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|  | **26 January 2021** |
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| Director, Telecommunication Development Bureau |
| Reporting on the implementation of the WTDC-17 Buenos Aires Action Plan (including regional initiatives),and contribution to the implementation of theWSIS Plan of Action and the Sustainable Development Goals (SDGs) |
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| **Agenda item:** Item 5**Summary:** The 2017 ITU World Telecommunication Development Conference (WTDC-17) convened in Buenos Aires, Argentina, from 9 to 20 October 2017 and adopted the [Buenos Aires Action Plan](https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_final_report_en.pdf) (BaAP). The plan, which includes the ITU-D programmes, a set of regional initiatives, and new and revised resolutions, recommendations and study group Questions, defines the mandate, objectives and priorities of the ITU Development Sector (ITU-D) for the period 2018-2021. It also aligns the Development Sector work with the strategic objectives of ITU to allow countries to harness the full benefits of ICTs. This document reports on the implementation of the BaAP, and its contribution to the implementation of the WSIS Plan of Action and the Sustainable Development Goals (SDGs). It also highlights the change that the Telecommunication Development Bureau (BDT), the executing arm of ITU-D, has undergone to ensure that it is able to keep pace with the fast-changing environment in which it serves.**Expected results:**RPM-ASP is invited to examine this report and provide guidance as deemed appropriate.**References:**WTDC-17 Buenos Aires Action Plan |

# Introduction

The 2017 ITU World Telecommunication Development Conference (WTDC-17) convened in Buenos Aires, Argentina, from 9 to 20 October 2017 and adopted the [Buenos Aires Action Plan](https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_final_report_en.pdf) (BaAP). The plan, which includes the ITU-D programmes, a set of regional initiatives, and new and revised resolutions, recommendations and study group Questions, defines the mandate, objectives and priorities of the ITU Telecommunication Development Sector (ITU-D) for the period 2018-2021. It also aligns the Development Sector work with the strategic objectives of ITU to allow countries to harness the full benefits of information and communication technologies (ICTs).

This document reports on the implementation of the BaAP, and its contribution to the implementation of the WSIS Plan of Action and the Sustainable Development Goals (SDGs). It also highlights the change that the Telecommunication Development Bureau (BDT), the executing arm of ITU-D, has undergone to ensure that it is able to keep pace with the fast-changing environment in which it serves. The fundamental importance of ICTs and their role of promoting social and economic development and facilitating the path to economic recovery have again been highlighted by the COVID-19 pandemic, which is affecting every country in the world. This has also underscored the need for a more agile and responsive BDT that can lead efforts to ensure that all people in all countries are connected.

In 2019, BDT began an important journey of change to create a Bureau that can respond effectively to the needs of Member States and Sector Members, and that is more relevant and demonstrates impact and results: a Fit4Purpose BDT. Following extensive internal and membership consultations, BDT has adopted new innovative ways of working, laying foundations that will ensure timely and efficient implementation of the BaAP and future plans. The BDT journey for change has been a participatory and open consultative process, which relies heavily on feedback from and discussion with Member States and Sector Members. It has helped to streamline priorities and goals, enhance BDT responsiveness while strengthening its impact.

An important building block of the BDT journey of change has been the adoption of a cluster-based approach. The programmes of the Buenos Aires Action Plan have been clustered into thematic priorities that facilitate coordination and synergy across all programmes, projects, initiatives and study group Questions. The thematic priority structure - in combination with the adopted results-based management (RBM) approach – also help to strengthen the impact of BDT work on ICT development by identifying links to and improving the delivery of the WTDC-17 goals and objectives, the Connect 2030 agenda, and the 2030 UN Sustainable Development Agenda (see [Annex 1](https://www.itu.int/md/D18-RPMASP-C-0004/), Mapping linkages between thematic priorities, study groups, regional initiatives, SDGs and WSIS). In this context, BDT has also initiated several strategic initiatives, all of which cut across thematic priorities, are global in nature and have the potential to scale across multiple regions. These projects are described in Section 11 of this report.

To ensure an efficient and effective implementation of the BDT work programme, the Bureau has expanded its results-based management (RBM) approach beyond the initial efforts introduced in 2006. Theories of change have been developed for each thematic priority of ITU-D, as well as for the BDT overall; these will guide the work programme planning and implementation phases, and serve as tools for monitoring progress towards meaningful connectivity (see RPM-ASP Document 3 for a progress overview of results-based management implementation at BDT and on the Theory of Change (ToC ) exercise for each thematic priority, as well as the ongoing work towards the development of a BDT-wide ToC).

This document features key results from 2018-2020 for each thematic priority as progress is made towards the implementation of the Buenos Aires Action Plan. This includes reporting on work that has been done towards the achievement of the regional initiatives, with a more detailed overview of the progress on the regional initiatives for Asia-Pacific detailed in [Annex 2](https://www.itu.int/md/D18-RPMASP-C-0004/) (see Detailed information on work towards the achievement of the regional initiatives for Asia-Pacific).

Against this backdrop, BDT will continue in 2021 to strengthen its focus on the thematic priorities of the Buenos Aires Action Plan for sustainable impact and to advance digital connectivity and digital transformation for all in 2021 and beyond. The year 2021 will also offer an opportunity to build on the adoption of new technologies and develop and expand existing methodologies and inspire others through the sharing of best practice.

# 2018-2020 PROGRESS REPORT

## 1. Capacity development: Building a digitally competent society

### ITU Academy platform

The [ITU Academy portal](https://academy.itu.int/) was redesigned to facilitate a more user-friendly and secure access to ITU capacity development activities, courses, and workshops in the field of information and communication technologies and digital development. The training portfolio ranges from general programmes for government policy-makers and regulators, professional business-focused curricula for senior ICT executives and managers, to specialized programmes for technical and operational staff and accredited academic programmes. The ITU Academy portal has also become a tool for digital inclusion as the training offerings have been widened to include ICT accessibility and training courses targeted at indigenous and marginalized communities.

The ITU Academy registered 2 000 additional users in 2019 for a total of over 10 200 users, and 61 countries around the world are already using the ITU Academy platform. During 2020, the ITU Academy experienced steep user growth and an increasing number of online training courses. By the end of November 2020, around 18 000 people from over 150 countries had registered on the platform. For the period 2018-2020, 320 courses were delivered via the ITU Academy and 15 421 people were trained, of which 6 279 were certified.

### Centres of excellence network

In January 2019, [a new cycle of the ITU Centres of Excellence (CoE)](https://academy.itu.int/index.php/centres-excellence/coe-cycles/coe-cycle-2019-2022) programme started. A total of 29 institutions across the globe were selected to operate as ITU centres of excellence during the new period, which will last until December 2022. Following the initial round of steering committee meetings, the CoEs delivered training in 15 priority areas, covering topics such as wireless and fixed broadband, cybersecurity, digital economy, Internet of Things (IoT), spectrum management, innovation and entrepreneurship, and policy and regulation. In 2019, during the first year of operation, more than 90 certified training courses were delivered to over 2 100 participants worldwide. By November 2020, the number of certified CoE training stood at 59 courses, but the number of people who participated in the training more than doubled from 2019 figures, to about 5 200.

### ITU-Academia partnership

The 2nd ITU-Academia Partnership [meeting](https://www.itu.int/en/ITU-D/Capacity-Building/Pages/events/2019/academia2019.aspx) took place in Atlanta, Georgia, United States of America, in December 2019, under the theme of *Developing skills for the digital era*. It brought together representatives from universities and higher education institutions from all over the world with an interest in the topic of digital technologies.

Participants highlighted the need for universities to increase new course offerings to the market by speeding up decision-making processes and reducing bureaucracy, especially in public, state-funded academic institutions. The two-day meeting provided food for thought on the role of universities in the digital economy and how partnerships with organizations such as ITU can further strengthen the role of universities. The participants encouraged ITU to consider creating regional or global think tanks hosted by academic institutions and to provide more opportunities for universities to have advisory roles in specific activities of ITU.

### Digital Transformation Centres initiative

The first phase of the [Digital Transformation Centres (DTC) initiative](https://academy.itu.int/index.php/main-activities/digital-transformation-centres-initiative) (*Empower communities, close the digital skills gap*) was launched in partnership with Cisco. This new global network of centres will accelerate the uptake of digital technologies among citizens and boost the capacity of young entrepreneurs and SMEs to succeed. This people-centred project will help bridge the digital skills gap and speed up digital transformation, reaching into the heart of communities to empower people with the digital competencies they need to thrive.

During the first phase, from March 2020 to September 2021, nine DTCs across the Africa, Americas, and Asia-Pacific regions (Côte d’Ivoire, Ghana, Rwanda, Zambia; Brazil, Dominican Republic; Indonesia, Papua New Guinea, Philippines) will deliver digital skills training at basic and intermediate level to citizens in remote areas and marginalized communities. In November 2020, ITU signed a partnership agreement with the Government of Norway in support of the DTC initiative. The support from Norway will boost digital skills in the countries hosting a DTC, in particular Ghana where 14 000 citizens will be trained under this new project.

### Digital skills insights

The third edition of the Digital Skills Insights [publication](https://academy.itu.int/index.php/main-activities/research-publications/digital-skills-insights) (previously called *Capacity Building in a Changing ICT Environment*) was released in August 2019. It featured eight articles from international experts, taking a critical and analytical approach towards the subject of capacity and digital skills development. Topics included digital literacy frameworks, new methods of teaching and learning in view of digital developments as well as new capacity building concepts and initiatives in the digital age. The publication also showcased concrete examples of the impact of new technologies on skills gaps and skills development in selected developing countries. The [fourth edition](https://academy.itu.int/digital-skills-insights-2020) of the publication was released in September 2020 and featured different aspects of capacity development and skills requirements in the digital era. These include the types of skills needed in the digital economy and future labour market, new jobs and associated skills requirements, specific digital technologies and their impact on skills development, new skills required to manage data and information generated online, as well as a set of articles that explore the topic of gender and digital skills.

### Digital skills assessment

The ITU [Digital Skills Assessment Guidebook](https://academy.itu.int/main-activities/research-publications/digital-skills-insights/digital-skills-assessment-guidebook) was released in June 2020 and is available in six languages. It serves as a comprehensive, practical step-by-step tool for national digital skills assessments. The guidebook can be used to determine the existing supply of a digitally skilled cohort at a national level, to assess skills demand from industry and other sectors, to identify skills gaps, and to develop policies to address future digital skills requirements. It is designed for use by policy-makers and other stakeholders, such as partners in the private sector, non-governmental organizations, and academia.

### ITU-ILO digital skills campaign

ITU continued to lead the [digital skills campaign](https://academy.itu.int/index.php/main-activities/ilo-itu-digital-skills-campaign), which was launched in 2016 as one of eight thematic priorities under the ILO Global Initiative on Decent Jobs for Youth. The campaign seeks to equip young women and men with the skills needed for the digital jobs of today and tomorrow. By 2020, the campaign had received commitments to train more than 16 million young people with job-ready, transferable digital skills by 2030 – more than triple the initial target of 5 million people.

### National capacity development

In 2019, certified training was provided to the Government of Eritrea on advanced technologies, roaming, and mobile money. Concentrated assistance was provided to Burundi with two nationals trained in the ITU centre of excellence in Yaoundé, Cameroun, on broadband and in Kampala, Uganda, on a cyber-drill exercise. Assistance was also provided to Kyrgyzstan.

### Regional capacity development

Countries from the Arab States region were trained on satellite communications (co-organized with ITSO), 5G (co-organized with GSMA), and Internet governance (co-organized with ICANN, ISOC, RIPE NCC, and the Diplo foundation). Countries from the CIS region benefited from training on satellite communications (co-organized with ITSO) and in the Africa region, training took place on spectrum management (through a partnership with AFRALTI, ITU centre of excellence in Kenya). Training in the Asia-Pacific region took place on [human exposure to radio frequency electromagnetic fields](https://academy.itu.int/training-courses/full-catalogue/human-exposure-radio-frequency-electromagnetic-fields-malaysia). This e-learning course was offered under the CoE partnership with UTM Malaysia and took place in November/December 2020.

As part of the Asia-Pacific region CoE node partnership with the State Radio Monitoring Center (SRMC) Ministry of Industry and Information Technology (MIIT)-China, 358 participants from 58 countries participated in the 2020 e-learning course on [spectrum management and radio frequency (RF) monitoring](https://academy.itu.int/index.php/training-courses/full-catalogue/spectrum-management-and-radio-frequency-rf-monitoring-0). In the Caribbean, the digital policies programme to re-sensitize government officials to the use of ICTs provided public servants with guidance on making policy, legislative, and regulatory decisions.

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| **REGIONAL INITIATIVES**Africa region: Strengthening human and institutional capacity building* Over 530 girls learnt coding in a series of workshops of the African Girls can Code Initiative.
* Under the AfGCC Initiative and to jointly celebrate UN@75 and work on women and young girls in ICT, a hybrid face-to-face and virtual boot camp was organized by ITU and UNECA in Addis Ababa (Ethiopia) for 17-20-year olds from across the continent. Over 120 girls participated in person while over 2 000 girls took part in the virtual sessions over two weeks.
* The ITU-ILO programme, with support of the African Union, on [boosting decent jobs and enhancing digital skills for youth in Africa’s digital economy](https://www.itu.int/en/ITU-D/Regional-Presence/Africa/Pages/projects/2020/jobs-skills.aspx) was developed by youth, for youth, in Africa. Launched in 2020, the aim of the continental programme is to empower Africa’s youth and ensure they benefit from the new opportunities in the digital economy, and that their energy and creativity is directed to the advantage of expanding digitally-enabled industries. The six initial countries are Côte d’Ivoire, Kenya, Nigeria, Rwanda, Senegal, and South Africa. The development of national project documents with the countries is under way, following a virtual roundtable featuring multi-stakeholder dialogues to build sustainable partnerships and explore funding mechanisms.

Americas region: Development of knowledge in technologies, for ICE specialists* Training has been provided to ICE staff on different topics related to telecommunication management

Asia-Pacific region: * ITU improved digital skills amongst membership through training in mobile planning, security, blockchain, computer incident response teams (CIRTs), and cybersecurity targeted at SIDSs, LDCs and LLDCs. Papua New Guinea, one of the pilot countries for the ITU [digital transformation centre](https://academy.itu.int/main-activities/digital-transformation-centres-initiative) initiative, started online training in the areas of basic connectivity (in partnership with Cisco, National ICT Authority of Papua New Guinea (NICTA), and the Royal Melbourne Institute of Technology) and empowering women through ICTs and e-commerce. This was done in partnership with the Asia and Pacific Training Centre for Information and Communication Technology for Development (APCICT) /United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

CIS region: Use of telecommunications/information and communication technology to ensure inclusive, equitable, quality and safe education, including the enhancement of women's knowledge of ICTs and e-government.* ITU is implementing project for the creation of digital skills centre for women and youth in Uzbekistan (in partnership with ZTE and IT Park of Uzbekistan)
* An ITU project is being implemented in Kazakhstan in partnership with *Kostanay Engineering and Economics University named after M. Dulatov.*
* Targeted assistance was delivered to Azerbaijan to deliver digital skills courses for women and to Belarus on an IP telephony training centre.
* ITU has updated the highly demanded *onlinesafety.info* course and is working to localize it in several CIS countries (Armenia, Azerbaijan, and Kazakhstan).
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## 2. Cybersecurity: Creating a trusted cyberspace for all

**ITU Global Cybersecurity Index (GCI)**

The third [ITU Global Cybersecurity Index](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx) (GCI), published in 2018, showed considerable improvement in commitment to cybersecurity worldwide. More countries have national cybersecurity strategies, national plans or policies, response teams, and specific legislation to counter the threats. At the same time, there remains a gap between regions, and a significant gap between many countries, in terms of knowledge including cybercrime legislation, national cybersecurity strategies, computer emergency response teams (CERTs), awareness and capacity development to communicate the strategies, and capabilities and programmes in the field of cybersecurity.

**Child online protection (COP)**

In 2019, substantive regional efforts were undertaken to address child online safety issues. In the Africa region, discussions started with Chad, Kenya, Malawi, and Rwanda on the implementation of national strategy frameworks. In particular, the COP Regional Forum held in Ghana discussed several issues related to child online protection in the Africa region. In the Asia-Pacific region, assistance was provided for the development of the ASEAN Regional Framework on Child Online Protection in coordination with other partners, such as TELSOM/TELMIN.

The Broadband Commission for Sustainable Development, for which ITU serves as the Secretariat, includes a Working Group on Child Online Safety, led by the World Childhood Foundation and Zain. The group released a comprehensive [report](https://www.broadbandcommission.org/Documents/working-groups/ChildOnlineSafety_Declaration.pdf) in 2019.

