ICT Indicators Overview (June 2019)

Summary

(for details of each target and each indicator, please see further below)

PI	Detailed PI	Collected by	No of times used in targets	Related SDG Targets	Criteria (y = yes, n = no, u = unclear)					
					Addresses a single issue	Has sufficient reliable measurement data	Based on internationally agreed methodologies	Quantitative (where possible)	Permit disaggregation	Already collected by an international agency
PI001	Proportion of individuals using the Internet	ICT surveys (NSO) – ITU	8	1.4, 2.3, 4.5, 5.b, 8.5, 9.c, 12.8, 16.10	Y	Y	Y	Y	Y	Y
PI002	Proportion of households with Internet access	ICT surveys (NSO) – ITU	2	1.4, 9.1	Y	Y	Y	Y	Y	Y
PI005	Proportion of individuals owning a mobile phone	ICT surveys (NSO) – ITU	8	1.4, 2.3, 2.c, 3.8, 5.b, 8.10, 10.c, 16.10	Y	U	Y	Y	Y	Y
PI006	Population covered by a mobile broadband network	Telecom regulators – ITU	9	1.4, 2.3, 2.a, 2.c, 8.1, 8.2, 9.1, 9.a, 9.c	Y	Y	Y	Y	Y	Y
PI008	Internet broadband subscriptions per 100 inhabitants	Telecom regulators – ITU	1	9.c	Y	Y	Y	Y	Y	Y
PI011	Countries having adopted a national e-health record	WHO	1	3.8	Y		Y	Y	N	Y
PI016	Enrolment in basic computer skills and/ or computing courses in secondary education	Education ministries – UIS	1	4.5	N			Y	Y	
PI017	Proportion of graduates in ICT-related fields at post-secondary levels (ISCED 5-8)	Education ministries – UIS	1	4.5	Y		Y	Y	Y	

PI018	Individuals with ICT skills, by type of skill, by age	Education ministries – ITU, UIS	2	4.4, 8.2	N	U	Y	Y	Y	
PI	**Detailed PI**	**Collected by**	**No of times used in targets**	**Related SDG Targets**	**Criteria (y = yes, n = no, u = unclear)**					
					Addresses a single issue	Has sufficient reliable measurement data	Based on internationally agreed methodologies	Quantitative (where possible)	Permit disaggregation	Already collected by an international agency
PI019	Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills	UIS	1	4.4	N	N		Y	Y	
PI023	Learner-to-computer ratio (ISCED 1-3)	Education ministries – UIS	1	4.a	Y			Y	U	Y
PI024	Proportion of educational institutions with computers for pedagogical purposes (ISCED 1- 3)	Education ministries – UIS	1	4.a	Y			Y	U	Y
PI025	Proportion of educational institutions with Internet for pedagogical purposes (ISCED 1-3)	Education ministries – UIS	1	4.a	Y			Y	U	Y
PI031	Internet traffic (in exabytes)	Telecom regulators – ITU	1	8.2	Y	U	Y	Y	Y	Y
PI033	Proportion of individuals using the Internet for the following activities: Internet banking	ICT surveys (NSO) – ITU	5	1.4, 8.1, 8.3, 8.10, 10.c	Y	U	Y	Y	Y	Y
PI037	Businesses using the Internet for Internet banking; for accessing other financial services	UNCTAD	1	8.3	Y			Y	N	
PI044	Educational institutions (schools) with Internet (ISCED 1-3)	Education ministries – ITU, UIS	2	9.1	Y		Y	Y	Y	
PI045	ICT prices as a % of GNI p.c.	Telecom regulators – ITU	2	9.1, 9.c	Y	Y	Y	Y	Y	Y
PI046	International bandwidth (bps) per Internet user	Telecom regulators – ITU	2	9.5, 9.a	Y	Y	Y	Y	N	Y

PI	Detailed PI	Collected by	No of times used in targets	Related SDG Targets	Criteria (y = yes, n = no, u = unclear)					
					Addresses a single issue	Has sufficient reliable measurement data	Based on internationally agreed methodologies	Quantitative (where possible)	Permit disaggregation	Already collected by an international agency
PI048	Businesses using the Internet	UNCTAD	1	17.8	Y			Y	Y	
PI049	UN E-participation index	UNDESA	3	16.6, 16.7, 16.10	N	Y	Y	Y	N	Y
PI052	Proportion of e-waste treated environmentally sound	OECD, UNSD/UNEP, UNU	3	8.4, 12.4, 12.5	Y		Y	Y	Y	Eurostat, OECD-UNSD/UNEP in collaboration with UNU
PI059	Proportion of businesses receiving orders over the Internet	UNCTAD	1	17.8	Y			Y	Y	
PI060	Proportion of businesses placing orders over the Internet	UNCTAD	1	17.8	Y			Y	Y	
SPI003	Business' use of broadband subscriptions	UNCTAD	1	8.2	Y			Y	U	

1. Introduction

This document only covers those targets of the SDGs that could be measured by an ICT indicator, to be included on the thematic list of ICT indicators for the SDGs.

