# *20. INFORMATION AND COMMUNICATION TECHNOLOGIES*

***Information and communication technologies*** *(ICT) generally refer to technologies, systems, activities and processes that participate in display, processing, storage and transmission of information and data in electronic form.*

*Information and communication technology statistics aim at describing the production (supply) of advanced information and communication technologies (ICT goods and services, ICT sector) on the one hand, and the spread, degree and forms of using these technologies and systems in individual sectors of society (enterprises, households, public administration, education and health).*

***Notes on tables***

*Table **20**-1.* ***Telecommunication and Internet infrastructure: key indicators***

***Internet subscribers*** *– the number of clients who use at least one web service irrespective of the type of connection. They are natural or legal persons connected to the World Wide Web who use Internet access services on the basis of a contract with Internet Service Providers (ISP), including, e.g., Internet cafés and public information terminals.*

***CATV*** *(Cable TV) – Internet access over cable TV networks.*

***WiFi*** *(Wireless Fidelity) – connection via wireless technologies.*

***Domain*** *– an Internet domain (or domain name) is a unique name (identifier) of a computer or computer network connected to the Internet. The domain is registered with a registration authority authorized to administer respective top level domains.*

*Internet subscribers using dial-up connection – dial-up connection is provided mostly via analogue telephone lines, but also via digital lines (ISDN) or mobile telephone network (GSM). Dial-up connection belongs to the types of narrowband access.*

*Table **20**-2.* ***IT professionals***

***IT professionals****, as defined by Eurostat and OECD and on the basis of the ISCO-88 classification (CZ-ISCO in the Czech Republic), are divided into two main groups:*

*– Computing professionals (CZ-ISCO code 213)*

*– Computer associate professionals (CZ-ISCO code 312)*

*Persons educated in computer science are persons who completed education in the field of study* ***ISCED 48 – Computing*** *(system design, computer programming, data processing, networks, operating systems).*

*The data come from the Labour Force Sample Survey of the CZSO (the table presents average annual data). More detailed data about the LFSS are available in Chapter **10.** Labour Market, part B.*

*Tables **20**-3 and **20**-4.* ***Investment in ICT equipment and software***

*Investment in ICT equipment and software in the tables refers to gross fixed capital formation (P.51), which comprises acquisitions less disposals of tangible (P.511) and intangible (P.512) fixed assets and addition to the value of non-produced non-financial assets (P.513). ICT equipment and software are classified to the following CZ-CPA divisions:*

*30 – Office machinery and computers*

*32 – Radio, television and communication equipment and apparatus*

*72 – Computer and related services*

*The data come from the annual national accounts statistics. More detailed information is available in Chapter **5.** National Accounts.*

*Table **20**-5. **External trade in ICT goods***

*According to OECD definition, ICT goods are goods specifically designed for communication or information processing, including information transmission and display in electronic form.*

*The list of ICT goods used for external trade statistics is based on the new version of the Harmonised System (HS2007), international classification of goods used for international trade, pursuant to the definition of products of information economy involving ICT products and ICT services. This new standard of the OECD (2008) is based on international product classification CPC Ver. 2. ICT goods, for purposes of external trade statistics, are divided into the following five main categories:*

*Communication equipment*

*Computers and peripheral equipment*

*Consumer electronics*

*Electronic components*

*ICT parts and components n.e.c.*

*Side category: "Computer peripheral equipment" stated in the table includes input and output units of computers (keyboards, PC mouse, scanners, memory units, video cards, sound, network and similar cards to computers, etc.) and also monitors, projectors, printers, copy machines including their combinations intended for use primarily with computers. Category: "Equipment for recording or reproducing sound and image" includes also digital cameras and video cameras, including TV cameras and consoles for video games. Category: "Other consumer electronics" includes monitors and projectors which are not primarily intended for computers, microphones, loud-speakers, amplifiers and unrecorded magnetic and optical media. Category: "Other electronic components" includes vacuum tubes and discharge tubes; diodes, transistors and similar semiconductor devices; smart cards and parts of electronic components.*