ITU and partners coordinated action to contribute to the [technical note on COVID-19 and its impact on child online protection](https://www.itu.int/en/ITU-D/Cybersecurity/Documents/COP/COVID19%20Online%20Technical%20note%20resource%20pack_PUBLISHED.pdf). The main purpose of this note is to offer technical guidance on how to mitigate key risks posed by COVID-19 and the increased exposure of children to online harms.

During 2019, a multi-stakeholder expert working group, consisting of more than 50 organizations and individual experts, started the review of the ITU [child online protection guidelines](https://www.itu.int/en/cop/Pages/guidelines.aspx), which were first issued in 2009. The [2020 child online protection guidelines](https://www.itu-cop-guidelines.com/) were launched in June 2020, followed by a [global virtual event](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/2020-COP-Guidelines-launch-webinar.aspx), organized by ITU and partners, and [regional launches](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/COP/2020/Regional-Launches-COP-2020-Guidelines.aspx). The new guidelines were re-designed from the ground up to reflect the significant shifts in the digital landscape in which children find themselves, such as the Internet of Things, connected toys, online gaming, robotics, machine learning and artificial intelligence. Child online protection has also been included as one of the elements of Giga.

**Incident response**

While implementation is ongoing in Burundi and Malawi, the CIRT project will be fully implemented in Botswana and Gambia. In Kenya, the existing CIRT enhancement was completed in 2020. Through the implementation of CIRT services and related capabilities project, the State of Palestine was assisted in building and deploying the technical capabilities and related training for CIRT operations. Support and assistance were provided towards full operationalization of the Barbados National CIRT. CIRT readiness assessments were conducted in Bermuda and Guyana, and in October 2020, a CIRT establishment project was started with the Government of the Bahamas.

Specialized country assistances on CIRT assessments and skill building was provided to Papua New Guinea, Samoa, Tonga, and Vanuatu through an Australian Government Department of Infrastructure, Transport, Regional Development and Communications supported project. Capacity development on CIRT was provided to Papua New Guinea and Vanuatu through the [ITU-DoCA project](https://www.itu.int/net4/ITU-D/CDS/projects/display.asp?ProjectNo=9RAS18061).

**Cyberdrills and capacity development**

An inter-regional cyberdrill (CIS and Asia-Pacific regions) was carried out in Malaysia and cyberdrills for the Africa region were organized in Uganda (2019) and in Côte d'Ivoire (2018). In the Arab States region, a cyberdrill was organized in Oman to ensure continued collective efforts in mitigating cyberthreats among the national computer incident response teams. The Europe region organized a cyberdrill in Romania to coincide with the 2019 presidency of Romania of the Council of the European Union. A cyberdrill for the Americas region was organized in Argentina in 2018. Following an invitation from the G20 Presidency, ITU agreed to act as knowledge partner for security in the digital economy priority of the G20 Digital Economy Task Force.

**Women in Cyber Mentorship Programme**

ITU and the Forum of Incident Response and Security Teams (FIRST) with the support of EQUALS Global Partnership (EQUALS) launched a joint mentorship programme for empowering women in the cybersecurity sector. The programme engages role models and leaders in this field and connects them with talented women worldwide. This effort aims at overcoming the global gender gap in the field of cybersecurity, through the creation of a global mentorship programme aimed at building capacity of women wishing to pursue a successful career and evolve within the cybersecurity sector. The Women in Cyber Mentorship Programme is three-fold, and will incorporate a series of inspirational webinars, technical and soft skills training courses, and a six-month mentorship module. All activities will be delivered online over the course of eight months, from December 2020 to July 2021.

**ITU 2020 Global CyberDrill**

In 2020, the [ITU 2020 Global CyberDrill](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/Cybedrills-2020.aspx) was delivered virtually and covered several cybersecurity relevant areas: six regional dialogues on cybersecurity challenges took place during the COVID-19 pandemic. In addition, webinars on [empowering women in cybersecurity](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/CyberDrill-2020-Empowering-Women-in-Cybersecurity.aspx) and cyber crisis management planning showed the importance of inclusiveness and resilience. Hands-on training was also part of this global event focusing on [effective online open source investigations](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/CyberDrill-2020/How-to-conduct-effective-Open-Source-Investigations-Online.aspx) followed with training on tools used in [Incident Response – TheHive and Cortex](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/CyberDrill-2020/Incident-Response-with-TheHive-and-Cortex.aspx). Several experts discussed the importance of the [implementation and monitoring](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/2020-NCS-IM-webinar.aspx) of national cybersecurity strategies.

**National cybersecurity strategies**

The [ITU guide](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/cybersecurity-national-strategies.aspx) on national cybersecurity strategies has been used by countries in all ITU regions. In particular:

* A regional workshop, hosted by the Ministry of Informatics and Cyber Security Agency of Indonesia in Jakarta, was dedicated to cybersecurity strategies and general data protection regulations.
* A regional workshop, hosted by Macedonia, was dedicated to improving national strategies for five countries in the region.
* A regional workshop, hosted by Tunisia, focused on improving national strategies of countries from the Africa region and the Arab States region. Twenty countries actively participated.
* In the Africa region, Benin was assisted in drafting its national cybersecurity strategy.
* In Asia-Pacific region, Kiribati and the Solomon Islands were assisted in strengthening their cybersecurity strategy frameworks and to develop their national cybersecurity strategies.

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| **REGIONAL INITIATIVES**Africa region: Building trust and security in the use of telecommunications/information and communication technology* Computer incident response team (CIRT) readiness assessment workshops were conducted in Chad, Liberia, and Malawi.
* The national CIRT stakeholders of Gambia were trained on CIRT operations.
* In partnership with Deloitte risk advisory, a cybersecurity landscape review was conducted for Côte d'Ivoire, including on the ITU Global Cybersecurity Index findings. The review helped the country to identify cybersecurity priority initiatives to improve its cybersecurity posture.

Arab States region: Confidence and security in the use of telecommunications/ICTs* During the Regional Cyber Security Week for the Arab States region the ITU Arab Regional Cyber Security Centre (ITU-ARCC) fostered information sharing and capacity building in the field of cybersecurity. The week provided a platform for senior ICT and cybersecurity officials from the region to meet with relevant stakeholders and discuss threats, evolution, opportunities and cybersecurity challenges.
* Capacity development and technical assistance were provided to Sudan to improve its strategy on critical information infrastructure protection.

Europe region: Enhancing trust and confidence in the use of ICTs* The Moldova Cybersecurity Week was held in Chisinau, Moldova, and supported by ITU. The conference offered networking opportunities and a platform to exchange ideas, discuss and collaborate to drive, through innovation, global cybersecurity strategies and solutions.
* The Cyber Shield 2019 was held in Ankara, Turkey, and was supported by ITU. The event offered a unique opportunity to participate in many technical activities in cybersecurity. The main objectives were to increase incident response capabilities and readiness levels, to increase mutual understanding of cyber risks and associated impacts, and to ensure a continued collaborative effort among international cybersecurity stakeholders, especially national computer emergency response teams (CERTs) in order to mitigate cyberthreats.
* Progress was made in the field of child online protection: an international conference for Europe on keeping children and young people safe online, was co-organized in Warsaw, Poland. A regional study on national approaches for keeping young people and children safe online was drafted for review and opened for consultations with the countries. Assistance was provided to Georgia and Ukraine in the development of a national strategy on child online protection.

Asia-Pacific region: Contributing to a secure and resilient environment* Specialized country assistance on CIRT assessments and skills building was provided to Papua New Guinea, Samoa, Tonga, and Vanuatu through an Australian Government Department of Infrastructure, Transport, Regional Development and Communications supported project.
* ITU supported Kiribati and Solomon Islands to strengthen their cybersecurity strategy frameworks including conducting table-top exercises to build national capacity in developing or improving their national cybersecurity strategies. During 2019-20, more than 550 participants raised their awareness and skills on Safeguarding Critical National Infrastructure (CNI), Critical information protection and Cyberdrills while more than 250 participants improved their skills on security related issues through the ITU Asia-Pacific CoE.
* A review of the National Cybersecurity strategy for Fiji was undertaken.
* ITU organized a Pacific CyberDrill with a focus on SIDS.

CIS region: Development and regulation of infocommunication infrastructure to make cities and human settlements inclusive, safe and resilient* ITU has completed a CIRT assessment in Kyrgyzstan and works towards a CIRT establishment project in the country.
* Regional and inter-regional cyberdrills proved to be a major success, each attracting from 200 to 300 participants. In 2017, the cyberdrill took place in Moldova, in 2018 in Azerbaijan, and in 2019 in Malaysia.
* Several major partnerships have emerged around the cybersecurity subject, including with such entities as OSCE and the World Bank.
* GCI was in focus for most countries of the region with ITU providing advice to Kazakhstan, Kyrgyzstan, and Uzbekistan on this subject.
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| **STUDY GROUPS** A [workshop on cybersecurity emerging issues](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q3-2-oct18.aspx) was held in October 2018 in conjunction with ITU-D Study Group 2 Question 3/2 (*Securing information and communication networks: Best practices for developing a culture of cybersecurity*). The workshop shared updates on cybersecurity trends, explored new elements to be reflected in related strategies and policies, and discussed how stakeholders can collaborate to contribute effectively to their implementation.  |

## 3. Digital inclusion: Building inclusive policies for equal ICT access and use

### Ensuring inclusive, equal access and use of ICTs for all

### ICT accessibility

Awareness in [ICT accessibility](https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Persons-with-Disabilities.aspx) was raised among over 8 000 ITU members, stakeholders and decision-makers to support their efforts in implementing digital accessibility in their countries and regions as an enabler to achieve digital inclusion and ensure inclusive communication for all people – regardless of their gender, age, ability, or location.

Awareness on the topic was raised through multiple regional, global and thematic meetings, workshops (including on-line during 2020) conferences and forums. These include the [WSIS](https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/137) track in ICT accessibility (2018, 2019, [2020](https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/137)), UN and CRPD events (2018, 2019, 2020); M-Enabling Summit (2018, 2019); International Congress of Technology for Diversity (2018); Inclusive Conference in Africa online (2020), ARB QITCOM (2019) ITU-UNESCO Digital Inclusion Week for the Arab States region (2018,2019, 2020); ASP with UNITAR online(2020), ITU regional Accessible Americas: Jamaica (2018), [Ecuador (2019](https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Pages/EVENTS/2019/23940.aspx)), Accessible Europe: Austria (2018), Malta (2019), and several online events.

As a result, over 1 200 ITU members, stakeholders and decision-makers were able to strengthen their capacities and obtained ITU certification in topics related to digital accessibility through face-to-face, blended and on-line training.

1. Fifty-three different types of [resources](https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/ResourcesOnICTAccessibility.aspx) were made available to support implementation of regional initiatives and Target 2.9 of ITU Strategic Goal 2, which explicitly states that: “*By 2023, enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in countries.*” These resources include policy guidelines, toolkits and programmes, as well as regional assessments, and were delivered in several official languages of ITU:
* ITU-WHO [Toolkit and Global Standard for safe listening devices and systems](https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Digital_Inclusion_Resources/Strategies%2C%20policies%2C%20toolkits/Toolkit_safe_listening_devices/safe_listening.aspx) (Arabic, Chinese, English, French, Spanish, Russian).
* [Artificial Intelligence and Information Communication Technology Accessibility](https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/AI%20and%20ICT%20Accessibility_webEA3_Final.pdf) (English).
* [Standards in the Procurement of Accessible Products and Services](https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/ICT%20Accessibility%20standards%20procurement%20FINAL.pdf) (English).
* [Future of Accessible Audiovisual Media Services, TV and Video Programming](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2019/Accessible%20Europe/191107_AVMS%20Accessibility%20in%20Europe%20%28Final%20edition%29.pdf) (English).
* Internet for @all Web Accessibility Education Programme (Arabic, English, French, Spanish) and video tutorial to be implemented at the national level.
* “Towards building inclusive digital communities,” an interactive toolkit and self-assessment for ICT accessibility implementation (English, French, Spanish) with video tutorial. The resource enables in-country self-assessments, provides policy guidelines, localized best practice, helps to monitor implementation and assists policy-makers and stakeholders to transpose the principles of digital accessibility into their decision-making process to ensure inclusiveness in their countries and regions.
* ITU regional Assessment on ICT Accessibility for the Asia-Pacific region (English).
* ICT accessibility assessment report for the Europe region (English) that will be produced and presented in the upcoming Accessible Europe ICT for ALL in March 2021.

*b)* Twenty-six resources in building capacity, encompassing online and video tutorials in several official languages of ITU. The online training is provided through the ITU Academy, and offers free of charge self-paced courses, with localized content (also free of charge) and certification if the knowledge acquired is validated successfully and delivered in accessible formats to ensure that persons with disabilities can also benefit from such training. Among the topics covered are:

* ICT Accessibility: The key to inclusive communication (Arabic, English, French, Spanish) – (Russian-2021).
* Web Accessibility: The Cornerstone of an Inclusive Digital Society (Arabic, English, French, Spanish) - (Russian-2021).
* [Creation and Remediation of accessible digital content (five video tutorials)](https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Video-Tutorials-on-Accessible-Digital-Content.aspx)  (English, French, Spanish).

c) Specific resources on COVID-19 response and recovery:

* [ITU guidelines on how to ensure that digital information, services and products are accessible by all people, including persons with disabilities during COVID-19](https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/COVID-19-Guidelines.aspx) (Arabic, Chinese, English, French, Spanish, Russian). The resource was selected and translated by the UN COVID-19 emergency group in additional 22 most spoken languages in the world.
* [How to ensure inclusive digital communication during crises and emergency situations](https://academy.itu.int/index.php/training-courses/full-catalogue/how-ensure-inclusive-digital-communication-during-crises-and-emergency-situations) ( English, French, Spanish) with a video tutorial (capacity building training)
* Terms of reference for future (2021) WHO-ITU accessibility guidelines for telehealth and e-health applications, developed within UN joint COVID-19 response and recovery – emergency working group on health workstream, in response to the concrete evidence showing that most of the telehealth approaches are not yet accessible for persons with disabilities.
* Aligned with UNDIS commitments to achieve sustainable and transformative progress on disability inclusion, ITU has been working with ILO on a project on accessibility of online job application and recruitment systems to provide guidance and develop the capacity of governments and UN agencies.

### Women and girls

Over 100 countries around the globe celebrated [Girls in ICT Day](https://www.itu.int/en/ITU-D/Digital-Inclusion/Women-and-Girls/Girls-in-ICT-Portal/Pages/Portal.aspx) in 2019. For the first time, the celebrations were taken “on the road” to Addis Ababa, Ethiopia where ITU and the African Union inspired girls and young women to pursue studies and careers in ICTs.

In 2020, considering the unprecedented times of the global COVID-19 pandemic, the global celebration – originally planned to be held in Samoa – was transformed to a fun and inspiring virtual event, in collaboration with the Samoa Government. The [2020 celebration](https://www.itu.int/en/ITU-D/Digital-Inclusion/Women-and-Girls/Girls-in-ICT-Portal/Pages/GirlsInICTDay/2020/default.aspx) brought together an impressive number of governments, civil society organizations, private sector and public institutions across the globe as a demonstration of the power of technology to change lives.

Over 500 girls participated in coding workshops as part of the [African Girls Can Code](https://www.itu.int/en/ITU-D/Regional-Presence/Africa/Pages/African-Girls-Can-Code.aspx), an ITU initiative supported by the African Union and UN Women with financial support of ITU and the Royal Danish Embassy in Ethiopia*.* The [Americas Girls Can Code](https://www.youtube.com/watch?v=gkYUlpgasoo) initiative has taught over 7 000 girls how to code through a series of workshops organized with the support of many different partners.

ITU and UNICEF launched the [*Towards an equal future: Reimagining girls’ education through STEM*](https://2b37021f-0f4a-4640-8352-0a3c1b7c2aab.filesusr.com/ugd/04bfff_d6ffe9bee8b24d7a814805d0f8c99db8.pdf) report as a contribution to EQUALS Global Partnership. It seeks to call attention to the potential of STEM education to transform gender norms in the education system, to improve quality learning opportunities for girls, and to highlight key actions that can accelerate girls’ transition between education and technical expert jobs in STEM industries.

Applicants from 24 small- to medium-sized enterprises (SMEs) led by women from 14 developing countries were given fellowships, out of 140 applications, to attend ITU Telecom World 2019, Budapest, Hungary, as part of the EQUALS Entrepreneurs in the ICT sector. The objective was to increase gender-balanced participation and support female entrepreneurship in the industry. The diverse and talented group of women came from sectors such as health, education, electronic commerce, cybersecurity, and IT services.

