of 2016. If compared to the same period of 2015, it showed a nominal increase of 1.2% and a real one of 3%.

INDICATOR	MONTHS	YEAR	VALUE
GROSS DOMESTIC PRODUCT, % REAL ANNUAL GROWTH RATES	q3	2016	2,9
INDUSTRIAL PRODUCTION, % ANNUAL CHANGES	10	2016	1,8
CONSUMER PRICES, % ANNUAL CHANGES	10	2016	-0,5
PRODUCER PRICES, % ANNUAL CHANGES	10	2016	-2
RETAIL TRADE, % REAL ANNUAL CHANGES	10	2016	5,3
TOURISM - NIGHT STAYS, % ANNUAL CHANGE	9	2016	11,5
CONSOLIDATED CENTRAL GOVERNMENT BALANCE, HRK MILLION, ESA 2010		2015	-10.706
CONSOLIDATED CENTRAL GOVERNMENT BALANCE, % OF GDP, ESA 2010		2015	-3,2
AVERAGE MONTHLY NET WAGE, HRK	9	2016	5,624
UNEMPLOYMENT RATE, % EOP	10	2016	14
NUMBER OF REGISTERED UNEMPLOYED PERSONS	10	2016	225,703
AVERAGE EXCHANGE RATE EUR/HRK	10	2016	7,5
AVERAGE EXCHANGE RATE USD/HRK	10	2016	6,8
AVERAGE EXCHANGE RATE CHF/HRK	10	2016	6,89
EXPORT OF GOODS, EUR MILLION (CBS)	8	2016	927
IMPORT OF GOODS, EUR MILLION (CBS)	8	2016	1,568
CURRENT ACCOUNT BALANCE, EUR MILLION	q2	2016	152,2
CURRENT ACCOUNT BALANCE, % OF GDP	q2	2016	4,6
EXTERNAL DEBT, EUR BILLION, EOP	8	2016	43,672
EXTERNAL DEBT, % OF GDP	6	2016	97,3
PUBLIC DEBT, % OF GDP, ESA 2010		2014	85,1
OFFICIAL INTERNATIONAL RESERVES, EUR MILLION, EOP	10	2016	12,993
MONEY (M1), HRK MILLION, EOP	10	2016	78,783
TOTAL CREDITS, HRK MILLION, EOP	10	2016	259,746
DEPOSITS WITH COMMERCIAL BANKS, HRK MILLION, EOP	10	2016	207,261

OSNOVNI GOSPODARSKI POKAZATELJI
BASIC ECONOMIC INDICATORS

INDEKSI OSNOVNIH GOSPODARSKIH KRETANJA
INDICES OF BASIC ECONOMIC INDICATORS

	2013. 2012.	2014. 2013.	2015. 2014.
Bruto domaći proizvod, stalne cijene u cijenama prethodne godine, referentna godina 2010. = 100 ¹⁾ Gross domestic product at constant previous year prices, referent year 2010 = 100 ¹⁾	98,9	99,6	101,6
Fizički obujam industrijske proizvodnje Total volume of industrial production	98,2	101,2	102,7
Ukupan broj zaposlenih u industriji Total number of employees in industry	95,2	98,3	99,4
Proizvodnost rada u industriji Labour productivity in industry	103,2	103,0	103,3
Zaposleni u pravnim osobama svih oblika vlasništva Persons in legal entities of all kinds of ownership	98,2	99,0	101,6
Prosječne mjesečne isplaćene neto plaće, ukupno Average monthly paid off net earnings, total	100,7	100,3	103,2
Realne neto plaće, ukupna Real net earnings, total	98,5	100,5	103,7
Prosječne mjesečne bruto plaće, ukupne Average monthly gross earnings, total	100,8	100,2	101,3
Realne bruto plaće, ukupne Real gross earnings, total	98,6	100,4	101,8
Ukupan broj nezaposlenih, godišnji prosjek ²⁾ Total number of unemployed persons, annual average ²⁾	106,4	95,1	87,1
Nominalni promet u trgovini na malo ³⁾ Nominal turnover in retail trade ³⁾	101,7	99,6	101,4
Realni promet u trgovini na malo ⁴⁾ Real turnover in retail trade ⁴⁾	99,4	100,4	102,4
Izvoz – preračunano u EUR Export – recalculated in EUR	99,6 ⁵⁾	108,1 ⁶⁾	111,2 ⁶⁾
Uvoz – preračunano u EUR Import – recalculated in EUR	101,9 ⁶⁾	103,6 ⁶⁾	107,9 ⁶⁾

- 1) Podaci za 2013. konačni su, dok su podaci za 2014. i 2015. privremeni (zbroj tromjesečnih podataka).
2) Izvor: Hrvatski zavod za zapošljavanje
3) Godišnji podaci revidirani su radi preračunavanja na novu bazu godinu 2010.
4) Vidi Metodološka objašnjenja u Priložanju 4.2.3/2014.
5) Vidi Metodološka objašnjenja u Priložanju 4.2.3/2015.
6) Vidi Metodološka objašnjenja u Priložanju 4.2.3/2016.
7) Data for 2013 are final, while data for 2014 and 2015 are provisional (the sum of quarterly data).
8) Source: Croatian Employment Service
9) Annual data have been revised in order to be recalculated to the new 2010 base year.
4) See Notes on Methodology in the First Release No. 4.2.3/2014.
5) See Notes on Methodology in the First Release No. 4.2.3/2015.
6) See Notes on Methodology in the First Release No. 4.2.3/2016.

OSNOVNI GOSPODARSKI POKAZATELJI
BASIC ECONOMIC INDICATORS

INDEKSI OSNOVNIH GOSPODARSKIH KRETANJA
INDICES OF BASIC ECONOMIC INDICATORS

	2013. 2012.	2014. 2013.	2015. 2014.
Indeks potrošačkih cijena – ukupno Consumer price index – total	102,2	99,8	99,5
Prehrana i bezalkoholna pića Food and non-alcoholic beverages	103,7	97,8	100,4
Alkoholna pića i duhan Alcoholic beverages and tobacco	109,6	106,2	102,0
Odjeća i obuća Clothing and footwear	96,1	95,8	99,8
Stanovanje, voda, električna energija, plin i ostala goriva Housing, water, electricity, gas and other fuels	104,8	101,7	99,9
Pokretstvo, oprema za kućanstvo i redovito održavanje kućanstva Furnishings, household equipment and routine maintenance of the house	100,5	99,2	99,7
Zdravlje Health	101,1	100,8	101,7
Prijevaz Transport	99,1	100,1	93,3
Komunikacije Communication	98,4	99,5	101,1
Rekreacija i kultura Recreation and culture	100,7	100,8	102,1
Obrazovanje Education	100,2	100,1	99,6
Restorani i hoteli Restaurants and hotels	102,0	101,7	101,1
Ostala dobra i usluge Miscellaneous goods and services	101,7	99,6	100,0
Indeksi cijena industrijskih proizvoda pri proizvođačima na domaćem tržištu (IKD 2007.) Producers' price indices of industrial products on domestic market (IKD 2007.)	100,5	97,3	96,1
Indeksi cijena proizvoda poljoprivrede pri proizvođačima ⁷⁾ Producers' price indices of agricultural products ⁷⁾	93,8	95,0	100,4
Industrijska proizvodnja – ukupno Industrial production – total	98,2	101,2	102,7
Prema Glavnim industrijskim grupacijama – IIG 2009. According to Main Industrial Groupings – MIGs 2009.			
AI Intermedijarni proizvodi Intermediate goods	98,2	103,4	102,4
AE Energija Energy	104,5	93,8	99,2
BB Kapitalni proizvodi Capital goods	89,5	100,4	106,0
CD Trajni proizvodi za široku potrošnju Durable consumer goods	98,7	104,3	99,5
CN Netrajni proizvodi za široku potrošnju Non-durable consumer goods	97,4	103,1	103,6

- 7) Podaci su usklađeni s Eurostatovim metodologijom Handbook for EU Agricultural Price Statistics version 2.0, March 2009.
7) The data are harmonised with the Eurostat Methodology Handbook for EU Agricultural Price Statistics, version 2.0, March 2009.

I. Economic overview of Croatia

Croatia is included in the group of countries with small and open economies, which are largely connected to other foreign markets. The priority of Croatia's economic policy is the continuation of creating a stable and strong market - oriented economy which is competitive in the global market. A constant reinforcement of macroeconomic stability and the continuation of structural reforms for the purpose of securing stable and sustainable economic growth, increase in production and employment. The particular emphasis is on creating a favorable business environment harmonized with the business environment prevalent in the European Union, further development of market economy, stimulation of private investments, promotion of international competitiveness, and entrepreneurial and market freedom. In terms of primary goals of economic policy of the Republic of Croatia, a special position is given to foreign investments which are very important for the future development of the country and further restructuring and modernization of the economy. Basic economic goals include export growth, quality standards introduction, meeting ecology requirements and achieving expenditure efficiency. One of the primary goals of the economic policy of Croatia's government is to create a stimulating business environment, harmonized with the standards used in the EU and countries with developed market economies. The basic features of Croatia's economy are industry, agriculture, forestry, fishing industry and food, drink, tobacco production, construction, transport and communication and trade.

Croatia is mostly an exporter of transport equipment, machinery, textiles, chemicals, foodstuffs and fuels. On the other hand, Croatia is an importer of machinery, transport and electrical equipment, fuels, lubricant and foodstuffs. Croatia's mainly exports to Italy, Bosnia and Herzegovina, Germany, Slovenia, Austria and Serbia.

The Croatian economy accelerated in Q1 2016 on the back of strong private consumption and fixed investment. According to the latest high-frequency data, the good economic momentum likely carried over into Q2, steadily supported by strong consumer spending, as evidenced by the increase in retail sales in both April and May. Croatian households are an impetus to economic activity, sustained by increased disposable income and the falling unemployment rate. Moreover, the fiscal deficit more than halved in the first five months of 2016 compared to the same period last year, and both exports and imports increased.

Croatia's economy expanded 0.6 percent on quarter in the second quarter of 2016, the same pace as in the previous period. GDP Growth Rate in Croatia averaged 0.35 percent from 2001 until 2016, reaching an all-time high of 4.20 percent in the first quarter of 2008 and a record low of - 3.70 percent in the first quarter of 2009.

The most important sector of Croatian economy is services with tourism accounting for 20 percent of GDP. The industry, although declining in recent years, is led by shipbuilding, food processing, pharmaceuticals and information technology.

On the expenditure side, household consumption is the main component of GDP and accounts for 60 percent of its total use, followed by government expenditure (20 percent) and gross fixed capital formation (19 percent). Exports of goods and services account for 46 percent of GDP while imports account for 44 percent.

Croatia is a member of the IMF, the European Bank for Reconstruction & Development and the World Trade Organization.

Source: <http://www.tradingeconomics.com/croatia/gdp> ,
<http://www.focus-economics.com>, <http://www.mvep.hr>, <http://www.dzs.hr>

II. ICT Overview in Croatia

Croatia's entrance into the EU in July 2013 is and will be a key driver of ICT growth, facilitating increased trade between European markets. Over the next years, the process of EU convergence, which still has a long way to go, will drive spending on IT projects. Funds such as the **EU Cohesion** fund are already providing funding for IT projects related to modernization initiatives in both public and business segments. The government remains the major investor in ICT in Croatia.

The combined government sector also remains the largest spender on IT products and services, which is not surprising if you bear in mind that the state still owns a wide range of companies across sectors like transport, telecoms, oil and gas, media and insurance. Despite all these difficulties, the ICT sector in Croatia is one of the most thriving sectors of Croatian economy, especially since a large part of it is focused on exports. The ICT sector in Croatia has annual revenues of around 21 billion kuna. The Croatian ICT sector is actually doing quite well and keeps growing by about ten percent per year. Even in the recessionary years all the main trends in the sector are positive: growth of exports and number of employees. The facts show that ICT is one of the most propulsive sectors of the Croatian economy. It directly employs more than 22,000 people, with around ten thousand additional ICT professionals who work in companies engaged in other industries. Croatia is also recording a growth of employment in ICT and is in 54th place out of 143 countries in its competitiveness in the use of information and communications technologies.

The Croatian IT export is five times higher than the export of the telecom sector or tobacco products, nearly three times higher than the export of beverages and textiles, and twice the export of paper. It already equals two-thirds of the export of pharmaceutical products as well as exceeding the export numbers of domestic farmers, foresters and fishermen combined. 58% of Croatian IT exports are local products and services. The three largest IT companies in Croatia are the MSAN group, followed by the Combis property of Croatian Telecom and King ICT.

