

FIRST RELEASE

CROATIAN BUREAU OF STATISTICS
10000 ZAGREB, ILICA 3, PHONE: +385 1 4806-111, P.O.B. 80, CROATIA

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USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN ENTERPRISES, 2007, FIRST RESULTS

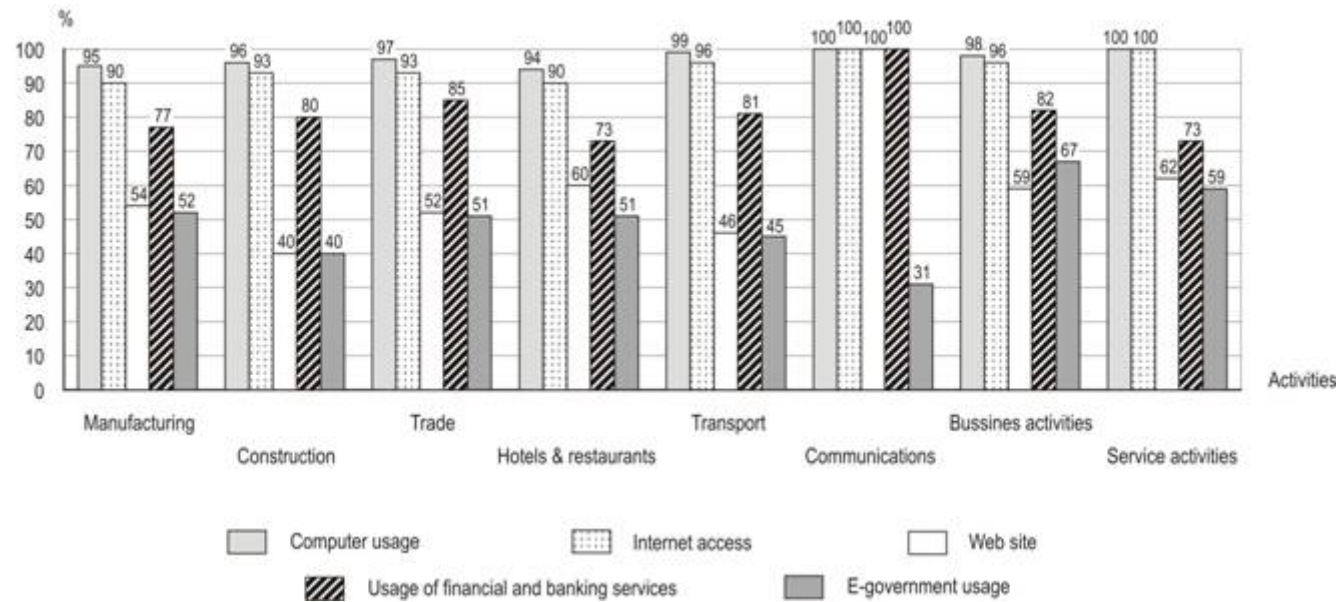
Positive trends

- High level of ICT integration in business conduct; 95% of enterprises use computers; 93% have the Internet access
- Usage of broadband Internet access prevails; 79% of enterprises use some type of fixed broadband Internet connection
- Benefits of the Internet: 81% of enterprises conduct financial business via the Internet; 61% of enterprise monitors change on the market via the Internet; 51% of enterprises own a Web site

What to improve?