*Due to substantial changes in the HS classification, its version from 2007 compared to the previous version from 2002 contains the data on external trade in ICT goods in individual categories before 2007 which are not fully comparable and, therefore, only the data from the year 2007 are newly published in the Statistical Yearbook. These data are not comparable with data published in Statistical Yearbooks from previous years also for reasons of the new definition of ICT goods from 2008 which does not involve "other ICT goods" including medical and scientific equipment using the electronic processing for capturing, measuring, recording and control of physical phenomena and processes. Data for 2009 are preliminary.*

*Data come from data outputs of external trade statistics (External Trade Statistics Database of the CZSO). More detailed information is available in Chapter **11.** External Trade.*

*Table **20**-6. **External trade in ICT services***

*The **receipts and payments** data obtained in the framework of **external trade in ICT services** (telecommunication services and computer and related services) indicate the level of the Czech Republic's involvement in international trade in this field. They also allow the measurement of economic development, preparation and application of common trade policy, and assessment of competitiveness and liberalisation of the ICT services market. The methodology and concept of these statistics are built on respective international standards such as the UN Manual on Statistics of International Trade in Services and the IMF Balance of Payments Manual.*

*The data come from the CZSO direct survey among respondents on exports and imports of services. The individual items of ICT services are defined in compliance with individual receipt and payment items and corresponding international codes (BPM5).*

*Tables **20**-7 and **20**-8. **ICT sector and services by activity: key indicators***

*The **ICT sector** is defined as a combination of economic activities producing goods (technologies) or services specifically designed for processing, communication and distribution of information in electronic form, including information capture, storage, transmission and display (OECD 2007). The ICT sector is divided into two main categories – ICT manufacturing sector and ICT services sector.*

*The list of ICT activities used for business statistics in the CR is newly defined in the Classification of Economic Activities (CZ-NACE) pursuant to the new standard of the OECD (2007) for activities of information economy (ICT manufacture, providing ICT services and activities in creation of information and media content). The ICT sector includes business entities whose prevailing activities fall under the following CZ-NACE divisions or groups:*

***1. ICT manufacturing sector** (Table **20**-7):*

*Group 26.1 – Manufacture of electronic components and boards*

*Group 26.2 – Manufacture of computers and peripheral equipment*

*Group 26.3 – Manufacture of communication equipment*

*Manufacture of consumer electronics and media:*

*Group 26.4 – Manufacture of consumer electronics*

*Group 26.8 – Manufacture of magnetic and optical media*

***2. ICT services sector** (Table **20**-8):*

*Division 61 – Telecommunications*

*Programming and other activities in the field of IT*

*Group 58.2 – Software publishing*

*Division 62 – Computer programming, consultancy and related activities*

*Activities related to data processing*

*Group 63.1 – Data processing, hosting and related activities; web portals*

*Group 95.1 – Repair of computers and communication equipment*

*Introduction of the new Classification of Economic Activities CZ-NACE, which replaced the previously used Industrial Classification of Economic Activities* (OKEČ)*, has resulted not only in a different arrangement of individual activities inside the ICT sector, but also in specification of the range of activities defined as industry or services. According to the new standard of the OECD for activities of information economy including the ICT sector there has been a partial change in definition as well as classification of new activities in ICT services compared to the past. That is why the new data on ICT sector are not comparable with the data published in Statistical Yearbooks from previous years.*

*Indicators in these tables, except for R&D expenditure (source: R&D annual survey – VTR 5-01), were obtained from the annual structural survey of business entities from selected production sectors providing a more detailed range of final data, which are available with a greater time delay. The first reference period for data processing according to the new classification CZ-NACE was the year 2008 in case of structural (annual) statistics. Data for 2005–2007 are based on the retroactive conversion of structural data, which had not been finally completed at the closing date of the Statistical Yearbook due to time and methodological demands. Therefore, the results in these tables are published as preliminary and may be subsequently revised. More detailed information about the data from annual structural survey of business entities from selected production sectors is available in Chapter **15**. Industry.*

