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Report of the Partnership on Measuring Information and Communication Technology for Development

Note by the Secretary-General

In accordance with Economic and Social Council decision 2019/210 and past practices, the Secretary-General has the honour to transmit to the Statistical Commission the report of the Partnership on Measuring Information and Communication Technology for Development. In the report, the Partnership presents an overview of its recent work, including the revision of the methodological guidelines on information and communications technology (ICT) indicators, which include new indicators that reflect the most recent developments in the adoption and use of ICTs by households and individuals, and of recent progress on the use of big data for measuring the information society. The Partnership also provides an update of its thematic list of ICT indicators for monitoring progress towards the implementation of the 2030 Agenda for Sustainable Development. The thematic list is now available for use by countries and has been shared with the Inter-Agency and Expert Group on Sustainable Development Goal Indicators. The Commission is invited to review the progress made on the availability of ICT statistics; welcome the revised guidelines for the production of ICT statistics; endorse the thematic list of ICT indicators for monitoring progress towards the implementation of the 2030 Agenda; and express support for the continued work of the Partnership on Measuring Information and Communication Technology for Development.

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* E/CN.3/2020/1.

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Report of the Partnership on Measuring Information and Communication Technology for Development

I. Introduction

1. The Partnership on Measuring Information and Communication Technology for Development was launched in 2004 to improve the availability of internationally comparable statistics on information and communications technology (ICT).[1] Since then, ICT statistics have been a regular item on the agenda of the Statistical Commission, and the Partnership reported on progress in its work in 2005, 2007, 2009, 2010, 2012, 2014, 2016 and 2018 (see E/CN.3/2005/23, E/CN.3/2007/5, E/CN.3/2009/19, E/CN.3/2010/28, E/CN.3/2012/12, E/CN.3/2014/8, E/CN.3/2016/13 and E/CN.3/2018/26).

2. The Commission considered the topic of ICT statistics as an item for discussion at its thirty-eighth session, in 2007, forty-third session, in 2012, forty-fifth session, in 2014, forty-seventh session, in 2016, and forty-ninth session, in 2018. At the forty-ninth session of the Commission, the Partnership submitted a report to the Commission in which it highlighted that countries would need to consider ICT indicators beyond the Sustainable Development Goal monitoring framework in order to adequately assess the impact of ICTs on their national sustainable development. The work of the Partnership task group on ICT for the Sustainable Development Goals was outlined in the report, including its objective to develop a thematic list of ICT indicators for the Goals.

3. In the present report, the Partnership provides an overview of the work it has undertaken since its previous report to the Commission in 2018, in particular the work linked to monitoring progress towards the Sustainable Development Goals.

II. Recent progress in the measurement of information and communications technology

A. Core list of information and communications technology indicators, definitions and statistical standards

4. One of the main achievements of the Partnership has been the establishment of a core list of ICT indicators, which was endorsed by the Commission at its thirty-eighth session, in 2007, and revisions to which were presented at its forty-third, forty-fifth and forty-seventh sessions (see E/CN.3/2007/5, E/CN.3/2012/12, E/CN.3/2014/8 and E/2016/24). The core list, which has served as the basis for the collection of internationally comparable ICT statistics worldwide, covers the following areas: ICT infrastructure and access; access to and use of ICT by households and individuals; use of ICT by businesses; the ICT sector; trade in ICT goods and services; ICT in

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[1] As at November 2019, the following entities were members of the Partnership: the International Telecommunication Union; the Organization for Economic Cooperation and Development; the United Nations Conference on Trade and Development; the United Nations Educational, Scientific and Cultural Organization Institute for Statistics; the Economic Commission for Latin America and the Caribbean; the Economic and Social Commission for Western Asia; the Economic and Social Commission for Asia and the Pacific; the Economic Commission for Africa; the Department of Economic and Social Affairs of the United Nations Secretariat; Eurostat; the United Nations Environment Programme secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; the Sustainable Cycles Programme of the United Nations University Vice-Rectorate in Europe; the World Bank; and the International Labour Organization.

education; and e-government.[2] The main purpose of the list is to help countries that collect or are planning to collect ICT statistics to produce high-quality and internationally comparable data. To that end, the indicators have associated statistical standards and metadata.

