

ITU Submission Template for HLPF 2019

ITU Council Contribution to the High-Level Political Forum on Sustainable Development (HLPF)

ECOSOC functional commissions and other intergovernmental bodies and forums are invited to provide substantive inputs to the 2019 HLPF showcasing the intergovernmental body's contribution towards the 2030 Agenda in general, and particularly for the Sustainable Development Goals (SDGs) and respective targets that are most relevant to the intergovernmental body's mandate.

The 2019 HLPF will have at its theme "Empowering people and ensuring inclusiveness and equality". It will also review the following sustainable development goals

(SDGs): SDG 4 (Quality education), 8 (Decent work and economic growth), 10 (Reduced inequalities), 13 (Climate change), and 16 (Peaceful societies, justice and strong institutions) along with SDG 17 on Global Partnerships.

The following template, inspired by the report of the Secretary-General on global follow-up and review of the 2030 Agenda for Sustainable Development (A/70/684), could be considered in providing inputs.

Contributions can be sent no later than **15 March 2019** to the Secretariat's e-mail selcuk@un.org (cc: kandam@un.org, cruz@un.org).

GENERAL INTRODUCTION

The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies (ICTs). ITU allocates global radio spectrum and satellite orbits, develops the technical standards that ensure networks and technologies seamlessly interconnect, and strive to improve access to ICTs to underserved communities worldwide. ITU is committed to connecting all the world's people – wherever they live and whatever their means.

Through ITU's work, we protect and support everyone's fundamental right to communicate. The Sustainable Development Goals (SDGs) and targets stimulate global action in the coming years in areas of critical importance for humanity and the planet. As acknowledged by the 2030 Agenda for Sustainable Development, "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, as does scientific and technological innovation across areas as diverse as medicine and energy".

Indeed, increased connectivity, digital technologies, information systems and Internet use have the potential to reduce poverty and create jobs through applications and services, such as e-agriculture and digital finance; help end poverty and hunger; monitor and mitigate climate change and sustaining our natural resources; as well as improved efficiency and transparency. All three pillars of sustainable development – economic development, social inclusion and environmental protection – need ICTs as key

catalysts. The development potential of ICT as crosscutting enablers must therefore be fully harnessed for achieving the SDGs.

At the ITU Plenipotentiary Conference 2018 (PP-18)¹ in the United Arab Emirates (29 October to 16th November 2018) ITU members approved the Strategic plan for the Union for 2020-2023 (Resolution 71, Revised Dubai 2018). This Strategic Plan, covering the time-frame 2020-2023, is the first Strategic Plan fully within the time-frame of the 2030 Agenda for Sustainable Development.

The new Strategic Plan clear links to the SDGs and a vision to have an impact in achieving the SDGs. The section entitled *Linkages with the Sustainable Development Goals* highlights the most relevant SDG Goals for ITU, such as: SDG 9 (Industry, Innovation and Infrastructure) and in particular Target 9.c; SDG17 (Partnership for the Goals) as a means of implementation; SDG 4 (Quality Education including Target 4.b); and SDG 5 (Gender Equality, in particular Target 5.b). The section also addresses other SDGs where ICTs, enabled by ITU activities, will have the biggest impacts such as: SDG 11 (Sustainable Cities and Communities), SDG 12 (Ensure sustainable consumption and production patterns), SDG 10 (Reduced Inequalities), SDG 8 (Decent Work and Economic Growth), SDG 1 (No Poverty), and SDG 3 (Good-Health and Well-Being). In addition the revised Resolution 200 entitled “Connect 2030 Agenda for global telecommunication/ICT, including broadband, for sustainable development” closely aligns with the SDGs and their timeframe.

PP-18 also re-enforced the linkages between the World Summit on the Information Society (WSIS) Action Lines and the 2030 Agenda for Sustainable Development; most notably those where ITU is the sole Action Line facilitator C2 (Information and communication infrastructure), C5 (Building confidence and security in the use of ICTs) and C6 (Enabling environment). The outcome document of the 2015 high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society (UNGA Resolution A/70/125), called for close alignment between the WSIS process and the 2030 Agenda.

The effective implementation of the WSIS Action Lines can help accelerate the achievement of the SDGs. To that end, the [WSIS SDG Matrix](#)², coordinated by ITU and developed in collaboration with the different UN Action line Facilitators, clearly shows the linkage between each Action line and the 17 SDGs. In addition, the WSIS Forum, held annually, serves as a key multi-stakeholder platform for discussing the role of ICTs as a means of implementation of the SDGs and targets, and is constantly evolving and strengthening the alignment between these and the WSIS Action Lines. The outcomes of the Forum are submitted to the HLPF³. As a key partner in the WSIS process ITU also contributes to the Commission on Science and Technology for Development (CSTD), by providing a report of its WSIS implementation activities in order to populate the UN Secretary-General’s annual report, and also provide inputs to be considered in the preparation of the annual ECOSOC Resolutions on the Assessment of the progress made in the implementation of and the follow-up to the outcomes of the World

¹ ITU is governed by the Plenipotentiary Conference and the administrative Council. The Plenipotentiary Conference is the supreme organ of the Union. It is the decision making body which determines the direction of the Union and its activities.

² <http://www.itu.int/net4/wsis/sdg/>

³ WSIS Forum outcomes are transmitted to the HLPF annually: [2016](#); [2017](#); [2018](#)

Summit on the Information Society, highlighting the cross-cutting role of ICTs in achieving the SDGs.

