***22 DIGITAL ECONOMY AND SOCIETY***

***Methodological notes***

*The digital economy and society statistics aim is to provide data on the production and supply of advanced information and communication technologies, including data on investments, international trade, qualified human resources in this field and, simultaneously, on the penetration, rate, and forms of these technologies and systems usage in enterprises, households, public administration, education, and health.*

*The term of* ***information and communication technologies*** *(hereinafter only referred to as ICT) includes digital technologies, such as mobile phones, computers, and the Internet and information systems, applications, processes, and services connected to them, which contribute to the display, processing, storage, and transmission of information and data in an electronic form.*

*Data in this chapter were acquired, in most cases, from* ***regular statistical surveys of the CZSO******on ICT usage*** *in enterprises (Tab.* ***22.12*** *to* ***22.17****) and in households (Tab.* ***22.18*** *to* ***22.28****). Data on* ***digital infrastructure*** *(Tab.* ***22.1*** *to* ***22.4****) are based on data of the Czech Telecommunication Office obtained within its survey among providers of services in the area of electronic communications. Data on* ***students of ICT fields of education*** *(Tab.* ***22.7****) and on* ***computers in schools*** *(Tab.* ***22.29****) were processed from data sources of the Ministry of Education, Youth, and Sports. Indicators on* ***ICT usage in the health sector*** *(Tab.* ***22.30****)* *are based on data of the Institute of Health Information and Statistics of the Czech Republic.*

*Based on international definitions, classifications, and uniform specifications for the monitored groups of employees, products, and economic activities (industries), data on* ***ICT specialists*** *(Tab.* ***22.5*** *and* ***22.6****),* ***ICT investments*** *(Tab.* ***22.8*** *and* ***22.9****),* ***international trade in ICT goods and services*** *(Tab.* ***22.10*** *and* ***22.11****), and economic indicators for the* ***ICT sector*** *(Tab.* ***22.12****) were processed from other CZSO’s data sources, such as the Labour Force Sample Survey, Structural business statistics, or the International trade in goods (change of ownership) database, which are primarily used for other statistics.*

***Notes on Tables***

***Tab. 22.1 to 22.4 Digital infrastructure***

*The data on* ***digital infrastructure*** *are based on data sources of the* ***Czech Telecommunication Office (****in Czech abbreviated as* **ČTÚ*)****, which collects data from service providers in the area of electronic communications. It mainly concerns data on the number of* ***natural persons and legal persons (subscribers)*** *with access to* ***voice and data (****communication)* ***services*** *based on a contract with providers of these services. All data in the tables only refer to services provided at the retail level to* ***end users*** *(subscribers).*

*These statistical indicators are available broken down by whether the services are* ***mobile*** *or provided at a* ***fixed*** *location and, in the case of a breakdown by* ***type of subscriber****, whether they are natural persons not in business (hereinafter only referred to as* ***households****) or natural persons in business and legal persons (hereinafter only referred to as* ***enterprises*** *or businesses).*

*In addition to the number of subscribers with access to these services, the* ČTÚ *also monitors, in the context of voice traffic, the* ***number of minutes called*** *from fixed and mobile communication networks and, in the context of data services, also the volume of* ***data transferred*** *in fixed and mobile Internet.*

*The* ***reference period*** *is related to 31 December of the reference year.*

*The number of* ***fixed telephone voice subscriptions*** *(subscriptions/subscribers of voice services in a fixed telephone network) is determined according to the number of* ***active******subscribers’ stations*** *in a traditional public switched telephone network (PSTN) and the number of* ***phone numbers*** *used for voice services by means of the Voice over Internet Protocol (VoIP) technology.*

*The number of* ***mobile telephone voice subscriptions*** *(subscriptions/subscribers of voice services in a mobile network) is determined according to the number of active* ***SIM cards in mobile phones****, which were used at least once in the recent three months for voice services. These voice services can be provided separately or together with data services.*

*The* ***SIM card*** *is a subscriber’s card serving for the identification of the subscriber in the public mobile telephone network.**Within mobile voice and data communication services, these cards used in phones are further split into:*

*–****post-paid SIM cards*** *(with a tariff/subscription) that a subscriber obtains based on a contract with a mobile operator and that are connected with a regular payment for provided services, usually based on a monthly invoice, and*

*–****pre-paid SIM cards*** *where subscribers (in advance) add credit to their phone from which the provider gradually deducts payments for provided services.*

*The number of* ***fixed broadband subscriptions*** *(subscribers with a fixed broadband internet access) is determined based on the number of so-called* ***active******access points*** *(active connections), at which the service is provided in a fixed point via two types of access (technologies):*

