

Agenda item: PL 1.1

Document C18/71-E
8 March 2018
Original: English

Report by the Secretary-General

ITU COUNCIL CONTRIBUTION TO THE HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT (HLPF)

Summary

This document contains ITU Council's contribution to the 2018 High-Level Political Forum on Sustainable Development (HLPF), showcasing the intergovernmental body's contribution towards the 2030 Agenda and Sustainable Development Goals (SDGs), in accordance with this year's theme and focused review of SDGs 6, 7, 11, 12, 15 and 17.

The document was reviewed and revised by the CWG-WSIS at its meeting on 24-25 January 2018.

Action required

The Council is invited to **approve** this draft input for its submission to ECOSOC Secretariat.

References

[Note dated 21 November 2017](#) from the President of the ECOSOC inviting intergovernmental bodies and forums to provide substantive inputs

Annex: 1

ANNEX

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 2018 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 General Assembly further defined the theme of the 2018 HLPF to be "Transformation towards sustainable and resilient societies". All 17 SDGs will be examined from the perspective of the theme. Additionally, the following SDGs will be discussed together with SDG 17: 6, 7, 11, 12, and 15.

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 **27 April 2018** to the Secretariat's e-mail wang24@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 will stimulate action over the next fifteen 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 Internet use has the potential to reduce poverty and create jobs through improved efficiency and transparency, applications and services, such as e-agriculture and digital finance, help end poverty and hunger as well as monitor and mitigate climate change and sustaining our natural resources. All three pillars of sustainable development – economic development, social inclusion and environmental protection – need ICTs as key catalysts. The development potential of ICT as cross-cutting enablers must therefore be fully harnessed for achieving the SDGs.

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 World Summit on the Information Society process and the 2030 Agenda for Sustainable Development, highlighting the crosscutting contribution of information and communications technology to the Sustainable Development Goals and poverty eradication, and noting that access to information and communications technologies has also become a development indicator and aspiration in and of itself.

ITU Resolution 1332 (Modified 2016), has also resolved to use the WSIS framework as the foundation through which ITU helps achieve 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 Matrix¹](#), 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 since 2015, 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 HLPF².

2017 has also 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" (ICT@SDGs). WTDC-17 provided an unique opportunity for the ITU Membership to discuss the future of the telecommunications and information and communication technologies sector and its contribution to the sustainable development. It also defined the contribution of ITU-D (the development arm of the Union) to the attainment of SDGs (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.

An in-depth view of the role of ICTs and ITU's contribution to the goals to be reviewed at the 2018 High-Level Political Forum for Sustainable Development (Goals 6, 7, 11, 12, 15 & 17) is provided in Annex 1.

¹ <http://www.itu.int/net4/wsis/sdg/>

² WSIS Forum outcomes are transmitted to the HLPF annually: [2016](#); [2017](#)

Submission Template

(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 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.

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 show continued progress in connectivity and use of ICTs. There has been sustained growth in the availability of communications in the past decade, led by growth in mobile cellular telephony and, more recently, in mobile broadband. Growth in fixed and mobile-broadband infrastructure has stimulated Internet access and use. Mobile-cellular networks are increasingly pervasive and now dominate the provision of basic telecommunication services.

The number of mobile-cellular subscriptions worldwide now exceeds the global population, although many individuals, especially in developing countries, still do not use a mobile phone.

The number of fixed-telephone subscriptions has continued to fall, dropping below 1 billion worldwide, and is particularly low in the least developed countries (LDCs).

There has been rapid growth in mobile-broadband services. The number of mobile-broadband subscriptions worldwide now exceeds 50 per 100 inhabitants, enabling improved access to the Internet and online services. The introduction of new mobile technologies is accelerating this trend, with LTE or higher capabilities now available to most mobile users.

There has been slower growth in the number of fixed-broadband subscriptions worldwide, although this now marginally exceeds that for fixed telephone lines.

There are substantial digital divides between countries and regions, and between developed and developing countries, particularly LDCs. There are twice as many mobile-broadband subscriptions per 100 inhabitants in developed countries compared to developing countries, while the gap between more-connected developing countries and LDCs has grown in recent years. Mobile-broadband subscription rates are much higher in Europe and the Americas than in other regions, and more than three times those in Africa. Subscribers in developed countries also tend to benefit from higher bandwidth than those in developing countries. These divides are evident in Internet use as well as connectivity.

More than half of all households worldwide now have access to the Internet, although the rate of growth appears to have fallen below 5 per cent a year. Households in developed countries are almost twice as likely to be online as those in developing countries and more than five times as likely as those in LDCs. There are similar differences between rates of access for individual users. People in Europe are more than three times more likely to access the Internet regularly than those in Africa, and are likely to benefit from higher access speeds when doing so.

There is a significant gender digital divide. Data compiled by ITU suggest that this digital gender gap is relatively small in developed countries, more pronounced in developing countries and substantial in LDCs, where only one in

seven women is using the Internet compared with one in five men. The gender digital divide in Africa appears to have grown significantly over the past five years.