The governing bodies of the ITU Sectors have also embedded the SDGs as key goals in their activities. In this regard, 2017 marked an important milestone for the global discussion on the contribution of the ICT to the achievement of SDGs. The 7th ITU World Telecommunication Development Conference (WTDC-17), 9-20 October 2017, Buenos Aires, Argentina, was held under the overall theme of "ICT for Sustainable Development Goals" (ICT④SDGs). WTDC-17 provided a unique opportunity for the ITU Membership to discuss the future of the telecommunications and ICT sector and its contribution to the sustainable development. It also defined the contribution of ITU to the attainment of SDGs including SDGs under consideration by HLPF-19 (see below for more details) while underlining the role of WSIS framework as the foundation through which the ITU helps achieve the 2030 Agenda for Sustainable Development.

Furthermore, the 18th Global Symposium for Regulators (GSR-18), held in Geneva, Switzerland, 9-12 July 2018, under the theme of "New Regulatory Frontiers", culminated with the adoption by ICT regulators of a set of best practice guidelines on new regulatory frontiers to achieve digital transformation. ITU monitors and tracks evolution of regulatory frameworks, and publishes such results in its ICT Regulatory Tracker. ITU also monitors and quantifies the impact of broadband, digital transformation and the interplay of ICT regulation on the global economy, including digital economy and circular economy, providing evidence of the importance of the regulatory and institutional variable in driving digital growth, and illustrates that broadband technologies, on one hand, and effective ICT regulation, on the other hand, can have positive impact on the growth of national economies and prosperity.⁴

An in-depth view of the role of ICTs and ITU's contribution to the goals to be reviewed at the 2019 High-Level Political Forum for Sustainable Development (Goals 4, 8, 10, 13, 16 & 17) is provided in Annex 1.

A. AN ASSESSMENT OF THE SITUATION REGARDING THE PRINCIPLE OF "ENSURING THAT NO ONE IS LEFT BEHIND" AT THE GLOBAL LEVEL:

"Ensuring that no one is left behind" has a specific meaning in telecommunications – that of *universal access and service (UAS)* and leaving no one off-line.

Access to accessible, affordable, reliable and secure telecommunication/ICT networks, including broadband, and to related services and applications, can facilitate economic, social and cultural development and implement digital inclusion through these means.

⁴ The economic contribution of broadband, digitization and ICT regulation, 2018

In pursuance of its mission, ITU annually monitors the digital divide, including the gender digital divide (see below), to assess and track who has access to ICTs and telecommunication networks, and where.

The latest data on ICT development from ITU estimates that⁵:

More than half of the world's population is now online. At the end of 2018, 51.2 per cent of individuals, or 3.9 billion people, were using the Internet. This represents an important steps towards a more inclusive global information society. In developed countries, four out of five people are online, reaching saturation levels. In developing countries, though, there is still ample of room for growth, with 45 per cent of individuals using the Internet. In the world's 47 least-developed countries (LDCs), Internet uptake remains relatively low and four out of five individuals (80 per cent) are not yet using the Internet.

There continues to be a general upward trend in the access to and use of ICTs. With the exception of fixed-telephony, all indicators showed sustained growth over the last decade. However, in recent years, growth is slowing for most of the access indicators, particularly in countries where large parts of the population are already connected. Growth will need to pick up again if the ambitious targets of the ITU Connect 2030 Agenda and the Broadband Commission for Sustainable Development are to be met. These include a target of 70 per cent Internet penetration by 2023, and 75 per cent by 2025.

Mobile access to basic telecommunication services is becoming ever more predominant. While fixed-telephone subscriptions continue their long-term decline, mobile-cellular telephone subscriptions continue to grow. Although the number of mobile-cellular telephone subscriptions is already greater than the global population, the same is not true in all regions. It can be expected therefore that developing countries, and especially LDCs, will slowly catch up with the rest of the world.

Broadband access continues to demonstrate sustained growth. Fixed-broadband subscriptions are continuously increasing, without a slowdown in growth rates. Furthermore, almost all fixed-broadband subscriptions had download speeds of at least 2 Mbit/s, with a very substantial part having advertised speeds of more than 10 Mbit/s. In LDCs, there is still a significant pocket of subscriptions for the lowest speed tier (≥ 256 kbit/s to < 2 Mbit/s), although that proportion is decreasing rapidly. The growth in active mobile-broadband subscriptions has been much stronger, with penetration rates increasing from 4.0 subscriptions per 100 inhabitants in 2007 to 69.3 in 2018.

Almost the whole world population now lives within range of a mobile-cellular network signal. In addition, most people can access the Internet through a 3G or higher-quality network. This evolution of the mobile network, however, is going faster than the growth in the percentage of the population using the Internet.

Internet access at home is gaining traction. Almost 60 per cent of households had Internet access at home in 2018, up from less than 20 per cent in 2005. Fewer than half of households had a computer at home, highlighting that a substantial number of households accessed the Internet

⁵ Measuring the Information Society 2018

(also) through other means, most importantly through mobile devices, often using the data plan of the mobile-broadband subscription. Three quarters of the world's population owned a mobile phone in 2017, but in LDCs this proportion stood at 56 per cent. Given the positive impacts of mobile phone ownership on development, this is an area where quick gains can be made.

Growth in international bandwidth and Internet traffic has been even stronger than growth in access to ICTs and the percentage of the population using the Internet. This could be explained by the fact that people spend more time online, and more and more spend that time doing data-intensive activities, such as watching videos and playing interactive games.

ICT prices have dropped globally in the last decade, in parallel with the increase in access to and use of ICT services. Improved ICT regulation and policy-making have played a pivotal role in creating the conditions for the reduction of prices seen in the period 2008–2017, ensuring that the efficiency gains of higher ICT adoption are partly passed on to customers.

