



SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

METADATA

Target 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill

Definition

The proportion of youth and adults with information and communications technology (ICT) skills, by type of skill as defined as the percentage of individuals that have undertaken certain -ICT-related activities in the last 3 months. The indicator is expressed as a percentage.

The indicator on the *proportion of individuals with ICT skills, by type of skills* refers to individuals that have undertaken certain computer-related activities in the last three months. (Please note however, that from 2020 this data will be collected with a different scope and response categories, as explained below.)

Computer-related activities to measure ICT skills are as follows:

- Copying or moving a file or folder
- Using copy and paste tools to duplicate or move information within a document
- Sending e-mails with attached files (e.g. document, picture, video)
- Using basic arithmetic formulas in a spreadsheet
- Connecting and installing new devices (e.g. a modem, camera, printer)
- Finding, downloading, installing and configuring software
- Creating electronic presentations with presentation software (including images, sound, video or charts)
- Transferring files between a computer and other devices
- Writing a computer program using a specialized programming language

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A *computer* refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer). It does not include equipment with some embedded computing abilities, such as smart TV sets, and devices with telephony as their primary function, such as smartphones.

Most individuals will have carried out more than one activity and therefore multiple responses are expected. The tasks are broadly ordered from less complex to more complex, although there is no requirement for a respondent to select simpler tasks before selecting a more complex task.

A decision was made in 2018 to modify the formulation of this indicator (At the 6th Expert Group meeting on ICT Household Indicators (EGH), in Geneva), to make the indicator independent of the device used. This data will be collected from member states from 2020 onwards, and incorporate changes to some of the skills categories that were agreed in the 6th and 7th EGH meetings. The revised and new skills categories will be:

- Using copy and paste tools to duplicate or move data, information and content in digital environments (e.g. within a document, between devices, on the cloud)
- Sending messages (e.g. e-mail, messaging service, SMS) with attached files (e.g. document, picture, video)
- Using basic arithmetic formulae in a spreadsheet
- Connecting and installing new devices (e.g. a modem, camera, printer) through wired or wireless technologies
- Finding, downloading, installing and configuring software and apps
- Creating electronic presentations with presentation software (including text, images, sound, video or charts)
- Transferring files or applications between devices (including via cloud-storage)
- Setting up effective security measures (e.g. strong passwords, log-in attempt notification) to protect devices and online accounts
- Changing privacy settings on your device, account or app to limit the sharing of personal data and information (e.g. name, contact information, photos)
- Verifying the reliability of information found online
- Programming or coding in digital environments (e.g. computer software, app development)

Purpose

ICT skills determine the effective use of information and communication technology, so this indicator may therefore assist in making the link between ICT usage and impact. The lack of such skills continues to be one of the key barriers keeping people from fully benefitting from the potential of information and communication technologies. These data may be used to inform targeted policies to improve ICT skills, and thus contribute to an inclusive information society.

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This is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (in 2014).

More importantly, computer users in developed countries seem to possess more ICT skills than users in developing countries, pointing to a serious constraint on the development potential of developing countries and least developed countries (LDCs).

Calculation method

The indicator is calculated as the percentage of people in a given population who have responded 'yes' to a selected number of variables e.g. the use of ICT skills in various subject areas or learning domains, the use of ICT skills inside or outside of school and/or workplace, the minimum amount of time spent using ICT skills inside and outside of school and/or workplace, availability of internet access inside or outside of school and/or workplace, etc. in the past 3 months, regardless of where that activity took place.

$$PICT_{a,s} = \frac{ICT_{a,s}}{P_a}$$

where:

$PICT_{a,s}$ = percentage of people in age group **a** who have ICT skill **s**

$ICT_{a,s}$ = number of people in age group **a** who have ICT skill **s**

P_a = population in age group **a**

Interpretation

This indicator makes the link between ICT usage and impact and helps measure and track the level of proficiency of users. A high value indicates that a large share of the reference population has the ICT skill being measured.

Type of data source

Countries can collect data on this indicator through national household surveys. Data for different countries are compiled by ITU.

Disaggregation

Since data for the indicator on the proportion of individuals with ICT skills, by type of skills are collected through a survey, classificatory variables for individuals can provide further information on the differences in ICT skills among men/women, children/adults (age groups), employed/unemployed, etc., according to national requirements. These data may be used to inform targeted policies to improve ICT skills, and thus contribute to the development of an inclusive information society.