*–****fixed wired access*** *or via*

*–****fixed******wireless access*** *(to the Internet).*

***Fixed wired broadband*** *(access to the Internet) is further broken down by technology used as follows:*

*– access via technologies labelled as* ***DSL*** *(digital subscriber line), which include usage of a modem and access via metal lines of fixed telephone network of ADSL (asymmetric digital subscriber line) or VDSL (very high bit rate digital subscriber line) type. Since 2013, it also includes access in combination with optic fibre line of the FTTCab (fiber to the cabinet) type;*

*– access using* ***cable television networks and cable modem*** *(CATV);*

*– access via* ***optical fibre networks*** *(infrastructure)**including connection of the fibre to the home (FTTH) type, when the optical fibre is routed to the subscriber to the end point of the network, usually to a dwelling (flat), and the optical connection of the fibre to the building (FTTB) type, when the optical fibre only delivers optical connectivity to the building and the indoor distribution to the subscriber’s dwelling (flat) is ensured in a different way (e.g. by a radio network or a fixed local network).*

***Fixed wireless access*** *(FWA) includes internet connection via a radio network, where the receiving (end-point) device is located at a fixed place (usually in a building or a dwelling). These services do not allow internet access while on the move, or rather, their functioning is not guaranteed while on the move and is only limited to a specific location agreed in a contract in advance. Fixed wireless access to the Internet is further broken down as follows:*

*– access in licenced (****fixed LTE/5G****) and*

*– access in non-licensed (****fixed Wi-Fi****) frequency bands.*

*As for fixed broadband subscriptions (fixed access to the Internet), data are also available regarding advertised (data) download* ***speed*** *within individual technologies.*

*The type of technology used for fixed access to the Internet (fixed broadband subscriptions) is also available in the breakdown by* ***type of subscriber****:*

***Household subscriptions*** *(households with fixed broadband subscriptions, fixed access to the Internet) refer to natural persons not in business with concluded contract for access to the Internet at a fixed location via a given technology.* ***Business subscriptions*** *(businesses/enterprises with fixed broadband subscriptions, fixed access to the Internet) are calculated according to the number of active subscriptions of legal persons and natural persons in business* *with concluded contract for access to the Internet at a fixed location via a given technology.*

***Mobile broadband subscriptions*** *(the number of subscribers with a mobile access to the Internet) is measured based on the number of active* ***SIM cards*** *(including virtual ones) in a mobile data network. It does not include SIM cards used for M2M (machine-to-machine) services determined for communication between devices without human interaction, for example, in safety, measurement, or other smart devices.*

*Subscribers using* ***mobile data services*** *are further broken down to:*

*–* *subscribers using* ***internet in a mobile phone together with voice services*** *– the number of data* ***SIM cards in mobile phones*** *of natural and legal persons with a contract for data and voice services and*

*–* *subscribers using* ***mobile internet*** *(access)* ***in portable devices without voice services*** *– the number of data* ***SIM cards or USB modems*** *used in a laptop or a tablet of natural and legal persons with a contract for using the Internet on the move independent from voice services. It does not include the above-mentioned services provided via LTE/5G network at a fixed location (so-called fixed LTE/5G), which do not allow using the Internet on the move.*

*Subscribers using* ***internet in a mobile phone*** *are further broken down by* ***type of access*** *to:*

*–* *subscribers with (a temporary)* ***“ad hoc” access*** *to the Internet within a voice service without a monthly data subscription/fee (plan) using pre-paid data SIM cards and*

*–* *subscribers with (a permanent)* ***“dedicated” access*** *provided**with voice services and a monthly data subscription/fee (plan) using post-paid data SIM cards.*

*More detailed information on this statistics can be obtained at:* [*Digital infrastructure | Statistics*](https://csu.gov.cz/digital-infrastructure?pocet=10&start=0&podskupiny=401&razeni=-datumVydani)

***Tab. 22.5 and 22.6 ICT specialists***

*According to the* ***International Standard Classification of Occupations (ISCO-08)****, information and communication technology specialists (hereinafter only referred to as* ***ICT specialists****) primarily include analysts, developers, programmers, database and network professionals who conduct research, plan, design, write/develop, test, or provide advice in the area of hardware, software, communication systems, databases, and related applications for computers, mobile phones, the Internet, and other digital devices and technologies. ICT specialists also include information and communications technicians who monitor and ensure the normal operation and maintenance of information and communication systems and networks or provide technical support to ICT users. ICT specialists also include ICT managers, information and communications technology sales professionals, ICT engineers, and information and communications technology installers and servicers.*

*Based on recommendations of Eurostat and of the International Labour Organization, ICT specialists comprise the below-mentioned occupations defined based on the national version of the Classification of Occupations (*CZ-ISCO*):*

