



Report by the Secretary-General

**REPORT ON THE IMPLEMENTATION OF THE STRATEGIC PLAN AND THE ACTIVITIES OF THE UNION,
APRIL 2018 – FEB 2022**

Summary

This report covers ITU's activities from April 2018 to February 2022 and should be the basis for the 4-year report to PP-22 (doc 20). It reports on the ITU-wide strategic goals and targets, and the Sector and inter-sectoral objectives. It combines the annual activities report (as required by No. 102 of the Convention) and the report on the implementation of the strategic plan (as required by No. 61 of the Convention and Resolution 71 (Rev. Dubai, 2018) of the Plenipotentiary Conference).

Considerable effort has gone into compiling this document so as to include all the relevant activity in a results-oriented, evidence-based and thematic-oriented way, including analytical figures showing overall progress towards the Connect 2030 targets, and detailed information on the indicators endorsed by the membership in the operational plans of the three Sectors and the General Secretariat.

Action required

The Council is invited to **approve** the report.

References

Plenipotentiary Resolutions [71](#), [151](#) and [200](#); and CV102 and 61

Foreword to the report on the implementation of the strategic plan and activities of the Union

April 2018 – February 2022

Dear members of the ITU family,

As the COVID-19 pandemic continues to threaten lives and economies worldwide, it is gratifying to know that information and communication technologies (ICTs) are playing a critical role in helping the world address what the UN Secretary-General has called “the greatest test that we have faced together since the formation of the United Nations”.

ICTs have helped sustain the vital fabric of life – enabling government services, work, business, education, healthcare and much more to continue in the face of the pandemic. As the UN specialized agency for ICTs, the International Telecommunication Union (ITU) has risen to the moment.

ITU has continued its activities efficiently and successfully during these challenging times, from the further development of fifth-generation (5G) mobile networks to helping countries increase their cybersecurity capabilities. ITU has also mobilized its global public-private membership and its partners inside and outside the UN system around key initiatives, including the Global Network Resiliency Platform (REG4COVID), the Partner2Connect Digital Coalition and Connect2Recover.

This report sets out the considerable breadth and depth of ITU’s work over the last four years. Taken as a whole, it is a substantial contribution to advancing the complex but necessary dual objectives of connecting the unconnected and facilitating the development of new and emerging technologies of great importance to the digital economy and the world’s digital future.

In areas as diverse as smart cities, digital inclusion and COVID-19 response, ITU has worked on the global stage to make real advances in harnessing the power of ICTs. This has been accompanied by a strong global growth in Internet use, with the estimated number of people who have used the Internet surging to 4.9 billion in 2021.

Nevertheless, 2.9 billion people are still offline around the world – mostly those living in rural areas. This new ITU data make clear that the ability to connect remains profoundly unequal within and between countries.

Since the start of the pandemic, I have called on global public and private leaders to foster better use of limited resources. There has never been a better, or more critical time to encourage investments in ICT development – including by strengthening ICT infrastructure and addressing demand side barriers such as affordability and lack of literacy and digital skills.

In the year ahead, ITU has three major conferences scheduled – the World Telecommunication Standardization Assembly, the World Telecommunication Development Conference, and the ITU Plenipotentiary Conference. It will be a challenging year but also an opportunity for the ITU family to accelerate progress towards achieving the United Nations Sustainable Development Goals (SDGs) and the WSIS Action Lines, and set the direction of digital transformation for years to come.

I congratulate all of you on the hard-won achievements of these past four years and encourage you to redouble our efforts to build a more fair, sustainable and inclusive digital future.

Houlin Zhao

Secretary-General, International Telecommunication Union

About ITU

The International Telecommunication Union (ITU) is the specialized United Nations agency for information and communication technologies (ICTs), driving innovation in ICTs together with 193 Member States and a membership of over 900 companies, universities, and international and regional organizations. Established 157 years ago in 1865, ITU is the intergovernmental body responsible for coordinating the shared global use of the radio spectrum, promoting international cooperation in assigning satellite orbits, improving communication infrastructure in the developing world, and establishing the worldwide standards that foster seamless interconnection of a vast range of communications systems. From broadband networks to cutting-edge wireless technologies, aeronautical and maritime navigation, radio astronomy, oceanographic and satellite-based earth monitoring as well as converging fixed-mobile phone, Internet and broadcasting technologies, ITU is committed to connecting the world. For more information, visit: www.itu.int.

Contents

	<i>Pages</i>
About ITU	ii
1. Key themes of work	1
1.1 WRC-19 and RA-19 – shaping the global framework for radiocommunication technologies.....	1
1.2 Spectrum/orbit regulation and management	4
1.3 Standardization – foundations to shape technologies of today and tomorrow	6
1.4 Emerging technologies – ITU shaping frameworks to manage their development	11
1.5 Environment and smart sustainable cities and communities.....	12
1.6 Cybersecurity: building confidence and security in ICTs	15
1.7 Digital inclusion – Ensuring inclusive, equal access and use of ICTs for all	17
1.8 COVID-19 related activities/responses	23
1.9 Strategic partnerships for SDGs	25
1.10 Seminars, workshops and assistance.....	29
1.11 Key events.....	33
2. Other key activities by the secretariat to support ITU membership	38
3. ITU strategic plan implementation: progress towards strategic goals and objectives	43
3.1 ITU’s contribution to the Sustainable Development Goals and the WSIS Action lines	47
3.2 Results of progress towards the strategic goals	49
3.3 Outcomes of the work of the Union – ITU sector and inter-sectoral objectives.....	54
3.4 Results of the enablers	54
3.5 Priorities for 2022-2023	54
Annex 1 Implementation of Resolutions of the Plenipotentiary Conference	54
Annex 2 Outcomes of the work of the Union / efficiency of enablers	69
ITU-R Objectives.....	69
ITU-T Objectives	73
ITU-D Objectives.....	77
Inter-sectoral objectives	83
Enablers.....	89

1. Key themes of work

1.1 WRC-19 and RA-19 – shaping the global framework for radiocommunication technologies

World Radiocommunication Conference 2019 (WRC-19)

Further to Resolution 809 (WRC-15), and following Council Resolution 1380 (C16, amended C17), the World Radiocommunication Conference 2019 (WRC-19), Sharm el-Sheikh, Egypt, from 28 October to 22 November 2019, drew 3 420 participants representing 163 Member States and 129 observer organizations. Main output is here: [Final Acts of WRC-19](#). Full information is here: www.itu.int/go/WRC-19.

Main outcomes of WRC-19

WRC-19 addressed over 36 topics related to frequency allocation and sharing for the efficient use of spectrum and orbital resources. The following are the key WRC-19 outcomes.

- **Mobile and fixed broadband communications**
Satisfying IMT-2020/5G requirements for millimetre-wave spectrum, WRC-19 identified 17.25 GHz of additional spectrum for IMT in frequencies between 24 GHz and 71 GHz, 86 per cent of which was harmonized on a global basis. Additional frequency bands identified are the 24.25-27.5 GHz, 37-43.5 GHz and 66-71 GHz bands, with regional and country identifications made in the 45.5-47 GHz and 47.2-48.2 GHz bands.

WRC-19 updated Resolution 750 to specify limits of unwanted emission power levels from IMT systems in the 24.25-27.5 GHz band. The limit on unwanted emission power levels becomes more stringent for IMT systems deployed after 1 September 2027.

WRC-19 changed the regulatory conditions for wireless access systems, including radio local area networks (WAS/RLANs) in the band 5 150 -5 250 MHz – allowing the use of Wi-Fi devices in trains and cars. It permits limited deployment of outdoor WAS/RLANs, with due protection of space services.

Frequency bands for high altitude platform stations (HAPS) were identified globally, with other bands in Region 2, for 5.25 GHz spectrum – helping the development of HAPS, enabling affordable broadband connectivity in underserved communities and in rural and remote areas, including mountainous and desert zones. HAPS can also be used for disaster recovery communications.

Bands between 275 and 450 GHz were identified for the land mobile and fixed services, with conditions to protect the Earth-exploration satellite service (EESS) (passive) applications. This enables future fixed and mobile systems with data rates of more than 100 Gbit/s.

- **Amateur radio service**
WRC-19 made allocations to the amateur service on a secondary basis in the frequency band 50-52 MHz in Region 1 (R1), with conditions that protect the incumbent services. In some R1 countries, the allocation to the amateur service is on a primary basis in the entire band 50-54 MHz or its parts – completing harmonization of spectrum throughout the three Regions.
- **Radiocommunications for transportation systems and Intelligent Transport Systems (ITS)**

WRC-19 adopted a Resolution on Railway radiocommunication systems between train and trackside (RSTT). This resolution contributes to global and regional harmonization of RSTT applications, enabling economies of scale and interoperability.

WRC-19 adopted a new Recommendation to recommend administrations to consider the harmonized frequency bands, as described in the relevant Recommendations (e.g. ITU-R M.2121), when planning and deploying evolving ITS applications. This recommendation aids global and regional harmonization of ITS applications.

- Enhanced maritime communication systems and services
WRC-19 authorized the usage of NAVDAT (Navigation Data) in certain medium- and high-frequency bands in the maritime mobile service, providing safety-related information to ships using digital technologies.

WRC-19 adopted regulatory provisions to add Iridium as a second satellite provider to the Global Maritime Distress and Safety System (GMDSS). Regulatory provisions were reinforced to protect radio astronomy in the lower adjacent band and the mobile-satellite service in the same band and adjacent upper band. This second GMDSS satellite provider benefits the maritime community, including polar areas, reinforcing competition in maritime communications.

Use of maritime frequency channels for autonomous maritime radio devices (AMRDs) was regulated by segregating these channels into safety-related and non-safety related groups and limiting access to them – enhancing safety of navigation at sea.

Secondary allocations to the maritime mobile-satellite service were secured. Enabling satellite VDES extended service to global coverage. This decision enhances VHF communications and improves maritime safety on a global basis.

- Global Aeronautical Distress and Safety System
Based on ITU-R studies, WRC-19 did not make any regulatory changes in the Radio Regulations to accommodate GADSS, since the system is difficult to describe in specific regulatory terms.
- Satellite services
WRC-19 adopted a new regulatory framework, with milestone-based approach for the deployment of non-GSO satellite constellations in specific frequency bands and services – ensuring the operation of as many systems as possible. This helps ensure that the Master International Frequency Register is aligned with the actual deployment of non-GSO satellite systems.

New orbital slots for broadcasting satellites were opened, enabling developing countries to regain access to spectrum orbit resources through a specially designed priority mechanism.

WRC-19 defined the regulatory, operational and technical conditions under which frequency bands in the 30/20 GHz frequency range can be used by earth stations in motion (ESIM) communicating with geostationary-satellite orbit (GSO) space stations in the fixed-satellite service in all Regions. This decision enables the connection of people on ships (maritime ESIM), aircraft (aeronautical ESIM) and land vehicles (land ESIM) and ensures their security. It will increase the use of ESIMs while protecting other GSO networks, non-GSO systems and terrestrial services.

- Support for science services

WRC-19 established in-band and adjacent band protections for Earth-Exploration Satellite Services (EESS) and Space Radiocommunications Stations (SRS) to ensure that space-based monitoring of the Earth and its atmosphere remain unhindered.

Measures were approved to protect the long-term development of Data Collection Platforms. Frequency bands in the Space Operation Service and procedures were defined for satellites with short duration missions, while affording protection to terrestrial service.

WRC-19 ensured that satellite services supporting meteorology and climatology, safeguarding human life and assessing the state of natural resources, will be protected from harmful radio-frequency interference – as will systems used by radio astronomers for deep space exploration. Radio astronomy stations will be protected from harmful radio interference from other space stations or satellite systems in orbit.

Measures were adopted to ensure ongoing support for the implementation of new technologies, including 4G and 5G networks and services in Palestine.

- Publications

The [2020 edition of the Radio Regulations](#) is available for download from the ITU website. The Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services has been updated based on the new edition of the Radio Regulations and has also been published.

Gender declaration

WRC-19 adopted the '[Declaration on Promoting Gender Equality, Equity and Parity in the ITU Radiocommunication Sector](#)', a commitment to gender equality and balance.

Agenda for WRC-23 and preliminary agenda for WRC-27

WRC-19 adopted new Resolutions containing the agenda for WRC-23 and the preliminary agenda for WRC-27. The WRC-23 agenda contains 19 specific agenda items on technology development and new spectrum requirements for users in the terrestrial, aeronautical, maritime, satellite or science services.

Radiocommunications Assembly (RA-19)

As per Council Resolution 1343, the Radiocommunication Assembly 2019 (RA-19), Sharm el-Sheikh, Egypt, from 21 to 25 October 2019 drew 521 participants representing 91 administrations and 31 Sector Members and one specialized agency of the United Nations.

Resolution ITU-R [1](#) 'Working methods for the Radiocommunication Assembly, the Radiocommunication Study Groups, the Radiocommunication Advisory Group and other groups of the Radiocommunication Sector' and Resolution ITU-R [2](#) 'Conference Preparatory Meeting' were both revised.

The existing six ITU-R Study Groups continue into the new study period (2019-2023). The structure of Radiocommunication Study Groups can be found in Resolution ITU-R [4](#).

RA-19 approved the work programme and Questions of the Radiocommunication Study Groups (see Resolution ITU-R [5](#)) as well as five ITU-R Recommendations.

Resolution ITU-R [70](#) 'Principles for the future development of broadcasting' was approved, as was Resolution ITU-R [71](#) 'Role of the Radiocommunication Sector in the ongoing development of television, sound and multimedia broadcasting'.

The Assembly suppressed three ITU-R Resolutions: Resolutions ITU-R [34](#) 'Guidelines for the preparation of terms and definitions'; ITU-R [35](#) 'The organization of vocabulary work covering terms'; and ITU-R [43](#) – 'Rights of associates'.

Publications

The compilation of [ITU-R Resolutions](#) is published and available for download from the ITU website.

1.2 Spectrum/orbit regulation and management

The ITU [Radiocommunication Sector \(ITU-R\)](#) plays a vital role in the global management of the radio-frequency spectrum and satellite orbits. These limited natural resources are in demand from services such as fixed, mobile, broadcasting, amateur, space research, emergency telecommunications, meteorology, global positioning systems, environmental monitoring and communication services. ITU-R creates the conditions for harmonized development and efficient operation of existing and new radiocommunication systems.

ITU supports developing countries with capacity building related to spectrum management as reflected in key outcomes of WRC-19 and RA-19 including frequency allocation and frequency sharing for the efficient use of spectrum and orbital resources (see Section 1.1).

Results of the processing of space notices and other related activities

	2018	2019	2020	2021 (until 16 November)	Total 2018-2021
Coordination and notification requests	957	1 174	886	1 493	4 510
Requests for broadcasting-satellite and associated feeder links Plans	135	73	186*	63	457
Requests for fixed-satellite service Plan	89	51	27**	62	229

* including 90 requests pursuant to Resolution 559 (WRC-19)

** Following receipt of submissions under Article 7 of Appendix 30B, the processing of other submissions has been postponed in application of § 7.3 of this Article.

Results of the processing of terrestrial notices and other related activities

	2018	2019	2020	2021	Total 2018 – 2021
Notices recorded in the MIFR/Plans	79 134/ 2 798	81 602/ 3 690	252 555 /5 355	73 686/ 3824	486 977/ 15667
Review of findings for terrestrial stations recorded in the MIFR	244	164	5 221	51 468	57 097
Notifications of coast and ship stations for recording in the ITU maritime database	2 367	2 414	1 982	1 865	8 628
High-frequency broadcasting requirements	31 215	34 344	31 738	20 806	
Monitoring observations concerning the monitoring programme at 2 850-28 000 kHz/ and 406-406.1 MHz	27 908/ 222	30 825/ 253	25 642/ 174	17513/ 125	101 888/774
Reports of harmful interference	1 096	1 088	1 165	1 163	4 512

Improvement of ITU-R software

The Radiocommunication Bureau (BR) continues to produce software applications and databases to best facilitate the use of ITU-R outputs by ITU membership. In 2020, BR updated the software that enables users to query and analyse the Table of Frequency Allocations (TFA) in Article 5 of the Radio Regulation, as well as other texts including WRC resolutions, referenced ITU-R Recommendations and rules of procedure. This application extracts regional and country-specific regulations for the presentation of regional or national tables of frequency allocations.

In addition, databases and software were updated to implement WRC-19 decisions that entered into force on 1 January 2021.

Progress in terrestrial services

Progress is listed below:

- Implementation of the changes in filings examination (Radio Regulations No. 9.19).
- Development of software and tools for processing coordination requests (RR No. 9.21).
- Integration of GE06 software into TerRaSys.
- Development and enhancement of the eTerrestrial web platform, integrating eMIFR, eValidation and eBroadcasting tools (eQuery, ePub, eTools and MyAdmin).
- Development and enhancement of the online tool 'GE84 Optimization', for optimization of the GE84 Plan in African countries – and for use by all States Parties to the GE84 Agreement.
- Continuation of the migration from Ingres platform to SQL Server.
- Change from INGRES to SQL Server platform and improvements of the interface for the Maritime mobile Access and Retrieval System (MARS) and International Monitoring Stations.
- Continuation of the implementation of new Rule of Procedure on No 5.441B of the RR.

Progress in fulfilling the BR Space Information Systems roadmap (RAG-19, 2012)

- Business continuity and disaster recovery (both space and terrestrial services).
- Rewrite legacy software for technical examination.
- Design and develop the BR Space Information System (BR SIS).

Achievements resulting from activities for space applications

- Implementation of Resolution 907 (Rev. WRC-15): use of modern electronic means of communication for satellite network-related administrative correspondence.

- Implementation of the new non-GSO PFD examination software.

1.3 Standardization – foundations to shape technologies of today and tomorrow

ITU's standardization work comprises telecommunications standards (ITU-T Recommendations) and radiocommunications standards (ITU-R Recommendations).

ITU-T Recommendations

[ITU-T Recommendations](#) define how ICT networks operate and interwork. Although these Recommendations have non-mandatory status unless adopted in national law, the level of compliance is high due to their international applicability and level of quality. There are over 4 000 Recommendations in force on topics including service definition to network architecture and security, broadband DSL to Gbit/s optical transmission systems, machine learning in future networks including IMT-2020, quantum information technology, blockchain, and IP-performance related issues. These topics constitute the fundamental components of today's ICTs.

Executive summaries of ITU-T study group meetings and their standardization achievements can be found on the [homepages of ITU-T study groups](#).

The following table sets out *by year* all ITU-T Recommendations over the period 2018 to 1 November 2021.

Approved new or revised ITU-T Recommendations	
SG2 - Operational aspects	
2018	M.1400 Amd.1, M.3071, M.3372, X.760
2019	E.102, E.118 Amd.1, E.169.1, E.217, M.3040
2020	E.156, E.164.2, E.212 Amd.2, E.212 Amd.3, E.218 Amd.1, M.3041, M.3164, M.3362, M.3363, M.3364, M.3373
2021	E.157, M.3080, M.3365, Q.834.1 Amd.1, Q.834.4 Amd.2, Q.838.1 Amd.1, X.785
SG3 - Economic and policy issues	
2019	D.198, D.262, D.263
2020	D.264, D.265, D.266, D.267/X.1261
2021	D.600R Amd.1, D.607R, D.1041
SG5 - Environment and circular economy	
2018	K.20, K.21, K.35, K.40, K.44, K.45, K.50, K.52, K.61, K.70, K.90, K.91, K.100, K.128, K.129, K.130, K.131, K.132, K.133, K.134, K.135, K.136, K.137, K.138, K.139, L.1020, L.1021, L.1030, L.1031, L.1207, L.1221, L.1222, L.1303, L.1332, L.1351, L.1361, L.1370, L.1450, L.1460, L.1505, L.1506
2019	K.20, K.20, K.21, K.39, K.40, K.44, K.45, K.66, K.73, K.77, K.91, K.100, K.112, K.116, K.123, K.140, K.141, K.142, K.143, K.144, K.145, L.1000, L.1015, L.1022, L.1032, L.1210, L.1305, L.1316, L.1362, L.1380, L.1451, L.1507
2020	K.21 Amd.1, K.34, K.35, K.44 Cor.1, K.45 Amd.1, K.50 Amd.1, K.50 Cor.1, K.64, K.70, K.78, K.83, K.91, K.91, K.98 Cor.2, K.145, K.146, K.147, K.148, K.149, K.150, L.1023, L.1031, L.1304, L.1310, L.1331, L.1371, L.1381, L.1382, L.1470
2021	K.20, K.50 Cor. 2, K.52, K.56, K.100, K.112, K.147 Cor.1, L.1024, L.1033, L.1060, L.1383, L.1471
SG9 - Broadband cable and TV	
2018	J.207, J.297, J.382, J.1107
2019	J.1, J.207, J.216, J.224, J.288, J.298, J.302 Amd.1, J.383, J.1026, J.1027, J.1028, J.1108, J.1109, J.1201, J.1202, J.1210, J.1600
2020	J.1, J.216, J.224, J.225, J.299, J.1012, J.1013, J.1014, J.1015, J.1015.1, J.1031, J.1032, J.1033, J.1203, J.1204, J.1211
2021	J.208, J.481, J.482, J.1110, J.1301, J.1302, J.1611
SG11 - Protocols and test specifications	
2018	Q.850, Q.1912.5, Q.3405, Q.3640, Q.3641, Q.3714, Q.3715, Q.3716, Q.3717, Q.3718, Q.3740, Q.3914, Q.3940, Q.3952, Q.3953, Q.4016, Q.4041.1, Q.4042.1, Q.4060, Q.5001, X.609.4, X.609.5, X.609.6, X.609.7
2019	Q.731.3, Q.731.4, Q.731.5, Q.731.6, Q.850 Amd.1, Q.3054, Q.3055, Q.3056, Q.3642, Q.3644, Q.3719, Q.3741, Q.3916, Q.4014.1, Q.4014.2, Q.4043, Q.4061, Q.5002, Q.5020, Q.5021, Q.5050, X.609.8

Approved new or revised ITU-T Recommendations	
2020	Q.3057, Q.3058, Q.3059, Q.3060, Q.3643, Q.3645, Q.3720, Q.3745, Q.3915, Q.3961, Q.3963, Q.4062, Q.4063, Q.4064, Q.4066, Q.4100, Q.5022, Q.5051, Q.5052, X.609.5, X.609.9, X.609.10
2021	Q.3961 Cor. 1, Q.4044, Q.4065, Q.4067, Q.4068, Q.4101, Q.5023, Q.5053
<u>SG12 - Performance, QoS and QoE</u>	
2018	E.802 Amd.2, E.840, G.1070, P.501 Amd.1, P.570, P.808, P.809, P.862 Cor.2, P.863, Y.1543, Y.1546 Amd.1
2019	E.805, E.806, G.107.1, G.107.2, G.191, G.1028, G.1028.1, G.1028.2, G.1033, P.10/G.100 Amd. 1, P.64, P.340 Amd.2, P.700, P.811, P.863.1, P.917, P.1100, P.1110, P.1201.2 Cor.2, P.1203.1, P.1203.3, Y.1540, Y.1550
2020	E.475, E.804.1, E.812, G.107.1 Cor.1, G.1034, G.1035, G.1072, G.1072 Cor.1, P.381, P.382, P.501, P.565, P.918, P.919, P.1150, P.1203.3 Amd.1, P.1204, P.1204.3, P.1204.4, P.1204.5, P.1401, P.1502, Y.1540 Amd.1
2021	E.805.1, P.1203.3 Cor.1, P.57, P.57, P.58, P.58, P.383, P.700, P.808, P.913, Y.1222 Cor.1, Y.1545.1 Amd.1, Y.1563 Cor.1, Y.1564 Cor.1
<u>SG13 - Future networks (& cloud)</u>	
2018	I.570, Y.2072, Y.2242, Y.2255, Y.2305, Y.2322, Y.2323, Y.2618, Y.2619, Y.2814, Y.2815, Y.3053 Amd.1, Y.3053, Y.3054, Y.3101, Y.3102, Y.3103, Y.3104, Y.3105, Y.3112, Y.3112, Y.3130, Y.3150, Y.3170, Y.3324, Y.3505, Y.3506, Y.3507, Y.3514 Cor.1, Y.3517, Y.3518, Y.3519, Y.3601, Y.3602, Y.3650, Y.3651
2019	Y.2243, Y.2244, Y.2324, Y.2342, Y.2620, Y.2774, Y.2775, Y.3072, Y.3073, Y.3074, Y.3106, Y.3107, Y.3108, Y.3131, Y.3132, Y.3133, Y.3151, Y.3152, Y.3153, Y.3172, Y.3508, Y.3509, Y.3523, Y.3524, Y.3603, Y.3800
2020	Y.2029 Amd.1, Y.2245, Y.3055, Y.3075, Y.3076, Y.3134, Y.3136, Y.3150, Y.3154, Y.3155, Y.3156, Y.3173, Y.3174, Y.3175, Y.3176, Y.3525, Y.3530, Y.3531, Y.3604, Y.3605, Y.3652, Y.3800 Cor.1, Y.3801, Y.3802, Y.3803, Y.3804
2021	Y.2246, Y.2343, Y.2501, Y.2623, Y.3056, Y.3077, Y.3109, Y.3113, Y.3135, Y.3157, Y.3177, Y.3178, Y.3179, Y.3527, Y.3653, Y.3802 Cor.1, Y.3806
<u>SG15 - Transport, access and home</u>	
2018	G.650.1, G.651.1, G.672, G.695, G.698.2, G.698.4, G.698.4 Cor.1, G.709.1/Y.1331.1, G.709.2/Y.1331.2, G.709.3/Y.1331.3, G.709.3/Y.1331.3 Amd.1, G.709/Y.1331 Amd.2, G.798 Amd.1, G.798 Cor.1, G.808 Amd.1, G.875, G.959.1, G.984.5 Amd.1, G.988 Amd.1, G.989.3 Amd.2, G.993.2 Amd.3, G.993.2 Amd.4, G.993.5 Cor.2, G.994.1, G.994.1 Amd.2, G.996.2, G.996.2 Amd.6, G.996.2 Cor.1, G.998.2, G.998.2 Cor.1, G.998.4, G.7041/Y.1303 Cor.1, G.7701 Amd.1, G.7702, G.7711, G.7721, G.8011/Y.1307, G.8013/Y.1731 Cor. 1, G.8013/Y.1731 Amd.1, G.8021/Y.1341, G.8023, G.8023 Cor.1, G.8031/Y.1342 Amd.1, G.8051/Y.1345, G.8052/Y.1346, G.8121/Y.1381, G.8121.1/Y.1381.1, G.8121.2/Y.1381.2, G.8131 Amd.3, G.8151/Y.1374, G.8152/Y.1375, G.8251, G.8260 Amd.2, G.8262, G.8264/Y.1364 Amd.1, G.8266/Y.1376 Amd.1, G.8271 Amd.1, G.8271 Amd.2, G.8271.1/Y.1366.1 Amd.1, G.8271.2 Amd.2, G.8271.2/Y.1366.2 Amd.1, G.8272, G.8273.3/Y.1368.3 Amd.1, G.8273/Y.1368, G.8275.1/Y.1369.1 Amd.2, G.8275.2/Y.1369.2 Amd.2, G.8275/Y.1369 Amd.1, G.9701 Amd.5, G.9701 Cor.5, G.9803, G.9807.2 Amd.1, G.9958, G.9960, G.9960 Cor.4, G.9961, G.9961 Amd.3, G.9961 Amd.4, G.9961 Cor.5, G.9962, G.9963, G.997.1 Amd.2, G.997.1 Cor.1, G.997.2 Amd.5, G.997.2 Cor.4, G.9978, G.9978, G.9979, L.108, L.109, L.156, L.163, L.207, L.314, L.315
2019	G.671, G.709.1/Y.1331.1 Amd.1, G.709/Y.1331 Amd.3, G.709/Y.1331 Cor.2, G.798 Amd.2, G.808.2, G.872, G.984.2, G.988 Amd.2, G.989.2, G.989.2 Cor.1, G.993.2, G.993.5, G.997.1, G.997.2, G.998.4 Cor.1, G.999.1, G.7041/Y.1303 Amd.1, G.7710/Y.1701, G.7712/Y.1703, G.8013/Y.1731 Cor.2, G.8021/Y.1341 Cor.1, G.8132/Y.1383 Cor.1, G.8133, G.8261/Y.1361, G.8262.1/Y.1362.1, G.8262.1/Y.1362.1 Amd.1, G.8265.1/Y.1365.1 Amd.1, G.8271.1/Y.1366.1 Amd.2, G.8272.1/Y.1367.1 Amd.2, G.8273.2/Y.1368.2, G.8273.2/Y.1368.2 Amd.2, G.8275.1/Y.1369.1 Amd.3, G.8275.2/Y.1369.2 Amd.3, G.8275/Y.1369 Amd.2, G.9700, G.9701, G.9701 Amd.1, G.9701 Cor.1, G.9803 Amd.1, G.9804.1, G.9960 Cor.1, G.9961 Cor.1, G.9991, G.9992, L.208
2020	G.650.1, G.654, G.672, G.694.1, G.709.1 Cor.1, G.709.1/Y.1331.1 Amd.2, G.709.3/Y.1331.3, G.709.4, G.709/Y.1331, G.709/Y.1331 Amd.1, G.781, G.807, G.873.1 Cor.1, G.874, G.875, G.971, G.972, G.977.1, G.984.3 Amd.1, G.984.5 Amd.2, G.987.1 Cor.1, G.987.2 Amd.2, G.987.3 Amd.1, G.988 Amd.3, G.989.2 Amd.1, G.989.3 Amd.3, G.993.5 Cor.1, G.994.1 Amd.1, G.997.2 Cor.1, G.997.2 Amd.1, G.997.2 Amd.2, G.7701 Amd.2, G.7710/Y.1701, G.7718, G.8011/Y.1307, G.8032/Y.1344, G.8051/Y.1345, G.8110.1 Amd.1, G.8112/Y.1371, G.8151/Y.1374, G.8260, G.8261/Y.1361 Amd.1, G.8261/Y.1361 Amd.2, G.8262 Amd.1, G.8271, G.8271.1/Y.1366.1, G.8271.1/Y.1366.1 Amd.1, G.8272 Amd.1, G.8273 Amd.1, G.8273 Cor.1, G.8273.2/Y.1368.2, G.8273.2/Y.1368.2 Amd.1, G.8273.3/Y.1368.3, G.8273.4/Y.1368.4, G.8275.1/Y.1369.1, G.8275.1/Y.1369.1 Amd.1, G.8275.2/Y.1369.2, G.8275.2/Y.1369.2 Amd.1, G.8275/Y.1369, G.8300, G.8310, G.8312, G.9701 Amd.2, G.9701 Cor.2, G.9701 Amd.3, G.9710, G.9806, G.9806 Amd.1, G.9807.1 Amd.2, G.9807.1 Cor.1, G.9960 Amd.1, G.9960 Amd.2, G.9960 Cor.2, G.9961 Amd.1, G.9961 Amd.2, G.9961 Cor.2, G.9962 Cor.1, G.9962 Amd.1, G.9964 Amd.3, G.9991 Amd.1, G.9991 Cor.1, L.111, L.151, L.330
2021	G.703 Amd.1, G.709 Cor.1, G.709.4 Cor.1, G.798 Cor.2, G.798 Amd.3, G.807 Amd.1, G.872 Amd.1, G.876, G.987.3 Amd.2, G.988 Amd.4, G.989.3, G.994.1, G.997.3, G.7703, G.7714.1/Y.1705.1 Amd.1, G.7719, G.8010 Amd.3, G.8052.1/Y.1346.1, G.8052.2/Y.1346.2, G.8152.1/Y.1375.1, G.8152.2/Y.1375.2, G.8265.1, G.8271.2/Y.1366.2, G.8273.4/Y.1368.4 Amd.1,

Approved new or revised ITU-T Recommendations	
	G.8275.1/Y.1369.1 Amd.2, G.8275.2/Y.1369.2 Amd.2, G.8275/Y.1369 Amd.1, G.9711, G.9802.1, G.9804.1 Amd.1, G.9804.2, G.9804.3, G.9806 Amd.2, G.9903 Amd.1, G.9961 Amd.3, G.9963 Amd.1, G.9991 Amd.2, L.100/L.10, L.201
SG16 - Multimedia	
2018	F.743.5, F.743.6, F.746.7, F.746.8, F.780.1, F.791, F.921, F.930, G.722.2 Cor. 1, H.222.0, H.265, H.265.1, H.430.1, H.430.2, H.430.3, H.626.3, H.626.4, H.766, H.782, H.783, H.784, H.785.1, H.820, H.830.13, H.830.14, H.830.15, H.830.16, H.841, H.842, H.843, H.844, H.845.2, H.845.17, H.846, H.849, H.861.1, H.870, T.88
2019	F.740.1, F.743, F.743.7, F.743.8, F.743.9, F.743.10, F.746.9, F.749.10, F.749.11, H.222.0 Amd.1, H.222.0 Cor.1, H.230, H.243, H.264, H.265, H.265, H.430.4, H.626, H.626.5, H.629.1, H.643.1, H.644.1, H.644.2, H.753, H.764, H.783, H.810, H.813, H.830.15, H.842, H.844, H.845.17, H.846, H.846, H.849, H.850, H.850.6, H.850.7, H.862.0, H.871, T.800, T.814, T.815, T.832, T.873
2020	F.735.1, F.743.11, F.743.20, F.743.21, F.746.10, F.746.11, F.748.11, F.749.12, F.749.3, F.751.0, F.751.1, F.751.2, F.922, H.266, H.274, H.430.5, H.627, H.644.3, H.702, H.704, H.841, H.850.1, H.850.2, H.850.3, H.850.4, H.850.5, H.850.6, H.850.7, H.862.1, H.862.2, H.862.3, T.701.11
2021	F.735.2, F.740.2, F.743.12, F.748.12, F.748.13, F.749.4, F.749.5, F.749.13, F.749.14, H.222.0, H.264, H.265, H.273, H.644.4, H.753 Cor.1, H.830.17, H.830.18, H.862.4, H.862.5, T.627, T.801, T.803, T.804, T.815, T.873
SG17 - Security	
2018	X.676, X.680 Amd.1, X.680 Cor.3, X.681 Cor.1, X.682 Cor.2, X.683 Cor.1, X.696 Cor.3, X.894, X.1041, X.1080.1, X.1093, X.1147, X.1214, X.1276, X.1277, X.1278, X.1331, X.1361, X.1450, X.1603, Z.100, Z.100, Z.100, Z.151, Z.161, Z.161.2, Z.161.4, Z.161.6, Z.166, Z.167, Z.169, Z.171
2019	X.500, X.501, X.509, X.511, X.518, X.519, X.520, X.521, X.525, X.694 Cor.1, X.893 Cor.1, X.894 Cor. 1, X.1042, X.1043, X.1044, X.1045, X.1059, X.1094, X.1215, X.1232, X.1249, X.1401, X.1702, Z.100, Z.100, Z.100, Z.100, Z.101, Z.102, Z.103, Z.104, Z.105, Z.106, Z.107, Z.161, Z.161.2, Z.161.6, Z.161.7, Z.166, Z.169
2020	X.510, X.677, X.1046, X.1052, X.1148, X.1149, X.1216, X.1218, X.1254, X.1279, X.1332, X.1363, X.1364, X.1365, X.1366, X.1367, X.1371, X.1372, X.1374, X.1375, X.1400, X.1402, X.1403, X.1404, X.1451, X.1452, X.1604, X.1605, X.1606, X.1710, X.1714, X.1750, X.1751, Z.161, Z.161.3, Z.161.4, Z.161.6, Z.161.7, Z.165.1, Z.166, Z.167, Z.169
2021	X.501 Amd. 1, X.509 Cor. 1, X.680, X.681, X.682, X.683, X.690, X.691, X.692, X.693, X.694, X.695, X.696, X.697, X.894 Cor.2, X.1011, X.1047, X.1060, X.1061, X.1080.2, X.1217, X.1233, X.1252, X.1368, X.1376, X.1405, X.1406, X.1408, X.1712, X.1770, X.1811, Z.100, Z.100, Z.100, Z.101, Z.102, Z.103, Z.104, Z.105, Z.106, Z.107, Z.161, Z.161.2, Z.161.3, Z.161.4, Z.161.7, Z.167, Z.168, Z.169, Z.171
SG20 - IoT, smart cities & communities	
2018	Y.4003, Y.4118, Y.4119, Y.4120, Y.4121, Y.4200, Y.4201, Y.4415, Y.4416, Y.4417, Y.4418, Y.4456, Y.4457, Y.4500.1, Y.4500.2, Y.4500.4, Y.4500.5, Y.4500.6, Y.4500.8, Y.4500.9, Y.4500.10, Y.4500.11, Y.4500.12, Y.4500.13, Y.4500.14, Y.4500.15, Y.4500.20, Y.4500.22, Y.4500.23, Y.4500.32
2019	Y.4051, Y.4202, Y.4203, Y.4204, Y.4205, Y.4206, Y.4207, Y.4458, Y.4460, Y.4555, Y.4556, Y.4904, Y.4905, Y.4906
2020	Y.4208, Y.4209, Y.4210, Y.4211, Y.4459, Y.4461, Y.4462, Y.4463, Y.4464, Y.4465, Y.4466, Y.4467, Y.4468, Y.4469, Y.4470, Y.4472, Y.4473, Y.4474, Y.4475, Y.4558, Y.4559, Y.4560, Y.4561, Y.4807, Y.4808, Y.4907, Y.4908
2021	Y.4122, Y.4419, Y.4420, Y.4421, Y.4471, Y.4476, Y.4809
TSAG	
2019	A.1, A.5, A.13, A.25

The inclusivity of the ITU standardization platform is supported by ITU's Bridging the Standardization Gap [programme](#). The World Telecommunication and Information Society Day (WTISD) took place in 2019 under the theme '[Bridging the Standardization Gap](#)'. More details can be found in [Section 1.11](#).

Open platforms – such as ITU-T Focus Groups and collaboration initiatives like the AI for Good Global Summit (see [description](#) in [Section 1.11](#)), the Financial Inclusion Global Initiative (see [Annex 1, Resolution 204](#)), the Digital Currency Global Initiative (see [Annex 1, Resolution 204](#)) or the United for Smart Sustainable Cities Initiative (see [Section 1.9](#)) – support new partnerships in emerging fields of ICT innovation and assist in clarifying the contributions expected of ITU standardization.

ITU-T Focus Group activity 2018 to 2021

The following table provides information about ITU-T Focus Groups operating from 2018 to 2021. Please refer to the [Focus Group homepage](#) for more information and deliverables.