Mobile-cellular prices followed a sustained decreasing trend in the period 2008–2015. From 2015, mobile-cellular prices have plateaued and the ITU mobile-cellular basket (51 minutes and 100 SMS messages per month) cost on average USD 12.5 per month at the end of 2017. This is half the average price of the fixed-broadband basket, but 35 per cent higher than the average for the handset-based mobile-broadband basket, thus suggesting that there is still room for lower mobile-cellular prices.

B. THE IDENTIFICATION OF GAPS, AREAS REQUIRING URGENT ATTENTION, RISKS AND CHALLENGES:

Accessibility of ICTs

Globally 1.1 billion people currently live with some form of disability (WHO Report). The number of older persons is expected to grow to more than 2.1 billion by 2050 (2017 UN. Report in Aging Population), the majority of which will live in less developed regions, while over 1 billion youth are in danger of hearing loss due to their unsafe listening habits (ITU-WHO Make Listening Safe Initiative). This means that in the next 30 years the number of persons affected by a form of disability could touch half of the world's population, all of whom will require accessible ICTs. Accessible ICTs provide equal access to information, communication and functionalities to all users.

Lack of ICT Skills⁶

Lack of ICT skills is an important impediment for people to access the Internet. Data show that, as activities get more complex, fewer people undertake these activities. More importantly, computer users in developed countries seem to possess more ICT skills than users in developing countries, pointing to a serious constraint on the development potential of developing countries and LDCs.

⁶ Measuring the Information Society 2018

There is an increased need for “soft” skills beyond technical and navigational skills. A breadth of skills – including technical operational, information management, social and content-creation skills – will be fundamental for achieving positive and avoiding negative outcomes. Furthermore, algorithms, the proliferation of bots, and a shift to the Internet of Things and Artificial Intelligence, augment the need for critical information and advanced content-creation skills. With the increased complexity of ICT systems, and an exponential increase in the amount of data being collected, transferable digital skills and lifelong learning are indispensable.

ITU data and other cross-nationally comparative data sources show that there are considerable gaps across the board in the skills needed at all levels. A third of individuals lack basic digital skills, such as copying files or folders or using copy and paste tools; a mere 41 per cent have standard skills, such as installing or configuring software or using basic formulas on spreadsheets; and only 4 per cent are using specialist language to write computer programs.

Scarce data suggest developing countries are particularly disadvantaged when it comes to digital skills. There is a lack of data collected on skills in developing regions, but the available data suggest that inequalities reflect other inequalities between the different regions of the world, particularly in relation to basic skills. The patterns for standard skills are less clear.

Within-country inequalities in basic and standard skills reflect historical patterns of inequality. On average, those in employment were ten percentage points more likely to have a skill than the self-employed, who are in turn ten percentage points more likely than the unemployed to have a skill. Those with tertiary education are around 1.5 to 2 times as likely to have a skill than those with upper secondary education, and 3.5 to 4 times as likely as those with only primary education. Individuals in rural areas are about ten percentage points less likely than urban dwellers to have a skill. Finally, there is a five percentage point difference between men and women in having a certain skill.

There are skill inequalities between children as much as there are between adults. While little data are available on this outside of Europe, available data suggest that digital inequalities are not a generational thing and will persist into the future.

There are clear gaps in data collection for certain countries and groups, and a limited range of methodological tools is used to collect these data. Proxy survey measures (e.g. asking about use to measure skill) and self-reported skill measures are most common. Recently, self-reported skill measures using scales that have been validated through performance tests (performance test survey proxies) have been developed. The least common are actual performance tests or formal exams; in most cases, these are sector- and context-specific. It is recommended to develop survey measures that can be used for larger populations that have been validated to avoid response biases.

There is an urgent need for the development of measures across the range of operational, information management, social and content-creation skills. These items should be device- and platform-independent, measure skills rather than activities, and limit social desirability bias in the design of their answer scales. Furthermore – to understand the skills gap in relation to a potential future in which ICTs are embedded and invisible – the development of critical information, communication and data management, and production skills measures is desperately needed.

Survey measures used in most internationally comparative studies have severe shortcomings. They lack variety (measure only a narrow range of operational skills), comparability (have not been tested to be fit for cross-cultural comparisons), adaptability (are not transferable, as they are associated with specific platforms or activities rather than a core “curriculum” of future proof skills) and equity (have not been validated as comparable assessment tools for different subgroups across highly diverse populations).

Confidence and Security in Use of ICTs

We are in an era of massive technological advancements, driven by frontier technologies such as AI, 5G, Internet of things and many others. They hold great promise in revolutionizing the way we do things - offering potential solutions to many of the world’s problems.

Building trust in cyberspace and in the usage of these new technologies will be crucial in ensuring that the all the world’s people enjoy the benefits of ICTs, especially considering that in today’s world, everything depends on ICTs – and particularly on the networks which underpin them. This includes essential national infrastructure and services such as: government services; financial services; emergency services; water supplies and power networks; food distribution chains; aircraft and shipping; navigation systems; industrial processes and supply chains; healthcare; public transportation; and even our children’s education.

Standardization also has a key role to play. Interoperability of new security products and services should be ensured from the early design stage.

Collaboration and cooperation among all stakeholders is key for strengthening confidence and security in the use of ICTs.

There are a number of positive initiatives globally, including within the UN System. It is important to focus on the overall coherence and the inter-linkages between the processes. It’s important to design the processes with interlinkages for collaboration and cooperation as early as possible rather than as an afterthought, or there is a risk of duplication which dilutes rather than reinforce the global dialogue. However, with the right approach there is an enormous potential to multiply the effect of individual initiatives through partnerships and synergies.