Alternative operators have entered the market and launched competing services in the fixed-line market. Both alternative operators and the incumbent are investing in network infrastructure to support bandwidth-intensive services such as broadband access and triple play.

Tablets and smartphones also received a boost from the roll-out of high-speed mobile networks in the country. Tablets have already emerged from their early-adopter phase and while they are not yet mainstream devices, take-up will grow as more services tailored to tablets are introduced in Croatia.

In the Adriatic region, Croatia accounts for around 40% of IT spending. It is the largest market in the region, ahead of Slovenia and Serbia. After several years of negative performance in the IT sector, the sector grew at an average rate of 6% over the last

three years. The local branch of one reliable ICT market research agency estimates that the ICT market will grow by 9% next year, reaching about \$2.5 billion. Croatian IT spending per capita was about 30% of the EU average. The Croatian telecommunication sector is one of the most developed sectors of the Croatian economy, and still has a preference for U.S. equipment, regardless of the increasing presence of Asian manufacturers.

2. List of current ICT regulations in the Republic of Croatia

Recognizing the importance of information technology, the Croatian government has, over the past five years, adopted a number of initiatives and corresponding laws aimed at developing an information society. In that context, the Central State Administrative Office for e-Croatia was formed, a number of government services have been offered online and several online databases of court precedents have been introduced.

For ICT initiatives to be successful, an effective legal framework is indispensable. In that respect, Croatia adopted a number of laws to support ICT development and its application in the business sector, such as the Electronic Signature Act, the Electronic Commerce Act, the Personal Data Protection Act, the Right to Information Act, the Information Secrecy Act and the Information Security Act.

Legislation in the IT sector of the Republic of Croatia is in accordance with the European. The legislation is separated into different groups of laws:

I. E-Government Legislation

Current status

There is no specific e-government legislation in Croatia; however, the country has a comprehensive framework of laws and regulations in place for exercising e-Governance which is supplemented by the **Electronic Document Act** ([OG150/2005](#)), the **Information Security and Confidentiality Act** ([NN 79/2007](#)), the **Act on the Right to Access Information** ([NN 172/03](#)) and the implementation of the **Convention on Cybercrime** ([OG 173/2003](#)).

II. Freedom of Information Legislation

[Law on Freedom of Information \(NN 172/03\)](#)

The Law on Freedom of Information was adopted on 15 October 2003 and aimed at facilitating and ensuring access to information of natural and legal entities through the openness of public authorities. It regulates the right of access to information held, managed or controlled by public authorities, lays down the principle of access to information, exceptions to the right of access to information and procedures for the exercise and protection of the right in question.

III. Data Protection/Privacy Legislation

[Law on Personal Data Protection \(NN 103/03\)](#)

The Law on Personal Data Protection was adopted in June 2003, implementing the relevant EU Directive ([95/46/EC](#)). It foresees that personal data may be transferred cross-border and processed in another jurisdiction, to the extent that this jurisdiction can

ensure an adequate level of protection. The law was amended in 2006 ([NN 118/06](#)), while the last amendment took place on 3 April 2008 ([NN 41/08](#)).

IV. E-Signatures Legislation

[Electronic Signature Act \(NN 10/02 / NN 80/08\)](#)

Croatia was one of the first countries to include digital signatures in its legislation. The Electronic Signature Act has been supplemented by a series of ordinances and regulations, such as the Regulation on the scope of operations, content and responsible authority for operations of electronic signature certification for State Administration bodies ([NN 146/04](#)).

V. E-Commerce Legislation

[Law on Electronic Commerce \(NN 173/03\)](#)

The Law on Electronic Commerce regulates the provision of information society services and IT services providers' liability. It lays down the rules concerning the conclusion of contracts in electronic form. Its provisions do not apply to data protection, taxation, and notary activity, representing clients and protecting their interests before the courts.

The law was first adopted on 15 October 2003 ([NN 173/03](#)) and amended on 20 May 2008 ([NN 67/08](#)), while its last version was voted on 13 March 2009 ([NN 36/09](#)).

VI. E-Communications Legislation

[Electronic Communications Act \(NN 73/2008\)](#)

The Electronic Communications Act ensures the achievement of the essential principles and objectives in the area of electronic communications, such as further consolidation and simplification of the existing legislative framework in electronic communications and the application of other solutions in accordance with best practices in EU Member States.

VII. E-Procurement Legislation

[Public Procurement Act \(NN 110/07 / NN 125/08\)](#)

The Public Procurement Act (NN 110/07) and its accompanying regulations and ordinances (NN 125/08), regulate the conditions of, and procedures for, public procurement which precede the conclusion of contracts on the procurement of goods and services, and the contracting of works with the objective of securing the effective utilization of budget and encouraging a free market for tendering.

VIII. Re-use of Public Sector Information (PSI)

[Current status](#)

Currently, there is no specific legislation concerning the re-use of PSI. Re-use of electronic content is addressed by the Electronic Document Act (OG 150/2005), enacted in December 2005, which defines the legal procedures related to the development, trade, use and storage of the information of an electronic document. Moreover, the [Croatian Information and Documentation Referral Agency](#) (HIDRA) ensures the availability of public official data, information and documents, and furthermore promotes its use.

Source: https://joinup.ec.europa.eu/sites/default/files/egov_in_croatia_-_january_2015_-_v_12_0_final.pdf

Some other interesting related documents are:

- Development of e-business in Croatia:
<https://bib.irb.hr/datoteka/473671.development-of-e-business.pdf>
- Development of e-invoice in Croatia:
https://bib.irb.hr/datoteka/391700.SS2_346_Vanjak.pdf

Intellectual property rights (patents, copyrights and design) of foreign companies are protected by following acts:

- Patent Act
- Trademarks Act
- Copyright and Related Rights Act
- Industrial design Act
- Act on Geographical Indications
- Designations of Origin of Products and Services
- Act on the Protection of Topographies of Semiconductors
- Semiconductor Products
- Act on Representation in the Field of industrial Property

Croatia adopted the document Open Source Software. The government recognizes the importance of the policy of development as well as the use of open source software in the public sector. For the record, in 2005, the European Union shared 660 000 euros with Croatia and other countries for improving further developments of open source software.

Croatia's technology, communications and media (TCM) market has been liberalized since 2002.

The Croatian Constitution allows free profit repatriation and free transfer of invested capital. A foreign company is also recognized as a local company. As a result, these companies can profit from tax incentives. Croatia helps foreign companies with the creation of new jobs and the training of new employees. With these investments, companies may certainly need equipment. The import of that equipment is tax-free and companies have favorable conditions for infrastructure facilities.

3. Public ICT actors and programs in the Republic of Croatia

I. The Croatian Chamber of Economy

The Croatian Chamber of Economy (<http://www.hgk.hr/english>) is quite involved in the IT sector by creating favorable conditions for a rapid growth of this sector in the Republic of Croatia: participation in many projects, development of regulations and creating credit worthiness of companies. The Chamber is in charge of the promotion of the IT sector at the international level.

Together with the Faculty of Electrical Engineering and Computing, HGK created an IT sector database in 2008. It is helpful as it connects potential business partners with each other.

Additionally, the CCE is the first public institution within the Republic of Croatia which has, from 2005, introduced and certified the quality management system related with the ISO 9001 Standard, which includes the headquarters in Zagreb, as well as the County Chambers.

II. E-Croatia Program

This program was created in 2004 by the Croatian Government and its implementation started the same year. The E-Croatia program follows the guidelines of the Action Plan of e-Europe 2005.

For an easy access to these services, the country is developing broadband availability. Development of services and contents is encouraged by the Croatian government. Furthermore, the involvement of local communities is encouraged in the development of broadband data transfer through private and public partnerships as well as by financing the construction of infrastructure for high-speed internet for Croatian citizens. The CEO of the program is working on implementing the E-Croatia program in as many areas as possible in education (e-education), healthcare (e-health) and government services (e-government). The avoidance of red-tape and assisting Croatian citizens are the main goals of the program.

E-Croatia does not only focus on administration. The development of business opportunities and the creation of a good work environment for e-business is also the goal of this program. The online government services will assist the daily life of companies in Croatia.

III. E-citizens

E-citizens system is a project of the Croatian Government launched to simplify and advance citizens' communication with public administration and to increase transparency of the public sector. The system was launched in June 2014 and is available via <https://pretinac.gov.hr>.

By using the system, citizens can request electronic copies of birth certificates, marriage or life partnership certificate, ask for electronic records of residence or owned vehicles and many other documents.

IV. E-consultations

Portal "e-Consultations" provides citizens with easy access to all currently open consultations on regulations, laws and acts issued by public authorities.

V. E-court case

This automated system provides information on the current status of a court case at the national level. The system can monitor the status of cases at municipal, county and other courts, list of case participants and other important information about the case. It

enables monitoring and provides detailed statistics on the work of the courts, verdicts, court minutes and other reports.

Fiscalization

Being one of the measures for suppression of the grey economy and unfair competition, fiscalization was introduced in many countries, according to different models and IT solutions and with different experiences. The Croatian solution is based on the first online fiscalization system. This is an open solution that enables an online working mode without time delays. This has reduced the possibility of tampering with receipts because every receipt is delivered to the tax administration in real-time. Digital certificates are used to ensure user authentication and protection of data.

VI. E-construction permit

This information system is used for issuing construction or building permits in all Croatian counties and cities. The main goal of this centralized system is to raise the quality of administrative and non-administrative procedures by simplifying and speeding up the procedure.

Open Data Portal

Data.gov.hr is a data hub used for collection, classification and distribution of open data from the public sector. This data can be used to create added value or economic benefits for commercial and/or non-commercial purposes. The project aims to improve the dissemination of public open data through a unique and central place and enable implementation of innovative non-commercial and commercial applications. The goal is to intensify cooperation with the private sector, particularly in the field of information technology and to achieve improvement of electronic public services as well as increase the transparency of public administration.

VII. E-class register

The e-class register is a web application for the management of the class registry in an electronic format. The application fully replaces the paper documentation with additional functionalities enabled through the use of IT.

VIII. E-employment records and e-employee registration

The e-employment record facilitates citizens' access to information on work history and former employers. With the e-employee registration system employers can electronically register their employees and make changes related to pension insurance and other. Application for health insurance is done automatically and there is no duplication of the process or need to queue at the counters.

IX. E-medical appointments

The project goal was to create and implement a national electronic system of booking medical appointments. The system has connected over 5000 primary healthcare practices, over 60 hospitals, 400 clinics and primary healthcare centers to each others. Booking medical procedures became easier and quicker.

X. E-health

The Croatian government wanted to offer to its citizens a more efficient healthcare information system. A solution was developed with the goal of integrating healthcare processes, information management and business workflows. Connecting 2400 primary healthcare teams in the 20 counties and the capital, Zagreb, the Healthcare Networking Information System provides electronic reporting and booking, updates patient records, and digitalizes prescriptions and referrals, so they can be sent to pharmacies, hospitals and laboratories without the need for printouts.

XI. HITRO.HR program

The HITRO.HR program was created in 2005 (One-Stop-Shop Program). This program allows Croatian entrepreneurs to register their own business within a 24 hours delay period.

HITRO.HR counters within the Financial Agency (FINA) can be the easiest and fastest way to establish a company or open a business. HITRO.HR service provides web services that are available from your own office or home, 24 hours a day.

In addition, with the aim to make entrepreneurs' lives easier, you can find other services like: e-CRAFT, e-REGOS (Central Registry of Insured Persons), e-CADASTRE, e-HZMO (Pension Insurance) and e-HZZO (Health Insurance). This also includes Tax Administration services (e-VAT, Electronic Tax Book Keeping Card and a service enabling the users to electronically submit reports of receipts). The E-Corner service is a HITRO.HR service which allows entrepreneurs to train themselves in the use of computers.

HITRO.HR is recognized by domestic and foreign investors as a place of first contact for the registration of a business. There are currently 65 HITRO.HR service offices throughout the country, with more than 20,000 newly established companies, 800 of them owned by foreign investors.

XII. Community Research and Development Information Service for Science

As the official source of information on the seventh framework program (FP7) calls for proposals, CORDIS offers interactive web facilities that link together researchers, policymakers, managers and key players in the field of research.

CORDIS' main missions are the following:

- To facilitate participation in European Research activities;
- To enhance exploitation of research results with an emphasis on sectors crucial to Europe's competitiveness;
- To promote the dissemination of knowledge, fostering the innovation performance of enterprise and the societal acceptance of new technology.

The so-called FP7 program is part of CORDIS (7th Framework Program for Research and Technological Development). The total budget of this program is 50 billion euros. This program complements national research programs with a "European added value".