Young people are more likely to be online than their elders. The proportion of people aged between 15 and 24 who are online is estimated to be over 70 per cent worldwide, compared with just 48 per cent of the population overall. Elderly people are less likely to be connected.

International Internet bandwidth grew worldwide by 32% between 2015 and 2016. Africa experienced an increase of 72% during this period, the highest of all regions.

Strategies for ensuring that all citizens, wherever they may be, have access to the best possible infrastructure and services is an important public policy priority that will also assist in reaching the SDGs. Regulation has a pivotal role to play to help today's fast-evolving markets thrive while shaping future markets for digital services that are innovative, balanced and inclusive. More inclusive, incentive-based and collaboration-driven regulation will not only benefit consumers and businesses, but will help fast-track a digital future for the billions who remain unconnected.

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

Access and use of Information and Communication Technologies

The global number of fixed-broadband subscriptions has increased by 9% annually in the last five years and 330 million new fixed-broadband subscriptions have been added. Higher growth will be needed to bridge the divide between developed and developing countries: there are 31 fixed broadband subscriptions per 100 inhabitants in developed countries against 9 in developing countries. Fixed-broadband uptake remains very limited in LDCs, with only one subscription per 100 inhabitants.

Mobile-broadband subscriptions have grown more than 20% annually in the last five years and are expected to reach 4.3 billion globally by end 2017. Despite the high growth rates in developing countries and in LDCs, there are twice as many mobile-broadband subscriptions per 100 inhabitants in developed countries as in developing countries, and four times as many in developed countries as in LDCs.

In developed countries, the proportion of households with Internet access at home is twice as high as in developing countries. Only 15% of households in LDCs have Internet access at home. In these countries, many Internet users are accessing the Internet from work, schools and universities or from other shared public connections outside the home.

Rural divide

Digital divides are also evident within countries, for example between urban and rural areas. There are still rural areas in some developing countries which are not adequately covered by either wireline or mobile-cellular signal and therefore with limited or no access to the Internet. Lower incomes which prevail in rural areas of some countries are also likely to reduce take-up and usage of ICTs. The business case is challenging for coverage of rural areas where too often, topography and demography defeat market viability.

The transition from 2G to 3G mobile services in some countries, as well as the transition from 3G to LTE or LTE-Advanced services in some other countries, is providing a window of opportunity for policy-makers to shake up the mobile market. Coverage obligations attached to the new licences have proved to be an efficient way to extend 3G and LTE network coverage to rural areas, particularly in those countries where market forces by themselves had not previously reached universal mobile-broadband coverage.

New technologies and innovative approaches to covering rural areas will also hopefully be coming in the next few years, and will play a key role in opening new opportunities for people living in rural areas and sparsely populated areas. Recent technological advances and solutions within satellite and high altitude communications, such as high-throughput satellites (HTS), massive non-geostationary satellite orbit (NGSO) constellations, high-altitude platform stations (HAPS) systems, and networks of satellites in low-Earth orbit are starting to offer broadband capacity across the globe, bringing reliable connectivity to the hardest-to-reach corners of the planet. Their ubiquitous coverage, high reliability, high mobility, and high flexibility make space-based and upper-atmosphere technologies driving solutions for expanding the reach of the global Internet to remote, sparsely populated and rural areas.

Youth

In 104 countries, more than 80% of the youth population are online. In developed countries, 94% of young people aged 15-24 use the Internet compared with 67% in developing countries and only 30% in Least Developed Countries (LDCs). Out of the 830 million young people who are online, 320 million (39%) are in China and India. Nearly 9 out of 10 young individuals not using the Internet live in Africa or Asia and the Pacific. The proportion of young people aged 15-24 using the Internet (71%) is significantly higher than the proportion of the total population using the Internet (48%). Young people represent almost one-fourth of the total number of individuals using the Internet worldwide. In LDCs, 35% of the individuals using the Internet are young people aged 15-24, compared with 13% in developed countries and 23% globally.

Gender divide

The proportion of women using the Internet is 12% lower than the proportion of men using the Internet worldwide. While the gender gap has narrowed in most regions since 2013, it has widened in Africa. In Africa, the proportion of women using the Internet is 25% lower than the proportion of men using the Internet. In LDCs, only one out of seven women is using the Internet compared with one out of five men.

There is a strong link between gender parity in the enrollment ratio in tertiary education and gender parity in Internet use. The only region where a higher percentage of women than men are using the Internet is the Americas, where countries also score highly on gender parity in tertiary education.

Affordability of ICTs

Mobile-broadband prices as a percentage of GNI per capita halved between 2013 and 2016 worldwide. The steepest decrease occurred in LDCs, where prices fell from 32.4 to 14.1% of GNI p.c. Mobile broadband is more affordable than fixed-broadband services in most developing countries. However, mobile broadband prices represent more than 5% of GNI per capita in most LDCs and are therefore unaffordable for the large majority of the population. In LDCs, on average, an entry-level fixed-broadband subscription is 2.6 times more expensive than an entry-level mobile-broadband subscription.

