PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

CORE LIST OF ICT INDICATORS

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Introduction

The Partnership on Measuring ICT for Development is an international, multi-stakeholder initiative that was launched in 2004 to improve the availability and quality of ICT data and indicators, particularly in developing countries. The Partnership has guided policy makers by producing ICT statistics that are crucial to informed decision-making. Its membership includes 14 regional and international organisations involved in the collection and dissemination of ICT statistics.

One of the key achievements of the Partnership on Measuring ICT for Development has been the identification of a core list of ICT indicators. The list has evolved over time and now includes over 60 indicators, which were agreed upon through a consultation process involving governments, international organisations, and experts in the field of information society measurement. They cover the following areas: ICT infrastructure and access; access and use of ICT by households and individuals; ICT access and use by enterprises; the ICT sector and trade in ICT goods; ICT in education; and ICT in government. The list, which has been endorsed by the UN Statistical Commission (last in 2016), was developed to help guide countries in measuring the information society.

The Partnership recommends the core list as a basis for ICT data collection in countries. The indicators included in the core list are clearly defined and associated with statistical standards, which allows comparability across countries. An increasing number of countries are integrating the core list of ICT indicators into their existing data collection mechanisms, including household and business surveys. The members of the Partnership are providing assistance in this process, including through capacity-building and hands-on training for national statistical offices.

For further information on the core list of ICT indicators, see:
http://www.itu.int/en/ITU-D/Statistics/Pages/coreindicators/default.aspx

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Core list of ICT indicators

ICT infrastructure and access

A1 Fixed-telephone subscriptions per 100 inhabitants	
Definition	Fixed-telephone subscriptions refers to the sum of active number of analogue fixed-telephone lines, voice-over-IP (VoIP) subscriptions, fixed wireless local loop (WLL) subscriptions, ISDN voice-channel equivalents and fixed public payphones. This indicator was previously called Main telephone lines in operation. This indicator is divided by the population and multiplied by 100.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.25. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx

A2 Mobile cellular telephone subscriptions per 100 inhabitants	
Definition	Mobile-cellular telephone subscriptions refers to the number of subscriptions to a public mobile-telephone service that provide access to the PSTN using cellular technology. The indicator includes (and is split into) the number of postpaid subscriptions, and the number of active prepaid accounts (i.e. that have been used during the last three months). The indicator applies to all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging, M2M and telemetry services. The indicator is divided by the population and multiplied by 100.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.43. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx

A3 Fixed broadband Internet subscriptions per 100 inhabitants, broken down by speed	
Definition	Fixed-broadband subscriptions refers to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This includes cable modem, DSL, fibre-to-the-home/building, other fixed broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile-cellular networks. It should include fixed WiMAX and any other fixed wireless technologies. It includes both residential subscriptions and subscriptions for organizations. The indicator is divided by the population and multiplied by 100. This indicator is split into the following speed tiers: Fixed-broadband subscriptions with speeds of 256 kbit/s to less than 2 Mbit/s: Refers to all fixed-broadband Internet subscriptions with advertised downstream speeds equal to, or greater than, 256 kbit/s and less than 2 Mbit/s. Fixed-broadband subscriptions with speed of 2 Mbit/s to less than 10 Mbit/s: Refers to all fixed-broadband Internet subscriptions with advertised downstream speeds equal to, or greater than, 2 Mbit/s and less than 10 Mbit/s.

	Fixed-broadband subscriptions with speeds of equal to or above 10 Mbit/s: Refers to all fixed-broadband Internet subscriptions with advertised downstream speeds equal to, or greater than, 10 Mbit/s.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.83. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx

A4 Active mobile-broadband subscriptions per 100 inhabitants	
Definition	Active mobile-broadband subscriptions refers to the sum of active handset-based and computer-based (USB/dongles) mobile-broadband subscriptions to the public Internet. It covers actual subscribers, not potential subscribers, even though the latter may have broadband-enabled handsets. Subscriptions must include a recurring subscription fee or pass a usage requirement – users must have accessed the Internet in the last three months. It includes subscriptions to mobile-broadband networks that provide download speeds of at least 256 kbit/s (e.g. WCDMA, HSPA, CDMA2000 1x EV-DO, WiMAX IEEE 802.16e and LTE), and excludes subscriptions that only have access to GPRS, EDGE and CDMA 1xRTT. The indicator is divided by the population and multiplied by 100.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.48. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx

A5 International bandwidth usage per inhabitant (bits/second/inhabitant)	
Definition	Average usage of all international links, including optical fibre cables, radio links and traffic processed by satellite ground stations and teleports to orbital satellites (expressed in Mbit/s). The average should be calculated over the twelve-month period of the reference year. If the traffic is asymmetric (i.e. different incoming and outgoing traffic), then the highest value out of the two should be provided. All international links used by all types of operators, namely fixed, mobile and satellite operators should be taken into account. The combined average usage of all international links can be reported as the sum of the average usage of each link. International bandwidth per inhabitant is calculated by dividing the amount of bandwidth (in bits/s) by the total population.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.74. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx

A6 Percentage of the population covered by a at least a 3G mobile network	
Definition	Percentage of the population covered by at least a 3G mobile network refers to the percentage of inhabitants that are within range of at least a 3G mobile-cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by at least a 3G mobile-cellular signal by the total population and multiplying by 100. It excludes people covered only by GPRS, EDGE or CDMA 1xRTT.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.57. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx

A7 Fixed broadband basket	
Definition	The fixed-broadband sub-basket refers to the price of a monthly subscription to an entry level fixed-broadband plan. It is calculated as a percentage of a country's average monthly GNI p.c., and is also presented in USD and PPP$. For comparability reasons, the fixed-broadband basket is based on a monthly data usage of a minimum of 5 GB. For plans that limit the monthly amount of data transferred by including data volume caps below 5 GB, the cost for the additional bytes is added to the basket. The minimum speed of a broadband connection is 256 kbit/s.
Source	ITU (2020) Measuring digital development: ICT price trends, p.59. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2020/ITU_ICTPriceTrends_2020.pdf

A8 Mobile cellular low-usage basket	
Definition	The mobile cellular basket refers to the price of a standard basket of 70 minutes and 20 SMS messages per month in predetermined on-net/off-net/fixed ratios. The mobile cellular basket is based on the most common contract modality (prepaid or postpaid) in the economy in question, i.e. if more than 50 per cent of subscriptions are prepaid, then prepaid is selected. Otherwise, a postpaid plan is selected.
Source	ITU (2020) Measuring digital development: ICT price trends, p.57. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2020/ITU_ICTPriceTrends_2020.pdf