*Definitions of employment indicators are stated in Chapter **10.** Labour Market, methodological content of financial indicators is stated in Chapter **15.** Industry, and definitions of sales indicators are in Chapter **18.** Trade, Hotels, Restaurants and Tourism.*

*Tables **20**-9 to **20**-13.* ***ICT in the business sector***

*The data in this part of the Statistical Yearbook come from the annual survey on ICT and e-commerce usage in the Czech business sector. The survey is comparable in terms of methodology and contents with the surveys conducted in EU member states.*

*In the tables, there are shortened forms of CZ-NACE sections and divisions presented according to the Classification of Economic Activities:*

| | |
|---|---|
| *C (10–33)* | *Manufacturing* |
| *D, E (35–39)* | *Electricity, gas, steam and air conditioning supply; Water supply; sewerage, waste management and remediation activities* |
| *F (41–43)* | *Construction* |
| *45* | *Wholesale and retail trade and repair of motor vehicles and motorcycles* |
| *46* | *Wholesale trade, except of motor vehicles and motorcycles* |
| *47* | *Retail trade, except of motor vehicles and motorcycles* |
| *H (49–53)* | *Transportation and storage* |
| *55* | *Accommodation* |
| *56* | *Food and beverage service activities* |
| *58–60* | *Publishing activities; Motion picture, video and television programme production, sound recording and music publishing activities; Programming and broadcasting activities* |
| *61* | *Telecommunications* |
| *62–63* | *Computer programming, consultancy and related activities and Information service activities* |
| *K (64–66)* | *Financial and insurance activities* |
| *L (68)* | *Real estate activities* |
| *M (69–75)* | *Professional, scientific and technical activities* |
| *79* | *Travel agency, tour operator and other reservation service and related activities* |
| *77, 78, 80–82* | *Rental and leasing activities; Employment activities; Security and investigation activities; Services to buildings and landscape activities; Office administrative, office support and other business support activities.* |

*Reference period: the status data always relate to January in the observed year. In case of financial value of electronic commerce and the Internet usage in relation to public administration the data relate to the whole observed year. Data for January 2010 or for the year 2009 are preliminary.*

***Electronic commerce** (e-commerce) – purchases or sales (placing or acceptance of orders) via the Internet or other computer networks through web sites or the electronic data interchange (EDI) regardless the method of payment or realization of delivery. Purchases (sales) realized on the basis of orders prepared from the information obtained on the Internet but placed in a traditional way (by phone, fax, written order) or by electronic mail are not included.*

***Electronic sharing of information on supply chain management** – exchange of any type of information in order to secure required delivery of products or services and their distribution to end customers realized via the Internet or other computer networks used within the supply chain. Shared data used within the supply chain include the information on the status of supplies, i.e. distribution of materials, products, goods or services (output logistics), on expected demand, stocks, production planning and service provision. This information can be shared through any web interface (websites, extranet, etc.), by means of electronic data interchange (EDI) or within the integrated information system of supply chain management (SCM).*

*Tables **20**-14 and **20**-15.* ***Household consumption expenditure on ICT equipment and services and Households with fixed line and mobile phone***

*The data come from the Household Budget Survey (HBS) which provides information on household expenditure and structure of household consumption. The HBS households are currently selected by purposive quota sampling. The sampling unit and the reporting unit is a private household, i.e. a set of persons who share room(s) and basic expenditures (on food, keeping the household running, maintenance of the dwelling, etc.).*

*Tables **20**-16 to **20**-22.* ***Use of ICT by households and individuals***

*The data are based on the Sample Survey on Use of ICT by households and individuals. As from 2005, the survey is taken (on a separate questionnaire) in the framework of the Labour Force Sample Survey of the CZSO, which allows the link with socio-demographic characteristics of persons in individual households. The survey uses CAPI (Computer Assisted Personal Interviewing), and the sample comprises about 10 000 individuals aged 16+. In line with the LFSS methodology, the results were weighted to the whole population of the Czech Republic.*

*The reference period is (i) the survey period (2nd quarter of reference year since 2005) for data on households, and (ii) mostly last three months preceding the interview for data on individuals.*