High-speed fixed broadband

Despite the worldwide increase in high-speed fixed-broadband subscriptions, there remains a lack of high-speed connections in the developing world, with a penetration rate of 6% (1.6% excluding China) compared with 24% in developed countries. Most of the increase in high-speed fixed-broadband subscriptions in developing countries can be attributed to China, which accounts for 80% of all fixed-broadband subscriptions at 10 Mbit/s or above in developing countries.

Developing countries and LDCs are deploying fibre infrastructure directly, leapfrogging cable and DSL. However, the proportion of fibre broadband subscriptions per 100 inhabitants in developed countries is twice as high as in developing countries, and ten times higher than in LDCs. The share of fibre in total fixed-broadband subscriptions is highest in the CIS and Asia and the Pacific.

Cybersecurity

With ICTs increasingly underpinning a broad range of human activities, modern societies have developed a growing dependency on ICTs in their daily operations and management of critical infrastructure. However, this creates risks that need to be addressed at all levels – national, regional and international in collaboration with all stakeholders.

Without ensuring confidence and security in the use of ICTs, the lack of trust can hinder the adoption of ICTs and minimize their positive impact in countries' development process.

This is especially important to protect the vulnerable, especially children as one out of three internet users is below the age of 18. As the sole facilitator of WSIS Action Line C5 "Building Confidence and Security of ICTs", ITU is playing an important global effort to protect children online including through the multistakeholder Child Online Protection (COP) Initiative. The partnership brings together partners from all sectors of the global community to create a safe and empowering online experience for children around the world.

(C) VALUABLE LESSONS LEARNED ON ERADICATING POVERTY AND PROMOTING PROSPERITY:

The growth of Internet and broadband technologies highlights the link between ICTs and economic growth and social opportunity and brings into focus the increased importance of universal access to ICTs to achieve the SDGs.

Today, more than 80 countries include broadband in their universal service or universal access definitions, although there are regional differences. The key to unlocking UAS lies in innovative investment and partnership solutions to connect subscribers in remote and scarcely-populated areas where commercial models are not likely to take off.

Affordable access and availability of communications services requires an interplay between the public and the private sector at multiple levels. Cross-sectoral collaboration focusing on supply as well as demand-side measures is essential in facilitating this interplay. According to ITU data, close to 85 percent of ITU Member States have some kind of UAS policy and regulations in place, either through traditional telecom/ICT policy and regulatory frameworks or National Broadband Plans or through establishing legal rights for citizens.

Policy-makers and regulators should continue to work together to provide people with access to technologies, the digital skills to use them, and trust in using ICTs. It is essential therefore that they have the right tools for effective cross-sector collaboration which in turn includes and empowers citizens

though ICTs. A new regulatory approach that is open, collaborative, incentive-based and cross-sectoral can enable digital transformation further and open new social and business opportunities. Amidst a swirling technology landscape studded with new technologies, challenges, opportunities and players, collaborative regulation can engender balanced, innovative and vibrant ICT markets to the benefit of all.

In addition, there are far fewer women than men who study science, technology, engineering and math (STEM) or who work in jobs requiring ICT skills such as computer scientists, computer engineers and software, website and mobile apps developers. Given the global shortage for people with STEM skills, there are unfilled jobs that could be performed by qualified women, but young women and girls are often discouraged from entering these fields. Moreover, given the importance that ICTs play in our daily lives, it is necessary that ICTs be developed by both women and men to address their daily challenges.

Youth and children with access to information and communication technologies (ICTs) are coming of age as digital natives, the early adopters of ICTs and better positioned than their parents to harness the power of digital technologies in new and imaginative ways. Youth can only leverage the transformative power of ICTs when they have access to ICT services and are equipped with a range of digital skills. ICTs can enhance education, reduce youth unemployment and promote social and economic development.

The importance of ICT accessibility to persons with disabilities, as recognized by Article 9 of the United Nations Convention for the Rights of Persons with Disabilities (UNCPRD) and Art. 18 of the Tunis Commitment, under the auspices of the World Summit on the Information Society (2005) which strives “to promote universal, ubiquitous, equitable and affordable access to ICTs, including universal design and assistive technologies, for all people, especially those with disabilities, everywhere, to ensure that the benefits are more evenly distributed between and within societies.” Countries that have adopted ICT accessibility policies and which use government purchasing power by requiring accessible ICTs in their calls for tender have shown the greatest progress in ensuring that accessible ICTs are available for persons with disabilities to ensure that persons with disabilities can live independently and participate fully in all aspects of life.

Supporting Member States in addressing special needs of indigenous people to equitable access, use and knowledge of ICTs, based on the preservation of their heritage and cultural legacy contributes to leverage their social and economic community development and to promote, preserve and protect their indigenous cultural development.

Capacity building also refers to strengthening the human and institutional capacity of developing countries to adapt to an evolving ICT and telecommunication sector. Building broad telecommunication/ICT and digital literacy enables citizens to access and contribute information, ideas and knowledge to create an inclusive and sustainable information society.