A9 Mobile broadband Internet prices per month	
Definition	This indicator refers to the following calculated baskets: Data-and-voice price baskets. The low-consumption data-and-voice price basket is based on a monthly data usage of a minimum of 500 MB of data, 70 voice minutes, and 20 SMSs. The high-consumption data-and voice price basket is based on a monthly data usage of a minimum of 2 GB, 140 minutes, and 70 SMSs. For plans that limit the monthly amount of data transferred by including data volume caps below 500 MB (low- consumption) or 2 GB (high-consumption), the cost of the additional bytes is added to the basket. The minimum speed of a broadband connection is 256 kbit/s. The data- and-voice basket is based on the cheapest, non-promotional plan(s) meeting the requirements, without regard to contract modality (prepaid or postpaid). It is calculated as a percentage of a country's average monthly GNI p.c. and is also presented in USD and PPP$. The data-only mobile broadband price basket. The data-only mobile broadband basket is based on a monthly data usage of a minimum of 2 GB. For plans that limit the monthly amount of data transferred by including data volume caps below 2 GB, the cost for the additional bytes is added to the basket. The minimum speed of a broadband connection is 256 kbit/s. The data-only mobile broadband basket is based on the cheapest, non-promotional plan(s) meeting the requirements, without regard to contract modality (prepaid or postpaid). It is calculated as a percentage of a country's average monthly GNI p.c. and is also presented in USD and PPP$.
Source	ITU (2021) ITU price data collection rules to be applied from May 2021 (ver. 2) https://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/IPB_Rules_May2021_v2.pdf

A10 Multichannel TV subscriptions per 100 inhabitants	
Definition	Multichannel TV subscriptions refers to services that provide additional TV programming beyond free-to-air terrestrial channels. Multichannel TV services are cable TV, direct-to-home satellite services, Internet-protocol TV, and digital terrestrial TV. Multichannel TV subscriptions should only be included if additional channels are available through payment of a fee. It is divided by the population and multiplied by 100. Multichannel TV services are categorized and defined as follows: Cable television (CATV) service - Cable television (CATV) service refers to multichannel TV programming delivered over coaxial cable networks. It includes both analogue and digital cable-TV subscriptions. It excludes IPTV delivered over cable TV networks. Direct-to-home (DTH) satellite TV subscriptions - Direct-to-home (DTH) satellite-TV subscriptions refers to the number of pay direct-to-home (DTH) satellite subscriptions (i.e., pay TV received via a satellite dish capable of receiving satellite television broadcasts). This does not include free-to-air satellite TV. Internet-protocol TV (IPTV) subscriptions (i965IP) IPTV subscriptions refers to the number of subscriptions to Internet protocol television (IPTV), i.e., TV delivered over an IP-based network managed to support the required level of quality of service, quality of experience, security, interactivity and reliability. This does not include video accessed over the public Internet – for example, by streaming – and subscriptions to over-the-top audiovisual content providers. Other terrestrial television subscriptions - Other terrestrial television subscriptions refers to pay-TV subscriptions other than IPTV, satellite TV, and cable TV. This includes subscriptions to TV platforms such as microwave multipoint distribution systems (MMDS) and pay digital terrestrial television (pay DTT). Free to-air TV should not be included. The TV platforms corresponding to the data reported should be indicated in a note.
Source	ITU (2020) Handbook for the Collection of Administrative Data on Telecommunications/ICT, p.168. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx.

ICT access and use by households and individuals

HH1 Proportion of households with a radio	
Definition	This is the proportion of households that have a radio. A radio is defined as a device capable of receiving broadcast radio signals, using common frequencies, such as FM, AM, LW and SW. A radio may be a stand-alone device, or it may be integrated with another device, such as an alarm clock, an audio player, a mobile telephone or a computer.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.68. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH2 Proportion of households with a TV	
Definition	This is the proportion of households that have a television (TV). A television (TV) is a device capable of receiving broadcast television signals, using popular access means such as over-the-air, cable and satellite. A television set is typically a stand-alone device, but it may also be integrated with another device, such as a computer or a mobile telephone.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 70. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH3 Proportion of households with telephone	
Definition	This is the proportion of households that have a telephone. A fixed telephone line refers to a telephone line connecting a customer's terminal equipment (e.g. telephone set, facsimile machine) to the public switched telephone network (PSTN) and which has a dedicated port on a telephone exchange. This term is synonymous with the terms main station or Direct Exchange Line (DEL) that are commonly used in telecommunication documents. It may not be the same as an access line or a subscription. A mobile (cellular) telephone refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT Advanced. Users of both postpaid subscriptions and prepaid accounts are included. A smart telephone (or smartphone) refers to a mobile handset that is used as the person's primary phone device which has smart capabilities, including Internet-based services, and performs many of the functions of a computer, including having an operating system capable of downloading and running applications, also those created by third-party developers. Users of both postpaid subscriptions and prepaid accounts are included.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.72. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH4 Proportion of households with a computer	
Definition	This is the proportion of households that have a computer.

	A computer refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer). • Desktop: a computer that usually remains fixed in one place; normally the user is placed in front of it, behind the keyboard. • Laptop (portable) computer: a computer that is small enough to carry and usually enables the same tasks as a desktop computer; it includes notebooks and netbooks but does not include tablets and similar handheld computers. • Tablet (or similar handheld computer): a tablet is a computer that is integrated into a flat touch screen, operated by touching the screen rather than (or as well as) using a physical keyboard. 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.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 75. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH5 Proportion of individuals using a computer	
Definition	This is the proportion of individuals who used a computer from any location in the last three months. A computer refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer). • Desktop: a computer that usually remains fixed in one place; normally the user is placed in front of it, behind the keyboard. • Laptop (portable) computer: a computer that is small enough to carry and usually enables the same tasks as a desktop computer; it includes notebooks and netbooks but does not include tablets and similar handheld computers. • Tablet (or similar handheld computer): a tablet is a computer that is integrated into a flat touch screen, operated by touching the screen rather than (or as well as) using a physical keyboard. 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.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.77. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH6 Proportion of households with Internet	
Definition	This is the proportion of households with Internet access at home. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.79. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH7 Proportion of individuals using the Internet	
Definition	This is the proportion of individuals who used the Internet from any location in the last three months. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e- mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 81. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH8 Proportion of individuals using the Internet, by location	
Definition	This is the proportion of individuals who used the Internet from specified locations in the last three months. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network, including wireless access at a WiFi 'hotspot'. Access via a mobile device should be classified to the appropriate location or to 'while commuting, in transport or walking', that is, while mobile. Locations of Internet use are defined as follows: • Home • Work: where a person's workplace is located at his/her home, then he/she would answer yes to the home category only • Place of education: applies only to students. Teachers and others who work at a place of education would report 'work' as the place of Internet use. Where a place of education is also made available as a location for general community Internet use, such use should be reported in the Community Internet access facility category • Another person's home: the home of a friend, relative or neighbour • Facility open to the public: use at a facility open to the public regardless of payment, type of connection or nature of the facility. Common examples are libraries, telecenters, cafes, restaurants, and shopping malls Of which: Community Internet access facility: Internet use at community facilities such as public libraries, publicly provided Internet kiosks, non-commercial telecentres, digital community centres, post offices, other government agencies; access is typically free and available to the general public • While commuting, in transport or walking: use of the Internet while moving between places, commuting, or on the street. The emphasis is on the act of moving, not on the device being used. Beyond mobile networks, it might also cover connection on public transportation systems and public Wi-Fi.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.83. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH9 Proportion of individuals using the Internet, by type of activity

