

 PARTNERSHIP ON
MEASURING ICT
FOR DEVELOPMENT

A thematic list of ICT indicators for the SDGs

November 2019



1. Background

Information and communication technologies (ICTs) are recognized as a key development enabler. The important role that ICTs play in achieving the SDGs has also been stressed by the ICT community, including the World Summit on the Information Society (WSIS), the Commission on Science and Technology for Development (CSTD) and the UN Group on the Information Society (UNGIS).

The 2030 Agenda for Sustainable Development recognizes that “the spread of information and communications technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies”. Several SDG targets refer to ICTs and technology, highlighting the need to include specific ICT indicators in the monitoring framework.

The Partnership on Measuring ICT for Development¹ has taken a lead role in increasing awareness about the importance of ICT for development and in international ICT monitoring. The Partnership has made a concerted effort to highlight the role that ICTs will play in achieving the SDGs and prepared a joint proposal of ICT indicators to help track the Sustainable Development Goals and targets. In March 2017, at its 48th Session, the UN Statistical Commission (UNSC) adopted the global indicators framework for the SDGs and targets developed by Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs). The framework includes 232 indicators. However, only 7 of those are ICT indicators, covering 6 targets under Goals 4, 5, 9, and 17.

It is imperative that all areas where ICTs will play a role are measured and monitored. To better reflect the role of ICT in achieving the SDGs, the Partnership on Measuring ICT for Development has developed a thematic list of ICT indicators that can be used to measure ICT availability and use in sectors relevant to the SDGs that are not covered in the global SDG indicators framework. The thematic list is presented in this document.

The proposed indicators, which have been discussed and agreed upon through a consultation process involving governments and international organizations, cover the following areas: ICT infrastructure and access; access and use of ICT by households and individuals; use of ICT by businesses; the ICT sector; trade in ICT goods; ICT in education; e-waste and e-government. The list includes 26 ICT indicators, related to 27 SDG Targets belonging to 11 Goals. The Partnership will present the thematic list in its report to the Statistical Commission in March 2020. Going forward, the Partnership will disseminate the list widely to countries and is considering a report.

¹ 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.

2. Criteria

Simple criteria² have been applied to decide on the selection and inclusion of an indicator in the thematic list as follows. Each indicator:

- should address a **single** issue.
- should have sufficiently **reliable** measurement data.
- should be based on **internationally agreed methodologies**.
- should be **quantitative** where possible.
- should be independently **verifiable** where possible.
- should permit **disaggregation** by relevant characteristics of the population under consideration wherever possible. For individuals, this includes (but is not limited to) gender, age group, location (urban/rural), socio-economic status, individual income and educational level. For households this includes income level and location (urban/rural). For enterprises this includes industry and size.
- should be collectable within **reasonable cost** in terms of time and money, in the majority of the countries.
- should preferably be **collected already by an international agency**.

3. Breakdowns

Sustainable Development Goal indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics, in accordance with the Fundamental Principles of Official Statistics (General Assembly resolution 68/261).³

In accordance with this general principle, the following minimum breakdowns are proposed for the thematic indicators.

- For indicators about **individuals**, possible breakdowns are: Sex, Age, Rural/urban, Level of education, Labour force status, Occupation.
- For indicators about **households**, possible breakdowns are: Income, Rural/urban, Household composition, Household size.
- For indicators about **businesses**, possible breakdowns are: Size, Geographical location.
- For indicators about **education**, possible breakdowns are: Sex, ISCED classification.
- For indicators about **technology**, possible breakdowns are: Technology specifications (fixed/mobile, 3G/LTE/4G), Rural/urban, Speed.
- For indicators about **e-waste**, possible breakdown is by type of e-waste.

² Criteria inspired by the work of UNESCO Internet Universality Indicators work, see here: <https://en.unesco.org/news/your-further-inputs-needed-help-unesco-finalize-draft-internet-universality-indicators>.

³ <https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf>.

