



METHODOLOGICAL EXPLANATION

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USAGE OF INFORMATION- COMMUNICATION TECHNOLOGIES IN HOUSEHOLDS AND BY INDIVIDUALS

This methodological explanation relates to the data releases:

- Usage of internet in households and by individuals, Slovenia, annually (First Release)
- Online purchases, Slovenia, annually (Electronic Release)
- Usage of internet in households and by individuals, detailed data, Slovenia, annually (Electronic Release)



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1 PURPOSE

The purpose of publishing the data is to present how developed the digital society in Slovenia is: how many individuals aged 16–74 years use the Internet and for which purposes, how many of them have digital skills, and how many of their households have access to the Internet from home.

2 LEGAL FRAMEWORK

- [Annual Programme of Statistical Surveys \(LPSR\)](#) (only in Slovene)
- [National Statistics Act](#) (OJ RS, No. 45/95 and 9/01)
- [REGULATION \(EU\) 2019/1700 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 October 2019 establishing a common framework for European statistics relating to persons and households, based on data at individual level collected from samples, amending Regulations \(EC\) No 808/2004, \(EC\) No 452/2008 and \(EC\) No 1338/2008 of the European Parliament and of the Council, and repealing Regulation \(EC\) No 1177/2003 of the European Parliament and of the Council and Council Regulation \(EC\) No 577/98 \(CELEX: 32019R1700\)](#)
- [Implementing regulations \(EU\) for individual years](#)

3 UNIT DESCRIBED BY THE PUBLISHED DATA

The units described by the published data are individuals living in Slovenia aged 16–74 years and their households.

4 SELECTION OF OBSERVATION UNIT

Observation units are individuals aged 16–74 years and their households. Individuals are observed by age groups and sex, by education and sex, by status of activity and by degree of urbanisation, by cohesion and statistical region and their households by type of the household, by degree of urbanisation and by cohesion and statistical region.

The survey is based on a sample, which includes only a part of the target population, on the basis of which we conclude about the characteristics of the entire population.

The basis for the sampling frame is the Central Population Register. The sample is stratified two-stage. Strata are defined by statistical region (12 regions) and type of settlement within the statistical region (5 types). The sample size is 4,504 persons. The number of persons in an individual stratum is proportional to the share of persons aged 16–74 years living in an individual statistical region and in an individual type of settlement.

5 SOURCES AND METHODS OF DATA COLLECTION

Data are collected annually.

Data are collected with the annual survey "Usage of information-communication technologies (ICT) in households and by individuals" (IKT-GOSP). The reference periods are the last three months and the last 12 months before the interviewing.

Data are collected with the questionnaire "Usage of information-communication technologies (ICT) in households and by individuals" (IKT-GOSP).

Every year the content of the survey and the questionnaire has an emphasis on a specific topic from the field of digital society.

Year	Content of specific module
2007	E-Skills
2008	Use of Advanced Services
2009	E-Commerce and trust
2010	Internet security
2011	E-Skills
2012	Mobile use of the Internet
2013	Usage of the websites of public authorities
2014	Usage of cloud computing services
2015	E-Commerce
2016	Provision and protection of data on the Internet
2017	E-Commerce

2018	ICT usage at work and digital skills
2019	E-skills and Internet security
2020	Usage of smart devices or systems
2021	E-skills and e-commerce
2022	Usage of smart devices or systems
2023	E-skills and e-commerce
2024	Usage of smart devices or systems

Since 2018, data have been collected with a combination of online questionnaire (WEB) and with face to face interviews (CAPI). In 2020 and in 2021, we collected the data due to declaration of epidemic of COVID-19 and social distancing with a combination of online questionnaire (WEB) and telephone interviews (CATI).

The selected person answers the questions. The majority of questions (questionnaire "Usage of information-communication technologies (ICT) in households and by individuals" – IKT-GOSP) refer to the selected person. A minor part of the questions refers to the household of the selected person (equipment of the household with ICT).

Data for the survey are not obtained from administrative sources.

6 DEFINITIONS

ICT (information-communication technologies) is hardware and software (computers, mobile phones, Internet, operational system, computer software, mobile applications etc.) that enable collection, storage, usage and transmission of data.