XIII. HIT

In 2006, The Republic of Croatia established The Croatian Institute of Technology (HIT). This institution supports and directs Croatia's developments, advises and provides support in the field of intellectual property and technology transfers. The institution also promotes participation in European research and development projects. In an international context, HIT promotes Croatian technology production as well as research and development potential.

HIT finances and implements IT projects. In addition, HIT monitors the impact of technology in Croatia.

HIT has several departments: Finance, the TEST Program (incentives for Croatian Technology program), Business Research, Technological Forecasting, Technology Transfer and International Cooperation.

XIV. BICRO

Croatia has a Business Innovation Center, created in 1998 by the government, its aim is to improve technology development in the country but also support innovative programs.

XV. HAKOM

The Croatian Agency for mail and electronic communication (HAKOM) has its seat in Zagreb. It is the national regulatory agency.

HAKOM is an independent, non-profit entity with public authorization. HAKOM's work is public. The founder of HAKOM is the Republic of Croatia, the Croatian Parliament holds founding rights as entrusted by the Croatian government. According to the law, HAKOM is governed by seven members of the board. The president and vice-president are suggested by the Croatian government and chosen by the Croatian Parliament for a mandate of 5 years.

XVI. Croatian Information Technology Association (CITA)

CITA is the umbrella organization of Croatian ICT experts founded in 1975, ever since, it has been acting continuously with the goal to create the conditions for faster and more efficient introduction and application of ICT

- by advocating the status and the quality of profession,
- by initiating and implementing the projects of mutual interest,
- by promoting and using open systems,
- by encouraging and organizing the participation of the young in ICT,
- by exchanging skills and experiences in using ICT,
- by organizing professional gatherings.

The organizations ECDL Croatia and EUCIP Croatia are active within CITA. CITA has got the license to hand out user certifications of personal computers according to ECDL standards (www.ecdl.com and www.ecdl.hr), and the certification of professional ICT experts (www.eucip.com and www.eucip.hr) in Croatia. CITA participates in the programs of the European Union.

XVII. CARNET (Croatian Academic and Research Network)

CARNet is a public institution that operates under the Ministry of Science, Education and Sports in the field of information and communication technologies and its application in education from network and internet infrastructure through e-services, security and user support.

CARNet services are available to educational institutions (from K-12 to higher education, including research centers and institutes) and individual users alike. Institutional users are automatically included in the network of CARNet members, as a result of which they are connected to CARNet network and gain the right to use CARNet services. Individual users include primary and secondary school students, teachers, university students, professors, scientists and staff employed at CARNet member institutions. Recently CARNet services are also available to other public institutions such as hospitals, and certain ministries, etc. (<https://www.carnet.hr/en>).

XVIII. OIV-Transmitters and communications Ltd.

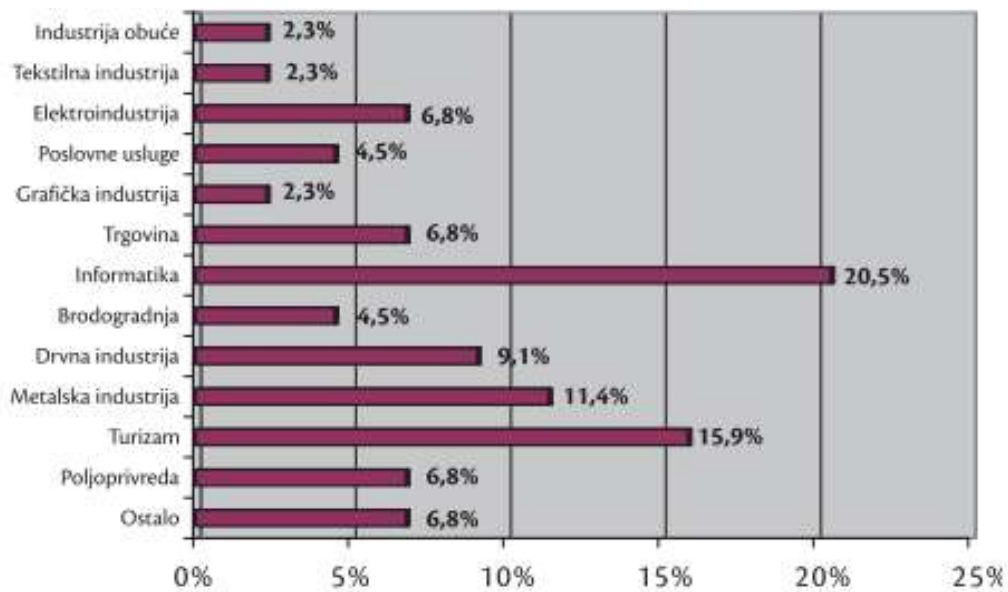
With more than 80 years of radio and more than 50 years of television broadcasting experience, Oiv provides national TV and radio broadcasting services in Croatia, which include transmission for all national Croatian TV and radio stations and most regional and local TV stations.

Besides terrestrial broadcasting, Oiv is able to provide TV and radio satellite broadcasting services from any satellite visible from Croatia.

4. Cluster Organization of ICT companies in Croatia

In order to survive on the market, small companies are grouped in clusters. A cluster represents a great potential for growth and development, not only through cooperation within the ICT industry, but also through synergies with other industries. Croatia has many ICT clusters.





5. Internet in Croatia

The introduction of internet in Croatia officially started in 1991. Broadband internet access is used increasingly, replacing narrowband (dial-up) internet access, due to higher data transmission rates and service packages with unlimited internet traffic. With the aim to develop broadband internet, in September 2006, the Government of the Republic of Croatia adopted the Broadband Development Strategy in the Republic of Croatia by the year 2008.

The main goal of the Strategy is to increase the number of broadband internet users in the Republic of Croatia, as the basic condition for creating an information society and economy.

Internet penetration in Croatia is the highest in the Balkans region, and is more in line with those found in the Eastern European EU countries. Available broadband access platforms include ADSL2+, cable, FttX and WiMAX. ISPs have focused on increasing broadband uptake, with hopes of generating additional revenue through sales of broadband TV and triple play services.

I. USAGE OF INTERNET IN ENTERPRISES

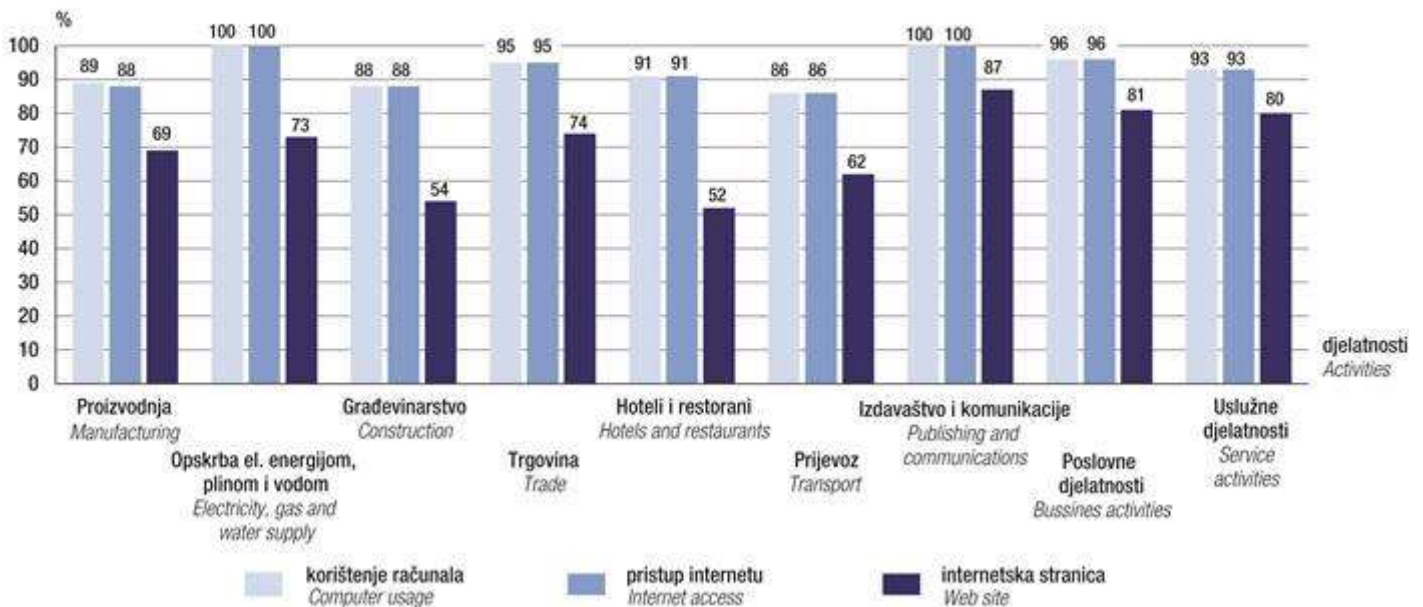
Usage of broadband internet access prevailed; 91% of enterprises used some type of fixed broadband internet connection; 80% of enterprises used mobile broadband internet access. internet sales covered only 14% of the total sales of goods and services. Social internet media usage was not widespread and was used by 38% of enterprises. The survey of ICT in enterprises (www.dzs.hr) showed that 91% of enterprises have internet access. The internet became a necessity for efficient business conduct, so 69% of enterprises had their own web site. The internet and other network technologies allow for connectivity between sectors within an enterprise and the integration of business processes that contribute to more efficient business conduct. The type and speed of data transfer allow for better quality of business conduct. The availability and affirmation of mobile devices caused a change in the trend of internet access. 87% of enterprises (a decrease of 6%) used a fixed broadband connection (DSL, cable, leased

line).

Mobile internet access was used by 80% of enterprises (an increase of 16%). Usage of the internet caused changes in the ways business is conducted by enabling integration of business processes at a higher level. internet connection speed becomes an important factor in business conduct. The increasing availability of broadband internet boosts the data transfer speed. A significant increase was spotted in a segment that offers data transfer speed of over 10 Mbps. That segment consists of 49% of enterprises (an increase of 14%). The appearance of the cloud computing internet service is a new technology used by 23% of enterprises.

The next scheme shows us the usage of internet by companies divided into different sectors:

G-1. UPORABA IKT-a U PODUZEĆIMA PO DJELATNOSTIMA U 2016.
USAGE OF ICT IN ENTERPRISES, BY ACTIVITIES, 2016

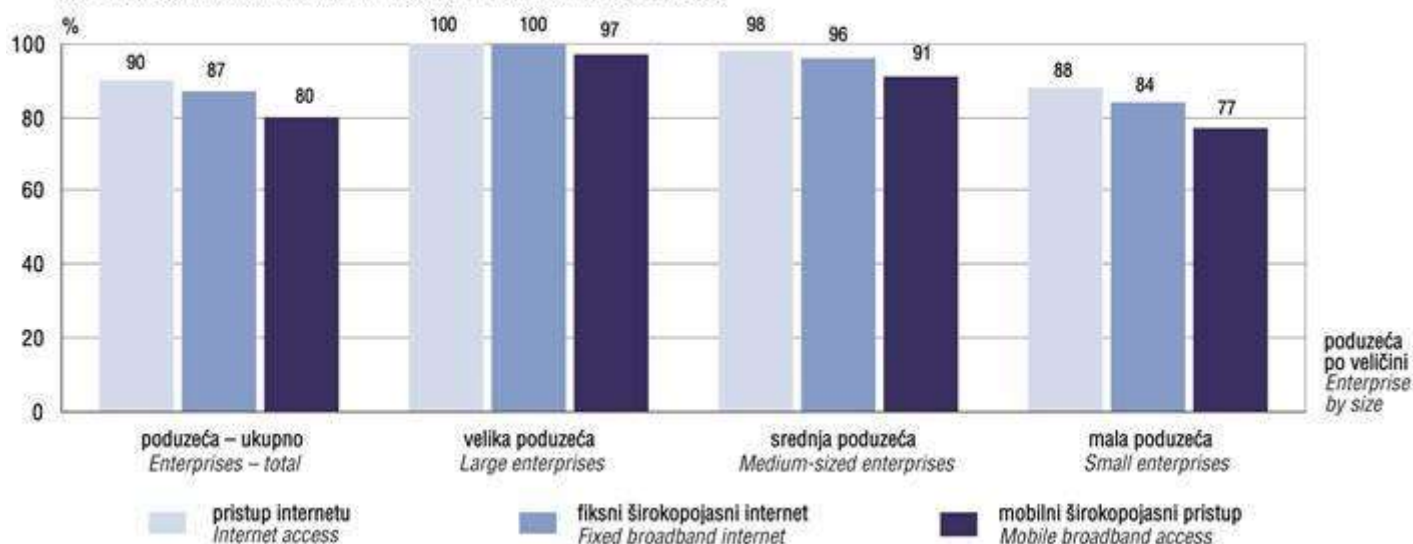


Source:

http://www.dzs.hr/Hrv_Eng/publication/2016/02-03-01_01_2016.htm

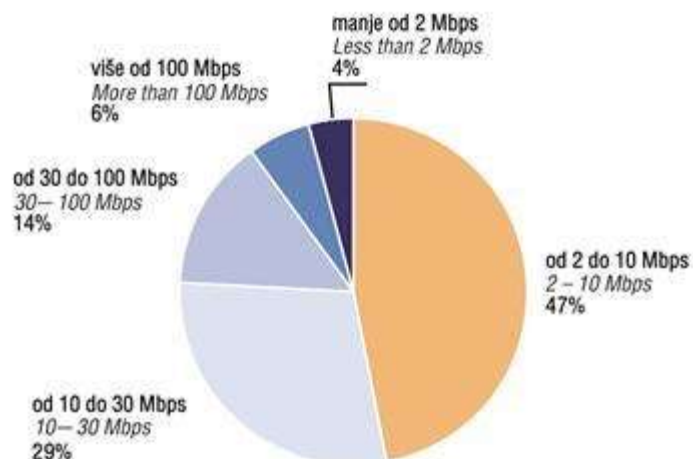
Usage of information and communication technologies is an extremely important part of contemporary business conduct. The survey showed that 92% of enterprises used computers in their daily work and 91% of enterprises had internet access. The internet became a necessity for efficient business conduct, so 69% of enterprises had their own web site.