*133* *Information and communications technology services managers (hereinafter only referred to as ICT managers);*

*2152* *Electronics engineers and 2153 Telecommunications engineers (hereinafter only referred to as ICT engineers);*

*2434* *Information and communications technology sales professionals (hereinafter only referred to as ICT sales professionals);*

*251* *Software and applications developers and analysts;*

*252* *Database and network professionals.*

*3114* *Electronics engineering technicians;*

*351* *Information and communications technology operations and user support technicians;*

*352* *Telecommunications and broadcasting technicians;*

*742* *Electronics and telecommunications installers and repairers (hereinafter only referred to as ICT installers and repairers).*

*More detailed information on the Classification of Occupations (*CZ-ISCO*) is given on the CZSO’s website at:* [*www.csu.gov.cz/klasifikace\_zamestnani\_-cz\_isco-*](http://www.csu.gov.cz/klasifikace_zamestnani_-cz_isco-) *(Czech only.*

*A narrow group of specialists called information and communications technology professionals (hereinafter only referred to as A narrow group of specialists called information and communications technology professionals (hereinafter only referred to as* ***ICT professionals****) plays a key role among ICT specialists. According to the CZ-ISCO classification, these ICT professionals consist of employees of sub-major group 25, which comprises two above-mentioned minor groups of employees (CZ-ISCO 251 and 252). Data on these ICT professionals are available, for example, by sex, sphere, or industry they are active in. According to the CZ-ISCO classification, sub-major group 25 and its two minor groups include the following occupations:*

*2511 Systems analysts;*

*2512 Software developers;*

*2513 Web and multimedia developers;*

*2514 Applications programmers;*

*2519 Software and applications developers and analysts not elsewhere classified;*

*2521 Database designers and administrators;*

*2522 Systems administrators, network administrators;*

*2523 Computer network professionals (excluding network administrators) and*

*2529 Database and network professionals not elsewhere classified*

*The data on the* ***numbers*** *of ICT specialists (Tab.* ***22.5****) are obtained from the* ***Labour Force Sample Survey (LFSS)****. In order to ensure higher reliability and to eliminate considerable year-on-year fluctuations of values for this group of employees, data in the table are provided as* ***three-year moving averages*** *(i.e., for example, the value for 2023 is calculated as an average from the values for 2022, 2023, and 2024). In 2023, a new weighting methodology was introduced in the LFSS. More detailed data on the Labour Force Sample Survey are available in the Chapter****10*** *Labour market, Part B.*

*Data on* ***wages*** *of ICT specialists**(Tab.* ***22.6****) come from a special processing of data from the****Structural wage statistics****. The Structural wage statistics is based on data of the* ***Information and statistics on average earnings (ISAE;* ISPV** *in Czech****)****, which merges data obtained from the Salary Information System (Salary and Service Income Information System (*ISPSP *in Czech), i.e. an administrative data source of the Ministry of Finance, which exhaustively covers the* ***salary sphere*** *and from a Quarterly sample survey on average earnings of the Ministry of Labour and Social Affairs, which covers the* ***wage sphere****. More detailed information on the structural employee wage statistics can be found in the Chapter* ***10*** *Labour market, Part A, namely in notes on Tab.* ***10.4*** *and****10.5****.*

*More detailed information on this statistics can be obtained at:* [*ICT specialists and their wages | Statistics*](https://csu.gov.cz/ict-specialists-and-their-wages?pocet=10&start=0&podskupiny=413&razeni=-datumVydani)*.*

***Tab. 22.7 Students of and graduates from ICT fields of education at universities***

*The study of information and communication technologies is defined according to the* ***Classification of Fields of Education (CZ-ISCED-F 2013)****, namely through the broad field 06 - Information and communication technologies (hereinafter only referred to as* ***ICT fields****). This broad field includes the following detailed fields of education: Computer use (0611); Database and network design and administration (0612); Software and applications development and analysis (0613); Inter-disciplinary programmes and qualifications involving information and communication technologies + Information and communication technologies not elsewhere classified (0688 + 0619). More detailed breakdown of these fields of education is given on the CZSO’s website at:* [*www.csu.gov.cz/klasifikace-oboru-vzdelani-cz-isced-f-2013*](http://www.csu.gov.cz/klasifikace-oboru-vzdelani-cz-isced-f-2013) *(Czech only)*

*Education at universities presented in the table belongs to the tertiary level of education and includes a bachelor, a follow-up master, a master, and a doctoral study programme. The follow-up master and the master study programmes are given in tables together as master study programmes.*