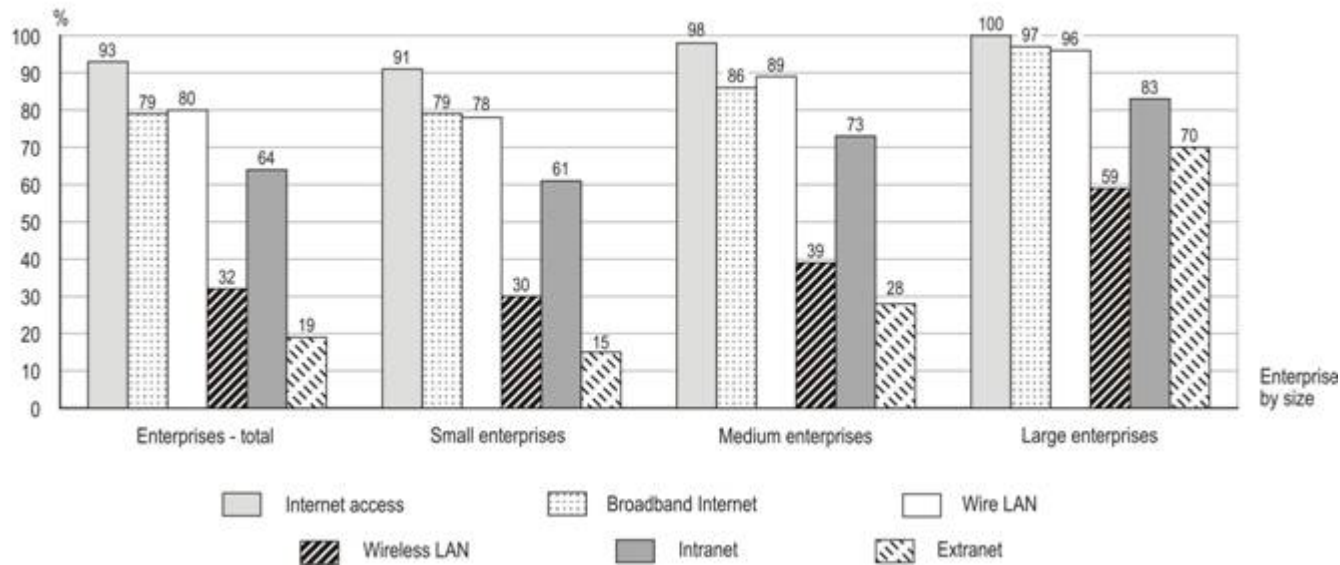
- Insufficient offer and efficiency of administrative services (E-Government)
- Underdeveloped commerce via the Internet (E-commerce); less than 20% of enterprises trade via the Internet; majority of enterprises conduct less than 10% of commerce via the Internet
- Lack of skilled ICT personnel; over 60% of enterprises encounter problems while recruiting ICT experts; formal education does not comply with development of the ICT

G-1. USAGE OF ICT IN ENTERPRISES, BY ACTIVITIES, FIRST QUARTER 2007



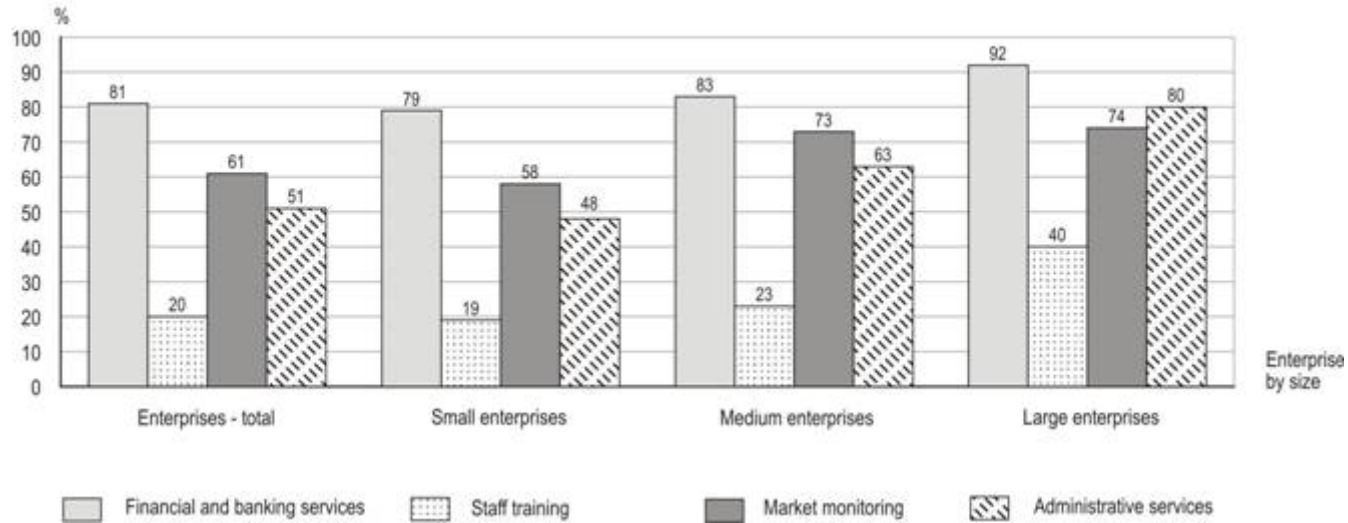
Usage of information and communication technologies is an extremely important part of contemporary business conduct. Survey showed that 95% of enterprises used computers in every-day business and 92% of enterprises had Internet access. Internet became a necessity for an efficient business conduct, 51% of enterprises had it's own website. Internet simplifies performing of some business processes like banking and financial transactions; it also allows usage of administrative public services (E-government). 79% of enterprises use Internet for banking and financial services, while 50% use Internet for administrative purposes.