5.   Within the Partnership, the International Telecommunication Union (ITU) is responsible for collecting, harmonizing and disseminating the core ICT access and ICT household indicators and regularly reviews the definitions of the indicators to ensure that they remain relevant to the rapid evolution of ICT. The Expert Group on Telecommunication/ICT Indicators, which includes more than 1,100 members, and the Expert Group on ICT Household Indicators, which includes more than 800 members, conduct their work through online discussion forums and report the outcome of their work to the World Telecommunication/ICT Indicators Symposium. The most recent outcomes of the work of both expert groups were presented at the Symposium held in Geneva in December 2019.

6.   Both expert groups met in September 2019 and discussed the revisions of the two methodological guidelines of the ITU on ICT indicators. The first, the *Handbook for the Collection of Administrative Data on Telecommunications/ICT*, was last revised in 2011 but has been regularly updated to include new indicators discussed during the meetings of the Expert Group on Telecommunication/ICT Indicators. The revision of the handbook in 2019 provided an opportunity to include all the indicators agreed in previous meetings of the Expert Group and to elaborate on the scope, methodology, examples provided and relevance of the indicators. The revised handbook will be published in the beginning of 2020.[3]

7.   Similarly, at its meeting in 2019, the Expert Group on ICT Household Indicators discussed the revision of the *Manual for Measuring ICT Access and Use by Households and Individuals*. The manual was originally published in 2009 and a second edition was published in 2014, in which the list of ICT indicators was extended and a chapter was added on the coordination of national statistical systems in the area of ICT statistics. The Expert Group affirmed the importance of the manual as a reference document and approved its structure and the incorporation of the indicators agreed during its meeting. The newly revised manual, which is to be published in the beginning of 2020, includes additional examples and clarifications, including new and updated country examples, on topics such as survey vehicles, survey design, data collection methods, additional modules/questions, breakdowns of indicators, and dissemination formats.[4]

8.   Using the handbook and manual as a basis, ITU assists Governments in developing countries in their efforts to collect and disseminate ICT data. Support is provided for the production of statistics in the areas of ICT infrastructure and ICT access and use by households and individuals. Technical workshops are carried out at the national and regional levels to exchange experiences and discuss methodologies, definitions, survey vehicles and other issues related to the collection of ICT statistics.

9.   In 2016, the Partnership task group on measuring ICT services and ICT-enabled services proposed that four indicators on imports and exports of such services be added to the core list of indicators (see E/CN.3/2016/13). Building on that work, in 2017, the United Nations Conference on Trade and Development (UNCTAD) provided technical assistance for the launch of pilot enterprise surveys on exports of ICT-enabled services in Costa Rica, India and Thailand. The surveys were implemented by national statistical agencies in collaboration with the private sector.

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[2] See www.itu.int/en/ITU-D/Statistics/Documents/coreindicators/Core-List-of-Indicators_March2016.pdf.

[3] See www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx.

[4] See www.itu.int/pub/D-IND-ITCMEAS-2014.

The project enabled national agencies to produce official statistics on exports in ICT-enabled services. A technical note of the main findings was published in June 2018.[5] Other countries have expressed an interest in conducting similar surveys.[6]

10.   UNCTAD has also established a new Working Group on Measuring E-Commerce and the Digital Economy, which held its first meeting on 3 and 4 December 2019.[7] The Working Group aims to advance cooperation on measuring e-commerce and the digital economy and enhance the availability, quality, comparability, usability and relevance of those statistics with a view to supporting evidence-based policymaking, especially in developing countries. At the meeting, the Working Group focused on the revision of the UNCTAD *Manual for the Production of Statistics on the Information Economy*, last revised in 2009, and on measuring domestic and cross-border e-commerce. The Working Group will strengthen the work of the Partnership in terms of the development of indicators and methodologies regarding the evolving digital economy.

11.   The United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics is responsible for developing and collecting indicators on ICT access and use in education. The Institute has led the work of developing the core list of ICT indicators in education, including definitions and the preparation of methodological guidelines, in particular the *Guide to Measuring Information and Communication Technologies (ICT) in Education*, published in 2009. The Institute has helped to collect internationally comparable data on ICT in education in Latin America and the Caribbean, in five Arab States, in Asia and in sub-Saharan Africa through the use of surveys that were developed with the international Working Group on ICT Statistics in Education, which was established by the Institute. The Working Group provides invaluable insight into the design and implementation of relevant survey instruments and related methodologies. Such work also entails close collaboration with the Communication and Information Sector of UNESCO and other strategic institutional partners.