ITU-T Focus Group (FG)	Start date	End date
Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM)	2017-03	2019-07
Focus Group on Digital Currency including Digital Fiat Currency (FG DFC)	2017-05	2019-06
Focus Group on Application of Distributed Ledger Technology (FG DLT)	2017-05	2019-08
Focus Group on Technologies for Network 2030 (FG NET-2030)	2018-07	2020-07
Focus Group on Vehicular Multimedia (FG-VM)	2018-07	Ongoing
Focus Group on Artificial Intelligence for Health (FG-AI4H)	2018-07	Ongoing
Focus Group on Machine Learning for Future Networks including 5G (FG ML5G)	2018-11	2020-07
Focus Group on Environmental Efficiency for Artificial Intelligence and other Emerging Technologies (FG-AI4EE)	2019-05	Ongoing
Focus Group on Quantum Information Technology for Networks (FG-QIT4N)	2019-09	2021-11
Focus Group on Artificial Intelligence for autonomous and assisted driving (FG-AI4AD)	2019-10	Ongoing
Focus Group on Autonomous Networks (FG-AN)	2020-12	Ongoing
Focus Group on AI for Natural Disaster Management (FG-AI4NDM)	2020-12	Ongoing
Focus Group on Artificial Intelligence and Internet of Things for Digital Agriculture (FG-AI4A)	2021-10	Ongoing
Focus Group on Testbeds Federations for IMT-2020 and beyond (FG-TBFxG)	2021-12	Ongoing

ITU-R Recommendations

The ITU Radiocommunication Sector (ITU-R) plays a vital role in the global management of the radio-frequency spectrum and satellite orbits, limited natural resources increasingly in demand from services such as fixed, mobile, broadcasting, amateur, space research, emergency telecommunications, meteorology, global positioning systems, environmental monitoring and communication services.

The main activities related to spectrum and orbit regulation and management can be found throughout this document as follows: [Section 1.1](#) above contains key outcomes of WRC-19 and RA-19. This section encompasses the results of the processing of space and terrestrial notices, the software developments and capacity building events to support developing countries. Additional capacity building events can be found under [Section 1.10](#). The output of the standardization work that takes place within ITU-R Study Groups and the ITU-R Recommendations approved in the reporting period are listed under [Section 1.3](#). [Section 1.4](#) contains AI activities related to radiocommunications; [Section 1.9](#) lists some of partner organizations of the ITU-R and finally [Section 2.1](#) lists the results of the Radio Regulations Board (RRB) and of the Technical Assistances provided by BR.

The following table provides information about ITU-R Recommendation approved from 1 January 2018 to 1 November 2021.

Working Parties (WP)	New or revised ITU-R Recommendations
WP 1A - Spectrum engineering techniques	SM.1138-3, SM.1448-1, SM.2110-1, SM.2129-0
WP 1B - Spectrum management methodologies and economic strategies WP 1C – Spectrum monitoring	SM.1896-1
WP 1C - Spectrum monitoring	SM.575-3, SM.1051-4, SM.1054-1, SM.1268-5, SM.1392-3, SM.1875-3, SM.2117-0, SM.2138-0, SM.2139-0, SM.2140-0

	P.310-10, P.311-18, P.341-7, P.453-14, P.525-4, P.526-15, P.527-6, P.676-12, P.833-10, P.840-8, P.841-6, P.1057-6, P.1144-11, P.1407-8, P.1511-2, P.1853-2, P.2040-2, P.2108-1, P.2109-1
WP 3J - Propagation fundamentals	
WP 3K - Point-to-point propagation	P.311-18, P.528-5, P.1144-11, P.1238-11, P.1411-11, P.1546-6, P.1812-6, P.1816-4, P.2040-2, P.2108-1, P.2109-1
WP 3L - Ionospheric propagation and radio noise	P.311-18, P.372-15, P.531-14, P.533-14, P.534-6, P.1144-11
WP 3M - Point-to-point and Earth-space propagation	P.311-18, P.452-17, P.530-18, P.617-5, P.619-5, P.681-11, P.1144-11, P.1409-2, P.2001-4, P.2040-2, P.2108-1, P.2109-1
WP 4A - Efficient orbit/satellite utilization for FSS and BSS	S.1503-3, S.1782-1, S.2112-0
WP 4B - Systems, air interfaces, performance and availability objectives for FSS, BSS and MSS (incl. IP-based applications and SNG) WP 4C – Efficient orbit/satellite utilization for MSS and RDSS	S.2131-0
WP 4C - Efficient orbit/spectrum utilization for MSS and RDSS *	M.1184-3, M.1787-3, M.1901-2, M.1902-1, M.1903-1, M.1904-1, M.1905-1
WP 5A - Land mobile > 30 MHz, fixed WAS, amateur & amateur-satellite WP 5B – Maritime and aeronautical mobile services and radiodetermination WP 5C – HF and other systems < 30 MHz in the fixed and land mobile services	F.758-7, F.1105-4, F.1336-5, F.1509-4, M.1637-1, M.1746-1, M.1808-1, M.1826-1, M.1890-1, M.2003-2, M.2009-2, M.2015-2, M.2057-1, M.2084-1, M.2121-0, M.2134-0
WP 5B - Maritime mobile service including the Global Maritime Distress and Safety System (GMDSS); the aeronautical mobile service and the radiodetermination service	M.493-15, M.585-8, M.1174-4, M.1461-2, M.1462-1, M.1465-3, M.1640-1, M.1798-2, M.1849-2, M.1851-1, M.2010-1, M.2057-1, M.2114-0, M.2115-0, M.2116-0, M.2120-0, M.2122-0, M.2135-0
WP 5C - Fixed wireless systems; HF systems in the fixed and land mobile services	F.383-10, F.387-13, F.636-5, F.699-8, F.758-7, F.1105-4, F.1245-3, F.1249-5, F.1336-5, F.1509-4, F.1565-1, F.1777-2, F.2113-0, F.2119-0
WP 5D - IMT systems	M.1036-6, M.1457-15, M.2012-4, M.2150-0
WP 6A - Terrestrial broadcasting delivery	BS.450-4, BS.1114-11, BS.1615-2, BS.1660-8, BT.1306-8, BT.1877-3, BT.2016-2, BT.2036-4, BT.2136-0
WP 6B - Broadcast service assembly and access	BS.1196-8, BS.1548-7, BS.2076-2, BS.2088-1, BS.2125-0, BT.1122-3, BT.1366-3, BT.1872-3, BT.2054-1, BT.2055-1, BT.2073-1, BT.2075-3, BT.2077-3, BT.2133-0, BT.2137-0
WP 6C - Programme production and quality assessment	BS.1283-2, BS.1284-2, BS.2051-2, BS.2126-0, BS.2127-0, BS.2132-0, BT.500-14, BT.814-4, BT.1702-2, BT.2100-2, BT.2111-2, BT.2123-0, BT.2124-0
WP 7A - Time signals and frequency standard emissions	TF.2118-0
WP 7B - Space radiocommunication applications	SA.364-6, SA.1016-1, SA.1027-6, SA.1161-3, SA.1163-3, SA.1164-4
WP 7C - Remote sensing systems	RS.1165-3, RS.1263-2, RS.1859-1, RS.1883-1, RS.2042-1
CCV - Coordination Committee for Vocabulary	V.2130-0

1.4 Emerging technologies – ITU shaping frameworks to manage their development

ITU monitors new/emerging technologies such as artificial intelligence (AI), Internet of Things (IoT), and quantum information technologies (QIT). ITU has organized sessions that inform and promote ITU activities on AI and QIT in partnership with other UN agencies at multistakeholder platforms such as the WSIS Forum 2021 and STI Forum 2021.

Artificial intelligence

AI will play an important role in accelerating progress towards each one of the 17 SDGs. ITU provides a neutral platform for all stakeholders to build a common understanding of AI capabilities, facilitating trusted, safe and inclusive development of AI, and equitable access to its benefits. In recent years, AI has been advancing at an exponential pace. AI machines can sift and interpret massive amounts of data to carry out a wide range of tasks. Balanced against this transformative power are challenges – including issues of transparency, trust and security, and concerns about displacing jobs and exacerbating inequalities.

AI-related ITU-R Reports and Recommendations are available [online](#). More details on ITU's activities in AI are available on the intersectoral website available [here](#).

ITU's work in the area of AI includes:

- AI in standardization (see Section 1.3 for further detail).
- AI for Good Global Summit (see Section 1.11 for further detail).
- ITU AI/Machine Learning in 5G Challenge (see Section 1.11 for further detail).
- ITU-T Study Groups which address aspects of AI and machine learning within their mandates. The work has so far resulted in ITU-T Recommendations and Supplements, e.g. in the [L](#)-, [M](#)-, [P](#)-, and [Y](#)-series of ITU-T Recommendations.
- More than five ITU-T Focus Groups are considering the use of AI and machine learning (see Section 1.3 for further detail).
- AI in radiocommunications (see Section 1.3 for further detail). Main activities related to ITU-R study groups and reports include:
 - ITU-R Study Group 1 (SG 1) covers Spectrum Management and Monitoring. In relation to AI, Question ITU-R 241/1 'Methodologies for assessing or predicting spectrum availability' was approved in 2019 and is under study.
 - ITU-R Study Group 6 (SG 6) covers all aspects for the broadcasting service. SG 6 deliverables and work items related to AI and ML include: Question ITU-R 144/6 'Use of Artificial Intelligence (AI) for broadcasting'; and [Report ITU-R BT.2447](#) 'Artificial intelligence systems for programme production and exchange'.
- [AI for Road Safety initiative](#): Launched in October 2021, the initiative promotes an AI-enhanced approach to reduce fatalities across road-safety management, safer roads and mobility, safer vehicles, safer road users, post-crash response, and speed control.
- High-Level Committee on Programmes (HLCP) Interagency Working Group on AI (IAWG-AI): During the 40th HLCP session in October 2020, an HLCP interagency working group on AI ([IAWG-AI](#)) was established to focus on policy and programmatic coherence of AI activities within the UN. The IAWG-AI, co-led by UNESCO and ITU, is leveraging the ITU analysis exercise on capacity within the UN and other stakeholders. The IAWG-AI, which currently has 38 UN agencies and bodies as members, held its inaugural meeting in March 2021.

Internet of Things

The Internet of Things (IoT) fosters ecosystems for connecting and integrating devices, interfaces and other ICT innovations between sectors including healthcare, transport, manufacturing, recycling, etc.

ITU enables the coordinated development of interoperable IoT technologies, encompassing millions of connected devices and objects.

ITU's work in the area of IoT includes:

- IoT in standardization (see Section 1.3).
- ITU standards development for 'IoT and smart cities', led by [ITU-T SG 20](#) and supported by increasing collaboration with oneM2M and LoRa Alliance.
- The [Focus Group on Artificial Intelligence \(AI\) and Internet of Things \(IoT\) for Digital Agriculture \(FG-AI4A\)](#) explores emerging technologies including AI and IoT in data acquisition and handling, modelling from a growing volume of agricultural and geospatial data, and providing communication for the optimization of agricultural production.

For details, see [Annex 1, Resolution 197](#).

Quantum information technology

Quantum information technology (QIT) improves information processing capability by harnessing principles of quantum mechanics. It has promoted the second quantum revolution and will profoundly impact ICT networks.

ITU's work in the area of QIT includes:

- QIT in standardization (see Section 1.3).
- Several ITU-T Study Groups, including SGs 11, 13 and 17 are developing ITU-T Recommendations in this field. The work has so far resulted in ITU-T Recommendations and Supplements in the [X-](#) and [Y-](#)series of ITU-T Recommendations.
- The [ITU-T Focus Group on Quantum Information Technology for Networks](#) (FG-QIT4N) provided a collaborative platform for pre-standardization aspects of QIT for networks. It adopted nine technical reports.
- A 2021 [webinar series](#) that explores innovative QIT applications, their implications on security, on classical computing and ICT networks; and the discussion of corresponding roadmaps for quantum networks.
- ITU [Workshop on Quantum Information Technology \(QIT\) for Networks](#), June 2019.

1.5 Environment and smart sustainable cities and communities

ICTs provide opportunity not only for sustainable development but also for addressing the effects of climate change. They deliver smart applications, transform service delivery and can reduce carbon footprint in the areas of energy, waste, and water management.

However, a growing information society increases energy consumption and the emission of greenhouse gases (GHGs). E-waste is increasing in volume and is hazardous for health and the environment.

ITU's strategic goal on sustainability calls for the Organization to manage emerging risks, challenges and opportunities resulting from the rapid growth of telecommunications/ICT. As part of these efforts, ITU, with other UN agencies, is developing a Toolkit on Sustainable Digital Transformation.

Below is an overview of activities conducted by ITU related to the environment, to smart sustainable cities and communities and to emergency telecommunications.

Climate change and ICTs: contributing to and facilitating the global debate

- ITU-R SG 7 is developing recommendations for [remote sensing systems](#) and [space applications](#). ITU-T SG 5 is developing recommendations to address e-waste, circular economy

and climate change. ITU-D [Study Group Question 6/2](#) is studying how ICTs can help in adapting to the effects of climate change.

- ITU developed [Greenhouse gas emissions trajectories](#), an ICT standard compatible with the UNFCCC Paris Agreement, setting ICT guidelines to reduce GHG emissions by 45 per cent between 2020 and 2030.
- ITU participated in the 26th UN Climate Change Conference (COP26) in Glasgow, co-organizing side events on accelerating climate action, innovation, collaboration, energy efficiency and unlocking net zero in cities.
- ITU publications included [Turning digital technology innovation into climate action](#) (2019) and [Frontier technologies to protect the environment and tackle climate change](#) (2020).
- ITU participates in the Coalition for Digital Environmental Sustainability.

Accelerating the shift to smart sustainable cities and communities

ITU is improving ICT reliability, security and interoperability for smart sustainable cities and communities, advocating for the use of ICTs in reducing energy consumption and in enhancing services and quality of life for city dwellers.

- ITU, with other UN agencies, is developing a Toolkit on Digital Transformation for People Centred Smart Cities and Communities.
- Both ITU-T SG 5 and ITU-T SG 20 have developed standards focusing on IoT technologies and IoT applications in smart cities and communities.
- ITU, with other organizations, is organizing webinars on [Digital transformation for cities and communities](#) highlighting outcomes of ITU-T SG 20 and the digital transformation of cities and communities.
- The United for Smart Sustainable Cities (U4SSC) initiative advocated for digital technology in the transition to smart sustainable cities and communities – proposing international key performance indicators. Over 150 cities have implemented KPIs.
- ITU, with other organizations, organized the [9th Green Standards week](#) and the [1st Digital African Week](#) which took place in 2019.
- An Arab initiative on IoT and smart cities raised awareness of IoT deployment in smart cities in the Arab States region.
- The Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF) worked to develop a holistic view on smart cities and communities.

Building circular economies for e-waste around the world

ITU is working on the circular economy for electronics and e-waste – data collection, policy improvement, regulatory development, standards and partnership building. ITU plays a key role in the [UN E-waste Coalition](#), is a founding partner of the [Global E-waste Statistics Partnership](#) (GESp) and collaborates with the [Circular Electronics Partnership](#).

- ITU worked towards meeting the e-waste targets established by the [Connect 2030](#) Agenda.
- ITU collaborated on a project in Latin America funded by the Global Environment Facility (GEF): working with Costa Rica and Argentina to implement ITU standards on e-waste targets and certification schemes for e-waste recyclers.
- A [regional event was held with UNU and UNEP](#) in 2020 on e-waste and regional harmonization of national e-waste policies, regulation and standards. The [Regional E-waste Monitor for Arab States](#) generated data and skills on e-waste collection, statistics methods and tools – for 22 Arab States.
- ITU also supported the preparation of a Regional E-waste Monitor for Latin America and a Regional E-waste Monitor for the Commonwealth of Independent States plus Georgia,

Turkmenistan and Ukraine. A Regional E-waste Monitor for the Western Balkans is being prepared.

- The [Massive Open Online Course \(MOOC\) on e-waste management](#) developed with the Basel Convention Secretariat and WHO launched in 2019. Two webinars were hosted in 2020.
- ITU leads a subgroup on Supply Chain and Circularity of the Policy Network on Environment (PNE) as part of UN IGF.
- A [policy awareness workshop on e-waste](#) held in Hyderabad, India, in 2019 helped create inter-ministerial and departmental linkages for collaboration on e-waste.
- In 2020, ITU published [The Global E-waste Monitor 2020](#), securing coverage in major news outlets.
- A thought paper on [Internet Waste](#) was released as part of [International E-waste Day 2020](#).
- From the [Global E-waste Statistics Partnership](#), ITU and partners undertook capacity-building to improve e-waste statistics in the CIS region, the Arab States, East Africa, Southern Africa and Latin America. National E-waste Monitors are being prepared in Malawi, Namibia and Botswana. In East Africa, ITU is working with the East African Communications Organisation [to develop harmonized household and business surveys covering e-waste](#).
- In 2021, ITU with the World Economic Forum released a toolkit on extended producer responsibility for e-waste management – with focus on African countries.
- In 2021, ITU organized a webinar on [E-waste in Asia Pacific: One Step Towards the Circular Economy](#).
- ITU has developed e-learning – [Introduction to E-waste Policy](#) – and is providing technical help to Burundi, Namibia, Malawi and Dominican Republic, including the preparation of national e-waste policy and regulation.
- ITU and the UN Environment Programme are implementing the EPR Concept in Policies and Regulations for the Sound Management of E-waste and supporting e-waste policy and awareness in Botswana, Namibia, Rwanda, The Gambia, Dominican Republic and Uzbekistan.
- In 2021, ITU with the WEEE Forum, GSMA and Sofies Group released a thought paper (with webinar) on [Digital Solutions for a Circular Electronics Value Chain](#).
- ITU opened the [Generation Connect Global E-waste Iconathon](#) designed to raise awareness and leverage participation of youth globally.

ICTs: reducing risk, improving response to crisis, early warning and emergency telecommunications

- [The 3rd Global Forum on Emergency Telecommunications \(GET-19\)](#) 2019, Mauritius, focused on disaster risk reduction, national emergency telecommunication, infrastructure, and national coordination.
- [Disruptive technologies and their use in disaster risk reduction and management](#) 2019, explored how AI, IoT and big data, robotics and drone technology are transforming disaster risk reduction.
- In 2020, ITU launched new guidelines for development and implementation of [national emergency telecommunication plans \(NETPs\)](#), and for [table-top simulation exercises](#). These were supported by [new online training courses](#).
- Based on the [global guidelines for national emergency telecommunication plans](#), NETPs have since 2018 been delivered for the Dominican Republic, Guatemala, Bolivia, Vanuatu, Samoa, Papua New Guinea, Saint Lucia, Ecuador and Peru. ITU continues to help these countries develop NETPs: Somalia, Sudan, Solomon Islands, Dominica, Grenada and Fiji. National online meetings ensured plans are following ITU guidelines.
- The [Guide to develop a telecommunications/ ICT contingency plan for a pandemic response](#) 2020, focused on telecommunications/ICT service delivery and business continuity in the context of a pandemic.

- ITU published [Women, ICT and emergency telecommunications - opportunities and constraints](#) (2020). It explored the digital gender divide blocking women from becoming equal stakeholders in society, putting entire communities at greater risk during emergencies.
- Since 2018, ITU has supported [several countries](#) affected by natural hazards: Bahamas, Mozambique, Papua New Guinea, Solomon Islands, Tonga, Vanuatu, Zimbabwe, Fiji and Haiti. Support includes the deployment of satellite telecommunication equipment and staff.
- With the Emergency Telecommunications Cluster, ITU developed the [Disaster Connectivity Map \(DCM\)](#), with information critical for first responders on network outages and connectivity gaps following disasters.
- ITU joined the [Crisis Connectivity Charter \(CCC\)](#) (2019), joining the satellite industry and the humanitarian community in making satellite communication more available.
- ITU established an [ITU Emergency Telecommunications Roster](#). ITU staff are trained on deployment of ITU telecommunication equipment and on supporting the Emergency Telecommunications Cluster on the ground.
- ITU implemented early warning systems on flooding in [Zambia](#), (2018) working with the Zambia ICT Authority.
- ITU continues to promote the Common Alerting Protocol (CAP), organizing [regional and national workshops](#) on the topic – see [ITU-T Recommendation X.1303](#). CAP enables authorities to deliver early warnings and alerts to communities at risk, up to global scale.
- ITU, with the International Federation of Red Cross and Red Crescent Societies and the World Meteorological Organization, launched [Call to Action on Emergency Alerting](#), (2021), inviting all partners to support countries in implementing CAP. The organizations are supporting the World Meteorological Organization to establish a CAP HelpDesk.
- Strengthening the Multi-Hazard Early Warning Systems, ITU partnered with UNDRR, WMO, IOC-UNESCO and the World Broadcasting Unions in 2020 to develop [Media Saves Lives](#) to reinforce broadcasters' role in the early warning chain.

1.6 Cybersecurity: building confidence and security in ICTs

ITU objectives related to ITU's activities in the area of cybersecurity are to build confidence and security around telecommunications/ICTs and to help implement national and global initiatives. These activities are built on: [Resolution 130](#) (Rev. Dubai, 2018); [Resolution 174](#) (Rev. Busan, 2014); [Resolution 179](#) (Rev. Dubai, 2018); related resolutions from WTDC and WTSA; ITU's role as facilitator for WSIS Action Line C5. The ITU Cybersecurity Programme, based on the Global Cybersecurity Agenda framework, shows the complementary nature and facilitates the implementation of ITU-R, ITU-T and ITU-D activities in this domain.

Legal measures

ITU is helping Member States understand legal aspects of cybersecurity through its [ITU Cybercrime Legislation Resources](#) in order to harmonize their legal frameworks. ITU collaborates with partners such as UNODC. Legal measures are needed to assure appropriate cybersecurity legislation and harmonization of the legal and policy framework.

Technical and procedural measures

ITU-T SG 17 ([Security](#)) is the lead study group on building confidence and security in the use of ICTs, facilitating more secure network infrastructure, services and applications and coordinating security-related work across ITU-T Study Groups. Other ITU-T Study Groups, such as ITU-T SG 9 ([Broadband cable and TV](#)) and ITU-T SG 13 ([Future networks, with focus on IMT-2020, cloud computing and trusted](#)

[network infrastructures](#), contributed to fulfilling the ITU mandate on cybersecurity. ITU-R established clear security principles for IMT (3G, 4G and 5G) networks.

Organizational structures

ITU's Development Bureau evaluates the preparedness for ITU Member States' deployment of operational [National Computer Incident Response Teams \(CIRTs\)](#) – now established in these countries: Barbados, Botswana, Burkina Faso, Cyprus, Gambia, Ghana, Jamaica, Kenya, Montenegro, Palestine, Tanzania, Trinidad and Tobago, Uganda and Zambia and with a further four in progress in four countries: Burundi, Bahamas, Malawi and Kyrgyzstan. Enhancements are being conducted in Kenya and Barbados.

30 CyberDrills across 110 countries

The 2021 Global [CyberDrill](#) programme consists of online events, regional dialogues, technical and policy webinars, training in tool-use and skill development, and interregional meetings. The operational framework and guidelines for the planning and execution of ITU regional CyberDrills are now finalized. To date, ITU has organized 30 CyberDrills involving 110 countries.

Capacity building – sharing knowledge and tools, training, empowerment

- ITU's Development Bureau organizes [regional cybersecurity forums](#) across ITU regions, helping build capacity for BDT programmes and facilitating cooperation at the regional and international level.
- 20+ organizations including Intergovernmental and International Organizations, the private sector, academia and civil society are updating [the Guide to Developing a National Cybersecurity Strategy](#). A dedicated website supports the new edition. Technical assistance is underway with Fiji, Liberia and Chad. Available at ITU Academy is the online training: [Lifecycle, principles and good practices of national cybersecurity strategy development and implementation](#).
- Through the [ITU Academy](#), the ITU Centres of Excellence (CoE) deliver training and workshops in cybersecurity.
- BitSight provided access to ITU Member States for its cybersecurity scoring platform – helping address cybersecurity challenges during the COVID-19 pandemic and to [support Member States' health infrastructure with timely information on cyber threats](#).
- The [ITU Global Cybersecurity Index](#) (GCI) Report was released on 29 June 2021, covering 193 Member States and the State of Palestine.
- The [Women in Cyber Mentorship Programme](#) builds skills of junior women professionals entering the field of cybersecurity. The first edition launched on International Women's Day and targeted junior women professionals in Arab and Africa regions. The programme has helped build an international network of women in senior cybersecurity roles.

International cooperation: ITU is building relationships with organizations including Commonwealth Cybercrime Initiative, ENISA, INTERPOL, ECOWAS, the World Bank, FIRST, and regional CSIRT/CERT associations.

- The Secretary-General is to submit to Council a report explaining how ITU is using the [Global Cybersecurity Agenda](#) framework and setting out appropriate guidelines for its use. Draft guidelines were submitted to the [ITU Virtual Consultation of Councillors](#) in June 2021 – which instructed the Secretariat to conduct further consultations with Council Member States. <https://www.itu.int/en/action/cybersecurity/Pages/gca.aspx>

- As lead facilitator for WSIS Action Line C5, ITU organized a cybersecurity track at the [WSIS Forum 2021](#), including a consultation on draft guidelines for use of the Global Cyber Alliance, and a dialogue on 'AI Readiness Check: Policy Impact, Opportunities and Challenges'.

Communicating the Child Online Protection message and guidelines globally

- From 2021, [Child Online Protection \(COP\) Guidelines](#) are to be implemented at national level – they build on guidelines released by ITU for policy-makers, industry, parents and educators and children. More than 50 organizations specializing in ICTs and children's rights contributed, including the Global Partnership to End Violence Against Children, UNESCO, UNICEF, UNODC, the WePROTECT Global Alliance, WHO, the World Childhood Foundation USA. Advice includes not only online safety but how to empower and engage with children and young people in this domain.
- ITU signed an agreement with the [SCORT Foundation on COP](#) in and through sport and has contributed to discussions such as [Safer Internet Day 2021](#) and the [15th European Football for Development Conference](#).
- *'Creating a safe and empowering cyber environment for children'* (a 2020 agreement between ITU and the Kingdom of Saudi Arabia) kicked-off in August 2021 to further strengthen global efforts to implement the ITU Child Online Protection guidelines. The programme implements child online safety policies among governments, industry, and civil society and focuses on fostering a culture of child online safety.
- [ITU has also contributed to the adoption of General Comment 25 on children's rights in the digital environment](#) by the UN Committee on the Rights of the Child.
- ITU is working to disseminate 'Sango's messages' ([Child Online Protection mascot](#) launched in 2020) to develop relevant content and raise awareness on Child Online Protection.

1.7 Digital inclusion – Ensuring inclusive, equal access and use of ICTs for all

ICTs need to be accessible to all, regardless of their gender, age, ability and location – they improve our lives, facilitate access to information, simplify service delivery and enable social and economic participation. Digital inclusion, one of ITU's strategic goals and objectives, ensures all people have opportunity to be part of digital society.

Working globally to close the digital gender gap

ITU is custodian of three gender-related SDG Indicators: the proportion of individuals who (1) own a mobile phone; (2) use the Internet; and (3) have ICT skills. [ITU's Measuring digital development: Facts and figures 2021](#) shows that, in all regions, the gender Internet divide has been narrowing in recent years, and calls for more action on cultural, financial and skills-related barriers that impede Internet uptake among women. ITU has launched several targeted efforts to bridge the digital divide and advance the Connect 2030 Agenda. Below are some highlights of ITU's work on gender.

International Girls in ICT Day

[International Girls in ICT Day](#), now a UN observance, encourages girls and young women to take up ICT careers and studies and is celebrated annually. The 10th edition, [Connected Girls, Creating Brighter Futures](#), builds engagement, momentum and awareness about the importance of encouraging girls in STEM and is a platform for girls' pursuit of STEM careers.

Girls Can Code Initiatives

In 2018 and 2019, over 500 girls participated in coding workshops as part of the [African Girls Can Code Initiative](#), a four-year project by ITU, the African Union and UN Women with financial support from the Royal Danish Embassy in Ethiopia. In 2020, ITU with UNECA held an event in Addis Ababa, with 125 girls participating in person and 2 000 girls participating remotely across the continent. The [Americas Girls Can Code Initiative](#), established in 2019, has taught over 7 000 girls to code.

EQUALS

[EQUALS: The Global Partnership to Bridge the Gender Digital Divide](#) works to address the digital gender divide, focusing on access, skills, leadership and research. EQUALS (more than 100 partners across 115 countries) has given over 52 000 women and girls digital skills training and mentoring. Over 145 research projects have explored tackling the gender digital divide and identifying solutions.

Network of Women (NoW): Encouraging Gender Balance

Encouraging and tracking gender-balanced representation and nominations of women for key roles strengthens women's participation in ITU meetings. The aim is to build a community where female delegates can network, share their experience and promote the participation of women – increasing their visibility, empowering them and encouraging experienced female delegates to mentor ICT professionals in the digital space.

In 2021, BDT launched the [Network of Women @WTDC](#) with the aim of increasing numbers of women participating in ITU-D meetings and taking up leadership roles in preparing the WTDC itself. Within this framework, ITU launched the [global mentorship programme](#) and fireside discussions.

At the World Radiocommunication Seminar Online 2020, ITU-R launched the [Network of Women for WRC-23](#) to promote gender equality, equity and parity within the ITU Radiocommunication Sector. The [Network of Women \(NoW\) for WRC-19](#) (#NOW4WRC19) efforts culminated in a [Declaration on Promoting Gender Equality, Equity and Parity in the ITU Radiocommunication Sector](#), adopted at WRC-19 in Sharm El-Sheikh.

UN-SWAP Reporting

ITU's gender equality and mainstreaming efforts are reported annually to the UN system-wide action plan for gender equality and mainstreaming (UN-SWAP) based on 17 performance indicators. In 2018, ITU 'met' or 'exceeded' requirements for five out of 17 UN-SWAP2.0 indicators, with 2019 improvements including gender-responsive performance management. In 2020, ITU 'met' or 'exceeded' requirements for eight out of the 17 indicators. ITU improved performance on four indicators: Programmatic gender-related SDG results; Gender-responsive performance management; Organizational culture; and Knowledge and communication.

More activities

Additional gender-related activities undertaken in 2018 include:

- In 2018 the Broadband Commission's Working Group on Bridging the Digital Divide launched [Bridging the gender gap in Internet and broadband access and use](#) looking at Internet access and use through sex-disaggregated data to understand the context; integrating a gender perspective in strategies, policies, plans and budgets; addressing barriers; and working together and sharing good practice and lessons.
- [International Gender Champions](#): ITU takes part in a leadership network bringing together female and male decision-makers to break down gender barriers and make gender equality a reality.

Working for increased youth engagement

The ITU [Youth Strategy](#) ensures participation of youth in ITU in implementing the 2030 Agenda for Sustainable Development. The strategy is built on three pillars: creating a community of young leaders; bringing young people together to engage with ITU and Members; and fostering participation in ITU activities. More than 40 Youth Task Force members across ITU are coordinating efforts to implement the ITU Youth Strategy.

The initiatives detailed below have been implemented as part of the ITU Youth Strategy.

Generation Connect Initiative

[Generation Connect](#), launched in 2020, prepares the way for the journey to World Telecommunication Development Conference 2022 and the Generation Connect Global [Youth Summit](#) in 2022, under design. The theme of the Youth Summit is aligned with WTDC and with the 17 SDGs. Six Generation Connect Regional Youth Groups have developed a document providing their views on their region's priorities. Since launch, more than 90 Generation Connect youth events have taken place and more than 50 youth have spoken at ITU events.

Generation Connect Visionaries Board

The Generation Connect Visionaries Board offers guidance to ITU on its youth-related work. The Board, comprised of ITU representatives, eight young leaders and eight high-level appointees, advises on the Youth Summit and the Youth Strategy.

Road to Addis Series – Digital Inclusion and Youth Events

The ITU Road to Addis series of events has a strong youth component. An event on International Youth Day 2021 saw participation of youth as equal partners alongside the leaders of today's digital change, while the [Partner2Connect Meeting 2021](#) launched the [Partner2Connect Coalition](#).

Implementation of the I-CoDI Youth Challenge

In 2020, ITU organized the [I-CoDI Youth Challenge](#) on connecting the unconnected. Winning pitches focused on Technology and Network Development; Cybersecurity; Digital Inclusion; Climate Change and Environment; and Capacity Building.

Generation Connect Virtual Communities

In 2021, ITU launched on Facebook, LinkedIn and Instagram the new Generation Connect Virtual communities, inviting youth from the regions to join.

ITU: Current co-chair of the United Nations Inter-Agency Network on Youth Development

Since March 2021, ITU has been the co-chair of the United Nations Inter-Agency Network on Youth Development (IANYD) for a one-year mandate. The Network increases the effectiveness of UN work in youth development by strengthening collaboration and exchange across UN entities. ITU has co-chaired three IANYD meetings, establishing a working group on Meaningful Youth Engagement.

Capacity Building on Meaningful Youth Engagement

Training on 'Meaningful Youth Engagement for UN staff' was delivered to ITU staff in 2020 – 174 ITU staff attended, including top management, members of the ITU Youth Task Force, professional and administrative staff. This training was followed in 2020 by two 'Pitch for Youth' workshops, where teams proposed ideas to an ITU jury on youth engagement initiatives.

Collaboration with the Office of the Secretary-General's Envoy on Youth

ITU works with the Office of the Envoy on Youth to align the ITU Youth Strategy with the United Nations Youth Strategy: [Youth 2030](#). ITU has engaged with the UN Youth Envoy in various ways including the co-creation of the Digital Technology session of the #YouthLead Innovation Festival and collaboration on how online efforts are helping improve children's online safety.

Further initiatives

ITU's work on empowering youth through ICTs includes the [Digital Skills for Jobs for Campaign](#) and the [ITU Digital Skills Toolkit](#).

In 2020, ITU mounted a [Youth Engagement Survey](#) to consult on how ITU can best engage – the results of this survey informed the ITU Youth Strategy.

Kaleidoscope 2018: 'Machine learning for a 5G future' was hosted by Universidad Tecnológica Nacional, Santa Fe, Argentina. Young authors, of up to 30 years of age, presenting papers received Young Author Recognition certificates.

Promoting ICT accessibility for persons with disabilities

ITU works both to promote globally ICT accessibility for persons with disabilities and to make ITU a more accessible organization for persons with disabilities – Resolution 175 (Rev. Dubai, 2018).

Globally, ITU has continued conducting technical work in ITU-R, ITU-T and ITU-D study groups, advancing the use of telecommunications and ICTs for persons with disabilities and developing resources to support Member States in establishing environments that ensure accessible telecommunications/ICTs – work conducted with the participation of persons with disabilities and aligned with the Connect 2030 Agenda. ITU-D advanced regional initiatives linked to ICT accessibility, with a projects, trainings and events, and provided support to ITU administrations in almost every region, including organizing Accessible Americas and Accessible events. More information is available [here](#).

Within the second area of focus, ITU has made progress in the implementation of its ITU Accessibility Policy, endorsed by ITU Council 2013.

ITU's work on accessibility includes regional events, ICT accessibility assessment, and the publication of new resources and handbooks. ITU has developed capacity-building materials to promote the adoption of accessible solutions, including 15 video tutorials on development and remediation of accessible digital content.

A range of activities is detailed below.

ITU Regional Knowledge Development Platforms/Forums

ITU has organized regional events that allow ITU members and stakeholders to share good practices and challenges, and to help develop digitally inclusive societies in these regions.

Further regional events are set out below.

Accessible ASP: Regional Dialogue on Digital Transformation: Gearing Up for Inclusive and Sustainable Development, virtual event, 2021.

[Accessible Arab Region: ICT for ALL](#), Egypt, 2021, in partnership with ESCWA. Participants identified ways forward to implement and mainstream digital accessibility, showing how technology can ensure inclusiveness and empowerment of all.

[Accessible Americas: ICT for ALL](#), Cuba 2021, featured discussions with policy-makers and stakeholders on ICT/digital accessibility in the context of COVID-19.

[Accessible Africa](#), virtual, 2021. Five online, interactive workshops sought to strengthen capacity for 175 regional Focal Points from 42 African countries on ICT/digital accessibility.

[Accessible Europe: ICT for ALL 2021](#), virtual, 2021. Over 240 participants from over 40 countries discussed how to remove barriers, enabling social inclusion of persons with disabilities, through cooperation, programmes and trainings.

Accessible CIS: in 2021 the CIS Region has shown increased interest in ICT accessibility implementation to ensure equal digital empowerment through ICT.

Assessing and monitoring the implementation of ICT accessibility

[ITU Self-Assessment and Toolkit for ICT Accessibility Implementation: Towards building Inclusive Digital Communities](#). This resource supports all ITU members, policy-makers and stakeholders in building inclusive digital communities. It also enables countries and organizations to assess themselves, obtaining an immediate overview on the level of their ICT accessibility implementation.

[ICT Accessibility Assessment for the Europe Region](#) provides ICT accessibility assessment for the Europe region. See also the [ITU Assessment of Digital Accessibility Policies in Serbia](#).

WSIS Forum 2021: ICTs and Accessibility for Persons with Disabilities and Specific Needs

[WSIS Forum 2021](#) featured [ICTs and Accessibility for Persons with Disabilities and Specific Needs](#), with virtual workshops on innovative technologies, bringing together experts and stakeholders to discuss how to leverage ICTs to help people with blindness and vision impairment and how to provide inclusive education for all – showcasing emerging assistive technologies.

Self-paced online training courses

In 2021 two self-paced online training courses in ICT accessibility were developed, available in Arabic, English, French, Russian and Spanish. Both [ICT Accessibility: The key to inclusive communication](#) and [Web Accessibility - The Cornerstone of an Inclusive Digital Society](#) are delivered through ITU Academy in three modules.

Other accessibility resources

Additional ICT accessibility trainings and resources are available [here](#). The update to the [Handbook on Digital Terrestrial Television Broadcasting networks and systems implementation](#) outlining [Accessibility to broadcasting services for persons with disabilities](#) is also part of ITU's accessibility work.

Events and opportunities to support global implementation of ICT accessibility

ITU contributed to the development of the [Disability Inclusion Practice Note on ICT & Digital Accessibility](#) and its [Additional Resources](#). ITU participated in the [Digital Inclusion Summit – Leaving No One Behind](#), organized by the International Training Centre in collaboration with the ILO (July 2021). In 2019 the [UN Disability Inclusion Strategy](#) (UN DIS) was adopted, including significant inputs from ITU. In 2020 ITU prepared its report on the strategy implementation and reviewed its Accessibility Policy accordingly.