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

Advanced ICTs, such as Internet of Things (IoT), big data analytics, cloud computing and artificial intelligence (AI), contribute to realizing the Sustainable Development Goals (SDGs). Promising applications exist in areas such as manufacturing, precision agriculture, government, education, health care, smart cities, and smart transportation. These technologies will fundamentally transform business, government, and society over the coming decades. To harness their benefits, countries will need to create conditions supportive to the deployment of next-generation network and service infrastructures. They will also have to adopt policies that are conducive to experimentation and innovation while mitigating potential risks to information security, privacy, and employment.

IoT will greatly expand the digital footprint. In addition to people, organizations and information resources, it will connect objects equipped with digital information sensing, processing, and communication capabilities. This ubiquitous infrastructure will generate abundant data that can be used to achieve efficiency gains in the production and distribution of goods and services, and improve human life in innovative ways.

Big data analytics will extract useful knowledge from digital information flows. It will enable us to better describe, understand and predict developments and to improve management and policy decisions. Making sense of proliferating information requires a workforce with appropriate analytical, computational and methodological skills, as well as a high-capacity ICT infrastructure.

Cloud computing and other architectures will lower the entry barriers to scalable computing resources. They are able to deliver flexible and on-demand computational services over the Internet, lowering the fixed costs of ICT infrastructure, to the benefit of small and medium-sized organizations. Realizing their full potential will depend on the availability of reliable fixed and mobile broadband connectivity. Artificial intelligence will help human beings to make better decisions. In order to achieve this objective, every algorithm needs to be tailored carefully to existing data and the objectives pursued. This requires considerable human expertise in machine learning and large datasets to train algorithms.

Digital Financial Services

In recent years, ICT has been instrumental to developing new and more affordable digital financial products that better respond to the needs of unbanked people in the world today, most notably rural and remote communities. Significant challenges remain to quickly and effectively leverage ICT to drive full financial inclusion. The full potential of mobile money has not yet been realised, with two billion people in developing countries still lacking a viable alternative to the cash economy and informal financial services, 1.6 billion of whom have access to a mobile phone. Yet, the industry has found it challenging to scale services for the unbanked mostly due to regulatory frameworks being out of step. Various regulatory measures can be considered at the national level to leverage the potential of two-sided platforms for enabling digital financial inclusion. What's more, harmonization of legal and regulatory requirements for digital financial services at the regional or sub-regional level can have a multiplier effect on innovation and investment in national markets.

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

(F) Policy recommendations on ways to accelerate progress in poverty eradication:

Harnessing the benefits of advanced ICTs requires appropriate infrastructures, services, and skills. Networks will have to support diverse quality-of-service demands from applications and users while delivering robust and ubiquitous connectivity. This will require roll-out of wireless IoT platforms, reliance on network virtualization and improved fibre connectivity. Moreover, it will require the development of advanced ICT skills among users. Advanced ICTs raise concerns over next-generation digital divides. Network operators and users will have to adapt their business models to take advantage of the opportunities of the digital transformation. Policy-makers and regulators are called upon to create conditions facilitating entrepreneurial experiments and innovation. Policy will also have to mitigate challenges in the areas of information security, privacy, employment and income inequality. Reliable and meaningful measurements of the deployment and use of advanced ICTs are critical. Fully harnessing the potential benefits of advanced ICTs requires reliable and meaningful metrics that go beyond existing data.

This will require collaboration among various stakeholders and novel approaches to harvesting information from digital infrastructures and applications directly.

Policy and regulation in the digital world is subject to constant change, opening up new avenues for tech innovation, creating business opportunity and providing safe harbor for consumers. As markets become more complex and their interplay with regulation more outspoken, regulators and policy makers need to stay pro-active, to demonstrate leadership, skill-up and reach out to new actors. The core driver for regulation is how best to extend the benefits of innovation and economic growth to the greatest number of citizens. While no single regulatory model is perfect, the guiding imperative is to integrate ICT regulation with other sectors through a collaborative regulatory approach. Otherwise, the next billion to be connected will be left waiting.

The Seventh ITU World Telecommunication Development Conference (WTDC-17)

WTDC-17 was held from 9 to 20 October 2017 in Buenos Aires, Argentina, under the theme of "ICT for Sustainable Development Goals" (ICT④SDGs). It attracted 1368 participants from 134 Member States, 62 ITU-D Sector Members, 10 Academia, observers and the United Nations and its Specialized Agencies.

Buenos Aires Declaration

In adopting the Buenos Aires Declaration, the delegates to the WTDC-17 have declared their commitment to accelerate the expansion and use of telecommunication/ICT infrastructure, applications and services for building and further developing the information society and bridging the digital divide, the timely implementation of WSIS Action Lines and attainment of the Sustainable Development Goals and targets. The conference called upon the ITU membership and other interested parties and stakeholders to contribute towards the successful implementation of the Buenos Aires Action Plan.

Contribution of the ITU Telecommunication Development Sector (ITU-D) to the ITU Strategic Plan

WTDC-17 adopted the ITU-D contribution to the ITU Strategic Plan 2020-2023 with 4 objectives, 16 related outcomes and 17 outputs and their contribution to the achievement of SDGs and WSIS Action Lines. In this sense all actions carried out by ITU-D are contributing to SDG and WSIS implementation.