C. VALUABLE LESSONS LEARNED ON ERADICATING POVERTY AND PROMOTING PROSPERITY:

Broadband Investment

Broadband connectivity and services could have a much larger impact in LDCs and developing countries. ITU projects have shown that by connecting schools, healthcare’s centres and local communities to internet services, especially in rural and remote areas have played a key role in access to health, education and the dissemination of ICT knowledge. The establishment of a broadband wireless network in developing countries, especially in rural and remote areas, have shown that they help connect the unconnected.

Broadband infrastructure projects need to be coupled with other type of ICT related projects which will alleviate weak digital literacy, lack of relevant local content and applications. Policy makers of other cross-cutting sectors (for example: health, education, financial services, etc.) need to as well consider a coordinated effort for the application of broadband across all sectors of the economy.

ITU has been able to develop and implement projects in Africa for wireless broadband connectivity that have provided free or low-cost digital access for schools and hospitals, and for underserved populations in rural and remote areas. With the advancing technologies, wireless solutions to provide connectivity at multiple locations has become an achievable task, despite the fact that hardware and equipment needs still require a substantial amount of investment.

Compared to the vast connectivity needs in countries, ITU projects in Africa were an appropriate attempt to improve the quality of life of its citizens through broadband but was limited in terms of its budget and scale. With more investment, the impact of such connectivity would undoubtedly be multiplied. The projects addressed a genuine need of providing last mile connectivity to the people in remote and rural areas. To this end, all stakeholders and beneficiaries underlined the usefulness of the network in increasing quality of life, bringing time and cost savings to the local communities.

Accessibility and Affordability

It is widely recognized that accessible and affordable ICTs provide equal access to information, communication and functionalities to all users, without any discrimination, including for persons with disabilities.

Accessibility is defined as the: *“extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use”* (ISO TC 159). For many modern technologies and in many contexts of use, ICTs can be designed and developed to meet the needs of all users (e.g. a smart phone can be used by a young person, a persons with hearing impairment as well as by a blind person). However for many of the users accessible ICT are not affordable, so they cannot have access to these technologies.

Affordability *“means the state of being cheap enough for people to be able to buy”*. Considering that in general, persons with disabilities are facing financial constraints, the lack of affordability is also a *“barrier”* to access ICTs. Therefore affordability should be considered as a key element to ensure that PwD have access to ICTs.

The Model Policy Report of the ITU- ([عربي](#), [中文](#), [English](#), [Français](#), [Русский](#), [Español](#), [e-book version](#)) provides Governments with the necessary guidelines on accessible ICT public procurement policy framework. Also self-paced training courses are available for members to strengthen their capacity on the topic.

Accessible ICTs are also compatible with assistive technologies and features necessary for users with severe disabilities. Mainstreaming accessibility from the stage of fabrication reduces production costs and results in affordable accessible ICT equipment and services for users with disabilities. On occasion, where persons with disabilities face barriers to use, teachers, employers and persons with disabilities themselves may not be aware that accessible ICT solutions could facilitate their

participation in digital life and work, and consequently contribute to their social and economic development. However, the rate at which governments are meeting their obligation to have public websites and services accessible to all citizens can be slow, which means that the adoption of accessible ICTs and remediation of existing resources for the digital inclusion of persons with disabilities can take time. ITU-Digital Inclusion Programme developed a series of key resources to support Member States in accelerating their implementation process in ICT accessibility.

From the implementation process of Digital Inclusion activities several lessons learned were identified as essential to ensure effectiveness in the process of empowering persons with specific needs through ICT and ensure that they have a better life: our activities must:

1. Be developed and implemented based on the direct requirements and evolving needs of our Members States;
2. Involve and collaborate with all relevant stakeholders in particular the “end users” from design to implementation up-to evaluation of these activities. The most impactful ICT accessibility policies are crafted in adherence to the principle of “Nothing about us without us,” in collaboration with persons with disabilities (who are the end users);
3. Consider the evolving trends of the ICT ecosystem: ITU’s work on ICT solutions for youth unemployment, shows that digital skills training is most effective when it is demand-driven, using a curriculum designed according to employers’ stated needs;
4. Keep a holistic and long term vision in the development and implementation of the activities. (E.g.: in the guidelines for designing a national digital skills development strategy, ITU recommends teaching computational thinking and coding to all students from a young age to start developing the skills required to work in the digital economy. Similarly, ITU’s international Girls in ICT Day initiative has shown that girls are more likely to choose ICT studies and careers if a sustained effort is made to undo negative gender stereotypes and to provide them with the skills, confidence and support they need.)

Financial Inclusion

Financial inclusion is a critical enabler for poverty reduction and inclusive growth. ITU is part of the Financial Inclusion Global Initiative (FIGI), a collaborative initiative with the World Bank Group, the BMGF, the Committee on Payments and Market Infrastructures (CPMI), and the with broad participation from public and private sector partners. FIGI’s activities support and accelerate the implementation of country-led reform actions to meet national financial inclusion targets, and ultimately the global ‘Universal Financial Access 2020’ goal.

Regulation

Although ICT regulation has evolved globally over the past ten years and has experienced steady transformation, regulators need to keep pace with advances in technology, address the new regulatory frontiers and create the foundation upon which digital transformation can achieve its full potential. Best practice guidelines will give regulators the necessary tools to address these new horizons (see below).

D. EMERGING ISSUES LIKELY TO AFFECT THE REALIZATION OF POVERTY ERADICATION AND ACHIEVING PROSPERITY:

- Digitization is increasingly and fundamentally changing societies and economies and disrupting many sectors in what has been termed the 4th Industrial Revolution. Being prepared for digital transformation and emerging technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Machine to Machine communications (M2M), Big Data, Blockchain and 5G is fundamental. At the same time, there is a continuing need for trusted, secure and reliable ICT infrastructure, as well as for affordable access to and delivery of digital services.
- Digital skills development (see above), particularly considering the career opportunities that exist for people with advanced digital skills.
- Mainstreaming accessible ICTs and Universal design⁷ (see above).