ITU contributed to the first ever celebration of [Universal Design Day](#) in 2021.

ITU shared its expertise on ICT accessibility and disability inclusion with 131 UN Country Teams' representatives during two webinars on ICT & Digital Accessibility, held virtually in 2021.

Making ITU a more accessible organization for persons with disabilities

ITU continues to ensure accessibility to persons with disabilities, including, staff, delegates and the general public.

To ensure structure and content of ITU websites, videos, publications, digital documents and digital information are all digitally accessible, training events are under preparation (will take place in February 2022).

To provide fully accessible ITU events, an invitation to bid for the provision of real-time captioning was completed in November 2021. Proposals for captioning in French, Spanish and Chinese have been submitted.

In 2019 ITU provided captioning across ITU events and major conferences, sign language interpretation in selected ITU-T accessibility meetings and in making ITU websites accessible. ITU has also modified internal production to generate accessible publications in the six official languages.

COVID-19: Ensuring digital information is accessible to all

In March 2020, ITU issued [COVID Guidelines on how to develop inclusive digital information products and services](#) through different digital platforms, in all six official UN languages. The guidelines contain messages and concrete actions to support policy-makers and communicators in ensuring that COVID-related messages and vital digital information are accessible to all people, including persons with disabilities. These ITU Guidelines were globally disseminated and translated into 22 other languages within the framework of the UN joint COVID-19 response and recovery emergency working group on health workstream.

To ensure that deaf and hard of hearing persons were not excluded, ITU produced a [Guideline on web-based remote sign language interpretation or video remote interpretation](#).

Capacity-building that empowers indigenous communities through technology

[Capacity-building trainings for indigenous communities](#) have empowered indigenous people and communities through technology. The training is tailored to needs and interests and have taken into account self-sustainability aspects and cultural legacy.

The programme has reached 70 indigenous participants throughout the Americas, 21 of whom have completed the full programme – from Argentina, Bolivia, Ecuador, Honduras, Mexico, and Peru. Thirty per cent of participants were indigenous women.

The course 'Technical promoters in telecommunications and broadcasting in indigenous communities' requires one year of study and trains indigenous professionals in maintaining indigenous networks from infrastructure to communication delivery. The module boosts the professional development of professionals and ability to contribute to their communities' socio-economic development and self-sustainability.

A further course in 2021, on 'Innovative communication tools on how to develop, manage and operate an indigenous radio network' was offered to 141 indigenous participants over two editions. Countries represented included Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Panama, Paraguay, Peru, and Venezuela. Thirty per cent of participants completed all five units of the course, 40.5 per cent of whom were indigenous women.

ITU and UNESCO are developing activities for rollout at the WSIS Forum 2022 as contributions to the International Decade of Indigenous Languages (2022-2032).

Working for digital inclusion for older persons – raising awareness and building resources

For the first time ITU has addressed digital inclusion for older persons by raising awareness on the topic, leveraging capacity of ITU members and stakeholders, providing policy and strategy guidelines and developing resources to support global efforts to overcome this socio-economic challenge.

Resources supporting older persons in the digital world

[A video tutorial](#) covered ageing in a digital world, with captioning in all UN languages.

ITU published this report: [Ageing in a digital world - from vulnerable to valuable](#).

Self-paced online training: [ICTs for better ageing and livelihood in the digital landscape](#). This ITU Academy training is available in English, French and Spanish and addresses local digital inclusion policies, strategies and good practices.

ITU contributing to UN work

- [Social isolation and loneliness among older people: advocacy brief](#) – highlights the growing public health and policy concern about these issues, made more salient by the COVID-19 pandemic. ITU contributed to the development of this WHO/ UN Women brief.
- ITU contributed to the celebration of the UN International Day of Older Persons in 2021 in the ‘Digital inclusion for all ages’ event jointly organized with UN DESA, the Office of the Secretary’s-General Envoy on Technology, and the NGO Committee on Ageing.

1.8 COVID-19 related activities/responses

COVID-19 has plunged the world into an unprecedented crisis, with billions now relying on ICTs to access education, healthcare, work and essential goods and services. ICT and social media are at the forefront, driving the global collective response to the disease. ITU has helped marshal the global ICT community in mounting a strengthened, multilateral, collective and digital response through strategic activities, many of which are summarized below. In public speaking engagements, the ITU Secretary-General has consistently highlighted the importance of ICT in the fight against COVID-19.

All COVID-19-related activities of ITU, including initiatives, events, products and partnerships, are available [here](#).

Ensuring resilience, safety and availability for networks and services

The [Global Network Resiliency Platform \(#REG4COVID\)](#) helps national policy-makers, regulators and industry stakeholders to ensure that networks and services are resilient, safe and available to all. The platform shared regulatory measures that manage network congestion and continuity in areas of health, education, financial, governmental and social business as well as the impact of these measures – and identified new policies put in place for COVID-19 recovery.

An overview of key initiatives is available here: https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/REG4COVID/2020/Summary_Key_Covid19_Initiatives.pdf

Analysis and lessons learned are available here:

- https://reg4covid.itu.int/wp-content/uploads/2020/06/ITU_COVID-19_and_Telecom-ICT.pdf
- <https://reg4covid.itu.int/wp-content/uploads/2020/05/ICTsector-response.jpg>

Shoring up networks and capacity at critical connectivity points

The [Broadband Commission Agenda for Action](#) outlines short- and medium-term measures for governments, industry, the international community and civil society, designed to shore up digital networks, strengthen capacity at critical connectivity points like hospitals and transport hubs, and boost digital access and inclusivity.

Bringing communities together to respond to COVID-19

Discussions involving the World Bank, GSMA and the World Economic Forum identified how to bring together communities to support ITU membership in their response to COVID-19. The 'Speedboat Initiative' issued a ['COVID-19 Crisis Response: Digital Development Joint Action Plan and Call for Action'](#) to better leverage digital technologies and infrastructure in support of citizens, governments and businesses during the pandemic.

Stable, affordable access for the unconnected

The ['Digital Cooperation during COVID-19 and beyond'](#) webinar series assessed connectivity in various regions, and identified actions designed to enhance stable, affordable access for the unconnected. Topics addressed included connectivity best practice on COVID-19 initiatives; misinformation and disinformation; online safety; and public health, digital responses and human rights.

Digital COVID-19 Certificates

A [Joint Coordination Activity on Digital COVID-19 Certificates](#) (JCA-DCC) coordinates standardization work in the field of digital COVID-19 certificates among relevant ITU-T study groups and external organizations and forums, aiming to foster the use of compatible data architectures for sharing data and promoting interoperability, agility and safety for users, and all relevant stakeholders involved.

Reinforced in-country digital infrastructures to prevent spread of disease

[Connect2Recover](#) provides country-specific support to reinforce digital infrastructures – using telework, e-commerce, remote learning and telemedicine to prevent the spread of COVID-19 and to support recovery and preparedness for potential future pandemics. ITU worked with the Government of Japan and the Kingdom of Saudi Arabia on this initiative.

Accelerating digital connectivity in the wake of COVID-19

Within the UN75 Global Governance Forum framework, ITU together with the EMEA Satellite Operators Association, Facebook, GSMA, Loon, Microsoft, SpaceX, UN Global Compact, UNICEF and the World Economic Forum, agreed concrete actions to [Accelerate Digital Connectivity in the Wake of COVID-19](#).

Reaching out to millions around the globe with vital health messaging

ITU, in collaboration with the World Health Organization and with support from UNICEF – as part of the [Be Healthy, Be Mobile](#) (BHBM) initiative – worked with telecommunication companies to text people on their mobile phones with vital health messaging to help protect them from COVID-19, reaching millions of people unable to connect to the Internet.

In Tunisia, existing mHealth platforms were used to send COVID-19 messages to around 10 million citizens. In Senegal, the mRamadan campaign reached 230 000 people with advice on diabetes and basic information on COVID-19. In Sudan, the BHBM solution helped deliver COVID-19-related messages to over 71 000 people. In Niger, ITU established an automated hotline to offer basic information about the virus and risk prevention which received more than 40 000 calls.

Orchestrating outreach on health solutions and free distance learning

The [ITU Smart Villages platform](#) has established interactive voice services on COVID-19 for everyone in Niger.

The ITU-T Focus Group on AI for health, managed in partnership with WHO, leveraged AI and other digital technologies to combat COVID-19 across the cycle of epidemic emergency.

ITU has launched an [AI for Good webinar series featuring](#) use cases of artificial intelligence in healthcare and other global challenges including global pandemic response.

The [COVID-19 Global Education Coalition](#) led by UNESCO ensures continued learning for more than 1.5 billion students affected by school and university closures. ITU is offering a free [programme](#) that provides trainers with tools and skills in regard to remote teaching.

Solutions and best practice for cities to address COVID-19

The [United for Smart Sustainable Cities \(U4SSC\)](#) is coordinated by ITU, UNECE and UN-Habitat, and supported by 14 other UN bodies. It explores solutions and best practice used by cities to address COVID-19. It also identifies approaches that support economic recovery and resilience in cities in the time of COVID-19.

WSIS builds COVID-19 response – and leverages more than 80 workshops

Produced in the framework of WSIS Stocktaking efforts, the [ICT Case Repository](#) collects projects and activities dedicated to responding to the COVID-19 crisis. A draft zero version of the special [ICT Case Repository: The Coronavirus Response](#) is available.

More than 80 workshops at the WSIS Forum 2020 were indicated by Stakeholders as directly linked to COVID-19.

Convening experts to deepen understanding of economic impact

An Economic Experts Roundtable brought together a wide cross-section of economic experts to exchange views on the latest research and analysis on the COVID-19 economic impact on the digital infrastructure.

New ITU Guidelines for national emergency telecommunication plans

ITU has launched [new guidelines](#) to help countries to develop national emergency telecommunication plans in the face of emergencies such as Covid-19.

Helping countries, businesses and citizens to combat cybersecurity threats

ITU launched CYB4COVID, a comprehensive [repository of cybersecurity expertise](#) to help countries, businesses and citizens respond to threats during the COVID-19 pandemic.

Seven ways to keep children safe online

The latest version of ITU's [Guidelines for Parents, Carers, Guardians, and Educators for Child Online Protection](#) offers tips for parents to minimize online risk to their children.

1.9 Strategic partnerships for SDGs

Cooperation, resource-sharing and win-win arrangements that benefit governments, industry and users – coupled with a 'whole-of-government' approach – will help drive towards technology as a basic enabling service that benefits all. In this effort, ITU puts emphasis on forging strategic partnerships that deliver better outcomes, tangible results and real impact on the pathway to achieving the SDGs through ICTs.

This section summarizes key partnerships over the period of this report.

Broadband Commission – putting broadband firmly on the international policy agenda

ITU and UNESCO set up the *Broadband Commission for Digital Development* in 2010 to elevate broadband on the international policy agenda and expand access as key in accelerating progress towards national and international development targets. Renamed in 2015 the [Broadband Commission for Sustainable Development](#), the Commission continues to deliver strong high-level advocacy messages.

The Commission has published annually the [State of Broadband report](#), organized [working groups](#) on thematic areas from health to education, and convened [two meetings](#) every year.

2019 saw the establishment of a new initiative, [A Digital Infrastructure Moonshot for Africa](#), a multistakeholder consultation group engaging ICT industry partners to improve digital infrastructure in Africa. The group proposed [a roadmap and action plan](#), and called for the establishment of a global coalition to achieve Africa's digital transformation by 2030.

With the publication of the [Universal Connectivity Manifesto](#) in 2020, the Commission celebrated [ten years](#) of building global multistakeholder partnerships and advocating for broadband access. In September 2020, the Commission published the [Special Edition State of Broadband Report](#) highlighting stark access disparities in the time of COVID that have prevented billions from benefiting from remote working, learning and communication.

In September 2021, the Commission published [The State of Broadband - People Centred Approaches for Universal Broadband](#) with policy recommendations for a people-centred approach to achieving universal connectivity by 2030.

The Commission has issued calls to action and high-level manifestos, directed at key decision-makers at the G20, the United Nations and delegates at ITU's 2014 Plenipotentiary Conference. The Commission also leverages its high-profile [Commissioners](#) to spread the message of broadband for sustainable development at key events, conferences and functions.

EQUALS – promoting access, skills and ICT leadership for women and girls

[EQUALS](#), the Global Partnership for Gender Equality in the Digital Age, works to ensure that women and girls are given access, equipped with skills, and the opportunity to develop leadership potential to succeed in ICT. The partnership was founded in 2017 by ITU, UN Women, GSMA, ITC, and UNU.

More than 100 partners across 115 countries have cooperated in assuring the delivery of digital skills training and mentoring to over 52 000 women and girls. The initiatives ITU leads through EQUALS and regional offices are possible thanks to collaboration of partner governments and the private sector.

Achievements of the [EQUALS](#) partnership include:

- ITU and the Forum of Incident Response and Security Teams (FIRST), with Partnership support, launched a joint [mentorship programme](#) for empowering women in cybersecurity, with initial focus on the Arab and Africa regions.
- ITU and CISCO launched the [CISCO EQUALS Learning Space](#) – online training to build tech skills. The courses, for girls and young women, are self-paced and integrate live sessions delivered by Equals experts.
- The [EQUALS in Tech Awards](#) ceremony was held virtually during the [Internet Governance Forum](#) in December 2021 and included over 120 nominations from 34 countries.

- In September 2020, in partnership with the Enhanced Integrated Framework (EIF) and UNOPS, ITU launched [Tech as a driver of Women's Economic Opportunity](#). Targeting LDCs, this initiative enhances the digital ecosystem and builds digital skills. It has benefited women in Burundi, Ethiopia and Haiti and has resulted in 32 policies, strategies and regulations related to the digital economy being assessed on gender responsiveness.

Giga – working since 2019 to connect every school to the Internet

Launched in 2019, [Giga](#) is a UNICEF and ITU global initiative to connect every school to the Internet and every young person to information, opportunity and choice – and is supported by senior industry experts who advise the programme. Giga leverages financial and human resources, technical knowledge and assets to map, scale and finance school connectivity and the production, collection and delivery of high-quality educational content and digital public goods.

The initiative has been active in 19 priority countries, and is especially focused in Central Asia, Eastern Caribbean and Africa. Giga has:

- [Mapped](#) more than 1 million schools in 41 countries, with mapping under way in additional countries in Africa and Asia Pacific;
- Connected over 3 000 schools in Kenya, Rwanda, Kazakhstan;
- Raised over USD 22 million from global partners including Ericsson, Dubai Cares and the Musk Foundation;
- Advised participating countries on technical solutions that provide schools with connectivity. ITU's [Last Mile Connectivity Toolkit](#) will support Giga countries in achieving affordable school connectivity;
- Developed models for finance, including [an assessment of sustainable business models](#) by Giga Knowledge Partner Boston Consulting Group;
- Built on investments by UNICEF's [Venture Fund](#) in open source solutions to identify digital public goods that can be delivered and scaled by governments and local industry to make digital content, information and skills available to children, teachers, and administrators;
- Began working with countries across Central Asia, Eastern Caribbean and Africa, and new countries in Asia Pacific, South and Central America.

In February 2021 ITU signed an agreement with the UK Foreign, Commonwealth & Development Office (FCDO) to promote effective regulation, investment and innovative models for school connectivity in underserved communities in Kenya, Nigeria, Indonesia, Brazil and South Africa.

In 2021, Giga jointly held the first [Giga Ministerial Roundtable in Africa](#) with the Government of Rwanda to collaborate on closing the digital divide in Africa. The second Giga Ministerial focused on school mapping, discussed financing and connecting more schools.

The 2021 report of the Broadband Commission's Working Group on Digital Learning highlighted Giga's work: [Connecting Learning Spaces: Possibilities for Hybrid Learning](#). Giga's work was highlighted in the UN Secretary-General's Roadmap for Digital Cooperation Action Plan and [Our Common Agenda Report](#).

ITU's participation in the UN Secretary-General's activities on digital cooperation

The report in June 2019 of the [High-level Panel on Digital Cooperation](#) called [The Age of Digital Interdependence](#) included recommendations to improve digital cooperation. The Executive Office of the Secretary-General (EOSG) convened eight virtual roundtable groups to explore how each recommendation could be advanced. ITU was selected to champion Recommendation 1A (global connectivity) – together with UNICEF and Uganda – and for Recommendation 2 (digital help desks) – together with UNDP. ITU was also 'Key Constituent' for five other Roundtables on Recommendations: 1B (digital public goods); 1C/D (digital inclusion); 3C (artificial intelligence); 4 (digital trust and security); and 5A/B (digital cooperation architecture).

The Roundtables ITU is co-championing have provided inputs to the EOSG and have helped prepare the UN Secretary-General's Roadmap for Digital Cooperation ([A/74/821](#)). Since then, ITU has collaborated with the Office of the Secretary-General's Envoy on Technology, sister UN agencies, and constituents of the Roundtable groups (governments, private sector, and civil society) to support implementation of the Roadmap. ITU has been leading a multistakeholder working group to develop a framework for connectivity with preliminary outcomes the first quarter of 2022.

The Multi-Stakeholder Network on Digital Capacity Development was launched during the 2021 [Internet Governance Forum](#). ITU and UNDP launched the Joint Facility for Digital Capacity Development, which includes an [online platform](#) to serve the MSN by building a database of existing digital skills training and matching of outstanding demand to training offers – resulting in a more holistic approach to digital capacity development.

ITU's leading role on implementing [the Roadmap](#) was presented during the [High-Level Thematic Debate on Digital Cooperation and Connectivity](#), in April 2021. ITU participated in the internal consultation organized by the EOSG to prepare [Our Common Agenda](#), released in September 2021, which provides recommendations on future and current challenges. ITU is exploring follow-up to Our Common Agenda, focusing on digital cooperation.

ITU providing expertise to G20 leaders on accelerating ICT growth, development and innovation

G20 leaders recognize the potential of ICTs for advancing towards SDGs through promoting digitalization for all. In 2020 ITU provided support to the G20 Presidency as a knowledge partner on various tracks, including the G20's Digital Health Taskforce and 'Security in the Digital Economy'.

With other international organizations, ITU supported the G20 by providing expertise on accelerating ICT growth, development and innovation. Building on this, ITU led a study, [Connecting Humanity](#) (with support from the Kingdom of Saudi Arabia), that estimates the investment needed to achieve universal, affordable broadband connectivity for humanity by the end of this decade. The report was presented at the G20 Digital Economy Task Force meeting in July 2020.

ITU and World Health Organization partnering on Artificial Intelligence for Health

The [ITU/WHO Focus Group on Artificial Intelligence for Health \(FG-AI4H\)](#) works in partnership with the World Health Organization (WHO) to establish a standardized assessment framework for the evaluation of AI-based methods for health, diagnosis, triage or treatment decisions. The Group, through its Working Group on Ethical Considerations has produced a ["WHO guidance" on "Ethics & Governance of Artificial Intelligence for Health"](#). The report identifies the ethical challenges and risks associated with the use of artificial intelligence for health and provides six consensus principles to ensure AI works to the public benefit of all countries. It also contains a set of recommendations that can ensure the governance of artificial intelligence for health maximizes the promise of technology and holds all stakeholders – in the public and private sector – accountable and responsive to the

healthcare workers who will rely on these technologies, and the communities and individuals whose health will be affected by its use.

Additionally, the Working Groups on Regulatory Considerations and on Clinical Evaluation have produced documents that are also forthcoming as WHO publications.

Finally, the Open Code Initiative is developing a publicly available [reference implementation of the applicable deliverables](#).

ITU, World Meteorological Organization and UNEP are examining the potential of leveraging AI for natural disaster management

The [ITU/WMO/UNEP Focus Group on AI for Natural Disaster Management \(FG-AI4NDM\)](#) examines the potential of leveraging AI for natural disaster management. Accordingly, it is helping to lay the groundwork for best practices on the use of AI for detecting and forecasting natural disasters and providing effective communication.

ITU and Food and Agriculture Organization cooperate closely on AI and IoT for Digital Agriculture

The [ITU Focus Group on Artificial Intelligence \(AI\) and Internet of Things \(IoT\) for Digital Agriculture \(FG-AI4A\)](#) explores the potential of emerging technologies including AI and IoT in supporting data acquisition and handling, improving modelling from a growing volume of agricultural and geospatial data, and providing effective communication for interventions related to the optimization of agricultural production processes.

ITU, a trusted partner with a broad range of world-class organizations

ITU partners with a range of organizations as part of its daily work:

- *Radiocommunications.* ITU's Bureau of Radiocommunication (BR) continues its close cooperation with Regional Telecommunication Organizations (APT, ASMG, ATU, CEPT, CITEL and RCC); broadcasting organizations (ABU, ASBU, EBU and HFCC); and radiocommunication organizations (e.g. ITSO, ESOA, GVF, GSMA).
- *Cybersecurity.* ITU has partnerships with Commonwealth Cybercrime Initiative, ENISA, INTERPOL, ECOWAS, the World Bank, FIRST, and regional CSIRT/CERT associations, such as AP CERT, AFRICA CERT, and OIC CERT.
- *E-waste.* ITU has consolidated the [Global E- waste Statistic Partnership](#) founded in 2017 by ITU, United Nations University (UNU) and International Solid Waste Association (ISWA).
- *Smart cities.* ITU established the United for Smart Sustainable Cities ([U4SSC](#)) Initiative in 2016, with UNECE and UN-Habitat. The initiative is now supported by 14 UN bodies, namely, CBD, ECLAC, FAO, UNDP, UNECA, UNESCO, UNEP, UNEP-FI, UNFCCC, UNIDO, UNOP, UNU-EGOV, UN-Women and WMO. ITU is working closely with the Organization for International Economics Relations (OiER), Brazilian Network Information Centre (NIC.br) and Pan American Health Organization (PAHO).

1.10 Seminars, workshops and assistance

Each of the three ITU Sectors has reached out to, and worked with, countries, communities and constituencies around the world with invaluable knowledge, information and expertise – via thousands of workshops and seminars staged across the four-year period covered in this report.

ITU-R

World Radiocommunication Seminars (WRS), Regional Radiocommunication Seminars (RRS), and ITU Inter-regional Workshops on WRC Preparation were conducted. WRSs are held biennially, in complement to RRSs. WRSs address the use of radio-frequency spectrum and satellite orbits, in relation to the provisions of ITU Radio Regulations.

WRS-20 was a fully virtual event, and participation in plenary was open to all. The sessions covered general radiocommunication matters, the application of ITU Radio Regulations provisions and trends in radiocommunication services. 2020 WRS plenary sessions are available online: [Best of WRS-20](#) website.

Workshop participation was restricted to ITU Member States and Academia, and to ITU-R Sector Members and Associates. The workshops addressed space and terrestrial services and included lectures and practical sessions – allowing participants to greater familiarity with ITU notification procedures, and with the software and electronic publications available from the Radiocommunication Bureau to ITU membership.

ITU Regional Radiocommunication Seminars, organized by ITU-R, disseminated information worldwide in cooperation with ITU regional offices and organizations.

	Regional Radiocommunication Seminars (RRS)	World Radiocommunication Seminars (WRS)
2018	RRS-18-Asia&Pacific RRS-18-Americas	WRS-18
2019	RRS-19-Africa RRS-19-CIS SRME-19 Europe	
2020	RRS-20-Americas RRS-20-Asia&Pacific	WRS-20 (Virtual)
2021	RRS-21-Americas RRS-21-Africa RRS-21-Asia&Pacific	

	ITU Inter-regional Workshop
2019	3rd ITU Inter-regional Workshop on WRC-19 Preparation
2021	1st ITU Inter-regional Workshop on WRC-23 Preparation
2022 (planned)	2nd Inter-regional Workshop on WRC-23 Preparation

In addition, Satellite Communications Symposia and [satellite webinars](#) covered non-geostationary satellite systems for the provision of broadband service; innovations in geostationary satellite systems and the role of ITU in preventing and mitigating interference.

	Satellite Symposium and Webinars
2018	ITU Satellite Symposium 2018 Four workshops on satellite communications
2019	ITU Satellite Communications Symposium 2019
2020	Three ITU Satellite Webinars
2021	22 nd International Space Radio Monitoring Meeting

ITU-R with the African Telecommunication Union (ATU), launched the [optimization of the GE84 Plan](#) for African countries to meet their increasing need for additional frequencies. In 2020, four workshops on GE84 optimization for Africa helped build capacity and prepare countries for the [first frequency](#)

[coordination meeting](#) held virtually in February 2021. The [second frequency coordination meeting](#) took place virtually from 28 June to 2 July 2021.

ITU-R with ITU-D, are participating in the Action from the Policy and Regulatory Initiative for Digital Africa ([PRIDA](#)) project 'Increasing wireless broadband penetration through improved and harmonized spectrum utilization and regulations'. BR participated in online meetings to validate PRIDA Technical Reports and Guidelines in March 2021, and in three capacity building workshops:

- Modern spectrum management and related software (SMS4DC) in English, March 2020 (Zanzibar, Tanzania) and in French (online) May 2020;
- Internet of Things (IoT) and digital services (online), August (French) and September 2020 (English);
- Preparation of the National Table of Frequency Allocation (NTFA) (online), May 2021, followed by sessions for assistance to countries on developing their NTFA, June 2021 ([spectrum harmonization](#)).

Five regional ITU/ITSO Capacity Building Workshops on Satellite Communications were organized in: Minsk, Belarus, (CIS region, April 2019); Asuncion, Paraguay, (Americas region April 2019); Maputo, Mozambique, (Africa region in English, June 2019); Abidjan, Ivory Coast, (Africa region in French, July 2019); and Alger, Algeria, (Arab States, October 2019).

In 2018 and 2019, the [third](#) and [fourth](#) ITU Regional Frequency Coordination Meetings were held for Central America and the Caribbean Region on use of the VHF band and UHF band.

BR has contributed to the revision and updating of the ITU Academy ([SMTP](#)) training material.

In addition to the previous activities, ITU-R provided help to regions and ITU administrations, as follows:

- Mongolia, to review the national radio frequency spectrum charging regime and amendments to national laws on frequencies;
- Solomon Islands and Vanuatu, to develop a national type approval regime for short-range wireless devices;
- More than 15 workshops and trainings to raise awareness and build skills on spectrum management and trainings in Asia-Pacific;
- Assistance to the Ministry of Science, Energy and Technology and the Spectrum Management Authority of Jamaica in developing a national spectrum licence framework;
- [Third annual CIS region and CEE spectrum management conference](#) and ITU workshop on interference-free communication (Minsk, Belarus);
- Workshops and seminars in CIS to discuss the future of television, the mapping of terrestrial broadband infrastructure and services and radiocommunication matters;
- Assistance within Korean projects related to spectrum management basics and Spectrum Management System for Developing Countries (SMS4DC);
- SMS4DC Technical training in Vientiane, Lao PDR.

ITU-T

[ITU-T workshops, forums and symposia](#) discuss emerging trends in standardization, increase the visibility of ITU-T work, enhance ITU-T collaboration with other bodies, attract potential candidates

for ITU-T membership, and encourage peer learning. All ITU-T workshops, forums and symposia were held virtually, resulting in greater diversity and higher numbers of participants.

Key indicators associated with workshops, forums and symposia are set out below – covering topics from 5G to the environment, smart cities, intelligent transport systems, artificial intelligence (AI), disaster risk reduction and more.

	Number of workshops (total) (as of 1 Nov 2021)	Number of workshops (virtual only) (as of 1 Nov 2021)
2018	53	0
2019	56	0
2020	46	37
2021	44	44

ITU-D

In 2020, workshops and seminars covered various topics, ensuring progress was made on priorities: innovation, digital inclusion, capacity development, digital services and applications, cybersecurity, emergency telecommunications, environment, network and digital infrastructure, policy and regulations, and statistics. Despite global lockdowns, our work continued, leaving its mark around the world, focusing on least developed countries (LDCs), small island developing States (SIDS) and landlocked developing countries (LLDCs).

Several regional capacity development workshops helped countries address knowledge and skills gaps in the ICT sector with a view to boosting digital skills.

Member States and other stakeholders benefited from workshops and training sessions on emergency telecommunications and the development of national emergency telecommunication plans.

From September to November 2020, online cybersecurity simulation events involved 3 000 participants as part of the [2020 Global Cyberdrill](#). This included six regional dialogues, three webinar sessions, six training sessions and six scenario-based exercises to help Member States manage cyber risks and enhance communication and incident response of CIRTs and CSIRTs.

PRIDA, a joint initiative of the African Union, the European Union and ITU, ran eight capacity building workshops training 573 engineers from regulatory authorities belonging to 48 African countries.

ITU-D Study Groups organized web dialogues to share analysis of the response to COVID-19 from the perspective of specific ITU-D Study Group questions. The [dialogues](#) focused on how to leverage ICT in the current COVID-19 crisis to ensure business continuity contributes towards social goals and fair innovation opportunities.

In 2019, over 100 workshops and seminars were conducted. Several regional capacity development workshops helped countries address the knowledge and skills gaps in the ICT sector with a view to people acquiring the necessary digital skills to flourish in the digital economy.

Together with partners, regional Cyberdrills were conducted in 2019 to help countries increase their cybersecurity capabilities and build trust and confidence in the use of ICTs (see Section 1.6 for more detail).

The role of emerging technologies such as AI and the design of innovative digital solutions to improve the quality of life of persons with disabilities, were among the top takeaways from two major ICT accessibility events in the Americas and Europe regions (see Section 1.5 for more detail).

Four regional training sessions on ICT data collection and measurement were held in 2019 to help policy-makers and regulators formulate better, evidence-based policy and to identify gaps in access to ICTs.

1.11 Key events

In the face of COVID, ITU has continued the important business of bringing together those constituencies that matter, on the platforms that matter – to forge ongoing momentum and progress towards achieving the SDGs through universal access to ICTs.

World Telecommunication and Information Society Day (WTISD)

The World Telecommunication and Information Society Day (WTISD) is held annually on 17 May.

The theme for [WTISD 2021](#) was ‘Accelerating Digital Transformation in challenging times’ and provided an opportunity for ITU membership to push for digital transformation by promoting national strategies on ICT development, smart policies to encourage investments, cooperation, and partnership. It concluded with a [Call to Action](#).

The theme for WTISD 2020 was [Connect 2030: ICTs for the Sustainable Development Goals \(SDGs\)](#), underlining ITU’s commitment to connect everyone, everywhere ([Resolution 200](#) (Rev. Dubai, 2018)). Fully virtual for the first time, ITU partners showcased how ICTs accelerate the achievement of the SDGs, and how ICTs can respond to the COVID-19 pandemic. Stakeholders demonstrated how they supported business continuity, while highlighting ICTs’ potential in enabling development – and underlined the importance of collaboration across countries and sectors.

WTISD marked its 50th edition in 2019. [Bridging the Standardization Gap](#) promoted the participation of developing countries in ITU’s standardization process and focused on empowering local experts in this process at the national, regional and international levels, as well as promoting international standards in developing countries.

WSIS Forum

The World Summit on the Information Society (WSIS) Forum 2021, convened virtually from January through May due to the COVID-19 pandemic, hosted more than 250 sessions – including workshops, live interviews, WSIS TalkX, a high-level track, Hackathon, etc. The theme was ‘ICTs for inclusive, resilient and sustainable societies and economies (WSIS Action Lines for achieving the Sustainable Development Goals)’. Additional information is available [online](#).

WSIS Forum 2020 convened virtually from June through September 2020 in the context of COVID. The theme was ‘Fostering digital transformation and global partnerships: WSIS Action Lines for achieving the Sustainable Development Goals (SDGs)’. The Forum had a cumulative attendance of over 15 000 attendees from around 150 countries taking part in 160 virtual sessions with 850 different speakers. Outcomes and publications of WSIS Forum 2020 are available [online](#).

Held from 8 to 12 April 2019 in Geneva, Switzerland, WSIS Forum 2019, co-organized by ITU, UNESCO, UNCTAD and UNDP, in collaboration with all UN agencies, drew over 3 000 participants. It featured over 300 sessions from over 150 countries and over 500 high-level representatives of the wider WSIS stakeholder community. The Forum enabled participants to foster partnerships, exchange best practices, and showcase innovation, while announcing tools and initiatives. Highlights and outcomes of the WSIS Forum 2019 are available [online](#).

WSIS Prizes 2020 and 2021

1 286 projects were submitted for [WSIS Prizes 2021](#), the highest number since the contest launched in 2012. Stakeholders shared best practices and innovative ICT-related initiatives and projects to accelerate SDGs. 18 winners and champions were recognized at [WSIS Forum 2021](#). Winning projects are included in 'WSIS Stocktaking: Success Stories 2021', and descriptions are included in the WSIS Stocktaking Report 2021.

In 2020, the [WSIS Prizes](#) recognized initiatives from governments, the private sector, civil society and academia that support the implementation of WSIS Action Lines for accelerating the SDGs. 806 projects were submitted by WSIS stakeholders, and 90 champions selected, based on two million stakeholder votes. During the final week of WSIS Forum 2020, 18 winners of WSIS Prize 2020 were announced and virtual sessions organized for global promotion of their innovative projects. Further information is available here: [ImeetyouatWSIS](#).

In 2019, there were 1062 nominated projects to the WSIS Prizes.

WSIS Stocktaking 2020 – 2021

In 2020, WSIS Stocktaking launched its annual [WSIS Stocktaking Global Report](#). This 11th edition reflected 776 activities relating to ICTs for development, submitted to the [WSIS Stocktaking Platform](#), 2 July to 29 November 2019. Six biennial WSIS Stocktaking Regional Reports were prepared, and the special report on the ICT Case Repository on the Coronavirus Response was also published. The WSIS Stocktaking reports for 2019 and 2018 can be found here: [2019](#), [2018](#).

ITU Kaleidoscope

ITU Kaleidoscope events, held annually in different parts of the world, increase dialogue between ICT standardization experts and academia. By viewing technologies through a 'Kaleidoscope', these forward-looking events identify new topics for standardization.

[Kaleidoscope 2021: Connecting physical and virtual worlds](#), online 6 to 10 December 2021, explored research on the development of persistent virtual realities and customized computer-generated environments – and on new possibilities and challenges.

[Kaleidoscope 2020: Industry-driven transformation](#), online 7 to 11 December 2020, looked at opportunities for industry stemming from innovation in artificial intelligence and machine learning, cyber-physical systems, virtual simulation, digital twins, augmented reality, 5G and future networks. Learn more about the [winning and runner-up papers at Kaleidoscope 2020](#).

Hosted by the Georgia Institute of Technology in Atlanta, Georgia (US), the [2019 edition of Kaleidoscope](#) was themed: 'ICT for Health: Networks, standards and innovation'. Participants included specialists in ICT, digital health and socio-economic development: researchers, academics, students, engineers, computer scientists, policy-makers, regulators, innovators, futurists, clinicians and health practitioners.

[Kaleidoscope 2018: Machine learning for a 5G future](#) was hosted by Universidad Tecnológica Nacional, Santa Fe, Argentina. The conference considered research on machine learning and artificial intelligence techniques for future communication networks, covering all aspects of network design, management, implementation and optimization.

AI for Good

AI for Good is a year-round digital platform where AI innovators and problem owners learn, build and connect to identify practical AI solutions that advance the SDGs. The platform is organized by ITU in partnership with 38 UN sister agencies, XPRIIZE Foundation, ACM, and co-convened with Switzerland.

The 2021 AI for Good edition is a joint effort between ITU and more than 40 UN agencies and bodies, as well as members of the UN Interagency Working Group on AI. It includes detailed analysis on the nature of tools developed, the level of multistakeholder partnerships and the impact of activities on specific SDGs. The 2021 edition was launched during the World Telecommunication/ICT Policy Forum held virtually (from 16 to 18 December 2021).

The 2021 edition of AI for Good continued as an all-year, always online programme. In mid-March, AI for Good launched the [AI for Good channel on YouTube](#) – exploring ideas, insights and active discussions around AI to achieve the SDGs. The AI for Good channel hosts hundreds of videos highlighting AI leaders and innovators throughout the four years of the Summit. The channel is a one-stop shop to catch up on trends in AI for Good.

In 2020, the [AI for Good Global Summit](#) was transformed into an always online, all-year digital platform, with weekly and daily programming. The Summit offers services demonstrating how AI helps achieve the SDGs. Switzerland joined as a co-convenor of the Summit.

The 2019 Summit, 28 to 31 May 2019, attracted over 2 300 participants, from over 90 countries. Over 270 delegates were from developing countries and close to 40 per cent were women. It also attracted international, multilingual media coverage from BBC, CNN and Forbes. ‘Breakthrough Tracks’ were AI and health; AI and education; AI and human dignity and equality; Scaling AI; and AI for space, with sessions on the future of smart mobility; AI and agriculture; AI’s role in arts and culture; AI and robotics; and the unintended consequences of AI. The Summit showcased exoskeletons, autonomous cars, and AI-powered health solutions — and gave rise to ‘AI Commons’, collaboration to achieve AI for Good problem-solving at scale. This led to the launch of the [Global Initiative on AI and Data Commons](#) in early 2020.

The 2018 [AI for Good Global Summit](#) identified practical applications of AI and supporting strategies to improve the quality and sustainability of life on our planet. The Summit formulated strategies supporting safe and inclusive development of AI technologies and equitable access to their benefits.

Following the 2018 AI for Good Global Summit, ITU issued the ‘Compendium of UN Activities on Artificial Intelligence’ highlighting activities carried out by the UN system. An online AI for Good Gateway showcases stakeholder efforts on AI with a special area devoted to UN activities highlighted in the compendium.

ITU AI/Machine Learning in 5G Challenge

The first [ITU AI/Machine Learning in 5G Challenge](#) in 2020 studied the practical application of AI/ML in emerging and future networks, bringing together 1 300 competitors from 62 countries – and 911 teams. The ITU Challenge connected competitors, partners in industry and academia with new tools and data resources to solve real-world problems with AI/ML – focused on 20 problem statements contributed by industry and academia hosts. New ITU standards for AI/ML provide toolsets that form an end-to-end pipeline for AI/ML integration in networks. The ITU Challenge aims to demonstrate and validate these ITU standards.

The best peer-reviewed papers from the first Challenge featured in [Volume 2 \(2021\), Issue 4 – AI and machine learning solutions in 5G and future networks](#) of the ITU Journal on Future and Evolving Technologies (ITU J-FET).

The [second edition of the Challenge](#) launched in February 2021 to provide reference implementations of an end-to-end ML pipeline as defined by [Recommendation ITU-T Y.3172](#).