- Objective 1. Coordination: Foster international cooperation and agreement on telecommunication/ICT development issues
- Objective 2. Modern and secure telecommunication/ICT infrastructure: Foster the development of infrastructure and services, including building confidence and security in the use of telecommunications/ICTs
- Objective 3. Enabling environment: Foster an enabling policy and regulatory environment conducive to sustainable telecommunication/ICT development
- Objective 4. Inclusive digital society: Foster the development and use of telecommunications/ICTs and applications to empower people and societies for sustainable development

Buenos Aires Action Plan (BaAP)

The Buenos Aires Action Plan aims to provide a simple, comprehensive but functional instrument for the achievement of the strategic Objectives of ITU-D, underpinned by agreed Outcomes, through the implementation of Outputs.

The Buenos Aires Action Plan follows a results-based structure, in which outcomes are identified for the objectives. Outcomes provide an indication as to whether the objective is being achieved. Outputs are all the products and services ITU-D will develop and deliver to members through the implementation framework agreed in this Buenos Aires Action Plan in order to achieve the related ITU-D strategic objectives and will be specified in the rolling ITU-D Operational Plan each year. The Buenos Aires Action Plan structure follows the structure of the strategic plan, so as to ensure a consistent planning hierarchy and linkage across the different planning tools and instruments within ITU (strategic, financial and operational planning).

The Buenos Aires Action Plan is based on the objectives of the ITU-D contribution to the ITU strategic plan. For each of the objectives, the following information is provided:

- Objective
- Outcomes and related performance indicators
- Outputs and related implementation frameworks including, as relevant
 - Programmes
 - Regional initiatives
 - Study Group Questions
- References to relevant:

Global Symposium for Regulators 2017 (GSR17) Best Practice Guidelines on Policy and Regulatory Incentives for Affordable Access to Digital Services

The rich potential of the transformative digital economy is within our reach. The digital world offers a host of opportunities in various sectors such as agriculture, health, education, financial services, artificial intelligence and public governance. Digital services can enable economic growth and social development across the board. ...

We, the regulators participating in the 2017 Global Symposium for Regulators, recognize that there is no single, comprehensive blueprint for best practice, but agree that country experiences can be enlightening and guide us towards regulatory excellence. In the increasingly complex and dynamic digital ecosystem, it is important to agree on common principles and put forward clear and simple rules. ...

Governments and regulators should do more to address the affordability and use of digital services by promoting policies and regulatory measures to:

- Providing regulatory and policy incentives for investment in high-speed and high-capacity broadband networks
- Incentivizing competition among ICT and other sector players, which brings opportunities for innovation and price reduction in digital services
- Encourage co-investment and the co-location and shared use of infrastructure, where appropriate, including through active infrastructure sharing and national roaming arrangements and sharing with other public utilities that lead to cost reductions and reduce consumer prices ...

We further reiterate that an open, collaborative approach to regulation can go a long way towards addressing affordability of digital services. Regulators from all sectors where digital services have become available need to cooperate proactively, in particular:

- Outreaching to fellow regulators from other sectors to put in place concrete mechanisms for formal or informal cooperation
- Promoting the development of cross-cutting services such as e-commerce, e-finance and e-governance
- Cooperating with academia in studying and anticipating regulatory challenges and designing policies to leverage on the rise of new technologies in the digital economy and society
- Putting in place innovative, out-of-the-box measures to stimulate the adoption of services and the creation of locally-relevant apps and content, and to preserve local heritage.
- Promoting digital skills for all, which are essential for the wide adoption and efficient use of digital services and apps.

Advocating widely for the benefits of new technologies in the digital economy and society

ANNEX 1: IN-DEPTH VIEW OF THE ROLE OF ICTS AND ITU'S CONTRIBUTIONS TO GOALS 6, 7, 11, 12, 15 & 17 TO BE REVIEWED AT HLPF 2018 ([SDG MAPPING OF ITU'S STRATEGIC AND OPERATIONAL PLANS](#))

Goal 6: Ensure availability and sustainability management of water and sanitation for all

ICTs are particularly important for smart water management, facilitating the measurement and monitoring of water supplies as well as necessary interventions, and enabling practitioners at the local level to ensure the equitable and sustainable extension of water, sanitation and hygiene (WASH) services. As the costs of ICTs continues to fall, governments will be able to better integrate ICTs into monitoring and evaluation frameworks to optimize operations and improve the quality of service.

ITU contributes to SDG6 Targets 6.1, 6.4, 6.5, 6.6:

ITU contributes to targets 6.1, 6.4 and 6.5 through the work of study groups on creating the Smart Society, which raises awareness and examines best practices for fostering and enabling the deployment and use of smart devices, including management and control of drinking water supplies, water pumps, among others. This is especially important in developing countries.

ITU contributes to target 6.4, recognizing the need to develop 'smart' water-management systems; one that incorporates the views of irrigation, agriculture, environment and communications ministries as well as those of the ICT industry and relevant intergovernmental and non-governmental organizations. A number of relevant texts were developed. ITU also contributes to SGD target 6.4 by studying smart water management in the context of IoT and smart cities.