Simple criteria[1] for inclusion in the thematic list are 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 time and money, in the majority of the countries
- should preferably be **collected already by an international agency**

2. Breakdowns

- 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), Rural/urban, Speed
- For indicators about **e-waste**, possible breakdown is by type of e-waste

[1] 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. Targets

3.1 - 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*"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001 - 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. PI001 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.
PI002 - 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. PI002 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 PI001) and households might occur, it is necessary to measure the proportion of households with Internet access as well.
PI005 - 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.
PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) Urban/rural	Telecom regulators	ITU	Those who are covered by a broadband network are more able to gain access to appropriate new technology.

PI033-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.

3.2 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001 - 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.
PI005 - 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.
PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) 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.

3.3 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) 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.

3.4 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI005 - 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.

PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) 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.

3.5 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI005 - 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
PI011 - Countries having adopted a national e-health record			WHO	This PI will emphasize the value of digitalization in health care services.

3.6 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI018 - Individuals with ICT skills, by type of skill, by age	Sex Age Rural/urban Level of education Labour force status Occupation	ICT surveys (NSO)	ITU; this is the Global SDG indicator 4.4	The number of individuals with ICT skills can act as a good measuring indicator for reaching the target.
PI019 - 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 4.4.1	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[2]: 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

[2] http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf

3.7 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001-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.
PI016 - 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.
PI017 - 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.

3.8 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI024 - 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.
PI025 - 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 c. UIS is custodian agency	Utilization of Internet for education purposes can support the provision of education facilities as wished for by the target.
PI023 - 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.

3.9 - Target 5.b

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001 - Proportion of individuals using the Internet	Sex Age Rural/urban Level of education Labour force status Occupation	ICT surveys (NSO)	ITU; this is global SDG indicator 17.8	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.
PI005 - 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.

3.10 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) Urban/rural	Telecom regulators	ITU; this is global SDG indicator 9.c	An indicator of the amount of population covered by a mobile network helps in measuring the per capita economic growth.
PI033 - 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.

3.11 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) Urban/rural	Telecom regulators	ITU; this is global SDG indicator 9.c	This PI helps for measuring the target's aim. The population covered by this network can benefit economies.
PI018 - Individuals with ICT skills, by type of skill, by age	Sex Age Rural/urban Level of education Labour force status Occupation	ICT surveys (NSO)	ITU; this global SDG indicator 4.4	This PI helps for measuring the target's aim.
PI031 - Internet traffic (in exabytes)	Technology (fixed and mobile)	Telecom regulators	ITU	This PI helps for measuring the target's aim.
SPI003 - Business' use of broadband subscriptions			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.
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.

3.12 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI037 - Businesses using the Internet for Internet banking; for accessing other financial services		?	UNCTAD	This PI helps for measuring the target's aim as businesses' use of Internet banking increases their access to financial services.
PI033 - Proportion of individuals using the Internet for the following activities: - Internet banking		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.

3.13 - Target 8.4

"improve progressively through 2030 global resource efficiency in consumption and production, and endeavour to decouple economic growth from environmental degradation in accordance with the 10-year framework of programmes on sustainable consumption and production with developed countries taking the lead"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI052 - 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.

3.14- 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001 - Proportion of individuals using the Internet	Sex Age Rural/urban Level of education Labour force status Occupation	ICT surveys (NSO)	ITU; this is global SDG indicator 17.8	Individuals who use the Internet have potentially greater access to knowledge
PI005 - 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

3.15 - Target 8.10

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications

PI005 - 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
PI033-Proportion of individuals using the Internet for the following activities: - Internet banking		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.

3.16 - 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"

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI002-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.
PI006-Population covered by a mobile broadband network	Technology (3G, LTE) Urban/rural	Telecom regulators	ITU; this is global SDG indicator 9.c	This PI measures the population covered by a mobile network. This is needed for access to infrastructure.
PI044-Educational institutions (schools) with Internet (ISCED 1-3)	ISCED (1-3)	Education ministries	UIS; this is global indicator 4.a.1	The amount of educational institutions connected with the Internet contributes to achieving the target.
PI045-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

3.17 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI046-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.

3.18 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI006-Population covered by a mobile broadband network	Technology (3G, LTE) Urban/rural	Telecom regulators	ITU; this is global SDG indicator 9.c	This PI facilitates infrastructure development.
PI046-International Internet bandwidth (bps) per Internet user		Telecom regulators	ITU	The PI here helps measure the built sustainable and resilient infrastructure in the countries.