4. Thematic list of ICT indicators for the SDGs

| PI | Detailed PI | Collected by | Related SDG Targets | Methodology (see reference section at the end) |
|------|--|----------------------------|---|---|
| PI01 | Proportion of individuals using the Internet | ICT surveys (NSO) – ITU | 1.4, 2.3, 4.5, 5.b, 8.5, 9.c, 12.8, 16.10, 17.8 | ITU-Households |
| PI02 | Proportion of households with Internet access | ICT surveys (NSO) – ITU | 1.4, 9.1 | ITU-Households |
| PI03 | Proportion of individuals owning a mobile phone | ICT surveys (NSO) – ITU | 1.4, 2.3, 2.c, 3.8, 5.b, 8.5, 8.10, 10.c, 16.10 | ITU-Households |
| PI04 | Population covered by a mobile broadband network | Telecom regulators – ITU | 1.4, 2.3, 2.a, 2.c, 8.1, 8.2, 9.1, 9.a, 9.c | ITU-ICT |
| PI05 | Internet broadband subscriptions per 100 inhabitants | Telecom regulators – ITU | 9.c, 17.6 | ITU-ICT |
| PI06 | Countries having adopted a national e-health record | WHO | 3.8 | WHO |
| PI07 | Enrolment in basic computer skills and/ or computing courses in secondary education | Education ministries – UIS | 4.5 | UIS-EDU |
| PI08 | Proportion of graduates in ICT-related fields at post-secondary levels (ISCED 5-8) | Education ministries – UIS | 4.5 | UIS-EDU |
| PI09 | Individuals with ICT skills, by type of skill | ITU | 4.4, 8.2 | ITU-Households |
| PI10 | Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills. | UIS | 4.4 | UIS |
| PI11 | Learner-to-computer ratio (ISCED 1-3) | Education ministries – UIS | 4.a | UIS-EDU |
| PI12 | Proportion of educational institutions with computers for pedagogical purposes (ISCED 1-3) | Education ministries – UIS | 4.a | UIS-EDU |
| PI13 | Proportion of educational institutions with Internet for pedagogical purposes (ISCED 1-3) | Education ministries – UIS | 4.a | UIS-EDU |
| PI14 | Internet traffic (in exabytes) | Telecom regulators – ITU | 8.2 | ITU-ICT |
| PI15 | Proportion of individuals using the Internet for the following activities: - Internet banking | ICT surveys (NSO) – ITU | 1.4, 8.1, 8.3, 8.10, 10.c | ITU-Households |
| PI16 | Businesses using the Internet for Internet banking; for accessing other financial services | UNCTAD | 8.3 | UNCTAD |

| PI | Detailed PI | Collected by | Related SDG Targets | Methodology (see reference section at the end) |
|------|---|---|---|---|
| PI17 | Educational institutions (schools) with Internet (ISCED 1-3) | Education ministries – ITU, UIS | 9.1 Balance of payments trade statistics (NSOs) | UIS-EDU/ ITU-Households |
| PI18 | ICT prices as a % of GNI p.c. | Telecom regulators – ITU | 9.1, 9.c | ITU-ICT |
| PI19 | International Internet bandwidth (bps) per Internet user | Telecom regulators – ITU | 9.5, 9.a | ITU-ICT |
| PI20 | Businesses using the Internet | UNCTAD | 17.8 | UNCTAD |
| PI21 | UN E-participation index | UNDESA | 16.6, 16.7, 16.10 | UNDESA-EPI |
| PI22 | Proportion of e-waste treated environmentally sound | OECD, UNSD/UNEP, UNU | 12.4, 12.5 | EWASTE |
| PI23 | Proportion of businesses receiving orders over the Internet | UNCTAD | 17.8 | UNCTAD |
| PI24 | Proportion of businesses placing orders over the Internet | UNCTAD | 17.8 | UNCTAD |
| PI25 | Business use of broadband subscriptions | UNCTAD | 8.2 | UNCTAD |
| PI26 | International trade in digitally-deliverable services as a percentage of total services trade (%) | Balance of payments trade statistics (NSOs) | 8.2 | UNCTAD-ICT |