Data required

Information on the use of ICT skills or household surveys.

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Data sources

Countries can collect data on this indicator through national household surveys, which collect data on the use of selected ICT skills. Data for different countries are compiled by ITU.

Limitations and comments

This indicator is relatively new but is based on an internationally-agreed definition and methodology, which have been developed under the coordination of International Telecommunications Union (ITU), through its Expert Groups and following an extensive consultation process with countries. It was also endorsed by the UN Statistical Commission in 2014, and again in 2020.

The indicator is based on the responses provided by interviewees regarding certain activities that they have carried out in a reference period of time. However, it is not a direct assessment of skills nor do we know if those activities were undertaken effectively.

Data from UNICEF do not include observations for both sexes but for males and females that come from the Men/Women questionnaires and datasets in MICS. Indicators are calculated separately. UNICEF dataset covers 17 countries, of which Mongolia, Togo, Tunisia, and Zimbabwe are also available in the ITU dataset. ITU data was used for reporting for those four countries.

Limitations for time series comparability

In 2015, the questions in the questionnaire used by Eurostat countries, including North Macedonia, were changed to add a reference period of twelve months ("Which of the following software related activities have you carried out in the last 12 months?"). Therefore, for those countries, the ICT skills figures are typically higher in 2014 compared to 2015.

ITU Questionnaires on ICT have a reference.

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International sources of data for Indicator 4.4.1

Agency	Reference period	Reference period (source)	Skills Assessed	Target Population	Reference Area
ITU	Last 3 months	Manual for Measuring ICT Access and Use by Households and Individuals, page 69: https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITCMEAS-2014-PDF-E.pdf Questionnaire, a2 worksheet: https://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/ITU_Households_Questionnaire_2019_English_with_macro.xls	Originates in Eurostat household surveys since early 2000s Manual for Measuring ICT Access and Use by Households and Individuals, page 69: https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITCMEAS-2014-PDF-E.pdf	Target population correspond to age group 15 to 74 years. Age scope of the surveys might differ among countries when data are provided for a certain age group and not the total population.	Andorra, Brazil, Costa Rica, Côte d'Ivoire, Curacao, Iraq, Japan, Kuwait, Mongolia, Niger, Pakistan, Tunisia, etc.
Eurostat	Until 2014 questionnaire, without reference period	2014 Questionnaire, Module G – E-Skills, page 11: https://circabc.europa.eu/sd/a/9d890128-8925-4b8a-9dba-3e9281de3759/Questionnaire%20HH%202014_v3.4.pdf	ICT usage in households and by individuals (isoc_i): https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm#ref_period1529406004585 Methodological manuals: https://circabc.europa.eu/faces/jsp/extension/wai/navigation/containers.jsp	The population of households consists of all private households having at least one member in the age group 16 to 74 years.	EU-Member States, Candidate countries, Iceland and Norway. EU aggregates are available. For some indicators also data from other countries are disseminated (without validation by Eurostat). https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esm
	Starting in 2015, 12 months reference period	2015 Questionnaire, Module F – E-Skills, page 9: https://circabc.europa.eu/sd/a/db61500f-6f51-48fb-9507-48ba6133ed7f/Questionnaire%20HH%202015%20v3.1final2.pdf			

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Agency	Reference period	Reference period (source)	Skills Assessed	Target Population	Reference Area
					s.htm#meta_update1529406004585
UNICEF ¹	Last 3 months	Indicators and definitions (ICT skills) https://mics.unicef.org/files?job=W1siZiIsIjIwMTkvMDkvMjcvMTQvMTYvMzEvMjkzL01JQ1M2X0luZGJjYXRvcnNfYW5kX0RIZmluaXRpb25zXzlwMTkwOTE2LmRvY3giXV0&sha=e06cbb45e0f451f4	Nine ICT skills such as writing a computer program, transferring a file, or finding, downloading, installing and configuring software. https://mics.unicef.org/methodological_work/6/MICS-EAGLE	Target population correspond to age group 15 to 49 years.	Bangladesh, Democratic People's Republic of Korea, Democratic Republic of the Congo, Gambia, Ghana, Iraq, Kiribati, Kyrgyzstan, Lao People's Democratic Republic, Lesotho, Madagascar, Mongolia, Sierra Leone, Suriname, Togo, Tunisia, Zimbabwe.

¹ Upon approval from ITU