Definition

This is the proportion of individuals who undertook one or more activities using the Internet for private (defined as non-work) purposes from any location in the last three months. Internet activities are classified in groups of similar activities, and are defined as follows:

Access to information

- Getting information about goods or services
- Seeking health- related information (on injury, disease, nutrition etc.).
- Getting information from general government organizations
- Using services related to travel or travel-related accommodation
- Downloading software or applications (includes patches and upgrades, either paid or free of charge)*
- Reading or downloading newspapers, magazines or electronic books in a digital format

Communication, civic participation and collaboration

- Sending or receiving e-mail*
- Making calls (telephoning over the Internet/VoIP using Skype, WhatsApp, Viber, iTalk, etc.; includes video calls via webcam)
- Participating in social networks (creating user profile, posting messages or other contributions to Facebook, Twitter, Instagram, Snapchat, etc.)
- Making an appointment with a health practitioner via the Internet (i.e. website, app, software)
- Interacting with general government organizations (downloading/requesting forms, completing/lodging forms online, making online payments and purchasing from government organizations etc.)

General government organizations should be consistent with the SNA93 (2008 revision) concept of general government. According to the SNA "… the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production." (General) government organizations include central, state and local government units.

- Taking part in consultations or voting via the Internet to define civic or political issues (urban planning, signing a petition etc.)
- Accessing or posting opinions via any device on chat sites, blogs, newsgroups or online discussions (e.g. on civic or political issues, general interest topics) that may be created by any individual or organization

Electronic commerce, trade, and transactions

- Purchasing or ordering goods or services (purchase orders placed via the Internet whether or not payment was made online; excludes orders that were cancelled or not completed; includes purchasing of products such as music, travel and accommodation via the Internet)
- Selling goods or services (via eBay, Mercado libre, Facebook, Amazon, Alibaba, etc.)
- Internet banking (includes electronic transactions with a bank for payment, transfers, etc. such as M-Pesa, or for looking up account information; excludes electronic transactions via the Internet for other types of financial services such as share purchases, financial services and insurance)

Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 87. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH10 Proportion of individuals using a mobile cellular telephone	
Definition	This is the proportion of individuals who used a mobile telephone in the last three months. A mobile (cellular) telephone refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT- 2000 (3G) and IMT Advanced. Users of both postpaid subscriptions and prepaid accounts are included. A smart telephone refers to a mobile handset that is used as the person's primary phone device which has smart capabilities, including Internet-based services, and performs many of the functions of a computer, including having an operating system capable of downloading and running applications, including those created by third- party developers. Users of both postpaid subscriptions and prepaid accounts are included.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 91. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH11 Proportion of households with Internet, by type of service	
Definition	This is the proportion of households with access to the Internet, by type of service. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network. The broad types of Internet services to be identified are the following: • Fixed narrowband network: includes analogue modem (dial-up via standard telephone line), ISDN (Integrated Services Digital Network), DSL (Digital Subscriber Line) at advertised download speeds below 256 kbit/s, and other forms of access with an advertised download speed of less than 256 kbit/s • Fixed broadband network: refers to technologies at advertised download speeds of at least 256 kbit/s, such as DSL, cable modem, high speed leased lines, fibre-to-the-home/building, powerline and other fixed broadband • Terrestrial fixed broadband network: refers to technologies at advertised download speeds of at least 256 kbit/s, such as WiMAX, fixed CDMA • Satellite broadband network (via a satellite connection), at advertised download speeds of at least 256 kbit/s • Mobile broadband network (at least 3G, e.g. UMTS) via a handset • Mobile broadband network (at least 3G, e.g. UMTS) via a card (e.g. integrated SIM card in a computer) or USB modem
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 93. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH12 Proportion of individuals using the Internet, by frequency

Definition	This is the frequency of Internet use by individuals who used the Internet from any location in the last three months. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network. Frequency of use categories are as follows: • At least once a day: once a working day for respondents who only (or most frequently) use the Internet from work or school etc. • At least once a week but not every day • Less than once a week.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 95. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH13 Proportion of households with multichannel television, by type	
Definition	This is the proportion of households with multichannel television (TV) and by type of multichannel service. Multichannel TV services are as follows: • Cable TV (CATV): multichannel programming delivered over a coaxial cable for viewing on television sets • Direct-to-home (DTH) satellite services: TV services received via a satellite dish capable of receiving satellite television broadcasts • Internet-protocol TV (IPTV): multimedia services such as television/video/audio/text/graphics/data delivered over an IP-based network managed to support the required level of quality of service, quality of experience, security, interactivity and reliability; it does not include video accessed over the public Internet, for example, by streaming. IPTV services are also generally aimed at viewing over a television set rather than a personal computer. • Digital terrestrial TV (DTT): the technological evolution from analogue terrestrial television, providing capability for significantly more channels.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 97. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH14 Barriers to household Internet access	
Definition	This measures the barriers to Internet access for households without Internet access. It is expressed as a proportion of households without Internet access. Barriers (that is, reasons for not having Internet) are: • Do not need the Internet (not useful, not interesting, lack of local content) • Have access to the Internet elsewhere • Cost of the equipment is too high • Cost of the service is too high • Privacy or security concerns • Internet service is not available in the area • Internet service is available but it does not correspond to household needs (e.g. quality, speed) • Cultural reasons (e.g. exposure to harmful content) • No electricity in the household • Other reason, specify
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 99. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH15 Individuals with ICT skills, by type of skills	
Definition	This refers to ICT skills, defined for the purpose of this indicator as having undertaken certain activities in the last three months, independent of the device(s) used. Activities to measure ICT skills are as follows: • 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)
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 101. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH16 Household expenditure on ICT