G-2. USAGE OF INTERNET AND NETWORK TECHNOLOGIES IN ENTERPRISES, BY ENTERPRISE SIZE, FIRST QUARTER 2007



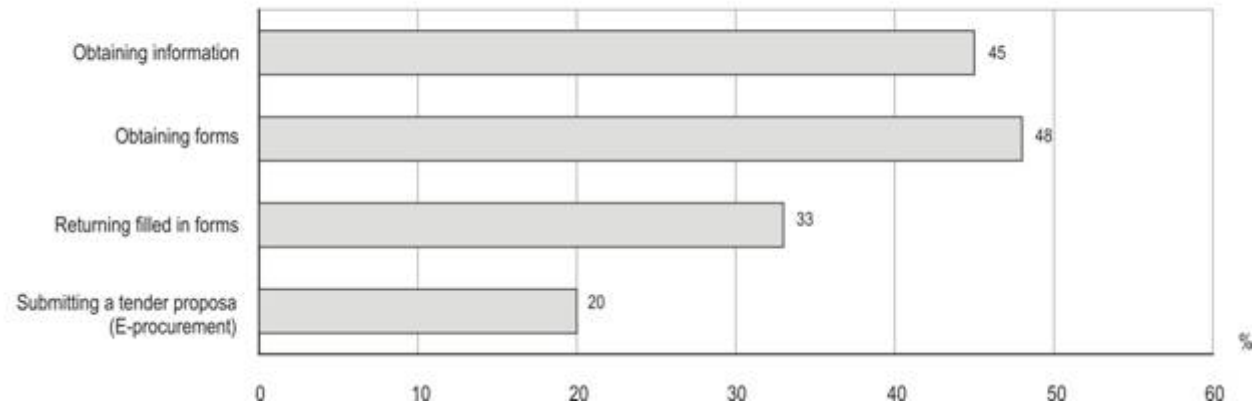
Internet and other network technologies allow connectivity between sectors within enterprise and integration of business processes which contribute to efficient business conduct. The type and speed of data transfer allow higher quality of business conduct. Out of 93% of enterprises which have Internet access, 79% use fixed broadband connection (DSL, cable, leased line). 64% of enterprise use internal communication network (Intranet) to communicate within enterprise. Much smaller is the share of enterprises that use secure communication networks for interaction with external business subjects (Extranet), only 19%. It is mostly used in large enterprises with more than 250 employees.