Radiocommunication systems, as enabled by ITU activities, are fundamental for Target 6.6, to monitor the water cycle and groundwater and help to efficiently monitor, protect and restore water resources and associated ecosystems.

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

ICTs and energy efficiency can be connected in two ways: 'Greening of ICTs' and 'Greening through ICTs'. In the first case, ICTs are being transformed and developed to be more environmentally sound and less carbon-intensive. In the second case, ICT-enabled solutions (for example smart grids, smart buildings, smart logistics and industrial processes) are helping to transform the world towards a more sustainable and energy efficient future. These green technologies and processes have the potential to play a significant role in significantly reducing global greenhouse gas emissions.

ITU contributes to SDG7 Targets 7.1, 7.2, 7.3, 7.a and 7.b:

ITU contributes to targets 7.1, 7.2 and 7.3 through the work of the study groups on creating the Smart Society, which raises awareness and examines best practices for fostering and enabling the deployment and use of smart devices, including mobile devices, that can contribute to saving electrical energy; measuring the effects of environmental pollution; and solving the challenges facing cities and rural areas, among others. ITU contributes to target 7b through helping countries develop and establish green telecenters that will provide connectivity to LDCs, SIDS and LLDCs.

ITU studies methodologies for assessing the environmental impact of ICT, published guidelines for using ICTs in an eco-friendly way, tackling e-waste issues, and energy efficiency of the power feeding system. For SDG target 7a, a number of Recommendations elaborate on energy efficiency of networks and green data centres, and on energy efficiency of universal power adapter solutions. ITU collected and documented information and concepts that would be helpful for developing Recommendations to support smart grids from a telecommunication/ICT perspective (SDG targets 7a and 17.6).

ITU contributed to SDG target 7a having developed several Recommendations on home energy management systems, and a framework of energy saving for future networks, on requirements, scenarios and functional architecture for user-side energy Management Service, and on requirements and architecture of the home energy management system and home network services.

Radio systems such as Wireless avionics, smart grids, and Internet of Things- IoT, enabled by ITU activities, help ensure reliable and modern energy services, improve energy efficiency, and decrease energy consumption.

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

With more than half the world's population already living in urban environments, ICTs will be essential in offering innovative approaches to managing cities more effectively and holistically – through applications such as smart buildings, smart water management, intelligent transport systems, and new efficiencies in energy consumption and waste management.

Using ICTs to make cities more eco-friendly and sustainable is vital – not just for the well-being of urban inhabitants, but also for the sustainability of the planet.

ITU contributes to SDG11 Targets 11.2, 11.3, 11.4, 11.5, 11.6 and 11.b:

ITU contributes to the achievement of this goal through developing and delivering training programmes on smart and sustainable cities. ITU contributes to accessible transport systems for all, with special attention to persons with disabilities by promoting accessible ICTs in public transport systems, including by promoting the public procurement of accessible ICTs for public transport systems. ITU contributes to promoting the protection of ICT systems governing critical infrastructures and services (including transport) in order to avoid and prevent the disruption of services and ensure business continuity.

ITU contributes to target 11.6 through the work of s on creating the Smart Society, which raises awareness and examines best practices for fostering and enabling deployment and use of smart devices, including mobile devices, contributing to the protection of property and persons; smart management of motor vehicle traffic; saving electrical energy; measuring the effects of environmental pollution; improving agricultural yield; management of healthcare and education; management and control of drinking water supplies; and solving the problems facing cities and rural areas, etc.

ITU contributes to target 11.5 and 11.b by implementing national emergency telecommunication plans that will help countries reduce vulnerability and enhance resilience when disasters strike, as well as the establishment of early warning and monitoring systems to mitigate the effects of climate change.

ITU standards supporting the Internet of Things will assist both developed and developing countries in transforming city infrastructure, benefiting from the efficiencies of intelligent buildings and transportation systems. In support of SDG target 11.2, ITU is involved in several smart city pilot projects (with cities including Wuxi, Manizales, Dubai, Singapore, Santiago de Chile, Montevideo, and Rimini) to measure the smartness and sustainability of the participating city. The pilot projects are also expected to generate inputs for the refinement of these KPIs.

ITU studies telecommunication/ICT accessibility for persons with disabilities, and in support of SDG target 11.2, has developed a Recommendation which explains how audio-based network navigation systems can be designed to ensure that they are inclusive and meet the needs of persons with visual impairments.

Responsible for IoT security and in support of SDG target 11.2, ITU has developed a Recommendation on a simple encryption procedure for Internet of things (IoT) environments.

ITU in support of SDG target 11.2 has developed a number of Recommendations on Internet of things (IoT), ubiquitous sensor networks, IoT-based web-of-things, key performance indicators for smart sustainable cities, inter alia, giving general guidance to cities and provides key performance indicators (KPIs) for smart sustainable cities to help cities achieve Sustainable Development Goals (SDGs), as well as on infrastructure and services for smart sustainable cities.