5. Thematic indicator by SDG Target

5.1 - Target 1.4

“...by 2030 ensure that all men and women, particularly the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services including microfinance”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|-------------------------------|-------------------------------------|---|
| PI01 - Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This target includes that by 2030 all men and women have access to appropriate new technology, among others. PI01 measures the proportion of individuals using the Internet and indicates to what extent part of this target is achieved. The Internet is an example of appropriate new technology. |
| PI02 - Proportion of households with Internet access | Income Urban/rural Household composition Household size | ICT surveys (NSO) | ITU | This target includes that by 2030 all men and women have access to appropriate new technology, among others. PI02 measures the proportion of households using the Internet and indicates to what extent part of this target is achieved. The Internet is an example of appropriate new technology. As differences between individuals (as measured in PI01) and households might occur, it is necessary to measure the proportion of households with Internet access as well. |
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | An indication of the proportion of individuals owning a mobile phone contributes to targeting how many individuals have access to appropriate new technology. Owning a mobile phone can also potentially enable individuals to have access to financial services. |
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | Those who are covered by a broadband network are better able to gain access to appropriate new technology. |
| PI15-Proportion of individuals using the Internet for the following activities - Internet banking | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individual's use of Internet banking increase population's access to financial services in general, thus further support the target's aim. |

5.2 - Target 2.3

“...by 2030 double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|---|
| PI01 - Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who use the Internet have potentially greater access to knowledge on agricultural productivity. It can also act as a measure for the equal access to resources and knowledge by those active in the agricultural sector. In addition, Internet of Things applications for precision agriculture allow for an increase in agricultural productivity. |
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who own a mobile phone also have potential access to financial services and market information. |
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | Individuals who are covered by a mobile network are able to make use of knowledge available through the Internet. This indicator can also be used as a comparison among individuals on their equal access to resources and knowledge by those active in the agricultural sector. |

5.3 - Target 2.a

“...increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development, and plant and livestock gene banks to enhance agricultural productive capacity in developing countries, in particular in least developed countries”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|--|
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | By measuring what part of the population is covered by a mobile network, this indicator can act as a reference point for the status of countries' level of development on (mobile) networks. |

5.4 - Target 2.c

“...adopt measures to ensure the proper functioning of food commodity markets and their derivatives, and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|--|
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who own a mobile phone will have potential more timely access to market information. |
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | By measuring what part of the population is covered by a mobile network, insight is given into the population's possibilities of access to market information. |

5.5 - Target 3.8

“...achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|--|---|
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who own a mobile phone have potential access to financial risk protection as well as essential health care services |
| PI06 - Countries having adopted a national e-health record | | | WHO | This PI will emphasize the value of digitalization in health care services. |

5.6 - 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”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|---|---|
| PI09 - Individuals with ICT skills, by type of skill | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU; this is the Global SDG indicator 4.4.1 | The number of individuals with ICT skills can act as a good measuring indicator for reaching the target. |
| PI10 - Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills. | Sex | | UIS; this is thematic education indicator 4.4.2 | The percentage of youth/adults having achieved a minimum level of proficiency in digital literacy skills can act as a good measurement for achieving the target. Reference from UIS ⁴ : Digital literacy is the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy |

⁴ <http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf>

5.7 - Target 4.5

“...by 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|---------------------|--------------------------------------|--|--|
| PI01-Proportion of individuals using the Internet | Sex | ICT surveys (NSO) | ITU | The use of the internet can act as a measure for the equal access to resources and knowledge in all levels of education and vocational training. |
| PI07 - Enrolment in basic computer skills and/ or computing courses in secondary education | Sex ISCED (2-3) | Education ministries | UIS | Being enrolled in basic computer skills courses will help increase the percentage of youth and adults having such skills. |
| PI08 - Proportion of graduates in ICT-related fields at post-secondary levels (ISCED 5-8) | Sex ISCED (5-8) | Education ministries | UIS | The number of graduates from ICT-related fields can represent youth and adults who have relevant skills to achieve the target. |

5.8 - Target 4.a

“...build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|---------------------|--------------------------------------|---|--|
| PI12 - Proportion of educational institutions with computers for pedagogical purposes (ISCED 1- 3) | ISCED (1-3) | Education ministries | This is the global SDG indicator 4.a.1 c. UIS is custodian agency | Utilization of computers for education purposes can support the provision of education facilities as wished for by the target. |
| PI13 - Proportion of educational institutions with Internet for pedagogical purposes (ISCED 1-3) | ISCED (1-3) | Education ministries | This is the global SDG indicator 4.a.1 b. UIS is custodian agency | Utilization of Internet for education purposes can support the provision of education facilities as wished for by the target. |
| PI11 - Learner-to-computer ratio (ISCED 1-3) | ISCED (1-3) | Education ministries | UIS | Utilization of computers for education purposes by students can support the provision of education facilities as wished for by the target. |