*Numbers of students and graduates are given as* ***headcount****. Students who study in more study programmes or more fields of education at the same time* *are stated (included) in each study programme or field that they are studying. The total numbers of students and graduates thus do not have to be equal to the sums of students and graduates of respective types of study programmes.*

*The data were obtained from data sources of the Ministry of Education, Youth, and Sports, namely from the* ***Union Information from Students’ Registers*** *(in Czech abbreviated as the*“**SIMS**” *database). The source database of* SIMS *is continually completed and updated, including retrospective corrections. Data published in this Yearbook correspond to the state of processing as at 30 July 2025. Data on students of universities are always related to 31 December of the relevant year; data on graduates are related to the entire school year.*

*More detailed information on this statistics can be obtained at:* [*Students of ICT fields | Statistics*](https://csu.gov.cz/students-of-ict-fields?pocet=10&start=0&podskupiny=412&razeni=-datumVydani)*.*

***Tab. 22.8 and 22.9 Household investment in and expenditure on ICT equipment and software***

*Investment in ICT equipment and software in the Tab.* ***22.8*** *means the****gross fixed capital formation****. According to the* ***European system of national and regional accounts (ESA 2010)****,**investment in ICT includes the following two items of non-financial assets:*

– ***ICT equipment*** *(AN.1132)*

*–****Computer hardware*** *(AN.11321)*

*–****Telecommunications equipment*** *(AN.11322)*

– ***Software*** *(Computer software and databases**= AN.1173)*

– ***Computer software*** *(AN.11731) includes computer programmes, programme descriptions, and supporting materials for both systems and application software, including original development of software and its subsequent version as well as making copies.*

– ***Databases*** *(AN.11732) include(s) data files organised for cost-effective data access and use.*

*Data on investment in ICT are available in the breakdown by* ***institutional sector*** *based on the ESA 2010 standard.*

*Data in the table come from the* ***annual national accounts*** *statistics. More detailed information is available in the Chapter****5*** *National accounts or on the CZSO’s website at:* [*National Accounts*](https://apl.czso.cz/pll/rocenka/rocenka.indexnu?mylang=EN)*.*

*Data from the* ***household budget statistics****, namely in the so-called* ***national concept****, are the basic data source for estimation of final consumption expenditure of households on ICT equipment and services (Tab.* ***22.9****). They comprise expenditure of residents in Czechia and abroad spent on ICT products and services.*

*To* ***define******ICT equipment and services*** *within the statistics of household expenditure, the Czech version (CZ-COICOP 2018) corresponding to the international standard of the* ***Classification of Individual Consumption According to Purpose (COICOP 2018)*** *was applied. The area of ICT includes the following items (groups and classes) from the division 08 Information and communication of that classification:*

***–*** ***ICT equipment*** *(Information and communication equipment =**08.1)*

*–* *Telephones* (*Fixed telephone equipment + Mobile telephone equipment = 08.1.1 + 08.1.2);*

*– Computers and their equipment (Information processing equipment = 08.1.3); and*

*– Other information and communication equipment and accessories (08.1.4 to 08.1.9) – it includes, for example, audio-visual consumer electronics, wearable electronics, and related equipment.*

***–*** ***Software, excluding games*** *(08.2) – it only includes separately purchased operating systems, office or security software, i.e. excluding game software and software or applications that were already included in the price of purchased telephones, computers, and other ICT equipment.*

*– Information and communication services – hereinafter only referred to as* ***ICT services***

*–* *Fixed voice and data communication services (calls and internet access), invoiced separately (Fixed communication services and Internet access provision services and online storage services = 08.3.1 + 08.3.3)*

*–* *Mobile voice and data communication services (calls and internet access), invoiced separately (Mobile communication services = 08.3.2);*

*– Bundled telecommunication services (08.3.4) - include payments for multiple (packages) telecommunications services (besides calls and internet access, also, for example, fees for access to cable or IP television).*

*Household expenditure* ***on ICT equipment*** *also* ***includes*** *software and applications included in the price of purchased telephones and computers.*

***ICT services*** *expenditure* ***does not include*** *payments for audiovisual content, i.e. licence fees for public television and radio, as well as payments for watching videos (films, series, documentaries, and other programmes) or listening to music via commercial streaming services, paid websites, or applications.*

*A detailed specification of the aforementioned codes of the CZ-COICOP is given on the CZSO’s website at:* [*www.csu.gov.cz/klasifikace\_individualni\_spotreby\_-cz\_coicop-*](http://www.csu.gov.cz/klasifikace_individualni_spotreby_-cz_coicop-) *(Czech only).*

*Data in both tables come from the* ***annual national accounts*** *statistics. More detailed information is available in the Chapter****5*** *National accounts or on the CZSO’s website at*: [*National Accounts*](https://apl.czso.cz/pll/rocenka/rocenka.indexnu?mylang=EN)*.*