ITU, in support of in support of SDG target 11.3, has been working with UNECE to develop an internationally accepted definition for Smart Sustainable Cities (SSC). An extensive list of key performance indicators (KPIs) for cities wishing to transition into SSC were developed. ITU, in support of SDG target 11b, is developing Recommendations to reduce the environmental impact of ICT and how Internet of Things can be applied for the sustainable growth of communities. In the area of emergency communications, a number of Recommendations have been developed for call priority schemes that ensure that relief workers can get communication lines when they need to, whether using traditional or next generation communication networks. Complementary to the need to provide call priority during emergencies is the ability to deliver warnings to users, and standards are fundamental to ensure that

warnings are delivered in a timely way, uncorrupted from the source to the end users – no matter how they can be reached.

ITU studies telecommunications for disaster relief/early warning, network resilience and recovery, and in support of SDG target 11.5, developed a Recommendation with requirements for safety confirmation and broadcast message service for disaster relief, which can realize public organizations' business continuity plans (BCP) and can, to the best of their ability, help protect lives and property during a disaster.

ITU, in support of SDG target 11.5, studies appropriate ways to improve network resilience and recovery against disasters.

In support of SDG target 11.5, the Common Alerting Protocol (CAP) was standardized as a simple but general format for exchanging all-hazard emergency alerts and public warnings over all kinds of networks.

In support of SDG target 11.b, is developing Recommendations to reduce the environmental impact of ICT and how Internet of Things can be applied for the sustainable growth of communities. In the area of emergency communications, a number of Recommendations have been developed for call priority schemes that ensure that relief workers can get communication lines when they need to, whether using traditional or next generation communication networks. Complementary to the need to provide call priority during emergencies is the ability to deliver warnings to users, and standards are fundamental to ensure that warnings are delivered in a timely way, uncorrupted from the source to the end users – no matter how they can be reached.

ITS- GNSS, radars, IoT for road, railway, aviation and maritime transport are all enabled by the activities of ITU on spectrum regulations and standards and their promotion. Earth Exploration satellites, Sound and Television broadcasting and broadband mobile, as enabled by ITU, contribute to the protection of the world's cultural and natural heritage.

By managing spectrum resources and developing standards and best practices on radiocommunications, ITU contributes to ensure more accurate weather predictions, climate change monitoring and mitigation, public protection and disaster relief, as well as search and rescue, thus increasing resilience to disasters and reducing the losses caused by disasters.

Goal 12. Ensure sustainable consumption and production patterns

ICTs and responsible consumption and production are linked in two ways: increased dematerialization and virtualization as well as innovative ICT applications enabling sustainable production and consumption. Cloud computing, smart grids, smart metering, and reduced energy consumption of ICTs all have a positive impact on reducing our consumption. However, ICTs themselves require energy consumption. Therefore, effective policies are needed to ensure the negative impacts of ICTs, such as e-waste, are minimized. ITU is committed to tackling the challenges of e-waste by developing global strategies and policies which aim to reduce the adverse environmental effects of e-waste. ITU develops reports, toolkits and educational material to raise awareness on e-waste among its member states, sector members and academia on e-waste. It also provides direct assistance in planning and implementation of e-waste management techniques.

ITU contributes to SDG12 Targets 12..2, 12.3, 12.4 and 12.5:

ITU has been given a mandate to "assist developing countries in undertaking proper assessment of the size of e-waste and in initiating pilot projects to achieve environmentally sound management of e-waste through e-waste collection, dismantling, refurbishing and recycling." To this end ITU is developing e-waste guidelines to help countries identify best policies. It is also carrying out an electronic waste management project, and recently launched a new partnership to help improve global e-waste statistics. Country case studies on the management of waste, electrical and electronic equipment (WEEE), have continued under the broader umbrella of ICTs and the environment analysing strategies to develop a responsible approach to and comprehensive treatment of e-waste.

ITU promotes innovative ICT solutions in the domain of e-waste, and develops green ICT standards to reduce their negative impact. Studies on circular economy, including e waste, in support of SDG 12.4, address lifecycle and rare-metal recycling approaches for ICT equipment to minimize the environmental and health impact of e waste, on how to use ICTs to help countries and the ICT sector to adapt to the effects of environmental challenges, including climate change, in line with the Sustainable Development Goals (SDGs). Needs are being identified for more consistent and standardized eco-friendly practices for the ICT sector (e.g. labelling) including assessment of the sustainability impact of ICT; circular economy, environmentally sound management of e waste, energy efficiency and climate change to achieve the Sustainable Development Goals (including the Paris Agreement, Connect 2020 Agenda, SDGs, etc.). Several Recommendations were produced that help deal with e-waste procedures for recycling rare metals and life-cycle management in ICT goods, as well as external universal power adapter and green battery solutions, aiming to extend the life cycle and possibility of avoiding device duplication to reduce the demand on raw materials, limit the amount of e-waste and increase usability. The ITU Global Portal on e-Waste features external resources on e-waste, including municipal waste, directed towards empowering institutional and governmental capabilities.

ITU, in support of SDG target 12.4, studies to combat counterfeiting products including telecommunication/ICT and mobile device theft. ITU technical work to combat ICT counterfeiting continues to gain momentum with new standards under development, supported by ongoing studies into the scale and dynamics of the counterfeiting challenge.