Global Symposium for Regulators (GSR-21)

The 21st Global Symposium for Regulators Programme ([GSR-21](#)), online, April to June 2021, featured regional and core sessions. Core sessions attracted 637 participants, including 439 delegates representing 115 Member States focused on ‘Regulation for digital transformation – Accelerating inclusive connectivity, access and use’. Discussions examined challenges to regulators and policy-makers during the pandemic and looked at building forward better to bring affordable, accessible, meaningful, trusted, safe, and high-quality connectivity to people everywhere. GSR-21 core sessions featured training on emerging technologies, the role of youth in the future of regulation and the promotion of women’s leadership in the ICT regulatory space. Access the GSR-21 Chairman’s report [here](#). Access the GSR-21 Best Practice Guidelines [here](#).

Global Symposium for Regulators (GSR-20)

The 20th edition ([GSR-20](#)) held online ‘The Regulatory Wheel of Change: Regulation for Digital Transformation’ focused on providing guidance on achieving meaningful connectivity. The global platform, GSR-20, assembled regulators and policy-makers and included high-level panels on topical regulatory issues, interactive sessions and trainings. GSR-20 enabled ITU members to share experiences and knowledge, to collaborate and identify evolving regulatory tools that bring affordable, safe, secure and trusted connectivity to people everywhere. GSR-20 attracted 609 participants from 120 countries in core sessions. Access the Chairman’s report [here](#). Access the GSR-20 Best Practice Guidelines [here](#).

Global Symposium for Regulators (GSR-19)

[GSR-19](#), Port Vila, Vanuatu, from 9 to 12 July, attracted over 325 participants including government ministers, heads of regulatory authorities and C-level industry executives from 64 countries. ‘Inclusive connectivity: The future of regulation’ saw participants explore actionable, collaborative and innovative outcome-based approaches to regulation as unlocking accelerated progress towards the SDGs. Regulators endorsed a set of [best practice guidelines](#) to fast forward digital connectivity for all. Access the Chairman’s report [here](#). Access the GSR-19 Best Practice Guidelines [here](#).

Global Symposium for Regulators (GSR-18)

[GSR-18](#), Geneva, Switzerland, 9 to 12 July, attracted over 600 participants – including government ministers, heads of regulatory agencies and C-level industry executives from more than 125 countries – under the theme: ‘New regulatory frontiers’. Access the Chairman’s report [here](#). Access the GSR-18 Best Practice Guidelines [here](#).

ITU Telecom World 2019 and Digital World Events

[ITU Telecom World 2019](#), 9 to 12 September, Budapest, Hungary, assembled governments, corporates and tech SMEs to exhibit innovative solutions, network, share knowledge and debate with experts under the theme ‘Innovating together; connectivity that matters’. Over 4 000 participants from 135 countries attended the event. The event included high-level debate, dialogue between business, a raft of innovative SMEs in technology and governments, networking and a high-profile Awards Programme and ceremony. Winning innovations from SMEs and major corporates showcased online education, 5G airships and drones, green 5G, digital addressing, transforming digital heat from data-centres,

nanosatellites and enabling barrier free emergency calls. Event highlights can be found in the [post-event report](#) as well as [online](#).

ITU [Virtual Digital World 2020](#), 20 to 22 October, featured ministerial roundtables on 'The role of digital technologies during and after the COVID-19 pandemic' and explored digital connectivity in national strategies for economic recovery. Forum webinar sessions explored policies, technologies and trends driving the digital economy, and a virtual exhibition enabled online showcasing. The virtual event comprised three forum sessions and three ministerial roundtables, with 83 speakers including 27 ministers and 13 regulatory authority representatives. The virtual exhibition featured more than 150 exhibitors from Viet Nam and global companies, and ten national pavilions from around the world. The ITU Digital World 2020 [Virtual SME Awards](#) and [masterclasses](#) took place online in November and December 2020.

ITU [Digital World 2021](#), online, September to December 2021, marked the 50th anniversary of ITU Telecom events and focused on: digital transformation; infrastructure essential to digital transformation; funding and facilitating of digital transformation through policy discussions with ministers, heads of regulators and tech sector leaders; and factors accelerating digital transformation, including AI, cybersecurity, digital skills and sustainability. Access information on the SME online masterclasses [here](#). Event highlights can be accessed [here](#).

The event comprised nine forum sessions, five ministerial roundtables and three sponsored sessions, with a total number of 155 speakers including 31 at ministerial level and 12 regulators. In terms of Virtual Exhibition booths, there were 124 business booths from Vietnam and global companies, and five national pavilions from around the world.

The ITU Digital World Awards and SME Programme supported and recognized innovative ICT-based solutions with social impact, with categories for entrants selected through a mix of feedback from events, analysis of past SME exhibitors and research into global trends. SME Masterclass sessions (7) and SME Awards & Programme sessions (6) = Total of 13 sessions for SME Programme; considering that ITU PP Resolution 11 states "12 that the Union should, in collaboration with its Member States and Sector Members, consciously increase the participation of SMEs in ITU events by scheduling issues of importance to SMEs throughout the events' programmes and enabling SMEs to speak on the regulatory and bureaucratic issues as they affect them".

WTPF-21

The [Sixth World Telecommunication Policy Forum](#), held virtually from 16 to 18 December 2021, was themed 'Policies for mobilizing new and emerging telecommunications/ICTs for sustainable development'. WTPF-21 discussed how new and emerging digital technologies and trends are enablers of the global transition to the digital economy. Themes for consideration include AI, IoT, 5G, Big Data, OTTs, etc., providing participants with a platform to focus on opportunities, challenges and policies to foster sustainable development.

Five Draft Opinions were considered:

- Draft Opinion 1. Enabling environment for the development and deployment of new and emerging telecommunication/ICT services and technologies to advance sustainable development
- Draft Opinion 2. Affordable and Secure Connectivity in mobilising New and Emerging Telecommunications/ICTs for Sustainable Development
- Draft Opinion 3. Digital literacy and skills for inclusive access

- Draft Opinion 4. New and emerging technologies and services to facilitate the use of telecommunications/ICTs for sustainable development
- Draft Opinion 5. Use of telecommunications/ICTs in COVID-19 and future pandemic and epidemic preparedness and response

2. Other key activities by the secretariat to support ITU membership

The ITU secretariat (through its three Bureaux and the General Secretariat) continues to refine and improve services for ITU members. This chapter summarizes important membership initiatives undertaken in the period 2018 to 2021 on four aspects of ITU services: the operation of its governing bodies; state-of-the-art collaborative tools; adjusting the structure of functional units to align with challenges and opportunities that arise from an increasingly digital society; and strengthening support services to ITU membership.

2.1 ITU-R: Radio Regulations Board (RRB), meetings, decision-making

The RRB continued work throughout 2018 and 2019 (six physical meetings), 2020 (three virtual meetings) and 2021 (one mixed and two virtual meetings). These meetings reviewed the Rules of Procedures in response to WRC-15 and WRC-19 decisions and reflected on cases of general practice. The Board made decisions on:

- Twenty-eight submissions from administrations requesting the extension of the regulatory deadline to bring into or bring back into use frequency assignments to satellite networks;
- Fifteen cases to maintain or suppress satellite networks in the MIFR, based on examinations under RR No. 13.6 by the Bureau;
- Situations of harmful interference reported to the Board that could not be resolved between affected administrations.

2.2 ITU-T: improving service quality for ITU members

TSB has developed modern tools and has made significant improvements to Bureau working methods, improving service quality for its membership. 2020 and 2021 saw significant upgrades to ITU-T's electronic working environment and the value it offers – virtual meetings and electronic working methods now form the principal platform for ITU standardization work as part of the global response to COVID-19 (see Section 1.8).

The ITU membership engaged in standards development and in preparations for the ITU World Telecommunication Standardization Assembly (WTSA-20) are making optimal use of the personalized [MyWorkspace](#) platform and associated services and tools, such as MyMeetings, developed by TSB.

Important improvements include:

- MyWorkspace. [MyWorkspace](#) is a set of mobile-friendly tools and services introduced in 2017 in response to WTSA Resolution 32 to facilitate the work of ITU-T experts. Version 3.2 of the platform, released in November 2020, enhances the user interface with a simpler design and improved performance. MyWorkspace is accessible through a web application (PWA) allowing users to use the platform with ease on devices with no additional installation. Secure access to MyWorkspace is enabled through ITU User Account (TIES) credentials. The following services are available from the platform:

- [MyMeetings](#): Remote participation service based on an open-source solution customized in-house to support both statutory and non-statutory ITU-T meetings;
 - [ITU-T Chatbot](#): Instantaneous assistance to ITU-T members during MyMeetings sessions;
 - [MyEvents](#): Events management providing a real time ITU-T events agenda, lists of participants, speakers, and exhibitors, and a participant networking function;
 - [ITU Translate](#): Machine translation tool based on neural network technology, and trained on official translations of ITU documents with support to the six official languages;
 - [ITU-T Cloud](#): ITU premises storage service allowing users to share and exchange files up to 10 GB per user;
 - [Calendar](#): Monthly calendar view of all ITU events with filters on ITU sectors and ITU-T working groups;
 - [Documents](#): Quick access to SG meeting documents with full-text search, extensive filtering and sorting capabilities, and the ability to get machine translation of documents that are not covered by human translation (e.g. [SG 2 E-Meeting, 18 December 2020](#));
 - [Mailing](#): Subscription management with search function;
 - [Community](#): MyWorkspace user's directory;
 - [Profile and preferences](#): User personal information and interests.
- ITU-T SharePoint collaboration sites: participants in ITU-T working groups can conduct online discussions, work on projects, schedule meetings and manage and store documents in a secure shared environment. Most collaboration sites are restricted to ITU-T Sector Members and offer access via a TIES account. Some collaboration sites are open to non-members, accessible via non-member ITU accounts;
 - Document Management System for Rapporteur Groups – The Microsoft SharePoint-based Document Management System for ITU-T Rapporteur Group Meetings (RGMs) is one of several services available in the ITU-T SharePoint collaboration sites used extensively by ITU-T SGs, as well as TSAG. Rapporteur feedback drives the continuous improvement of the RGM system;
 - Meeting Documents Sync Application: enables meeting participants to synchronize documents of ongoing ITU-T SG meetings from the ITU server to their local drive. Constantly enhanced, the application is updated following feedback and suggestions from users;
 - Editing Workflow – business process management internal tool for ITU-T Publications editing and web publishing;
 - Alternative Approval Process System – online solution to apply the ITU-T A.8 simplified procedure for seeking approval of draft new and revised Recommendations;
 - ITU-T Work Programme – suite of Windows and web applications to follow ITU-T Working Group structure and work items;
 - ITU-T Liaison Statements – online application to access the ITU-T Liaison Statement database;
 - Events Dashboard – business process management solution for ITU-T event organization;
 - ICT Standards Landscape – online tool maintained by designated experts to support the standardization for an ICT domain (e.g. Security, IoT and SC&C, etc.) by identifying existing standards, standards that are currently under development, and key areas where a standard is needed;
 - IPR Database – enables users to access ITU-T Recommendations patents and software copyright declarations ([ITU-R and ITU-T Recommendations Patent Statement](#));
 - ITU-R/ITU-T Terms & Definitions Database – lets users access all ITU-T Recommendations terms and definitions ([ITU Recommendation System](#));
 - ITUSearch – search engine for all ITU digital resources (publications, documents, web pages, social media, ...);
 - Business Intelligence – solutions based on Power BI and Google Analytics to extract statistics on ITU-T activities;

- SDG Mapping – automatic mapping of ITU-T activities with UN SDGs by evaluating semantic relevance of texts;
- Biography Self-Service System – aids event organizers in seeking experts and helps them maintain the invitee's biography up-to-date on the event website;
- Voice Diarization – speaker's voice recognition and segmentation from recorded meeting.

2.3 ITU-D: journey of change – a BDT Fit4Purpose

In 2019, BDT began a process of change to create a Bureau that keeps pace with a fast-changing environment, one that responds effectively to the needs of Member States and Sector Members – a Fit4Purpose BDT that is more relevant and delivers results. Following internal consultations, BDT has adopted innovative ways of working that will ensure implementation of the [Buenos Aires Action Plan](#).

The BDT journey of change is participatory and consultative, relying on feedback and discussion with Member States and Sector Members. BDT's digital transformation through meaningful connectivity is people-centric, with a focus on listening to those people that BDT is trying to reach, allowing for a better assessment of what needs are to be met.

The COVID pandemic has turned our world upside down. Over the course of 2020, BDT has embraced digital solutions, developing new ways to deliver services – effectively creating a new normal. Not only has it allowed BDT to continue its work despite the circumstances, but it has also helped us come closer together, to be more available to our membership and to adjust to the times in which we are living. This is the 'fit4purpose BDT' that we want to build: a Bureau that is agile, that embraces new tools and approaches, and that delivers the services the ITU membership needs – in partnership with a growing range of organizations. BDT has shown its ability to adapt to changed circumstances and is an excellent illustration of what a 'fit4purpose BDT' is all about: working on the BDT vision to connect the unconnected.

2020 highlights for a fit-for-purpose BDT

- New Project Management Manual strengthening projects by aligning language, tools and processes across all project phases;
- Leadership culture assessment to lead by example;
- BDT process reviews to streamline processes and achieve efficiency;
- The 'Web We Want initiative' to build a new, revamped ITU-D website;
- The Regional Presence Review to strengthen BDT's work and coordination on the ground;
- Onboarding and welcoming of new staff;
- New approaches to operational and resource-based management planning;
- Town-hall meetings to keep BDT staff informed and engaged;
- BDT senior management retreat to align on common goals and strengthen engagement;
- A resource mobilization strategy to bring in resources for greater impact;
- Second cohort on project management;
- Third cohort of change agents.

2021 highlights for a fit for purpose BDT

- Improvements on internal controls and accountability, including modernization of multiple management systems through the IT4BDT project;
- Leadership culture assessment;
- Internal capacity assessment and development plan;
- Enhancement of the BDT change network;
- Operationalization of the Projects Board;

- Continuation of town-hall meetings to keep BDT staff informed and engaged;
- Process review;
- Resource mobilization strategy;
- Innovation (iCodi);
- Strengthening internal communications;
- Development of enhanced management dashboards and visualizations;
- Strengthened approach to RBM.

C4C (Champions for Change) News

BDT's initial change process has been 'turbo-charged' by the pandemic. Everyone found themselves in an entirely new working environment, adapting and riding the added pressures of the change while advancing towards a 'fit4purpose' BDT in a new global context. There is increased urgency to deliver to serve Member States whose populations, institutions and economies are highly challenged and need the assistance of BDT. Existing plans and programmes have been quickly reconfigured in responding to new demands – and the opportunity to advance connectivity. Over the past 12 months, 34 staff members have undertaken change management training – and have in consequence brought new approaches to their work, contributing to a number of key BDT initiatives.

2.4 General Secretariat

ITU and the environment

ITU continues to address its own environmental footprint. Several greening activities have been undertaken and ITU measures its yearly footprint in the context of the UN-wide Greening the Blue initiative, as well as the Geneva based [2050Today](#) initiative. As per the UN 'Greening the Blue Report 2021', covering 2020 data, ITU's overall worldwide operational footprint reduced by 46 per cent compared to 2019. The halt of most missions alone accounted for a reduction of more than 1 600 tonnes of CO₂ compared to 2019 – 86 per cent compared to the 2019 emissions from mission flights issued by the ITU Travel Section. Following the Council endorsement of document [C21/68](#), ITU's management has approved Targets in the context of the ITU Environmental Management System and ITU continues its efforts to align with and implement the UN Sustainability Strategy 2020-2030.

Enhancing efficiency and effectiveness of the organization

To develop long-term managerial strategies for the organization, sustain performance and relevance of expertise, enable informed decision-making and demonstrate the impact of ITU's work, several projects/initiatives have been undertaken, in coordination between the General Secretariat (GS) and the Bureaux, including:

- Results-based management/development of delegation of authority framework;
- Implementation of the Risk Management Action Plan (i.e. the COSO framework and the three lines model);
- Strengthening the ITU Accountability Framework;
- Development of the ITU Compliance Dashboard;
- 'Leadership Cultural Assessment' and the 'Cultural Diagnosis and Skills Gap'.

ITU Sector Members, Associates and Academia: key stakeholder groups in ITU's activities

ITU Sector Members, Associates, and Academia play a fundamental role in the activities of the Union. ITU's global membership includes companies, universities, research institutes, and international and regional organizations that represent a cross-section of the global ICT sector, from the world's largest manufacturers and carriers to small, innovative players working with new and emerging technologies.

The ITU secretariat continued implementing a coordinated strategy to reach out to new audiences to grow and diversify ITU's membership, while applying a customer-centred approach to improve the services provided to its members, so that they are engaged, involved and empowered by ITU activities.

An important element of this coordinated outreach has been the strengthening of internal capacity, and implementation of digital marketing campaigns to reach new audiences. With the shift to virtual events in 2020 and 2021, effective digital marketing and ITU-wide promotional efforts led to significant increases in participation in various events across the Sectors and General Secretariat. Thousands of new experts joined ITU webinars and downloaded ITU publications and news. Engaging this growing community will be key to strengthening ITU membership in the coming years.

ITU membership has grown

Engaging current members and retention are also central to the strategy. Improved analytics, surveys and reporting are helping the secretariat better understand the needs and interests of members and their participation, including identifying areas for improvement and memberships 'at risk'. In this way, the secretariat can better target efforts within its limited resources. The secretariat also highlighted the work of members through ITU News articles and ITU News Magazines.

Box 1. ITU Membership Survey 2021

High response rate: 21% of ITU membership from 55 countries. Good representation between Sectors, categories and regions.

- Very high level of satisfaction:
 - **96.3% (98% in 2020) of respondents are satisfied/very satisfied with ITU.**
 - **98.1 (99% in 2020) are satisfied/very satisfied with the value they get from their membership.**
- Main areas of interest:
 - **5G (66%, 71% in 2020), standards (53%, 57% in 2020), Internet of Things (54%), artificial intelligence (38%, 50% in 2020), smart cities (35%, 37% in 2020), digital transformation (35%, 37% in 2020), infrastructure (35%, stable), cybersecurity (35%, 34% in 2020), and satellite (34%, 32% in 2020).**
- 62% of respondents have attended between 1 and 5 meetings/events in 2021; 49% of respondents claimed to have increased their participation in ITU events due to COVID and the shift from physical to virtual format. This trend will certainly continue as 44% of respondents are planning to increase their participation over the next two years (only 6% plan to decrease).
- 74% of respondents plan to participate to Study Groups in 2022, 53% plan to attend Webinars, Workshops & Seminars, 36% plan to attend Global Events and 35% plan to attend Regional events.

Despite the challenges of COVID, the global economic slowdown, and resulting consolidation in the industry, ITU membership remained stable – even growing reaching a new high of 940 entities and 1,268 memberships across the three sectors as of 1 November 2021 (see figure below for details by sector/type of membership).

Membership by Sector/type (2018 - 2021, as of 1 November 2021).

Sector	Membership type	2018	2019	2020	2021
ITU-R	Sector member	263	271	274	277
	Associate	20	21	22	27
ITU-T	Sector member	255	264	272	268
	Associate	153	179	196	217
ITU-D	Sector member	303	304	296	301
	Associate	13	16	20	17
Academia	Academia	148	158	163	161

Facilitating the participation of SMEs in ITU's work

An estimated ten per cent of ITU's current membership, mainly Associates, could be considered as SMEs. As per Resolution 209 (Dubai, 2018) of the Plenipotentiary Conference, with the support of Member States, ITU has encouraged qualified SMEs to join as Associates in ITU-R and ITU-T study groups, through reduced fees. Since the start of this reduced fee option in 2020, with significant digital marketing and outreach, ITU has welcomed 46 SMEs, with 38 in ITU-T and eight in ITU-R (as of 1 November 2021).

Qualifying SMEs from developed countries now pay CHF 3 975 a year, and those from developing countries pay CHF 1 987.50 a year to participate in one Study Group, compared to the standard fee of CHF 10 600 for ITU-R and ITU-T. Associates in ITU-D Study Groups already pay these fee amounts. Member States qualify SMEs according to national definitions, but the Plenipotentiary Conference (Dubai, 2018) set an upper limit of a maximum of 250 employees and Council at its 2019 session set the maximum revenue at CHF 15 million a year.

In addition to ITU Study Groups and Focus Groups, which welcome SME participation, ITU also has specific activities and platforms tailored for SMEs, including the ITU Digital World programme for SMEs (see Section 1.11), with online master classes and SME Awards, as well as the ITU Smart Incubator programme, ITU Innovation challenges, AI for Good Innovation Factory and ITU training, among others.

3. ITU strategic plan implementation: progress towards strategic goals and objectives

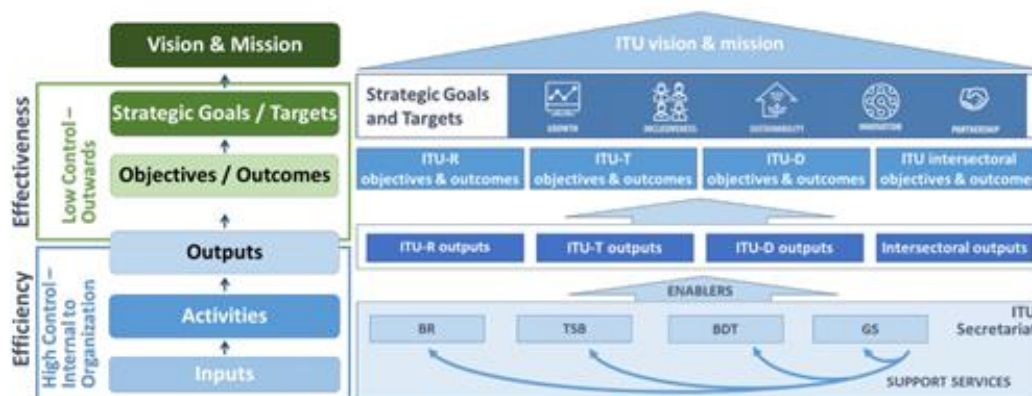
The 2018 Plenipotentiary Conference adopted the Connect 2030 Agenda as part of ITU's strategic plan for the 2020-2023 quadrennium. At the heart of the Agenda and the ITU strategic plan are five goals. These include 24 strategic targets designed to track progress and to help ITU and stakeholders focus on their priorities. These goals/targets are closely aligned with how ITU's work impacts people's lives and are clearly reflected in sectoral and inter-sectoral objectives. The contribution made by the ITU secretariat (GS and Bureaux) is assessed by the 'enabler' indicators which provide a read-out on the efficiency of the support services and their performance in achieving outputs. This layer of the results framework is under the control of ITU.

Progress towards the strategic goals and objectives

Progress in implementing the strategic plan is assessed through indicators at different levels in the ITU results framework (see figure below). Progress towards goals and objectives is measured by:

- **24 targets** at the impact level;
- **64 outcome indicators.** This layer of the results framework is composed by: ITU-R: 3 objectives and 15 outcomes; ITU-T: 5 objectives and 14 outcomes; ITU-D: 4 objectives and 16 outcomes; inter-sectoral: 6 objectives and 19 outcomes;
- **40 enabler indicators.**

The sections below present a summary of the dashboards showing the assessment of ITU performance.



The analysis of the results in the charts below, showing progress towards the strategic targets, highlights the following conclusions (see ITU's [Facts and Figures 2021](#)):

- **Internet uptake has accelerated during the pandemic:** The latest ITU data show that uptake of the Internet has accelerated during the pandemic. In 2019, 4.1 billion people (or 54 per cent of the world's population) were using the Internet. Since then the number of users has surged by 800 million to reach 4.9 billion people in 2021, or 63 per cent of the population. In 2020, the first year of the pandemic, the number of Internet users grew by 10.2 per cent, the largest increase in a decade, driven by developing countries where Internet use went up 13.3 per cent. In 2021, growth has returned to a more modest 5.8 per cent, in line with pre-crisis rates.
- **Modest narrowing of the divide between the world's most and least-connected countries:** Between 2019 and 2021, Internet use in Africa and the Asia-Pacific region jumped by 23 per cent and 24 per cent, respectively. Over the same period, the number of Internet users in the least developed countries (LDCs) increased by 20 per cent and now accounts for 27 per cent of the population. Growth has been necessarily much weaker in developed economies, given that Internet use is already almost universal, at more than 90 per cent. This growth differential has contributed to a modest narrowing of the divide between the world's most and least-connected countries: for example, the divide between developed economies and the LDCs went from 66 percentage points in 2017 to 63 percentage points in 2021.
- **Internet use moving closer to gender parity:** Globally in 2020, 62 per cent of all men were using the Internet, compared with 57 per cent of all women. Gender parity is deemed achieved when the gender parity score, defined as the female percentage divided by the male percentage, stands between 0.98 and 1.02. In all regions, the gender Internet divide has been narrowing in recent years (see figure on page below). Thus, the global gender parity score has improved from 0.89 in 2018 to 0.92 in 2020. Parity has been achieved in developed countries as a whole and in the Americas, and almost achieved (parity score between 0.95 and 0.98) in

the Commonwealth of Independent States (CIS) region, the small island developing states (SIDS) and Europe. The divide remains wide in the LDCs, where only 19 per cent of women are using the Internet (12 percentage points lower than men), the landlocked developing countries (LLDCs) (27 per cent of women versus 38 per cent of men), Africa (24 per cent versus 35 per cent) and the Arab States (56 per cent versus 68 per cent).

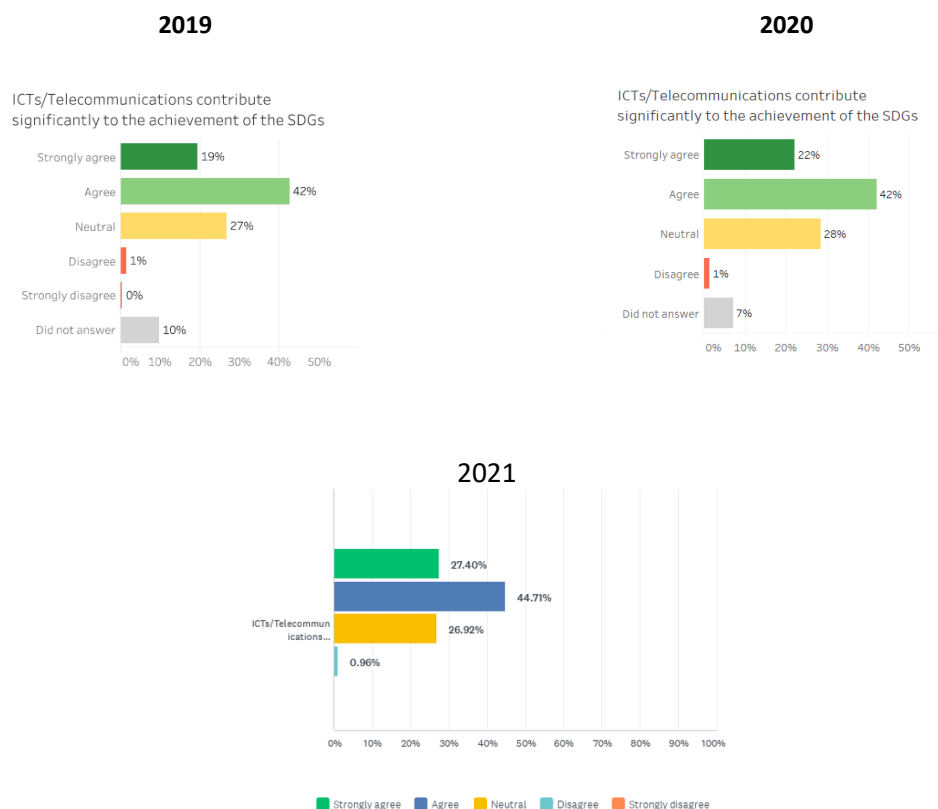
- **Young people more connected than the rest of the population:** In 2020, 71 per cent of the world's youth (aged between 15 and 24 years) were using the Internet, compared with 57 per cent of the other age groups. On the global scale, young people were thus 1.24 times more likely to connect than the rest of the population. In developed countries, where 90 per cent of the population is already online, the ratio was small (1.14). In developing countries the difference stood at 1.32, and in the LDCs it reached 1.53, as 34 per cent of young people were connected compared with only 22 per cent for the rest of the population. For Africa the ratio was 1.47, and for the Asia and the Pacific region it was 1.35. The greater uptake among young people bodes well for connectivity in areas where the demographic profile is skewed towards youth, such as the LDCs, where half of the population is less than 20 years old. It means that the workforce will become more connected and technology-savvy as the young generation joins its ranks. This in turn could improve the development prospects of these regions.
- **Most of the world population is covered by a mobile-broadband signal, but blind spots remain:** In most developing countries, mobile broadband (3G or above) is the main way—and often the only way—to connect to the Internet. Nevertheless, potential users face several other barriers to connectivity. Ninety-five per cent of the world population now has access to a mobile broadband network. Between 2015 and 2021, 4G network coverage doubled to reach 88 per cent of the world's population. In four of the six regions, mobile broadband coverage (3G or above) is available to 90 per cent of the population, and the CIS region is very close to that mark (89 per cent). The coverage gap remains significant in Africa, where, despite a 21 per cent increase in 4G coverage since 2020, 18 per cent of the population remains without any access to a mobile broadband network. Almost as many (17 per cent) lack such access in LDCs and LLDCs, thereby falling short of target 9.c of SDG 9: 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”.
- **International bandwidth continues to grow strongly:** International bandwidth usage in 2021 reached a worldwide total of 932 Tbit/s, up from 719 Tbit/s in 2020. This is a 30 per cent increase, and it follows a similar increase to that of the previous year. The highest regional total for international bandwidth use is in the Asia-Pacific region at over 400 Tbit/s, twice as high as in Europe (204 Tbit/s) or the Americas (180 Tbit/s). On a per-user basis, Europe leads, at 340 kbit/s per Internet user, followed by the Americas at 214 kbit/s and the Arab States at 174 kbit/s (the first time the per-user figure in the Arab States is higher than in the Asia-Pacific region). International bandwidth usage in the LDCs translates to just 34 kbit/s per Internet user, a sharp contrast to developing and developed countries (144 kbit/s and 296 kbit/s, respectively).
- **Despite a steady decline, the cost of connecting remains high in developing countries:** Prices remain prohibitive in many parts of the world. For mobile broadband, just under one-half of the economies for which ITU collected data in 2020 are still short of the target¹ (84 out of 195), and for fixed broadband, it is more than one-half (56 per cent). In the LDCs, while the median price for entry-level broadband has been declining, it remains beyond the means of the average consumer in all but four of the 43 LDCs for which data could be obtained. For fixed broadband, among the 33 LDCs for which data are available, only one has met the two per cent target.

¹ Broadband access at a price of less than two per cent of the monthly gross national income (GNI) per capita

- **Mobile phones are becoming ubiquitous:** In almost half of the countries for which data are available for the 2018-2020 time-frame, more than 90 per cent of the population own a mobile phone. For another ten countries, that figure is between 80 and 90 per cent. In only three countries was the share below one-half of the population, the lowest at 45 per cent. Ownership of mobile phones has been shown to be an important tool to empower women, and the world is moving to greater gender equality in this regard. In one-half of the 60 countries for which data are available for the 2018-2020 time-frame, gender parity in mobile phone ownership has been achieved, and in ten further countries, more women than men own a mobile phone. Nevertheless, in 21 countries, women lag behind men in mobile phone ownership, in some cases by a large margin.
- **Challenges in the ICT sector are increasing:** The report 'Carbon impact of video streaming' states that carbon emissions of the ICT sector increased over the period from the early 1990s to 2010. However, this emissions trend has plateaued, remaining relatively stable over the last decade, despite network data volumes continuing to grow year on year. The ICT emissions curve has flattened and actually dropped from 1.5 per cent to 1.3 per cent of global carbon emissions over the past decade, while the absolute emissions of ICTs have fallen slightly from a peak of 730 MtCO₂e in 2015 to 710 MtCO₂e in 2018, and to about 690 MtCO₂e in 2020. The volume of e-waste is on the rise however, from 44.7 Megatons generated in 2016 to 53.6 Megatons in 2019, while the percentage of this e-waste (which is documented for collection and properly re-cycled) decreased from 20 per cent to 17.4 per cent in the same period. Cyberthreats are also on the rise. However, the percentage of countries having established a CIRT, CERT or CSIRT increased from 56 per cent in 2019 to 60.82 in 2020.
- **More countries are introducing policies/strategies fostering telecommunication/ICT-centric innovation:** in 2019 66 countries are documented to have policies/strategies fostering telecommunication/ICT-centric innovation. This figure has increased in 2020 up to 74, confirming progress but not at the pace to achieve the 100 countries target by 2023.
- **Partnerships in the telecommunication/ICT sector are perceived as showing a positive trend:** Only 4 per cent of the ITU membership surveyed in 2020 disagree or strongly disagree with the sentence 'Your organization is collaborating with other stakeholders more than in previous years' (this figure slightly decreased in 2021); and only two per cent disagree with the sentence 'Your organization is benefiting with increased synergies by working with others', in the same ITU membership survey in 2020 and 2021.

How much do ICTs/telecommunications contribute to the SDGs?

To assess ITU members' perceptions about how ICTs/telecommunications contribute to the SDGs, a new question was added to the ITU membership survey 2020. The results are encouraging: in 2019 only 1 per cent disagree and more than 60 per cent agreed or strongly agreed with the sentence 'ICTs/telecommunications contribute **significantly** to the achievement of the SDGs', see chart below. It should be noted that the percentage of respondents strongly agreeing with the sentence has increased from 19 to 22 per cent in 2020, and subsequently to 27.4 per cent in 2021.



3.1 ITU's contribution to the Sustainable Development Goals and the WSIS Action lines

ITU, as the United Nations specialized agency for Information and Communication Technologies (ICTs), continues to support its membership and to contribute to the worldwide efforts to advance the UN 2030 Agenda for Sustainable Development and achieve its Sustainable Development Goals (SDGs). The 17 SDGs and its 169 related targets offer a holistic vision for the UN system. The role and contribution of ICTs as essential catalysts to fast-forward achievement of the SDGs is clearly highlighted and have come into focus since the COVID-19 pandemic started. Infrastructure, connectivity, and ICTs have demonstrated their great contribution and potential to accelerate human progress, to bridge the digital divides, and to develop digital societies. As reflected in the Figure below, ITU has a key role to play, through realizing its strategic Goals, in contributing to achieve the SDGs.



The figure presents ITU's contribution to the achievement of the SDGs with 4 levels of involvement, presented as concentric rings. These 4 levels of involvement are in alignment with the analysis previously presented via the ITU SDG Mapping tool.

1. **ICTs as an enabler:** ITU can be seen as a contributor to all SDGs through the benefits that ICTs bring to societies and economies.
2. **Focus:** SDGs with no specific reference to ICTs but where ITU has demonstrated to have a clear impact through the benefits ICTs bring to specific sectors and activities (e.g., e-health, digital inclusion, smart cities, e-waste, climate change, etc.). These are SDGs 1, 3, 10, 11, 12 and 13.
3. **Key Focus:** SDGs where ITU has a particularly strong impact due to its initiatives and is custodian of some indicators. These are SDG 4 (Quality Education), with its Target 4b to *"...expand globally the number of scholarships, for enrolment in higher education, including vocational training and ICTs, technical, engineering and scientific programmes..."*; and SDG 5 (Gender Equality), Target 5.b on *"...the use of enabling technology, in particular ICTs, to promote the empowerment of women"*. And Indicator 5b.1 on the ownership of mobile phones, by sex.
4. **Main Key Focus:** SDGs where ITU maximizes its contribution, such as SDG 9 (Industry, Innovation and Infrastructure) and SDG 17 (Partnership for the Goals). Here ITU is also custodian of related Target 9.c on *".... ICTs to provide universal and affordable access to the Internet..."*; and its Indicator 9c.1 on coverage by a mobile network and by technology. As well as Target 17.8 to *"....enhance the use of enabling technology, in particular information and communications technology"*; and its Indicator 17.8.1 about individuals using the Internet.

ITU also plays a leading facilitating role in the WSIS implementation process, in collaboration with more than 30 UN Agencies in creating an environment for just and equal information and knowledge societies. The WSIS framework can be seen as the foundation through which the ITU helps the world in leveraging ICTs to contribute to achieve the UN 2030 Agenda for Sustainable Development, noting the WSIS-SDG Matrix developed by UN Agencies.