***Data for the year 2024 are preliminary****.*

*More detailed information on this statistics can be obtained at:* [*Investment in ICT | Statistics*](https://csu.gov.cz/investment-in-ict?pocet=10&start=0&podskupiny=411&razeni=-datumVydani)*.*

***Tab. 22.10 International trade in ICT goods (change of ownership)***

*Goods in the area of information and communication technologies (hereinafter only referred to as* ***“ICT goods”****) are defined as goods the* ***main function*** *of which is to realise or to enable communication or processing of information including its transmission and display* ***in an electronic way****.*

*A**list of ICT goods was specified by the OECD based on the nomenclature of the Harmonized commodity description and coding system (hereinafter only referred to as the* ***Harmonized System****). It is a classification of goods used in international trade that is administered by the World Customs Organization.**Based on this classification, for the purposes of international trade statistics, ICT goods were split into five main categories as follows:*

*–* *Computers and peripheral equipment;*

*–* *Communication equipment;*

*–* *Consumer electronic equipment;*

*–* *Electronic components;*

*–* *ICT parts and components n.e.s.*

*Data on exports and imports of ICT**goods**come from data outputs of the* ***international trade statistics****, which tracks actual trade in goods realised between Czech and foreign entities, i.e. the trade, in which* ***ownership******changes*** *between residents and non-residents. These data differ from international data published by Eurostat, which publishes within international trade statistics data on physical movement of goods across borders. More detailed information can be obtained in methodological notes provided in the Chapter* ***11*** *International trade in goods (change of ownership) or on the CZSO website at:* [*www.csu.gov.cz/international-trade-in-goods-change-of-ownership*](http://www.csu.gov.cz/international-trade-in-goods-change-of-ownership)*.*

*More detailed information on this statistics can be obtained at:* [*International trade in ICT goods | Statistics*](https://csu.gov.cz/international-trade-in-ict-goods?pocet=10&start=0&podskupiny=415&razeni=-datumVydani)*.*

***Tab. 22.11 International trade in ICT services***

*Services in the field of information and communication technologies (hereinafter only referred to as****ICT services****) are defined as services, the core function of which is to implement or to enable communication or information processing by electronic means, including their record, transmission, and display. In international trade statistics, these services are defined based on the international* ***Extended Balance of Payments Services Classification******(EBOPS 2010)****. The area of ICT services includes the following items of* ***Telecommunications, computer, and information services (SI)*** *of this classification:*

***–*** ***Telecommunications services*** *(code SI1) include, first of all, transactions of Czech and foreign telecommunication operators for implemented international calls by means of fixed or mobile telephone networks. A payment the Czech operator receives from the foreign operator for the arrangement of the international call from abroad to the Czech Republic is considered exports. A payment from the Czech operator to the foreign operator for the arrangement of the international call is considered imports. Other telecommunications services involve payments for the access to the Internet, cable television, and to other computer networks, including providing of services as electronic mail, video conferences, or transmitting of audio-visual signal over the Internet, cable networks, or by means of satellites.*

***–*** ***Computer services*** *(code SI2), that are split into:*

*–* ***Computer software*** *(code SI21) – purchase and sale of tailor-made software and its applications (****software originals****, code SI21z), furthermore, it also includes purchase and sale of standard software and**applications supplied over the Internet (****other computer services****, code SI22).*

*Note: Standard software, which is not tailor-made for a concrete customer – e.g. operating systems, office software packages, or antivirus software – supplied on* ***physical media carriers*** *(CD-ROMs, flash disks, etc.) or* ***as a part of hardware*** *is considered to be goods and is reported within the statistics on international trade in goods (change of ownership).* ***Licences to reproduce and/or distribute computer software*** *(code SH3)* ***are not*** *part of this item, either.*

*–****Other computer services*** *(code SI22) – hardware and software consultancy and implementation services and also maintenance and repairs of computers and peripheral equipment.*

*–****Information services*** *(code SI3), that are further split into:*

*–****News agency services*** *(code SI31) and*

*–****Other information services*** *(code SI32) that mainly include data processing and hosting services, web search portals and related services.*

*Data on exports and imports of ICT services come from the* ***survey on exports and imports of services******(*ZO 1-04*)*** *carried out by the CZSO.*

*More detailed information on this statistics can be obtained at:* [*International trade in ICT services | Statistics*](https://csu.gov.cz/international-trade-in-ict-services?pocet=10&start=0&podskupiny=416&razeni=-datumVydani)*.*