E. AREAS WHERE POLITICAL GUIDANCE BY THE HIGH-LEVEL POLITICAL FORUM IS REQUIRED:

F. POLICY RECOMMENDATIONS ON WAYS TO ACCELERATE PROGRESS IN POVERTY ERADICATION:

- Proactive, collaborative and dynamic policy and regulatory approaches together with innovative and sustainable business and investment models are required to create the conditions for this digital transformation to achieve its full potential.

ICT regulators participating in the 2018 Global Symposium for Regulators (GSR), recognized that, flexible and innovative policy and regulatory approaches can support and incentivize digital transformation. The best practices in this regard would allow us to respond to the changing landscape and address the continuing need for secure and reliable ICT infrastructure, affordable access to and delivery of digital services, as well as protect consumers and maintain trust in ICTs. GSR identified and endorsed these regulatory best practice guidelines on new regulatory frontiers to achieve digital transformation.

- Implementing national ICT accessibility policies and regulatory frameworks is a necessary step towards removing barriers to ICTs for persons with disabilities and the elderly. Access to ICT services has been acknowledged as essential for social, cultural, economic, political and democratic development, and for the exercise of fundamental rights. Also this will accelerate development of inclusive societies and progress in involving persons with disabilities in the education and work so, accelerate progress in poverty eradication.

Enabling accessible ICT ecosystem and environments through elimination of barriers, including by: amendments to the existing ICT legal framework; the provision of public accessible ICT access; accessible and affordable mobile communications and television/video programming; provision of accessible public information to all citizens

⁷ ICTs that have accessibility features embedded in the product or the service and/or are designed and developed from the stage of fabrication following international accessibility standards.

(webs that consider the ICT accessibility standards); and public procurement of accessible ICTs.

Creating such environments requires changes in the work approach to ensure joint efforts and enlarge collaboration with all stakeholders for ensuring common approach, which includes detailed implementation plans and execution of well-defined targets based upon consultations with industry, service providers, organizations of persons with disabilities, standards development organizations, and policy-makers and regulators.

- The utmost priority is to make digital skills policies in relation to gaps in the labour market and concerns about widening social inequalities more effective. This can be done by (a) collecting higher-quality and more reliable data on the full range of digital skills in different sectors; (b) targeting specific groups depending on need and outcomes to be achieved, rather than following a one-size-fits-all approach; and (c) instead of establishing funding principles and incentives around success, where only best practices are shared, by stimulating multisectoral stakeholder partnerships with a continuous exchange of lessons learned and improvements made.
- ICT prices have dropped globally in the last decade, in parallel with the increase in access to and use of ICT services. Improved ICT regulation and policy-making have played a pivotal role in creating the conditions for the reduction of prices seen in the period 2008–2017, ensuring that the efficiency gains of higher ICT adoption are partly passed on to customers.

ANNEX 1: IN-DEPTH VIEW OF ITU'S CONTRIBUTIONS TO GOALS 4, 8, 10, 13, 16 & 17 TO BE REVIEWED AT HLPF 2019 (SDG MAPPING OF ITU'S STRATEGIC AND OPERATIONAL PLANS):

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

ICTs are powering a revolution in digital learning, which has become one of the world's fastest-growing industries. Mobile devices now allow students to access learning assets anytime, anywhere. Teachers are now using mobile devices for everything from literacy and numerical training to interactive tutoring. Indeed, mobile learning has the ability to help break down economic barriers, divides between rural and urban, as well as the gender divide.

ITU contributes to targets 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.b, 4.c through:

- Ensuring equal access for women to technical, vocational and tertiary education by leading the global International Girls in ICT Day campaign to encourage and empower more young women and girls to choose ICTs studies, and by providing information about scholarships for ICT studies and other ICT learning opportunities, as well as practical assistance to Girls in ICT Day event organizers through the Girls in ICT Portal.
- Increasing the number of youth and adults with relevant ICT skills for employment, decent jobs and entrepreneurship by sharing innovative strategies with all ITU Members on how to build their national digital skills development strategies (ITU Digital Skills Toolkit, 2018), and raising awareness on the importance of a range of digital skills for youth employment and entrepreneurship (from basic digital literacy to advanced coding skills).
- The project "Capacity Building at Rural Internet Centres (Thailand)" providing skills development and access to ICTs to rural communities.
- Supporting countries in developing ICT policies and legislation that contribute to the development of a new generation of educated and technology-savvy workforce by ensuring the timely and effective introduction and spread of new and improved products and processes in the economy, reinforcing the ability of individuals and businesses to continuously create wealth.
- Monitoring of Target 4.4 by collecting and disseminating data on individuals with ICT skills.
- Ensuring equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, elderly persons, and indigenous peoples, by: providing assistance to ITU Member States on how to formulate a national ICT Accessibility Policy and providing them key resources in digital content promoting affordable and accessible ICTs for persons with disabilities that facilitate the education and vocational training and by providing online digital skills training to indigenous peoples.
- Ensuring the access of training material on ICT-related topics, including on specialized topics such as cybersecurity in order to increase opportunities for employment.
- The advocacy and promotion of the power of mobile communications for socio-economic development. The ITU m-Powering Development Initiative is creating a resource and an action plan to facilitate the deployment of mobile-

based services particularly for m-Health, m-Learning, m-Governance, m-Commerce, etc.