Countries from Latin America benefited from two editions of the online training course on women leadership in the telecommunication and ICT sector, which was organized in coordination with EQUALS Global Partnership. The [training was](https://academy.itu.int/index.php/training-courses/full-catalogue/liderazgo-femenino-en-el-sector-de-las-telecomunicaciones-y-las-tic)  attended by almost 100 participants.

In partnership with the Enhanced Integrated Framework (EIF) and UNOPS in 2020, ITU launched a cooperative project to enhance the digital ecosystem and build digital skills for women in least developed countries (LDCs). The project will benefit women in Burundi, Ethiopia, and Haiti by building capacity at the policy level, increasing government ability to mainstream gender and ICTs, and by expanding the horizons of women entrepreneurs through technology in sectors such as textiles and apparel, and the coffee and cocoa value chains. This joint project is a contribution to the [EQUALS Global Partnership](http://www.equals.org/) and part of EIF [Empower Women, Power Trade](https://www.enhancedif.org/en/empower-women-power-trade) initiative.

**The EQUALS in Tech Awards, hosted by the** [EQUALS Global Partnership](https://www.equals.org)**, recognize innovative solutions aimed at closing the digital gender gap. The 2019 winners joined high-level representatives from EQUALS for a celebration of successful strategies and projects to promote gender equality in the technology sector. Over 200 organizations submitted entries for the 2019 awards, which span five categories: Access, skills, tech leadership, SME leadership and research.**

**For the seventh** [EQUALS in Tech Awards 2020](https://www.equals.org/awards)**, over 340 nominations were received from 70 countries representing the private sector, civil society, governments and academia. The awards** [ceremony](https://fb.watch/24H3G7xZH8/) **was held virtually as part of the Internet Governance Forum in November 2020.**

### Indigenous people

With dedicated ITU [capacity-building training for indigenous communities](https://www.itu.int/en/ITU-D/Digital-Inclusion/Indigenous-Peoples/Pages/default.aspx) held in collaboration with *El Fondo para el Desarrollo de los Pueblos Indígenas de América Latina y El Caribe* (FILAC), ITU empowers indigenous people and communities through technology to support educational, social and economic development as well as self-sustainability of indigenous communities and their cultural legacy. From 2018 to 2020, almost 550 indigenous men and women (53 per cent men, 47 per cent women) benefited from training on innovative communication tools for strengthening ICT knowledge of indigenous communities - with a special focus on how to develop, manage and operate an indigenous community radio network, and (blended training) on the [Training Programme for Technical Promoters in Indigenous Communities for the Generation, Development and Maintenance of Communication and Broadcasting Network Technologies](https://youtu.be/iPgLFQQAdhU).

In response to the COVID-19 pandemic, the online course on innovative communication tools, was redesigned to include a dedicated module on emergency communications, designed for indigenous community communicators. The module included an interactive session with indigenous community communicators to exchange on the indigenous community experiences during the pandemic.

In 2018 and 2019 side events were co-organized during the Permanent Forum at the UN in New York to raise awareness of the challenges and opportunities of indigenous communities and the enabling role of ICTs.

### Children

In June 2020, ITU launched new guidelines on child online protection, a comprehensive set of concrete recommendations for children, parents and educators, industry and policy-makers on how to contribute to the development of a safe and empowering online environment for children and young people. The COP guidelines serve as a blueprint that can be adapted to national or local customs and laws.

### Youth

In 2020 the Generation Connect global initiative was launched, which seeks to include the voice of youth and promote their meaningful engagement in digital transformation. Generation Connect is the overarching initiative of the ITU Youth Strategy on the journey to the World Telecommunication Development Conference 2021 (WTDC-21) and beyond. The three pillars of the ITU Youth Strategy are: Empower, Engage and Participate. Generation Connect aims to engage global youth and encourage their participation as equal partners alongside the leaders of today’s digital change, empowering young people with the skills and opportunities to advance their vision of a connected future. The implementation of the ITU Youth Strategy has been supported with the establishment of a new ITU youth task force and a Generation Connect Global Youth Summit is planned for WTDC-21.

Consultation with youth on how to enhance digital skills for youth were held during the AfriLabs gathering in Addis Ababa, Ethiopia, in November 2020. The event was organized under the ITU-ILO boosting decent jobs and enhancing digital skills for youth in the Africa region digital economy programme, with the support of the African Union.

### Older persons

ITU is working on a guideline report on the topic of “Aging in a digital world – *from vulnerable to valuable*”, which will be launched in 2021. The resource aims at providing ITU membership with a holistic vision on the global aging and related socio-economic impact, as well as on the challenges and opportunities that can result from appropriate policies and strategies on digital inclusion of older persons.

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| **REGIONAL INITIATIVES**Asia-Pacific region: Harnessing information and communication technologies to support the digital economy and an inclusive digital society* More than 80 events were held in the region to celebrate Girls in ICT Day. In Thailand, for example, girls and young women were trained on Agritech in partnership with government, UN agencies, academia, and industry. This was part of an ongoing programme launched in 2017 to enhance employment opportunities for girls and young women in Thailand.

Americas region: Accessibility and affordability for an inclusive and sustainable Americas region* ITU delivered equipment to assist visually impaired persons in Dominica through the Dominica Universal Access Policy for persons with disabilities. The collaborative assistance empowers persons with disabilities and provides a means of increased inclusiveness and equality. Similar equipment will be delivered to persons with disabilities on the island of Grenada.
* A contribution was presented to Haiti’s International Women’s Tech Summit, on the theme "Inclusive Innovation: Engine of Economic and Financial profitability”. The Summit was organized by the Women's Chamber of Commerce of Haiti, with the support of the Central Bank and the Haitian Administration (CONATEL).

Europe region: Accessibility, affordability, and skills development for all to ensure digital inclusion and sustainable development* A self-paced online training on ICT accessibility was promoted across the region with the engagement of over 200 stakeholders.
* A regional competition on [digital innovative solutions for accessible Europe](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2019/IF/Innovative-Digital-Solutions-for-an-Accessible-Europe-Fostering-Growth-for-Start-ups.aspx) was organized and involved over 80 start-ups.
* Papers on ICT accessibility were presented to advance the implementation of the work in the field of artificial intelligence, broadcasting, standards and procurement.
* The GARI (global accessibility reporting initiative) database was promoted across the Europe region to enhance knowledge on accessibility features of mobile devices.
* A regional study on ICT empowered generation equality was drafted for review and opened for consultations with UN partners.

CIS region: Use of telecommunications/information and communication technology to ensure inclusive, equitable, quality and safe education, including the enhancement of women's knowledge of ICTs and e-government.* Targeted assistance was delivered to Kyrgyzstan (building capacity of informatics teacher in rural and remote areas of the country) and Armenia (virtual reality/augmented reality lab in Echmiadzin).
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| **STUDY GROUPS**A knowledge development session on ICT accessibility fundamentals was held for a group of ITU-D SG1 Rapporteur Group participants in October 2019. This helped ITU Member States to understand key definitions and trends related to ICT accessibility policies and strategies, identify digital accessibility requirements, envision ICT accessibility as a business opportunity, and understand the benefits for all involved stakeholders. A hands-on demo of the revised ITU Academy was also provided.In response to COVID-19 the I[TU-D study groups – Reflections on COVID-19](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/covid19/webinars/1stSeries.aspx) webinars were held in 2020, followed by a webinar on *Digital accessibility during COVID-19 and recovery period: An imperative to ensure inclusive societies in the digital world*. Speakers analysed the importance of ICT accessibility implementation and the related impact of COVID-19 on the lives of people with disabilities. Based on discussions held during the webinar, an *ITU News* article on the need for increased digital accessibility during COVID-19 and beyond was issued in June 2020.  |

## 4. Digital innovation ecosystems: Accelerating innovations ecosystems for digital transformation tools

**Innovation challenges**

The [innovation challenges](https://www.itu.int/en/ITU-D/Innovation/Pages/Innovation-Ecosystem-Program-.aspx) served as an open platform for people to present their ideas and projects, which can contribute to the digital transformation of individuals, communities and society through innovation. It is a life-[changing experience](https://news.itu.int/itu-innovations-challenges-a-life-changing-experience/) for many of the participants. Through [cocreate.itu.int](https://cocreate.itu.int/), the [2019 edition](https://www.itu.int/en/ITU-D/Innovation/Documents/YILF%202019%20Outcome%20Report%20.pdf) attracted over 140 projects and cocreation from 1 200 people from 400 cities. One of the 2019 winners from South Africa, a Durban-based entrepreneurial technology company, was recognized for excellence at ITU Telecom World 2019, Budapest, Hungary. The company received USD 1.5 million to replicate its work in other towns in the Durban area and received commitment of almost USD 10 million for “Wholesale Financing” to commercialize its innovations. The 2020 ITU Innovation Challenges is the second edition of this competition and was organized in partnership with [EQUALS](https://www.equals.org/) and [INPUT Hungary](http://foreign.inputprogram.com/?lang=en). Over 60 selected winners from both editions went through boot camps [to refine and support their projects](https://news.itu.int/itu-innovation-challenges-ugandan-tech-solution-helps-deliver-clean-water-for-all/).

### Innovation forums and knowledge sharing

Young ICT leaders forums were held in 2018 and 2019 in Busan, Republic of Korea. [YILF2018](https://www.itu.int/en/ITU-D/Innovation/Documents/Young%20ICT%20LEdaers%27%20Forum%202018%20%20Busan%20-Report.pdf) and [YILF2019](https://www.itu.int/en/ITU-D/Innovation/Documents/YILF%202019%20Outcome%20Report%20.pdf) offered a space where youth change-makers in ICTs can network, connect, and enhance their innovative ideas to create smart communities. In 2019, through the regional innovation forums for the Arab States region and the Africa region (held in Brazzaville and Cairo), policy-makers, academics, innovators, and ecosystem builders from 16 countries discussed how to develop agile and collaborative ecosystems conducive to digital innovation.

The first edition of the Global Innovation Forum (GIF) was also held in 2019 as the [Global Ecosystem program](https://www.itu.int/en/ITU-D/Innovation/Pages/Innovation-Ecosystem-Program-.aspx)me at ITU Telecom Budapest, Hungary. The second edition, held virtually in 2020, included regional perspectives for five regions (AFR, EUR, ASP, ARB, AMS). [GIF2020](https://www.itu.int/en/ITU-D/Innovation/Pages/2020-ITU-Global-Innovation-Forum.aspx) highlighted the importance of entrepreneurship-driven innovation and digital ecosystems in the context of a global pandemic. It brought together 175 experts and 700 participants to mainstream sustainable digital innovation.

ITU also organized innovation sessions at the WSIS forum in 2018, 2019, 2020 to discuss technology trends accelerating digital transformation, national experience sharing, and an innovation culture to accelerate achievement of the SDGs.

### Innovation capacity development

In 2018 and 2019, through capacity building efforts at key events, over 100 policy-makers and ecosystem champions were trained with knowledge, skills and tools on strengthening their own digital innovation environment. In 2020, building on the ITU innovation toolkit series, a new [toolkit for developing sustainable ICT-centric innovation ecosystem projects](https://www.itu.int/dms_pub/itu-d/opb/inno/D-INNO-TOOLKIT.2-2020-PDF-E.pdf) was launched. This toolkit brings additional features and insights on how stakeholders can diagnose and develop flagship projects that effectively nurture ICT-centric innovation within digital ecosystems. An online curriculum, with an initial set of four courses, has been developed and piloted through the ITU Academy. Over 90 people from 60 countries were trained with these new online instructor-led courses. Additional online content development is envisioned through partnership with other organizations and synergies with other ongoing projects within ITU.

### Innovation assessments and projects development

Technical assistance was provided to Mali, Montenegro, Niger, Trinidad and Tobago, and the Philippines to draft digital innovation profiles, which offer an ecosystem blueprint to accelerate digital transformation to leverage entrepreneurship and innovation. ITU worked with South Africa in the development of African Digital Transformation Centre to help accelerate digital transformation across key sectors of the economy. Additional technical assistance to countries is planned through partnership and projects with other UN agencies such as UNFPA and (United Nations Office for South-South Cooperation (UNOSSC)

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| **REGIONAL INITIATIVES**Africa region: Building digital economies and fostering innovation in Africa* Funding was secured to establish the first ecosystem development hub, also known as the African Digital Transformation Centre for South Africa.
* Through extensive consultative processes with multi-stakeholders from academia, entrepreneurs, entrepreneurial support networks, financiers, public and private sectors, ITU provided technical assistance for the development of digital innovation profiles for Mali and Niger.
* The [ICT-centric innovation ecosystem country review for Kenya](https://www.itu.int/en/ITU-D/Innovation/Documents/Publications/Kenya%20Country%20Review%20-%20ICT%20centric%20Innovation%202019.pdf) offered a comprehensive analysis and recommendations on how future ICT policies can include innovation and digital entrepreneurship policies and programmes.
* Capacity building on sessions on building innovation and entrepreneurship ecosystems were provided to a number of public and private organizations, universities, and research institutions in the Republic of the Congo.

Arab States region: Innovation and Entrepreneurship:* Incubator managers and other ecosystem stakeholders in Djibouti and Mauritania were equipped with methodology and tools to support growth and entrepreneurship. The main principles and good practices of business incubation were shared and discussed.
* Capacity building sessions on building innovation and entrepreneurship ecosystems were provided to a number of public and private organizations, universities, and research institutions in Egypt.

Americas region: Development of the digital economy, smart cities and communities and the Internet of Things, promoting innovation* The [Americas ICT Innovation Week](https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Documents/EVENTS/2019/24013/Practical%20Information%20Innovacion%20Uy2019_En.pdf), under the theme smart rural communities was organized in Uruguay. The adoption and use of new technologies to create a sound and responsible agriculture sector to enable future smart rural communities was analysed and discussed.
* An online training course on the role of ICT for smart sustainable cities was offered to the Bahamas, Barbados, Guyana, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago. This initiative was implemented in partnership with CITEL/OAS.
* A 2018 workshop was held in the Caribbean on 5G, IoT, m-Payment, emerging technologies, eco-systems, and regulation.

Europe region: ICT-centric innovation ecosystems* The Digital Innovation Profile for Montenegro was finalized in preparation of a national project.

Asia-Pacific region: Regional Initiative 4: Enabling policy and regulatory environments, fostering innovation* A regional study on status of digital innovation in Asia-Pacific region is being undertaken.
* ITU assisted the Philippines to draft a digital innovation profile, and similar work is being undertaken for Indonesia and Viet Nam.
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| **STUDY GROUPS**The *ICT Innovation Week* event report contributed to the work of the ITU-D Study Group 2 ([Question 1/2](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG02-RGQ01.2&stg=2) *Creating smart cities and society: Employing information and communication technologies for sustainable social and economic development*) rapporteur group meeting. |

## 5. Digital services and applications: Creating transformative digital strategies and application services

### Scaling up digital health

The impact of the ITU-WHO [Be He@lthy, Be Mobile Initiative](https://www.itu.int/en/ITU-D/ICT-Applications/eHEALTH/Be_healthy/Pages/FAQ-01.aspx) continues to grow. It now works with 11 countries to tackle issues as diverse as cervical cancer, diabetes, and tobacco use. In total, more than 3.5 million people have benefited from this programme. Deliverables of the Be He@lthy, Be Mobile initiative include USD 1.8 million raised from three new partners (Roche, Discovery/Vitality, Santen). Continued support was provided to Egypt, India, Philippines, Senegal, and Tunisia and implementation started in Burkina Faso and Sudan. A new project is underway in Senegal to detect diabetic retinopathy using AI.

In 2018, ITU co-organized with WHO AFRO and Smart Africa a Digital Health Hub on the occasion of the Transform Africa Summit. The Hub featured a number of policy dialogues and best practicefor digital health implementation in the Africa region. A [handbook](https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-E_HEALTH.14-2019-PDF-E.pdf) on how to implement mTB-Tobacco has been published and a toolkit developed, and an [mHealth Innovation Hub](https://www.itu.int/en/ITU-D/ICT-Applications/Pages/EU-mhealth-hub.aspx) for the Europe region was established with the European Union and WHO to serve as a platform to share best practice and provide a one-stop shop to access guidance on mobile health implementation.

In 2018, assistance was provided to Guyana in collaboration with Pan American Health Organization (PAHO), with the development of an e-health national framework that included the development of a national e-health vision document, a national e-health action plan, a national monitoring framework proposal, and an assessment on the application of the e-health toolkit in Guyana.