***Tab. 22.12 Basic indicators on enterprises in the ICT sector***

*The information and communication technologies sector (hereinafter only referred to as the****ICT sector****) is defined as a combination of economic activities producing goods and providing services, which are primarily intended for processing, communication, and distribution of information by electronic means, including the capture, storage, transmission, and display.*

*The ICT sector involves businesses of the business enterprise sector, principal (prevailing) economic activities of which belong to the following economic activities – divisions and groups determined according to the****Classification of Economic Activities (*CZ-NACE*)*** *classification:*

***ICT manufacturing***

*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;*

*Group 26.4 Manufacture of consumer electronics;*

*Group 26.8 Manufacture of magnetic and optical media.*

***ICT trade*** *(Group 46.5 – Wholesale of information and communication equipment).*

***Telecommunications*** *(division 61)*

***IT services***

*Group 58.2* *Software publishing;*

*division 62* *Computer programming, consultancy and related activities, which mainly include computer programming activities (writing, modifying, testing of software and applications), computer consultancy activities, and management of computer systems;*

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

*Group 95.1* *Repair of computers and communication equipment.*

*Besides data on research and development, all monitored indicators come from the****annual structural survey of business entities from selected production industries****. This survey provides a more detailed range of final data that are, however, available with a longer time delay. More detailed information on data from the annual structural survey of business entities from selected production industries, including a definition of respective indicators, can be obtained in the Chapter* ***15*** *Industry or on the CZSO’s website at:* [*Annual (structural) statistics on industry | Statistics*](https://csu.gov.cz/annual-structural-statistics-on-industry?pocet=10&start=0&podskupiny=152&razeni=-datumVydani)*.*

*More detailed information on this statistics can be obtained at:* [*ICT sector | Statistics*](https://csu.gov.cz/ict-sector?pocet=10&start=0&podskupiny=414&razeni=-datumVydani)*.*

***Tab. 22.13 to 22.17 ICT and their usage in enterprises***

*The data are based on* *an****annual survey*** *called* ***“ICT usage and e-commerce in enterprises”****. The survey is carried out on a sample of about 8 thousand enterprises with 10+ employees in selected economic activities. Results are then grossed up to the whole population of the enterprises monitored.*

*The* ***reference period*** *for data shown in the Tab.* ***22.13*** *to****22.17*** *is a month, in which the enterprise filled in the questionnaire (usually it is February to April of the relevant year).*

*A* ***fixed internet connection*** *is supplied by a provider in the so-called fixed location including wireless. It mainly includes xDSL technologies, optical fibres, a connection by means of a cable television network (CATV) (a cable modem), fixed wireless connection (Wi-Fi or fixed LTE/5G).*

*Surveyed* ***internet connection speed*** *(Mbit/s)**only applies to fixed internet connection and it is the maximum download speed stipulated in a contract with the internet connection provider.*

*A* ***mobile internet connection*** *uses connection by means of a data tariff/subscription from mobile operators. If an enterprise provides its employees with a mobile internet connection, fees for this connection should be a cost of the enterprise, not the employees (at least up to a pre-agreed limit).*

*By* ***websites*** *are understood those websites the content of which can be influenced by enterprises themselves. A joint website with another legal entity (e.g. a parent company), not only a mention of an enterprise in internet databases of enterprises, is also included.*

***Sales via e-commerce marketplace*** *is selling through an intermediary website. An online marketplace is a place where various sellers offer their products and is used, for example, when booking accommodation (e.g., Booking.com) or delivering orders (e.g., Foodora). It also includes online affiliate sales, where the seller offers their goods or services through a partner, most often a large established e-shop. In Czechia, it is, for example, AlzaTrade, Mall Partner, and Heureka!shops.*

*Having a* ***user account (profile) on social media*** *means that an enterprise has a user account (profile) on at least one type of social media. The most popular social media applications used by enterprises in Czechia are Facebook, LinkedIn, Instagram, X, Threads, YouTube, and TikTok. By having an account on one of these social media platforms, an enterprise can share information and multimedia content with other users, obtain their opinions, or, for example, reviews of its products.*

***Paid cloud computing services*** *are such types of pre-paid services which enterprises access via the Internet from any device and any place. Cloud services are typically provided via the providers’ servers, are subject to a fee, can be easily modified (e.g., the number of users, storage space), and the service providers ensure that the software is up to date and that the computing resources are secure and functional. Typical paid cloud services are, for example, office software, data storage, finance or accounting software, security software (e.g. antivirus programme), database systems, or computing power (e.g. operating system, processor performance.*