Internet users are individuals who have used the Internet in the selected period (prior to interviewing) via a computer, mobile phone or other device, regardless of where or why they used it.

Users of websites of public institutions (eGovernment) are individuals who have used the websites of libraries, kindergartens, educational institutions (faculties, schools), health institutions, ministries, administrative units, municipalities, etc. – public institutions in the last 12 months for private purposes (prior to interviewing). Excluded are contacts via normal e-mail.

E-buyers are individuals who have purchased or ordered products or services via the Internet for private purposes for themselves or for others, while the method of delivery and the method of payment are not relevant. Excluded are orders placed through email, SMS or MMS messages.

Internet is a worldwide network of computers, communicating on the standard Internet Protocol (IP – Internet Protocol) and providing users with exchange of textual and audio-visual information.

SMART TV is a television intended for watching TV programs, movies and other media that can be watched via regular television. At the same time, Smart TV also allows us to browse on the Internet. Similar to smartphones and tablets, the TV itself has ready-made applications through which various contents can be accessed, e.g. YouTube, Facebook, etc.

Video content on demand (streaming services) is a multimedia content that is transmitted over the Internet or other networks and is played and downloaded from the Internet on the go or with a slight delay on demand (e.g. YouTube, Netflix).

Cloud computing services are ICT services accessed through the Internet. Cloud computing services include the use of data storage space on the Internet and the use of software, but do not include the use of e-mail.

Social networks are applications, web services or web pages that build and reflect social networks or social relationships between people (e.g. Facebook, Snapchat, Instagram, etc.).

ICT usage at works refers to the usage of computers, computerised equipment or machinery, software and the Internet at work by individuals who used the Internet in the last 12 months. Computerised equipment or machines include the usage of CNC and NC-machine, POS- systems, robots, satellite navigation systems.

Smart devices or systems are connected to the Internet e.g. via mobile Internet, WiFi or Bluetooth, etc., or with each other and allow the usage of more advanced services such as remote control of devices, customization of settings, giving instructions for performing tasks, receiving feedback. Examples of smart devices or systems are: e.g. smart thermostat, smart light, smart meter, smart home appliance, virtual assistant in the form of a mobile app or smart speaker, smartwatch.

Artificial intelligence includes computer systems or programs capable of imitating human intelligence, e.g. image or video recognition of objects or people, AI tools, personalized ads or content, text translator.

Generative artificial intelligence generates content, such as text, images, programming code, videos, or other data, based on available information and users instructions.

Internet connections:

Broadband fixed Internet connections enable fast data transfer over the Internet. In general, this bandwidth is greater than 2 Mbit/s. Broadband fixed internet connections:

- xDSL (Digital Subscriber Line) or XDSL technology uses conventional copper phone pairs. DSL technology covers several versions, such as ADSL, VDSL, HDSL, etc. These technologies are designed to increase the bandwidth of conventional copper telephone wires. The speed of data transfer depends on the distance of the home or enterprise from the telephone company's head office offering the DSL service.
- Cable Internet is a technology and service that uses existing TV network (consisting of coaxial cable connections that transmit a television signal to TV sets) to transfer data from the Internet to a selected computer at extremely high speed. To access the Internet through the cable system a cable modem is needed.
- Optical fiber enables faster transfer of data in the form of pulses or light. Data transfer rate is somewhere between 10 Mb/s and up to 1 Gb/s and more.

Broadband mobile Internet connections (wireless connections) allow connection to the Internet without wire (infrared, microwave, satellite, laser connection, wimax). Wireless Internet connection via a mobile phone, portable or tablet computer, and other mobile devices is carried out using third generation mobile connections (3G), e.g. UMTS, HSDPA, HSUPA, HSPA + or fourth generation (4G), e.g. LTE or fifth generation (5G).

Digital skills enable confident, critical and responsible use of digital technologies in learning, work and participation in society. Digital skills consist of five specific groups:

1. Digital skills for Information and data literacy:

- Finding information about goods or services,
- Reading online news sites, newspapers, news magazines,
- Seeking health-related information (e.g. injuries, diseases, nutrition, improving health, etc.),
- Knowing that information, content or source on Internet news sites or social media was not reliable,
- Checking the truthfulness of information or content on the Internet (e.g. news sites, social media).