In 2020, following the m-Diabetes project launch in Senegal by ITU in partnership with WHO in the framework of the "Be Healthy, Be Mobile" global programme, ITU/WHO set up a second project, focusing on the automatic detection of diabetic retinopathy in Senegal. The Government of Senegal, through the Ministry of Health, was provided with two digital retinographs to help support the national healthcare system in the early diagnosis of diabetic retinopathy.

## Building smart villages

The [Smart Village project](https://news.itu.int/leaving-no-one-behind-nigers-smart-villages-project/) to connect remote areas of Niger to the Internet was created through a collaboration between ITU and the [National Agency for Information Society (ANSI)](https://www.youtube.com/watch?v=0uYKKJg00eo) and several other organizations. In addition, ITU and the Digital Impact Alliance (DIAL) developed a methodology for the Niger Smart Village project to guide a common cross-sector digital infrastructure through a whole-of-government approach. This approach generates a more integrated and coordinated services delivery.

**Developing national digital sectoral strategies**

Several countries developed national digital strategies and roadmaps for agriculture and government services through multi-stakeholder processes and by engaging the public and private sector.

### Building capacity on digital services

Training on digital health was given following a digital curriculum developed by ITU in collaboration with the WHO Africa regional office to scale up digital health in countries in the region. This also gave the opportunity for representatives from ministries of health and ICT to share experiences and lessons learned from their country implementation of digital services.

### Sustainable cities and human settlements

The ITU Regional Office for Africa facilitated a workshop on Smart Society for Southern Africa, held in Dar es Salaam, Tanzania, to broaden understanding of concepts, requirements and opportunities to leverage new technologies such as IoTs, AI, big data, for countries in the Southern African Development Community (SADC).

### Collaboration with FAO

ITU is scaling up its collaboration with FAO following the signature of a cooperation agreement in 2019. ITU and FAO are working together to assist several countries in developing and implementing digital agriculture strategies and roadmaps to create capacities and identify priorities for digital investments to achieve agriculture sector objectives. ITU is also collaborating with FAO to support rural entrepreneurship, investment and trade in Papua New Guinea and a Smart Villages initiative in Niger. Several reports were co-published on digital agriculture with FAO on the use of digital and frontier technologies e.g., blockchain and big data for agriculture. In addition, ITU was invited to be a member of the advisory committee of the Digital Council for Food and Agriculture that will help governments to identify and maximize the potential of digitalization and establish, expand and protect farmers’ access to digital technologies. In this context, Guyana hosted the ITU/FAO e-Agriculture Strategy Development Regional Workshop for the Caribbean in 2018 in collaboration with CTU.

ITU-FAO Caribbean Hackathon #HackAgainstHunger was organized in collaboration with the Food and Agriculture Organization (FAO) in February 2018 to identify and support ICT innovative solutions, the aim being to address challenges in the areas of food and agriculture. It included two local hackathon events, in Jamaica and in Trinidad and Tobago. Jamaica won the regional event and afterwards competed in and won the WSIS Forum 2018 Special Track Global Hackathon in Geneva.

ITU and FAO conducted a study for the development of e-agriculture strategy in Chile. In 2020, ITU and FAO developed a joint report “Status of Digital Agriculture in 18 Countries of Europe and Central Asia”.

### Digital Public Goods

ITU is providing guidance on adopting whole-of-government approaches for investing in shared digital infrastructure that can lead to more rapid scale-up of digital services at less cost and greater return on investment, and how to coordinate investment to make digital public goods available that can enable digital transformation for SDGs. A whole-of-government approach is outlined in the [*SDG Digital Investment Framework*](https://www.itu.int/pub/D-STR-DIGITAL.02-2019) published by ITU and Digital Impact Alliance (DIAL).

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| **REGIONAL INITIATIVES**Africa region: Building digital economies and fostering innovation in Africa* The ITU-WHO joint project *Using digital health services to accelerate SDGs in the Africa region* was launched to support countries in making full and sustainable use of ICTs in health service delivery that will improve population and individual health and ensure healthy lives and well-being for all in the Africa region.
* An e-applications development workshop was held in November 2019 to identify challenges experienced during e-application development and propose ways to bridge the gap between ideation of e-applications and advancement to market entry in the Africa region.
* Baseline studies to facilitate digital financial inclusion and digital government for Ethiopia have been undertaken.
* Within the framework of the African Continental Free Trade Area (AfCFTA), a baseline assessment to support cross border digital payments has been undertaken.
* In collaboration with FAO, a Digital Readiness Assessment for Agriculture to assess the digital agriculture environment in Africa is under way.

Americas region: Development of the digital economy, smart cities and communities and the Internet of Things, promoting innovation* ITU collaborated with WHO in 2018 to produce the “Guyana National eHealth Strategy” ITU contribution using the WHO-ITU toolkit for that purpose.
* The Americas ICT Innovation Week, under the theme smart rural communities was organized in Uruguay. The adoption and use of new technologies to create a sound and responsible agriculture sector to enable future smart rural communities was analysed and discussed.

Asia-Pacific region: Harnessing ICTs to support the digital economy and an inclusive digital society* E-agriculture: In partnership with FAO, ITU supported the development of the e-agriculture strategy in Mongolia; the implementation of mobile applications in Papua New Guinea; the development of two case studies on blockchain and big data; and human capacity building activities in Papua New Guinea and Mongolia. A joint UN project, led by FAO, on supporting agriculture in areas of Papua New Guinea was also finalized.
* E-Government: Papua New Guinea and Vanuatu were assisted in strengthening their digital government frameworks.
* Training courses and workshops raised awareness of applications in areas such as smart cities, digital government, and IoT applications.
* ITU, in partnership with FAO, continued to raise awareness on application of digital technology in agriculture through E-agriculture in Action case studyseries ([Big Data For Agriculture](https://www.itu.int/en/ITU-D/ICT-Applications/Documents/Publications/Big%20Data%20for%20Agriculture.pdf)). The next edition on *Artificial Intelligence for Agriculture* is planned for release in Q1, 2021.
* The bi-annual Digital Agriculture Solutions Forum 2020 shared experiences on the use of innovative technologies to meet agricultural goals.

Europe region: A citizen-centric approach to building services for national administrations * A workshop on enhancing human life using e-services was held in Geneva to discuss emerging technologies and services, including AI and ICT accessibility.
* Cooperation between ITU and FAO was strengthened through a special session on digital agriculture strategies organized at ITU Telecom World 2019, Budapest, Hungary.
* Regional studies on national strategies for digital agriculture were elaborated for review by the Member States involved.
* A knowledge exchange event on fostering start-up ecosystems in the field of e-services was held in Prague, Czech Republic.

CIS region: Development of e-health to ensure healthy lives and promote well-being for all, at all ages* ITU developed a specialized multimedia training course in Russian on e-health for doctors and ICT staff working with medical equipment and provided a series of country training sessions (Belarus, Kazakhstan, Kyrgyzstan, Ukraine, Uzbekistan).
* ITU developed technical Recommendations on the application of modern technical solutions in the design of e-health systems, including telemedicine networks.
* ITU Startup Central Eurasia platform in November 2020 brought together over 350 participants, representing start-ups, IT parks, and venture investors and government agencies from 16 countries from the CIS region and neighbouring countries. This initiative is particularly designed to foster development of start-ups and SMEs working on digital health, agriculture and smart cities.
* Smart sustainable cities emerges as one of the priority areas for ITU Member States in the CIS region with Belarus hosting an annual flagship event (organized jointly by ITU-D and ITU-T) and the local government in Moscow being closely involved in relevant ITU studies.
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| **STUDY GROUPS**An [annual deliverable on a holistic approach to creating smart societies](https://www.itu.int/oth/D0717000002/) ([Question 1/2](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG02-RGQ01.2&stg=2): *Creating smart cities and society: Employing information and communication technologies for sustainable social and economic development*) was released in 2019. An example of architecture of a smart city is also proposed based on these core design concepts, and a summary of selected country case studies on smart cities is presented. Another annual deliverable on “Vertical applications in smart cities” was approved for release. The deliverable presents vertical applications and services that are based on a common horizontal layer to allow integrity and effective interplay among different sectors of smart cities.Several events were organized in conjunction with ITU-D Study Group 2 (Question 2/2 *Telecommunications/ICTs for eHealth*). A [workshop on new communication technologies for e-health and socio-economic issues](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q2-2-oct19.aspx) held in October 2019 explored examples of new technologies for e-health and discussed challenges for large-scale adoption and the means to address them. A [webinar on new e-health solutions to combat pandemics with ICT](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/Webinars/2020/Q2-2-july06.aspx) held in July 2020 explored use cases for new digital health solutions and the factors and recommendations that need to be considered for their effective deployment and scaling up, especially during pandemics. The content exchanged and lessons learned during these events will be used as input to the final report of Question 2/2.  |

## 6. Emergency telecommunications: Disaster-resilient ICT infrastructure for reduced loss of lives and damages

### ITU guidelines, publications and reports

The [***global guidelines for national emergency telecommunication plans***](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/2020/NETP-guidelines.pdf)were launched during an online forum that took place in March 2020. The guidelines assist policy-makers and national regulatory authorities to develop a clear, flexible and user-friendly national emergency telecommunication plan with a multi-stakeholder approach. This includes national policies and procedures as well as a governance framework governance to support and enable the continued use of reliable and resilient ICT networks, services and platforms for disaster management.

The [“***Emergency Telecommunications Table Top Simulation Guide***”](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/Publications/2020/TTX_Guide.pdf), launched in March 2020, was co-developed with the World Food Programme Emergency Telecommunications Cluster, to assist Member States and national stakeholders working on disaster management, to plan, design and conduct table top simulations, which allow stakeholders to test and refine emergency telecommunication plans, policies and procedures, as well as to verify whether networks, redundant communications capacity, personnel, and other telecommunication systems are in place for an emergency response.

In the face of the global COVID-19 crisis, a “[***Guide to develop a telecommunications/ ICT contingency plan for a pandemic response”***](https://www.itu.int/dms_pub/itu-d/opb/hdb/D-HDB-GUIDELINES.03-2020-PDF-E.pdf)was published***.*** This guidefocuses on telecommunications/ICT service delivery and business continuity in the specific context of a pandemic such as COVID-19. It outlines a set of actions that countries can take to prepare for, anticipate in, and be ready to respond promptly to this type of emergencies by ensuring network continuity and delivery of services. Telecommunication/ICT infrastructure include fixed, mobile, satellite, terrestrial, Wi-Fi and any other technology enabling broadband and broadcasting services.

A new publication on [“***Women, ICT and Emergency Telecommunications: Opportunities and Constrains***”](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/events/2020/Women-ICT-ET/Full-report.pdf), jointly developed with the World Food Programme Emergency Telecommunications Cluster, outlines a range of factors that underscore the digital gender divide and the increased vulnerability of women and girls before, during and after disasters. It showcases good practices and examples for utilizing ICTs to advance gender equality in disaster risk management, including through the use of new and emerging technologies, and identifies priority areas for the way forward. This report was launched on in August 2020, at the WSIS High Level Dialogue on “[*Women and emergency telecommunications: ensuring gender equality in building disaster resilience*](https://www.itu.int/en/ITU-D/bdt-director/Pages/News.aspx?ItemID=228)*”.*

A report on “[***Disruptive technologies and their use in disaster risk reduction and management***](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/2019/GET_2019/Disruptive-Technologies.pdf)*"* was published during the Global Forum on Emergency Telecommunications (GET 2019), which took place in March 2019 in Balaclava, Mauritius. Developments in disruptive technologies – such as artificial intelligence (AI), the Internet of Things (IoT) and big data – and innovations in such areas as robotics and drone technology are transforming many fields and are enhancing disaster resilience and management as well as risk reduction. It responds to requests from ITU Member States to identify relevant technologies and facilitate the sharing of best practice.

**Multi-hazard early warning systems and**

In 2018, ITU built disaster preparedness by implementing a number of early warning systems in [Zambia](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/EWS_ZAMBIA.aspx).

### National Emergency Telecommunication Plans (NETPs)

Since 2018, ITU has provided assistance to several countries in developing national emergency telecommunication plans, including Afghanistan, Bolivia, Dominican Republic, Ecuador, Guatemala, Papua New Guinea, Peru, Samoa, Saint Lucia, Solomon Islands, Somalia, Sudan, Vanuatu. Several national online meetings took place to ensure that the plans are developed following the ITU guidelines and through a multi-stakeholder approach involving different organizations working on disaster management, such as the national disaster management authorities, meteorological and hydrological organizations, humanitarian entities, ICT government and private sector, academia, media, civil society, and customs authorities. This will guarantee that the national plans are based on real needs.

### ITU disaster response support

Since 2018, ITU has provided support to several countries affected by natural disaster, including, the Bahamas, Mozambique, Papua New Guinea, the Solomon Islands, Tonga, Vanuatu, and Zimbabwe. ITU support includes the deployment of satellite telecommunication equipment and staff, and to provide connectivity to help countries restore vital telecommunication links.

To expand ITU work in the area of emergency telecommunications and to support and improve coordination with the satellite and the humanitarian community, ITU joined the [Crisis Connectivity Charter (CCC)](https://news.itu.int/why-itu-is-joining-the-crisis-connectivity-charter-doreen-bogdan-martin/), becoming a principal member. CCC is a mechanism created between the satellite industry and the wider humanitarian community, to make satellite-based communications more readily available for humanitarian efforts and communities impacted in times of disaster. The Charter was developed by the EMEA Satellite Operators Association (ESOA) and the Global VSAT Forum (GVF) and their members, in coordination with the UN Office for the Coordination of Humanitarian Affairs (OCHA) and the World Food Programme (WFP) Emergency Telecommunications Cluster (ETC).

Responding to the increasing demand for support in delivering emergency telecommunication equipment and services when disasters strike, ITU has established an internal emergency telecommunication roster. Dedicated and qualified ITU staff have been selected and will be trained on the deployment and use of the current (and future) ITU telecommunication equipment and will be able to support the Emergency Telecommunications Cluster work on the ground, by liaising with national authorities and stakeholders on importation and licensing requirements of telecommunication equipment.

### Capacity building

ITU continued to build capacity and raise awareness of the importance of disaster management and available ICT tools for disaster risk reduction. Several [events](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/ITU-Events.aspx) for the use of ICTs for disaster management took place between 2018 and 2020. At a global level ITU organized the [**GET-19**](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Events/2019/GET-2019/default.aspx) and the 2020 [**Common Alerting Protocol implementation workshop**](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/2020-Common-Alerting-Protoco--%28CAP%29-Implementation-Workshop.aspx). Regional forums and workshops on the use of ICTs took place in the Americas region (Caribbean) in 2019, in Europe region and CIS region in 2019, and in the Arab States Region in 2019 and in 2020. The latter included a table-top simulation exercise. At the national level, Tanzania benefited from a national workshop on the use of ICTs for disaster management in 2019. ITU continued to work closely with its partner UN organizations, in particular the World Meteorological Organization (WMO) and the UN Office for Disaster Risk Reduction (UNDRR) and participated in a number of events on the use of ICTs for disaster preparedness and risk reduction.

**Disaster connectivity map (DCM)**

Following a [proposal](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Documents/2019/GET_2019/Partnerships-for-Saving-Lives-Disaster-Connectivity-Map-Concept-Note.pdf) presented during the 2019 GET, ITU, together with the WFP Emergency Telecommunications Cluster (ETC), started the development of the Disaster Connectivity Map. This map initiative will provide information on the type, level and quality of connectivity that is available on the ground. The maps will use different data sources, including from mobile network operators, Facebook and others and operate in near real time to guide first responders from governments and humanitarian organizations in their relief efforts in the aftermath of disasters. A first prototype of the map was presented during a [joint ITU/ETC webinar](https://itu.zoom.us/rec/share/flOV1MYUfGGXq6SiDeFXDfuAvPV5gnXjsStpbe4U_vkooKx7J9y6UtVS9uiCobkU.Ic8cp4a7NGcdKMHy).