G-2. PRISTUP INTERNETU U PODUZEĆIMA I PO VELIČINI PODUZEĆA U 2015.
ACCESS TO INTERNET IN ENTERPRISES, BY ENTERPRISE SIZE, 2015



The internet and other network technologies allow for connectivity between sectors within an enterprise and the integration of business processes that contribute to more efficient business conduct. The type and speed of data transfer allow for a higher quality of business conduct. The availability and affirmation of mobile devices caused a change in the trend of internet access. There were 77% (a decrease of 13%) of enterprises that used the fixed broadband connection (DSL, cable, leased line). At the same time, there was an increased usage of the mobile internet. Mobile internet access uses 54% (an increase of 10%) of enterprises.

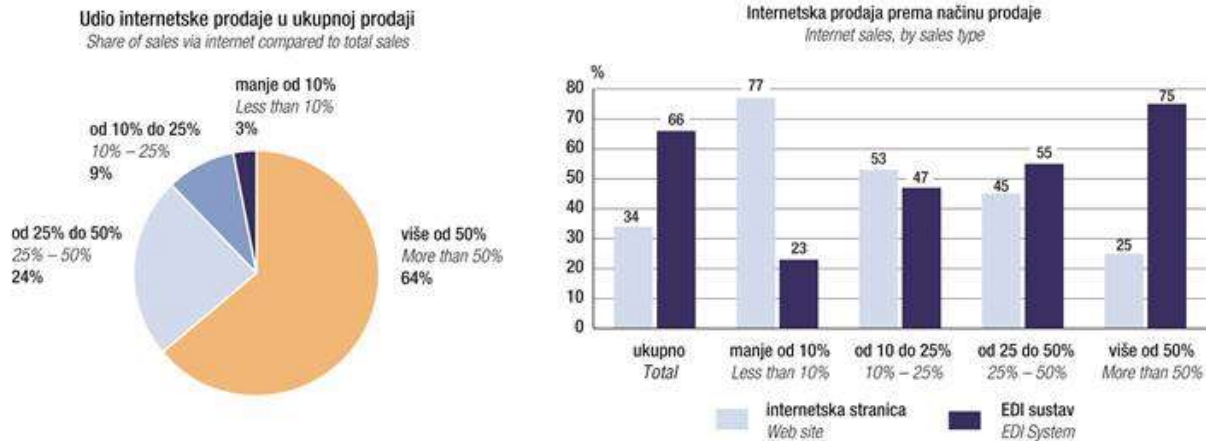
G-3. UGOVORENA BRZINA INTERNETSKJE VEZE U PODUZEĆIMA U 2015.
CONTRACTED SPEED OF INTERNET ACCESS IN ENTERPRISES, 2015



Usage of the internet caused changes in the ways business is conducted by enabling integration of business processes at a higher level. Internet connection speed becomes an important factor in business conduct. The increasing availability of broadband internet boosts data transfer speed. A significant increase was spotted in a segment that

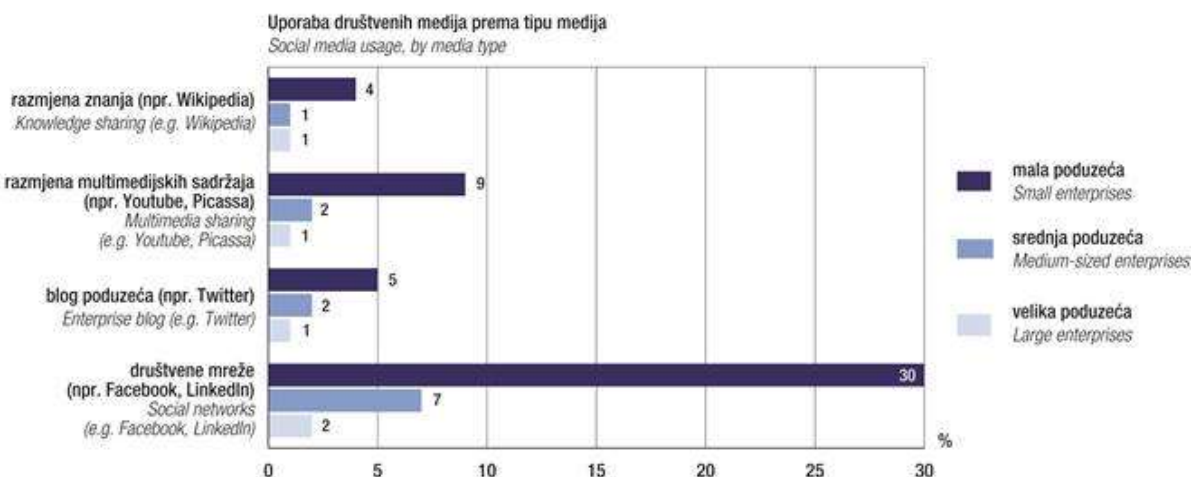
offers data transfer speed of over 10 Mbps. That segment consists of 55% of enterprises (an increase of 6%)

G-4. E-TRGOVINA – INTERNETSKA PRODAJA U PODUZEĆIMA U 2015.
E-COMMERCE – INTERNET SALES IN ENTERPRISES, 2015



The integration of business processes and communication between business entities via the internet allows for a more efficient offer of goods and services and their purchase and sale on the market. The volume of e-commerce compared to conventional commerce was still rather low and barely 14% of sales were conducted via the internet. Two thirds of transactions were completed via the electronic data interchange systems (EDIs), while one third was completed by selling via web page

G-5. UPORABA DRUŠTVENIH INTERNETSKIH MEDIJA U PODUZEĆIMA U 2016.
SOCIAL INTERNET MEDIA USAGE IN ENTERPRISES, 2016



Social internet media usage is monitored in order to determine their influence on business processes and business results. The survey shows that social media were mostly used for advertising and exchanging information with customers via blogs or social networks. They were predominantly used in small enterprises, while medium-sized and large enterprises rarely used social internet media for business purposes.

II. USAGE OF INTERNET IN HOUSEHOLDS AND BY INDIVIDUALS

As said before, almost all households use broadband internet access. A majority of households uses fixed broadband internet access, while the share of households using mobile broadband internet access increased from 38% to 47%, mostly due to the increased availability of mobile devices such as tablets, mobile phones and USB modems using the 3G/4G technology.

Reference: http://www.dzs.hr/Hrv_Eng/publication/2015/02-03-02_01_2015.htm

Tendencies:

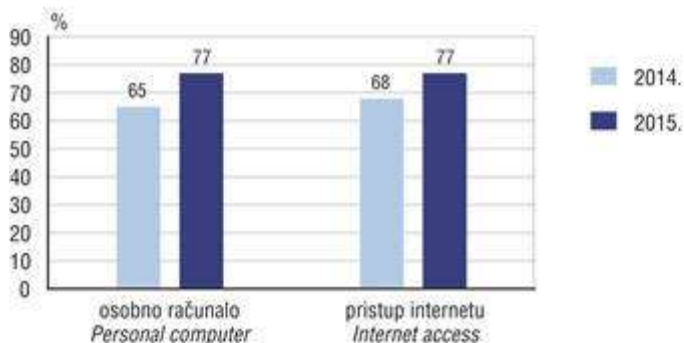
The share of households equipped with ICT is rising.

The availability of broadband internet access rose; a significant increase in the usage of broadband internet was noticed.

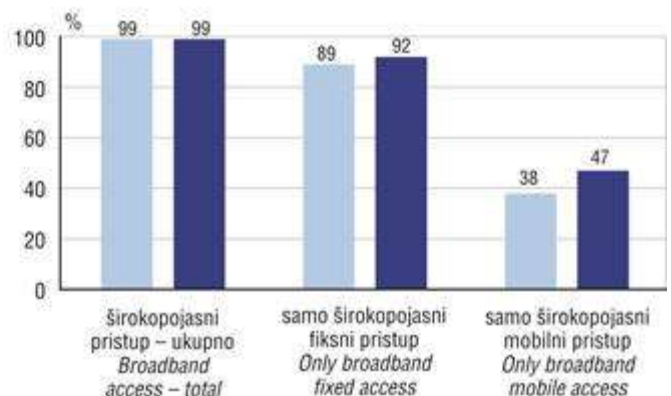
Computer and internet usage was at a high level with the population up to age 44; an increase among all age groups was noticed. Increase in the usage of online e-government services.

Commerce via the internet is increasing; 31% of individuals purchased goods or services via the internet during the previous year (an increase of 3% compared to 2014).