***Artificial intelligence (AI), total*** *refers to technologies that enable machines to perform tasks that previously required human intelligence. AI learns, or trains, on huge amounts of various data. Most often, these data are texts from the Internet, books, articles, images, sounds, videos, or data from various sensors. AI technologies exist either in purely software form, for example, language models that understand human speech and create texts or other content, answer questions, or models that enable learning from data and making predictions or decisions, or they are systems integrated into machines or devices that enable them to move and make decisions independently.* ***Advanced text analysis*** *is an AI technology that works with large amounts of existing text data (for example, e-mails, invoices, contracts, technical documents, social media posts, newspaper articles) to discover new information and connections within them. It is used, for example, in media and social media monitoring, in customer service as a source of information for chatbots, or to analyse customer references, or as a means of detecting plagiarism.* ***Machine learning*** *significantly expands the possibilities of data analysis, as it allows models to learn from data, reveal connections in data, and predict future developments based on historical data. It works with huge amounts of data, which it analyses, arranges into contexts, and then evaluates. It stores the resulting algorithms in models, which it then draws on to solve a similar problem. Gradually, machine learning is able to recognise individual objects, assign properties to them, and link them together with context.* ***Deep learning*** *is a type of machine learning that allows computers to "learn" from experience, i.e., for example, to “understand” the meaning of a document under study.*

***ERP (Enterprise Resource Planning)*** *is a software used for the management and planning of enterprise resources. It includes systems that manage, for example, accounting, finance, production, inventory management, logistics, asset management, and human resource management systems. ERP integrates these systems into a single central system.*

***CRM (Customer Relationship Management)*** *is a software used to manage customer relationship. It collects data about customers, such as contact information, purchasing preferences, or history or orders. Besides that, CRM monitors deadlines for contacting customers, when they reach a bonus level for a discount, and the like. CRM is often part of or an extension of an ERP system.*

***Business intelligence (BI)*** *is a tool that analyses and visualises data, provides strategic information, and serves to decision-making. BI tools collect data from various sources (for example, from accounting, logistic systems, ERP, CRM) and are used, for example, to manage enterprises performance. It shows, for example, how much the enterprise earns, what type of product sells best, and how individual branches or employees are performing.*

***Data analysis*** *is a systematic process of collecting, analysing, and interpreting data using software tools for both basic tasks (e.g., tables, averages, simple charts in MS Excel) and more advanced tasks (e.g., business intelligence tools), database technologies, programming languages (e.g., Python, R, SQL), or artificial intelligence tools (e.g., machine learning). It is performed with the aim to obtain information, identify connections, improve decision-making, increase efficiency, better understand customers, or increase profitability.*

***Advanced data analytics*** *encompasses methods and techniques that go beyond basic data analysis and enable us to understand historical data, predict future developments, and make informed decisions based on data. Advanced data analytics also involves processing of Big Data. Special software is used for this purpose, such as artificial intelligence tools (e.g., machine learning, text mining), statistical modelling (e.g., SAS, SPSS, R), business intelligence tools (MS Power BI, Tableau), Big Data processing tools (Apache Spark, Hadoop), and programming languages (e.g., Python, R, SQL).*

***Employees with internet access at work from an enterprise’s device*** *can use a desktop or a portable computer, a tablet or a mobile phone with internet access for business purposes. It includes any type of internet connection including mobile internet connection via a data tariff/subscription from mobile operators.*

***Tab. 22.18 to 22.28 ICT in households and their usage by individuals***

*The data are based on the****Sample Survey on ICT Usage in Households and by Individuals****, which had been carried out within the LFSS since 2005 and since 2012 it has been performed within the Integrated Household Surveys (IHS). The survey is carried out using a personal interview method (while using a tablet) on the sample of about 10 000 individuals (persons) aged 16+ years. The results were grossed up to the whole population of the Czechia (persons 16+ years).*

*Concerning data on* ***households****, the current status in the reference period (the 2nd quarter of the reference year) is surveyed; data for* ***individuals*** *(persons) are for the last three months before the survey is carried out, except for data on the Internet use for interaction with public authorities (Table* ***22.26****), in which data are for the reference period of 12 months before the survey takes place.*

***Households of persons aged 65+ years without children*** *refer to households, in which only persons aged 65+ years live.*

***Households of persons aged up to 40 years without children*** *refer to households, in which only persons aged up to 40 years who do not have children live.*

***Households with children*** *refer to households with children up to 15 years of age (the age of 15 is included).*

***Income quintiles*** *subdivide households into five categories by their net income per household member. The first quintile (the bottom one) represents 20% of the poorest households. The fifth quintile (the top one) represents 20% of the wealthiest households.*

*A****student*** *shall mean an individual who stated that studies is his or her prevailing activity. He or she may carry out some gainful activity as a minor activity.*