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| **REGIONAL INITIATIVES**Americas region:Disaster risk reduction and management communications* A project for the use of ICTs in emergency and disaster situations in the Caribbean, known as [WINLINK 2000](https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Pages/ACTVTS/PRJ/AMS-PRJ.aspx), was started to help Antigua and Barbuda, Barbados, Dominica, Grenada, Guyana, Jamaica, and Saint Kitts and Nevis to enhance their emergency telecommunication capabilities and improve emergency and disaster response to help save lives. It consists of an alliance between emergency response agencies, telecommunication authorities, and amateur radio associations to install Winlink servers in the beneficiary countries. The project started in 2018 and its first stage was ready in 2019 benefiting the Dominican Republic, Costa Rica, Guatemala, El Salvador, Honduras, Nicaragua, and Panama. The Winlink network has been used during every emergency since its implementation.
* Linked to the deployment of emergency telecommunication equipment to the Bahamas after hurricane Dorian, ITU collaborated with the Utilities Regulation and Competition Authority (URCA) and other stakeholders to provide Internet and other connectivity services to some residents in the affected areas.
* The Virtual Vision App, a real time communications platform for disaster management was developed. It helps facilitate direct, real-time communication before, during and after an emergency or disaster. The app was tested in the Bahamas in early December 2019.
* A Multi-stakeholder Forum on the Role of Telecommunication/ICTs for Disaster Management and Risk Reduction for the Caribbean Islands was hosted by Dominica in December 2018 in Dominica. The Forum was aimed at paving the way for enhancing the use of ICTs for disaster management in the region and addressing key questions related to the best use of ICTs for disaster risk reduction and management.
* Online Multi-stakeholder Consultation on the development of a National Emergency Telecommunications Plan (NETP) for Saint Lucia, has been organized in cooperation with the Ministry of Housing, Urban Renewal and Telecommunications of Saint Lucia. A NETP for Saint Lucia is under development.

Arab States region: Environment, climate change and emergency telecommunications* A series of training courses and workshops were held on disaster risk reduction and management and in the use of modern technologies for monitoring and early warning in the Arab States region.

Asia-Pacific region: Contributing to a secure and resilient environment* A joint project with DoCA supported Papua New Guinea, Samoa, Solomon Islands, and Vanuatu to strengthen national emergency telecommunication planning and build capacity. National emergency telecommunication plans were developed for these Pacific Islands in consultation with the Emergency Telecommunications Cluster (ETC).
* Broadband Global Area Network (BGAN) terminals were dispatched to the Solomon Islands in response to the Rennell Island oil spillage.
* Solomon Islands and Vanuatu improved their emergency telecommunication response capacity, which was found effective in response to oil spillage ([Rennel Islands](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Response.aspx)) and Category 5 cyclone ([Harold](https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/Response.aspx)) respectively.
* The Pacific Satellite Connectivity and Development of Emergency Telecom project (2014-2020) supported nine countries in the Asia-Pacific region (Federated States of Micronesia, Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Tonga, Tuvalu and Vanuatu) with satellite connectivity. The project, signed in 2014 with partners ITSO, Intelsat, Inmarsat and Kacific. These connectivity capacities have enabled e-applications in schools, communities and health care while serving as the key point of contact when Cyclone Harold struck Vanuatu. An impact assessment study has been undertaken on the project impact, which has validated the demand for such services and importance of satellite connectivity in remote areas and the importance of digital infrastructure for resilience and for delivering e-applications in the Pacific.
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| **STUDY GROUPS**Between 2018 and 2020, a total of three events were organized jointly with the Study Group 2 Question 5/2: Utilizing telecommunications/information and communication technologies for disaster risk reduction and management. The first event, held in 2018, focused on [*Technological evolution, ICT exercises and disaster management drills*](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q5-2-oct18.aspx)and sharedexperiences and knowledge on effective disaster drills, use of emergency telecommunication systems, and other means to improve preparedness and resiliency, including the availability and usage of emerging technologies. The second event held in 2019, on [*Conducting National Level Emergency Communications Drills and Exercises: Guidelines for Small Island Developing States (SIDS) and Least Developed Countries (LDCs)*](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q5-2-oct19.aspx), highlighted the importance of undertaking emergency telecommunication drills at a national level to test and refine readiness to respond in a timely manner when disasters strike. The third workshop on [*The Enabling Policy Environment for Effective Disaster Management including for COVID-19 Response*](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/Webinars/2020/Q5-2-july14.aspx)*,* held virtually, focused on the importance of preparing and implementing National Emergency Telecommunication Plans (NETPs), as well as specific contingency plans to address specific hazards, such as pandemics. It also provided examples of policies that enable flexibility when deploying emergency telecommunication equipment for a successful disaster response. An annual deliverable on “Draft guidelines for conducting national level emergency communications drills and exercises” was approved for release. This deliverable provides a framework for how a country or organization might conduct telecommunication/ICT drills and exercises. The deliverable will be released on the ITU-D study group webpage.  |

## 7. Environment: Creating a circular economy for electronics

**Better data for better policies: Waste electrical and electronic equipment (WEEE, or e-waste) data**

The Global E-waste Statistics Partnership (GESP), founded in 2017 by ITU, the United Nations University (UNU) and the International Solid Waste Association (ISWA) released [The Global E-waste Monitor 2020](https://www.itu.int/en/ITU-D/Environment/Documents/Toolbox/GEM_2020_def.pdf) in July 2020. All Monitors are available on the GESP website, a free and publicly available online portal at [globalewaste.org](https://globalewaste.org/), which contains WEEE data and statistics for almost all countries and regions. Over 150 publications relating to WEEE, published by United Nations partners, are also readily available via the portal. Regional WEEE statistical training was also delivered in the Russian Federation to the CIS region plus Georgia, Turkmenistan, and Ukraine; in Tunisia to the Arab States region; and in Uganda to the Africa region in collaboration with the East African Communications Organization (EACO). Training was also delivered at the national level in Tanzania, Jordan and Brazil.

**WEEE policy support**

Since 2019, ITU has been providing [technical assistance](https://www.youtube.com/watch?v=bienIHFkock) in the mapping of stakeholders, and with stakeholder consultations and the drafting of a national policy on the management of WEEE in Namibia. In collaboration with the Ministry of ICT, several stakeholder consultations have taken place in-person and online, and the online consultations have evolved successfully during 2020 despite the Coronavirus pandemic. Over 15 ministries and over 10 regional councils, recyclers, importers and regional producers have been consulted in the policy development process, as part of a public participatory approach. Since the beginning of 2020, ITU has been assisting Malawi, through the Malawi Communications Regulatory Authority and the Environmental Affairs Department, in the development of a national policy on the management of WEEE. In October 2020, 17 ministries and departments and 4 local authorities were consulted online. ITU is currently preparing its support for policy development in Bahrain.

In 2020, ITU signed a project with the World Economic Forum (WEF) to prepare a toolkit for developing countries and emerging markets – with a focus on the Africa region – covering the building blocks required for the establishment of a fair and equitable, well-communicated and sustainably financed system of extended producer responsibility (EPR) for the management of WEEE.

A tailored e-learning module was developed during 2020 that will allow ITU to provide technical assistance in the development of WEEE policy. The e-learning provides key concepts of WEEE management, EPR policy development, information about stakeholder roles and responsibilities, and suggested definitions.

**WEEE technology support**

In 2019 and 2020, ITU collaborated with the WEEE Forum in the preparation of [International E-waste Day](https://weee-forum.org/iewd-about/) (IEWD), which takes place annually on 14 October. The [2020 addition](https://www.youtube.com/watch?v=AFqP6IEhf5Y) focused on the role of youth in the management of WEEE. As part of the IEWD 2020 celebrations, ITU collaborated with the WEEE Forum in the publication of a thought paper on [Internet Waste](https://www.itu.int/en/ITU-D/Environment/Documents/Publications/2020/Internet-Waste%202020.pdf?csf=1&e=iQq5Zi). Following the publication, a [webinar](https://www.itu.int/en/ITU-D/Environment/Pages/Events/Internet-Waste-Dialogue.aspx) was held with several IT and electronics companies, service providers and recyclers. The thought paper on Internet Waste focuses on WEEE derived from wireless infrastructure for mobile Internet connectivity, connected devices and data storage with examples from mobile networks, IoT and data centres. The aim of this paper is to raise awareness about waste from infrastructure that supports connectivity and the need for sustainable WEEE management practices within data centre and telecommunication industries considering forecasted growth.

**United Nations E-waste Coalition**

The [UN E-waste Coalition](https://www.itu.int/en/ITU-D/Climate-Change/Pages/ewaste/E-waste-Coalition.aspx) is a UN system-wide group of agencies, programmes and organs with a common vision to tackle the global WEEE challenge. ITU was fundamental in the bringing together of these entities, eventually to form the Coalition and since end 2020 the secretariat of the Coalition sits with ITU. Several events were organized by the UN E-waste Coalition, including two WSIS Forum high-level dialogues, [one event in 2018](https://www.itu.int/en/ITU-D/Climate-Change/Pages/Building-an-E-waste-Coalition.aspx) where UN agencies signed a Letter of Intent, and [one in 2019 which saw three new UN agencies join the Coalition](https://www.itu.int/en/ITU-D/Climate-Change/Pages/Events/2019/Building-the-E-waste-Coalition.aspx). Both events focused on building the UN E-waste Coalition. The Coalition also organized a side event at the fourteenth meeting of the conference of the parties to the Basel, Rotterdam, and Stockholm Conventions. The side event focused on shifting [towards sustainable and responsible reverse supply chains in a circular economy for electronics](https://www.itu.int/en/ITU-D/Climate-Change/Pages/Events/2019/Sustainable-and-Responsible-Reverse-Supply-Chains.aspx).

**Circular Electronics Partnership**

ITU joined the newly formed Circular Electronics Partnership (CEP) in early 2020. CEP includes the World Business Council for Sustainable Development, the World Economic Forum, the Responsible Business Alliance, the Green Electronics Council, the Platform for Accelerating the Circular Economy, and the Global Enabling Sustainability Initiative. CEP aims to shift the playing field of the electronics industry towards contributing to the SDGs through circular economy principles. It builds off the publication, A [New Circular Vision for Electronics](https://www.itu.int/en/ITU-D/Climate-Change/Pages/ewaste/A-New-Circular-Vision-for-Electronics-Time-for-a-Global-Reboot.aspx), launched during the annual meeting of the 2019 World Economic Forum, Davos, Switzerland.

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| **REGIONAL INITIATIVES**Americas region: Disaster risk reduction and management communications* As part of the Girls in ICT Day 2019 celebrations in the Caribbean, awareness on the negative impact of climate change was enhanced by the planting of trees in many schools, in collaboration with local regulators, ministries of education, and NGOs.

Arab States region: Environment, climate change, and emergency telecommunications* The Arab States region is working on the Regional E-waste Monitor, which will collect and improve WEEE statistics in the region. The Monitor will improve data availability and quality, availability of policies and regulations and awareness through capacity building workshops. It will also communicate the data on WEEE to policy-makers, the media, and other relevant stakeholders. Bahrain is currently receiving support in the development of a national WEEE management policy.
* A [regional event was held online jointly by ITU, UNU and UNEP](https://www.itu.int/en/ITU-D/Regional-Presence/ArabStates/Pages/Events/2020/WEEE/WEEE.aspx), in December 2020. The workshop focused on WEEE and a move towards regional harmonization of national e-waste policies, regulation and standards in the Arab States region.

Asia-Pacific region: Contributing to a secure and resilient environment* The [policy awareness workshop on e-waste](https://www.itu.int/en/ITU-D/Climate-Change/Pages/Events/2019/Workshop-on-E-waste-India.aspx), which took place in 2019 in Hyderabad, India, was co-organized with key agencies of the India Government and the UNU, ILO, WHO, and UNEP. The workshop raised awareness, built capacity, and provided recommendations for future work on WEEE in India including the preparation of a Pan-India E-waste Monitor.

Africa region: Building Digital Economies and Fostering Innovation* Namibia and Malawi are currently receiving policy support in the development of national WEEE management policies, whilst Namibia, Malawi and Botswana are receiving nationally focused assistance in the collection and improvement of WEEE data and statistics. EACO is preparing a new project with ITU on WEEE data and statistics.
* CIS region: Monitoring the ecological status and the presence and rational use of natural resources
* ITU supports the ongoing “Regional E-waste Monitor CIS plus Georgia, Turkmenistan and Ukraine" project, implemented by the Sustainable Cycles (SCYCLE) Programme jointly with the United Nations University (UNU) and the United Nations Institute for Training and Research (UNITAR), in partnership with the United Nations Environment Programme (UNEP)
* In 2020, ITU is finalizing the development of a spatial data infrastructure system for analysing and monitoring ecological conditions in parts of the Asia-Pacific region
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| **STUDY GROUPS**Three events were held in conjunction with ITU-D Study Group 2 Question 6/2 (*ICTs and the environment*). A session on [e-waste policies, strategies and frameworks](https://www.itu.int/en/ITU-D/Climate-Change/Pages/Events/2018/session-Q6-2-oct18.aspx) was held in October 2018. A workshop on frontier ICTs for climate [action](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q6-2-oct19.aspx) held in October 2019 brought together actors from the sectors involved in the development of frontier ICTs such as big data and earth observation in the context of climate action. A [webinar on ICTs for climate action and rebuilding greener economies after COVID-19](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/Webinars/2020/Q6-2-july15.aspx) held in July 2020 explores the lessons learned from COVID-19 and how ICTs help rebuild economies in an environmentally responsible manner after COVID-19. The content exchanged and lessons learned during the workshop will be used as input to the final report of Question 6/2.  |

## 8. Networks and digital infrastructure: Making reliable connectivity available to everyone

## ITU broadband maps

The ITU [broadband maps](https://itu.int/map-public) were enhanced to promote understanding and investment opportunities of network infrastructure to take stock of worldwide connectivity. The maps provide information from more than 540 operators and 25 000 access points to high-speed information highways (backbones) worldwide. The mapping of ICT infrastructure is providing continued support to key ITU activities and projects focusing on the reliable connectivity to all BDT impact pathways. Examples are the [Giga](https://www.itu.int/en/ITU-D/Initiatives/GIGA/Pages/default.aspx) connect every school mapping exercise, and [Financial Inclusion](https://www.itu.int/en/myitu/News/2020/10/06/07/37/Mapping-financial-inclusion-Mexico-FIGI) mapping for the FIGI initiative.

### Business planning for infrastructure deployment toolkit

The 2019 [ICT infrastructure business planning toolkit](https://itu.int/go/businessplan_toolkit) offers regulators and policy-makers a clear and practical methodology to deliver accurate economic evaluation of proposed broadband infrastructure installation and deployment plans. It serves as a practical manual for regulators and policy-makers working towards extending broadband network deployment and access, addresses key elements for a successful business planning implementation for ICT infrastructure development, and presents and explains best practice on infrastructure installation and deployment plans as well as its economic feasibility assessment to support decision making. It provides quantitative examples of the most searched projects, such as the construction of fibre-optic backbones, wireless broadband networks (including 4G), and fibre-to-the-home (FTTH) access network projects. More information is available [here](https://news.itu.int/itu-publishes-new-ict-infrastructure-business-planning-toolkit/).

In 2020, the first “ITU Training on Business Planning for ICT Infrastructure development” was held virtually through the ITU Academy Portal in November 2020. More information is available [here](https://academy.itu.int/training-courses/full-catalogue/itu-training-business-planning-ict-infrastructure-development).

### Last mile connectivity project

The last mile connectivity [project](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2019/Workshop%20Kyiv/Aminata%20Garba%203%20Last%20Mile%20Connectivity%20Kiev.pdf) was launched to drive new collaborative strategies to ensure that all people achieve meaningful universal connectivity. It consists of guidelines and additional resources to help Member States address last-mile connectivity challenges, including a database of case studies on last-mile connectivity and interactive last-mile connectivity diagnostic and decision-making tools. It will also offer capacity-building services and assistance on implementation, helping Member States to plan, design and implement last-mile connectivity solutions, including identifying unconnected areas and providing expert guidance on the selection of sustainable technical, financial and regulatory solutions. This project is expected to enable partners to share resources and take a more holistic approach that treats broadband as a basic public utility and tool for socio-economic development.

### ITU-MUST project on IPv6 and IoT Expertise Centre

The main goal of the project ITU-MUST (Malaysia University of Science and Technology) is to assist Member States on the smooth transition from IPv4 (Internet Protocol version 4) to IPv6 (Internet Protocol version 6) for Internet of Things (IoT) infrastructure, IPv6 over 5G networks, IPv6 for Industry 4.0, deployments of services and applications, raising awareness through conducting technical assistance, training and/or workshops. Several training courses and workshops were organized in 2019 to this effect, and continued in 2020 online, in English and in Arabic. More than 150 young professionals were certified in the mentioned IT domains.

### Broadband for rural connectivity

In order to address the power supply challenges for rural communication, ITU is developing a guide on sustainable and innovative power solutions for broadband connectivity that will be also used for the Giga project to connect schools. In addition, this guide will be used for smart green communities as part of the key solutions to connect rural areas to broadband networks.