Definition	This measures the percentage of total household expenditure that is expended on ICT goods and services as follows: • 08.1 Information and communication equipment: fixed telephone equipment, mobile telephone equipment, information processing equipment (personal computers, printers, scanners, monitors, etc); Equipment for the reception, recording and reproduction of sound and vision (TV sets, digital video recorders, radio receivers, CD players, stereo equipment, etc.), recording media (CDs, DVDs, USD keys, etc.) • 08.2 Software excluding games computer software packages, such as operating systems, applications, programming languages, etc. • 08.3 Information and communication services: fixed and mobile communication services, Internet access provision, bundled telecommunication services, repair and rental of ICT equipment, other ICT services) • 09.2.1 Games toys and hobbies: video game software, game apps, gamepads joysticks, etc., electronic games. The 2018 UN Classification of Individual Consumption According to Purpose (COICOP) is used as the basis of the classification presented above and to define the scope of ICT goods and services. It is expected that data would be collected from a household budget survey. Ideally, the reference period would be a year, but this is likely to vary depending on the nature of countries' existing budget surveys.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 104. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH17 Proportion of individuals using the Internet, by type of portable device and network used to access the Internet	
Definition	This is the proportion of individuals who used the Internet using a portable device. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network. A portable device can be a mobile phone, tablet or a portable computer (such as laptop, notebook, netbook). The network used to access the Internet can be either via mobile cellular network or via other wireless networks (e.g. WiFi). a. Mobile phone a1) via mobile cellular network a2) via other wireless networks (e.g. WiFi) b. Tablet b1) via mobile cellular network, using USB key/dongle or integrated data SIM card b2) via other wireless networks (e.g. WiFi) c. Portable computer (laptop, notebook, netbook) c1) via mobile cellular network, using USB key/dongle or integrated data SIM card or mobile cellular telephone as modem c2) via other wireless networks (e.g. WiFi) d. Other portable devices (e.g. portable games consoles, watches, e-book readers etc.)

Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.105. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH18 Proportion of individuals who own a mobile phone	
Definition	This is the proportion of individuals who own a mobile telephone. An individual owns a mobile cellular telephone if he/she has a mobile cellular phone device with at least one active SIM card for personal use. It includes mobile cellular phones supplied by employers that can be used for personal reasons (to make personal calls, access the Internet, etc.) and those who have a mobile phone for personal use that is not registered under his/her name. It excludes individuals who have only active SIM card(s) and not a mobile phone device. A smart telephone (or smartphone) refers to a mobile handset that is used as the person's primary phone device which has smart capabilities, including Internet-based services, and performs many of the functions of a computer, including having an operating system capable of downloading and running applications, also those created by third-party developers. An individual owns a smart telephone if he/she has a smart telephone device with at least one active SIM card for personal use. It includes smart telephones supplied by employers that can be used for personal reasons (to make personal calls, access the Internet, etc.) and those who have a smart telephone for personal use that is not registered under his/her name. It excludes individuals who have only active SIM card(s) and not a smart telephone device.
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 107. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH19 Proportion of individuals not using the Internet, by type of reason	
Definition	This measures the barriers to Internet use by individuals. It is expressed as a proportion of individuals who do not use the Internet. The reasons for not using the Internet are: • Do not need the Internet (not useful, not interesting) • Do not know how to use it • Cost of Internet use is too high (service charges, etc.) • Privacy or security concerns • Internet service is not available in the area • Cultural reasons (e.g. exposure to harmful content) • Don't know what Internet is • Not allowed to use the Internet • Lack of local content • Other reason, specify
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 109. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH20 Proportion of individuals who purchased goods or services online, by type of good and service purchased

Definition	This indicator measures the specific goods and services purchased online by individuals. It is expressed as a proportion of individuals who purchased goods or services over the Internet. The following response categories of goods and services purchased online are (multiple choices possible): • Books, magazines or newspapers • Clothing, footwear, sporting goods or accessories • Computer equipment or parts (including peripheral equipment) • Computer or video games • Computer software (includes upgrades and paid apps; not games) • Cosmetics • Financial products (including shares and insurance) • Food, groceries, alcohol or tobacco • Household goods (e.g. furniture, toys, etc.; excluding consumer electronics) • ICT services (excluding software) • Medicine • Movies, short films or images • Music products • Photographic, telecommunications or optical equipment • Tickets or bookings for entertainment events (sports, theatre, concerts, etc.) • Travel products (travel tickets, accommodation, vehicle hire, transport services etc.)
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 111. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH21 Proportion of individuals who purchased goods or services online, by type of payment channel	
Definition	This indicator measures the payment channels used by individuals when making purchases online. It is expressed as a proportion of individuals who purchased goods or services over the Internet. The following response categories of types of payment channels are (multiple choices possible): • Cash on delivery • Credit card online • Debit card or electronic bank transfer online • Mobile money account (account connected to the mobile phone number) • Online payment service (e.g. PayPal, Google Checkout) • Prepaid gift card or online voucher • Points from rewards or redemption program (e.g. Air Miles) • Other (e.g. bank check by post, etc.)
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p.113. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH22 Proportion of individuals who purchased goods or services online, by method of delivery	
Definition	This indicator measures the delivery method for online purchases. It is expressed as a proportion of individuals who purchased goods or services over the Internet.

	The following response categories of types of delivery methods are (multiple choices possible): • Delivery directly to the buyer using regular postal services or other forms of delivery • Picked up from a point of sale or service point • Online/electronic delivery by downloading from a website or through an application, software or other device (e.g. in-app purchases, streaming services etc.).
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 115. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

HH23 Proportion of individuals who did not purchase goods or services online, by type of reason	
Definition	This measures the reasons for individuals to not purchase goods or services online. It is expressed as a proportion of individuals who use the Internet but do not purchase goods and services online. The following response categories of reasons for not purchasing online are (multiple choices possible): • Not interested • Prefer to shop in person • Security concerns (e.g. about giving personal details) • Privacy concerns (e.g. about giving personal details) • Technical concerns (e.g. about websites, payment or delivery) • Trust concerns (e.g. about warranties, receiving or returning products) • Lack of confidence, knowledge or skills
Source	ITU (2020) Manual for Measuring ICT Access and Use by Households and Individuals, p. 117. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx

ICT access and use by enterprises

B1 Proportion of businesses using computers	
Definition	This refers to the number of in-scope businesses using computers as a proportion of the total number of in-scope businesses. A computer refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer). • Desktop: a computer that usually remains fixed in one place; normally the user is placed in front of it, behind the keyboard. • Laptop (portable) computer: a computer that is small enough to carry and usually enables the same tasks as a desktop computer; it includes notebooks and netbooks but does not include tablets and similar handheld computers. • Tablet (or similar handheld computer): a tablet is a computer that is integrated into a flat touch screen, operated by touching the screen rather than (or as well as) using a physical keyboard. 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.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 34, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B2 Proportion of persons employed routinely using computers	
Definition	This refers to number of persons employed in all in-scope businesses routinely using computers as a proportion of the total number of persons employed in all in-scope businesses. A computer refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer). • Desktop: a computer that usually remains fixed in one place; normally the user is placed in front of it, behind the keyboard. • Laptop (portable) computer: a computer that is small enough to carry and usually enables the same tasks as a desktop computer; it includes notebooks and netbooks but does not include tablets and similar handheld computers. • Tablet (or similar handheld computer): a tablet is a computer that is integrated into a flat touch screen, operated by touching the screen rather than (or as well as) using a physical keyboard. 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. Persons employed refers to all persons working for the business. They include short-term and casual employees, contributing family workers and self-employed persons, who may be paid or unpaid. Routinely means at least once a week.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 34, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B3 Proportion of businesses using the Internet	
Definition	This refers to the number of in-scope businesses using the Internet as a proportion of the total number of in-scope businesses. The Internet is a worldwide public computer network. It provides access to several communication services including the World Wide Web and carries e-mail, news, entertainment, and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 35, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B4 Proportion of persons employed routinely using the Internet	
Definition	This refers to the number of persons employed routinely using the Internet in all in-scope businesses as a proportion of the total number of persons employed in all in-scope businesses. The Internet is a worldwide public computer network. It provides access to several communication services including the World Wide Web and carries e-mail, news, entertainment, and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network. Persons employed refers to all persons working for the business. They include short-term and casual employees, contributing family workers and self-employed persons, who may be paid or unpaid.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 36, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B5 Proportion of businesses with a web presence	
Definition	This refers to the number of in-scope businesses with a web presence as a proportion of the total number of in-scope businesses. A web presence includes a website, home page or presence on another entity's website (including a related business). It excludes inclusion in an online directory and any other webpages where the business does not have control over the content of the page.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 36, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B6 Proportion of businesses with an intranet	
Definition	This refers to the number of in-scope businesses with an intranet as a proportion of the total number of in-scope businesses. An intranet refers to an internal communications network using Internet protocols and allowing communication within an organization (and to other authorized persons).

Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 37, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B7 Proportion of businesses receiving orders over the Internet	
Definition	This refers to the number of in-scope businesses receiving orders over the Internet as a proportion of the total number of in-scope businesses. It includes orders received via the Internet whether payment was made online or not: via websites, specialized Internet marketplaces, extranets, EDI over the Internet, smartphone applications, and email. It includes orders received on behalf of other organizations. It excludes orders that were cancelled or not completed. The Internet is a worldwide public computer network. It provides access to several communication services including the World Wide Web and carries e-mail, news, entertainment, and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.38, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B8 Proportion of businesses placing orders over the Internet	
Definition	This refers to the number of in-scope businesses placing orders over the Internet as a proportion of the total number of in-scope businesses. It includes orders placed via the Internet whether payment was made online or not: via websites, specialized Internet marketplaces, extranets, EDI over the Internet, smartphone applications, and email. It excludes orders that were cancelled or not completed. The Internet is a worldwide public computer network. It provides access to several communication services including the World Wide Web and carries e-mail, news, entertainment, and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.38, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B9 Proportion of businesses using the Internet by type of access	
Definition	This refers to the number of in-scope businesses that use the Internet through each of these types of access: narrowband, fixed broadband and/or mobile broadband, as a proportion of the total number of in-scope businesses. • Fixed narrowband: includes analogue modem (dial-up via standard telephone line), ISDN (Integrated Services Digital Network), DSL (Digital Subscriber Line) at advertised download speeds below 256 kbit/s, and other forms of access with an advertised download speed of less than 256 kbit/s

	• Fixed broadband: refers to technologies at advertised download speeds of at least 256 kbit/s, such as DSL, cable modem, high speed leased lines, fibre-to-the-home/building, powerline and other fixed broadband • Mobile broadband network (at least 3G, e.g. UMTS) via a handset, card (e.g. integrated SIM card in a computer), or USB modem
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 39, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B10 Proportion of businesses with a Local Area Network	
Definition	This refers to the number of in-scope businesses with a local area network (LAN) as a proportion of the total number of in-scope businesses. A LAN is a wired or wireless network connecting computers within a localized area such as a single building, department or site.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 40, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B11 Proportion of businesses with an extranet	
Definition	This refers to the number of in-scope businesses with an extranet as a proportion of the total number of in-scope businesses. An extranet is a closed network that uses Internet protocols to securely share information with suppliers, vendors, customers, or business partners. It can take the form of a secure extension of an Intranet or a website.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 40, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

B12 Proportion of businesses using the Internet by type of activity	
Definition	This refers to the number of in-scope businesses that use the Internet by type of activity, as a proportion of the total number of in-scope businesses. Recommended types of activity are: • Sending or receiving e-mail • Telephoning over the Internet/VoIP (voice over Internet Protocol), or using video-conferencing • Use of instant messaging, bulletin boards • Use of social media • Getting information about goods or services, markets, customers, and suppliers • Getting information from general government organizations • Interacting with general government organizations • Internet banking • Accessing other financial services • Delivering products online • Providing customer services • Internal or external recruitment • Staff training

Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 41, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

ICT sector and trade in ICT goods

ICT1 Workforce of the ICT sector (as a percentage of total business sector workforce)	
Definition	This refers to the persons employed in businesses that are classified as belonging to the ICT sector, as a proportion of the total business sector workforce. The ICT sector is defined by the production of goods and services that are primarily intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display. This is the OECD 2007 definition based on ISIC Rev. 4 that includes the following classes: ICT manufacturing industries • 2610 Manufacture of electronic components • 2620 Manufacture of computers and peripheral equipment • 2630 Manufacture of communication equipment • 2640 Manufacture of consumer electronics • 2680 Manufacture of magnetic and optical media ICT trade industries • 4651 Wholesale of computers, computer peripheral equipment and software • 4652 Wholesale of electronic and telecommunication equipment and parts ICT services industries • 5820 Software publishing • 61 Telecommunications • 62 Computer programming, consultancy and related activities • 631 Data processing, hosting and related activities; web portals • 951 Repair of computers and communication equipment The business sector workforce refers to all persons engaged in domestic production in the business sector.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 55, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