G-3. PURPOSES OF INTERNET USAGE IN ENTERPRISES, BY ENTERPRISE SIZE, FIRST QUARTER 2007



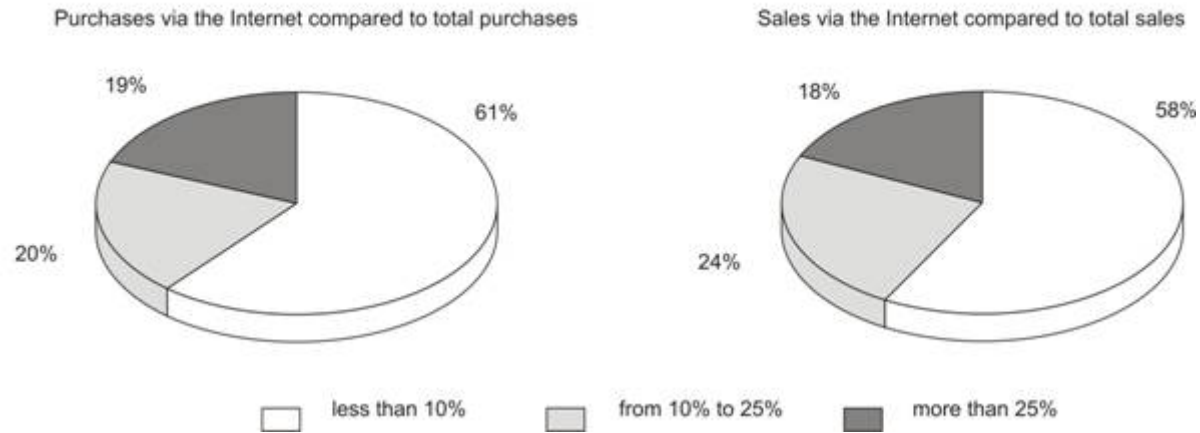
The Internet has introduced changes in the ways of business conduct by allowing integration of business processes on higher level. 81% of enterprises conduct banking and financial transactions via the Internet, while 61% of enterprises use it to monitor market fluctuations. Administrative services via the Internet use 51% of enterprises, but rather small share of enterprises, just 20%, use Internet for education and training of employed personnel.

G-4. USAGE OF PUBLIC ADMINISTRATION SERVICES IN ENTERPRISES (E-GOVERNMENT), FIRST QUARTER 2007



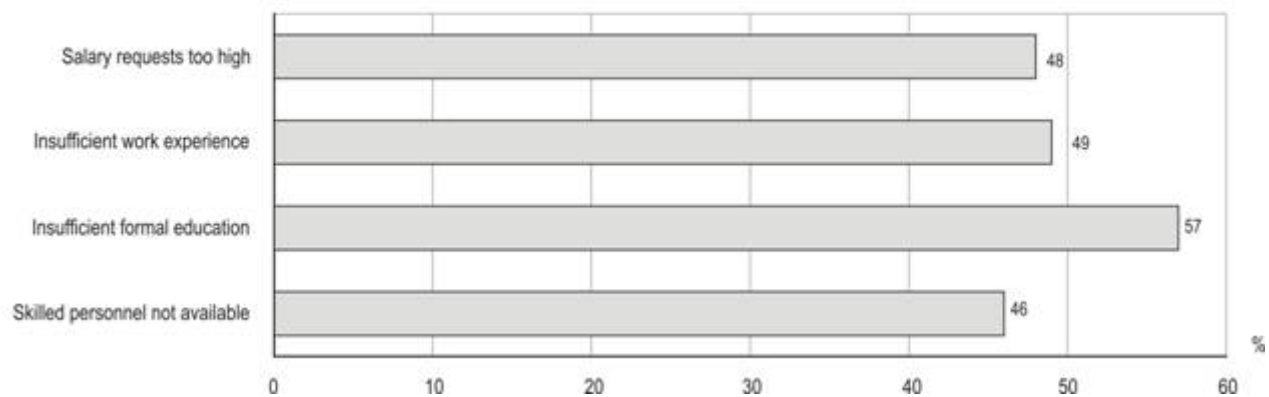
Usage of E-government services provides better information accessibility and speeds up delivery of administrative procedures. From several services available, enterprises mostly use services to obtain information (45%) and to obtain forms (48%), while services like returning filled in forms (33%) and submitting a tender proposals (20%) are rarely used.

G-5. E-COMMERCE – PURCHASES AND SALES OVER THE INTERNET IN ENTERPRISES, 2006



Integration of business processes and communication between business subjects via the Internet allow efficient offer of goods and services and their purchase and sale on the market. Survey showed that purchases and sales via the Internet are represented on a rather low level, 20% of enterprises buys products and services via the Internet, while only 12% of enterprises offers them for sale. The share of E-commerce compared to conventional commerce is rather low, only with 19% of enterprises Internet purchases exceed 25% value of total purchases, while with 18% of enterprises Internet sales exceeds 25% of total sales. In almost 60% of enterprises, the share of E-commerce related to total commerce value is less than 10%.