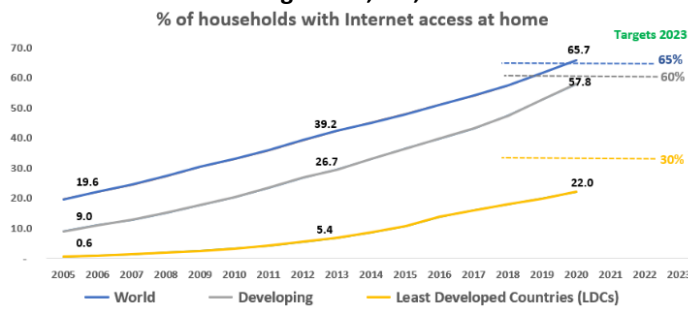


3.2 Results of progress towards the strategic goals

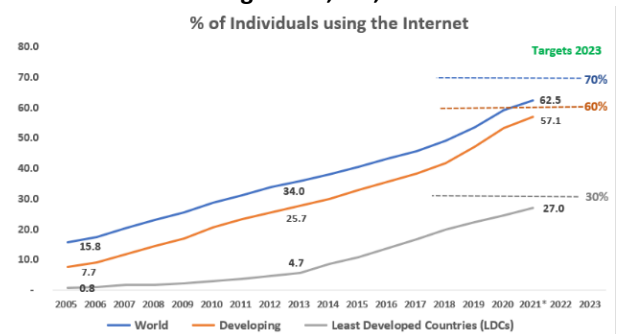
Goal	TARGET, By 2023:
Growth	Target 1.1: 65% of households worldwide with access to the Internet
	Target 1.2: 70% of individuals worldwide will be using the Internet
	Target 1.3: Internet access should be 25% more affordable (baseline year 2017)
	Target 1.4: all countries adopt a digital agenda/strategy
	Target 1.5: increase the number of broadband subscriptions by 50%
	Target 1.6: 40% of countries to have more than half of broadband subscriptions more than 10 Mbit/s
	Target 1.7: 40% of the population should be interacting with government services online
Inclusiveness	Target 2.1: in the developing world, 60% of households should have access to the Internet
	Target 2.2: in the least developed countries, 30% of households should have access to the Internet
	Target 2.3: in the developing world, 60% of individuals will be using the Internet
	Target 2.4: in the least developed countries, 30% of individuals will be using the Internet
	Target 2.5: the affordability gap between developed and developing countries should be reduced by 25% (bs. 2017)
	Target 2.6: broadband services should cost no more than 3% of average monthly income in developing countries
	Target 2.7: 96% of the world population covered by broadband services
	Target 2.8: gender equality in Internet usage and mobile phone ownership should be achieved
	Target 2.9: enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries
	Target 2.10: improve by 40% the proportion of youth/adults with telecommunication/ICT skills
Sustainability	Target 3.2: increase the global e-waste recycling rate to 30%
	Target 3.1: improve cybersecurity preparedness of countries, with key capabilities: presence of strategy, national computer incident/emergency response teams and legislation
	Target 3.3: raise the percentage of countries with an e-waste policy, legislation or regulation to 50
	Target 3.5: all countries should have a National Emergency Telecommunication Plan as part of their national and local disaster risk reduction strategies
	Target 3.4: net telecommunication/ICT-enabled Greenhouse Gas abatement should have increased by 30% (bs 2010)
Innovation	Target 4.1: all countries should have policies/strategies fostering telecommunication/ICT-centric innovation
Partnership	Target 5.1: increased effective partnerships with stakeholders and cooperation with other organization and entities in the telecommunication/ICT environment

Results:

Targets 1.1, 2.1, 2.2

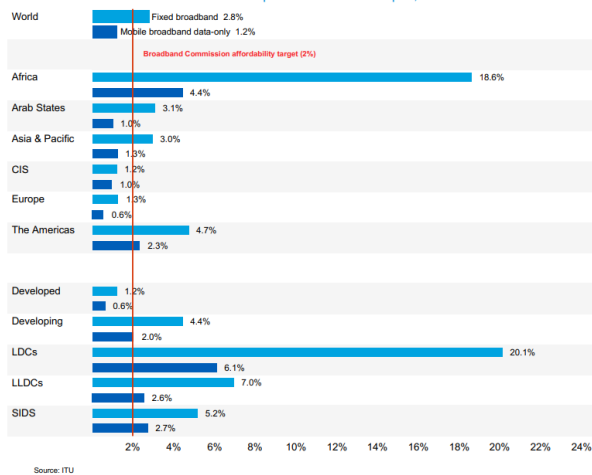


Targets 1.2, 2.3, 2.4

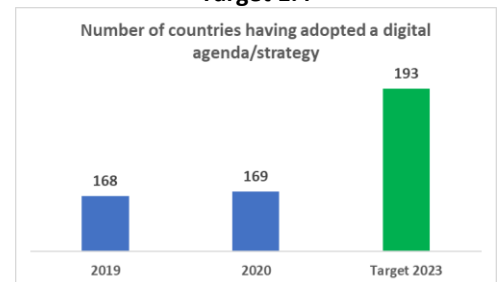


Targets 1.3, 2.5, and 2.6

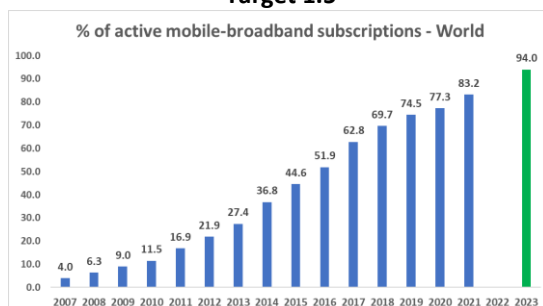
Fixed-broadband and mobile-data basket prices as a % of GNI p.c., 2020



Target 1.4



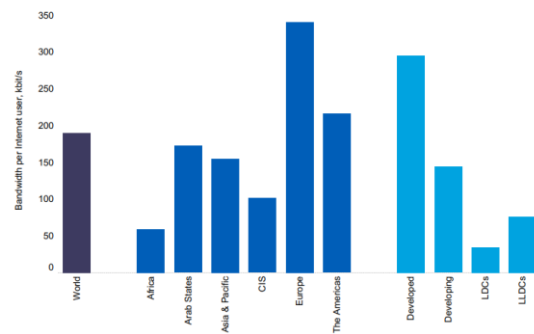
Target 1.5



Target 1.6

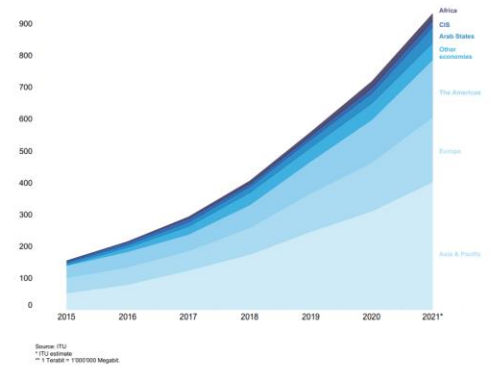
Report on the implementation of the strategic plan and activities of the Union

International bandwidth per Internet user, kbit/s, 2021*

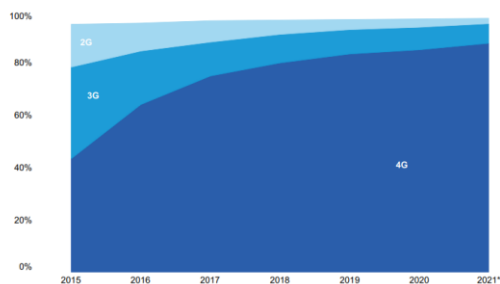


Source: ITU
* ITU estimate

International bandwidth by region, Tbit/s**



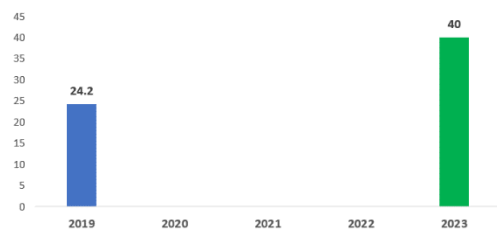
Population coverage by type of mobile network, 2015-2021*



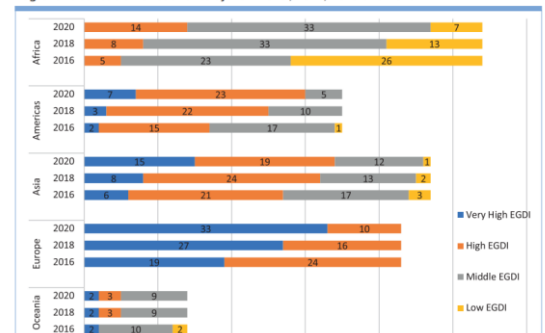
Note: The values for 2G and 3G networks show the incremental percentage of population that is not covered by a more advanced technology network (e.g. 95% of the world population is covered by a 3G network, that is 7% + 88%).

Source: ITU
* ITU estimate

Target 1.7 % of the population interacting with government services online (data available for 44 countries)

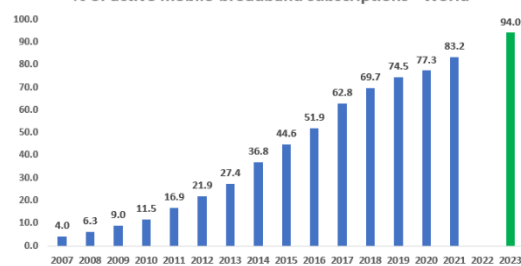


Regional distribution of countries by EGD level, 2016, 2018 and 2020



Target 2.7

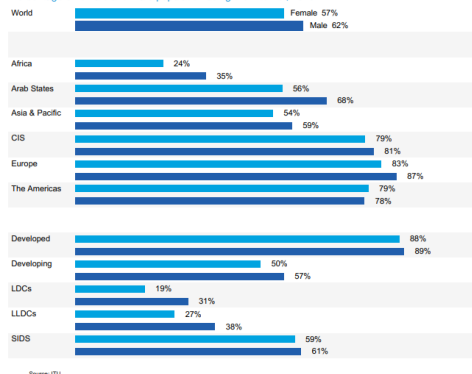
% of active mobile-broadband subscriptions - World



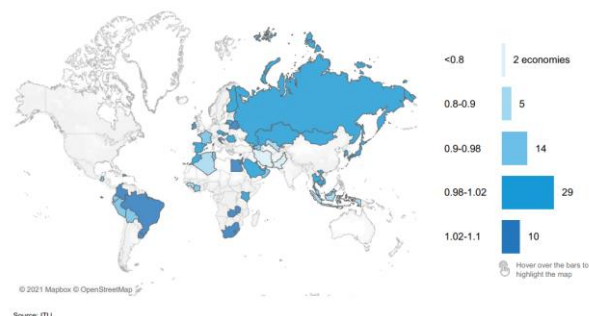
Target 2.8

Internet use moving closer to gender parity

Percentage of female and male population using the Internet, 2020



Gender parity score for mobile phone ownership, latest year in 2018-2020



Source: ITU

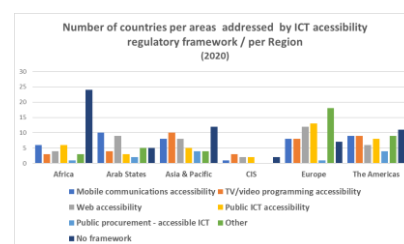
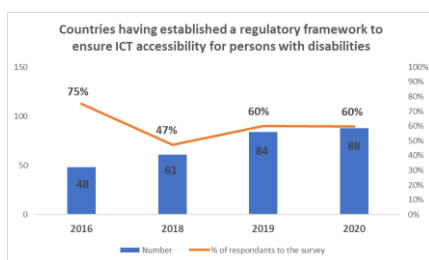
Notes: The gender parity score is calculated as the proportion of women who own a mobile phone divided by the proportion of men who own a mobile phone. A value smaller than 1 indicates a larger proportion among men than among women. A value greater than 1 indicates the opposite. Values between 0.98 and 1.02 reflect gender parity. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of ITU and of the Secretariat of the ITU concerning the legal status of the country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

The Internet user gender parity score, 2018 and 2020



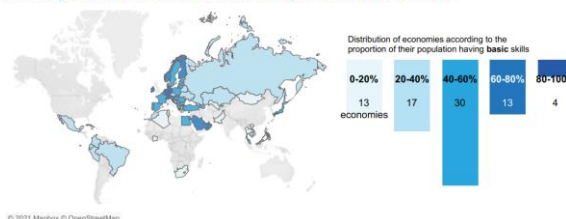
Note: The gender parity score is calculated as the proportion of women who use the Internet divided by the proportion of men. A value smaller than one indicates that men are more likely to use the Internet than women, while a value greater than one indicates the opposite. Values between 0.98 and 1.02 reflect gender parity.

Target 2.9



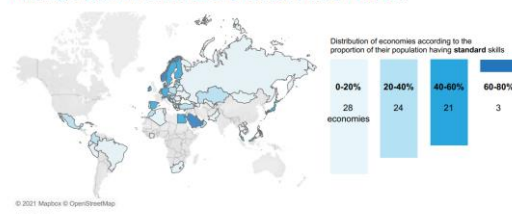
Target 2.10

Percentage of people with basic ICT skills, latest year available in 2018-2020



Notes: For each economy, the value for basic skills is the average value of the available recent data for following four computer-based activities: copying or moving a file or folder, using copy and paste tools to duplicate or move information within a document, sending e-mails with attached files, and transferring files between a computer and other devices. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of ITU and of the Secretariat of the ITU concerning the legal status of the country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

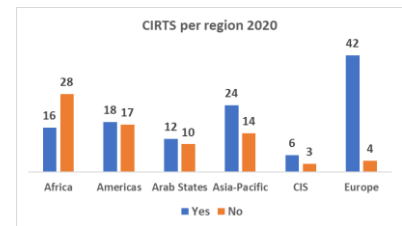
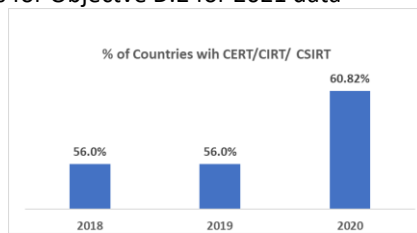
Percentage of people with standard ICT skills, latest year available in 2018-2020



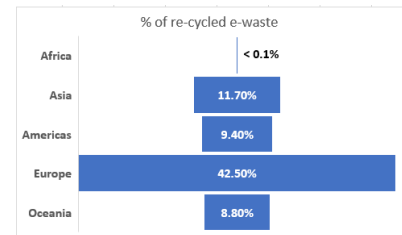
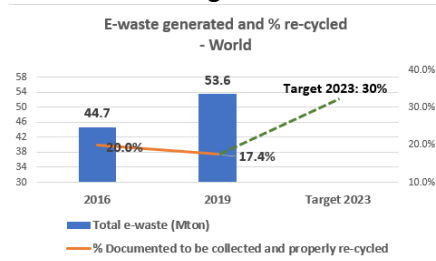
Notes: For each economy, the value for standard skills is the average value of the available recent data for following four computer-based activities: using basic arithmetic formula in a spreadsheet, connecting and installing new devices, creating electronic presentations with presentation software, and finding, downloading, installing and configuring software. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of ITU and of the Secretariat of the ITU concerning the legal status of the country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

Target 3.1

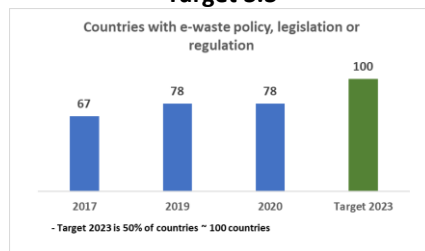
See Outcomes for Objective D.2 for 2021 data



Target 3.2



Target 3.3



Target 3.4

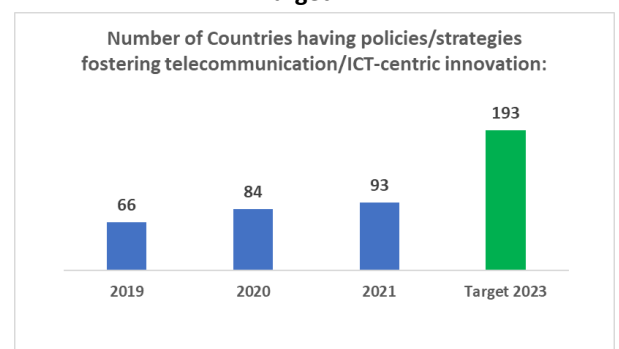
No measurement available

Target 3.5

Preliminary data for 2020 shows that **less than 25% of countries** have an NETP or similar plan in place

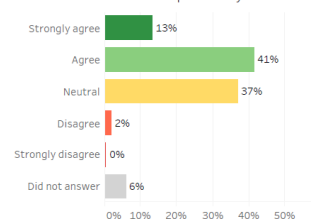
(with all data for Americas collected and partial data for Pacific Islands and Arab States)

Target 4.1

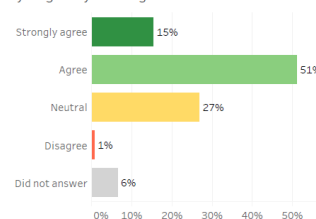


Target 5.1

Your organization is collaborating with other ICT stakeholders more than in previous years



Your organization is benefiting from increased synergies by working with others



3.3 Outcomes of the work of the Union – ITU sector and inter-sectoral objectives

See Annex 2.

3.4 Results of the enablers

See Annex 2.

3.5 Priorities for 2022-2023

- Organization of the PP-22, WTSA and WTDC;
- Implementing the Connect 2030 Agenda, ensuring alignment with the SDGs (as per the theme of the 2021 World Telecommunication and Information Society Day – WTISD);
- Working as One ITU, being an agile, responsive and innovative organization;
- Enhancing efficiency and effectiveness of the Organization, by developing long-term managerial strategy for the organization to sustain performance and relevance of expertise, by strengthening the risk management and accountability frameworks, in order to enable informed decision-making and demonstrate the impact of ITU's work.

Annex 1 Implementation of Resolutions of the Plenipotentiary Conference

Status of implementation
<p>21 (Rev. Dubai, 2018) Measures concerning alternative calling procedures on international telecommunication networks</p> <p>ITU-T SG 2 continued work on draft new Recommendation ITU-T E.ACP on alternative calling procedures. ITU-T SG 3 continued work on alternative calling procedures through its ongoing Question 8/3. ITU-T SG3 liaises with SG 2 on the topic of alternative calling procedures.</p> <p>ITU-T SG 12 continued work on assessing the impact of alternative calling procedures on quality of service (QoS) and quality of experience (QoE).</p>
<p>30 (Rev. Dubai, 2018) Special measures for the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition</p> <p>Assistance to the LDCs, SIDS and LLDCs is ongoing through operational plan activities, projects, and ad hoc assistance. Publications specifically geared towards these countries have been produced in collaboration with sister UN agencies during the reporting period. The work is guided by the ITU Strategic Plan and ITU-D Action Plan adopted at WTDC-17.</p>
<p>34 (Rev. Dubai, 2018) Assistance and support to countries in special need for rebuilding their telecommunication sector</p> <p>Support to countries during natural disasters and emerging out of major disasters is ongoing and has been under implementation in support of affected countries (see Section 1.5 on emergency telecommunications).</p>
<p>66 (Rev. Dubai, 2018) Documents and publications of the Union</p> <p>All dispositions of this resolution are implemented. There has been no change or development on the issue of cost recovery and its basic principles. The provisions and principles laid down in Resolution 66 are still valid and pertinent.</p>
<p>91 (Rev. Guadalajara, 2010) Cost recovery for some ITU products and services</p> <p>See report to the Council on Cost Recovery for the processing of Satellite network Filings, document C20/16 and report to the Council by Chair of CWG-FHR, document C20/50.</p>

Status of implementation
<p>99 (Rev. Dubai, 2018) Status of Palestine in ITU</p> <p>This Resolution was fully implemented and allowed the observer from the State of Palestine to continue to participate in all conferences, assemblies, and meetings organized under the aegis of ITU, in particular WRC-19, taking advantage of all of the rights enumerated in Resolution 99 (Rev. Dubai, 2018). The observer from the State of Palestine attended the 2019 ordinary session of the Council.</p>
<p>101 (Rev. Dubai, 2018) Internet Protocol-based networks</p> <p>See report to the Council document C20/33 and report to the Council by Chair of CWG-Internet, document C20/51.</p>
<p>119 (Rev. Antalya, 2006) Methods to improve the efficiency and effectiveness of the RRB</p> <p>The Board pursued its periodical review of the working methods and internal processes contained in Part C of the Rules of Procedure and decided to modify them in 2021 during its 88th meeting in relation to the treatment of delayed submissions. The 78th to 82nd RRB meetings were held in 2018 and 2019. The 83rd, 84th and 85th meetings in 2020, and the 86th and 87th meetings in 2021 were held as virtual meetings, while the 88th meeting in 2021 was held as a physical meeting with active remote participation of some Board members. The summary of decisions and the minutes of each of the Board's meetings have been duly published on the RRB website within the statutory time limits.</p>

Status of implementation
<p>125 (Rev. Dubai, 2018) Assistance and support to Palestine for rebuilding its telecommunication networks</p> <ul style="list-style-type: none"> ITU had developed costing model [BU-LRIC] for fixed and mobile networks services [voice and data] for Palestine as well as price regulation framework. The cost model report was reviewed by ITU and Palestine and accepted. Agreed next steps include the following: <ul style="list-style-type: none"> ➤ Organized a virtual workshop for the project team from Palestine, 9 April. ➤ Plan A (original plan): <ul style="list-style-type: none"> - A mission to Ramallah to conduct a meeting with Palestine ICTs stakeholder to explain the construction and use of the cost models; - Training for MTIT on how best to use the model. ➤ Plan B (possible alternative accounting for COVID-19): <ul style="list-style-type: none"> - An online stakeholder workshop; - An online training session for MTIT. Project on 'implementation of CIRT services and related capabilities' that reached its closure end of 2019, Palestine was assisted in building and deploying the technical capabilities and related trainings necessary to the implementation of the Palestine's CIRT. In the framework of the Connect a School project, 15 additional schools were equipped and connected to Internet during 2018-2019. The following assistance to Palestine was stalled due to the inability to issue a visa for scoping visits by experts and ITU staff: establishing a national electronic authentication unit; and developing a smart learning policy review. Started assistance to do a feasibility study for a satellite earth station. The draft job description for the required assistance was sent to Palestine in June and pending their feedback.
<p>131 (Rev. Dubai, 2018) Measuring information and communication technologies to build an integrating and inclusive information society</p> <p>Implementation of this resolution is ongoing. Official statistics have been collected from Member States and published biannually in the World Telecommunication Indicators Database and online. Statistics are also featured and analysed in the <i>Measuring Digital Development</i> series of publications, including Facts and Figures and ICT Price Trends. Other data and insight products include the publication Connectivity in the Least Developed Countries: Status report 2021 and the Digital Development Dashboard launched in 2021 to provide an overview of digital development in all Member States.</p> <p>Since 2018, ITU has developed the capacity of administrations around the world to collect data and derive internationally comparable ICT statistics, through regional workshops in all regions. The 2020 edition of the ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT and the ITU Manual for Measuring ICT Access and Use by Households and Individuals were released in 2020. To reach a broader audience and reduce reliance on in-person workshops during the pandemic, ITU launched its first online training on ICT statistics in June 2021. Available for free on the ITU Academy platform, Measuring digital development: Telecommunication/ICT indicators is the first in a three-part series of online courses to be released in 2021-2022. The Expert Group on Telecommunication/ICT Indicators (EGTI) and the Expert Group on ICT Household Indicators (EGH) continue to set international statistical standards for ICT indicators and meet annually.</p> <p>The 17th edition of the "World Telecommunication/ICT Indicators Symposium", the main global forum for discussing the latest trends in ICT statistics was held in December 2020 under the theme "Towards an inclusive digital society".</p> <p>ITU actively contributes to advancing the statistics agenda within the UN system through several key partnerships.</p>

Status of implementation
<p>135 (Rev. Dubai, 2018) ITU's role in the durable and sustainable development of telecommunications/information and communication technologies, in providing technical assistance and advice to developing countries and in implementing relevant national, regional and interregional projects</p> <p>BDT updated the ITU Broadband Maps with information obtained from administrations, regulators, operators and public sources (viewable online). In 2019, the Map presents infrastructure information from 520 operators' networks and 21 806 nodes worldwide. In 2021, the Map represents more than 20 million km of terrestrial fibre (from ITU research), overlaid with other relevant ICT infrastructure data (such as submarine cables and satellite earth stations). A communication video – 'Why is broadband mapping key to universal connectivity?' – highlights the importance of regional regulatory associations for mapping and its use on ITU connectivity projects with partners (e.g. Giga-school connectivity) (video).</p> <p>The research on and representation of the transmission links has reached 3 720 687. Additionally, the following actions have been taken:</p> <ul style="list-style-type: none"> • The ITU Broadband Business Planning Toolkit (2019) provides a practical methodology to deliver sustainable economic evaluation of proposed broadband infrastructure installation and deployment plans. In 2020 and 2021 a series of regional capacity building events to offer practical lesson on toolkit usage was provided through the ITU Academy for AMS, EUR, and AFR regions. In 2021, the Toolkit will be updated to include guidance on the roll-out of 5G networks; • Assessment studies for ECOWAS on Conformance and Interoperability and EMF were prepared; • The ITU Last Mile Connectivity Solutions Guide was developed to help accelerate actions to address last-mile Internet connectivity issues in situations that include a lack of network infrastructure and with a view to encouraging more affordable service delivery. BDT is developing a range of resources to help Member States address last-mile connectivity challenges, including a database of case studies (LMC Case Studies Database), capacity-building courses and interactive last-mile connectivity diagnostic and decision-making tools. • ITU's Emerging Technology for Connectivity 2021 was held from July 5 to July 16 2021 with about 25 sessions and 595 total present participants. It featured about 154 speakers. In addition, capacity development activities were conducted with 5 training courses. The presentations, recordings and reports are available on the event website. The event promoted the wide-scale deployment of emerging technology to contribute to the achievement of the Sustainable Development Goals (SDGs). The event focused on least developed countries (LDCs), landlocked developing countries (LLDCs) and small island developing States (SIDS), and targeted SDG 4 (Quality Education), SDG 9 (Industry, Innovation and Infrastructure), SDG11 (Sustainable Cities and Communities) and SDG 17 (Partnerships for the Goals).
<p>139 (Rev. Dubai, 2018) Use of telecommunications/information and communication technologies to bridge the digital divide and build an inclusive information society</p> <p>ITU Broadband Maps have been enhanced in taking stock of worldwide connectivity and promote understanding and investment opportunities of network infrastructure. The public version of the interactive map is available online. In 2019, the Broadband Maps supported other global initiatives such as Giga (see Section 1.9), FIGI-Mexico, and the emergency communication map. In 2021, Broadband Maps support global initiatives relying on geospatial ICT infrastructure data used for the planning of network roll-out to connect points of interest, such as schools/FCDO and Giga, digital inclusion/FIGI-Mexico; network resilience/C2R; and disaster relief/DCM.</p> <p>Further developments includes network deployment estimation based on an ITU Regional Initiative model as well as an improved graphical interface and partnership on investment opportunities mapping for Eastern Europe.</p> <p>Broadband WiMax Network installed and operational in Burundi: 437 schools, hospitals and individuals are connected and benefiting from broadband operations as of December 2019.</p> <p>Broadband 4G Mobile WiMax Network installed and operational in Djibouti: Schools (48), Hospitals (45) and/or Government Ministries/ Institutions (23) are connected and benefiting from broadband operations as of December 2019. Broadband 4G LTE Mobile Network installed and operational in 20 localities in rural areas of the Kingdom of Eswatini.</p>

Status of implementation
<p>140 (Rev. Dubai, 2018) ITU's role in implementing the outcomes of the World Summit on the Information Society and the 2030 Agenda for Sustainable Development, as well as in their follow-up and review processes</p> <p>The coordination and implementation of the outcomes of the World Summit on the Information Society (WSIS) continues to be one of the priorities of the Secretary-General of the International Telecommunication Union (ITU). The Vision of the Union, as defined in the ITU Strategic Plan 2020-2023 is “an information society, empowered by the interconnected world, where telecommunication/information and communication technologies enable and accelerate social, economic and environmentally sustainable growth and development for everyone”, in line with the WSIS Outcome Documents.</p> <p>The Strategic Goals of the Union (Growth, Inclusiveness, Sustainability, Innovation and Partnership) support ITU's role in facilitating progress towards the implementation of the WSIS Action Lines and the 2030 Agenda for Sustainable Development. Through these goals, the Union seeks to contribute to the development of an environment that is conducive to innovation, where advances in new technologies become a key driver for the implementation and achievement of the WSIS Action Lines and the 2030 Agenda for Sustainable Development. The Union also recognizes the need to contribute to the global partnership to strengthen the role of Information and Communication Technologies (ICTs) with the same objective.</p> <p>In Resolution 71 (Rev. Dubai, 2018) on ITU Strategic Plan for the Union for 2020-2023, Member States highlighted the necessity of contributing to the worldwide efforts to achieve the SDGs in close alignment with the WSIS Process. The sector objectives, in particular the objectives and outputs of BDT (WTDC 2017 Resolution 30 (Rev. Buenos Aires, 2017) and TSB (WTSA-16 Resolution 75 (Rev. Hammamet, 2016)), and intersectoral objectives are also well linked to the WSIS Action Lines and the 2030 Agenda for Sustainable Development. The draft Roadmap of ITU Actions related to the SDGs was presented at the 38th CWG-WSIS&SDG meeting in January 2022 (CWG-WSIS&SDG-38/14).</p> <p>ITU plays a leading facilitating role in the WSIS implementation process, in collaboration with more than 30 UN Agencies to implement the WSIS Action Lines to achieve the Sustainable Development Goals, with a common desire and commitment to build inclusive and development-oriented information and knowledge societies. As per Resolution 1332 (Modified 2019), ITU membership resolved to use the WSIS framework as the foundation through which the ITU helps the world in leveraging ICTs in achieving the 2030 Agenda, within ITU's mandate.</p> <p>In line with the Resolution 1332 (Modified 2019), ITU produces annual reports on <i>ITU's Contribution to the Implementation of the WSIS Outcomes</i>, which provides an overview of ITU activities and projects undertaken in the context of the implementation of WSIS Outcomes, also related to the 2030 Agenda for Sustainable Development. The reports for each year are available here.</p> <p>The ITU Roadmaps C2, C4, C5, and C6 provide a broad vision and detailed overview of the activities planned within the mandate of the Union. ITU is the leading facilitator and implementer of the WSIS Action Lines C2 (Information and Communication Infrastructure), C5 (Cybersecurity), and C6 (Enabling Environment). Further, ITU has also been performing the lead role of the WSIS Action Line C4 (Capacity Building) facilitator and implementer. The next edition of the Roadmaps will incorporate ITU's activities on the WSIS Action Line C4 implementation and will be drafted in accordance with the template approved at the 36th CWG-WSIS&SDG meeting in January 2021. This version will be prepared in alignment with the Strategic Plan of the Union for 2024-2027, including the outcomes of WTSA-20 and WTDC-21.</p>
<p>151 (Rev. Dubai, 2018) Implementation of results-based management in ITU</p> <p>See the four-year rolling Operational Plan for the Union 2021-2024 here, and Section 3. The 2020-2021 and 2022-2023 Budgets adopted by Council 2019 and 2021 follow RBB principles.</p>
<p>154 (Rev. Dubai, 2018) Use of the six official languages of the Union on an equal footing</p> <p>See report to Council by Chair of CWG-LANG document C22/12 and the 4-year report of the CWG-LANG document C22/55..</p>

Status of implementation
<p>157 (Rev. Dubai, 2018) Strengthening the project execution and project monitoring functions in ITU</p> <p>Through its project portfolio, ITU is making an impact in advancing digital development and promoting the deployment of innovative ICT solutions to support sustainable development. ITU Member States are increasingly engaging with ITU to support their efforts to advance digital inclusion, modernize their digital infrastructure and regulation, as well as to adapt to international best practices in the use of digital services and applications.</p> <p>In 2021 ITU signed 28 new projects for over CHF 14 million in funds, bringing its overall portfolio to 75 ongoing projects, implemented in collaboration with a broad range of partners.</p> <p>ITU has continued to improve its project management practices by undertaking further investments in tools, methodologies, guidelines, templates, standards and database development. The efforts initiated in 2019 to improve project management skills across ITU have been reinforced, in particular with the organization of an online certification programme for 75 ITU staff members. This work has included the introduction of a new project management manual, the creation of the Projects Board, the creation of an internal community of practice for Project Managers, the strengthening of the project monitoring function and the introduction of new project management dashboards for ITU senior managers.</p> <p>The ITU projects website has been enhanced to dynamically display the overall status of BDT projects at any given time. It is now possible to find project case studies, post-implementation assessment reports and videos, and facilitate and improve the sharing of experiences and lessons learned.</p> <p>These measures are expected to assist ITU in moving towards the adoption of a portfolio approach in the management of projects. This will lead to better accountability for the achievement of project results and their impact.</p>

Status of implementation
<p>160 (Rev. Dubai, 2018) Assistance to Somalia</p> <p>ITU and Somalia had signed a FCA and the related Programme Action Plan (PAP) was developed. Implementation started according to the top priorities identified by Somalia.</p> <ul style="list-style-type: none"> Assisted Somalia and developed a national ICTs Policy and Strategy (2019-2024). The report sets out the five-year 2019-2024 National ICT Policy and Strategy which provides the framework needed to leverage the benefits of ICTs to support social and economic development; SMS4DC to enhance utilization and management of spectrum (five keys provided).
<p>161 (Antalya, 2006) Assistance and support for the Democratic Republic of Congo for rebuilding its telecommunication network</p> <p>Following the successful completion of the Broadband Access Masterplan Project by ITU and supported by the Ministry of Science, ICT and Future Planning (MSIP), Republic of Korea, a project to implement a Broadband Wireless Network in Kinshasa, the most densely populated city in DRC. The proposal is still pending approval of the Government of DRC.</p>
<p>162 (Rev. Busan, 2014) Independent Management Advisory Committee</p> <p>IMAC has continued to act as a subsidiary body of the ITU Council, serving in an expert advisory capacity and assisting the Council and the Secretary-General in fulfilling their governance responsibilities, including ensuring the effectiveness of ITU's internal control systems, risk management and governance processes. The Committee submitted the annual reports with its Recommendations to the Council meetings or Virtual Consultations (ref. to docs.: C19/22, C20/22, C21/22). All IMAC meeting reports and related documents are available at the IMAC public website here.</p> <p>New members of IMAC were appointed at the 2019 Session of Council and initiated their term on 1 January 2020 (see the new composition of the Committee on the IMAC website).</p>
<p>165 (Rev. Dubai, 2018) Deadlines for the submission of proposals and procedure for the registration of participants to conferences and assemblies of the Union</p> <p>The revision of this resolution was put into practice during WRC-19, where the deadline of submission for contributions was set for 30 September 2019. This has not only ensured the timely translation of all contributions submitted but has also significantly reduced overtime worked during the conference. This had positive implications on both the conference's budget as well as C&P's.</p>
<p>167 (Rev. Dubai, 2018) Strengthening and developing ITU capabilities for electronic meetings and means to advance the work of the Union</p> <p>The secretariat's Remote Participation Task Force (RPTF) was established in April 2020 to identify best practices for preparing and conducting electronic meetings. All ITU meetings have become fully virtual since 16 March 2020, including statutory meetings that required interpretation in six languages, accreditation, authentication and access control. ITU led the Virtual Meeting with the Interpretation Workgroup of the Chief Executives Board for Coordination (CEB) of the UN. In May 2020 "Virtual Events and Remote Participation Guidelines and Best Practices" was published and shared with all participating organizations and other international agencies. As none of the web-conference platforms supports all functional requirements of ITU meetings, ITU currently works with five platforms, selecting the most appropriate one depending on the requirements of each meeting.</p> <p>See report to Council (Doc. C20/53); see also Section 1.8 on COVID-19 related activities/responses.</p>
<p>173 (Rev. Guadalajara, 2010) Piracy and attacks against fixed and cellular telephone networks in Lebanon</p> <p>After the assistance provided to Lebanon to assess the readiness in view of establishing a National Computer Incident Response Team (CIRT), a project to assist Lebanon in the establishment of its national CIRT was signed in 2014 in which Lebanon was committed to fund part of this project and ITU/ARO secured the remaining funds for the project. The implementation has been held and the project concluded upon the request of Lebanon.</p> <p>Assistance on spectrum-related aspects, including frequency notification and coordination, technical examinations, transition to digital broadcasting, the digital dividend and the allocation of spectrum and licensing has been provided.</p>

Status of implementation
<p>175 (Rev. Dubai, 2018) Telecommunication/information and communication technology accessibility for persons with disabilities and persons with specific needs</p> <p>See Section 1.7 – Digital Inclusion.</p>
<p>176 (Rev. Dubai, 2018) Measurement and assessment concerns related to human exposure to electromagnetic fields</p> <p>ITU-T SG 5 on “Environment, climate change and circular economy” is the lead ITU-T Study Group on studies on electromagnetic compatibility, lightning protection and electromagnetic effects. ITU-T SG 5 has revised Recommendations ITU-T K.52 “Guidance on complying with limits for human exposure to electromagnetic fields”, ITU-T K.83 “Monitoring of electromagnetic field levels”, ITU-T K.70 “Mitigation techniques to limit human exposure to EMFs in the vicinity of radiocommunication stations”, ITU-T K.91 “Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields” and ITU-T K.100 “Measurement of radio frequency electromagnetic fields to determine compliance with human exposure limits when a base station is put into service”. ITU has also approved Recommendation ITU-T K.145 “Assessment and management of compliance with RF EMF exposure limits for workers at radiocommunication sites and facilities,” which includes guidance on the protection of workers against radio frequency electromagnetic fields (RF-EMFs) exposure in their working environments and provides minimum general safety guidance for telecommunication RF workers around the world. Additionally, ITU-T SG 5 revised Supplement 14 to ITU-T K-series on “The impact of RF-EMF exposure limits stricter than the ICNIRP or IEEE guidelines on 4G and 5G mobile network deployment”, to include a new chapter that compares the results of measurements between countries with different exposure limits. SG 5 also revised ITU-T K.Suppl.9 on 5G technology and human exposure to RF EMF and ITU-T K.Suppl.16 on Electromagnetic field compliance assessments for 5G wireless networks. Two new Supplements, ITU-T K.Suppl.19 on EMF strength inside subway trains and ITU-T K.Suppl.20 on radio-frequency exposure evaluation in the vicinity of underground base stations were developed. ITU-T SG 5 revised Supplement 1 to ITU-T K.91 “Guide on electromagnetic fields and health” to include the updates on the ICNIRP and WHO guidelines, and to cover aspects related to 5G. The mobile and web version of the EMF Guide was revised to include the new updates. The new version of the mobile app was launched during the Virtual Forum on Human Exposure to electromagnetic fields (EMFs) due to digital technologies held on 10 May 2021.</p> <p>ITU is regularly represented in WHO meetings relating to EMF. Similarly, WHO representatives regularly participate in meetings and workshops dealing with EMF, which are organized by ITU.</p>
<p>177 (Rev. Dubai, 2018) Conformance and interoperability [also WTSA Res. 76 and WTDC Res. 47]</p> <p>ITU made progress implementing the ITU Conformance and Interoperability Programme (C&I) including:</p> <ul style="list-style-type: none"> • TSB maintains the “ICT product conformity database”, which enables industry to publicize the conformance of ICT products and services to ITU-T Recommendations. As of November 2021, the database contains five categories of ICT products with over 500 entries. • ITU-T SG11 regularly updates the list of ITU-T Recommendations suitable for C&I testing based on inputs provided by all ITU-T SGs. • ITU organized several workshops on C&I, including two ITU-T Study Group 11 Regional Workshops for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa” (2018 and 2019, Tunis, Tunisia) and one ITU-Forum on “Future Networks and Conformance and Interoperability (C&I)” (2021, St. Petersburg, Russia). • TSB facilitates the implementation of ITU Testing Laboratory recognition procedure on ITU-T Recommendations. More details are available in the report of CASC (SG11-RG42, Annex 6). • ITU C&I Programme Pillar 3 - Capacity Building: <ul style="list-style-type: none"> ○ On-the-job Capacity Building activities conducted on C&I frameworks and different testing domains (e.g. IoT, 5G, C&I framework) provided in collaboration with laboratory partners and Centres of Excellence. <ul style="list-style-type: none"> ▪ In 2021, the following virtual training opportunities were offered through the ITU Academy learning platform: <ul style="list-style-type: none"> • Conformity and Interoperability for Africa Region • Conformity and Interoperability relating to 5G