12.   In 2019, the Department of Economic and Social Affairs of the Secretariat continued to work on the preparation of the *United Nations E-Government Survey 2020*. The 2020 survey will be the eleventh edition, following a consistent methodology first adopted in 2003. The survey serves to assess global and regional e-government development through a comparative rating of national government portals. The survey will also continue to include assessments of e-government development at the local level; a pilot study that was started as part of the 2018 edition will cover more than 80 cities in 2020.

13.   The Economic and Social Commission for Western Asia (ESCWA) works with the Department of Economic and Social Affairs on the *E-Government Survey* at the regional level, as part of its overall assessment of digital development or its national stocktaking reviews of ICT for development, which are based on a five-clusters approach for conducting national reviews of the World Summit on the Information Society action lines. Furthermore, ESCWA works on its government electronic and mobile services maturity index as a measurement and policy tool aimed at advancing electronic and mobile services in member countries.

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[5] See https://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d11_en.pdf.

[6] In relation to the new household indicators on e-commerce and the work to measure international trade in ICT-enabled services, there has been increased interest by countries in measuring cross-border e-commerce. UNCTAD is collaborating with organizations outside the Partnership to find ways to collect such data, including through enterprise surveys; see http://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d06_en.pdf.

[7] See https://unctad.org/en/Pages/MeetingDetails.aspx?meetingid=2259.

III. Information and communications technology statistics to measure progress towards achieving the Sustainable Development Goals

14. In its report to the Commission in 2018, the Partnership indicated that it had established a task group on ICT for the Sustainable Development Goals, the objective of which was to propose a thematic list of ICT indicators that could be used to measure ICT availability and use in sectors relevant to the Goals that are not covered in the global indicator framework for the Goals. One of the main objectives of the task group was to define a thematic list of ICT indicators that could be collected by countries to assess their level of ICT adoption and use.

15. In 2019, the task group, co-led by ITU and the Department of Economic and Social Affairs, concluded its work and finalized the thematic list of ICT indicators. Most of the indicators included in the list are from the Partnership's core list of ICT indicators and are based on established methodologies and definitions. A large majority of the indicators has been endorsed by the Commission, which also recognized the important role of ICTs for the post-2015 development framework. A number of indicators were selected for the tracking of several Sustainable Development Goal targets, reflecting the cross-cutting nature of ICTs. The task group further aimed to improve the availability of disaggregated data for the indicators included in the thematic list.

16. The thematic list includes 26 ICT indicators, which are related to 27 targets under 11 Sustainable Development Goals and were discussed and agreed upon through a consultation process involving Governments and international organizations. The list covers the following areas: ICT infrastructure and access; access to and use of ICT by households and individuals; use of ICT by businesses; the ICT sector; trade in ICT goods and services; ICT in education; e-waste; and e-government. A summary of the thematic list is provided in the annex to the present report. A more detailed presentation of the list is provided on the ITU website. [8] Going forward, the Partnership will disseminate the list widely to countries and is considering preparing a report.

17. After the Global e-Waste Statistics Partnership, which aims to build capacity in countries to produce reliable and comparable e-waste statistics and build a global e-waste database to track developments over time and inform policymakers and industry, was successfully launched in 2017, it published the *Global e-Waste Monitor 2017: Quantities, Flows and Resources*, which provides the most comprehensive overview of global e-waste statistics available today (only 41 countries collect internationally comparable e-waste statistics), including an overview of the magnitude of the e-waste problem in different regions. In the report, the Global e-Waste Statistics Partnership includes up-to-date information on the amount of e-waste generated and recycled, makes predictions up to the year 2021 and provides information on the progress of e-waste legislation. In June 2019, the Global e-Waste Statistics Partnership launched globalewaste.org, a website that provides visualizations of e-waste data and statistics for use by policymakers, industry, academia and the general public. The website also provides details on how countries can be supported through capacity-building activities to enhance data collection. Regional capacity-building workshops have been held in East Africa, Latin America and Arab States, as a result of which more than 180 people from 40 countries have been trained on e-waste statistics. The second edition of *E-Waste Statistics: Guidelines on Classification, Reporting and Indicators* has also been published, and

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[8] See http://www.itu.int/en/ITU-D/Statistics/Documents/intlcoop/partnership/Thematic_ICT_indicators_for_the_SDGs.pdf.

the *Global e-Waste Monitor 2020* is currently in preparation for launch in early 2020. A dedicated subindicator on e-waste is also being developed under Sustainable Development Goal indicator 12.5.1, "National recycling rates, tons of material recycled", which is currently a tier III indicator, in partnership with the United Nations University, the United Nations Environment Programme and other experts.