5.9 - Target 5.b

“...enhance the use of enabling technologies, in particular ICT, to promote women’s empowerment”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|--|--|
| PI01 - Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This PI measures the proportion of individuals using the Internet, which indication is needed to measure any enhancement in the use of enabling technologies as wished for by the target. |
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU; this is the global SDG indicator | This PI measures the proportion of individuals owning a mobile phone, which indication is needed to measure any enhancement in the use of enabling technologies as wished for by the target. |

5.10 - Target 8.1

“...sustain per capita economic growth in accordance with national circumstances, and in particular at least 7% per annum GDP growth in the least-developed countries”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|---|
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | An indicator of the amount of population covered by a mobile network helps in measuring the per capita economic growth. |
| PI15 - Proportion of individuals using the Internet for the following activities: - Internet banking | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This PI directly relates the use of the Internet with banking, which use can be stimulating for economic growth. |

5.11 - Target 8.2

“...achieve higher levels of productivity of economies through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|---|---|--|
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | This PI helps for measuring the target's aim. The population covered by this network can benefit economies. |
| PI09 - Individuals with ICT skills, by type of skill | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This PI helps for measuring the target's aim. |
| PI14 - Internet traffic (in exabytes) | Technology (fixed and mobile) | Telecom regulators | ITU | This PI helps for measuring the target's aim. |
| PI25 - Business' broadband subscriptions | Size | ICT surveys (NSO) | UNCTAD | This PI helps for measuring the target's aim, in which the use of the Internet by business can benefit economies and support diversification, technological upgrading and innovation. |
| PI26- International trade in digitally-deliverable services as a percentage of total services trade (%) | | Balance of payments trade statistics (NSOs) | UNCTAD calculations, based on UNCTAD, WTO, and ITC common data set on international trade in services | This PI helps measure the target's aim as digitalization increases export potential and opportunities in the services sector, and thus helps contribute to economic diversification, technological upgrading, job creation and encourage the growth of SMEs. |

5.12 - Target 8.3

“...promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage formalization and growth of micro-, small- and medium-sized enterprises including through access to financial services”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|---|
| PI16 - Businesses using the Internet for Internet banking; for accessing other financial services | Size | ICT surveys (NSO) | UNCTAD | This PI helps for measuring the target's aim as businesses' use of Internet banking increases their access to financial services. |
| PI15 - Proportion of individuals using the Internet for the following activities: - Internet banking | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individual's use of Internet banking increase population's access to financial services in general, which later can support target's aim. |

5.13- Target 8.5

“...by 2030 achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|--|--|
| PI01 - Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who use the Internet have potentially greater access to knowledge |
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who own a mobile phone also have equal potential access to knowledge |

5.14 - Target 8.10

“...strengthen the capacity of domestic financial institutions to encourage and to expand access to banking, insurance and financial services for all”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|--|
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who own a mobile phone will have potential access to banking, insurance and financial services |
| PI15-Proportion of individuals using the Internet for the following activities: - Internet banking | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individual's use of Internet banking increase population's access to financial services in general, thus further support the target's aim. |

5.15 - Target 9.1

“Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|---|
| PI02-Proportion of households with Internet access | Income Urban/rural Household composition Household size | ICT surveys (NSO) | ITU | Having Internet access will connect households to infrastructure which supports both the development of the economy and human well-being. |
| PI04-Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | This PI measures the population covered by a mobile network. This is needed for access to infrastructure. |
| PI17-Educational institutions (schools) with Internet (ISCED 1-3) | ISCED (1-3) | Education ministries | UIS | The amount of educational institutions connected with the Internet contributes to achieving the target. |
| PI18-ICT prices as a % of GNI p.c. | Fixed broadband (5 GB) and mobile data (1.5 GB) | Telecom regulators | ITU | This PI measures the extent of affordable and equitable access of infrastructure (i.e. ICT) available |