3.19 - Target 9.c

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001 - Proportion of individuals using the Internet	Sex Age Rural/urban Level of education Labour force status Occupation	ICT surveys (NSO)	ITU; this is global SDG indicator 17.8	This PI is a good indicator for determining the increase of those having access to and use the Internet.
PI006 - Population covered by a mobile broadband network	Technology (3G, LTE) Urban/rural	Telecom regulators	ITU; this is global SDG indicator 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.
PI008 - 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.
PI045 - 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 internet in the countries.

3.20 - 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"’

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications

PI005 - 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.
PI033 - 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

3.21 - 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."

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI052 - 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.

3.22 - Target 12.5

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI052 - 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.

3.23 - Target 12.8

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001 - Proportion of individuals using the Internet	Rural/urban	ICT surveys (NSO)	ITU; this is global SDG indicator 17.8	This PI is a good indicator to measure that people everywhere have access to the relevant information specified by the target.

3.24 - Target 16.6

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI049 - 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.

3.25 - Target 16.7

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI049-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.

3.26 - Target 16.10

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

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI001-Proportion of individuals using the Internet		ICT surveys (NSO)	ITU; this is global SDG indicator 17.8	This PI helps measuring the public access to information, which is part of the target.
PI005-Proportion of individuals owning a mobile phone		ICT surveys (NSO)	ITU; this is global SDG indicator 5.b.1	This PI helps measuring the public access to information, which is part of the target.
PI049-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.

3.27 - 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”

Proposed ICT Indicators (PI)

PI	Breakdown(s)	Data source at national level	International agency compiling data	Justifications
PI048 - Proportion of businesses using the Internet	Size Geographical location		UNCTAD	This PI measures the use of enabling technologies, which is part of the target.
PI059 - Proportion of businesses receiving orders over the Internet	Size Geographical location		UNCTAD	This PI measures to what extent third parties make use of the Internet to conduct orders from businesses.
PI060 - Proportion of businesses placing orders over the Internet	Size Geographical location		UNCTAD	This PI measures the use of enabling technologies, which is part of the target.

4. Overview of ICT indicators [based on previous comments, 28 May 2019]

PI	Detailed PI	No of times used in different targets	Related SDG Targets
PI001	Proportion of individuals using the Internet	8	1.4, 2.3, 4.5, 5.b, 8.5, 9.c, 12.8, 16.10
PI002	Proportion of households with Internet access	2	1.4, 9.1
PI005	Proportion of individuals owning a mobile phone	9	1.4, 2.3, 2.c, 3.8, 5.b,8.5, 8.10, 10.c, 16.10
PI006	Population covered by a mobile broadband network	9	1.4, 2.3, 2.a, 2.c, 8.1, 8.2, 9.1, 9.a, 9.c
PI008	Internet broadband subscriptions per 100 inhabitants	1	9.c

PI011	Countries having adopted a national e-health record	1	3.8
PI016	Enrolment in basic computer skills and/ or computing courses in secondary education	1	4.5
PI017	Proportion of graduates in ICT-related fields at post-secondary levels (ISCED 5-8)	1	4.5
PI018	Individuals with ICT skills, by type of skill, by age	2	4.4, 8.2
PI019	Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills.	1	4.4
PI023	Learner-to-computer ratio (ISCED 1-3)	1	4.a
PI024	Proportion of educational institutions with computers for pedagogical purposes (ISCED 1- 3)	1	4.a
PI025	Proportion of educational institutions with Internet for pedagogical purposes (ISCED 1-3)	1	4.a
PI031	Internet traffic (in exabytes)	1	8.2
PI033	Proportion of individuals using the Internet for the following activities: - Internet banking	5	1.4, 8.1, 8.3, 8.10, 10.c
PI037	Businesses using the Internet for Internet banking; for accessing other financial services	1	8.3
PI044	Educational institutions (schools) with Internet (ISCED 1-3)	1	9.1
PI045	ICT prices as a % of GNI p.c.	2	9.1, 9.c
PI046	International Internet bandwidth (bps) per Internet user	2	9.5, 9.a
PI048	Businesses using the Internet	1	17.8
PI049	UN E-participation index	3	16.6, 16.7, 16.10
PI052	Proportion of e-waste treated Environmentally Sound	3	8.4, 12.4, 12.5
PI059	Proportion of businesses receiving orders over the Internet	1	17.8
PI060	Proportion of businesses placing orders over the Internet	1	17.8
SPI003	Business' use of broadband subscriptions	1	8.2
	Total PIs = **25**		