ICT2 Value added of the ICT sector (as a percentage of total business sector value added)	
Definition	This refers to the value added of the ICT sector as a proportion of the total value added of the business sector. Value added represents the contribution to national GDP, estimated in a national accounts framework, usually calculated as the difference between production and intermediate inputs. The ICT sector is defined by the production of goods and services that are primarily intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display. This is the OECD 2007 definition based on ISIC Rev. 4 that includes the following classes: ICT manufacturing industries • 2610 Manufacture of electronic components • 2620 Manufacture of computers and peripheral equipment • 2630 Manufacture of communication equipment

	• 2640 Manufacture of consumer electronics • 2680 Manufacture of magnetic and optical media ICT trade industries • 4651 Wholesale of computers, computer peripheral equipment and software • 4652 Wholesale of electronic and telecommunication equipment and parts ICT services industries • 5820 Software publishing • 61 Telecommunications • 62 Computer programming, consultancy and related activities • 631 Data processing, hosting and related activities; web portals • 951 Repair of computers and communication equipment The business sector refers to all the sectors engaged in domestic production.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg. 55, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf .

ICT3 ICT goods imports as a percentage of total imports	
Definition	This refers to the value of imports of all ICT goods as a proportion of the total value of imports. ICT goods are defined as per the OECD ICT goods classification in terms of the 2017 HS classification, consisting of • Computers and peripheral equipment • Communication equipment • Consumer electronic equipment • Electronic components • Miscellaneous
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.58, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf . See Annex 8 of the Manual for the detailed classification of ICT goods.

ICT4 ICT goods exports as a percentage of total export	
Definition	This refers to the value of exports of all ICT goods as a proportion of the total value of exports. ICT goods are defined as per the OECD ICT goods classification in terms of the 2017 HS classification, consisting of • Computers and peripheral equipment • Communication equipment • Consumer electronic equipment • Electronic components • Miscellaneous
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf . See Annex 8 of the Manual for the detailed classification of ICT goods.

ICT5 ICT services imports as a percentage of total imports of services	
Definition	This refers to the value of imports of all ICT services as a proportion of the total value of imports of services. ICT services are those intended to enable and/or fulfil the function of information processing and communication, consisting of: • Telecommunications services • Computer services – Computer software • Computer services – Other computer services • Licenses to reproduce and/or distribute computer services The statistical definition of ICT services is based on correspondence tables between ISIC Rev. 4, EBOPS 2010, and CPC Ver. 2.1.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.62, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf . See Table 10 of the Manual for the detailed classification of ICT services.

ICT6 ICT services exports as a percentage of total export of services	
Definition	This refers to the value of exports of all ICT services as a proportion of the total value of exports of services. ICT services are those intended to enable and/or fulfil the function of information processing and communication, consisting of: • Telecommunications services • Computer services – Computer software • Computer services – Other computer services • Licenses to reproduce and/or distribute computer services The statistical definition of ICT services is based on correspondence tables between ISIC Rev. 4, EBOPS 2010, and CPC Ver. 2.1.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.62, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf . . See Table 10 of the Manual for the detailed classification of ICT services.

ICT7 ICT-enabled services imports as a percentage of total imports of services	
Definition	This refers to the value of imports of all ICT-enabled services as a proportion of the total value of imports of services. ICT-enabled services are services products delivered remotely over ICT networks (i.e., over voice or data networks, including the Internet). They include services that can potentially be delivered remotely, consisting of: • Telecommunications services • Computer services – including computer software • Sales and marketing services, not including trade and leasing services • Information services • Insurance and financial services • Management, administration and back office services • Licensing services • Education and train services

	ICT-enabled services exclude (on-site and personal) services that require the movement of physical objects or people. The statistical definition of ICT-enabled services is based on correspondence tables between ISIC Rev. 4, EBOPS 2010, and CPC Ver. 2.1.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.65, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf . See Annex 10 of the Manual for the detailed classification of ICT-enabled services.

ICT8 ICT-enabled services exports as a percentage of total export of services	
Definition	This refers to the value of exports of all ICT-enabled services as a proportion of the total value of exports of services. ICT-enabled services are services products delivered remotely over ICT networks (i.e., over voice or data networks, including the Internet). They include services that can potentially be delivered remotely, consisting of: • Telecommunications services • Computer services – including computer software • Sales and marketing services, not including trade and leasing services • Information services • Insurance and financial services • Management, administration and back office services • Licensing services • Education and train services ICT-enabled services exclude (on-site and personal) services that require the movement of physical objects or people. The statistical definition of ICT-enabled services is based on correspondence tables between ISIC Rev. 4, EBOPS 2010, and CPC Ver. 2.1.
Source	UNCTAD (2020) Manual for the Production of Statistics on the Digital Economy, pg.65, https://unctad.org/system/files/official-document/dtlstict2021d2_en.pdf . See Annex 10 of the Manual for the detailed classification of ICT-enabled services.

ICT in education

ED1 Proportion of schools with a radio used for educational purposes	
Definition	**ED1** measures the proportion of schools, for ISCED levels 1 to 3, offering radio-assisted instruction. It does not measure the intensity of use of radios for educational purposes. A radio is defined as a stand-alone device capable of receiving broadcast radio signals, using popular frequencies, such as FM, AM, LW and SW. Unless they are intentionally used for educational purposes, radio sets integrated into other devices (such as a Walkman, car radio, clock radio, audio cassette or CD players/recorders) are excluded. The proportion of schools with a radio used for educational purposes is calculated by dividing the number of schools providing radio-assisted instruction by the total number of schools. The result is then multiplied by 100 to be expressed as a percentage.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.31. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED2 Proportion of schools with a television used for educational purposes	
Definition	ED2 measures the proportion of schools, for ISCED levels 1 to 3, offering television- assisted instruction. It does not measure the intensity of use of televisions for educational purposes. A television (TV) is defined as a stand-alone device capable of receiving broadcast television signals using popular access means such as over-the-air, cable and satellite. Television broadcast receivers integrated into other devices (such as a computer, PDA, Smartphone or mobile phone) are considered only if their intended use is for educational purposes. The proportion of schools with a television used for educational purposes is calculated by dividing the number of schools providing television-assisted instruction by the total number of schools. The result is then multiplied by 100 to be expressed as a percentage.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.32. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED3 Proportion of schools with a telephone communication facility	
Definition	ED3 measures the proportion of schools, for ISCED levels 1 to 3, with a telephone communication facility. A telephone communication facility refers to fixed telephone lines, cable connections (i.e. cable telephony) or other sustainable communication technology that connects an educational institution's terminal equipment (e.g. telephone set, facsimile machine) to the public switched telephone network (PSTN) and has a dedicated port on a telephone exchange. Access is defined by a subscription to services that allow the physical presence and use of the facilities in a given educational institution. The proportion of schools with a with a telephone communication facility is calculated by dividing the number of schools with a telephone communication facility by the total number of schools. The result is then multiplied by 100 to be expressed as a percentage.

Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.33. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED4 Learners-to-computer ratio in schools with computer-assisted instruction	
Definition	ED4 measures the average number of learners entitled to use school computers (as a pedagogical aid) per computer available for pedagogical use in schools that offer computer-assisted instruction (CAI), for ISCED levels 1 to 3. It indicates the potential for the use of computers in CAI schools to promote or expand computer-assisted instruction. It is not a measure of actual use of computers in schools. A computer refers to a programmable electronic device that can store, retrieve and process data, as well as share information in a highly structured manner. It performs high-speed mathematical or logical operations according to a set of instructions. A computer includes personal computers (PCs), laptops, notebooks, terminals connected to mainframes and mini-computers intended for shared use. The learners-to-computer ratio in schools with CAI is calculated by dividing the number of learners entitled to use school computers (as a pedagogical aid) by the total number of computers available for pedagogical use in schools providing CAI.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.34. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED5 Proportion of schools with Internet access by type of access	
Definition	ED5 measures the proportion of schools with access to the Internet, as a proportion of all schools, for ISCED levels 1 to 3. The indicator is split into four parts, as follows: • Proportion of schools with any Internet access • Proportion of schools with access by fixed narrowband only • Proportion of schools with access by fixed broadband only • Proportion of schools with both fixed narrowband and broadband access The Internet refers to worldwide interconnected networks that enable users to share information in an interactive format — referred to as hypertext — through multiple wired or wireless receivers (personal computers, laptops, PDAs, Smartphones, etc.). Fixed narrowband Internet access refers to connectivity for public use via analogue modem (dial-up via standard phone line), ISDN (Integrated Services Digital Network), DSL at speeds below 256 kbit/s, and other forms of fixed access with a download speed of less than 256 kbit/s. Fixed broadband Internet access refers to high-speed connectivity for public use of at least 256 kbit/s in one or both directions (downloading and uploading). It includes cable modem Internet connections, DSL Internet connections of at least 256 kbit/s, fibre and other fixed broadband technology connections (such as satellite broadband Internet, Ethernet LANs, fixed wireless access, Wireless Local Area Network and WiMAX). Mobile broadband includes technologies at least 3G, e.g. UMTS via a handset or via a card (e.g. integrated SIM card in a computer) or USB modem; mobile broadband via privately-owned mobile phone networks is excluded. The proportion of schools with Internet access, by type is calculated for each type of access (including any access) by dividing the number of schools with Internet access

	by the total number of schools. The result is then multiplied by 100 to be expressed as a percentage.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.36. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED6 Proportion of learners who have access to the Internet at school	
Definition	ED6 measures the proportion of learners entitled to use Internet laboratories at school as a pedagogical aid, for ISCED levels 1 to 3. It measures the accessibility to Internet use for educational purposes by learners. It does not account for the actual use of the Internet by learners. The Internet refers to worldwide interconnected networks that enable users to share information in an interactive format — referred to as hypertext — through multiple wired or wireless receivers (personal computers, laptops, PDAs, Smartphones, etc.). The proportion of learners who have access to the Internet at school is calculated by dividing the number of learners entitled to use Internet laboratories at school as a pedagogical aid by the total number of learners. The result is then multiplied by 100 to be expressed as a percentage.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2 p.37. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED7 Proportion of learners enrolled at the post-secondary level in ICT-related fields	
Definition	ED7 measures the proportion of learners enrolled in ICT-related fields of study in tertiary education institutions, at ISCED levels 4, or 5 and 6. The indicator has gender sub-indicators, male and female. Enrolment in ICT-related fields may be constrained by existing capacities at educational institutions and therefore may not represent actual demand. ICT-related fields include programmes covering any of the following four fields of education and training: Audiovisual techniques and media production is the study of techniques and the acquisition of skills to produce books, newspapers, radio/television programmes, films/videos, recorded music and graphic reproduction with ICT. Computer science is the study of the design and development of computer systems and computing environments. It includes the study of the design, maintenance and integration of software applications. Computer use is the study of using computers, and computer software and applications for different purposes. These programmes are generally of short duration. Electronics and automation (engineering and engineering trades) is the study of planning, designing, developing, maintaining and monitoring electronic equipment, machinery and systems. It includes designing computers and equipment for communication. The proportion of learners enrolled at the post-secondary level in ICT-related fields is calculated by dividing the number of learners enrolled in ICT-related fields by the number of learners enrolled in educational institutions in any field of study. The result is then multiplied by 100 to be expressed as a percentage.

Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.38. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ED8 Proportion of ICT-qualified teachers in schools	
Definition	ED8 measures the extent to which primary and secondary school teachers have been trained to teach basic computer skills (or computing), for ISCED levels 1 to 3. ICT-qualified teachers are those who have trained specifically in pre-service or in- service schemes in ICT according to nationally defined qualification standards. The indicator only presents the skilled teaching force available to deliver ICT courses. This does not necessarily mean that the teachers recorded as qualified actually teach an ICT course, nor does it ensure that ICT course delivery is effective. The proportion of ICT-qualified teachers in schools is calculated by dividing the number of primary and secondary teachers who have been trained to teach basic computer skills (or computing) by the total number of teachers in primary and secondary schools. The result is then multiplied by 100 to be expressed as a percentage.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.39. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

EDR1 Proportion of schools with electricity	
Definition	EDR1 is a reference indicator. It measures the availability of electricity – considered a minimum pre-requisite condition for most ICTs to be introduced to schools. The indicator is available for ISCED levels 1 to 3. Electricity refers to permanent sources of power (e.g. grid/mains connection, wind, water, solar and permanently fuel-powered generator) that enable the adequate and sustainable use of ICT infrastructure for educational purposes. The proportion of schools with electricity is calculated by dividing the number of schools with electricity by the total number of schools. The result is then multiplied by 100 to be expressed as a percentage.
Source	UIS (2009) Guide to measuring information and communication technologies (ICT) in education -Technical Paper No. 2, p.40. http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