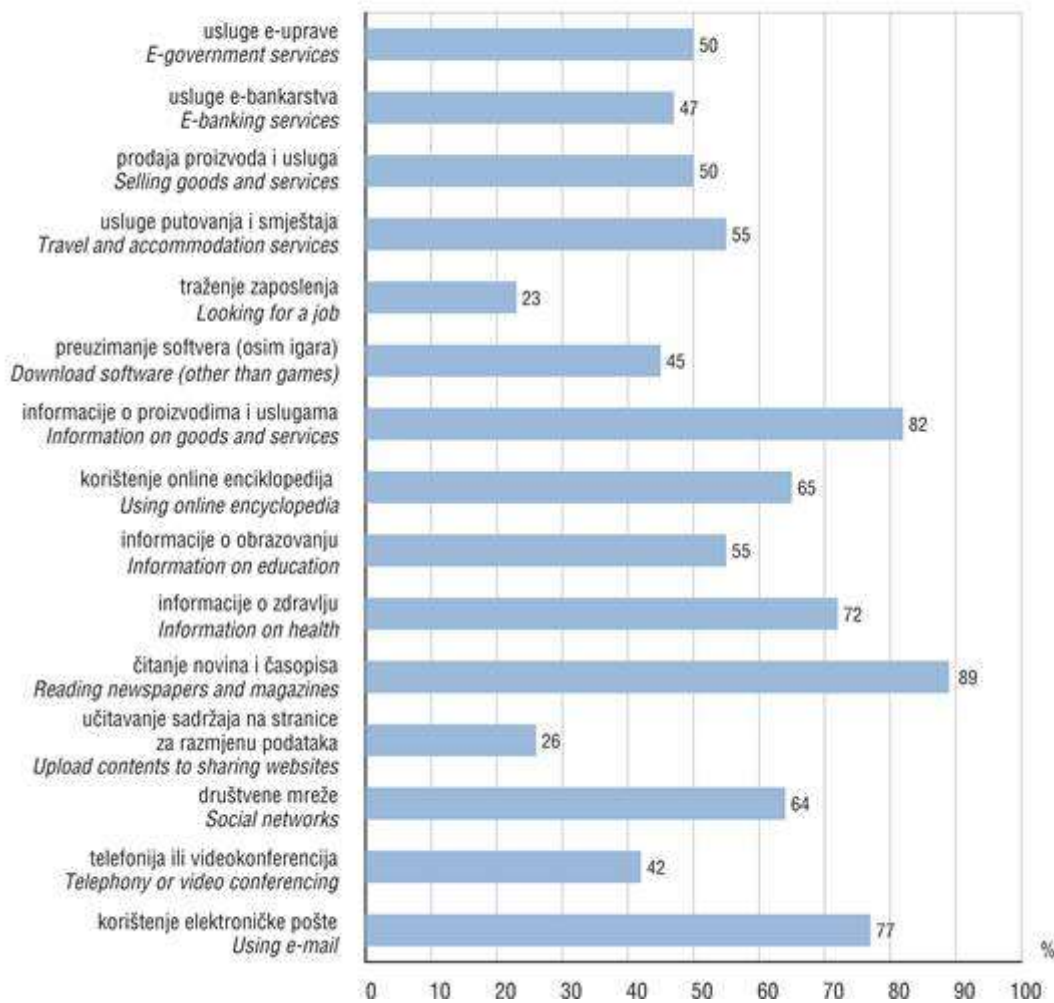
G-1. OPREMLJENOST KUĆANSTAVA IKT-om U 2015.
HOUSEHOLDS EQUIPPED WITH ICT, 2015



G-2. NAČINI PRISTUPANJA INTERNETU U KUĆANSTVIMA U 2015.
TYPES OF INTERNET ACCESS IN HOUSEHOLDS, 2015

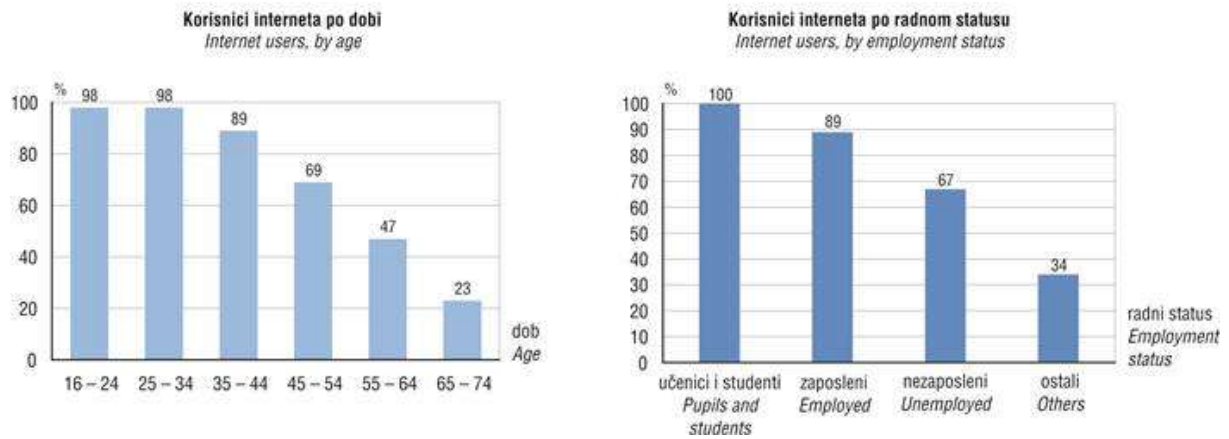


G-6. NAMJENA UPORABE INTERNETA KOD POJEDINACA U 2015.
PURPOSE OF INTERNET USAGE BY INDIVIDUALS, 2015



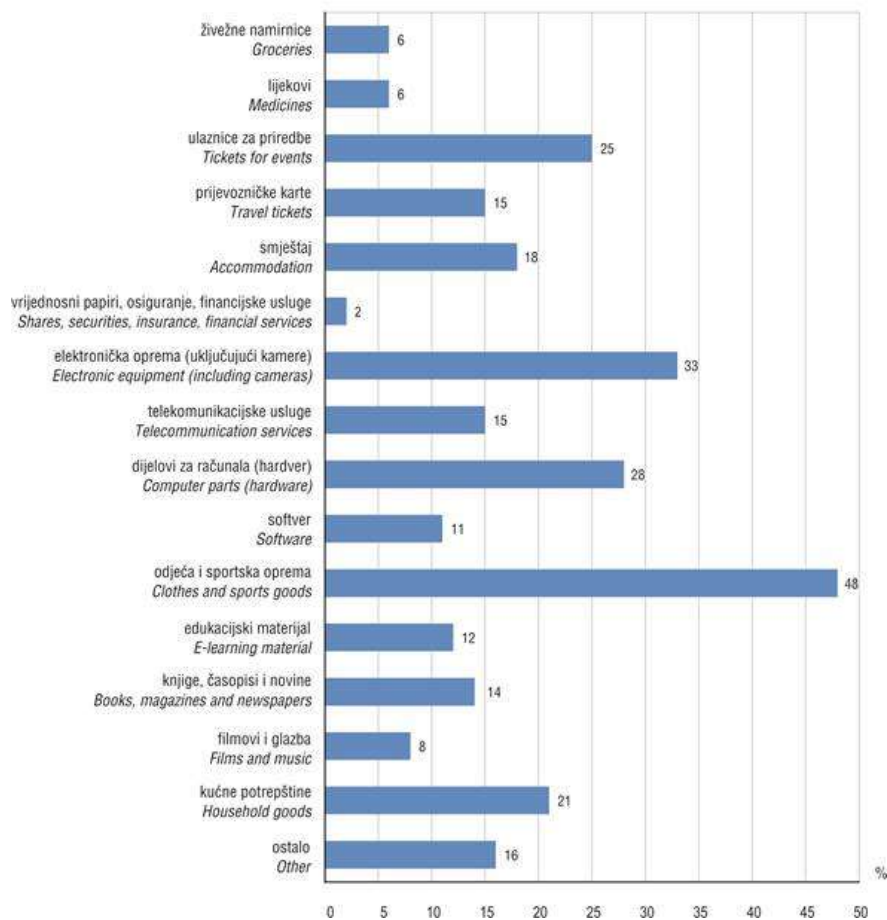
The comparison of the results with data from the previous year showed that individuals mostly used the internet for obtaining information on goods and services (82%), obtaining information on health (72%), e-mail usage (77%), for reading daily news and magazines (89%) and participating in social networks (64%). A significant increase was spotted in usage of travel and accommodation services (22%) and E-banking services (19%).

G-5. UPORABA INTERNETA KOD POJEDINACA U 2015.
USAGE OF INTERNET BY INDIVIDUALS, 2015



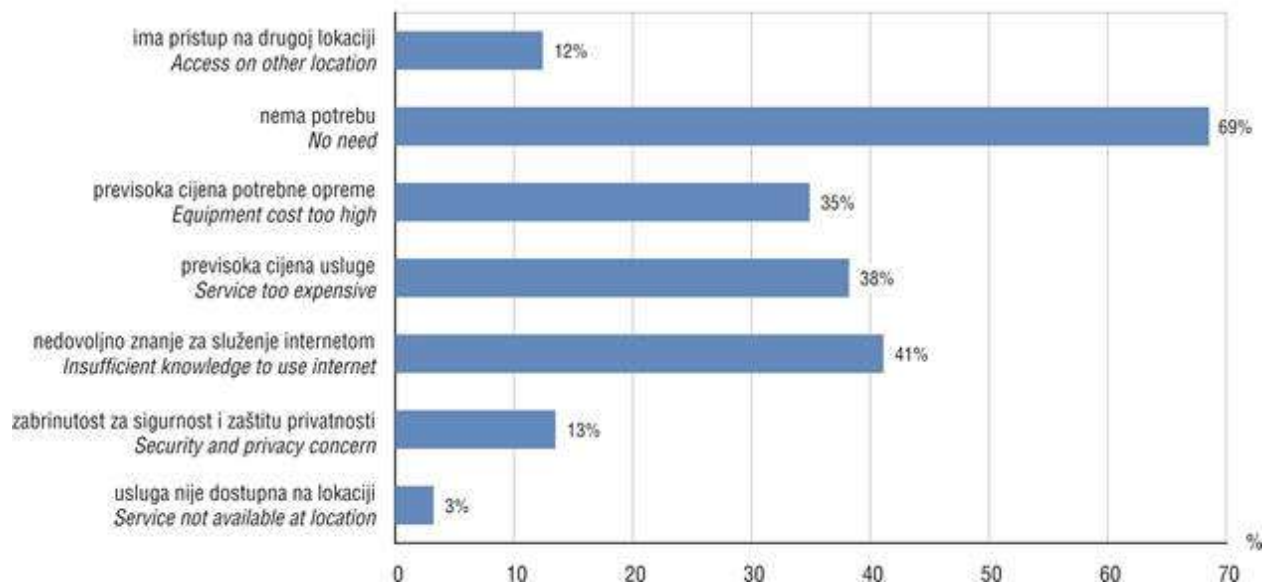
As shown in the previous chapter, the increase in the number of internet users was noticed among all age groups. The number of users aged over 65 increased by 6%. The number of internet users also increased in all categories of employment status

G-7. INTERNETSKA KUPNJA KOD POJEDINACA U DRUGOM POLUGODIŠTU 2014. I PRVOM POLUGODIŠTU 2015.
INTERNET PURCHASES INDIVIDUALS, SECOND HALF OF 2014 AND FIRST HALF OF 2015



The survey results showed that commerce via the internet became more widespread. There were 31% of individuals who purchased goods and services via the internet, which is an increase of 3% compared to the previous year. Buyers' habits were very similar to those recorded in the previous year: household goods, clothes and sports equipment, tickets for events, electronic equipment and computer parts were the most favored ones.

G-3. RAZLOZI NEPOSJEDOVANJA INTERNETSKOG PRIKLJUČKA U 2015.
REASONS FOR NOT HAVING INTERNET ACCESS, 2015



Out of the total number of surveyed households, 23% did not have internet access. The survey results showed that the most common reason was the lack of a need for it. A significant share of respondents highlighted the cost of services and equipment being too high as an important reason for not having internet access.

WiMAX (Worldwide Interoperability for Microwave Access) is a telecommunications protocol that provides fixed and mobile internet access. The current WiMAX revision provides up to 40 Mbit/s with the IEEE 802.16m update expected to offer up to 1 Gbit/s fixed speeds. The name "WiMAX" was created by the WiMAX Forum, which was formed in June 2001 to promote conformity and interoperability of the standard. The forum describes WiMAX as "a standards-based technology enabling the delivery of last mile wireless broadband access as an alternative to cable and DSL".

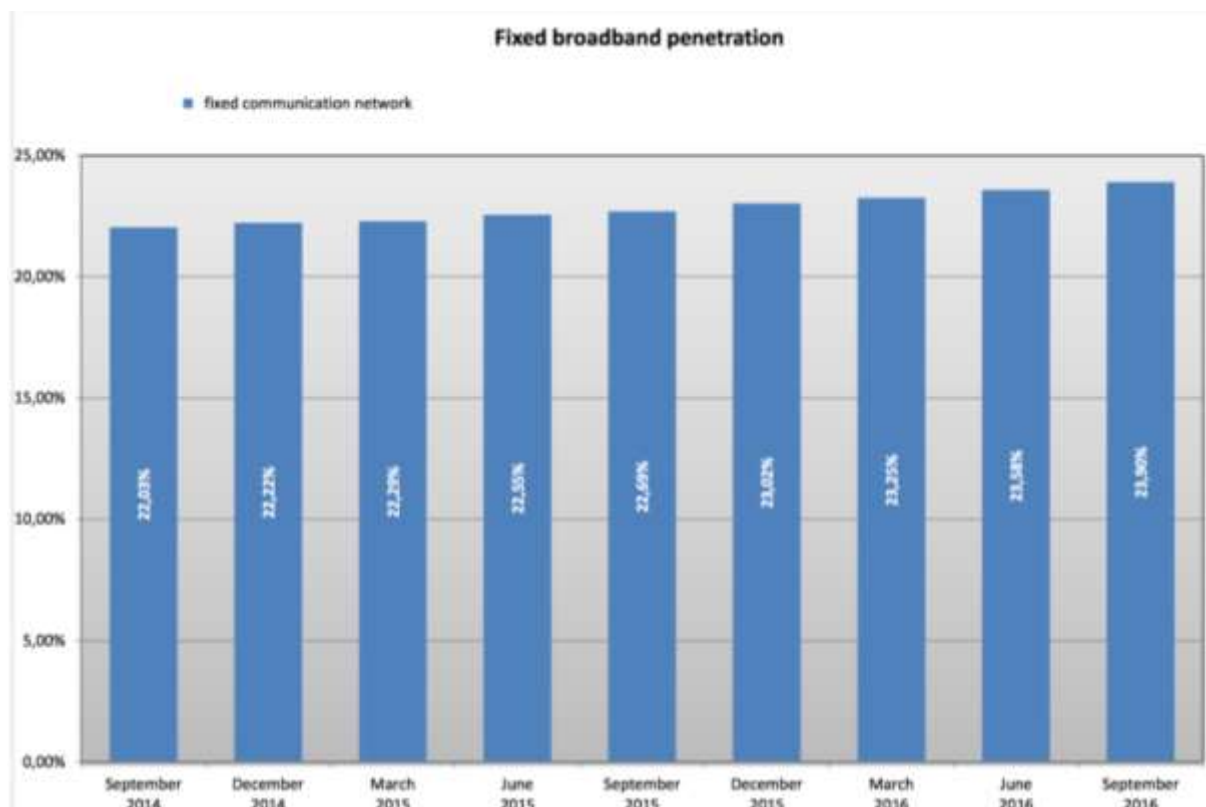
WiMAX has been hailed as having the potential to connect remote areas to high-speed broadband services, because it can bridge the fixed-line infrastructure gaps, but in most cases the initial development of these networks starts with the large cities. In 2005 Croatia's telecom regulator awarded 10 WiMAX licenses.