Status of implementation
<ul style="list-style-type: none"> • Start-ups readiness for IoT deployment training: Pre-compliance testing <ul style="list-style-type: none"> ▪ More details available here: https://itu.int/go/ci_training. ○ Conformance and Interoperability Training Programme (CITP) development is based on training materials produced by previous C&I training events; takes into consideration learnings from ITU publications on C&I (e.g. Q4/2 reports from two study periods), as well as published ITU Guidelines and Recommendations (https://itu.int/go/ci_guidelines); and follows the ITU Academy quality assurance mechanism (high-level materials prepared by subject-matter experts and peer-review process). • ITU C&I Programme Pillar 4-assistance to developing countries: <ul style="list-style-type: none"> ○ A series of C&I Assessment Studies were conducted in the ECOWAS region aiming to promote regional collaboration for establishing harmonic C&I Programmes. Reports are available on the webpage. ○ ITU-D Study Group 2 Question 4 (Q4/2): The group concluded its Final Report (link). A video to communicate the work of Question has been produced (link). For more information on Q4/2, please access: http://itu.int/go/Q4/2. ○ In 2021, assistance on establishing C&I framework for South Sudan.
179 (Rev. Dubai, 2018) ITU's role in child online protection See report to Council by Chair of CWG-COP here , and Section 1.6 .
182 (Rev. Busan, 2014) The role of telecommunications/information and communication technologies in regard to climate change and the protection of the environment Section 1.5 ('Environment and smart sustainable cities and communities') summarizes the work undertaken by the ITU on climate change and the protection of the environment ITU-T SG 5 on "Environment, climate change and circular economy" is the lead Study Group on ICTs related to the environment, climate change, energy efficiency, clean energy, and circular economy, including e-waste. Section 1.3 provides details on specific climate-related recommendations approved during this period. World Standards Day 2020 was dedicated to Protecting the Planet with Standards . ITU-T SG 5 organized the following events: <ul style="list-style-type: none"> • Sustainable Digital Transformation Dialogues, virtual, 28 to 30 September 2021; • Sustainable Digital Transformation in Latin America, virtual, 30 September 2021; • Sustainable Digital Transformation in the Arab Region, virtual, 29 September 2021; • Sustainable Digital Transformation in Africa, virtual, 28 September 2021; • Dialogue on Sustainable Digital Transformation in Asia and the Pacific, virtual, 19 October 2021; • Session on the Emerging Technology Week 2021: Towards a sustainable digital transformation and a net-zero emission with emerging technology, virtual, 8 July 2021; • VEF Side Event: Unlocking the potential of digital technologies for a sustainable energy transition, virtual, 6 July 2021; • Side event: International Standards and Sustainable Green & Innovative Power Solutions to bring Broadband Internet Connectivity to Rural and Remote Areas, virtual, 22 June 2021; • Virtual Forum on Human Exposure to electromagnetic fields (EMFs) due to digital technologies, virtual, 10 May 2021; • Virtual session on "Using international standards to build smart sustainable cities and tackle climate change, e-waste and nature loss", 15 October 2020; • 9th Green Standards Week, 1 to 4 October 2019, Valencia, Spain; • ITU Telecom World: Session on Strategies to boost climate action in the ICT sector, 11 September 2019, Budapest, Hungary; • ITU Telecom World: Session on Frontier technologies for climate change, 11 September 2019, Budapest, Hungary;

Status of implementation
<ul style="list-style-type: none"> • HLPF Side Event: Harnessing Frontier Technologies for Accelerating Climate Actions and the SDGs, 9 July 2019, New York, UNHQ; • Smart Environment Panel on GHG emissions trajectories for the ICT sector, 15 May 2019, Geneva, Switzerland; • 13th Symposium on ICT, Environment and Climate Change, 13 May 2019, Geneva, Switzerland; • STI Forum Side Event: Frontier Technologies to Protect the Environment and Tackle Climate Change, 14 May 2019, New York, UNHQ.
184 (Guadalajara, 2010) Facilitating digital inclusion initiatives for indigenous peoples See Section 1.7 .
186 (Rev. Dubai, 2018) Strengthening the role of ITU with regard to transparency and confidence-building measures in outer space activities See Section 1.9 .
188 (Rev. Dubai, 2018) Combating counterfeit telecommunication/information and communication technology devices <p>ITU organized several workshops on combating counterfeiting ICT devices in the reporting period: Tunis, April 2018; Geneva, July 2018; Tunis, September 2019; Virtual, May 2021. The events were collocated with ITU-T SG11 and its Regional Group meetings.</p> <p>In March 2019, ITU approved Recommendation ITU-T Q.5050 “Framework for solution to combat counterfeit ICT devices”, which contains a reference framework and requirements.</p> <p>Following its meeting in September 2019, SG11RG-AFR considered it a necessity to begin extensive discussion within the region for implementation of strategies for combating counterfeiting mobile devices and fraud.</p> <p>In July 2020, following a request from Council (C18/107, clause 2), ITU published Technical Report TR-RLB-IMEI, “Reliability of IMEI identifier”. The report provides information about key vulnerabilities to IMEI reprogramming on mobile devices, challenges to make the IMEI non-reprogrammable, and the effects of IMEI tampering on mobile users, brand owners, manufacturers, service providers, regulators, governments, law enforcement agencies and national security.</p> <p>In September 2020, ITU approved Recommendation ITU-T Q.5052 “Addressing mobile devices with a duplicate unique identifier”, which identifies challenges and proposes mechanisms to enable the detection of mobile devices with duplicate identifiers present on operator networks.</p> <p>In January 2021, ITU approved Recommendation ITU-T Q.5053 “Mobile device access list audit interface”, which defines the methodologies and interfaces between a mobile device access list audit system and mobile network operators’ Equipment Identity Registers for the purpose of auditing and reconciling whether the MNOs are complying with the defined mobile device access list requirements.</p> <p>In March 2021, ITU published ITU-T Q-series Supplements 73 “Guidelines for Permissive versus Restrictive System Implementations to address counterfeit, stolen and illegal mobile devices” and 74 “Roadmap for the Q.5050-series - Combat of Counterfeit ICT and Stolen Mobile Devices”.</p> <p>ITU-T SG 11 continues to develop supplements and guidance on the topic, including a new technical report on use cases in the combat of multimedia content misappropriation.</p> <p>ITU-D Q4/2 and BDT related work:</p> <ul style="list-style-type: none"> • From the ITU World Telecommunication/ICT Regulatory Survey on regulatory practices there are five related questions related to the distribution and use of counterfeit ICTs. The data series featured include: 1) responsibilities of telecom/ICT regulators related to ICT counterfeiting; 2) types of counterfeit ICTs overseen by the telecom/ICT regulator; 3) policy/legislation/regulation related to ICT counterfeiting adopted; 4) areas covered in ICT counterfeiting regulations; 5) plans to adopt a regulatory framework for ICT counterfeiting. • ITU-D Study Group 2 Question 4 (Q4/2) (see 177 Rev. Dubai, 2018 above for details).

Status of implementation
<p>190 (Busan, 2014) Countering misappropriation and misuse of international telecommunication numbering resources</p> <p>ITU published Recommendation ITU-T E.156 “Guidelines for ITU-T action on reported misuse of E.164 number resources” (revised, June 2020), and Technical Report TR.EENM “Guidelines for effective and efficient national numbering resources administration” (June 2021).</p>
<p>193 (Busan, 2014) Support and assistance for Iraq to rebuild its telecommunication sector</p> <p>At the request of Iraq, emphasis has been put on assisting with the newly adopted Resolution 211. Assistance for the actual rebuilding of infrastructure was not possible in past years due to the security situation on the ground.</p>
<p>197 (Rev. Dubai, 2018) Facilitating the Internet of Things and smart sustainable cities and communities</p> <p>ITU-T Study Group 20 developed a series of Recommendations and other deliverables since 2018 (see here). Section 1.5 (‘Environment and smart sustainable cities and communities’) summarizes the work undertaken by the ITU on these subjects.</p> <p>In October 2019, Recommendations ITU-T Y.4200 and ITU-T Y.4201 were named as 2019 Catalyst Awards finalists of the Green Electronics Council.</p> <p>A Joint IEC-ISO-ITU Smart Cities Task force (J-SCTF) was created to build synergies in ongoing work in ITU-T, IEC and ISO to maximize efforts in identifying new areas of cooperation, and developing a holistic view on smart cities and communities taking into consideration the scope, areas of work and expertise of ITU-T, IEC and ISO to support smart cities’ and communities’ development. The first meeting of the J-SCTF took place virtually on 7 October 2020. Since then J-SCTF meetings have been held on 24 February 2021, 21 June 2021, 27 and 29 September 2021, and 7 October 2021.</p> <p>A list of ITU Symposia and Events on Climate Change, Internet of Things, Frontier Technologies and Smart Sustainable Cities can be found here.</p>
<p>198 (Rev. Dubai, 2018) Empowerment of youth through telecommunication/information and communication technology</p> <p>See Section 1.7.</p>
<p>200 (Rev. Dubai, 2018) Connect 2030 Agenda for global telecommunication/information and communication technology, including broadband, for sustainable development</p> <p>This report can be considered as a report on the implementation of the Connect 2030 Agenda (see Section 3).</p> <p>ITU also developed the Connect 2030 Agenda microsite, launched during WTISD 2020.</p>
<p>204 (Rev. Dubai, 2018) Use of information and communication technologies to bridge the financial inclusion gap</p> <p>Pursuant to WTSA-16 Resolution 89, ITU carries out a number of activities aimed at enhancing the use of ICTs to bridge the financial inclusion gap through:</p> <ul style="list-style-type: none"> • The Financial Inclusion Global Initiative (FIGI); • The ITU-T Study Groups and Focus Groups work programme; • Insights on digital financial services during COVID-19 webinars; • ITU-D Policy and Regulation Programme. <p>Financial Inclusion Global Initiative (FIGI)</p> <p>FIGI, established in 2017, is led jointly by ITU, the World Bank Group and the Committee on Payments and Market Infrastructures, with support from the Bill & Melinda Gates Foundation. FIGI funds national implementations in three countries, namely China, Egypt and Mexico, and has three Working Groups: (1) Electronic Payment Acceptance, (2) Digital ID Working Group led by the World Bank, and (3) Security, Infrastructure and Trust Working Group (SIT WG) led by ITU.</p> <p>In the reporting period, ITU implemented the following activities under the FIGI umbrella:</p> <ul style="list-style-type: none"> • Organized the second edition of FIGI Symposium, in Cairo, Egypt (21 to 24 January 2019) which included a Hackathon. • Organized a virtual FIGI Symposium (18 May to 24 June 2021).

Status of implementation
<ul style="list-style-type: none"> The FIGI SIT WG produced 17 technical reports which were disseminated to the ITU-T Study Groups for incorporation in their standardization work and established a DFS Security Lab in TSB. A standard methodology for testing security of mobile payment applications on USSD, STK and Android environments was developed based on the OWASP Mobile Top 10 Security Risk which is being adopted in the DFS Security Lab set up by ITU under FIGI to conduct security audits on mobile payments applications. DFS security audit of mobile payment applications in Zambia, undertaken by the DFS Security Lab in June 2021 following a request received from ZICTA. The DFS Security Lab is being promoted with developing countries and low income countries in Africa, Latin America and Asia Pacific Regions with the support of the ITU Regional Offices to create awareness about the security best practices for digital financial services and their implementation through the Security Lab. Organized FIGI Security Clinics (December 2019 (Geneva), November 2020 (virtual, with regional focus Egypt, Mexico), December 2020 (virtual, focus on Indonesia), and October through November 2021 in Uganda, Zimbabwe, Malawi, eSwatini, Nigeria, Tunisia, Egypt and Fiji (virtual , focusing on the DFS Security Lab and adoption of the security recommendations from FIGI)) . <p>Country implementation</p> <p>Country implementation focuses on the implementation of enabling policy and regulatory frameworks to leverage ICTs for Digital Financial Inclusion, integrating ITU-T FG DFS Recommendations, Payment Aspects of Financial Inclusion (PAFI) recommendations, and Level One Principles. Country implementation is currently taking place in Mexico, Egypt and China.</p> <p>Standardization activities in ITU-T study groups and focus groups related to DFS</p> <p>ITU-T Study Group 3</p> <p>In May 2019, ITU approved Recommendation ITU-T D.263 “Costs, charges and competition for mobile financial services (MFSs)”. D.Sup.4 to ITU-T D-series Recommendations “Supplement on Principles for increased adoption and use of mobile financial services (MFSs) through effective consumer protection mechanisms” was agreed in April 2020.</p> <p>A series of reports of the Focus Group on Digital Financial Services (FG-DFS) were approved to be published as SG 3 Technical Reports.</p> <p>ITU-T Study Group 11</p> <p>ITU published Technical Report ITU-T TR-SS7-DFS “SS7 vulnerabilities and mitigation measures for digital financial services transactions” (October 2019).</p> <p>SG 11 organized a Brainstorming session on SS7 vulnerabilities and the impact on different industries including digital financial services (October 2019).</p> <p>ITU approved Recommendation ITU-T Q.3057 “Signalling requirements and architecture for interconnection between trustable network entities” (April 2020). A workshop on “Improving the security of signalling protocols” was held virtually (29 November 2021).</p> <p>Additional related work in progress can be found here.</p> <p>ITU-T Study Group 12</p> <p>Two new ITU-T Recommendations were approved in 2020 on digital financial services:</p> <ul style="list-style-type: none"> ITU-T G.1033 highlights important aspects related to quality of service (QoS) and quality of experience (QoE) that require consideration in the context of digital financial services. ITU-T P.1502 introduces a methodology for testing the quality of experience (QoE) of digital financial services. <p>The Recommendations are based on the results of the ITU-T Focus Group on Digital Financial Services and the FIGI Security, Infrastructure and Trust Working Group.</p> <p>ITU-T Study Group 16</p> <p>The new Question 22/16 on multimedia aspects of distributed ledger technologies (DLT) and e-services continues part of the work of the now closed ITU-T Focus Group on distributed ledger technologies.</p>

Status of implementation

Topics of interest for DFS that are being studied by Q22/16 include digital evidence services, digital invoices and smart contracts.

Three DLT Recommendations (originally developed at the now closed [FG-DLT](#)) were completed:

- ITU-T [F.751.0](#) “Requirements for distributed ledger systems”
- ITU-T [F.751.1](#) “Assessment criteria for distributed ledger technologies”
- ITU-T [F.751.2](#) “Reference framework for distributed ledger technologies”

Updated information can be found [here](#).

ITU-T Study Group 17

ITU-T SG 17 is developing technical and procedural specifications to ensure risk-based security management are implemented in every lifecycle stage, component and interface of FinTech systems and services.

SG 17 approved [Recommendations ITU-T X.1149 “Security framework of open platform for FinTech services”](#) (May 2020) and [ITU-T X.1405 “Security threats and requirements for digital payment services based on distributed ledger technology”](#) (June 2021), as well as [a number of other Recommendations in the field of security of distributed ledger technology](#).

Digital Currency Global Initiative

The [Digital Currency Global Initiative](#), a collaboration between ITU and Stanford University established in July 2020, has as main objectives:

- Conduct further research on technical architecture, security, the technical implications and challenges in deployment caused by regulatory and policy requirements for central bank digital currency and other digital currencies.
- Develop a set of metrics by which to evaluate the robustness of various digital currency technologies against the requirements set by various stakeholders.
- Identify areas for standardization to enable implementation of digital currency.
- Organize a conference on an annual basis to share information on best practices, technical standards and lessons learned on digital currency implementation.

The activities of the Digital Currency Global Initiative are focused around three main pillars: engagement, innovative use and standardization. Three working groups were set up under the Standardization pillar during the first meeting:

- Architecture, Interoperability Requirements and Use Cases (AIRU);
- Policy and Governance (PG);
- Security and Assurance (SA).

The first e-meeting of the Initiative was held in July 2020 and its various working groups and work streams held some 30 virtual meetings in the period from July 2020 to November 2021.

Insights on Digital Financial Services during COVID-19 webinar series

TSB organized the [Insights on DFS webinar series](#) (12 webinars held from May to December 2020) with the objective of providing insights on the innovative applications of telecommunication services, digital payments and fintech in addressing the introduction of social distancing and lockdown in response to the COVID-19 pandemic and sharing lessons learned.

ITU- D Policy and Regulation Programme

ITU-D provides country assistance to build capacity and guide countries through digital financial inclusion, focusing in particular on leveraging ICTs for digital financial inclusion.

The Global Dialogue on Digital Financial Inclusion (GDDFI), launched during GSR 16 in 2016, is part ITU’s activities to foster and strengthen collaborative regulation between ICT regulators and regulators from other sectors, focusing on the financial sector. GDDFI brought together telecom/ICT and financial regulators from around the world to establish a constructive global dialogue on topical issues of relevance to stakeholders from both sectors. GDDFI identified policy, regulatory, and business collaborative guiding measures to move forward the digital financial inclusion agenda by building synergies at the national, regional and global levels (available [here](#) and report available [here](#)).

Status of implementation
<p>206 (Dubai, 2018) OTTs</p> <p>ITU approved Recommendation ITU-T D.1101 “Enabling environment for voluntary commercial arrangements between telecommunication network operators and OTT providers” (August 2020), which encourages relevant stakeholders to work towards an enabling regulatory environment that supports and encourages the development of innovative business models in line with the advancement of technology and innovations. Recommendation ITU-T D.262 “Collaborative Framework for OTTs” (May 2019) provides a collaborative framework to promote competition, consumer protection, consumer benefits, dynamic innovation, sustainable investment and infrastructure development, accessibility and affordability in relation to the global growth of OTT applications. Draft new Recommendation ITU-T D.1102 “Customer redress and consumer protection mechanisms for OTTs”, under approval, proposes possible customer redress and consumer protection mechanisms related to the provision and consumption of OTTs.</p> <p>ITU-T SG 3 is studying OTT applications within several work items, and SG 2 is progressing two work items on OTTs. Quality assessment methods developed by ITU-T SG 12 are applicable to OTTs.</p> <p>ITU-T SG 3 collaborated with ITU-T SG 2 on the ITU Inter-regional Standardization Forum on “Operational issues on numbering, emergency service and OTTs”, Dubai, United Arab Emirates, 22 October 2019.</p>
<p>207 (Dubai, 2018) ITU Journal: <i>ICT Discoveries</i></p> <p>Journal publications in the reporting period are shown in the below table. This overview includes issues of the ITU Journal: <i>ICT Discoveries</i>, which concluded its activities in June 2020; the new ITU Journal on Future and Evolving Technologies (ITU J-FET); and <i>Intelligent and Converged Networks</i> (ICN), an ITU and Tsinghua University Press joint publication.</p> <p>ITU J-FET has launched ten new special issues for publication in 2022. Details are available at the Journal’s webpage.</p>
<p>208 (Dubai, 2018)</p> <p>The 28th Meeting of the RAG (29 March to 1 April 2021) created a Correspondence Group (CG) to consider, among other topics, the possibility of transferring relevant part of Resolution ITU-R 15-6 (Appointment and maximum term of office for Chairmen and Vice Chairmen of Radiocommunication Study Groups, the Coordination Committee for Vocabulary and of the Radiocommunication Advisory Group) to Resolution ITU-R 1-8. A report of the CG is expected to be submitted for consideration at the next RAG meeting in 2022.</p> <p>The third Interregional Meeting for Preparation of WTS-20 (IRM, October 2021) identified consensus among the proposals of the six regional telecommunication organizations to suppress WTS Resolution 35 in order to avoid repetition with PP Resolution 208. The proposed suppression of WTS Resolution 35 follows the principle of streamlining resolutions.</p>
<p>209 (Dubai, 2018)</p> <p>As per Resolution 209 (Dubai, 2018), with the support of Member States, ITU has encouraged qualified SMEs to join as Associates in ITU-R and ITU-T Study Groups, through reduced fees. Since the start of this reduced fee option in 2020, with significant digital marketing and outreach efforts, ITU has welcomed 46 SMEs, with 38 in ITU-T and 8 in ITU-R (as of 1 November 2021).</p> <p>Qualifying SMEs from developed countries now pay CHF 3 975 a year, and those from developing countries pay CHF 1 987.50 a year to participate in one Study Group, compared to the standard fee of CHF 10 600 for ITU-R and ITU-T. Associates in ITU-D Study Groups already pay these fee amounts. Member States qualify SMEs according to their national definitions, but the Plenipotentiary Conference (Dubai, 2018) set an upper limit of a maximum of 250 employees and Council at its 2019 session set the maximum revenue at CHF 15 million a year.</p>
<p>210 (Dubai, 2018) ITU’s role as supervisory authority of the international registration system for space assets under the space protocol</p> <p>The Resolution instructs the Secretary-General to participate in the work of the Space Protocol Preparatory Commission and its working groups and to report to the ITU Council accordingly. The Preparatory Commission has not met since the end of PP-18.</p>

Status of implementation
<p>211 (Dubai, 2018) Support for the Iraqi Du3M 2025 initiative for advancement of the telecommunication and information technology sectors</p> <p>The ICT Accessibility Policy for Iraq was developed in 2019. Four events were organized in Iraq as part of the ITU-UNESCO Digital Inclusion Week that took place in Baghdad, Iraq, from 22 to 25 September 2019:</p> <ul style="list-style-type: none"> Digital Inclusion Forum, in collaboration with UNESCO, to shed light on projects and activities by key stakeholders from the Arab region (22 September, around 150 participants). National workshop on ICT Accessibility for Persons with Disabilities, organized to present ITU's draft proposal for Iraq's national ICT Accessibility Policy (23 September, around 30 participants). National workshop on Smart Learning Policies, in collaboration with UNESCO, to shed light on key issues pertaining to smart learning policies (24 September, around 30 participants). National workshop on cybersecurity for financial institutions, a capacity building workshop to shed light on key issues that financial institutions should take care of in their mission to protect their critical ICT infrastructure (25 September, around 50 participants). <p>A number of ongoing areas of assistance have been stalled due to the instability in the region and globally. These include: development of a national cybersecurity strategy, raising awareness on child online protection, digital broadcasting, and e-waste statistics. This was all in line with the agreed implementation plan for the implementation of Resolution 211 with Iraq.</p>
<p>213 (Dubai, 2018) Measures to improve, promote and strengthen ITU fellowships</p> <p>A Draft revised policy for awarding fellowships for events and activities funded through the ITU regular budget and revised list of eligible countries were presented to the CWG-FHR (see here). Service Order No. 07/05 had been revised as well as its related list of eligible countries which is adapted from the United Nations annual report, <i>World Economic Situation and Prospects 2019</i>. The United Nations report 2020 was released on 16 January 2020, well after this document was posted on the Council Working Group website. In view of this, the changes noted in the UN report 2020 will be reflected in the list to be presented to the Council in June.</p> <p>From April 2018 to November 2021, TSB provided 370 fellowships for the following meetings:</p> <ul style="list-style-type: none"> In Geneva: ITU-T Study Groups 2, 3, 5, 9, 11, 12, 13, 15, 16, 17, 20 and TSAG. Outside Geneva: SG5RG-AFR + SG20RG-AFR and SG13RG-AFR (Nigeria), C&I Training for AFR (Ghana), SG3RG-AFR (Madagascar), SG9 (Colombia), SG20 and SG2RG-ARB + SG2RG-AFR (Egypt), SG3RG-AO (Sri Lanka), SG2RG-ARB + SG2RG-AFR + SG3RG-ARB (UAE), SG12RG-AFR (Rwanda), SG3RG-ARB + SG5RG-ARB and SG17RG-ARB (Kuwait), SG16 (Slovenia), SG2RG-AMR + SG3RG-LAC (Nicaragua), SG20RG-EECAT and SG3RG-EECAT (Belarus), SG12RG-AFR (Chad), SG11RG-EECAT + SG20RG-EECAT and SG3RG-EECAT + SG11RG-EECAT + SG13RG-EECAT (Russia), SG5 (France), SG9 (Japan), C&I Training for AFR and SG11RG-AFR and SG17RG-AFR + SG17RG-ARB and SG2RG-AFR + SG2RG-ARB (Tunisia), SG13 (Zimbabwe), SG20 and SG3RG-AO (China), SG5RG-AFR + SG5RG-ARB + SG20RG-AFR (Tanzania). <p>TSB received 643 requests. 462 fellowships were awarded. Of that amount, 370 were used for a total of CHF 825 000.</p>
<p>Decision 5 (Rev. Dubai, 2018) Revenue and expenses for the Union for the period 2020-2023</p> <p>See report to Council (Doc. C20/9) and report from the Chair of CWG-FHR</p>

Annex 2 Outcomes of the work of the Union / efficiency of enablers

ITU-R Objectives

Objective R.1: Meet, in a rational, equitable, efficient, economical and timely way, the ITU membership's requirements for radio-frequency spectrum and satellite-orbit resources, while avoiding harmful interference

Outcomes

R.1-a: Increased number of countries having satellite networks and earth stations recorded in the Master International Frequency Register (MIFR)

R.1-b: Increased number of countries having terrestrial frequency assignments recorded in the MIFR

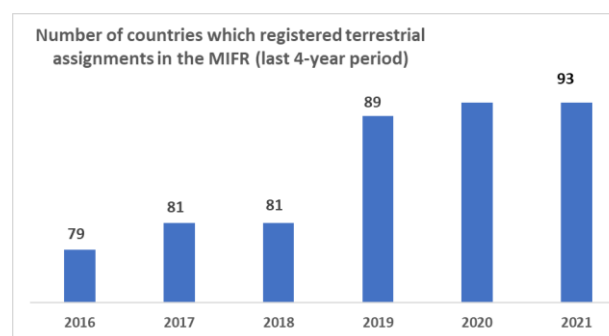
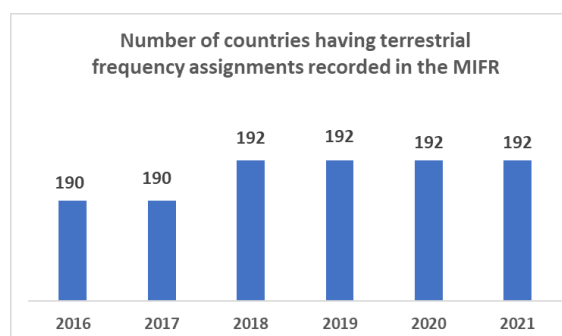
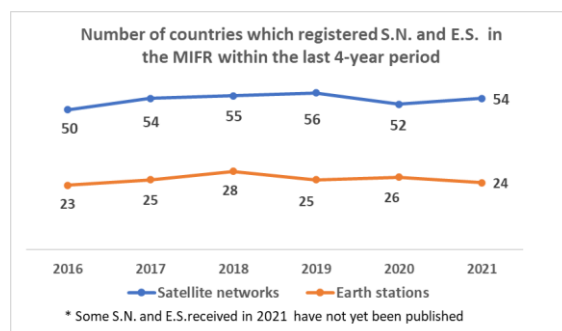
R.1-c: Increased percentage of assignments recorded in the MIFR with a favourable finding

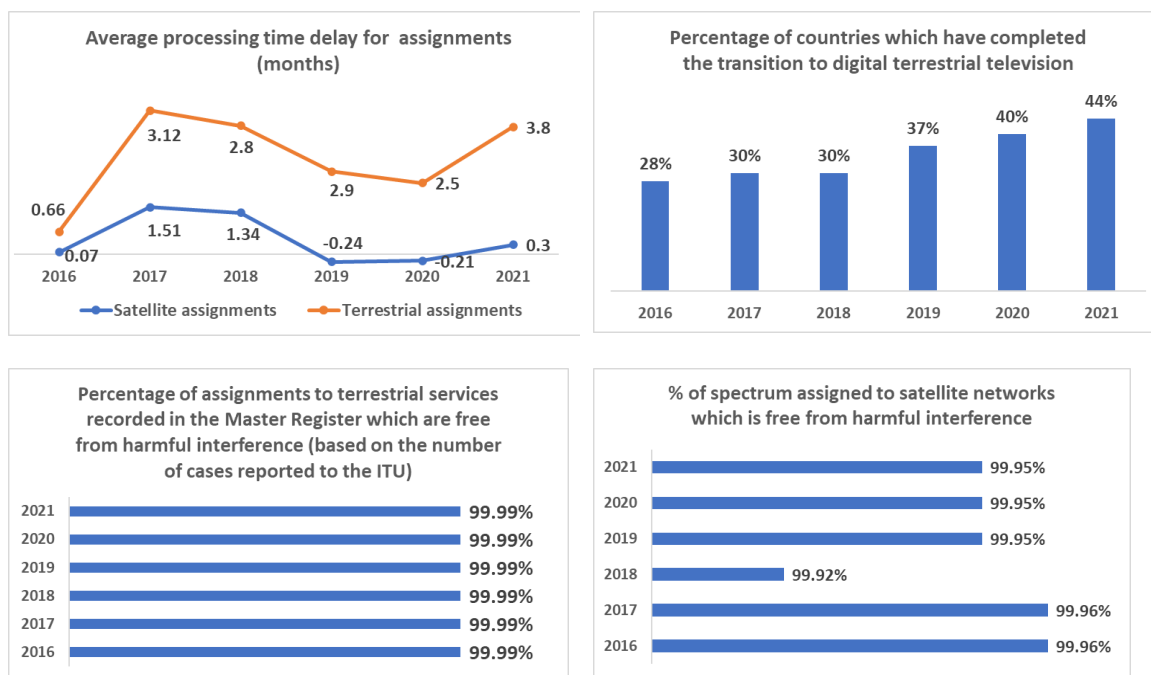
R.1-d: Increased percentage of countries which have completed the transition to digital terrestrial television broadcasting

R.1-e: Increased percentage of spectrum assigned to satellite networks which is free from harmful interference

R.1-f: Increased percentage of assignments to terrestrial services recorded in the MIFR which are free from harmful interference

Progress achieved





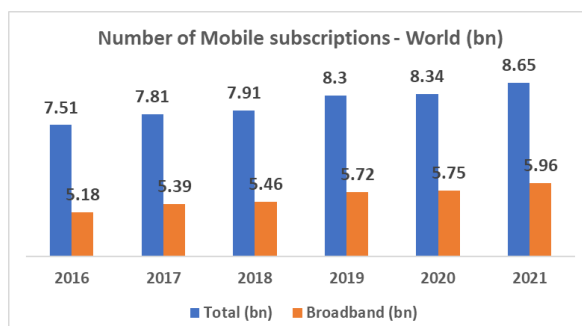
Objective R.2: (Radiocommunication standards) Provide for worldwide connectivity and interoperability, improved performance, quality, affordability and timeliness of service and overall system economy in radiocommunications, including through the development of international standards

Outcomes

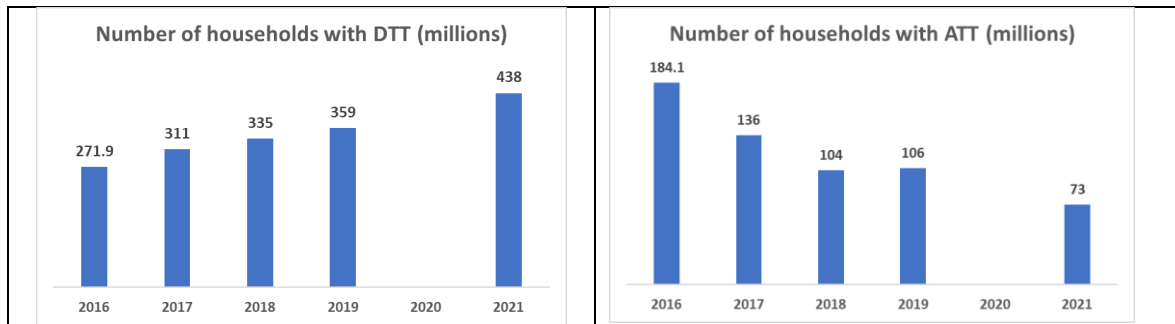
- R.2-a: Increased mobile broadband access and use, including in frequency bands identified for international mobile telecommunications (IMT)
- R.2-b: Reduced mobile broadband price basket, as a percentage of gross national income (GNI) per capita
- R.2-c: Increased number of fixed links and increased amount of traffic handled by the fixed service (Tbit/s)
- R.2-d: Increased number of households with digital terrestrial television reception
- R.2-e: Increased number of satellite transponders (equivalent 36 MHz) on communication satellites in operation and corresponding capacity (Tbit/s); Number of VSAT terminals; Number of households with satellite television reception
- R.2-f: Increased number of devices with radionavigation-satellite reception
- R.2-g: Increased number of satellites having Earth exploration payloads in operation, corresponding quantity and resolution of transmitted images and data volume downloaded (Tbytes)

Progress achieved

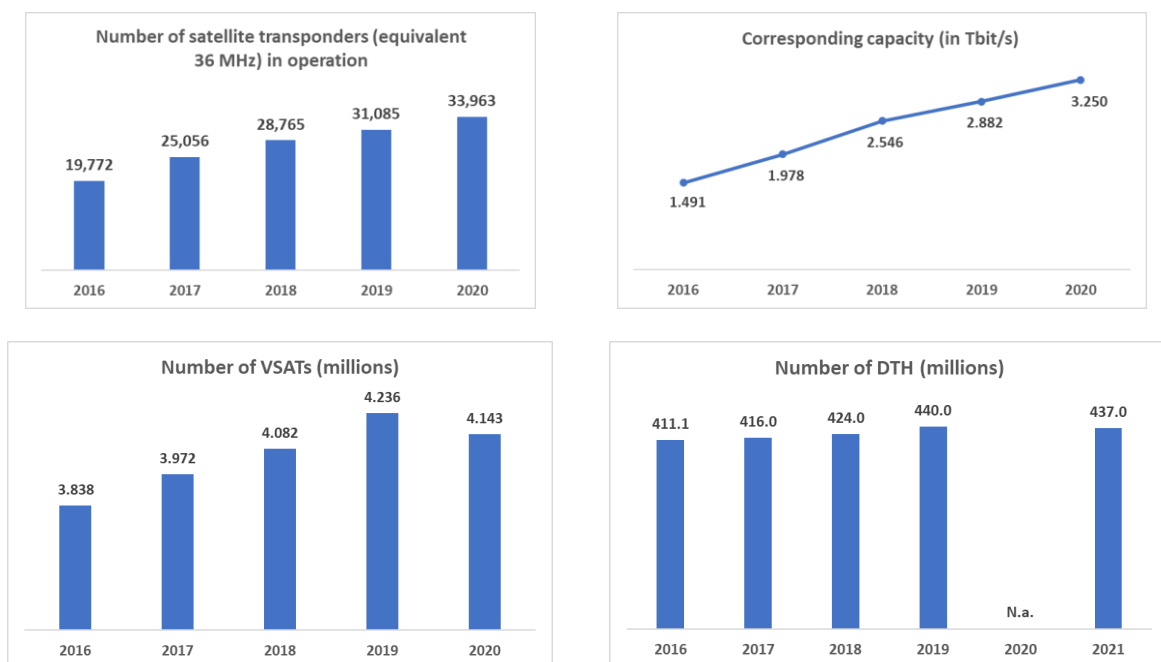
R.2a



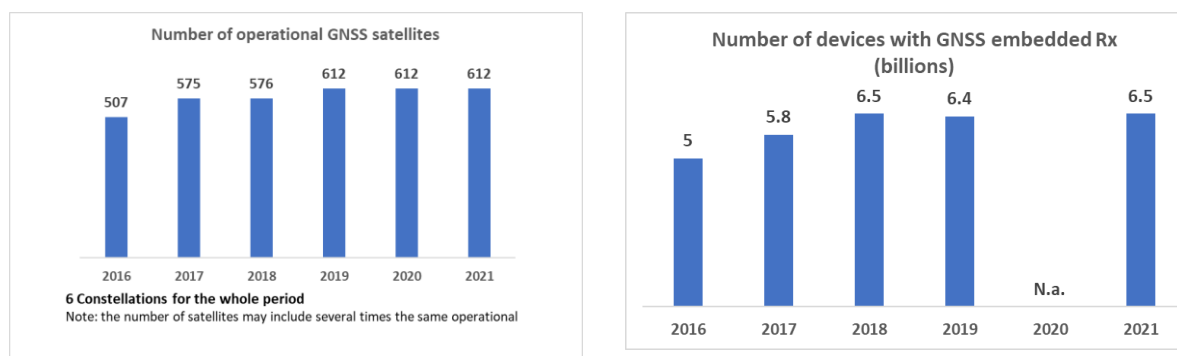
R.2b: See also results for strategic targets 1.3, 2.5 and 2.6 in Section 3.1

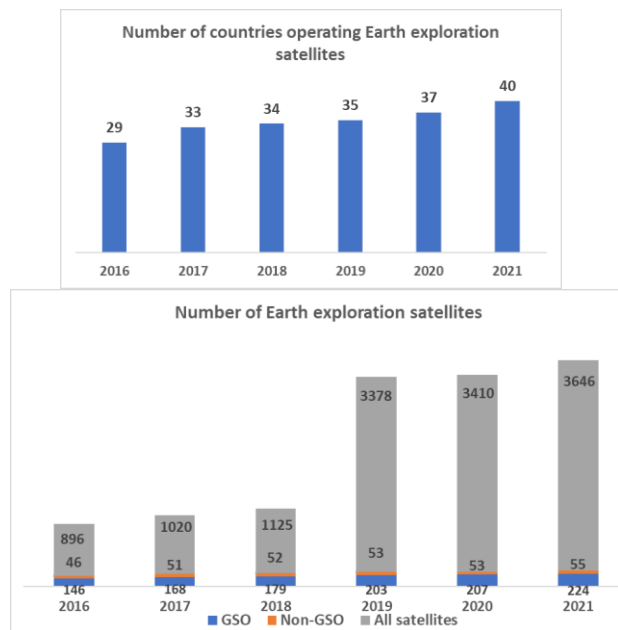


R.2e



R.2f:





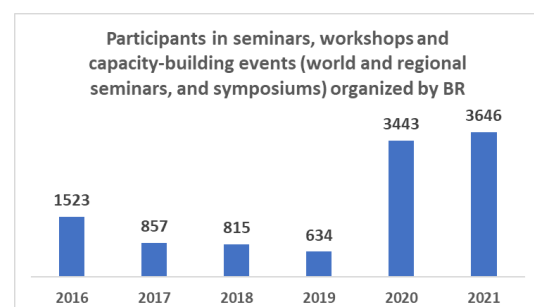
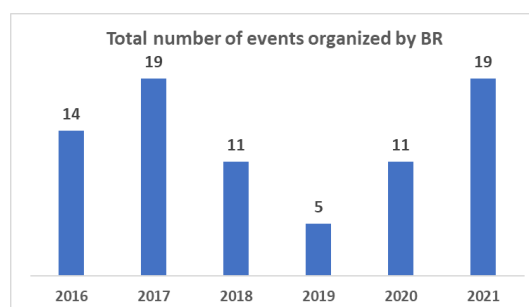
Objective R.3: (Knowledge sharing) Foster the acquisition and sharing of knowledge and know-how on radiocommunications