ICT in government

EG1 Presence of National E-Government Strategy or Equivalent	
Definition	EG1 indicates the presence of an e-government strategy or equivalent at the national level. Typically, e-government strategies identify the overall purpose of digital government for that country, its SDG priorities, key development objectives, and how it will benefit people. The presence of national e-government strategy or equivalent is reported by the 193 United Nations Member States to the United Nations Department of Economic and Social Affairs (UN DESA). The data is collected through the Member States Questionnaire (MSQ), which is prepared to support United Nations E-Government Survey by providing in-depth country analysis, fact-checking, and data quality assurance.
Source	United Nations Department of Economic and Social Affairs (2021) Member States Questionnaire (MSQ) for the United Nations E-Government Survey. https://publicadministration.un.org/en/Research/UN-e-Government-Surveys

EG2 Presence of DIGITAL ID or Similar Authentication Required to Access Online Services	
Definition	EG2 indicates the existence of a DIGITAL ID or similar authentication capabilities to access online services provided at the national level. Digital identity plays a central role in digital government development and data applicability, as it allows for the basis on which data can be safely and securely shared within and between agencies to improve public services and their delivery. The presence of a DIGITAL ID or similar authentication system is reported by the 193 United Nations Member States to the United Nations Department of Economic and Social Affairs (UN DESA). The data is collected through the Member States Questionnaire (MSQ), which is prepared to support United Nations E-Government Survey by providing in-depth country analysis, fact-checking, and data quality assurance.
Source	United Nations Department of Economic and Social Affairs (2021) Member States Questionnaire (MSQ) for the United Nations E-Government Survey. https://publicadministration.un.org/en/Research/UN-e-Government-Surveys

EG3 Presence Public Procurement Portal	
Definition	EG3 indicates the existence of a publicly available procurement portal, which allows for publishing public procurement notifications and tender results online. Adopting legal frameworks and making procurement processes and contracting arrangements online allows the countries to offer public services compatible with modern and agile ways of developing and deploying digital technology in line with the principles of effectiveness, efficiency, transparency, accountability and public trust. The presence of public procurement portal is reported by the 193 United Nations Member States to the United Nations Department of Economic and Social Affairs (UN DESA). The data is collected through the Member States Questionnaire (MSQ), which is prepared to support United Nations E-Government Survey by providing in-depth country analysis, fact-checking, and data quality assurance.
Source	United Nations Department of Economic and Social Affairs (2021) Member States Questionnaire (MSQ) for the United Nations E-Government Survey. https://publicadministration.un.org/en/Research/UN-e-Government-Surveys

EG4 E-participation Index	
Definition	The E-Participation Index (EPI) is a supplementary index to the United Nations E- Government Survey. It measures the overall level of e-government development by focusing on online services in providing information to its citizens, interacting with stakeholders and engaging in decision-making processes. An EPI value is calculated for every country by adding the values for each selected feature and normalizing the total score. Thus, the EPI represents the e-participation performance of countries relative to one another in a given year.
Source	United Nations Department of Economic and Social Affairs (2020) E-Government Survey 2020, p.250. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf

EG5 Open Government Data Index	
Definition	The Open Government Data Index (OGDI) is a supplementary index to the United Nations E-Government Survey. It focuses on the use of Open Government Data (OGD) and incorporates three dimensions; policy and institutional framework, platform and data availability in various sectors such as health education, employment, social security, environment and justice. The OGDI score by each country is normalized to a range of 0 to 1.
Source	United Nations Department of Economic and Social Affairs (2020) E-Government Survey 2020, p.258. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf

Waste electronic and electrical equipment (WEEE, or e-waste)

EW1 E-waste generation	
Definition	E-waste generated is defined as the amount of discarded electrical or electronic products (e-waste) due to consumption within national territory in a given reporting year, prior to any collection, reuse, treatment, or export. Refers to all electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use. The totals of e-waste generation are disaggregated into six main categories: (1) temperature exchange equipment; (2) screens and monitors (referred to as screens); (3) lamps; (4) large equipment; (5) small equipment; and (6) small IT and telecommunication equipment with an external dimension of less than 50 cm, as defined in the UNEP Global Chemical and Waste Indicators review, and the global e-waste statistics guidelines. The e-waste generation is expressed in tonnes (1000 kg), and can be normalized in kg per capita for cross country comparison.
Source	V. Forti, C.P. Balde, R. Kuehr (2018), E-waste Statisics: Guidelines, on Classifications, Rporting and Indicators, second edition, United Nations University, ViE, Bonn, Germany. https://globalewaste.org/wp-content/uploads/2018/10/RZ_EWaste_Guidelines_LoRes.pdf United Nations Environment Programme (2021). Global Chemicals and Waste Indicator Review Document. Nairobi. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf

EW2 E-waste collection for environmental sound management

Definition	E-waste collection for environmental sound management represents the e-waste separately collected as e-waste and regulated by environmental protection laws specifically designed for e-waste. This includes e-waste that is collected and later exported and treated in another country according to the environmentally sound standards of the exporting country. (1) temperature exchange equipment; (2) screens and monitors (referred to as screens); (3) lamps; (4) large equipment; (5) small equipment; and (6) small IT and telecommunication equipment with an external dimension of less than 50 cm. The e-waste generation is expressed in tonnes (1000 kg) and can be normalized in kg per capita for cross country comparison.
Source	V. Forti, C.P. Balde, R. Kuehr (2018), E-waste Statisics: Guidelines, on Classifications, Rporting and Indicators, second edition, United Nations University, ViE, Bonn, Germany. https://globalewaste.org/wp-content/uploads/2018/10/RZ_EWaste_Guidelines_LoRes.pdf United Nations Environment Programme (2021). Global Chemicals and Waste Indicator Review Document. Nairobi. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf

EW3 E-waste collection rate	
Definition	The E-waste collection rate is defined as indicator EW2 (E-waste collection for environmental sound management) divided by EW1 (e-waste generated). It is multiplied by with 100 per cent. This indicator represents the performance of the environmentally sound collection systems.
Source	V. Forti, C.P. Balde, R. Kuehr (2018), E-waste Statisics: Guidelines, on Classifications, Rporting and Indicators, second edition, United Nations University, ViE, Bonn, Germany. https://globalewaste.org/wp-content/uploads/2018/10/RZ_EWaste_Guidelines_LoRes.pdf United Nations Environment Programme (2021). Global Chemicals and Waste Indicator Review Document. Nairobi. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf

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