5.16 - Target 9.5

“...enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, particularly developing countries, including by 2030 encouraging innovation and increasing the number of R&D workers per one million people and public and private R&D spending”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|---------------------|--------------------------------------|--|--|
| PI19-International Internet bandwidth (bps) per Internet user | | Telecom regulators | ITU | As the contracted capacity of international connections between countries for transmitting Internet traffic, the PI here is used as a measurement of the upgraded technological capabilities and enhanced scientific research. |

5.17 - Target 9.a

“...facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, LDCs, LLDCs and SIDS”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|--|
| PI04-Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU | This PI facilitates infrastructure development. |
| PI19-International Internet bandwidth (bps) per Internet user | | Telecom regulators | ITU | The PI here helps measure the built sustainable and resilient infrastructure in the countries. |

5.18 - Target 9.c

“...significantly increase access to ICT and strive to provide universal and affordable access to internet in LDCs by 2020”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|---|---|
| PI01 - Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This PI is a good indicator for determining the increase of those having access to and use the Internet. |
| PI04 - Population covered by a mobile broadband network | Technology (3G, LTE/4G) Urban/rural | Telecom regulators | ITU; this is the global SDG indicator for 9.c | This PI measures the coverage of the population by a mobile network. This is necessary for measuring the access to both ICT and the Internet. |
| PI05 - Internet broadband subscriptions per 100 inhabitants | Fixed and active mobile Speed (for fixed only) | Telecom regulators | ITU | The amount of subscriptions per 100 inhabitants will give an indication of those having access to the Internet. This PI is also a good indicator for determining the increase of those having access, as is determined by the target. |
| PI18 - ICT prices as a % of GNI p.c. | Fixed broadband (5 GB) and mobile data (1.5 GB) | Telecom regulators | ITU | This PI help measures the affordable access to the Internet in the countries. |

5.19 - Target 10.c

"...by 2030, reduce to less than 3 percent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 percent"

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|--|--|
| PI03 - Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individuals who own a mobile phone will have potential access to banking and financial services, thus have lower cost of transactions. |
| PI15 - Proportion of individuals using the Internet for the following activities: - Internet banking | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | Individual's use of Internet banking reduce cost to financial services and transactions, thus further support the target's aim |

5.20 - Target 12.4

“...by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|---|---|
| PI22 - Proportion of e-waste treated Environmentally Sound | By type of e-waste. 1) Temperature Exchange Equipment. 2) Screens. 3) Lamps. 4) Large Equipment. 5) Small Equipment. 6) Small IT Equipment | | Eurostat, OECD, UNSD/UNEP, UNU provides more detailed data by the Global E-waste Statistics Partnership | Proportion of e-waste treated Environmentally Sound = total e-waste recycled / total e-waste generated This PI is a sub-indicator proposed to specifically monitor e-waste/Waste Electric and Electronic Equipment (WEEE) and identify its potential contribution to the waste stream. |

5.21 - Target 12.5

“by 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|---|---|
| PI22 - Proportion of e-waste treated environmentally sound | By type of e-waste. 1) Temperature Exchange Equipment. 2) Screens. 3) Lamps. 4) Large Equipment. 5) Small Equipment. 6) Small IT Equipment | | Eurostat, OECD, UNSD/UNEP, UNU provides more detailed data by the Global E-waste Statistics Partnership | Proportion of e-waste treated Environmentally Sound = total e-waste recycled / total e-waste generated This PI is a sub-indicator proposed to specifically monitor e-waste/Waste Electric and Electronic Equipment (WEEE) and identify its potential contribution to the waste stream. |

5.22 - Target 12.8

“...by 2030 ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|---------------------|--------------------------------------|--|--|
| PI01 - Proportion of individuals using the Internet | Rural/urban | ICT surveys (NSO) | ITU | This PI is a good indicator to measure that people everywhere have access to the relevant information specified by the target. |

5.23 - Target 16.6

“...develop effective, accountable and transparent institutions at all levels”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|---------------------|--------------------------------------|---|---|
| PI21 - United Nations E-participation index | | | Compiled by UNDESA for even years (2018, 2020 etc.) | This PI reflects the use of online tools in promoting interaction between the government and its citizens; therefore it can help measure the effectiveness, accountability, and transparency of institutions. |