By providing globally harmonized spectrum and standards and promoting their adoption, ITU enables the development of mobile and IoT, which contribute to reduce waste generation in production, distribution and consumption.

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

ICTs can play a significant role in the conservation and sustainable use of terrestrial ecosystems and the prevention of the loss of biodiversity – notably through improved monitoring and reporting which leads to increased accountability. Satellite-based monitoring delivers timely and accurate data on a global basis, while local sensors can deliver on the spot updates in real-time. Big data can be used to analyse short- and long-term trends in terms of biodiversity, pollution, weather patterns and ecosystem evolution, and to plan mitigation activities.

ITU contributes to SDG15 Targets 15.1, 15.2, 15.3, 15.4:

Spectrum and standards provided and promoted by ITU for Earth observation systems are a key to ensure monitoring, conservation, restoration and sustainable use of terrestrial ecosystems and biodiversity, including forests, mountains, land and soil.

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

ICTs are essential in achieving all of the SDGs, since ICTs integrate and 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.

In terms of specifically strengthening the means of implementation, ICTs have a key role to play through: enhancing international cooperation and coordination; promoting technology transfer; capacity building; forging multi-stakeholder partnerships; and enabling and improving data monitoring and accountability.

ITU contributes to SDG17 Targets 17.3, 17.6, 17.7, 17.8, 17.9, 17.11, 17.16, 17.19:

- By 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;
- ITU contributes to 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.);
- ITU contributes to strengthening the global ICT innovation ecosystem through activities such as know-how sharing and the development of national ICT Broadband rollout plans (e.g. WSIS Forum, Telecom, the ITU/UNESCO Broadband Commission for Sustainable Development) and co-creating grassroots projects based on new global and local partnerships;
- ITU contributes to 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;
- ITU provides a neutral platform for international cooperation towards building a harmonized and coordinated approach to fast-forward the evolution of the information society;
- ITU contributes to the 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;
- ITU contributes to 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;
- ITU contributes to 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;
- ITU contributes to 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 broadband Internet access and usage, international Internet bandwidth and broadband Internet prices. Activities are carried out in close collaboration with the Partnership on Measuring ICT for Development;
- ITU brings together key stakeholders to discuss best practices and international cooperation on ICT through its annual Global Symposium for Regulators and the World Telecommunication/ICT Indicators Symposium (WTIS);
- ITU contributes to promoting evidence-based ICT regulatory policies enhancing policy coherence, notably by building harmonized regulatory framework within and across regions and by establishing a broader dialogue between all stakeholders;
- ITU contributes to 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 through partnerships such as the ITU/UNESCO Broadband Commission for Sustainable Development, to lay the foundation for modern digital economies;
- ITU encourages and promotes 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;
- In line with the UNGA Resolution A/70/125, calling for the alignment of the WSIS and SDG processes, ITU continues to coordinate WSIS-SDG Matrix, elaborated in 2015 by all UN Agencies (playing the role of the facilitator/co-facilitator of the WSIS Action Lines), and showing the linkage between 18 WSIS Action Lines and 17 SDGs as well as providing rationale for each linkage. With the aim of highlighting evidence for proposed linkages, since 2017 the WSIS-SDG Matrix is supported by special heat map, referring to

numerous ICT4SDG projects implemented worldwide and reported by all stakeholders through the WSIS Stocktaking process;

- Through its regional presence ITU continues to implement series of activities at the regional and national level contributing to the implementation of the 2030 Agenda for Sustainable Development, while coordinating with relevant regional organizations/mechanisms (including Regional ICT/Telecommunication Organizations, UN Regional Commissions, UN Regional Development Groups, UN Agencies etc.), seeking the partnerships for implementation of interagency and multistakeholder ICT4SDG projects, strengthening implementation of ICT4SDG actions through Delivering as One UN approach, advocating for taking into account ICTs during the programming of UNDAFs (UN Development Assistance Framework), advancing the alignment of the WSIS and SDG processes as requested by the UNGA Resolution 70/125;
 - Through the commemoration of World Telecommunication and Information Society Day celebrated each 17th of May, ITU raises global awareness of the societal changes brought by the Internet and new technologies and to focus on global, regional and national efforts to help reduce digital divides.
 - ITU is 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 (SDG target 17.6).
 - ITU continues to provide leadership in building cooperation among the many interests served by ICT standardization and continues to establish new partnerships in emerging ICT domains such as in artificial intelligence, e-waste, digital financial inclusion for accelerating progress towards universal access (SDG target 17.6).
 - ITU continues to engage in many collaborative standardization efforts with other SDOs such as the Global Standards Collaboration (GSC), the reaffirmed ITU-ETSI MoU in the fields of green ICT standards, with other bodies active in tackling environmental issues, on submarine communications cables with climate and hazard-monitoring sensors, the Collaboration on ITS Communication Standards, in the healthcare field. (SDG target 17.6).
 - A number of workshops within ITU and jointly with other organizations in the wider scope of the SDGs as in scope of this document contribute to collaboration and cooperation and helps to establish new partnerships as per SDG target 17.6.
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