*PC/Internet user refers to an individual who used PC/Internet in the last three months.*

*Tables **20**-23 and **20**-24.* ***Municipal offices with Internet connection and websites and use of IT for interaction with citizens***

*The data come from the statistical survey on ICT use in the Czech public administration sector, which is a supplement to the annual questionnaire for organisational units of the state, territorial self-governing units, partially budget-funded organisations and similar government institutions.*

***Information kiosk** – a terminal in a public place providing for continuous transmission of information to the citizen. Information kiosk gives information concerning public administration, transport, culture, news service as well as business information, business and other presentations, navigation information and the like.*

***Electronic registry** – a workplace established by the office to receive and send data messages which is connected to the public data network and makes possible to use the electronic signature.*

***WiFi** – free access to the Internet via WiFi technology in the municipality. Internet connection speed depends on the number of users connected, at least 64 kbps.*

***E-mail/SMS messages** – information service provided by municipal offices to citizens (e-mail address or telephone number of the recipient needs to be registered).*

*Table **20**-25.* ***Use of the Internet for interaction with public authorities: enterprises***

*The data come from the annual statistical survey in the ICT use by the business sector. For more information see methodological notes on tables **20**-9 to **20**-13.*

*Table **20**-26.* ***Use of the Internet for interaction with public authorities: individuals***

*The data come from the annual statistical survey in the ICT use by households and among individuals. For more information see methodological notes on tables **20**-16 to **20**-22 as well as table **20**-28.*

*Table **20**-27.* ***Personal computers in schools: by type of schools***

*Due to methodology the totals for all schools ISCED 1–5B are below the totals for individual types of schools. The underlying reason is that in many school buildings computer training is given to*

*pupils attending different types of schools and one PC is often calculated as being used so. PCs in schools total are single counted.*

*Tables **20**-29 and **20**-30.* ***Information technology and the Internet in independent surgeries of physicians: by type of use***

*The data come from the annual questionnaire on employers, registered number of employees, and contracted staff, which is prepared by the Institute of Health Information and Statistics of the CR in cooperation with the Ministry of Health of the CR and the CZSO.*

***Other information** – legislation and general information from various areas relating to work in health establishments.*

***Other administration** – tax authority, municipal office, regional office, the Czech Social Security Administration, the Czech Statistical Office, the Institute of Health Information and Statistics of the CR, medical chambers, dental chambers, pharmaceutical associations.*

***Keeping health records** on the Internet – the use of health books via the Internet (e.g., the implementation of the IZIP project – Internet-based Access to Patient Health Information).*

***Making online appointments** – making appointments through the health establishment's website, using online form – e-mail is not included.*

***Online consultation** – a possibility to ask health-related questions, which the health establishment answers by e-mail or may publish the response on its website.*

*Tables **20**-31 to **20**-33.* ***Information and communication activities: key indicators***

*Information and communication activities involve business entities whose prevailing activities fall under the section J – Information and communication according to the Classification of Economic Activities (CZ-NACE). Data in Table **20**-33 are only for business entities with prevailing activities falling under the division 61 – Telecommunications according to CZ-NACE.*

*The data on Information and telecommunication activities were obtained from regular surveys of the CZSO.*

*Definitions of employment indicators are stated in Chapter **10.** Labour Market, methodological content of financial indicators is stated in Chapter **15.** Industry, and definitions of sales indicators are in Chapter **18.** Trade, Hotels, Restaurants and Tourism.*

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*More detailed figures on information society are available in other CZSO publications published in accordance with the Catalogue of Publications 2010 in thematic group 9 – SERVICES, subgroup 97 – Information Society:*

*– 9701-10 "Use of ICT by Households and Individuals in 2010" (Czech-English) – November 2010*

*and in publications not included in the Catalogue of Publications 2010:*

*– 9706-10 "Information Society in Figures 2010" (Czech and English) – June 2010*

*– 9708-10 "Information Economy in Figures 2010" (Czech and English) – October 2010*

*Further data can be found on the website of the Czech Statistical Office at:*

– http://czso.cz/eng/redakce.nsf/i/information_society