IV. Big data for information and communications technology statistics

18.   The growth of ICTs has resulted in a rapid increase of new data sources, including big data sources, in particular from the ICT industry. ITU is looking into innovative ways to utilize big data as a new data source and to overcome important data gaps. Discussions were held at the sessions of the World Telecommunication/ICT Indicators Symposium held from 2013 to 2017, and as part of the work of the Expert Group on ICT Household Indicators. In addition, ITU plays an active role in the Global Working Group on Big Data for Official Statistics through its task teams on methodologies, skills and capacity-building and through the sharing of experiences on how mobile phone, satellite and social media data could be used for official statistics. ITU is currently leading the Global Working Group task team on the use of mobile phone data for official statistics.

19.   As a key contribution to the exploration of new data sources for official statistics, ITU launched in June 2016 a pilot project on using big data for measuring the information society. The project included pilot studies in six countries, Colombia, Georgia, Kenya, the Philippines, Sweden and the United Arab Emirates, that were aimed at exploring how big data from the ICT industry, in particular from telecommunications operators, could produce new or complement existing indicators to measure the information society. A document that includes ICT indicators calculated using big data and the methodologies used was produced as an outcome of the project. The experiences learned from the pilot countries and the outcome document can be used as a reference by countries that are interested in implementing similar activities. Documents presenting the project outputs are available on the ITU website.[9] ITU is planning to expand its work on big data by implementing the project in other countries that have shown interest in using big data for measuring the information society.

20.   ECLAC is leading a data laboratory that seeks to boost innovation in the use of alternative data sources and their combination with official statistics for the measurement of the digital economy. In this framework, ECLAC opted for the use of public data available on the web that were captured through web-crawling and web-scraping techniques, in addition to the use of application programming interfaces. Topics analysed include online labour market and digital skills, the prices of technological goods, crowdfunding, e-commerce, cryptocurrency trends and analysis of social network content about the Sustainable Development Goals.

V. Conclusions

21.   The need for more and better official ICT statistics to help to measure progress in implementing the 2030 Agenda has been widely recognized. Countries will need to consider ICT indicators beyond the Sustainable Development Goal monitoring framework in order to adequately assess the impact of ICTs on their sustainable

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[9] See www.itu.int/en/ITU-D/Statistics/Pages/bigdata/default.aspx.

development. The Partnership's thematic list of ICT indicators for the Goals will provide guidance to countries in this regard.

22. The measurement of the evolving digital economy in particular is an aspect of ICT statistics that has received increased attention from individual partners as part of their mandates, and this work in turn contributes to knowledge-sharing within the Partnership. Examples of such work include the UNCTAD *Digital Economy Report 2019: Value Creation and Capture – Implications for Developing Countries*,[10] the theme of the World Telecommunication/ICT Indicators Symposium held in 2019 and the report of the Organization for Economic Cooperation and Development entitled Measuring the Digital Transformation: A Roadmap for the Future, published in 2019. New data needs for the digital economy will require countries to strengthen national coordination and include all stakeholders in order to improve data quality and availability as a means to inform policy.

23. The Partnership will continue to review and update its list of ICT indicators, cooperate in developing new indicators and related methodologies and contribute to the statistical development of countries by offering capacity-building assistance.

24. The Partnership recognizes the potential of big data produced by the evolving digital economy, in particular by technologies such as the Internet of things, cloud computing and artificial intelligence. At the same time, issues of data access and sharing and data protection, privacy and security will have to be addressed, and national statistical systems will need to develop protocols to be able to leverage these new data sources.

25. Once again, the Partnership calls upon development partners to consider expanding their support for technical assistance for ICT statistics, in particular to train national statisticians and other producers and users of official ICT statistics, and to finance related data collection, analysis and dissemination.

VI. Action to be taken by the Statistical Commission

26. **The Commission is invited:**

(a) **To review the progress made on the availability of ICT statistics;**

(b) **To welcome the revised guidelines for the production of ICT statistics;**

(c) **To endorse the thematic list of ICT indicators for monitoring progress towards the implementation of the 2030 Agenda;**

(d) **To express support for the continued work of the Partnership on Measuring Information and Communication Technology for Development.**

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[10] Chapter III of the report is focused on measuring value in the digital economy.