VIPnet and OiV started covering the capital, Zagreb, while WiMAX Telecom focused its efforts in other cities such as Split and Osijek. Since 2008 it has used Alcatel-Lucent technology in order to develop the first WiMAX 802.16e-2005 network in Croatia. In 2009 the company launched a mobile WiMAX network using Volubill technology.

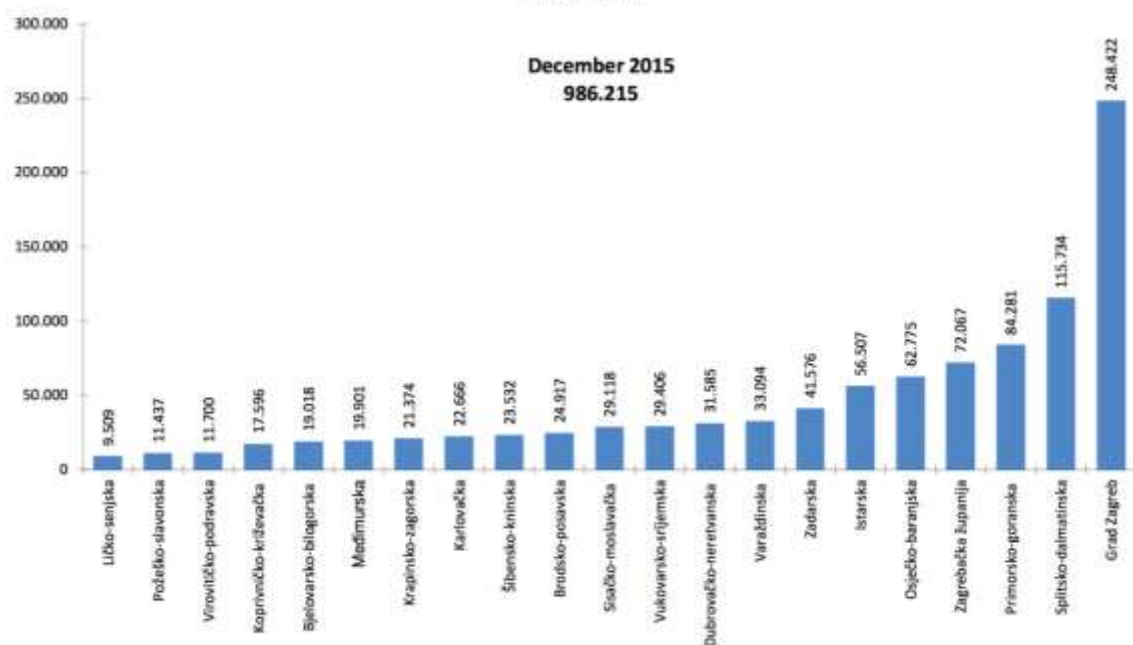
Croats can access the global network also in internet cafes, public libraries and the school/university network. In schools/universities, internet access is provided by CARNet.

Typically for a relatively small country, the most popular web2.0 sites in Croatia are the international ones which have more power and influence in attracting users than their local counterparts. The most popular social websites in Croatia are Facebook and YouTube, while Forum.hr is the most visited local social platform. Blogging activities are supported mainly by international websites like Blogger.com and Wordpress.com, but also by local platforms like Bloger.hr and Blog.hr.

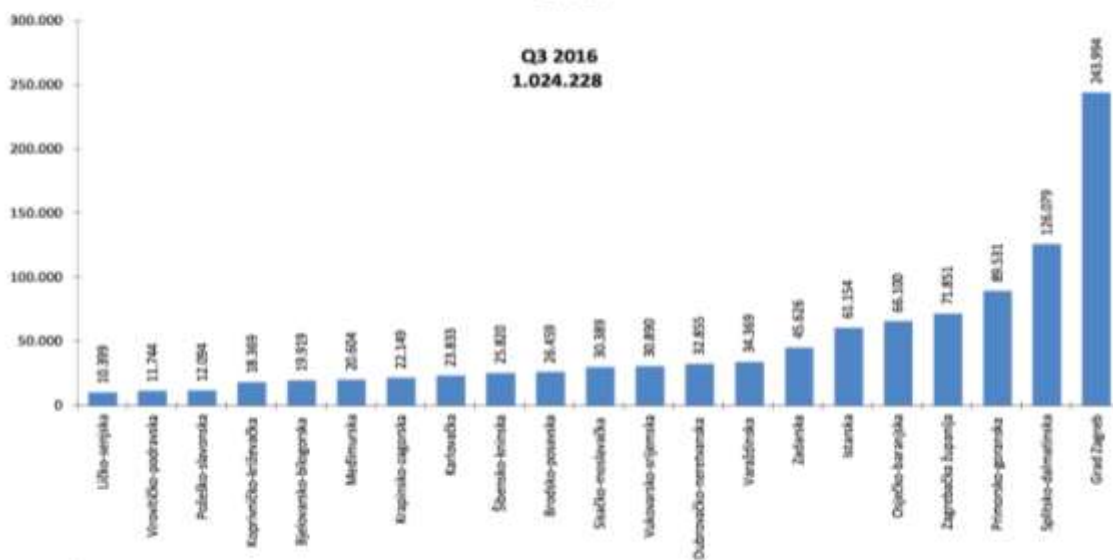
With Croatian communities present in other former Yugoslavian republics and with the Serbo-Croatian language spoken by virtually everyone in former Yugoslavia, there is development potential for online media and social networks outside of national borders.

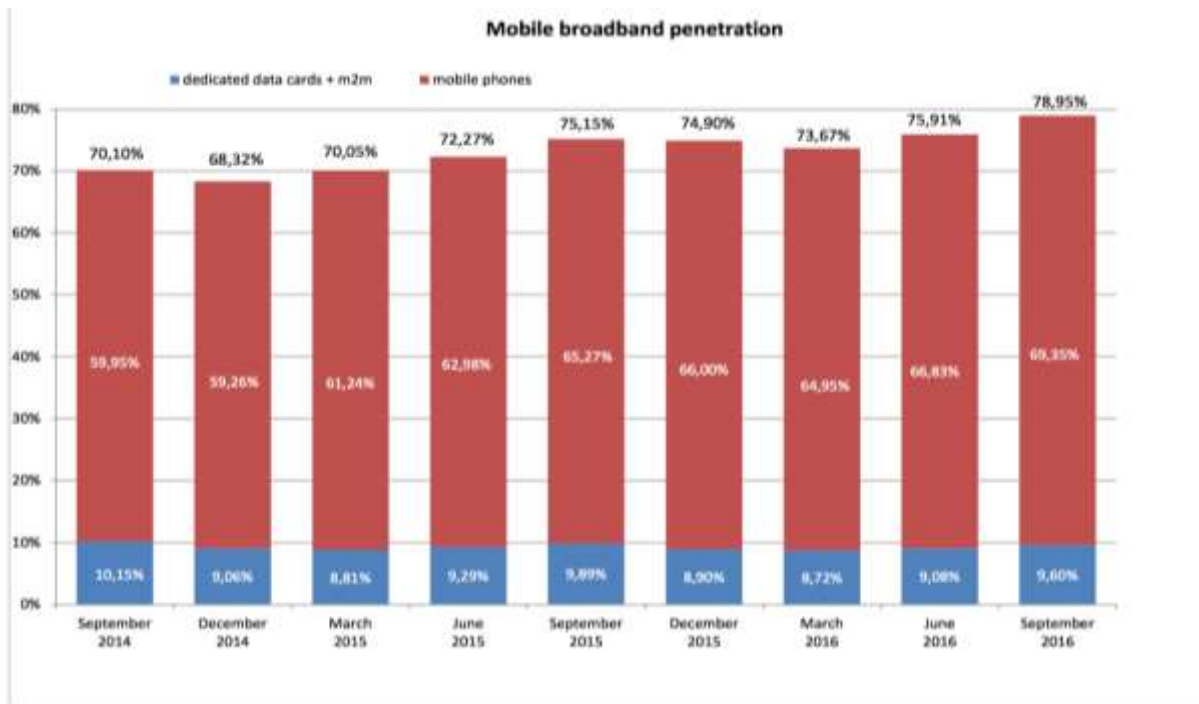


**Number of broadband lines by county
fixed communication network
end of 2015**



**Number of broadband lines by county
fixed communication network
Q3 2016**





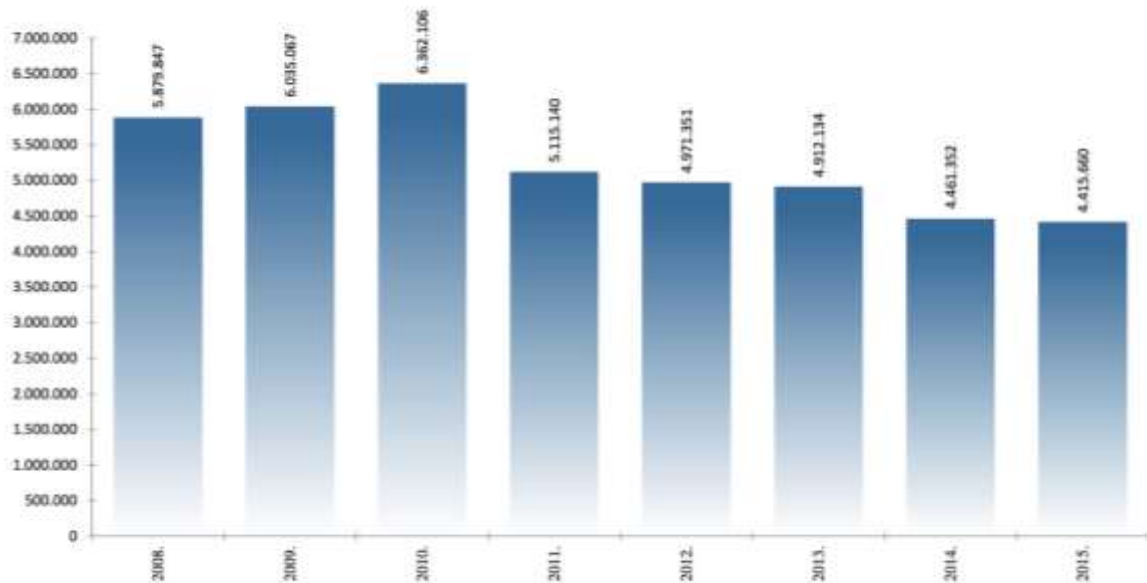
6. Telecommunications in Croatia

Alternative operators have entered the market and launched competing services in the fixed-line market. Both alternative operators and the incumbent are investing in network infrastructure to support bandwidth-intensive services such as broadband access and triple play. This chapter provides a concise overview of Croatia's fixed-line market, covering regulatory developments, fixed-line infrastructure used to offer services, financial and performance data on significant fixed-line operators as well as the wholesale and IT markets.