5.24 - Target 16.7

“Ensure responsive, inclusive, participatory and representative decision-making at all levels”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|-------------------------------|---------------------|--------------------------------------|---|--|
| PI21-UN e-Participation Index | | | Compiled by UNDESA for even years (2018, 2020 etc.) | This PI reflects the use of online tools in promoting interaction between the government and its citizens; therefore it is a good indicator for the aimed decision-making mentioned in the target. |

5.25 - Target 16.10

“Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|---|--|
| PI01-Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This PI helps measuring the public access to information, which is part of the target. |
| PI03-Proportion of individuals owning a mobile phone | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU | This PI helps measuring the public access to information, which is part of the target. |
| PI21-United Nations E-participation Index | | | Compiled by UNDESA for even years (2018, 2020 etc.) | This PI is based on the availability and relevance of participatory services available on government websites, therefore helps measuring public access to information as a part of the target. |

5.26 - Target 17.6

“Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|---|--|--------------------------------------|---|--|
| PI05 - Internet broadband subscriptions per 100 inhabitants | Fixed and active mobile Speed (for fixed only) | Telecom regulators | ITU; this is global SDG indicator 17.6.2 (fixed only) | The amount of subscriptions per 100 inhabitants will give an indication of those having access to STI. |

5.27 - Target 17.8

“...fully operationalize the Technology Bank and STI (Science, Technology and Innovation) capacity building mechanism for LDCs by 2017, and enhance the use of enabling technologies in particular ICT”

Thematic ICT Indicators (PI)

| PI | Breakdown(s) | Data source at national level | International agency compiling data | Justifications |
|--|--|--------------------------------------|--|---|
| PI01-Proportion of individuals using the Internet | Sex Age Rural/urban Level of education Labour force status Occupation | ICT surveys (NSO) | ITU; this is the global SDG indicator for 17.8 | This PI helps measuring the use of enabling technologies in particular ICT. |
| PI20 - Proportion of businesses using the Internet | Size Geographical location | ICT surveys (NSO) | UNCTAD | This PI measures the use of enabling technologies, which is part of the target. |
| PI23 - Proportion of businesses receiving orders over the Internet | Size Geographical location | ICT surveys (NSO) | UNCTAD | This PI measures to what extent third parties make use of the Internet to conduct orders from businesses. |
| PI24 - Proportion of businesses placing orders over the Internet | Size Geographical location | ICT surveys (NSO) | UNCTAD | This PI measures the use of enabling technologies, which is part of the target. |

6. Methodological references

| Identifier | Description | Link |
|----------------|---|---|
| ITU-ICT | ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT | https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx |
| ITU-Households | ICT access by households and use by individuals indicators: Manual for Measuring ICT Access and Use by Households and Individuals | https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual2014.aspx |
| ITU-ICT Prices | ICT prices | https://www.itu.int/en/ITU-D/Statistics/Pages/ICTprices/default.aspx |
| UIS-EDU | Background Information on Education Statistics in the UIS Database | http://uis.unesco.org/sites/default/files/documents/background-information-education-statistics-uis-database-2018-en.pdf |
| UIS | A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2, by Digital Literacy Global Framework (DLGF) project | http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf |
| UNCTAD | Handbook of Statistics 2017, see Annex for methodologies | https://unctad.org/en/PublicationsLibrary/tdstat42_en.pdf |
| UNCTAD-ICT | International Trade in ICT Services and ICT-enabled Services: Proposed Indicators from the Partnership on Measuring ICT for Development(TN/UNCTAD/ICT4D/03) | https://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d03_en.pdf |
| UNDESA-EPI | UNDESA's UN E-Government Survey Methodology, see specifically how E-Participation Index is constructed. | https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2018-Survey/E-Government%20Survey%202018_Annexes.pdf |
| E-WASTE | E-Waste Statistics Guidelines on Classification Reporting And Indicators | https://www.itu.int/en/ITU-D/Climate-Change/Documents/2018/EWaste_Guidelines_final.pdf |
| WHO | Global Survey on eHealth | https://www.who.int/ehealth/en/ |