2. Digital skills for communication and collaboration:

- Sending, receiving e-mails,
- Using instant messaging, i.e. exchanging messages, for example, via Skype, Messenger,
- Participating in social networks,
- Making calls (including video calls) over the Internet,
- Taking part in on-line consultations or voting to define civic or political issues,

- Expressing opinions on civic or political issues on websites or in social media.

3. Digital skills for problem solving:

- Online purchases (in the last 12 months),
- Internet banking,
- Downloading or installing software or apps,
- Using online learning activities,
- Changing settings of software, app or device, e.g. adjusting language, colours, contrast, text size, toolbars/menu,
- Selling goods or services via a website or app,
- Looking for a job or sending a job application.

4. Digital skills for digital content creation:

- Using word processing software, e.g. Microsoft Word,
- Copying or moving files (e.g. documents, data, images, video) between folders, devices or on the cloud,
- Creating files (e.g. document, image, video) incorporating several elements such as text, picture, table, chart, animation or sound,
- Using spreadsheet software, e.g. Excel,
- Using software for editing photos, video or audio files,
- Using advanced features of spreadsheet software (functions, formulas, macros, Visual Basic) to organise, analyse, structure or modify data,
- Writing code in a programming language.

5. Digital skills for safety:

- Refused allowing the use of personal data for advertising purposes,
- Restricted or refused access to your geographical location,
- Read privacy policy statements before providing personal data,
- Changed the settings in your internet browser to prevent or limit cookies on any of the your devices,
- Limited access to profile or content on social networking sites or shared online storage
- Checked that the website where you provided personal data was secure (e.g. https sites, safety logo or certificate).

An individual has basic skills from each skill group if they have performed one activity in the first two groups (1. and 2.) and one or two in the remaining three groups (3., 4. and 5.). Very good skills are defined if they have performed two or more activities in the first two groups and three or more in the remaining three groups.

Depending on how well people master individual groups of digital skills, they are divided into individuals who have:

- Above basic digital skills (above basic skills in all 5 groups),
- Basic digital skills (if all 5 areas are at least basic level (some can be “basic” and some can be “above basic”, but not all 5 areas are “above basic”)),

- Low digital skills (if individuals have “basic” or “above basic” level in 4 areas and “no skills” in 1 area (4 out of 5)),
- Narrow digital skills (if individuals have “basic” or “above basic” level in 3 areas and “no skills” in 2 areas (3 out of 5)),
- Limited digital skills (if individuals have “basic” or “above basic” level in 2 areas and “no skills” in 3 areas (2 out of 5)),
- No digital skills (if individuals have “no skills” in 4 areas or “no skills” in all 5 areas or have not used the Internet in the last 3 months).

Individuals with at least basic digital skills have basic or above basic digital skills.

7 EXPLANATIONS

7.1 CLASSIFICATIONS

Data are published by cohesion and statistical regions, in accordance with the Classification of Statistical Territorial Units in the European Union (NUTS), i.e. at the NUTS 2 and NUTS 3 level. The explanation of the classifications is available at:

<https://www.stat.si/statweb/en/Methods/Classifications>.

The degree of urbanisation distinguishes three types of areas: a) cities (densely populated areas); b) towns and suburbs (intermediate density areas); c) rural areas (thinly populated areas). Additional explanation, code list and map of municipalities according to the degree of urbanisation are available on the website about [Territorial typologies](#).

7.2 DATA PROCESSING

DATA EDITING

Data were edited with the combination of systematic corrections, individual corrections and imputation procedures. The following imputation methods were used: logical imputations and hot-deck imputations.

For more, see the general methodological explanations [Statistical data editing](#).

WEIGHTING

With weighting adjustment we want to achieve representativeness of the sample, so that the weighted data give us as good population estimates as possible. The process of weighting depends on the sampling design, the unit non-response rate and available auxiliary variables used for calibration (sex-age structure, statistical region, types of settlement, education, and activity status for the weights for individuals, and statistical region, types of settlement and the household size for the weights for households). The final weight is the product

of the sampling weight, the non-response weight and the calibration factor. The variable »household size« is taken from the »Survey on Living Conditions«.

Two weights are calculated:

- weights for individuals;
- weights for households.