Annex

Thematic list of information and communications technology indicators for the Sustainable Development Goals

1. Background

1.   Information and communications technologies (ICTs) are recognized as a key development enabler. The important role that ICTs play in achieving the Sustainable Development Goals has also been stressed by the ICT community, including the World Summit on the Information Society, the Commission on Science and Technology for Development and the United Nations Group on the Information Society.

2.   In the 2030 Agenda for Sustainable Development, it is recognized 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 targets of the Sustainable Development Goals refer to ICTs and technology, highlighting the need to include specific ICT indicators in the monitoring framework.

3.   The Partnership on Measuring Information and Communication Technology for Development[1] has taken a leading role in increasing awareness of the importance of ICT for development and in ICT monitoring at the international level. The Partnership has made a concerted effort to highlight the role that ICTs will play in achieving the Sustainable Development Goals and has prepared a joint proposal of ICT indicators to help to track the Goals and targets. In March 2017, at its forty-eighth session, the Statistical Commission adopted the global indicator framework for the Goals and targets developed by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators. The framework includes 232 indicators. However, only 7 of those are ICT indicators, covering 6 targets under Goals 4, 5, 9 and 17.

4.   It is imperative that all areas in which ICTs will play a role are measured and monitored. To better reflect the role of ICT in achieving the Sustainable Development Goals, the Partnership has developed a thematic list of ICT indicators that can be used to measure ICT availability and use in sectors relevant to the Goals that are not covered in the global indicator framework.

5.   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 to and use of ICT by households and individuals; use of ICT by businesses; the ICT sector; trade in ICT goods and services; ICT in education; e-waste; and e-government. The list includes 26 ICT indicators, related to 27 targets under 11 Goals. The Partnership will present the thematic list in its report to the Commission in March 2020. Going forward, the Partnership will disseminate the list widely to countries and is considering preparing a report.

2. Criteria

6.   Simple criteria[2] have been applied to decide on the selection and inclusion of an indicator in the thematic list, as follows. Each indicator:

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[1] The Partnership is an international, multi-stakeholder initiative that was launched in 2004 to improve the availability and quality of ICT data and indicators, in particular in developing countries.

[2] The criteria were inspired by the work of the United Nations Educational, Scientific and Cultural Organization on its Internet Universality indicators.

(a) Should address a single issue;

(b) Should have sufficiently reliable measurement data;

(c) Should be based on internationally agreed methodologies;

(d) Should be quantitative, where possible;

(e) Should be independently verifiable, where possible;

(f) Should permit disaggregation by relevant characteristics of the population under consideration, where possible. For individuals, this includes, but is not limited to, gender, age group, location (urban/rural), socioeconomic status, and individual income and educational level. For households, this includes income level and location (urban/rural). For enterprises, this includes industry and size;

(g) Should be collectable at a reasonable cost in terms of time and money in the majority of the countries;

(h) Should preferably have already been collected by an international agency.

3. Breakdowns

7. Sustainable Development Goal indicators (see E/CN.3/2016/2/REV.1, annex IV) 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 endorsed by the General Assembly in its resolution 68/261.

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

(a) For indicators about individuals, possible breakdowns are: sex, age, location (rural/urban), level of education, labour force status, and occupation;

(b) For indicators about households, possible breakdowns are: income, location (rural/urban), household composition, and household size;

(c) For indicators about businesses, possible breakdowns are: size and geographical location;

(d) For indicators about education, possible breakdowns are: sex, and classification on the basis of the International Standard Classification of Education;

(e) For indicators about technology, possible breakdowns are: technology specifications (fixed/mobile, 3G/LTE/4G), location (rural/urban), and speed;

(f) For indicators about e-waste, a possible breakdown is by type of e-waste.