The ITU/McCaw Foundation project for the Africa region has been implemented and is under closure process. The key achievements are:

* In Burundi, 437 institutions were connected to broadband Internet including universities, schools, hospitals, government agencies, and cooperatives.
* In Burkina Faso, schools and public administration services in ten cities were covered by broadband network. Fourteen schools were equipped with computer networks, equipment, and Internet connection to allow the introduction of e-education in the education system.
* In Djibouti, 116 Institutions were connected to broadband Internet using 4G broadband network infrastructure, including 48 schools, 45 hospitals/clinics and 23 government institutions/ministries.
* In Rwanda, more than 50 public schools and 40 health centres were connected to broadband Internet.
* In Eswatini, project implementation is in its final stage to install a 4G LTE broadband wireless network to cover 20 rural areas. .

### Policy and Regulation Initiative for Digital Africa (PRIDA)

This policy and regulation initiative for the Africa region was launched to foster universally accessible and affordable wireless broadband across the Africa region in order to unlock future benefits of Internet-based services. This ambitious 3.5-year initiative is a [multi-partner project](https://www.youtube.com/watch?v=6NYLHZqeEvo) by the European Union, the African Union, and ITU. Key achievements so far include:

* Eight capacity building workshops, where 573 engineers were trained from 48 regulatory authorities.
* Publication of the technical report: “Analysis of the current legislative and regulatory framework and the usage of spectrum as of today as well as in the foreseeable future.”
* Publication of the technical reports “Guidelines on radio-frequency regulation based on ITU Radio Regulations, ITU-R Recommendations, Reports and Handbooks, regional harmonization frameworks, case studies, country experiences and regional consultations” and “Spectrum Management Guidelines for the Introduction of IMT in Africa”, “Report on the assessment of the current cross-border coordination agreements in Africa”, “Report on the current version of the harmonized calculation method for Africa (HCMA)” and “A Gender Sensitivity Review of the PRIDA Project.”

### Conformity and interoperability of networks

Skills in specific absorption rate, radio frequency, electromagnetic frequency, and digital terrestrial television were enhanced through conformity and interoperability (C&I) training for English-speaking and French-speaking participants from the Africa region. The development of a global conformance and interoperability training programme (CITP) is ongoing. The CITP will be the reference on knowledge transfer on C&I and is built upon the successful implementation of the Spectrum Management Training Programme (SMTP). A white paper on ITU recent activities on C&I and on the future C&I landscape was started in 2020, in coordination with relevant study groups in ITU-R, ITU-T and ITU-D and is expected to be finalized in early 2021.

**WTDC Resolution 9 (Rev. Buenos Aires, 2017)**

A summary of the ITU activities for implementation of Resolution 9 on spectrum management are listed in the table below. The table is sorted by thematic overview of assistance provided and the number of activities carried out. Document [TDAG-20/INF/3](https://www.itu.int/md/D18-TDAG25-INF-0003/) contains a summary of assistance provided to Member States on spectrum management issues by region.

| **Topic** | **Number of activities** |
| --- | --- |
| 1. Assistance in raising the awareness of national policy-makers as to the importance of effective spectrum management for a country's economic and social development.
 | 19 |
| 1. Training and dissemination of available ITU documentation.
 | 22 |
| 1. Assistance in developing methodologies for establishing national tables of frequency allocations and spectrum redeployment.
 | 10 |
| 1. Assistance in setting up computerized frequency management and monitoring systems.
 | 8 |
| 1. Economic and financial aspects of spectrum management.
 | 12 |
| 1. Assistance with preparations for world radiocommunication conferences (WRCs) and with follow-up and implementation of WRC decisions.
 | 18 |
| 1. Assistance with participation in the work of the relevant ITU-R study groups and their working parties.
 | 5 |
| 1. Transition to digital terrestrial television broadcasting.
 | 12 |
| 1. Assistance in identifying the most efficient ways to utilize the digital dividend.
 | 8 |
| 1. Emerging technologies and approaches in using spectrum.
 | 17 |
| 1. Innovative ways of spectrum licensing.
 | 7 |
| 1. Assistance with interference caused by devices in derogation of national spectrum allocations.
 | 2 |
| 1. Assistance in resolving seasonal interference caused by anomalous propagation of radio waves.
 | 0 |
| 1. SMS4DC development and training.
 | 7 |
|  Total | 147 |

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| **REGIONAL INITIATIVES**Africa region: Building digital economies and fostering innovation in Africa* The first-ever [Global Refugee Forum](https://www.itu.int/en/ITU-D/bdt-director/Pages/News.aspx?ItemID=205) was held in Geneva in December 2019. ITU, UNHCR and GSMA co-sponsored a session that explored the challenges of delivering connectivity for refugees, displaced persons, and the communities that host them. The event was the culmination of close collaboration for future programmes and national projects on meaningful connectivity for refugees and their host communities in Africa.

Asia-Pacific region: Fostering development of infrastructure to enhance digital connectivity* As part of a satellite connectivity project, ITU provided 35 Ku band satellite connectivity equipment to seven Pacific Islands countries (Fiji, Kiribati, Papua New Guinea, Samoa, Tonga, Tuvalu, and Vanuatu). The equipment was deployed to remote areas.
* Specialized assistance was provided to Mongolia to review the national radio-frequency spectrum charging regime. A new fee charging formula was developed in order to compensate the effects of inflation and encourage innovative use of this resource.
* Assistance was provided to Solomon Islands and Vanuatu to develop a national type approval regime for short-range wireless devices.
* More than 15 workshops and training courses were carried out to raise awareness and build skills on spectrum management, AI, DLTs, broadband, 5G, conformity and interoperability, NGN, mobile planning and security, IoT security, digital transformation and broadcasting, amongst others.
* Technical training on Spectrum Management System for Developing Countries (SMS4DC) was conducted in Vientiane, Lao P.D.R.
* Viet Nam was assisted in amending its national laws on frequencies and with the associated amendments to the laws on telecommunication. The study also included a comprehensive IMT spectrum roadmap.

Americas region: Spectrum management and transition to digital broadcasting * A regional spectrum management training seminar for the Caribbean was organized to improve the level and speed of ICT connectivity in countries within the Caribbean.
* Technical and special assistance was provided to the Ministry of Science, Energy and Technology and the Spectrum Management Authority of Jamaica for the development of a national spectrum licence framework for Jamaica to improve ICT connectivity in the country.
* Since 2019, the basic modules of the Spectrum Management Training Programme (SMTP) have been offered in Spanish for the Americas region providing certified training for more than 250 professionals.
* In 2020 ITU started implementing a project to value the 700 MHz and 2.5 GHz frequency bands in Ecuador.
* The ITU Policy and Economics Colloquium (IPEC) was organized annually from 2018 to 2020. In 2020 it was organized online, focusing on supporting countries in financial and regulatory matters.
* Assistance was provided in Spectrum Management to Guyana through its National Frequency Management Unit (NFMU).
* A Spectrum Management Seminar for the Caribbean Islands was held in December 2019.

CIS region: Fostering innovative solutions and partnership for the implementation of Internet of things technologies and their interaction in telecommunication networks, including 4G, IMT-2020 and next-generation networks, in the interests of sustainable development* ITU has created an International Research, Development and Testing Centre for new equipment, technologies, and services in St. Petersburg, Russian Federation (Phase 1 of the joint project with Rostelecom) and works towards connecting other countries in the region and building a distributed virtual C&I lab (Phase 2 of the project).
* A series of dedicated regional training courses and events were organized following high demand from membership (on spectrum management, VoLTE, 5G, Future Networks). All events were done in cooperation with ITU-T and ITU-R.

Europe region: Broadband infrastructure, broadcasting, and spectrum management* The third annual CIS region and CEE spectrum management conference and ITU workshop on how to achieve interference-free communication at the current technological stage was held in Minsk, Belarus.
* A series of workshops and seminars were organized to discuss the future of television, the mapping of terrestrial broadband infrastructure and services, digital economy, and radiocommunication matters.
* A 5G Techritory meeting for Baltic States was held in Riga, Estonia, and supported by ITU as the sub-regional platform for cooperation.
* A special regional engagement initiative was launched to enhance the dataset of the ITU interactive transmission maps.
* A regional initiative project on supporting of investment opportunity mapping systems in broadband infrastructure for south Eastern Europe was developed.
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| **STUDY GROUPS**Three annual deliverables (papers) from ITU-D study groups were developed and published as follows: [**Trends in new broadcasting technologies, services and applications**](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/OngoingWork.aspx) (Question 2/1, released in July 2019): This paper covers the latest trends in broadcasting, including new service scenarios based on the latest technologies, the work being carried out in ITU-T and the economic and regulatory impacts for end users, stakeholders and regulatory bodies.[**Considerations about the cost structure of the digital transition, including new services and applications**](https://www.itu.int/oth/D0723000001/en)  (Question 2/1, released in May 2020): This paper provides an insight into the evolution of broadcasting services and the significant financial impact of digital transition, with details on cost elements to consider carefully when planning and implementing the steps towards a successful migration to digital broadcasting, and the analogue switch-off.[**Broadband development and connectivity solutions for rural and remote areas**](https://www.itu.int/oth/D0723000002/en) (Question 5/1, released in May 2020): This paper highlights the major challenges for rural and remote area connectivity, which include inadequate supporting infrastructure, difficult terrain, illiteracy, high cost of installing information and communication technology (ICT) infrastructure and policy issues. It recommends ways in which regulators, policy-makers and operators can address these challenges. Two workshops were held in conjunction with the ITU-D Study Group 1 Rapporteur Group meetings in September 2019. The [workshop on rural connectivity](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q5-1-sept19.aspx) discussed key challenges, in particular the costs of connecting people in rural areas. It was noted that the main barrier to connecting the unconnected is not spectrum or coverage. The [workshop on the implementation of broadband projects](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q1-1-sept19.aspx) shared success stories and challenges encountered from such projects in all geographical regions. A workshop on ICT conformance and interoperability: challenges for developing countries, was organized in conjunction with ITU-D Study Group 2 Question 4/2 on assistance to developing countries for implementing conformance and interoperability (C&I) programmes and combating counterfeit ICT equipment and theft of mobile devices. This event explored and proposed solutions for: ICT products as SDGs enablers, innovative collaboration, and new technologies (especially IoT). The content exchanged and lessons learned during the workshop will be used as input to the final report of Question 4/2. The workshop programme and presentations can be accessed at the following study group [link](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q4-2-oct19.aspx).A [tutorial on AI and emerging technologies](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/tutorial_AI_oct19.aspx) was held at ITU in conjunction with ITU-D study group rapporteur group meetings and enabled ITU Member States, Sector Members, and ITU staff to learn more about AI and its opportunities and challenges. Trainers and speakers from academia, the private sector and government agencies shared their insights, while the discussions highlighted some of the questions regarding intellectual property rights, ethics and accountability. A webinar was held in July 2020 on [**broadcasting services for COVID-19 response**](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/Webinars/2020/Q2-1-july03.aspx) . It focused on ways broadcasters are helping to respond to the COVID-19 global health crisis, contributing social awareness and information as well as addressing new communication needs. The speakers highlighted case studies on the broadcaster role on mitigation of the crisis, and new services and applications that can be leveraged to help populations, including e-learning and emergency response.  |

## 9. Policy and regulation: Supporting collaborative policy and regulatory frameworks for digital market development and user well-being

### The Global Symposium for Regulators

The 19th edition of the [Global Symposium for Regulators (GSR-19)](http://www.itu.int/gsr19), held in Port Vila, Vanuatu, from 9 to 12 July 2019, attracted over 325 participants including government ministers, heads of regulatory authorities, and industry executives from 64 countries. The theme of GSR-19 was *Inclusive connectivity: The future of regulation*. GSR-19 adopted the best practice guidelines on fast-forwarding digital connectivity for all. The guidelines support spreading last-mile networks to allow everyone to participate in the digital economy and benefit from digital transformation.

The [20th edition of GSR](https://www.itu.int/en/ITU-D/Conferences/GSR/2020/Pages/default.aspx) was a fully virtual event, held in September 2020. As GSR celebrated its 20th edition, the global community of ICT regulators celebrated 20 years of evolving regulatory frameworks. The anniversary event focused on providing concrete guidance towards achieving meaningful connectivity in the digital transformation. GSR-20 adopted a set of best practice guidelines under the theme “[The gold standard for digital regulation](https://www.itu.int/en/ITU-D/Conferences/GSR/2020/Documents/GSR-20_Best-Practice-Guidelines_Final_E.pdf)”.

In addition, regional regulatory roundtable discussions, side events and a training event were held online over the summer of 2020 as part of the GSR+ series of events, working with membership, experts, regional regulatory associations and other partners, including:

* [Europe and CIS: The Regulatory Wheel of Change: Regulation for Digital Transformation](https://www.itu.int/en/ITU-D/Conferences/GSR/2020/Pages/GSR-2020-Regional-Regulatory-Roundtable-Discussion-for-Europe-and-CIS.aspx)
* [Digital Transformation for Digital Economies @COVID-19 South-Asia Competition Policy](https://www.itu.int/en/ITU-D/Conferences/GSR/2020/Pages/Digital-Transformation-for-Digital-Economies-COVID-19-South-Asia.aspx) and [Analysis in a Digital Apps Environment for the Arab and Africa regions](https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/RA_Portal/RA_online-20.aspx)
* [USTTI-ITU Behind the Scenes Look at Emerging Technologies webinar sessions](https://www.itu.int/en/ITU-D/Conferences/GSR/2020/Pages/USTTI-ITU-training.aspx)
* [Regional Regulatory Associations meeting](https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/RA_Portal/RA_online-20.aspx)
* [Industry Advisory Group for Development Issues and Private Sector Chief Regulatory Officers meeting (IAGDI-CRO)](https://www.itu.int/en/ITU-D/Conferences/CRO/Pages/default.aspx).

### The positive impact of broadband

A series of reports quantified the positive economic impact of broadband, digital transformation and the interplay of ICT regulation both at [regional and global levels](https://www.itu.int/pub/D-PREF-EF.BDR-2018). The main outcomes from the econometric modelling by region suggest that an increase of 10 per cent in mobile broadband penetration would yield an increase in 2.46 per cent in GDP per capita in the [Africa region](https://www.itu.int/pub/D-PREF-EF.BDT_AFR-2019), while the increase in GDP per capita would be of 1.73 per cent in the [Americas region](https://www.itu.int/pub/D-PREF-EF.BDT_AM), 1.82 per cent in the [Arab States region](https://www.itu.int/pub/D-PREF-EF.BDT_ARS-2019), 0.51 per cent in the [Asia-Pacific region](https://www.itu.int/pub/D-PREF-EF.BDT_AP-2019), 1.25 per cent in [CIS region](https://www.itu.int/pub/D-PREF-EF.BDT_CIS-2020). In the Europe region, countries would enjoy an increase of 2.1 per cent. The new [*2020 Report on How broadband, digitization and ICT regulation impact the global economy*](https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Economic-Contribution.aspx) sets out six powerful and concrete steps which will maximize the economic impact of strategic ICT investment decisions, as well as concrete recommendations designed to boost economic impact.

The report from the Working Group of the Broadband Commission on the Digital Infrastructure Moonshot for Africa entitled [*Connecting Africa Through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2030*](https://broadbandcommission.org/Documents/working-groups/DigitalMoonshotforAfrica_Report.pdf)  benefited from substantive contributions from ITU. The report attempts to quantify the cost of bridging the broadband gap in Africa and providing a roadmap and action plan for reaching universal broadband connectivity in the region by 2030.

The I[TU report *Connecting Humanity: Assessing investment needs of connecting humanity to the Internet by 2030*](https://www.itu.int/en/publications/ITU-D/pages/publications.aspx?lang=en&media=electronic&parent=D-GEN-INVEST.CON-2020) estimates the investment needed to achieve universal, affordable broadband connectivity for all humanity by the end of this decade. This study was developed with the support of Saudi Arabia as part of ITU role of the Knowledge Partner for the Digital Economy Task Force of the G20 Presidency.