SEASONAL ADJUSTMENT

Seasonal adjustment is not applicable.

7.3 INDICES

Indices are not published.

7.4 PRECISION

In statistical surveys different kinds of errors can occur (e.g. sampling error, nonresponse error, measurement error) influencing the accuracy of the statistical results. Errors deriving from the random mechanisms determine the precision of the statistical estimates. The Statistical Office of the Republic of Slovenia draws attention to less precise estimates by flagging them with a special sign or by not publishing them at all.

1. If the table contains estimated population totals of (continuous) variables, publishing limitations are determined by the relative standard errors or the coefficients of variation (CV). In such cases it holds:

If the coefficient of variation (CV) of the estimate is:

- 10% or below ($CV \leq 10\%$), the estimate is of acceptable precision and is published without limitations;
- in the interval from 10% and up to 30% ($10\% < CV \leq 30\%$), the estimate is less precise and is flagged for caution with letter M;
- over 30% ($CV > 30\%$), the estimate is too imprecise to be published and therefore suppressed for use by letter N.

2. If the table contains estimated number of units with certain characteristics, publishing limitations are determined by the standard errors of the estimates (SE) of the proportions. In such cases it holds:

If the standard error (SE) of the estimate of a proportion is:

- 0.05 or below ($SE \leq 0.05$), the estimate is of acceptable precision and is published without limitations;
- in the interval from 0.05 and up to 0.15 ($0.05 < SE \leq 0.15$), the estimate is less precise and is flagged for caution with letter M;
- over 0.15 ($SE > 0.15$), the estimate is too imprecise to be published and therefore suppressed for use by letter N.

For more, see the general methodological explanations [Precision of statistical estimates](#).

7.5 OTHER EXPLANATIONS

Totals are not always accurate due to rounding.

8 PUBLISHING

- SiStat Database: [Development and Technology](#) – Digital society – [Usage of information-communication technologies \(ICT\) in households](#), [Usage of information-communication technologies \(ICT\) by individuals](#).

Data on individuals are published in the form of absolute values by age groups and sex, by education and sex, by status of activity, by degree of urbanisation, and by cohesion and statistical regions (NUTS classification), and data on households by type of the household, by cohesion and statistical regions (NUTS classification) and by degree of urbanisation.

- First Release (Development and Technology, Information Society): »Usage of internet in households and by individuals, Slovenia, annually«.
- Electronic Release (Development and Technology, Information Society): »Online purchases, Slovenia, annually«.
- Electronic Release (Development and Technology, Information Society): »Usage of information-communication technologies in households and by individuals, detailed data, Slovenia, annually«.
- [E-skills and Digital Economy](#)
- EUROSTAT (Statistical Office of the European Union)
- United Nations (UN)
- The Organisation for Economic Co-operation and Development (OECD)
- International Telecommunication Union (ITU).

9 REVISION OF THE DATA

9.1 PUBLISHING OF PRELIMINARY AND FINAL DATA

Provisional data are not disseminated. Only final data are published.

9.2 FACTORS INFLUENCING COMPARABILITY OVER TIME

There are no breaks in time series, so all points in time are comparable.

Until 2017, data were published under the following titles:

- First Release (Development and Technology, Digital Society): »Usage of information-communication technologies in households and by individuals, Slovenia, annually«.
- Electronic Release (Development and Technology, Digital Society): »Usage of information-communication technologies in households and by individuals, Slovenia, annually«.

10 OTHER METHODOLOGICAL MATERIALS

Methodological materials on SURS's website are available at <https://www.stat.si/statweb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>.

- Questionnaire:
 - Uporaba informacijsko-komunikacijske tehnologije v gospodinjstvih in pri posameznikih (IKT-GOSP)

Theme: Development and Technology, Subtheme: Digital Society

- Quality report for the survey:
 - Usage of information-communication technologies (ICT) in households and by individuals (IKT-GOSP)

Theme: Development and Technology, SubTheme: Digital Society

Methodological materials on SURSs website are available at <https://www.stat.si/statweb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>.

- Methodological explanations:
 - Usage of information-communication technologies (ICT) in households and by individuals

Theme: Development and Technology, Subtheme: Digital Society

- Methodology Eurostat:

<https://circabc.europa.eu/ui/explore>