G-6. DIFFICULTIES WITH RECRUITING ICT EXPERTS IN ENTERPRISES, 2006



The integration of ICT with business conduct requires employment of ICT specialists who will manage, maintain and upgrade computer and communication systems in order to improve business efficiency. In 2006 9% of enterprises offered vacancy announcements for ICT specialists, but 61% of enterprises encountered problems which prevented them to employ wanted ICT specialist. In most cases, lack of formal education was the obstacle (57%), while other problems were equally represented: in 46% of cases, there were no skilled personnel available on Labour market; in 49% of cases, lack of work experience was the problem; in 48% of cases, candidates' salary requests were unacceptable to the employer.

METHODOLOGICAL NOTES

Purpose of the statistical survey

Data shown in this publication are estimates obtained with the IKT-POD survey. This is the annual survey about the usage of information and communication technologies (ICT) and gives the information on the usage of computers, the Internet, electronic commerce and other ICTs in enterprises. The data is an important source for conducting policies in the field of information society in Croatia as well as in the European Union.

Legal framework

The IKT-POD survey was conducted, in the frame of the Eurostat guidelines, for the first time in 2007 and was carried out on the legal basis of the Law on Official Statistics (NN, No. 103/03.). It was conducted by Puls d.o.o. agency, in the name of the Central Bureau of Statistics of the Republic of Croatia. Harmonised surveys were conducted in all EU member states, and therefore, the data are internationally comparable. The international data are available on <http://epp.eurostat.ec.eu.int>, Themes Science and Technology Data. Concepts and definitions used in IKT-POD survey are in line with the EU Methodology for Statistics on the Information Society, 2007.

Observation units

The observation units are enterprises registered on the territory of the Republic of Croatia for performing the following activities by the NACE classification:

DA manufacture of food products, beverages and tobacco
DB manufacture of textiles and textile products
DC manufacture of leather and leather products
DD manufacture of wood and wood products
DE manufacture of pulp, paper and paper products, publishing and printing
DF manufacture of coke, refined petroleum products and nuclear fuel
DG manufacture of chemicals, chemical products and man-made fibres
DH manufacture of rubber and plastic products
DI manufacture of other non-metallic mineral products
DJ manufacture of basic metals and metal products
DK manufacture of machinery and equipment
DL manufacture of electrical and optical equipment
DM manufacture of transport equipment
DN manufacturing not elsewhere classified
E40,41 electricity, gas and water supply
F45 construction
G50 sale, maintenance & repair of motor vehicles, retail sale motor fuel
G51 wholesale trade & commission trade, except of motor vehicles & cycles
G52 retail trade, save motor vehicles, repair personal & household goods
H55.1 hotels
H55.2 camping sites and other provision of short-stay accommodation
H55.3 restaurants
H55.4 bars
H55.5 canteens and catering
I60 land transport, transport via pipelines
I61 water transport
I62 air transport
I63 supporting and auxiliary transport activities, travel agencies
I64 post and telecommunications
K70 real estate activities

K71 renting machinery, equipment w/o operator, personal & household goods
K72 computer and related activities
K73 research and development
K74 other business activities
O92.1 motion picture and video activities
O92.2 radio and television activities
O92.3 other entertainment activities
O92.4 news agency activities
O92.5 library, archives, museums and other cultural activities
O92.6 sporting activities
O92.7 other recreational activities
O93 other service activities

The data for the following NACE sections are collected but not presented here for unreliability reasons:

J65.12, 65.22: monetary and financial intermediation
J66.01, 66.03: insurance
J67.12, 67.13, 67.2: auxiliary activities in the financial intermediation and insurance.

The enterprises were also classified by the number of persons employed:

small (10–49 persons employed),
medium (50–249 persons employed)
large (250 or more persons employed).

Sample size

The sample size was 4,000 enterprises.

Sampling frame

The basis for the sampling frame was the Business Register of the Republic of Croatia (FINA 2007).

Method of data collection

The data were collected by mail using printed questionnaire. The enterprises also had the possibility to submit the data over the Internet via online form of questionnaire. That possibility was used by 20% of the enterprises that cooperated in the survey.

The reference period for the main variables was January 2007. For the questions concerning difficulties in recruiting personnel with ICT skills, e-Government usage, security problems, Internet sales and Internet orders the reference period was 2006.