Key developments:

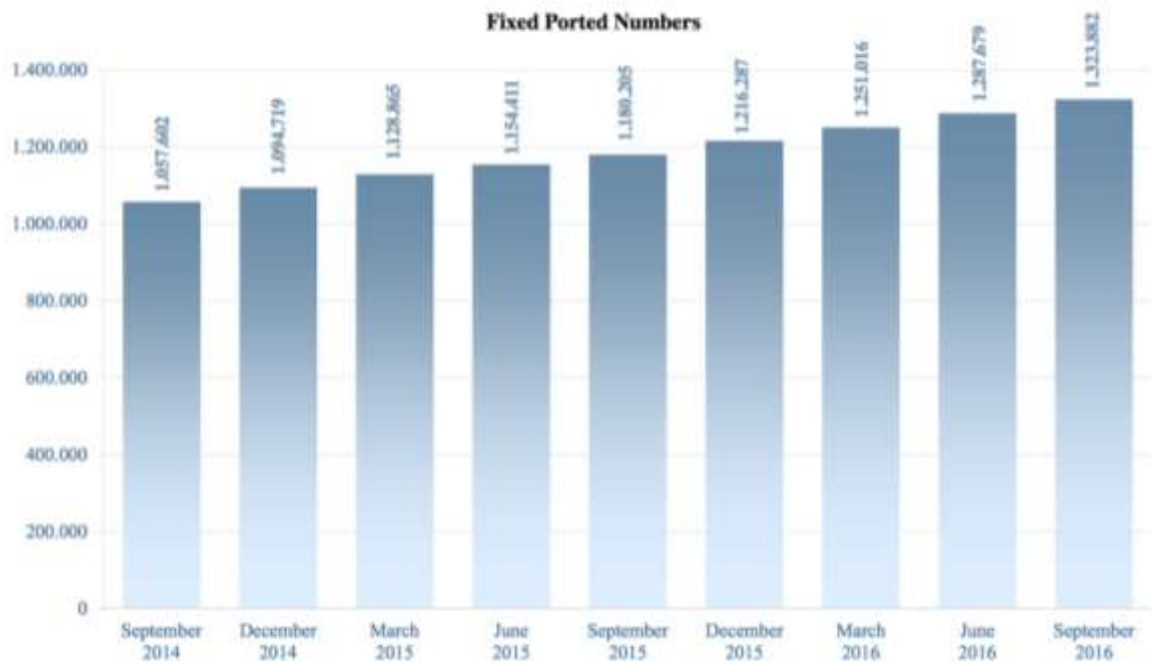
- Regulator sets out amended wholesale access tariffs for 2017;
- T-HT takes over management of Optima Telekom, applies to extend management oversight to 2021;
- T-HT to invest HRK2 billion on fiber infrastructure;
- VIPnet acquires three regional cable companies;
- Regulator sets new fixed and mobile termination rates to 2019;
- T-HT trials LTE-Advanced Pro technology to deliver data at up to 500Mb;
- Regulator allocates remaining 800MHz spectrum;
- T-HT trials G.fast technology;
- VIPnet planning to introduce DOCSIS3.1-based services;
- Optima Telekom announces plans to merge with H1 Telekom;
- T-HT launches Stream On video streaming service;
- DVB-T2 to be deployed by 2020;

Total Number of Mobile Subscribers



Note: Definition of active pre-paid user: User who has used a mobile service or refilled the account in the last 90 days This definition applies to all operator. Before 2011 each operator used different active user definition (90/180/270 days).

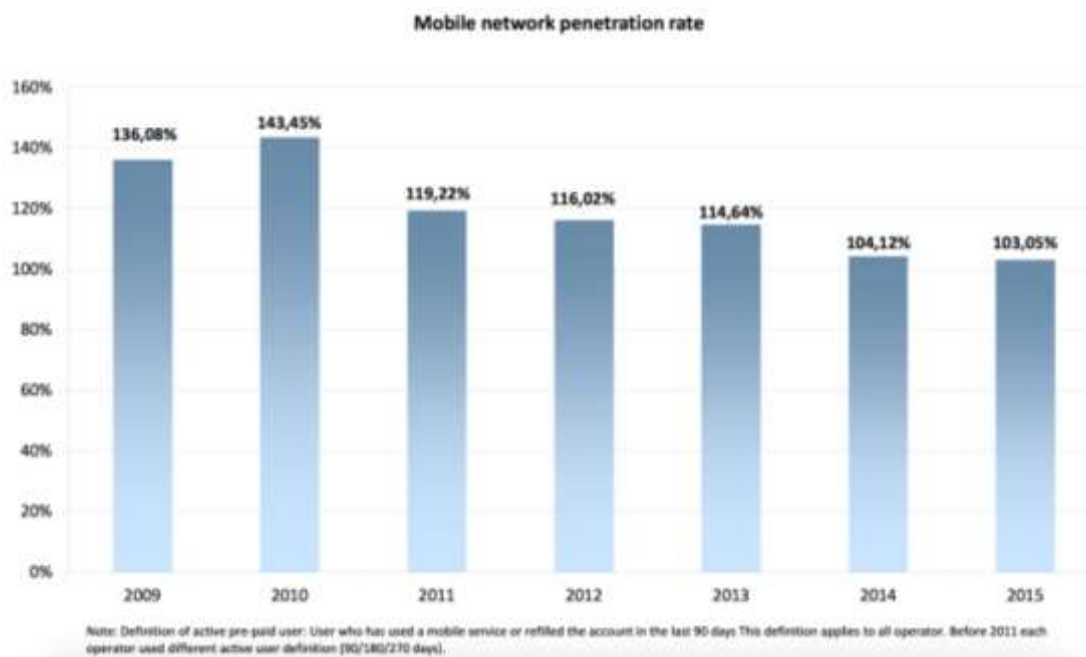
Mobile telephony services	Q3 2016	quarterly change Q3 2016 - Q2 2016	annual change Q3 2016 - Q3 2015
Total mobile telephony services revenue (HRK)	1,235,408,350	15,20%	8,33%
Retail revenue	931,682,993	7,66%	8,19%
<i>Retail revenue - Residential</i>	690,695,600	7,33%	6,25%
<i>Prepaid subscribers</i>	298,068,766	9,26%	-4,30%
<i>Postpaid subscribers</i>	392,626,833	5,91%	15,95%
<i>Retail revenue - Business</i>	240,987,393	8,63%	14,17%
Wholesale revenue	303,725,358	46,68%	8,77%
Total number of active subscribers ¹	4,672,091	4,99%	0,92%
<i>Residential</i>	3,909,164	6,09%	0,59%
<i>Prepaid subscribers</i>	2,580,480	9,46%	-1,34%
<i>Postpaid subscribers</i>	1,328,684	0,10%	4,55%
<i>Business</i>	762,927	-0,29%	2,65%
Mobile penetration ²	109,04%	5,00%	0,92%
Mobile originating voice minutes ³ (min)	2,283,819,536	0,51%	1,18%
International roaming traffic – own subscribers (min)	36,437,426	19,20%	62,69%
International roaming traffic – foreign subscribers (min)	237,761,914	179,52%	15,99%
Total SMS sent	661,373,465	1,37%	-9,32%



In the opinion of VipNet's CEO, Croatia follows the general world trend of replacing voice communication with data communication. The Republic of Croatia has an HSDPA mobile network (High-Speed Downlink Packet Access), which is an enhanced 3G (third generation) mobile telephony communications protocol in the High-Speed Packet Access (HSPA) family, also dubbed 3.5G, 3G+ or turbo 3G, which allows networks based on Universal Mobile Telecommunications System (UMTS) to have higher data transfer speeds and capacity. Current HSDPA deployments support down-link speeds of 1.8, 3.6, 7.2 and 14.4 Megabits/s. Further speed increases are available with HSPA+, which provides speeds of up to 42 Mbit/s downlink and 84 Mbit/s with Release 9 of the 3GPP standards.). As from 2010, Vipnet has been the leader in the mobile broadband market in Croatia, where it has about 60% market share.



<https://www.hakom.hr>



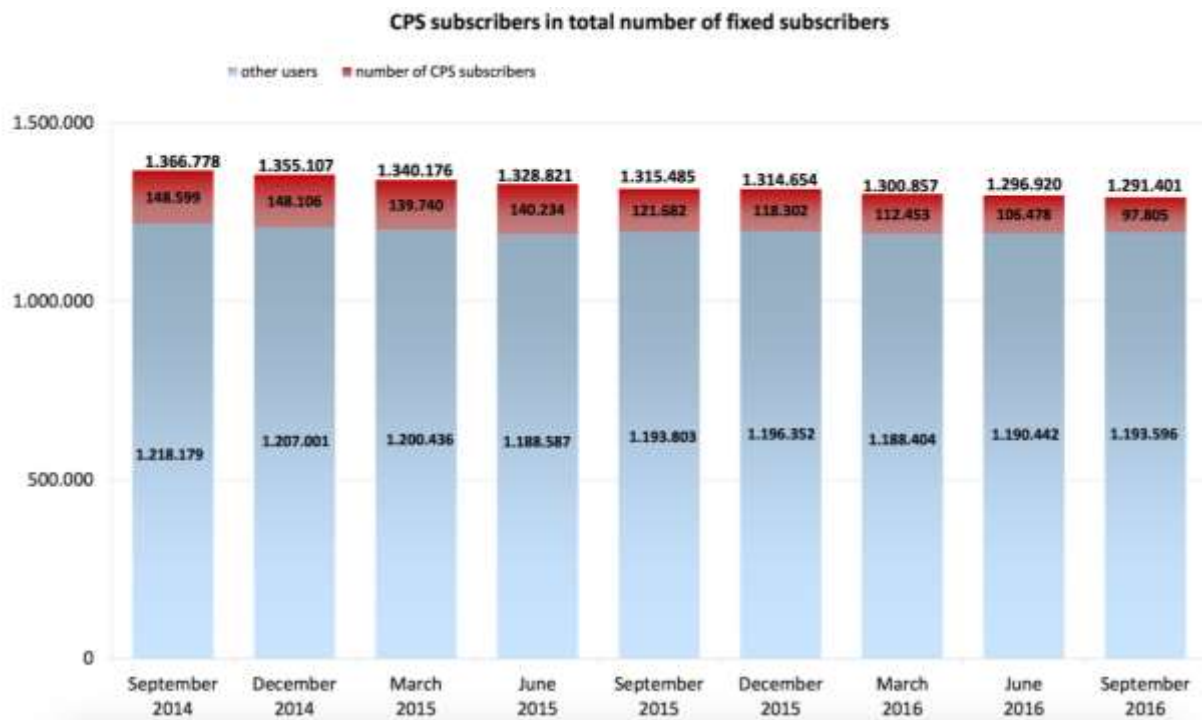
<https://www.hakom.hr>

In 2009, 76.1% of Croatian households had a fixed-line telephone, down from 91.4% in 2004. In absolute terms, the number of telephone lines in use also declined slightly during the period 2004-2009 to reach 1.9 million in 2009. The decrease in fixed-line telephone penetration is mainly due to rising competition from the mobile sector and the increasing take-up of alternative communication methods such as Voice over Internet Protocol (VoIP). In particular, VoIP solutions have gained importance mainly due to their lower prices. In Croatia, there are around 40 operators offering this type of

service, intensifying competition and thus putting further downward pressure on prices in this segment.

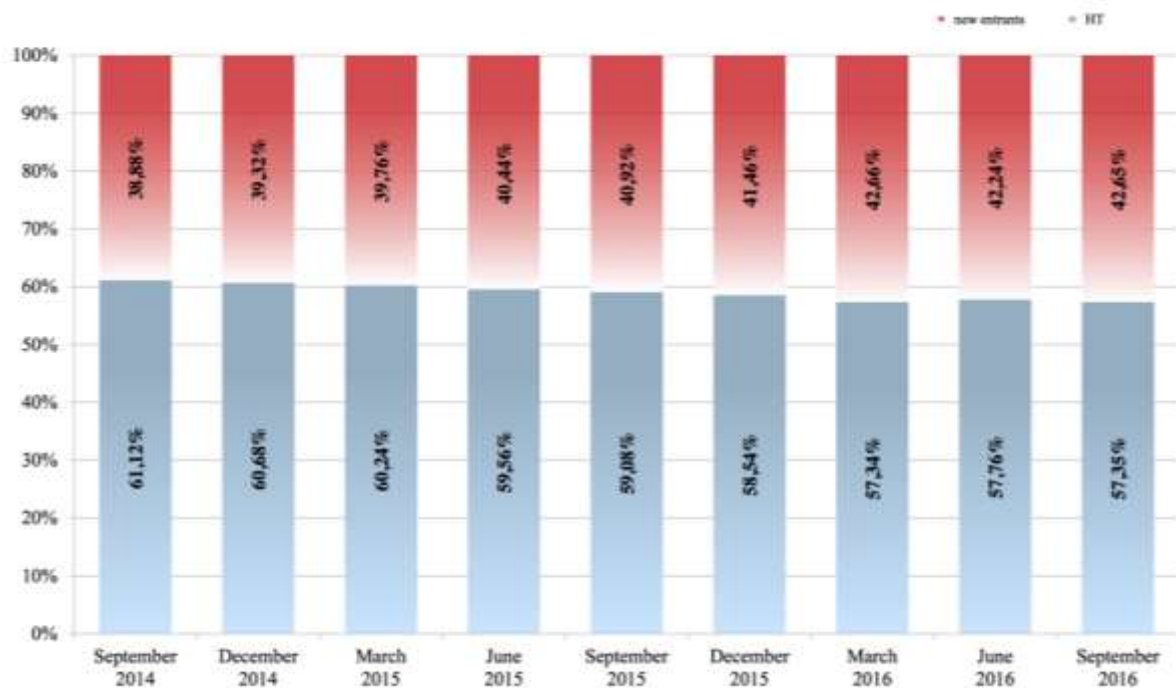
Fixed telephony services	Q3 2016	quarterly change Q3 2016 – Q2 2016	annual change Q3 2016 – Q3 2015
Total fixed telephony services revenue (HRK)	455.152.507	-2,25%	-10,98%
<i>Retail revenue</i>	378.562.641	-3,17%	-11,35%
<i>Wholesale revenue</i>	76.589.866	2,58%	-9,10%
Total number of fixed lines	1.405.377	-0,30%	-2,06%
Stand-alone – fixed voice telephony subscribers	560.528	-0,46%	-16,11%
Number of subscribers ¹	1.291.401	-0,43%	-1,83%
CPS subscribers	97.805	-8,15%	-19,62%
Fixed originating voice minutes ² (min)	506.488.188	-9,31%	-9,42%
Fixed ported numbers	1.323.882	2,81%	12,17%

https://www.hakom.hr/UserDocsImages/2016/e_trziste/Croatian%20Quarterly%20electronic%20communications%20ata.Q32016.pdf



https://www.hakom.hr/UserDocsImages/2016/e_trziste/KVA%20ENG%20Q3%202016_CPS%20subscribers_fixed.pdf

Fixed Market Share by Subscribers



https://www.hakom.hr/UserDocsImages/2016/e_trziste/KVA%20ENG%20Q3%202016_Fixed%20market%20share.pdf

7. Software market in Croatia

Software and IT services are the most promising Croatian export products. Export of software produced in Croatia increased by 501 million kuna in 2015. In that same year software export grew by 32.7% to 2.03 billion kuna. Export is the main growth engine of the domestic software industry, so last year the total income of local software producers jumped 19.6% to 6.96 billion kuna. The number of employees in the software industry jumped by 13.2% to 12,642 employees.