- Offering a number of tutorials on ICT technology and on the standardization process. Some of the training offered is web-based, i.e. by using current ICT technology. Using electronic working methods EWM help to drastically reduce the costs of training. ITU sees itself at the forefront of this, acting as a role model within the UN system and as the main entity which should further promote EWM for training purposes. The Ad-hoc Group on Education on Standardization is actively filling a gap in current education systems.
- Providing globally harmonized spectrum and standards, ITU enables the development of mobile broadband and its wider penetration, thus permitting E-education to become available throughout the world.
- Several ITU standards provide technical specifications of telepresence systems and services, and of audio-visual multiparty tele meetings, in support of ubiquitous self-directed learning and for distance learning, and a language learning system based on speech/NLP technology.
- Disseminating its outputs through on-line publications, seminars and workshops, ITU contributes to capacity building on information and communication technologies throughout the world.
- Open events and symposia in developing countries raise awareness of ITU services, and encourage peer-learning and best-practices in standards-based innovation.
- Efforts to improve the capacity of developing countries to participate in the development and implementation of international ICT standards, using the vehicle provided by ITU's Bridging the Standardization Gap (BSG) programme.
- Enhancing awareness of the role of capacity building through the implementation of regional workshops and the organization of the ITU Global ICT Capacity Building Symposium.

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

ICT skills have already become a prerequisite for almost all forms of employment, and ICT capacity-building must therefore be prioritized in national youth employment and entrepreneurship strategies in all countries. It is not simply that most jobs and businesses now require ICT skills, but also that ICTs themselves are transforming the way that business is being done everywhere and creating new employment opportunities.

ITU contributes to targets 8.1, 8.2, 8.3, 8.5 8.a and 8.b through:

- Through technological upgrading and innovation by encouraging young people to learn to code, and publishing research on coding boot camps, and offering training workshops on coding boot camp methods, management and instruction.
- Providing assistance and training on migration to converged networks (NGN) to allow adaptability and long term operation of telecommunication/ICT networks, the transition from IPv4 to IPv6, the adoption of IXP, and introducing digital broadcasting and developing Spectrum Management Master Plans. Developing and providing online training on ICT-enabled

entrepreneurship and encouraging young men and women to learn coding and other digital skills in light of the skills shortfall for people with high-level digital skills.

- Reducing the proportion of youth not in employment, education or training by leading the Digital Skills Thematic Area of the Global Initiative on Decent Jobs for Youth.
- Promoting the use of new and existing telecommunication technologies for enhanced trade, in particular in Least Developed Countries.
- The contribution of radiocommunication networks, notably broadband mobile, to overall growth is well demonstrated. Increased mobile broadband access, as impulse by ITU fosters economic growth and increases efficiency of work.
- Collaboration with ILO, leading the Digital Skills for Decent Jobs Campaign as part of the Global Initiative on Decent Jobs for Youth in order to foster decent and inclusive employment and entrepreneurship opportunities in line with the SDGs.
- Standards for telecommunication/ICT operators, network and service providers, and equipment manufacturers, in particular when addressing and providing security and trust, contribute to sustainable economic growth.

Goal 10. Reduce inequality within and among countries

ICTs have the potential to help reduce inequality both within and between countries by enabling access to information and knowledge to disadvantaged segments of society – including those living with disabilities, as well as women and girls. However, by the end of 2016, almost half of the world's population – 3.7 billion people – were not yet using the Internet and access was uneven between genders and geographically. Reducing inequalities cannot be achieved without addressing these underlying issues.

ITU contributes to targets 10.2, 10.3, 10.c through:

- Promoting women and girls to take up ICT careers, youth to learn basic and advanced digital skills, sharing good practices on coding boot camps and promoting accessible ICTs which enable persons with disabilities to engage in economic activities.
- Eliminating discriminatory laws and policies and practices through its ongoing projects of “Support for Harmonization of ICT Policies in the Caribbean” and “Support for Capacity Building and ICT Policies, Regulatory and Legislative Frameworks in the Pacific Island Countries (ICB4PAC II)”.
- Supporting Member States in elaborating and implementing enabling ICT regulatory policies paving the way for the establishment of cross-sectoral institutional and legal frameworks that are transparent, are conducive to investment and growth, foster fair and greater competition as well as innovation, stimulate the deployment of infrastructure, promote the development of new services, are security conscious, and protect and benefit consumers.

- Enhancing broadband access and core networks responsible for carrying international flows of information, including secure digital finance data, which are crucial to reducing transaction costs.
- Providing globally harmonized spectrum and standards, ITU enables the development of mobile broadband and its wider penetration, thus permitting social, economic and political inclusions of all.
- Organizing the Global Symposium for Regulators (GSR) which brings together heads of national telecom/ICT regulatory authorities from around the world and has earned a reputation as the global annual venue for regulators to share their views and experiences on the most pressing regulatory issues they have identified.
- Activities designed to assist ITU members to better understand the accessibility needs of persons with disabilities, the technical solutions that are available and the policy and regulatory solutions they can take to ensure such solutions are widely available at affordable prices.
- Developing key resources on ICT and web accessibility, including capacity-building trainings and programmes for ITU Members and stakeholders (e.g. a programme in web accessibility “Internet for @all” for ITU Member States on how to make public websites accessible for ALL) and freely available online training courses and tutorials (e.g. on ICT accessibility policies, regulations, technology trends, public procurement rules and standards, and digital document remediation).
- Key partnerships in the implementation of regional forums on ICT accessibility such as Accessible Americas and Accessible Europe, which encourage governments and other stakeholders to promote ICT accessibility for all and to see ICT accessibility as a cross-cutting development issue.
- International Girls in ICT Day, an ITU initiative which aims to create a global environment that empowers and encourages girls and young women to consider careers in the growing field of ICTs.
- Online training for indigenous peoples on “Indigenous Radio/Networks - Communication Innovative Tools for the strengthening of Indigenous Communities of the Americas Region” and has developed further curriculum to build the capacity of Indigenous technicians to ensure the self-sustainability of indigenous community-related networks.
- Strong advocacy of “Universal Design” as defined in the UN Convention on the Rights of Persons with Disabilities (UNCRPD) and has developed standardization guidelines to produce solutions that are inherently accessible to persons with and without disabilities. ITU proactively address accessibility and human factors in their standardization work by ensuring that the needs of persons with disabilities and persons with specific needs are taken into account, and by mainstreaming accessibility features in telecommunication/ICT accessibility standards for the inclusion of persons with disabilities and persons with specific needs, including age-related disabilities, those with illiteracy, women, children, and indigenous people. Multimedia telecommunication relay services based on ITU standards support inclusiveness for persons with disabilities, allowing them to be able to use