### #REG4COVID – Global Network Resiliency Platform

In response to the global COVID-19 crisis, ITU launched the Global Network Resiliency Platform ([#REG4COVID](https://reg4covid.itu.int/)) to share information about initiatives that regulators and operators around the world have introduced to help ensure communities remain connected, in key areas such as broadband availability, accessibility and affordability, consumer protection, traffic management and emergency telecommunications. A series of high-level virtual events on digital cooperation was delivered under the #REG4COVID initiative. The events included [Webinar #1: Connectivity - Situation Assessment](https://www.itu.int/en/ITU-D/bdt-director/Pages/Speeches.aspx?ItemID=253) and [Webinar #2: Connectivity: Best Practices: What Works, What Doesn't](https://www.itu.int/en/ITU-D/bdt-director/Pages/Speeches.aspx?ItemID=255). The #REG4COVID platform also features topical research and analysis such as the discussion papers on [Last Mile Connectivity in the Context of COVID-19](https://reg4covid.wpengine.com/wp-content/uploads/2020/11/FINAL_Last-Mile-Connectivity_Covid.pdf) and the [Economic Impact of COVID-19 on Digital Infrastructure - Report of an Economic Experts Roundtable](https://www.itu.int/pub/D-PREF-EF.COV_ECO_IMPACT-2020).

### ITU ICT regulatory metrics

The ITU [ICT Regulatory Tracker](https://www.itu.int/net4/itu-d/irt/#/tracker-by-country/regulatory-tracker/2019) was published to help inform key policy decisions. It is composed of 50 indicators grouped into four pillars: regulatory authority, regulatory mandate, regulatory regime, and competition frameworks, and data are available for the period from 2007 to 2019.

The [G5 Benchmark](https://www.itu.int/en/ITU-D/Conferences/GSR/2019/Documents/G5Benchmark_one-pager.pdf) was piloted at GSR-19 as a new tool that models regulatory set-up and tools, and proposes collaborative, cross-sector solutions to fast-track effective regulation for digital transformation. Based on a sound methodology and robust data, it highlights shortcomings in existing policy frameworks for the digital transformation and provides a roadmap for further regulatory reform. The [initial analysis based on the G5 Benchmark](https://itu.foleon.com/itu/global-ict-regulatory-outlook-2020/home/) (ITU, 2020) provided the opportunity for ITU to test drive the concepts underpinning the new composite metric and assess its robustness and the pertinence of the choice of indicators. Throughout 2020, broad consultation with ITU Member States, regulatory practitioners and other stakeholders allowed ITU to crowd-source ideas and feed them into a design thinking process of enhancing the initial framework with key components of a next-generation regulatory blueprint.

**Regulatory training**

Several f training sessions were held for regulators to address digital policy, regulation and market developments and collaborative regulatory approaches for digital transformation.

Within the framework of the ITU Academy, GSMA offered a ‘taster’ training session for policy-makers and regulators on competition policy in the ICT/ mobile sector at GSR-19. The session provided a half-day introduction to the topic, based on content from the United Kingdom Telecoms Academy-accredited two-day course, *Competition Policy in the Digital Age*, which was offered as an online course to policy-makers and regulators through the ITU Academy in 2019.

ITU, USTTI, and World Bank Group (WBG) collaborated to conduct a regulatory best practice training in Nairobi, Kenya, for officials from Eswatini, Ethiopia, Kenya, Somalia, South Sudan, and Sierra Leone. With important support from the Communications Authority of Kenya and the African Telecommunications Union (ATU), the three-day programme addressed the role of an independent communications regulator, licensing frameworks and regulatory best practices that spur investment.

### Consumer protection

The Digital Consumer Forum for Africa 2019 focusing on data protection, consumer privacy, trust, and security was held in Eswatini and adopted a set of recommendations and best practice guidelines for policy and regulators in the Africa region. The forum preceded a workshop on collaborative approaches for consumer protection for digital financial inclusion with participation from a range of stakeholders representing the finance, insurance, local government and academia, among others.

### Financial Inclusion Global Initiative (FIGI)

Assistance was provided on how to leverage ICTs for digital financial inclusion in China, Egypt, and Mexico, under the Financial Inclusion Global Initiative, a three-year initiative led by ITU, the World Bank Group, the Committee on Payments and Market Infrastructures (CPMI), and supported by the Bill and Melinda Gates Foundation. Activities have focused on providing a gap analysis for Egypt on needs to foster a secure resilient infrastructure for ICTs, mapping of infrastructure in Mexico, defining pilot projects to leverage ICTs to foster digital financial services to eradicate poverty in China, and defining and putting into place collaborative regulatory mechanisms to underpin a whole-of-government approach in Mexico.

Cross-sectoral cooperation was strengthened through digital government, digital agriculture (Refer ASP RI 2) and digital financial initiatives. ITU is currently implementing a digital finance project ([FIGI](https://www.itu.int/en/ITU-T/extcoop/figisymposium/Pages/default.aspx)) in China funded by the Bill &Melinda Gates foundation in cooperation with CAICT and in coordination with the World Bank.

### European Union/African Union Digital Economy Task Force recommendations

As an active member of the [European Union-African Union Digital Economy Task Force (EU-AU DETF)](https://ec.europa.eu/digital-single-market/en/news/new-africa-europe-digital-economy-partnership-report-eu-au-digital-economy-task-force) , ITU participated in developing a shared vision, a set of common agreed principles and a list of policy recommendations and actions in a report aimed at addressing the principal barriers faced by the Africa region as it seeks to develop the digital economy and society. The main areas addressed include accelerating universal access to affordable broadband, guaranteeing essential skills for all to enable citizens to thrive in the digital age, improving the business environment and facilitating access to finance and business support services to boost digitally enabled entrepreneurship, and accelerating the adoption of e-services and the further development of the digital economy for achieving the Sustainable Development Goals. Recommendations were shared with the African Union Commission for the development of the African Union Digital Transformation Strategy.

### Economic regulation and costing

In the framework of ITU-D Study Group 2 Question 4/1, a new set of [Guidelines on Cost Modelling](https://www.itu.int/md/D18-SG01.RGQ-C-0324/) addressed to national regulatory associations were approved to provide a level of detail that will be useful for implementing cost and price regulation. The [ITU Regional Economic Dialogues (RED)](https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events.aspx) were organized in the Europe, CIS, Americas, and Africa regions, addressing the economic impact and recovery strategies to build back better and ensure connectivity and business continuity during and after the COVID-19 crisis, the next generation interconnection and peering arrangements in the digital market, and the business models and pricing strategies for new services (OTT, IoT and data). The recommendations and outputs were shared with the ITU study groups.

In terms of capacity building, a multi-stakeholder training on *Advances in Regulatory Costing and Pricing Strategies for Digital Services for the Arab States and the Caribbean Countries*, as well as on competition analysis in digital applications environment for the Asia-Pacific region were organized during 2019-2020. Direct assistance on market analysis, tariff policies and cost modelling was provided to Sao Tome and Principe, Palestine, and Comoros. Specific training was organized in each country in order to guarantee essential national skills for the staff of the national regulatory authorities.

### Digital Regulation Handbook and platform

The World Bank and the International Telecommunication Union jointly developed the Digital Regulation Handbook and a new [online digital regulation platform](https://digitalregulation.org/) to update and revise the ICT Regulation Toolkit and Handbook. The Handbook provides a high-level snapshot of the current state of play in 2020, while the platform is dynamic and will be updated continually over the coming years to reflect the rapidly changing digital world by providing more detailed guidance and case studies of best practice in regulation of the digital economy. Thematic areas include regulatory governance and independence, competition and economics, access for all, consumer affairs, data protection and trust, spectrum management, emerging technologies, technical regulation, and emergency communications.

### Direct assistance

Concentrated assistance for Portuguese-speaking countries was provided in Sao Tome and Principe on quality of service of networks and numbering. Direct assistance to the Democratic Republic of the Congo for the national universal service obligation (USO) and numbering workshop was delivered in Kinshasa. Direct assistance in the transition to digital terrestrial television was also granted to Central African Republic, Equatorial Guinea, and Sao Tome and Principe, and their roadmaps were updated. Direct assistance was also provided to Liberia and Gambia in 2019 through the organization of two workshops on cybersecurity readiness assessment and spectrum management in both countries. Support was provided to Antigua and Barbuda in reviewing the draft National Telecommunications Bill and to identify priority supporting regulations consistent with the Act. Recommendations for the regulatory regime and complementary regulations to the draft bill were put forward for consideration. Assistance was provided to Trinidad and Tobago in the further development of a national ICT plan (Fast Forward II) through a workshop session. This took the form of technical advice to the government to ensure organizational, functional and governance structures that are consistent with the national agenda and goals for the ICT sector. In November 2019 presentations were delivered in pursuit of the review and reform of the Data Protection and Electronic Transitions Act of Trinidad and Tobago. These concentrated on international best practice, and the roadmap both on data protection and on electronic transactions, emphasizing challenges and opportunities for updating and improving local laws passed in 2011.

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| **REGIONAL INITIATIVES**Americas region: Strengthening of broadband access to services and applications* An Experts Knowledge Exchange on the economic policies and methods of determining the costs of services related to national telecommunication/ICT networks (ITU-D Study Group 1 Question 4/1) was organized as part of the ITU Americas Policy and Economic Colloquium (IPEC).

Asia-Pacific region: Enabling policy and regulatory environments* ASEAN ministers adopted frameworks on USO 2.0 and child online protection, with the support of ITU.
* Country specific assistance was provided to the Solomon Islands to review the telecommunication legislation.
* Enabling policy and regulatory environment are key for resilient and secure digital infrastructure and delivery of service.
* ITU facilitated a high-level exchange of policy and regulatory experiences and dialogue through the ITU-NBTC (Thailand) Regulators Roundtable (71 participants attended) and the ITU-MIIT (China) Seminar on Universal Service and ICT for Poverty Alleviation (150 participants attended).
* ITU and NBTC (Thailand) cooperated in building the skills of 50 researchers in Thailand in the area of blockchain (November 2019).
* ITU continues to support research in the region such as the collaboration established with the United Nations University and ITU Academia for the organization of a dedicated session during the Regional Development Forum 2020. The collaboration is intended to strengthen the linkage between research and policy-making and inviting ITU Academia to conduct research for policy impact and address challenges and opportunities regulators and ICT ministries are facing in the region.

CIS region: Development and regulation of infocommunication infrastructure to make cities and human settlements inclusive, safe and resilient* Following a request from membership, ITU published a study on broadband regulation in CIS and neighbouring countries.
* A base-line assessment on the level of use of various tools and platforms and the level of demand in the CIS countries is being carried out.

Europe region: Broadband infrastructure, broadcasting and spectrum management* Two countries were provided with technical assistance: a national plan for broadband development 2020-2025 was developed for Albania and a special policy paper on ICT infrastructure development and investment was developed for North Macedonia.
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| **STUDY GROUPS**ITU Member States, Sector Members and experts shared their perspectives on *OTT regulation and economic impact*during the ITU-D Study Group 1 rapporteur group meetings. Discussion took place on [Question 3/1](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG01-RGQ03.1&stg=1) (*Emerging technologies, including cloud computing: m-services, and OTTs: Challenges and opportunities, economic and policy impact for developing countries*) and [Question 4/1](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG01-RGQ04.1&stg=1) (*Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks*). The presentations and discussion papers can be found on the workshop [website](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/joint-session-Q3-1-Q4-1_oct19.aspx). A joint annual deliverable was elaborated accordingly on “[Economic impact of OTTs on national telecommunication/ICT markets](https://www.itu.int/oth/D0723000003/en)” (released in June 2020). The paper reflects the growing importance of over-the-top (OTT) applications and their increasing ubiquity and influence in a digital world. This helps ICT stakeholders face complex questions, such as how OTTs are impacting demand, revenue and cost of mobile network operators. It also reflected on the questions of how ICT stakeholders can build partnerships between MNOs and OTTs for maximum potential, and how the transition from ICT regulation from past models can keep pace with the new and rapidly changing landscape of OTTs.A [Cloud for COVID-19 Response web dialogue](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/webinar-Q3-1-may20.aspx) **was held** in 2020 as part of the work of Question 3/1. It focused on ways of leveraging cloud computing amid the current COVID-19 crisis to ensure business continuity, contribute towards social goals and enable fair innovation opportunities. Speakers highlighted cloud use cases designed by public institutions and private players in response to connectivity challenges and needs of all kinds that have emerged amid the crisis. An open discussion with all participants explored the related challenges, opportunities and lessons learned. **Question 4/1 included two webinars, on the** [Economic implications of COVID-19 on national telecommunication/ICT infrastructure](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/webinar-Q4-1-june29.aspx) held in June 2020 and on the [impact of unequal access to ICT infrastructure on the geography of COVID-19 diffusion](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/Webinars/2020/Q4-1-july29.aspx) held in July 2020. A debate took place on [how more inclusive ICT policy and infrastructure influence could stem the spread of COVID](https://www.itu.int/en/myitu/News/2020/10/05/11/54/How-more-inclusive-ICT-policy-and-infrastructure-influence-could-stem-the-spread-of-COVID-19).A webinar on [Unsolicited Commercial Communications/ Nuisance calls: Are consumers more vulnerable in the era of COVID-19](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/Webinars/2020/Q6-1-july02.aspx)**?** was held in July 2020 as part of the work of [Study Group Question 6/1](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG01-RGQ06.1&stg=1) (*Consumer information, protection and rights: Laws, regulation, economic bases, consumer networks*). The outcomes of the webinar were captured to enrich the annual deliverable “Unsolicited commercial communication challenges and strategies”, to be released in January 2021. This paper will provide an overview of challenges linked to nuisance and fraudulent calls and text messages, and the strategies adopted by different countries to tackle the problem. Work of the ITU-D Study Group 1 ([Question 1/1](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG01-RGQ01.1&stg=1), Question 3/1, Question 4/1) fed into other ITU related activities, including the Regional Economic Dialogues and the Digital Regulation Handbook and platform.  |

## 10. Statistics: Helping countries with evidence-based ICT policy adoption for digitally inclusive societies

### Measuring Digital Development series

The [2018 edition](https://www.itu.int/en/ITU-D/Statistics/Pages/publications/misr2018.aspx) of the *Measuring Information Society Report* (MISR) reports on the state of digital development and features deep dives on ICT skills; revenue and investment in the telecommunication sector; and ICT affordability. It was the 10th and final edition of the series. In 2019, the series was replaced by the *Measuring Digital Development* (MDD) series, a series of statistical and analytical publications. The first publication in the MDD series was [Facts and Figures](https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx) 2019. This research provides a timely assessment of the state of digital development globally and in all regions, through a set of key ICT indicators with estimates for the current year. The [2020 edition](https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx) was launched on 30 November 2020. [ICT Price Trend](https://www.itu.int/en/ITU-D/Statistics/Pages/ICTprices/default.aspx) 2019 was the second publication of the series that provides a unique insight on ICT affordability, one of the main enablers of digital connectivity. The report monitors the affordability of ICT services by analysing and comparing price data from mobile voice services, mobile data, and fixed broadband for 196 economies.

### Capacity development in statistics

An ICT statistics workshop held in Tashkent, Uzbekistan, was delivered to officials from national statistics offices and focal points for ICT statistics in ministries of communications and regulators in countries across the Arab States region and CIS region. A similar workshop took place in the Africa region. The objective of the workshop was to strengthen the capacity of countries in the regions to produce national statistics and indicators on telecommunications and ICTs according to international standards, with a focus on the key statistics included in the ITU World Telecommunication/ICT Indicators (WTI) database.

A sub-regional workshop on ICT indicators on the collection of ICT data and statistics, improving data availability, quality and reporting was held in Trinidad and Tobago in April 2019. The two-day, 12 session workshop encompassed an overview of the work on ICT measurement undertaken globally by the ICT Data and Statistics Division, including the ITU Manual and Handbook, ICT Development Index (IDI) and the ICT Price Basket (IPB).

Increased capacity and skills of producers of ICT statistics to carry out data collection, produce and analyse international comparable ICT indicators was achieved through a number of capacity building activities in the regions in 2018. This included a regional workshop on ICT statistics for the CIS region in Almaty, Kazakhstan, for the Asia-Pacific region in Manila, Philippines, for the Africa region in Lilongwe, Malawi and for the Arab States region in Manama, Bahrain. Sub-regional workshops on ICT statistics for countries in the Asia-Pacific region took place in Nadi, Fiji; and a SADC regional workshop on ICT statistics in Botswana.

The 2020 edition of the ITU [Handbook for the Collection of Administrative Data on Telecommunications/ICT](https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx) was released in June 2020. The Handbook regroups over 90 internationally agreed indicators to help track global ICT developments, focusing on indicators from the telecommunication services sector mainly collected by national regulators. Released at the same time, the 2020 edition of the ITU [Manual for Measuring ICT Access and Use by Households and Individuals](https://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual.aspx) focuses on demand-side indicators, mainly collected by national statistical offices. The Manual is designed as a practical tool to guide countries in their ICT data production, serving as a basic reference when preparing, designing and implementing ICT household surveys.