Vendors and their partners should focus on new delivery models such as cloud computing and should make a priority of offering extended functionalities to existing clients. Maintenance revenues from existing installations became very important during the crisis and will continue to record growth during the recovery period. Customer satisfaction should be a key market strategy, followed by the acquisition of new clients

CISEX

The Croatian Independent Software Exporters association (CISEX) is an association gathering innovative Croatian software companies around the idea of sharing good practices in order to create high quality products for the global market. The association was founded in January 2011. CISEX member companies are challenging the status quo by constantly increasing the quality of their products, tailoring them for their clients.

Odašiljači i veze

Since 80 years, OIv operates in the core of broadcasting and telecommunication industries providing services, network solutions and infrastructure behind television or radio, as well as fixed and mobile telecommunications. This company helps owners to

launch new television services, they provide transmission for all national and most regional Croatian TV and radio broadcasters using analogue and digital (DVB-T, DAB and DRM) transmissions. In addition, they offer satellite services.

8. Important IT companies in Croatia

Some global ICT companies are operating here only to fulfil the needs of the domestic Croatian market by offering their products and services in Croatia. The long term goal is to expand in the SEE region. Other created R&D centers (Ericsson, Envoy, Siemens,...).

IBM

IBM Hrvatska d.o.o. was founded in 1991. and it is the Croatian arm of multinational software giant IBM. The company is engaged in wholesale and retail trade of computers and other similar equipment, as well as programming and software development. IBM Hrvatska d.o.o. also offers hardware and software for small users and for big projects, as well as computer maintenance and repair services. (<https://www.emis.com>) In the spring of 2017, IBM will open Client Innovation Center in Croatia.

HP

HP Croatia was established in 1998. HP provides Marketing, consultancy, technical and educational support to Croatian as well as Bosnian and Slovenian customers.

Oracle

ORACLE HR sells licenses for applications, databases and tools for designing internet solutions. The company also organizes training and support.

Cisco System

Cisco Systems in Croatia was founded 1998. Cisco Systems, Inc. is the world's leading supplier of computer networking products, systems, and services.

SAP

SAP d.o.o. is present in Croatia since 1995 as a franchise of SAP. SAP is the world leader in enterprise applications in terms of software and software-related service revenue. Based on market capitalization, it is the world's third largest independent software manufacturer.

Microsoft Hrvatska d.o.o.

Microsoft Croatia d.o.o was founded in January 1997. It is fully owned by Microsoft Corporation, Redmond, WA and is responsible for the development of the Croatian market. Company tasks are the organization of sales channels, cooperation with large customers, the organization of technical support, marketing, legalization and localization of products.

Ericsson Nikola Tesla d.d.

Ericsson Nikola Tesla is a leading regional provider of innovative ICT solutions and services. It is also Croatia's leading knowledge exporter through its Research and Development activities and Service Delivery Center. The company's activities include

marketing and sales, research and development, design of the total communications solution, services in the multi-service and mobile networks area including mobile internet and complex system integration in all business areas. The company provides innovative solution in health care, transport, state administration, municipal services and multimedia that constantly improve people's life and create new value. Being a member of the Ericsson Group, the company operates within Western and Central Europe (RWCE).

M SAN Group

M SAN Group is a private company established in 1995. In 1999 M SAN Group took over the leading position on the list of the largest IT companies in the Croatian market. Company core business is distribution of computer hardware, software, and consumer electronics.

9. IT Education in Croatia

I. Universities

University of Zagreb

The faculty of Electrical Engineering and Computing (FER) is the biggest and most influential research and knowledge institution in Croatia in the field of electrical engineering and computing.

This faculty is a spin-off of the Technical Faculty Zagreb, which was founded back in 1919. It employs around 130 university professors, 160 junior researchers, assistants and technological co-workers in 12 institutions with a total of 59 laboratories. Students have access to 9 laboratories equipped with 180 computers. The faculty consists of 3300 undergraduate and 800 postgraduate students. Around 650 students register to FER each year while 500 graduate annually. The studies take around 5 years.

It is important to emphasize that the faculty works in close collaboration with the business world (60% of their revenues).

FER is also accredited by the ASIIN (Accreditation Agency for Degree Programs in Engineering, Informatics, the Natural Sciences and Mathematics.).

Varaždin

The University of Applied Sciences in Varaždin offers undergraduate studies of electrical engineering.

The faculty of Organization and informatics (FOI) is part of the Zagreb University even though it is located in Varaždin. FOI was founded in 1974. In Croatia FOI is the only institution where the field of informatics and informational sciences is covered exclusively. FOI also hosts an international conference called "Information and Intelligence Systems".

Microsoft has signed an agreement with FOI to create the Microsoft Innovation Center, which enables students to acquire a Microsoft certificate.

Split

The Faculty of Electrical Engineering (FESB) in Split was founded in 1960. The same year Split University opened up the center for part-time study of Mechanical Engineering. Due to the merger of these two institutions, the Split Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture was established in 1971 (FESB). FESB is part of the University of Split. FESB has gained a good reputation thanks to the research undertaken by both students and professors alike. The results obtained have been published in scientific journals in some cases or were presented at conferences in others.

FESB itself organizes conferences, seminars and public lectures. High school students are given the opportunity to visit the Physics Summer School organized annually. Furthermore, the FESB's reputation has been strengthened by a successful cooperation with economic organizations.

Osijek

The Faculty of Electrical Engineering in Osijek has been founded in 1978 as the Junior College of Electromechanical Engineering. Thanks to the exchange of students and the teaching staff, the Faculty of Electrical Engineering has found many partners in Croatia and abroad. A special kind of cooperation has been established between Osijek and the Hochschule Bremen. An international, scientific conference called "Science for Practice" (1985) takes place every year and 5 main faculties participate in it. The participants are the faculties of Bremen, Osijek, Schweinfurt, Pecs and Budapest.

Rijeka

Since Rijeka and the surrounding area are regions highly dependent on industry it was inevitable to have an institution educating young people in this field. The Faculty of Mechanical Engineering was established in 1960 and was renamed into Technical Faculty in 1973. Research on an international basis is conducted in collaboration with numerous universities in Europe and beyond, like the Technische Universität Vienna, the Ann Arbour and Massachusetts Institute in Boston, to name a few.

II. Microsoft Innovation Center in Varaždin

The Microsoft Innovation Center in Varaždin was opened up in September 2005 (it was established as the Microsoft-Business and Technology Center). With the support from the Croatian government the innovation center was founded on an agreement between the US agency for international development (USAID), Microsoft and the city of Varaždin.

The mission

The center's mission is to insure the infrastructure and the resources needed for independent software vendors in order to create new products and services and the presentation thereof as well as the formation of well-lead companies that are supposed to rely on the products and services.

The vision

The center's vision is a focus on maintaining small and middle large companies that are dealing with ICT. The center holds educational seminars and gives technological support to them. This center is leaning on the model of already existing Microsoft innovation centers throughout the world. The center in Varaždin, as the first one of its kind in Eastern Europe, is supposed to play a role model for other possible centers in this region. There are plans for additional innovation centers in Croatia so this model is supposed to be followed.

The center's aims

Two years after the foundation of the center, which was founded with an investment of 2 million dollars, the center has helped more than 200 companies in the informatics and telecommunication field (ICT). IT helped to generate 20 new businesses, while 50 new solutions were developed and offered on the Croatian and European market.

The center's partners

In the process of achievement of the Varaždin center, Microsoft and USAID have gathered a wide array of partners. Companies like Cisco, HP, Končar and T-com understood the importance of this project for the development of the whole Croatian IT industry as well as its significance to the economic development for the whole country.

10. Future investments

Investing in Croatia's ICT market would give you the opportunity to access a niche market with a well-educated labor force and close ties with Germany and Austria. But you will have to face the competition of neighboring countries and the rest of the world (India). The Croatian government is currently trying to attract all big ICT companies in Croatia. One regulation adopted to assist in achieving this is the reduction of the minimum amount of employees a Croatian company has to hire to obtain tax benefits. Before, you had to hire 75 employees, which was reduced to 50 for ICT companies.

Google already has a small office in Croatia. But the Croatian government expects the company to build a data center on the island of Pag. The budget plan is 600 million dollars. At the moment, Google does not comment on this information.

LTE Technology is on the rise as well. The first demonstration took place in October 2010 by Ericsson. They offer services like cells reporter, 3D TV content and wireless multiplayer gaming. Furthermore, HT and other Croatian companies want to invest in FTTH (fiber to the home), a form of fiber optic communication delivery in which the fiber extends from the central office to the subscriber's living or working space, soon.

Ninety percent of the present network of Croatia is in FTTH. The 10 other percent are FTTB.

B.Net plans further expansion of the availability and to increase network capacity within these urban areas. Spreading to smaller urban areas in Croatia will be postponed until demand increases, which would mean an increase in profitability of that expansion. In

2011, the company also plans to introduce VoD and PVR services, and increased the transition to digital and interactive video and IP services.

With Deutsche Telekom and Telekom Austria controlling over 80% of the fixed and mobile market, B.net as the main cable provider and RTL Group being the most important private television company in Croatia, it is expected that expertise, technologies, investment and influence continue to come from the German-speaking economic area.

Euromonitor International's forecasts for Croatia during the next decade show that the fixed broadband market will continue to grow faster than the rest of the TCM industry, partly due to the current delay in its development. Household broadband internet penetration is expected to reach 59.6% of households in 2020, almost double the level in 2009.

On the other hand, mobile and fixed telephony as well as television distribution by cable and satellite are expected to stagnate in the medium term. While it is expected that 98% of the households will have access to a mobile phone at the end of the next decade, the potential for growth of mobile voice segment is very limited. In the longer-term the expected engine for growth is represented by additional services which will compensate for the slow organic growth of the main basic services.

11. Business opportunities in Croatia – Call for tenders

As the responsible for the tendering of all procurement in the context of the decentralized EU funded programs in Croatia, **The Central Finance and Contracting Agency (CFCA)** –SAFU in Croatian- is your reference contact concerning IT call for tenders in Croatia.

CFCA website (<http://www.safu.hr/en/>) shows every call for tenders classified by pre-accession programs which take advantage to Croatia (CARDS, PHARE, ISPA, IPA).

The payment deadline to suppliers generally ranges from 20 to 60 days, the average being around 30 days. However, the average payment deadline could be from 30 up to 90 days. 90% of transactions are conducted with delay. Payments tend to be faster when the customer is located abroad.

A payment made within the first seven days is considered cash in advance. The sectors where most default is detectable are the wholesale, construction and manufacture sectors.

12. Computers (Desktop, Notebooks, components...) wholesalers

Numerous Croatian computers shops import goods from Germany, the Netherlands, Taiwan and The United States of America. They also export to the countries of ex-Yugoslavia (Macedonia, Serbia, Bosnia-Herzegovina, Montenegro, Kosovo and sometimes Slovenia) and Albania.