telecommunications services with a level of functionality and ease of use that is similar to the way people use mainstream voice telecommunications services.

- Leading efforts to improve the capacity of developing countries to participate in the development and implementation of international ICT standards, using the vehicle provided by ITU's Bridging the Standardization Gap (BSG) programme.

Goal 13. Take urgent action to combat climate change and its impacts

ICTs, including satellite monitoring, play a crucial role in earth monitoring, sharing climate and weather information, forecasting, and early warning systems. ICTs therefore enable both the global monitoring of climate change as well as strengthen resilience by helping mitigate the effects of climate change through forecasting and early warning systems.

ITU contributes to targets 13.1, 13.3, 13.6, 13.a and 13.b through:

- Developing and delivering training programmes on ICT and climate change. It also contributes by increasing resilience through the development and establishment of monitoring and early warning systems, in partnership with other stakeholders.
- Implementing a project on restoring connectivity through the use of the movable and deployable ICT resource unit.
- The implementation of projects on climate change adaptation, developing satellite communications capacity and emergency communications solutions for the Pacific Islands.
- ITU's work on environment, climate change and circular economy is responsible for studies on methodologies for examining the potential role of ICTs in climate change related activities. ITU has published various guidelines and Recommendations on how ICTs are fundamental for monitoring climate change, mitigating and adapting to its effects and assisting in the transition towards a green and circular economy.
- Raising awareness of the role of ICTs, ITU is promoting transformative solutions that can ensure a sustainable future for all and reduce the impacts of unforeseen disasters, and serves as a platform to discuss the appropriateness of specific ICT technologies and solutions.
- In order to achieve target 13.6, the traffic management systems need to be implemented by 2019. ITU Collaboration on ITS Communication Standards CITS has a coordination function. CITS catalyses work in ITU study groups.
- Spectrum and standards provided by ITU for Earth observation systems to ensure monitoring and timely warning of natural and environmental disasters, accurate climate prediction and a detailed understanding, are essential to strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. Sound and television broadcasting, PPDR and commercial mobile broadband networks, IoT, search and rescue satellite systems, as enabled by ITU activities, are also key enablers to ensure timely

awareness and rescue of populations in case of climate-related hazards and natural disasters.

- Disseminating Handbooks and reports and organizing seminars and workshops, ITU contributes to improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
- The Global E-waste Monitor, a joint effort of the ITU, the United Nations University (UNU) and the International Solid Waste Association (ISWA), provides the most comprehensive overview of global e-waste statistics and an unprecedented level of detail, including an overview of the magnitude of the e-waste problem in different regions.
- ITU standards for International Emergency Preference Scheme (IEPS) for disaster relief operations and for Emergency Telecommunications Services, and for communicating disaster alerts and public warnings provide specifications for the use of public telecommunications for emergency and disaster relief operations and enable telecommunications in the case of emergency and disaster situations.

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

ICTs can play an important role in crisis management, humanitarian aid and peacebuilding, and have proved to be a powerful aid in areas such as electoral monitoring. The growing use of open data by governments increases transparency, empowers citizens, and helps to drive economic growth. ICTs are also essential in terms of record-keeping and tracking government data and local demographics.

When natural or man-made disasters occur, ICTs are crucial in obtaining, communicating and transmitting accurate and timely crisis information, allowing appropriate responses to be made. In the future, big data analysis and data mining should allow better use to be made of the vast amount of data that is already openly accessible online.

ITU contributes to targets 16.7, 16.9, 16.10 and 16.a through:

- Committed to promoting broadband, and mobile broadband in particular, to enable citizens to access any content, anytime, anywhere in the global information society. Enabling ICT regulatory policies promote innovative services and technologies enhancing such access and driving social and economic progress.
- The monitoring of Target 16.10 by collecting and disseminating data on Internet access and usage, a key indicator for public access to information.
- Providing high-quality data, research, analyses, and tools (to support membership in implementing and reviewing strategies, policies, and legal and regulatory frameworks as well as in moving towards evidence-based decision-making to achieve digital transformation.