Non-response rates

Out of whole population of enterprises (11,037) 4,000 units were taken in the sample. 1,650 enterprises took part in the survey, which means that the response rate was 41% and the eligibility rate 99.5%. 77 reports were not taken into account and for that reason the net sample used for tabulation and grossing-up consisted of 1,573 enterprises. The non-response rate was 59%.

Weighting

RIM weighting procedure (**iterative proportional fitting - IPF**) was used for grossing-up. Extrapolation weight was calculated for each participant of the survey and participants' NACE category, number of employees, amount of turnover and purchases were included in the calculation method.

The source of information on these variables was the Business Register of the Republic of Croatia (FINA 2007). The calculated weights enable the calculation of the data for the whole population of the enterprises; there were 11,037 enterprises at the beginning of 2007.

Definitions and explanations

ERP (Enterprise Resource Planning) consists of one or of a set of software applications that integrate information and processes across the several business functions of the enterprise. Typically ERP integrates planning, procurement, sales, marketing, customer relationship, finance and human resources.

The **ERP software** can be delivered as customized or package software. These latter are single-vendor, enterprise wide, software packages, but built in a modular way allowing enterprises to customize the system to their specific activity implementing only some of those modules. The ERP system typically has the following characteristics:

1. designed for client-server environment (traditional or web-based);
2. integrates the majority of business processes;
3. processes a large majority of business transactions;
4. uses the database that stores each piece of data only once;
5. allows the access to the data in real time.

CRM (Customer Relationship Management) is a management methodology which places the customer at the centre of the business activity, based in an intensive use of information technologies to collect, integrate, process and analyze information related to the customers. One can distinguish between:

1. Operational CRM – Integration of the front office business processes that are in contact with the customer.
2. Analytical CRM – Analysis, through data mining, of the information available in the enterprise on its customers. This aims to gather in depth knowledge of the customer and to answer to its needs.

e-Invoice An e-invoice is an invoice where all data is in digital format and it can be processed automatically. A distinctive feature of an e-invoice is automation. E-invoice will be transferred automatically in inter-company invoicing from the invoice issuer's or service provider's system directly into the recipient's financial or other application. The transmission protocol might be XML, EDI or other similar format.

e-signature An e-signature is some kind of electronic information attached to or associated with a contract or another message used as the legal equivalent to a written signature. Electronic signature is often used to mean either a signature imputed to a text via one or more of several electronic means, or cryptographic means to add non-repudiation or message integrity features to a document. Digital signature usually refers specifically to a cryptographic signature, either on a document, or on a lower-level data structure.

For either of them to be considered a signature they must have a legal value, otherwise they are just a piece of communication. Some web pages and software EULAs claim that various electronic actions are legally binding signatures, and so are instances of electronic signature. For example, a web page might announce that, by accessing the site at all, you have agreed to a certain set of terms and conditions. The legal status of such claims is uncertain.

An electronic signature can also be a digital signature if it uses cryptographic methods to assure both message integrity and authenticity. Because of the use of message integrity mechanisms, any changes to a digitally signed document will be readily detectable if tested for, and the attached signature cannot be taken as valid.

It is important to understand that cryptographic signatures are much more than an error checking technique akin to checksum algorithms, or even high reliability error detection and correction algorithms such as Reed-Solomon. These can offer no assurance that the text has not been tampered with, as all can be regenerated as needed by a tamperer. In addition, no message integrity protocols include error correction, for to do so would destroy the tampering detection feature.

Popular electronic signature standards include the OpenPGP standard supported by PGP and GnuPG, and some of the S/MIME standards (available in Microsoft Outlook). All current cryptographic digital signature schemes require recipient to have a way to obtain the sender's public key with assurances that the public key and sender identity belong together and message integrity measures which assure that neither the authorization nor the value of the public key can be surreptitiously changed. A digitally signed text may also be encrypted for protection during transmission, but this is not required when the digital signature has been properly carried out. Confidentiality requirements will be the guiding consideration.