*A****pensioner*** *shall mean an individual who stated that he or she receives an old-age pension (a regular or a premature one). He or she may carry out some gainful activity as a minor activity.*

***Educational attainment*** *is published for the age group 25–64 years. Setting of some age groups aside shows the influence of education on information technologies usage better. For example, there is a big share of persons in the age group   
16–24 years whose educational paths were not finished when the survey was carried out. Their educational attainment is thus conditioned rather by their age than their educational aspirations. Similarly, the educational attainment of persons aged 65+ years is influenced primarily by the time, in which these persons received the education. Among persons aged 65+ years, there is much higher share of persons with primary education than among younger ones.*

***Households with a computer*** *involve households, which at the time of the survey stated that at least one of the household members used a personal computer at home. Ownership of the personal computer is irrelevant. What is relevant is the usage of the computer. In the case of a portable computer it may be even a work computer, which was, at least sometimes, used at home.*

*A* ***portable computer*** *shall mean a****notebook*** *(a* ***laptop****) and a* ***tablet****, i.e. a keyboard free computer equipped with a touchscreen.*

***Households with internet access*** *are households, which at the time of the survey stated that at least one of the household members uses the Internet at home. The way of connection to the Internet is irrelevant as well as the type of the device, on which the Internet was used.*

***Individuals*** *(persons)* ***using information and communication technologies*** *are such individuals (persons) who have used a computer or the Internet at least once in the last three months anywhere (e.g. at home, at work, at school, etc.) and for whatever purpose (private or work).*

***Individuals*** *(persons)* ***using a mobile phone to access the Internet*** *are individuals (persons) who stated that they had used a mobile phone to access the Internet at least once during the last three months. It does not matter whether the phone was a private one or an employer’s one as well as it does not matter what type of connection was used to access the Internet (mobile networks, Wi-Fi).*

***Individuals*** *(persons)* ***using social networks on the Internet*** *are those who in the last three months at least once logged into their user profile on such networks and used available services, such as browsing through posts of other users, communication with other users, and/or sharing of their own posts.*

***Individuals*** *(persons)* ***purchasing on the Internet*** *shall mean individuals (persons) who in the last three months purchased or ordered any goods or services on a website. A purchase shall mean a purchase for private purposes. This does not include a purchase for the employer, a school, or other organisations. Goods or services ordered were to be paid not only over the Internet, they could also be paid in cash on delivery or at personal pickup. In Statistical Yearbooks issued in 2019 and before, data on individuals (persons) purchasing on a website in the last 12 months are provided.*

***Reading paid articles*** *includes reading electronic subscriptions of newspapers or journals/magazines and also reading paid articles purchased separately.*

***Listening to music*** *includes playing of any music on the Internet, for example, on websites of internet radios, Spotify, or YouTube.*

***Listening to paid music*** *(listening to music via commercial streaming services) includes playing of music on paid platforms, such as Spotify Premium, YouTube Premium, or Apple Music.*

***Watching videos*** *(watching video content) includes watching programmes and videos on any websites, primarily on YouTube, social networks (media), through streaming services, digital televisions, and on websites of ordinary television (TV) stations.*

***Watching commercial streaming services*** *includes watching paid channels, such as Netflix or MAX (previously also Voyo). It does not include watching programmes and videos on websites of digital TV stations.*

***Tab. 22.29 Information technologies in basic schools***

*Data on ICT hardware and software in schools in the Czech Republic come from data sources of the Ministry of Education, Youth, and Sports, which collects data on available IT infrastructure in basic, secondary, and higher professional schools.*

*The reference period of data in the table is September of the given year.*

*A* ***wireless network*** *– a wireless (Wi-Fi) network in the premises of a school, which students and staff may connect to for free with their notebooks, tablets, and other mobile devices. For example, an international network called Eduroam.*

*An* ***intranet*** *– a part of a computer network that uses the same technologies as the Internet. Unlike the Internet, however, an intranet is private, i.e. it is only available to a defined range of users, usually to pupils and staff of schools.*

***Tab. 22.30 Independent surgeries of physicians having selected information technologies***

*Data on equipment penetration and usage of information technologies in healthcare in the Czech Republic come from a survey of the Institute of Health Information and Statistics of the CR.*

*An* ***online appointment scheduling system*** *– patients can make an appointment for a medical examination/intervention by an online form, which is sent directly from a website of a particular surgery or via a system of electronic appointment scheduling; it does not include making appointments by e-mail.*

*\* \* \**

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

– [www.csu.gov.cz/digital-economy](http://www.csu.gov.cz/digital-economy)

– [www.csu.gov.cz/digital-society-ict-usage](http://www.csu.gov.cz/digital-society-ict-usage)