4. Thematic list of information and communications technology indicators for the Sustainable Development Goals

9. The table below sets out the thematic list.

Proposed indicator (PI)	Detailed proposed indicator	Collected by	Related Sustainable Development Goal targets	Methodology
PI01	Proportion of individuals using the Internet	National statistical office (ICT surveys) – International Telecommunication Union	1.4, 2.3, 4.5, 5.b, 8.5, 9.c, 12.8, 16.10, 17.8	International Telecommunication Union-Households
PI02	Proportion of households with Internet access	National statistical office (ICT surveys) – International Telecommunication Union	1.4, 9.1	International Telecommunication Union-Households
PI03	Proportion of individuals owning a mobile phone	National statistical office (ICT surveys) – International Telecommunication Union	1.4, 2.3, 2.c, 3.8, 5.b, 8.5, 8.10, 10.c, 16.10	International Telecommunication Union-Households
PI04	Population covered by a mobile broadband network	Telecommunications regulators – International Telecommunication Union	1.4, 2.3, 2.a, 2.c, 8.1, 8.2, 9.1, 9.a, 9.c	International Telecommunication Union-ICT
PI05	Internet broadband subscriptions per 100 inhabitants	Telecommunications regulators – International Telecommunication Union	9.c, 17.6	International Telecommunication Union-ICT
PI06	Countries having adopted a national e-health record	World Health Organization	3.8	World Health Organization
PI07	Enrolment in basic computer skills and/or computing courses in secondary education	Education ministries – United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics	4.5	UNESCO Institute for Statistics-EDU
PI08	Proportion of graduates in ICT-related fields at post-secondary levels (International Standard Classification of Education levels 5–8)	Education ministries – UNESCO Institute for Statistics	4.5	UNESCO Institute for Statistics-EDU
PI09	Individuals with ICT skills, by type of skill	International Telecommunication Union	4.4, 8.2	International Telecommunication Union-Households
PI10	Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills	UNESCO Institute for Statistics	4.4	UNESCO Institute for Statistics
PI11	Learner-to-computer ratio (International Standard Classification of Education levels 1–3)	Education ministries – UNESCO Institute for Statistics	4.a	UNESCO Institute for Statistics-EDU
PI12	Proportion of educational institutions with computers for pedagogical purposes (International Standard	Education ministries – UNESCO Institute for Statistics	4.a	UNESCO Institute for Statistics-EDU

Proposed indicator (PI)	Detailed proposed indicator	Collected by	Related Sustainable Development Goal targets	Methodology
	Classification of Education levels 1–3)			
PI13	Proportion of educational institutions with Internet for pedagogical purposes (International Standard Classification of Education levels 1–3)	Education ministries – UNESCO Institute for Statistics	4.a	UNESCO Institute for Statistics-EDU
PI14	Internet traffic (in exabytes)	Telecommunications regulators – International Telecommunication Union	8.2	International Telecommunication Union-ICT
PI15	Proportion of individuals using the Internet for Internet banking	National statistical office (ICT surveys) – International Telecommunication Union	1.4, 8.1, 8.3, 8.10, 10.c	International Telecommunication Union-Households
PI16	Businesses using the Internet for Internet banking and for accessing other financial services	United Nations Conference on Trade and Development	8.3	United Nations Conference on Trade and Development
PI17	Educational institutions with Internet (International Standard Classification of Education levels 1–3)	Education ministries – International Telecommunication Union, UNESCO Institute for Statistics	9.1	UNESCO Institute for Statistics -EDU/ International Telecommunication Union-Households
PI18	ICT prices as a percentage of gross national income per capita	Telecommunications regulators – International Telecommunication Union	9.1, 9.c	International Telecommunication Union-ICT
PI19	International Internet bandwidth (bits per second) per Internet user	Telecommunications regulators – International Telecommunication Union	9.5, 9.a	International Telecommunication Union-ICT
PI20	Businesses using the Internet	United Nations Conference on Trade and Development	17.8	United Nations Conference on Trade and Development
PI21	United Nations e-participation index	Department of Economic and Social Affairs	16.6, 16.7, 16.10	Department of Economic and Social Affairs-EPI
PI22	Proportion of e-waste treated in an environmentally sound manner	Organization for Economic Cooperation and Development, Statistics Division of the United Nations/United Nations Environment Programme, United Nations University	12.4, 12.5	EWASTE

Proposed indicator (PI)	Detailed proposed indicator	Collected by	Related Sustainable Development Goal targets	Methodology
PI23	Proportion of businesses receiving orders over the Internet	United Nations Conference on Trade and Development	17.8	United Nations Conference on Trade and Development
PI24	Proportion of businesses placing orders over the Internet	United Nations Conference on Trade and Development	17.8	United Nations Conference on Trade and Development
PI25	Business use of broadband subscriptions	United Nations Conference on Trade and Development	8.2	United Nations Conference on Trade and Development
PI26	International trade in digitally deliverable services as a percentage of total services trade	National statistical office (balance of payments trade statistics)	8.2	United Nations Conference on Trade and Development-ICT

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