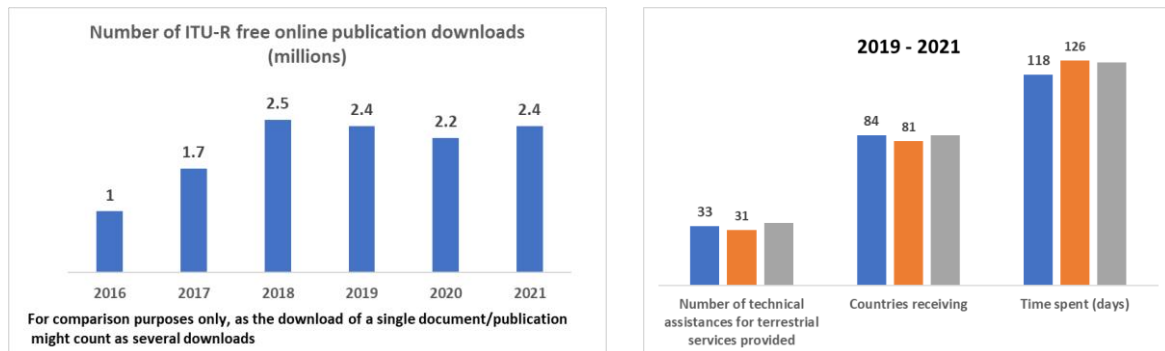
Outcomes

R.3-a: Increased knowledge and know-how on the Radio Regulations, Rules of Procedure, regional agreements, recommendations and best practices on spectrum use

R.3-b: Increased participation in ITU-R activities (including through remote participation), in particular by developing countries

Progress achieved





ITU-T Objectives

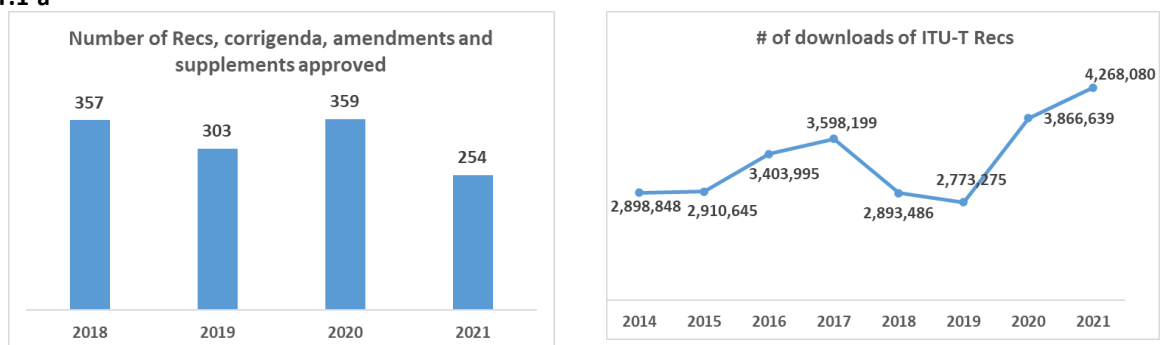
Objective T.1: (Development of standards) Develop non-discriminatory international telecommunication/ICT standards (ITU-T Recommendations), in a timely manner, and foster interoperability and improved performance of equipment, networks, services and applications

Outcomes

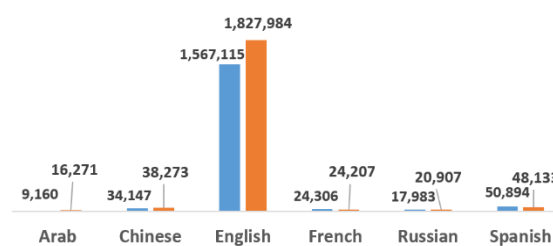
- T.1-a: Increased utilization of ITU-T Recommendations
- T.1-b: Improved conformance to ITU-T Recommendations
- T.1-c: Enhanced standards in new technologies and services

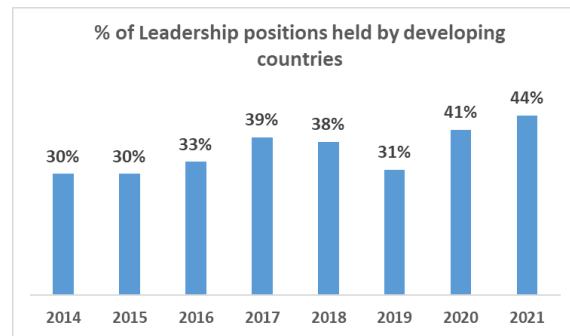
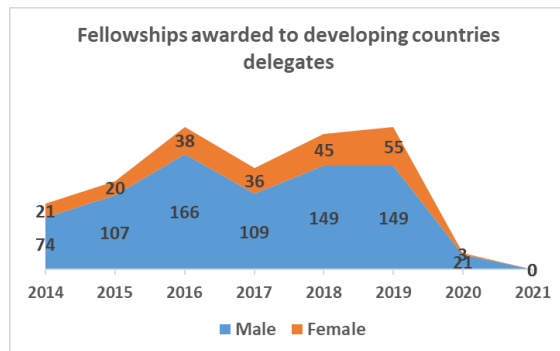
Progress achieved

T.1-a



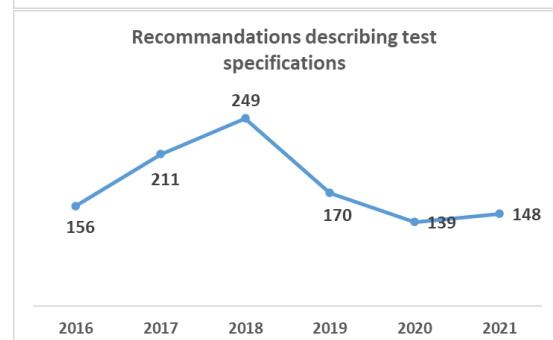
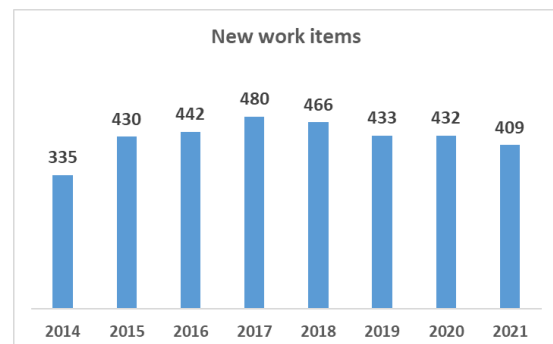
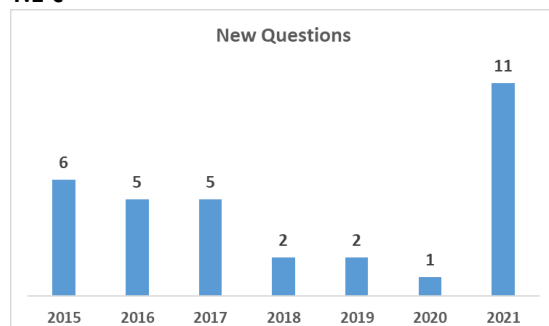
Visits ITU-T Website per language 2019-2020





T.1-b

T.1-c



Objective T.2 (Bridging the standards gap): Promote the active participation of the membership, in particular developing countries, in the definition and adoption of non-discriminatory international telecommunication/ICT standards (ITU-T Recommendations) with a view to bridging the standardization gap

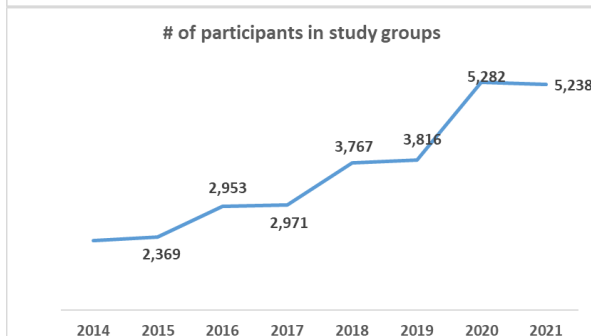
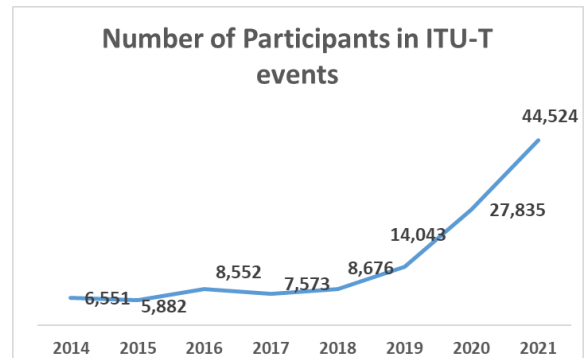
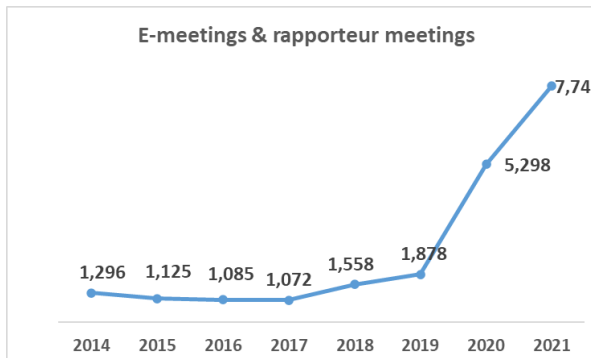
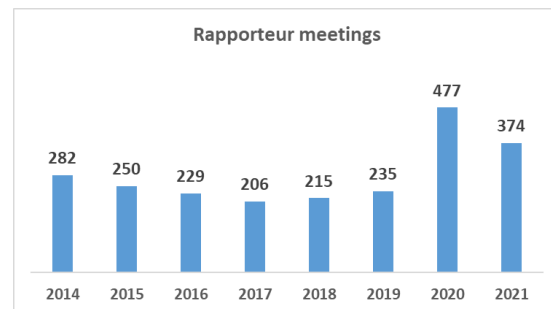
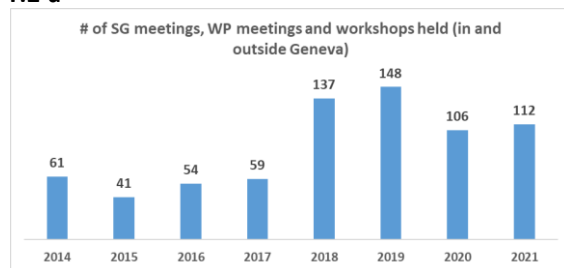
Outcomes

T.2-a: Increased participation in the ITU-T standardization process, including attendance of meetings, submission of contributions, taking leadership positions and hosting of meetings/workshops, especially from developing countries

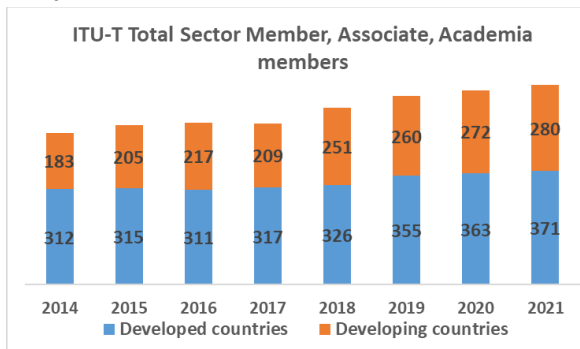
T.2-b: Increase of the ITU-T membership, including Sector Members, Associates and Academia

Progress achieved

T.2-a



T.2-b



2021 ITU-T Totals (as of 31 December 2021)

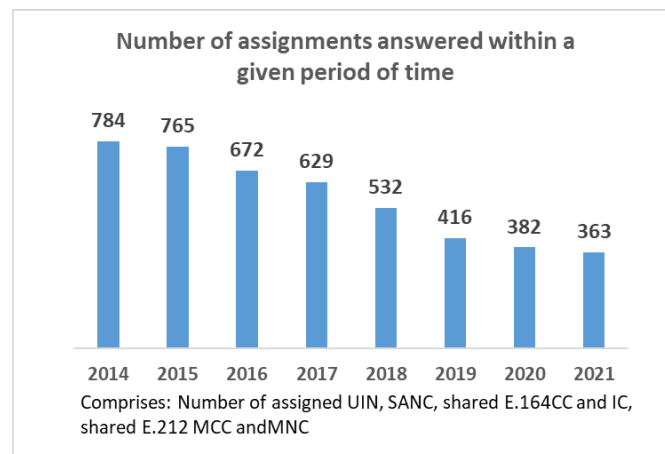
ITU-T Sector Members	Developed country	150
	Developing country	104
	Least developed country	15
ITU-T Associates	Developed country	168
	Developing country	52
	Least developed country	1
Academia	Developed country	53
	Developing country	104
	Least developed country	4

Objective T.3: (Telecommunication resources) Ensure effective allocation and management of international telecommunication numbering, naming, addressing and identification resources in accordance with ITU-T Recommendations and procedures

Outcomes

T.3-a: Timely and accurate allocation of international telecommunication numbering, naming, addressing and identification resources, as specified in the relevant recommendations

Progress achieved



Objective T.4: (Knowledge sharing) Foster the acquisition, awareness, sharing of knowledge and know how on the standardization activities of ITU-T

Outcomes

T.4-a: Increased knowledge on ITU-T standards and on best practices in their implementation of ITU-T standards

T.4-b: Increased participation in ITU-T's standardization activities and increased awareness of the relevance of ITU-T standards

T.4-c: Increased Sector visibility

Progress achieved

Relevant indicators are already covered under T.1 and T.2 above

Objective T.5: (Cooperation with standardization bodies) Extend and facilitate cooperation with international, regional and national standardization bodies

Outcomes

T.5-a: Increased communications with other standards organizations

T.5-b: Decreased number of conflicting standards

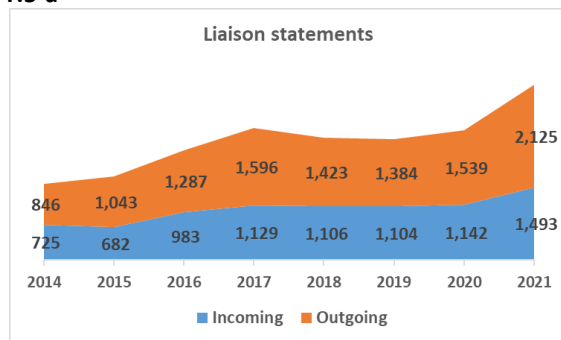
T.5-c: Increased number of memoranda of understanding/collaboration agreements with other organizations

T.5-d: Increased number of ITU-T A.4, A.5 and A.6 qualified organizations

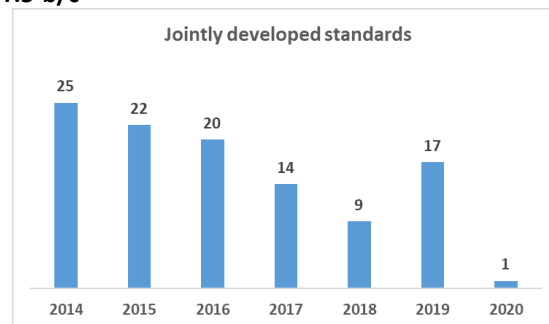
T.5-e: Increased number of workshops/events organized jointly with other organizations

Progress achieved

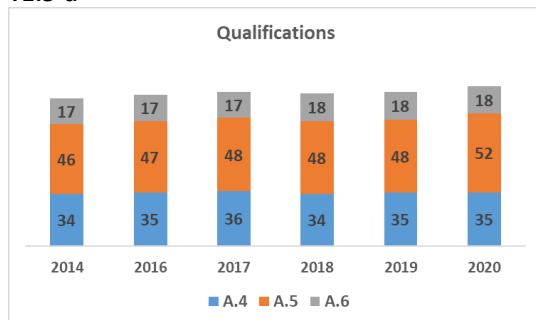
T.5-a



T.5-b/c



T1.5-d



ITU-D Objectives

Objective D.1: (Coordination) Foster international cooperation and agreement on telecommunication/ICT development issues

Outcomes

D.1-a: Enhanced review and increased level of agreement on the draft ITU-D contribution to the draft ITU strategic plan, the World Telecommunication Development Conference (WTDC) Declaration, and the WTDC Action Plan

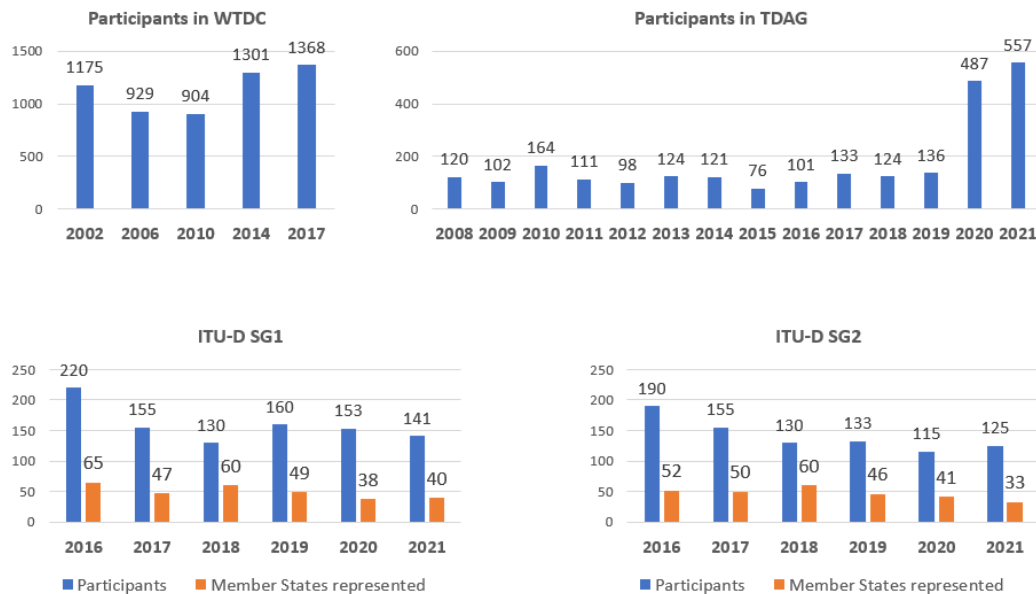
D.1-b: Assessment of the implementation of the Action Plan and of the WSIS Plan of Action

D.1-c: Enhanced knowledge-sharing, dialogue and partnership among the ITU membership on telecommunication/ICT issues

D.1-d: Enhanced process and implementation of telecommunication/ICT development projects and regional initiatives

D.1.e: Facilitation of agreement to cooperate on telecommunication/ICT development programmes between Member States, and between Member States and other stakeholders in the ICT ecosystem, based on requests from ITU Member States involved

Progress achieved



Objective D.2: (Modern and secure telecommunication/ICT Infrastructure) Foster the development of infrastructure and services, including building confidence and security in the use of telecommunications/ICTs

Outcomes

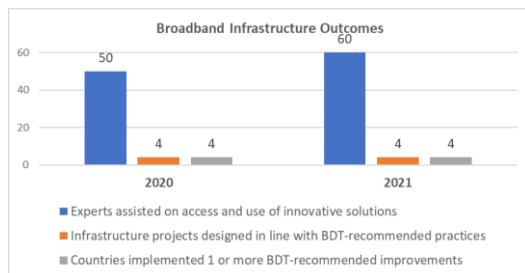
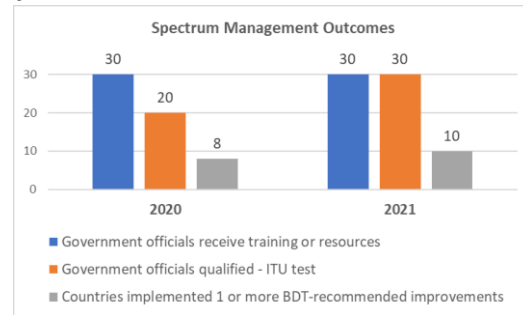
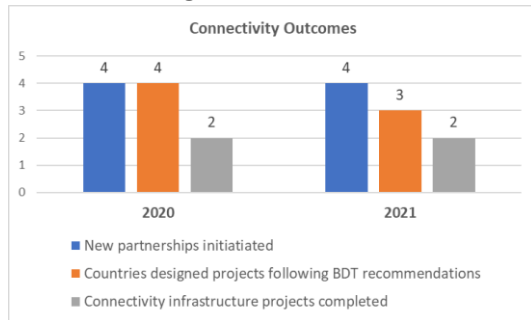
D.2-a: Enhanced capacity of the ITU membership to make available resilient telecommunication/ICT infrastructure and services

D.2-b: Strengthened capacity of Member States to effectively share information, find solutions, and respond to threats to cybersecurity, and to develop and implement national strategies and capabilities, including capacity building, encourage national, regional and international cooperation towards enhanced engagement among Member States and relevant players

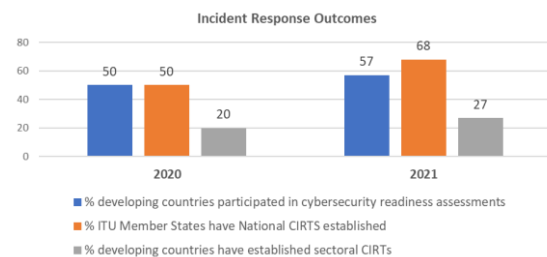
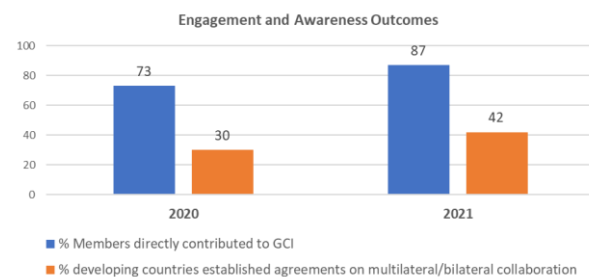
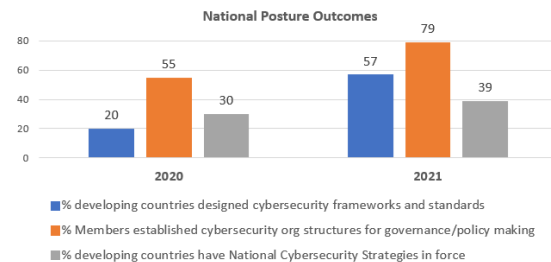
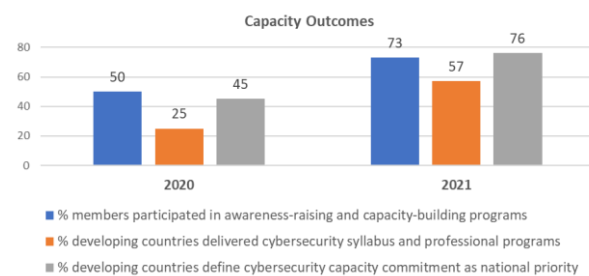
D.2-c: Strengthened capacity of Member States to use telecommunications/ICTs for disaster risk reduction and management, to ensure availability of emergency telecommunications, and support cooperation in this area

Progress achieved

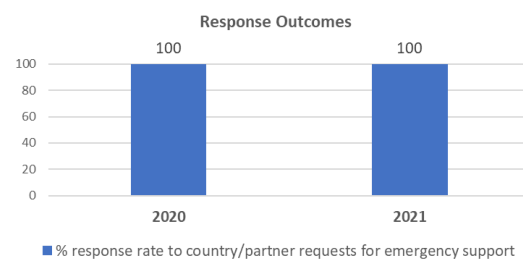
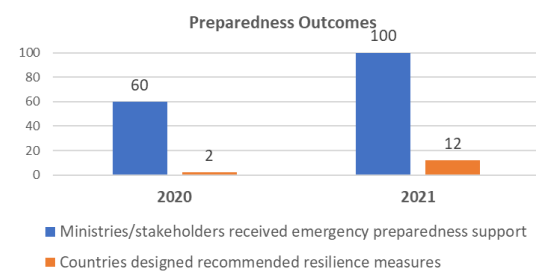
Network and digital infrastructure thematic priority



Cybersecurity thematic priority



Emergency telecommunications thematic priority



Objective D.3: (Enabling Environment) Foster an enabling policy and regulatory environment conducive to sustainable telecommunication/ICT development

Outcomes

D.3-a: Strengthened capacity of Member States to enhance their policy, legal and regulatory frameworks conducive to development of telecommunications/ICTs

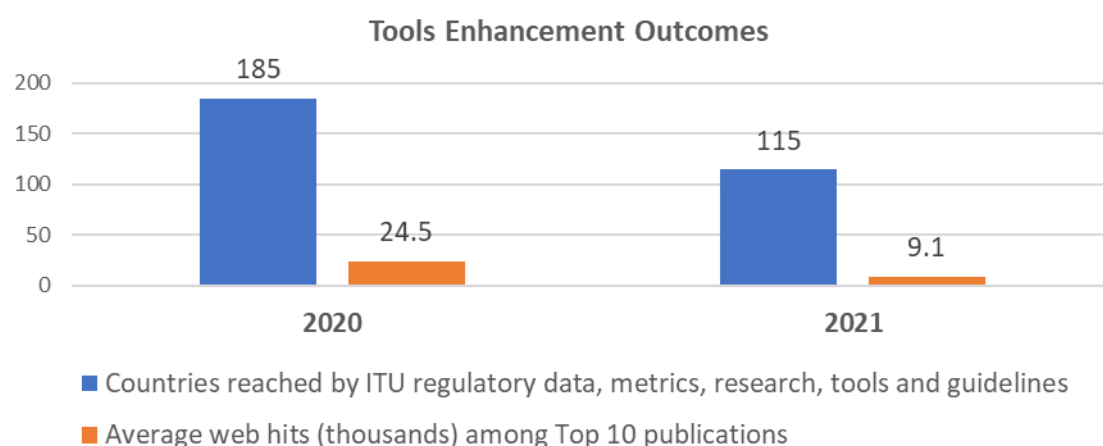
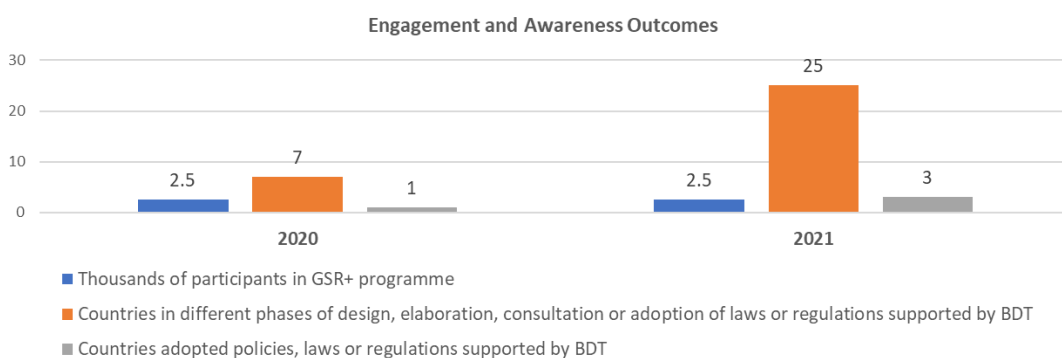
D.3-b: Strengthened capacity of Member States to produce high-quality, internationally comparable telecommunication/ICT statistics which reflect developments and trends in telecommunications/ICTs, based on agreed standards and methodologies

D.3-c: Improved human and institutional capacity of the ITU membership to tap into the full potential of telecommunications/ICTs

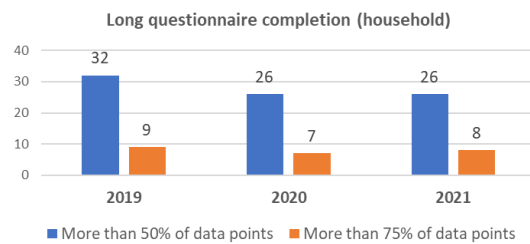
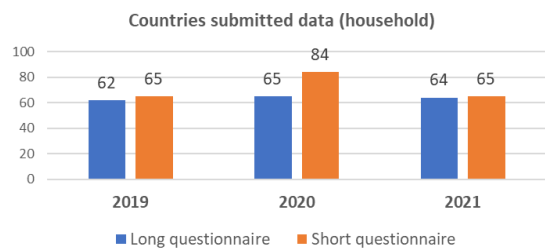
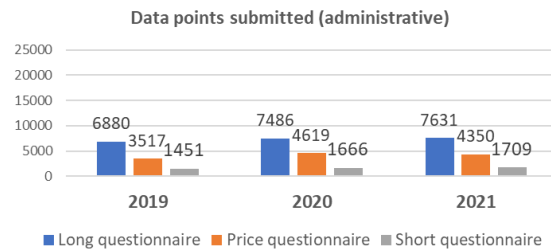
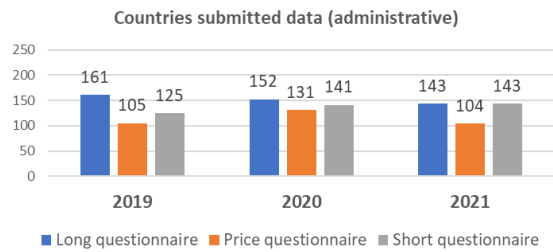
D.3-d: Strengthened capacity of the ITU membership to integrate telecommunication/ICT innovation and digitalization in national development agendas and to develop strategies to promote innovation initiatives, including through public, private, and public-private partnerships

Progress achieved

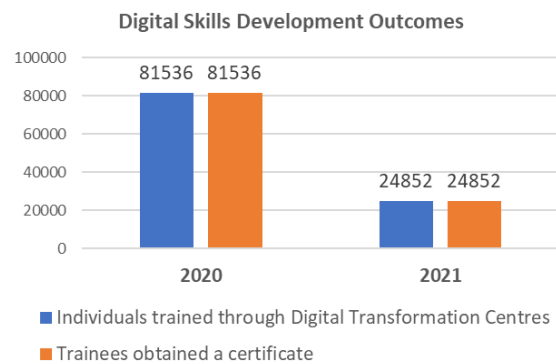
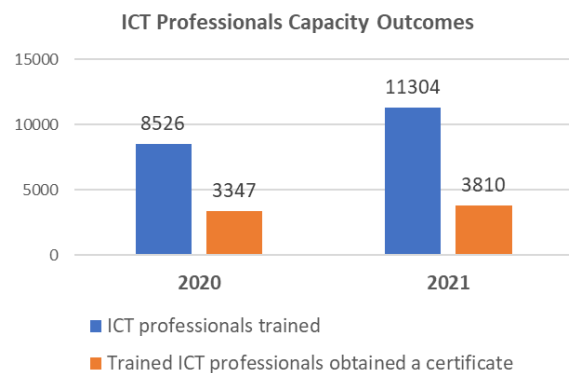
Policy and regulation thematic priority



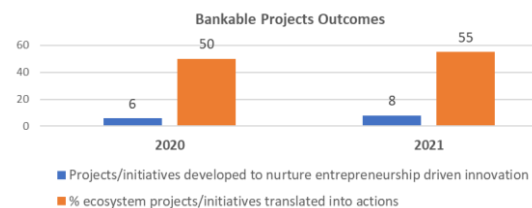
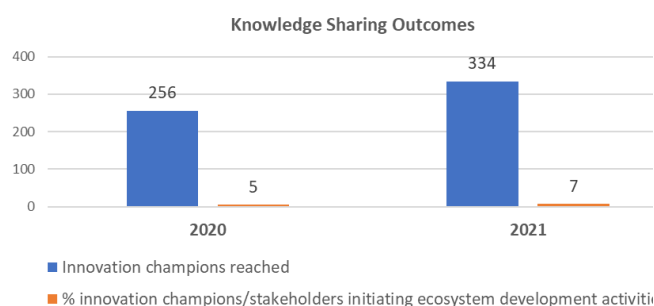
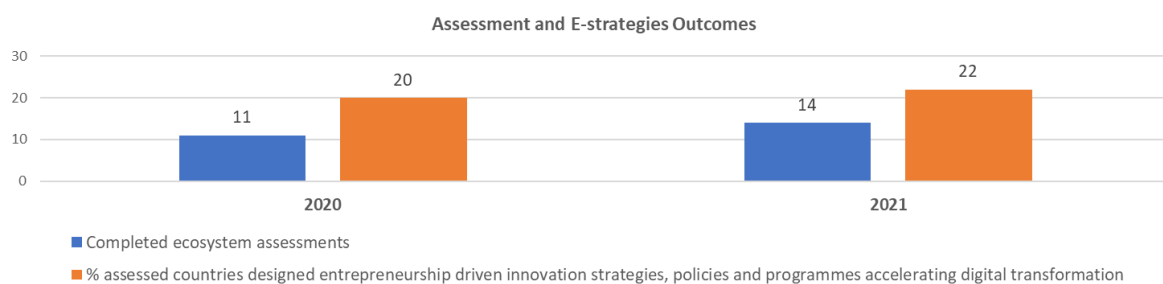
Statistics thematic priority



Capacity development thematic priority



Digital innovation ecosystem thematic priority



Objective D.4: (Inclusive Information Society) Foster the development and use of telecommunications/ICTs and applications to empower people and societies for sustainable development

Outcomes

D-4-a: Improved access to and use of telecommunication/ICT in (LDCs, small island developing states (SIDS) and landlocked developing countries (LLDCs), and countries with economies in transition

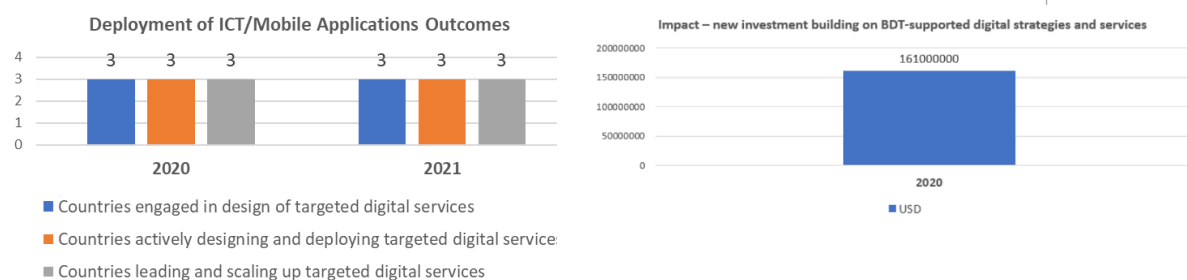
D.4-b: Improved capacity of the ITU membership to accelerate economic and social development by leveraging and using new technologies and telecommunication/ICT services and applications

D.4-c: Strengthened capacity of the ITU membership to develop strategies, policies and practices for digital inclusion, in particular for the empowerment of women and girls, persons with disabilities and other persons with specific needs

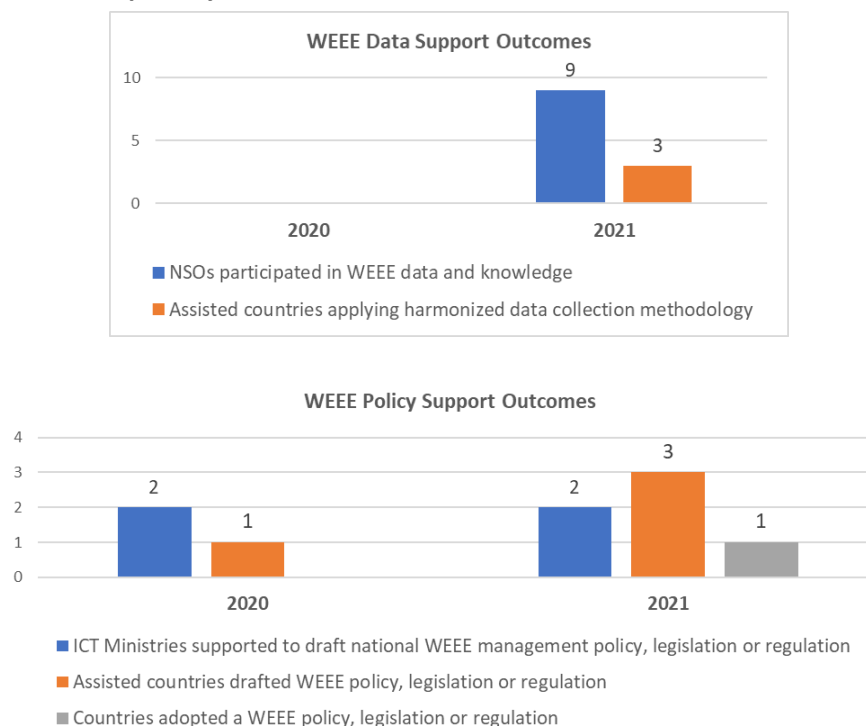
D.4-d: Enhanced capacity of the ITU membership to develop telecommunication/ICT strategies and solutions on climate-change adaptation and mitigation and the use of green/renewable energy

Progress achieved

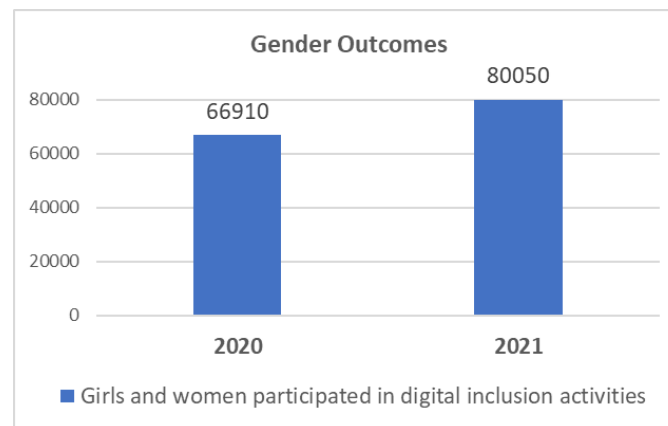
Digital services and applications thematic priority



Environment thematic priority



Digital inclusion thematic priority



Inter-sectoral objectives

Objective I.1: (Collaboration) Foster closer collaboration among all stakeholders in the telecommunication/ICT ecosystem

Outcomes

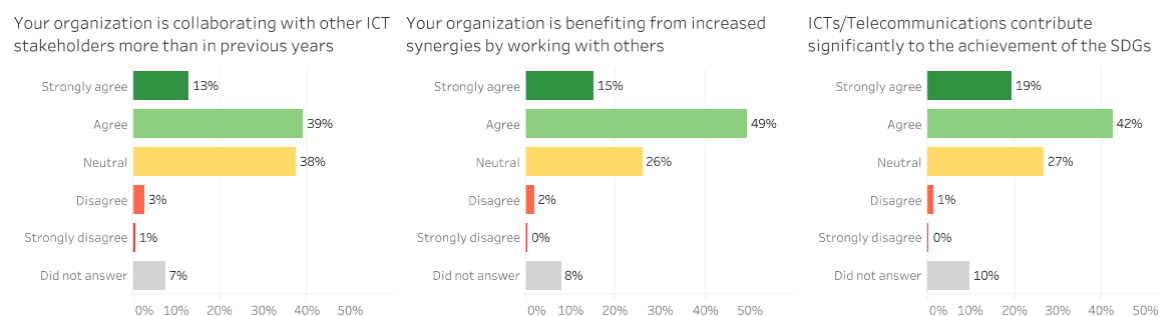
- I.1-a: Increased collaboration among relevant stakeholders
- I.1-b: Increased synergies from partnerships on telecommunication/ICTs
- I.1-c: Increased recognition of telecommunications/ICTs as a cross-cutting enabler for implementing the WSIS Action Lines and the 2030 Agenda for Sustainable Development
- I.1-d: Enhanced support to ITU membership in developing and delivering ICT products and services

Progress achieved

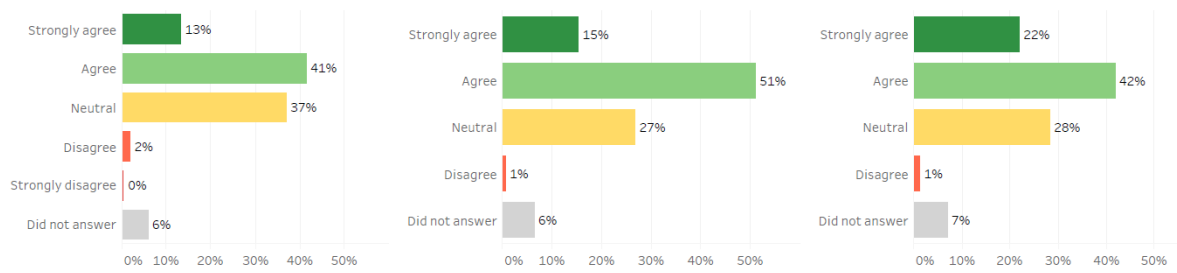
Three new Questions have been added to the ITU Membership Survey 2020 to assess progress towards targets I.1-a, I.1-b and I.1-c.