- Capacity building initiatives in areas such as international Internet governance and training in cybersecurity. ITU also contributes to this target by providing institutional capacity support to Centres of Excellence and Internet training Centres.
- The creation and ongoing capacity building of ICT regulatory authorities. ITU regular activities such as the Global Symposium for Regulators allow to have a constructive discussion on topical regulatory issues and identify best practice guidelines while ad hoc targeted assistance intervenes to leverage on those and provide for policy choices opening ways to new digital opportunities.
- Developing various platforms for developing a common understanding, vision and strategy on ICTs and multiple collaboration mechanisms are put in place to further the dialogue among regulatory authorities as well as with industry, consumers and other stakeholders.
- Acting as a partner to ICT regulators and policy makers as well as to the private sector to further ICT development and social inclusion, by facilitating and creating partnerships, such as private-public-partnerships (PPP), with aid-donors, governments, ministries and NGOs, in particular to meet universal access goals for rural, remote and unserved areas and for people with special needs.
- Promoting and facilitating international cooperation on specialized fields such as cybersecurity, together with other UN agencies, in order to contribute to the achievement of peace and international security.
- Providing globally harmonized spectrum and standards, ITU enables the development of mobile broadband, satellite and terrestrial sound and television broadcasting and their wider penetration, thus facilitating public access to information and protection of fundamental freedoms.
- Standardizing technical specifications and solutions for identity management in (heterogeneous) in next generation networks for interoperable identification and authentication (SDG target 16.9).

Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

ICTs are specifically mentioned as a means of implementation under SDG17, highlighting the cross-cutting transformative potential of ICTs. Indeed, ICTs are crucial in achieving all of the SDGs, since ICTs are catalysts that accelerate all three pillars of sustainable development – economic growth, social inclusion and environmental sustainability – as well as providing an innovative and effective means of implementation in today’s inter-connected world.

Paragraph 15 of the 2030 Agenda for Sustainable Development highlights that “the spread of information and communication technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies...”

ITU contributes to targets 17.3, 17.6, 17.7, 17.8, 17.9, 17.11, 17.16 and 17.19 through:

- The implementation of ITU Strategic Plan and WTDC Action Plan will contribute in achieving the SDGs. Based on key policy and regulatory developments which impact innovation and investment, including and in

particular through implementation of the Regional Initiatives and to implement the SDGs where ICTs can play a decisive role, including health, education, gender equality, agriculture, e-waste and emergency telecommunications. Mapping of activities between other Sectors is conducted and calendar of events which facilitates collaboration and coordination between Sectors is developed.

- Study groups that provide an opportunity for all Member States and Sector Members, Associates and Academia, to share experiences, present ideas, exchange views and achieve consensus on appropriate strategies to address ICT priorities.
- Mobilizing in-cash and in-kind resources through partnership with various stakeholders from the ICT ecosystem for the implementation of ICT activities, projects and initiatives in developing countries at national and regional levels, including by developing strategies and related tools and services (databases sponsorship packages, dedicated websites, concept notes, promotional vehicles, etc.).
- Strengthening the global ICT innovation ecosystem through activities such as know-how sharing (e.g. WSIS, Telecom), and co-creating grassroots projects based on new global and local partnerships.
- Strengthening the means of implementation and enhancing access to science, technology and innovation by strengthening international cooperation and knowledge sharing on key ICT topics through its dedicated study groups.
- Providing a neutral platform for international cooperation towards building a harmonized and coordinated approach to fast-forward the evolution of the information society.
- Monitoring of Target 17.6 by collecting and disseminating data on Internet access and usage, in particular fixed broadband access, which is a key requirement for enhanced access to science, technology and innovation networks.
- The establishment of Mutual Recognition Agreements for a common and harmonized Conformance and Interoperability (C&I) programme at international and regional levels. Through the share and efficient use of C&I infrastructures – as laboratories, accreditation bodies and regulatory practices – technical requirements can be harmonized and the transit of ICT goods and services can be facilitated, increasing trade and regional development.
- The deployment of broadband technology and network infrastructures for multiple telecommunication services and applications, and to the evolution to all IP-based wireless and wired next-generation networks (NGNs), introducing digital broadcasting, which is opening up opportunities for the dissemination of environmentally sound solutions.
- The monitoring of Target 17.8 by collecting and disseminating a number of relevant ICT indicators that enable STI capacity building in least developed countries, including on Internet access and usage, international bandwidth and ICT prices. Activities are carried out in close collaboration with the Partnership on Measuring ICT for Development.
- Bringing together key stakeholders to discuss international cooperation on ICT through its annual Global Symposium for Regulators, regional economic

forums and dialogues and the World Telecommunication/ICT Indicators Symposium (WTIS), organised by ITU.

- Promoting ICT regulatory policies enhancing policy coherence, notably by making knowledge exchange tools and platforms available, raising awareness about the importance of an enabling environment.
 - Building harmonized regulatory frameworks within and across regions, and establishing a broader and inclusive dialogue and enhanced cooperation among all stakeholders.
 - Enhancing the global partnership for sustainable development by working with governments, through their policy making and development of institutional frameworks for the ICT sector as well as with the private sector, to lay the foundation of modern digital economies.
 - Encouraging and promoting effective public, public-private and civil society partnerships by partnering with a range of stakeholders to empower women, girls, youth, children, indigenous peoples and persons with disabilities (e.g. for example by leading the Thematic Area on Digital Skills of the Global Initiative for Decent Jobs for Youth, and through the ITU-ILO Digital Skills Campaign for Decent Jobs for Youth; by leading the International Girls in ICT Day Campaign or by contributing to the regional initiatives and events in ICT accessibility – ICT for all)
 - An ongoing track record of inviting experts from developing countries to ITU meetings, workshops etc. Also the Focus Group on Innovation studied cases of ICT innovations for developing countries and developed proposals for new standardization activities for ITU study groups and the ICT Innovation Panel.
 - Developing and disseminating best practices on the use of radiocommunications and organizing seminars and workshops, ITU contributes to enhance the use of enabling technologies, in particular information and communications technologies.
 - Cooperation and coordination with other standards developing organizations, such as through ITU Focus Groups, workshops and seminars, liaison activities etc.
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