SSL/TLS Secure Sockets Layer (SSL) and Transport Layer Security (TLS) are cryptographic protocols which provide secure communications on the Internet. SSL provides endpoint authentication and communications privacy over the Internet using cryptography. In typical use, only the server is authenticated (i.e. its identity is ensured) while the client remains unauthenticated; mutual authentication requires Public Key Infrastructure deployment to clients. The protocols allow client/server applications to communicate in a way designed to prevent eavesdropping, tampering, and message forgery.

Free/Open Source Open source software refers to computer software under an open source license. An open-source license is a copyright license for computer software that makes the source code available under terms that allow for modification and redistribution without having to pay the original author. Such licenses may have additional restrictions such as a requirement to preserve the name of the authors and the copyright statement within the code.

Related to the Open Source Definition is the Free Software definition by the Free Software Foundation, which attempts to capture what is required for a program license to qualify as being free-libre software. In practice, licenses that meet the open source definition almost always also meet the Free software definition. All licenses reported to meet the free software definition as of 2005 also meet the open source definition.

Digital products/services Goods/services that can be ordered and delivered directly to a computer over the Internet, e.g. music, videos, games, computer software, online newspapers, consulting services, etc.

xDSL Broadband technology designed to increase bandwidth for data transfer available over standard copper telephone wires; includes ADSL, SDSL, HDSL, RADSL, VDSL, DSL-Lite, etc. A DSL line can carry both data and voice signals and the data part of the line is continuously connected.

ISDN (Integrated Services Digital Network) is a digital network that enables transmission of voice, picture and data at the same time (128 Kb/s).

Modem Device that modulates outgoing digital signals from a computer or other digital device to analogue signals for a conventional copper telephone line and demodulates the incoming analogue signal and converts it to a digital signal for the digital device.

Wireless access The use of wireless technologies such as radio-frequency, infrared, microwave, or other types of electromagnetic or acoustic waves, for the last internal link between users devices (such as computers, printers, etc) and a LAN backbone line(s) within the enterprise's working premises. It includes mainly Wi-fi and Bluetooth technologies.

e-Commerce Transactions conducted over Internet Protocol-based networks and over other computer-mediated networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on-line or off-line. Orders received via telephone, facsimile, or manually typed e-mails are not counted as electronic commerce.

E-mail Electronic transmission of messages, including text and attachments, from one computer to another located within or outside of the organisation. This includes electronic mail by Internet or other computer networks.

Local Area Network (LAN) An internal computer network is a group of at least two computers connected together, using a telecommunication system for the purpose of communicating and sharing resources within an enterprise. It typically connects personal computers, workstations, printers, servers, and other devices. It is used usually for internal file exchange between connected users; intra business communications (internal e-mail, internal web interface, etc); shared access to devices (printers, etc) and other applications (databases) or for joint business processes. Network is usually confined to a single building or closely located group of buildings allowing users to exchange data, share a printer, master a common computer, etc.

EDI (Electronic Data Interchange) is used for the electronic interchange of data, documents and orders inside the enterprise and between the enterprises. Data interchange flows automatically between the computer systems, between partners, and uses standard and encrypted form.

Internet Relates to Internet Protocol based networks: www, Extranet over the Internet, EDI over the Internet, Internet-ready mobile phones.

Intranet An internal company communications network using Internet protocol allowing communications within an organisation.

Extranet A closed network that uses Internet protocols to securely share enterprise's information with suppliers, vendors, customers or other businesses partners. It can take the form of a secure extension of an Intranet that allows external users to access some parts of the enterprise's Intranet. It can also be a private part of the enterprise's website, where business partners can navigate after being authenticated in a login page.

Website Location on the World Wide Web identified by a Web address. Collection of Web files on a particular subject that includes a beginning file called a home page. Information is encoded with specific languages (Hypertext mark-up language (HTML), XML, Java) readable with a Web browser, like Mozilla Firefox, Opera, or Microsoft's Internet Explorer.

Publishing

The results of the survey were published as the First Release on Information Society - ICT usage and e-Commerce in enterprises. More detailed data will be published on National bureau of statistics web portal: <http://www.dzs.hr>

Totals of the data were published for the enterprises with 10 or more persons employed. The Eurostat publishes the data of the EU countries for the enterprises with 10 or more persons employed, which enables comparability of the data between Croatia and other EU countries.

Abbreviations

WWW World Wide Web