### Expert groups

The Expert Group on Telecommunication/ICT Indicators (EGTI) was created in May 2009 with the mandate to revise the list of ITU supply-side indicators (i.e. data collected from operators), as well as to discuss outstanding methodological issues and new indicators. The Expert Group on ICT Household Indicators (EGH) was established in May 2012 to review the statistical indicators for measuring ICT access and use by households and individuals. Both expert groups are open to ITU membership, and to ICT experts and statisticians familiar with data collection on these indicators.

Between 2018 and 2020, the Expert Group on Telecommunication/ICT indicators (EGTI) and the Expert Group on ICT Household Indicators (EGH) met for annual meetings held back to back. The [2018 meetings](https://www.itu.int/en/ITU-D/Statistics/Pages/events/egti2018/default.aspx) were held in October, the [2019 meetings](https://www.itu.int/en/ITU-D/Statistics/Pages/events/egti2019/default.aspx) in September, and the [2020 meetings](https://www.itu.int/en/ITU-D/Statistics/Pages/events/egti2020/default.aspx) in September. During their meetings, the expert groups review the work of the thematic working groups for the current working period and propose the themes for the following working period.

The outcomes of the discussions are then presented at the World Telecommunication/ICT Indicators Symposium, for adoption.

### Partnership on Measuring ICT for Development

### ITU continues to be an active member of the [Partnership on Measuring ICT for Development](https://www.itu.int/en/ITU-D/Statistics/Pages/intlcoop/partnership/default.aspx), and together with UNCTAD and UIS, is one of the three members of its Steering Committee. In 2019, the partnership continued to engage actively in monitoring the Sustainable Development Goals (SDGs) through its Task Group on ICT for the SDGs, co-led by ITU and UNDESA. During the 2019 WSIS Forum, the partnership organized a session on *measurement of progress towards the SDGs through ICT indicators*. This session discussed the progress made by the Task Group and the thematic list of ICT indicators to measure ICT availability and use in sectors relevant to the SDGs that are not covered in the global SDG indicators framework. The list includes 26 ICT indicators, related to 27 SDG targets belonging to 11 goals, which were discussed and agreed upon through a consultation process involving governments and international organizations. The final list has been submitted to the 51st session of the United Nations Statistical Commission (UNSC), which took place in March 2020, for endorsement.

### World Telecommunication/ICT Indicators Symposium

The [16th edition](https://www.itu.int/en/ITU-D/Statistics/Pages/events/wtis2018/default.aspx) of the World Telecommunication/ICT Indicators Symposium (WTIS) was held in December 2018 with the main focus on the impact of telecommunications/ICTs and emerging technologies on social and economic development. The [17th edition](https://www.itu.int/en/ITU-D/Statistics/Pages/events/wtis2020/default.aspx), initially planned for April 2020, was postponed due to the COVID-19 pandemic and held on 1-3 December 2020, under the theme “Towards an inclusive digital society”. It gathered over 400 experts and practitioners.

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| **STUDY GROUPS**Guided by the ITU Member States and Sector Members, concrete steps were taken in the coordination of statistics-related activities between ITU-D study groups and the Expert Group on Telecommunication/ICT Indicators (EGTI) and the Expert Group on ICT Household Indicators (EGH). Experts and management team members are participating in meetings of the other groups and reporting on areas of common interest. Liaison statements have also, for the first time, been exchanged between the groups. This collaboration aims to contribute towards implementing Resolution 131 (Rev. Dubai, 2018) of the Plenipotentiary Conference and Resolution 8 (Rev. Buenos Aires, 2017) of WTDC and to share information. |

## 11. Strategic Initiatives: Giga, Connect2Recover and I-CoDI

In addition to the results described in each thematic priority above, the 2018 – 2020 period also saw the launch of Giga, Connect2Recover and I-CoDI, which are significant strategic initiatives that cut across multiple thematic priorities. These are by design global in nature and have the potential to scale across multiple countries and multiple regions.

### Giga

Giga is a joint ITU-UNICEF project, launched at the 2019 UN General Assembly, which has an objective to connect every school to the Internet and every young person to information, opportunity, and choice. Some 3.7 billion people in the world do not have access to the Internet, of whom 360 million are young people. A lack of access to the Internet means children and young people are excluded from the wealth of information available online, limiting their resources to learn and to grow, and to fulfil their potential. Closing the digital divide requires global cooperation, leadership, and innovation in finance and technology.

The Giga approach consists of four pillars: map the connectivity of every school and use it to show where connectivity demand is and use new technologies to create a real-time map of school locations and their connectivity level; finance a common bid that aggregates connectivity demand in schools (pooled across multiple countries) and creates a cost-forecasting model to make connectivity more affordable; connect every school to the Internet and create a monitoring system to oversee the level and quality of connectivity delivered by Internet service providers; and empower young people with skills by investing in, and scaling up, open source solutions that – with connectivity – will be available to children, teachers, and administrators.

Giga is now working with partners such as Softbank, Ericsson and Nic.br to map and connect schools in three priority areas: central Asia (Kazakhstan, Kyrgyzstan, and Uzbekistan); eastern Caribbean and central America (Colombia, El Salvador, Honduras, and the OECS); and sub-Sahara Africa (Kenya, Niger, Rwanda, Sierra Leone, and Zimbabwe).

In 2021, Giga plans to scale to additional countries and regions. Additional details on Giga can be found at <https://gigaconnect.org/>

### Connect2Recover

In September 2020, with the support of the Ministry of Internal Affairs and Communications of Japan and the King Salman Humanitarian Aid and Relief Centre of the Kingdom of Saudi Arabia, ITU launched the Connect2Recover initiative. This initiative aims to help lesser connected countries, especially but not exclusively in the Africa region, to reinforce the digital infrastructure and ecosystems, to provide means of utilizing digital technologies such as telework, e-commerce, remote learning and telemedicine in the wake of COVID-19.

The Connect2Recover initiative consists of three key elements. First, Connect2Recover will develop a methodology for identifying gaps and bottlenecks in the use of digital networks and technologies at country level to respond to and mitigate the consequences of the COVID-19 pandemic, support preparedness for any similar emergencies in the future, and enable recovery and readiness for the “new normal". Second, Connect2Recover will assist countries in assessing their needs, gaps and bottlenecks, and develop strategies to ensure that the digital infrastructure and ecosystems adequately support recovery efforts and the “new normal". Finally, Connect2Recover will conceptualize and implement pilot projects to test specific technological solutions in line with national country strategies and policies, and will support deep-dive studies in specific areas of digital policy as prioritized by the selected countries, such as digital finance, e-education, e-health, e-government, or teleworking.

### ITU International Centre of Digital Innovation (I-CoDI)

As recognized in the Connect 2030 Agenda, Goal 4, which mandates ITU to facilitate development of an enabling environment for ICT innovation, and WTDC-17, creating a culture of innovation within BDT has been identified as a priority by Member States. This is further emphasized in WTDC Objective 3 “Enabling Environment” where Member States have mandated BDT to strengthen capacity of the ITU membership to integrate telecommunication/ICT innovation in national development agendas and to develop strategies to promote innovation initiatives including through public, private, and public-private partnerships. Member States have also identified innovation as a priority at the regional level, with regional initiatives related to innovation mandated in the WTDC for the Africa, Americas, Arab States, CIS, and Europe regions.

As a result, and with the support of the Telecommunication Regulatory Authority of the United Arab Emirates, ITU is developing its International Centre of Digital Innovation (I-CoDI), with the following objectives:

* To help Member States integrate telecommunication/ICT innovation into their national development agendas.
* To develop the capacity within ITU/BDT to integrate innovation in their day to day activities.

I-CoDI will also provide a service to key ITU/BDT constituents (e.g. ITU-D Sector Members) to help integrate telecommunication/ICT innovation into their activities. The design of I-CoDI will allow activities to be completed in a fully virtual as well as a potentially physical environment. The launch of I-CoDI is anticipated for 2021.

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| **Assistance to LDCs, SIDS and LLDCs**The work of BDT, centred around coherent and focused workstreams, cuts across least developed countries (LDCs), small island developing States (SIDS) and landlocked developing countries (LLDCs). Assistance to these countries is highlighted and described throughout this document. This includes, but is not limited to, 2019 assistance to Burundi, Cambodia, Comoros, Eritrea, Eswatini, Fiji, Gambia, Kiribati, Kyrgyzstan, Lao P.D.R., Liberia, Malawi, Mauritania, Mongolia, Myanmar, North Macedonia, Papua New Guinea, Saint Kitts and Nevis, Samoa, Sao Tome and Principe, Solomon Islands, Somalia, South Sudan, Tonga, Tuvalu, Uganda, Vanuatu, and Yemen. In 2018, ITU delivered concentrated assistance to the following LDCs, LLDCs, and SIDS: Afghanistan, Bolivia, Burundi, Eswatini, Guinea-Bissau, Haiti, Kiribati, Malawi, Myanmar, Paraguay, Saint Tomé and Principe, Solomon Islands, Somalia, South Sudan, Sudan, Suriname, Timor-Leste, Uganda, and Uzbekistan. Assistance was provided across the thematic priorities, including in the areas of regulation and policy, emergency telecommunications and disaster response, digital inclusion, cybersecurity, ICT infrastructure and spectrum management. A number of specific reports were produced to address the challenges of these countries. This includes the ITU study [*Economic impact of broadband in LDCs, LLDCs and SIDS*](https://www.itu.int/en/ITU-D/LDCs/Pages/Economic-impact-of-broadband-in-LDCs%2C-LLDCs-and-SIDS.aspx#:~:text=Mobile%20broadband%20appears%20to%20exert,cent%20increase%20for%20fixed%20broadband.), produced in cooperation with the UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS). The study confirms that both fixed and mobile broadband have a positive impact in the most vulnerable countries. A second report, [*Small Island Developing States and ICTs - a midterm review of the Samoa pathway*](https://www.itu.int/en/ITU-D/LDCs/Pages/Publications/SIDS/ICTs.aspx), shows that SIDS have made progress in terms of the universality and affordability of their ICT networks since the Samoa conference. However, progress has been uneven and there is a major gap between best performing SIDS and the others. A third report, [*ICTs, LDCs and the SDGs: Achieving universal and affordable Internet in the least developed countries*](https://www.itu.int/en/ITU-D/LDCs/Pages/ICTs-for-SDGs-in-LDCs-Report.aspx)*,* highlights the opportunities that ICTs deliver to tackle development challenges in the most vulnerable countries in the world. It analyses ICT developments in the LDCs and tracks progress towards achievement of Sustainable Development Goal (SDG) Target 9.c, to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020". Its analysis is based on a new, three-dimensional framework, which classifies LDCs into three categories based on their overall performance across the areas of access, affordability and skills. This will help countries identify areas that are most pressing and where to direct policy and scarce financial and human resources.  |

## 12. Study group work

A total of 884 contributions were received from ITU-D membership for the study cycle 2018-2021. These valuable documents were analysed in the context of the 14 study group Questions, culminating in 14 output reports (one per Question). The reports will be approved in the study group meetings, to be held from 15 to 26 March 2021. These meetings are the last of the current study cycle, and will focus on concluding all discussions on future Questions for the 2022-2025 study cycle. The conclusions from the study group meetings will be reported to TDAG, and the final new set of study Questions will be agreed at WTDC-21.

[Eight annual deliverables](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/OngoingWork.aspx) were approved during the annual meetings of ITU-D study groups and listed under their respective thematic priorities. These deliverables were further discussed through author interviews and promoted through *ITU News* blogs.

### Workshops/tutorials/webinars associated with ITU-D study groups

A list of events organized during the 2018-2021 study period and referred to in this report under their respective thematic priorities is available on the following [webpage](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/events_workshops.aspx). Outputs of these events not only served as a basis for the development of new annual deliverables and draft guidelines, but also contributed to the development of the final output reports on study Questions.

### Work towards WTDC-21

As part of the preparatory process, ITU-D study groups have started discussions on topics for WTDC-21, namely rules of procedure of the ITU Telecommunication
Development Sector (WTDC Resolution 1), future study Questions (WTDC Resolution 2), streamlining of WTDC resolutions and the WTDC Declaration. Preliminary views on these topics can be found in the liaison statement sent to the TDAG Working Group on Resolutions, Declaration and Thematic Priorities (TDAG-WG-RDTP), in Document [TDAG-WG-RDTP/8](https://www.itu.int/md/D18-TDAG27.RDTP-C-0008). Discussions on these four topics will continue with the aim of reaching consensus during the upcoming, final annual meetings of ITU-D Study Groups 1 and 2 in March 2021.

Candidatures for ITU-D study group chairmen and vice-chairmen will be processed in line with Resolution 61 (Rev. Dubai, 2014) of WTDC, no later than two weeks before the opening of WTDC-21. ITU-D membership is requested to carry out consultations at country and regional levels, with the goal of reaching consensus on the candidates to put forward. A circular letter will be sent after WTDC-21 to call for candidates for rapporteur and vice-rapporteur positions.

### Final reports of Questions

ITU-D study groups are making good progress towards the completion of 14 final output reports and a guideline report for the current study period. After putting final touches to these reports and detailed review by editors, they will be submitted to the last annual meetings of ITU-D Study Groups 1 and 2, to be held in March 2021. A series of webinars is planned in 2021 on specific topics and findings of the 14 reports.

### Collaboration with regional work and thematic priorities

A number of ITU-D study group management team members have been active as experts working as resource persons (speakers) for ITU-D events, as trainers for ITU projects, as peer reviewers for ITU-D toolkits, and as authors of ITU-D publications. Collaboration with thematic priority teams to develop guidelines and hold webinars are ongoing. Alignment with thematic priorities and regional activities is well under way both internally, through the implementation of results-based management, and with membership, through the TDAG Working Group on WTDC Resolutions, Declaration and Thematic Priorities.

### Collaboration with other Sectors

Active collaboration is ongoing in the form of participation in study group sessions and events to exchange information and seek specific inputs between study groups. An inter-Sectoral mapping table, which maps common areas of work between the ITU-D and ITU-T study groups and between the ITU-R and ITU-T study groups is maintained and updated by the secretariat of the [Inter-Sectoral Coordination Group](https://www.itu.int/en/general-secretariat/Pages/ISCG/default.aspx) (ISCG) on issues of mutual interest in collaboration with the secretariats of study groups of all three ITU Sectors. For more information on the work of ITU-D Study Groups 1 and 2, please refer to documents [TDAG-20/12](https://www.itu.int/md/D18-TDAG25.2-C-0012/en) and [TDAG-20/13](https://www.itu.int/md/D18-TDAG25.2-C-0013/en).

### 13. Regional Development Forums

Regional Development Forums (RDFs) provide a unique opportunity for dialogue between regional offices and decision-makers of ITU Member States and Sector Members, regional and international organizations and other stakeholders in each one of the six ITU-D regions. These events involve stocktaking and discussions on where each region stands in terms of implementation of the Buenos Aires Action Plan, in general, and of the regional initiatives in particular. RDFs provide an opportunity to discuss the progress that has been made, ongoing work and plans for implementation, as well as cooperation and partnerships that will contribute to the implementation of the regional initiatives. RDFs encourage a participatory and inclusive process to meet the agreed development goals and allow for necessary adjustments in the approaches to meet them. For more information on the RDFs, visit the [RDF website link](https://www.itu.int/en/ITU-D/Pages/regional-development-forums.aspx).

### 14. Partnering for digital transformation

This document has highlighted that today's digital era needs strong collaboration based around cooperation, resource-sharing and win-win arrangements that benefit governments, industry and users. A more holistic whole-of-government approach, in which technology is viewed as a basic enabling service that benefits all, is fundamental.

BDT is increasing its efforts to forge win-win strategic partnerships that open doors for collaboration essential to improved outcomes, tangible results and impact. BDT continues to cultivate relationships with existing partners, identify and engage new partners, retain exiting and attract new ITU-D Sector Members with the aim of attracting resources to finance large-scale projects, including regional initiatives, to support an impactful implementation of Buenos Aires Action Plan at global, regional, and national levels. As a result, during 2020 (as at 30 November 2020) 32 new partnership agreements have been signed for a total commitment of USD 15.1 million. This compares to 30 new partnership agreements for a signed amount of USD 15.2 million in 2019 and 43 new partnership agreements for a signed amount of USD 10.9 million in 2018. Information on these partnerships is reflected on the ITU-D webpage “[Join ITU-D](https://www.itu.int/en/ITU-D/MembersPartners/Pages/default.aspx)”.

In 2021, BDT will continue to deliver on the Buenos Aires Action Plan through ITU-D thematic priorities to make a sustainable impact and advance digital transformation for all. Together BDT can continue to transform the digital era and drive the conversation towards inclusive digital transformation.

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