2019:

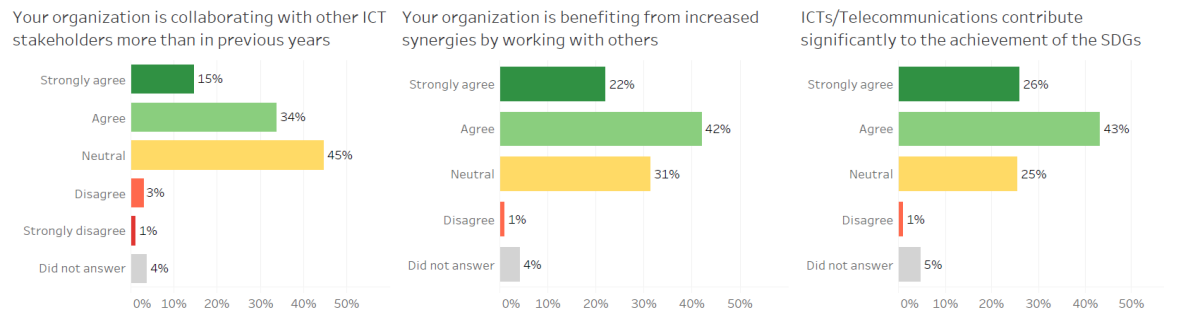
19 - What is your perception of the following statements?



2020:



2021:

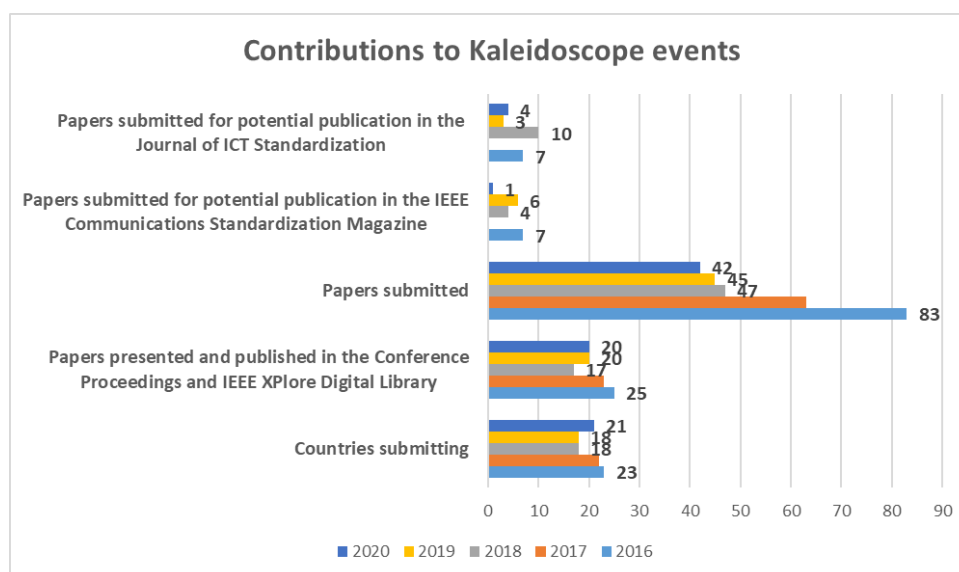
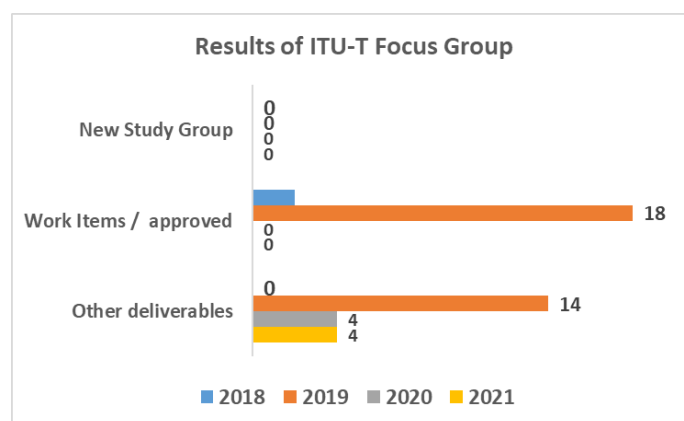


Objective I.2: (Emerging telecommunication/ICT trends) Enhance identification, awareness and analysis of digital transformation and emerging trends in the telecommunication/ICT environment

Outcomes

I.2-a: Identification, awareness and analysis of digital transformation and emerging trends in telecommunications/ICTs

Progress achieved



Objective I.3: (Telecommunication/ICT accessibility) Enhance telecommunications/ICTs accessibility for persons with disabilities and specific needs

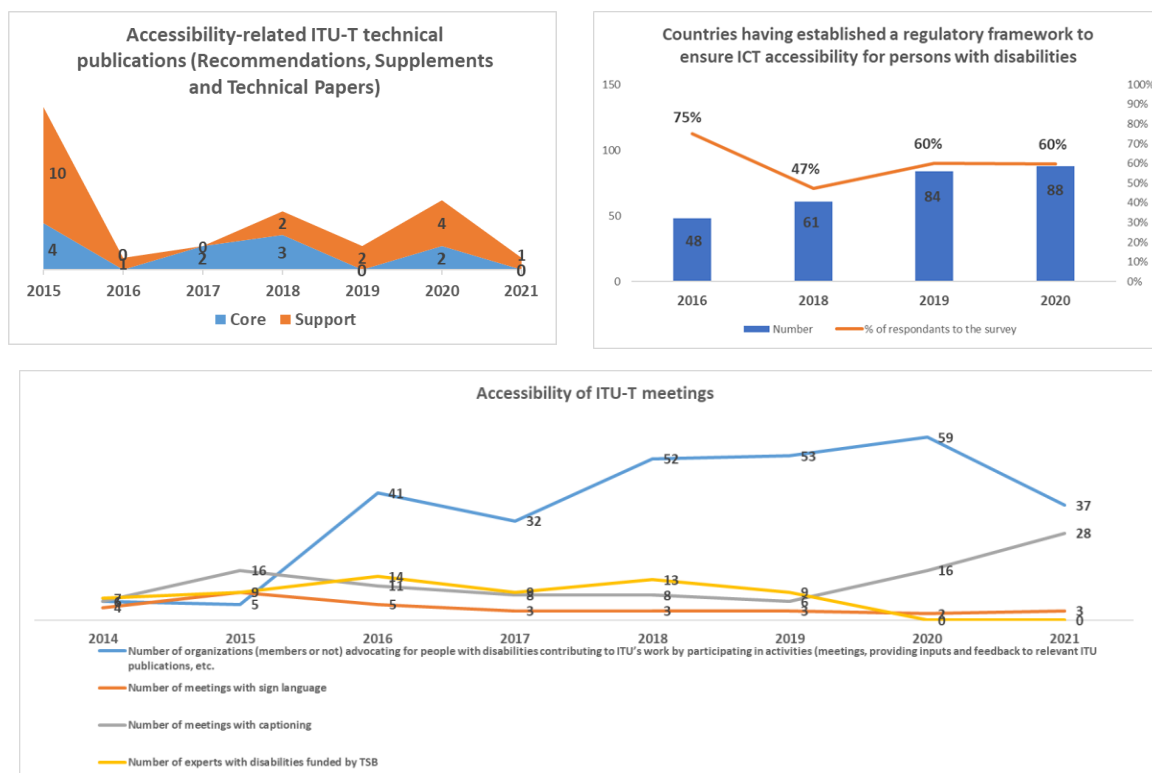
Outcomes

I.3-a: Increased availability and compliance of telecommunication/ICT equipment, services and applications with universal design principles

I.3-b: Increased engagement of organizations of persons with disabilities and specific needs in the work of the Union

I.3-c: Increased awareness, including multilateral and intergovernmental recognition, of the need to enhance access to telecommunications/ICTs for persons with disabilities and specific needs

Progress achieved



Objective I.4: (Gender equality and inclusion) Enhance the use of telecommunication/ICTs for gender equality and inclusion, and empowerment of women and girls

Outcomes

- I.4-a: Enhanced access to and use of telecommunication/ICTs to promote the empowerment of women
- I.4-b: Enhanced participation of women at all level of decision-making in the work of the Union and the telecommunication/ICT sector
- I.4-c: Increased engagement with other UN organizations and stakeholders involved in using telecommunication/ICTs to promote the empowerment of women
- I.4-d: Full implementation of UN system-wide strategy on gender parity within ITU's remit

Progress achieved

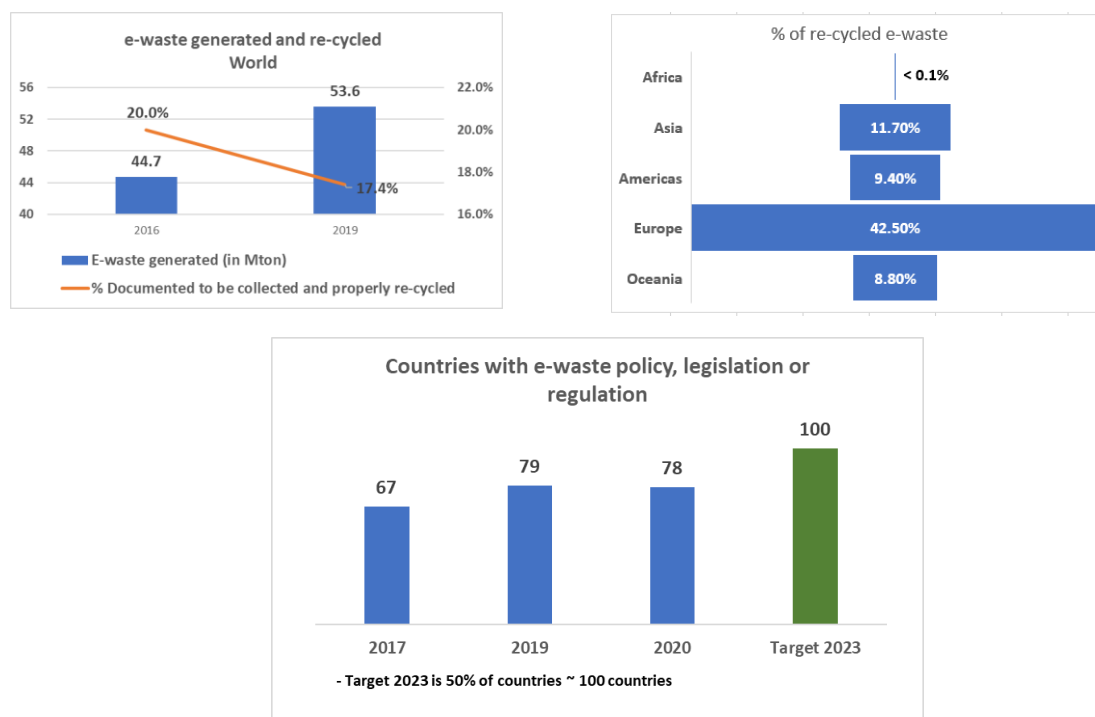
See Target 2.8

Objective I.5: (Environmental sustainability) Leverage telecommunication/ICTs to reduce environmental footprint

Outcomes

- I.5-a: Improved efficiency of environmental policies and standards
- I.5-b: Reduced energy consumption from telecommunication/ICT applications
- I.5-c: Increasing number of recycled e-waste
- I.5-d: Improved solutions for Smart Sustainable Cities

Progress achieved

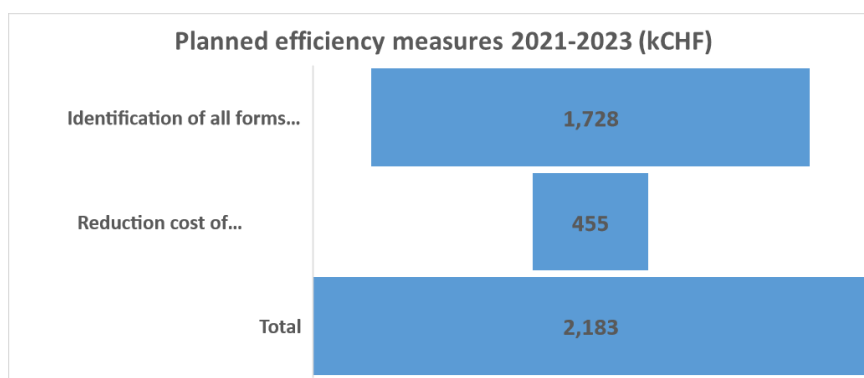
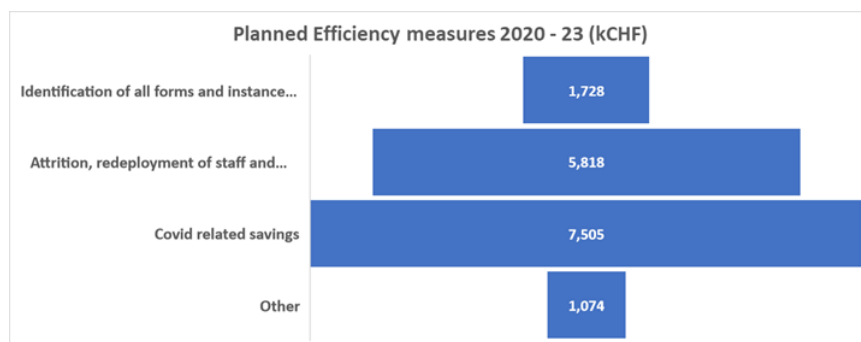
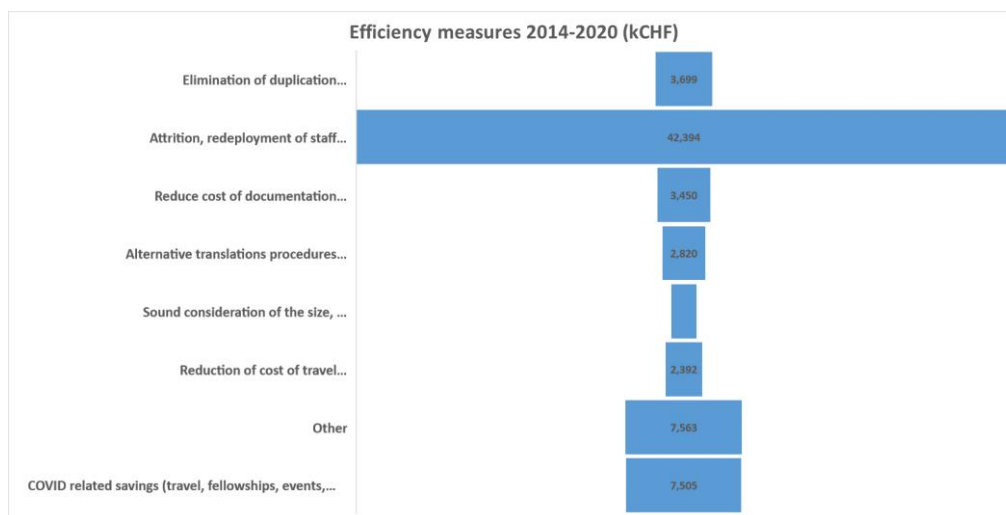
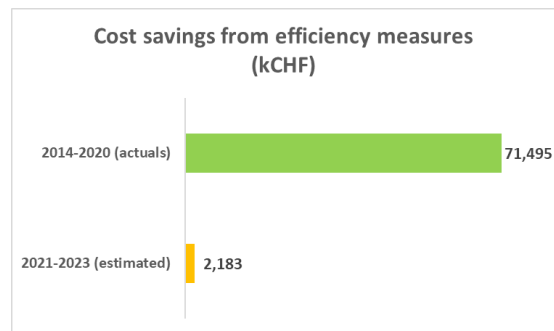


Objective I.6: (Reducing overlap and duplication) Reduce the areas of overlap and duplication and foster closer and more transparent coordination among the General Secretariat and ITU Sectors, taking into account the Union's budgetary provisions and the expertise and mandate of each Sector

Outcomes

- I.6-a: Closer and more transparent collaboration among the ITU Sectors, the General Secretariat and the three Bureaux
- I.6-b: Reducing the areas of overlap and duplication among the ITU Sectors and the work of the General Secretariat and the three Bureaux
- I.6-c: Realize savings through avoidance of areas of overlap

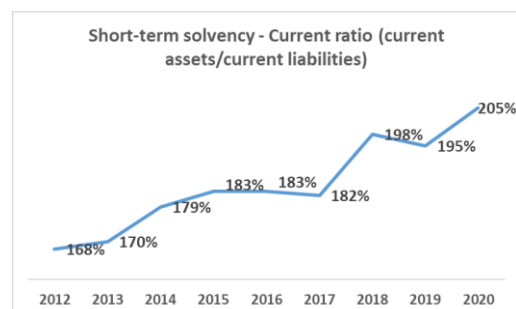
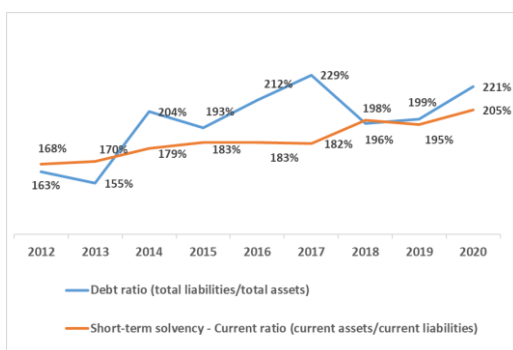
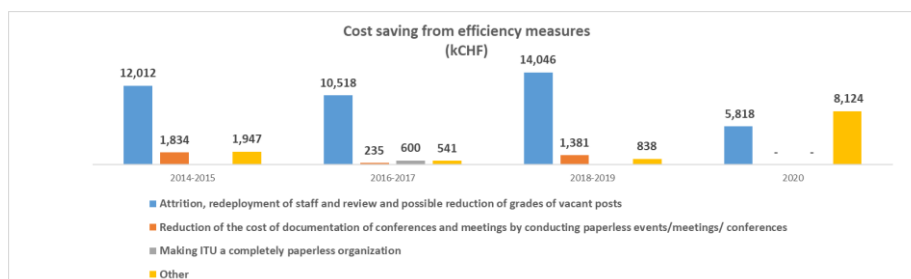
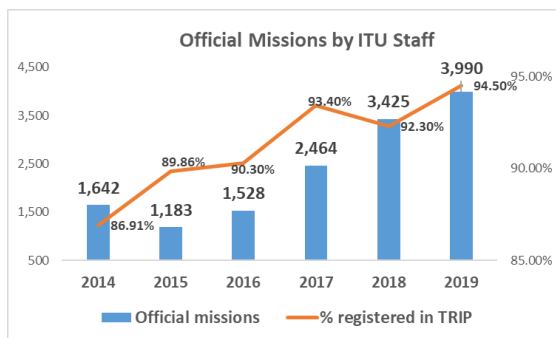
Progress achieved



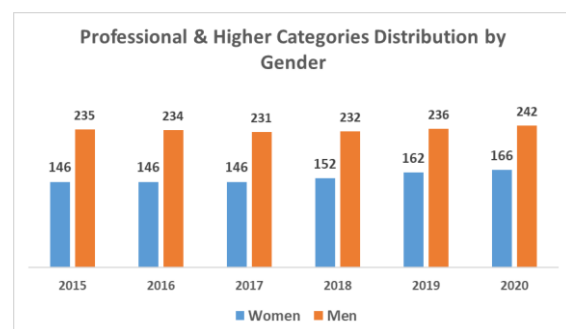
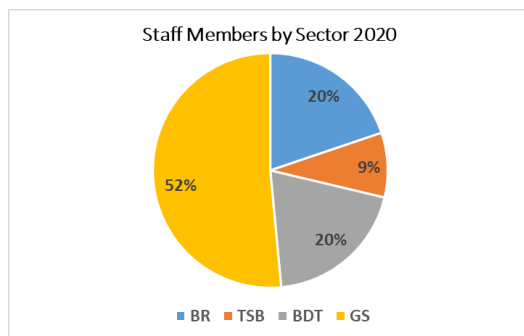
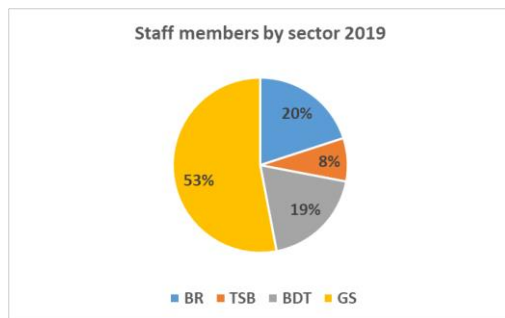
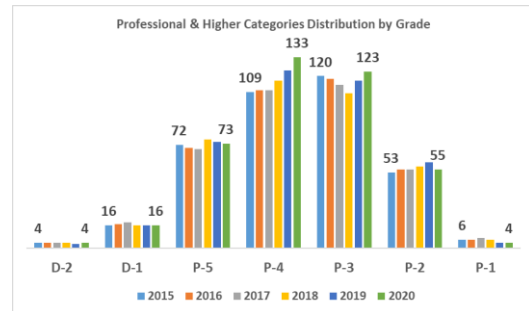
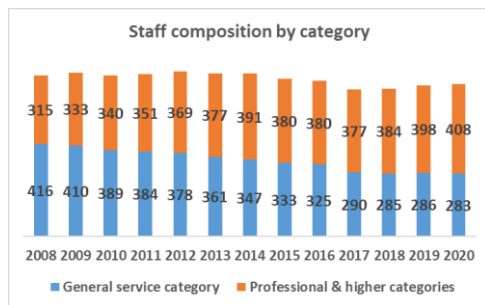
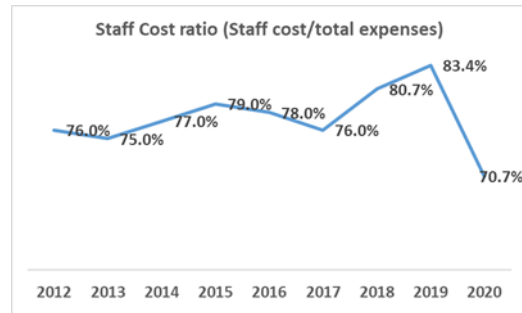
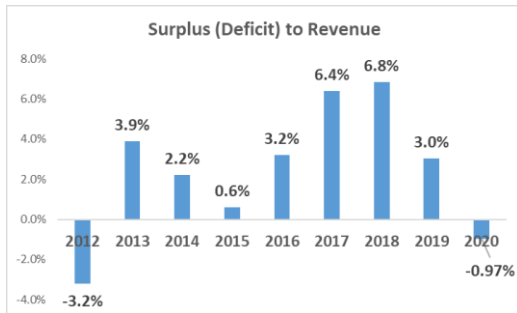
Enablers

E.1 Ensure efficient and effective use of human, financial and capital resources, as well as a work-conducive, safe and secure working environment

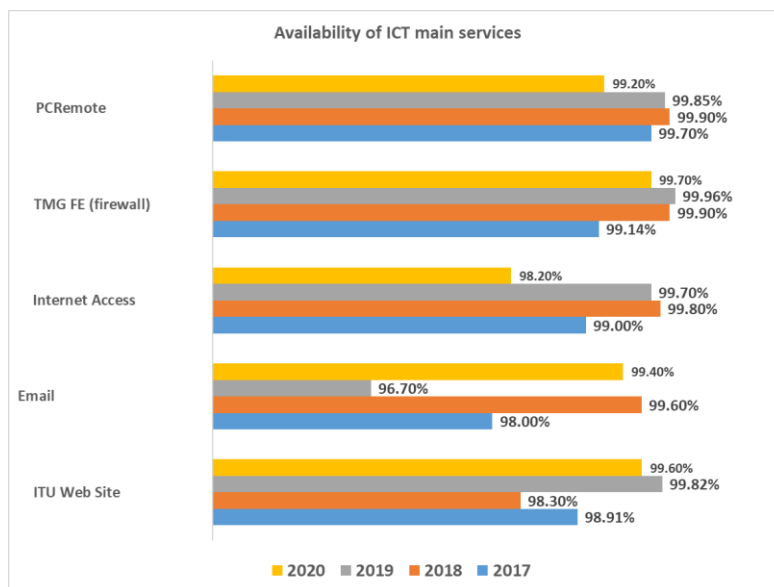
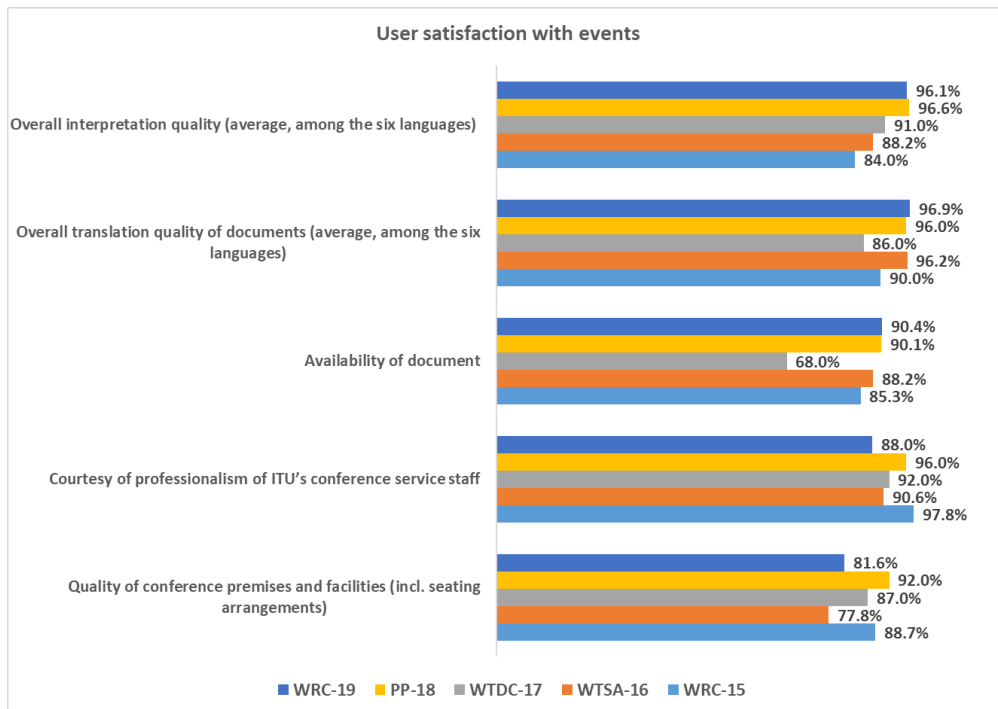
	2014	2015	2016	2017	2018	2019	2020
IPSAS Compliance (or Annual Audit of accounts is unqualified)	✓	✓	✓	✓	✗	✗	✗
Procurement and Travel Services guidelines (ITU guidelines and UN good practices in place)	✓	✓	✓	✓	✓	✓	✓
Budget implementation (not overspent)	✓	✓	✓	✓	✓	✓	✓
Work related injuries or incidents < 2%	✓	✓	✓	✓	✓	✓	✓

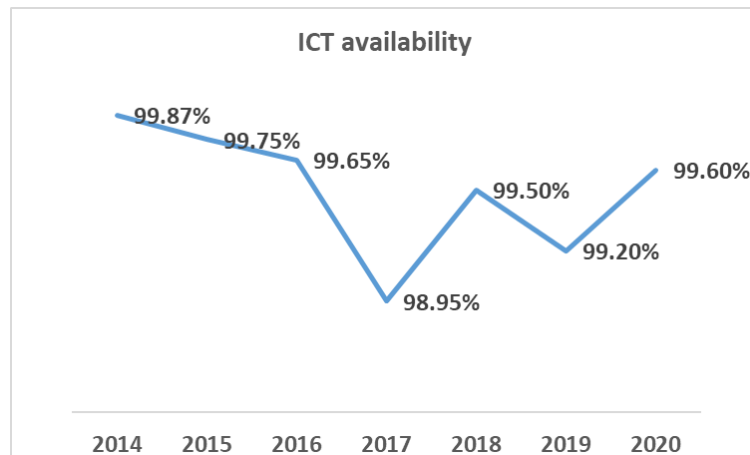


Report on the implementation of the strategic plan and activities of the Union




E.2 Ensure efficient and accessible conferences, meetings, documentation, publications and information infrastructures





E.3 Ensure efficient membership-related, protocol, communication and resource mobilization services



945 Member Entities
1,277 Memberships

Membership Annual Report 2021

Membership data as of 31st December 2021


110 Members of all 3 Sectors
51 Associates with SME fees

	ITU-R	ITU-T	ITU-D	Academia*	Grand Total
Sector Members	278	269	302		
Associates	28	221	18		
Academia*				161	
Contribution Amount	CHF 6,661,438	CHF 8,303,113	CHF 1,458,825	CHF 423,338	CHF 16,846,713

* Note: Academia are automatically members of all 3 sectors

Key Membership Performance Indicators (vs. 2020)

Member Entities	↑	Members of 3 Sectors	→
Overall Memberships	↑	Overall Estimated Contributions	→
Sector Members	→	ITU-R Members	↑
Associates	↑	ITU-T Members	↑
Academia	→	ITU-D Members	→



Membership Yearly Performance 2021

	New	Denounced	Excluded	Net Change 2021
Number of Records	94	40	20	34
Contribution Amount	CHF 813,550	CHF 529,338	CHF 217,300	CHF 66,913

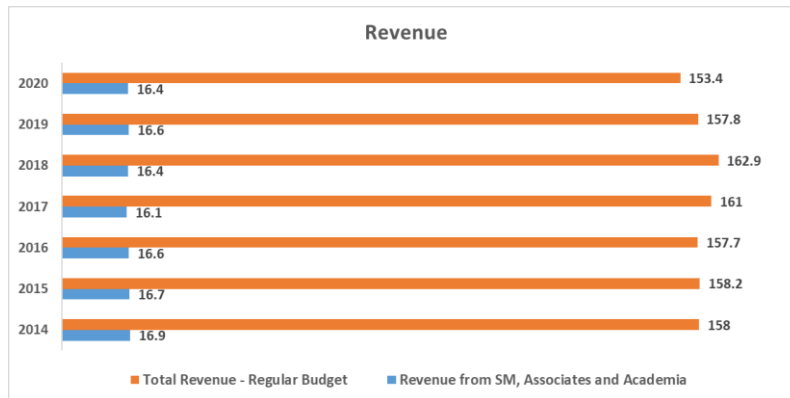
Yearly Membership growth

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Memberships	974	939	991	1,034	1,081	1,087	1,120	1,101	1,121	1,157	1,214	1,243	1,277
% change	-2.40%	-3.59%	5.54%	4.34%	4.55%	0.56%	3.04%	-1.70%	1.82%	3.21%	4.93%	2.39%	2.74%
Contribution amount	16,884,475	16,066,950	15,722,450	16,045,750	16,343,213	16,283,588	16,491,613	15,856,275	16,000,038	16,098,750	16,737,400	16,779,800	16,846,713
% change in contribution	-5.30%	-4.84%	-2.14%	2.06%	1.85%	-0.36%	1.28%	-3.85%	0.91%	0.62%	3.97%	0.25%	0.40%

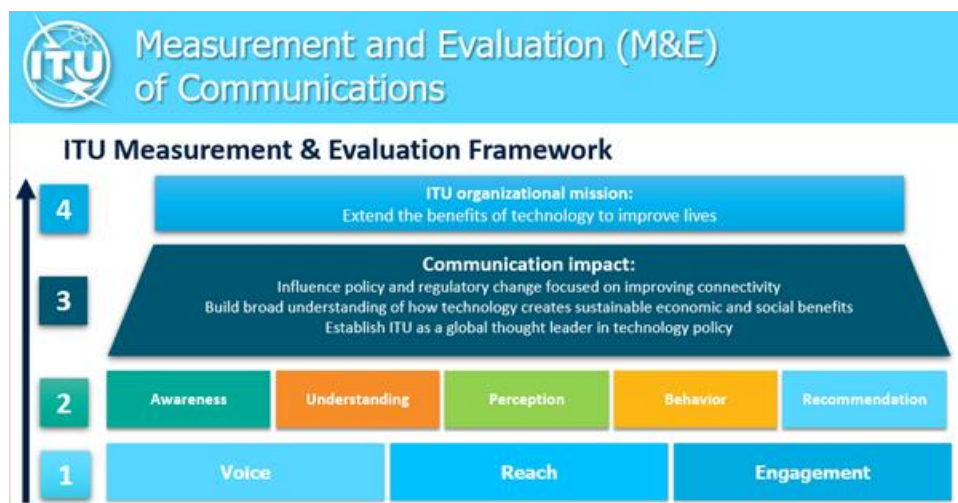
Report on the implementation of the strategic plan and activities of the Union

Net Membership by Sector/Type

Sector	Membership type	December 2020	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
ITU-R	Sector member	275			277			276	275	277		278	279	278
	Associate	22						23	24	25	26	27		28
ITU-T	Sector member	273	271		271			267	265	266	268	269	269	
	Associate	195	198	200	201	205	206	202	203	208	210	216	220	221
ITU-D	Sector member	297	298	298	299	300	301	296	295	298	299	302	303	302
	Associate							17						18
Academia	Academia	161		160	159	158	158	149	154	153	157	159	160	161

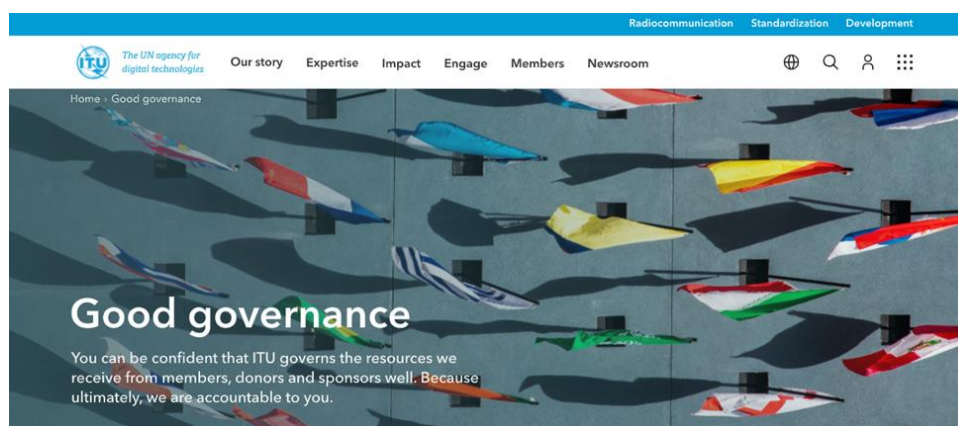


Monitoring and evaluation of communication framework developed in 2020. Measurement informs decision-making for most impactful communications and most effective use of limited resources.



Internal communications. The secretariat has strengthened internal communications in support of the new ITU Headquarters building and to build a OneITU from the inside out through a digital newsletter by staff for staff, *ITUConnections*.

ITU's website is built on a platform (MS SharePoint version) that is more than ten years old and which is nearing its end of life. To mitigate the ensuing risks to business continuity and security, as a first step towards replacing/modernizing the overall ITU website, a beta version of "MyITU" was launched in 2020, combining ITU News articles and the ITU News Magazine, publications and events as well as a members' zone, providing information in a simplified and personalized way according to the interest of the user. Furthermore, in 2020 ITU has produced a prototype for a new OneITU website: user-centred, multilingual, mobile-friendly, branded, engaging and impact-oriented, with smarter navigation and fresh content. MyITU and OneITU will be a seamless experience for users once both are live. Both will improve the experience for the ITU membership, as well as new audiences less familiar with ITU, including SMEs, academia and newcomers among the membership.



ITU has initiated a [new podcast series](#), *Technology for Good*, on key ITU themes to increase return on investment for ITU webinars and delegate interviews.

ITU and its membership have a common strategy – the Connect 2030 Agenda. A [new site](#) provides a dashboard for both these goals and targets and provides relevant links to publications, data as well as other resources, so that ITU and its membership can progress together towards connecting the world.

E.4 Ensure efficient planning, coordination and execution of the strategic plan and operational plans of the Union

See Analysis in Section 3.

E.5 Ensure effective and efficient governance of the organization (internal and external)

Report on the implementation of the strategic plan and activities of the Union

