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| **Agenda item: PL 1.3** | **Document C22/33-E** |
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| Report by the Secretary-General | |
| ITU INTERNET ACTIVITIES: RESOLUTIONS 101, 102, 133, 180 AND 206 | |

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| Summary  This report summarizes ITU’s activities related to Plenipotentiary Conference (PP) Resolution 101 (Rev. Dubai, 2018), *“Internet Protocol-based networks”*; Resolution 102 (Rev. Dubai, 2018), *“ITU’s role with regard to international public policy issues pertaining to the Internet and the management of Internet resources, including domain names and addresses”*; Resolution 133 (Rev. Dubai, 2018), *“Roles of administrations of Member States in the management of Internationalized (multilingual) domain names”*; Resolution 180 (Rev. Dubai, 2018), *“Facilitating the transition from IPv4 to IPv6”* and Resolution 206 (Dubai, 2018), *“OTTs”*.  Action required  The Council is invited to **note** the report. The Council is also invited to **endorse** the transmission of the reports, along with the compilation of views of Council Member States and the related summary records with a cover note, to the United Nations Secretary-General.  \_\_\_\_\_\_\_\_\_\_\_\_  References  *Plenipotentiary Resolutions* [*101*](https://www.itu.int/en/council/Documents/basic-texts/RES-101-E.pdf)*,* [*102*](https://www.itu.int/en/council/Documents/basic-texts/RES-102-E.pdf)*,* [*133*](https://www.itu.int/en/council/Documents/basic-texts/RES-133-E.pdf)*,* [*180*](https://www.itu.int/en/council/Documents/basic-texts/RES-180-E.pdf) *(Rev. Dubai, 2018), Resolution* [*206*](https://www.itu.int/en/council/Documents/basic-texts/RES-206-E.pdf) *(Dubai, 2018); Council Resolutions* [*1305*](http://www.itu.int/md/S09-CL-C-0105) *(2009),* [*1336*](http://www.itu.int/md/S15-CL-C-0113/en) *(mod 2015),* [*1344*](http://www.itu.int/md/S15-CL-C-0112/en) *(mod 2015); WTSA Resolutions* [*47*](https://www.itu.int/pub/T-RES-T.47-2016)*,* [*48*](https://www.itu.int/pub/T-RES-T.48-2016) *(Rev. Dubai, 2012)* [*49*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.49-2016)*,* [*50*](https://www.itu.int/pub/T-RES-T.50-2016)*,* [*52*](https://www.itu.int/pub/T-RES-T.52-2016) *(Rev. Hammamet, 2016),* [*58*](https://www.itu.int/pub/T-RES-T.58-2016)*,* [*60*](https://www.itu.int/pub/T-RES-T.60-2016) *(Rev. Dubai, 2012),* [*64*](https://www.itu.int/pub/T-RES-T.64-2016)*,* [*69*](https://www.itu.int/pub/T-RES-T.69-2016)*,* [*75*](https://www.itu.int/pub/T-RES-T.75-2016) *(Rev. Hammamet, 2016),* [*98*](https://www.itu.int/pub/T-RES-T.98-2016) *(Hammamet, 2016);* [*WTDC-17/Buenos Aires Action Plan Objective 3/Output 3.3*](https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_FinalReport_en.pdf) *, WTDC Resolutions* [*20, 30 , 63*](https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_FinalReport_en.pdf) *(Rev. Buenos Aires, 2017), and* [*45*](http://www.itu.int/en/action/internet/Documents/Resolution_45_wtdc14.pdf)  *(Rev. Dubai, 2014); Council Documents* [*C16/33*](http://www.itu.int/md/S16-CL-C-0033/en)*,* [*C17/33*](https://www.itu.int/md/S17-CL-C-0033/en)*,* [*C18/33*](https://www.itu.int/md/S18-CL-C-0033/en)*,* [*C19/33*](https://www.itu.int/md/S19-CL-C-0033/en)*,* [*C20/33*](https://www.itu.int/md/S20-CL-C-0033/en), [*C21/33*](https://www.itu.int/md/S21-CL-C-0033/en) |

# 1. Introduction

This report describes ITU’s activities related to the 2018 Plenipotentiary Conference Resolutions 101, 102, 133, 180 and 206 for the reporting period from Council 2021 till date.

# 2. Activities related to Internet Protocol (IP) networks, the development of next-generation networks (NGN) and future Internet, including policy and regulatory challenges

**2.1** More than 120 new/revised ITU-T Recommendations and other texts have been approved from 1 April 2021 to January 2022. [Relevant Recommendations](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_status=-1,2&adf=2021-08-10&adt=2022-01-31&pg_size=100&details=0&field=acdefghijo) can be found under the different ITU-T Study Groups (SG).

**2.2** **IMT-2020**

## 2.2.1 ITU-T SG11 approved Recommendations [Q.5023 “Protocol for managing intelligent network slicing with AI-assisted analysis in IMT-2020 network”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14767) and [ITU-T Q.4068 “Open application program interfaces (APIs) for interoperable testbed federations”](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14765); Q.5024 “Protocol for providing intelligent analysis services in IMT-2020 network” is under approval.

## 2.2.2 ITU-T SG13 approved Recommendations [ITU-T Y.3077 “Framework for interworking of heterogeneous application domain connected objects through information-centric networking in IMT-2020”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14775); draft Recommendations ITU-T Y.3078 “Information centric networking for IMT-2020 and beyond - Requirements and capabilities of data object segmentation”, and Y.3114 “Future networks including IMT-2020: requirements and functional architecture of lightweight core for dedicated networks”, Y.3115 “AI enabled cross-domain network architectural requirements and framework for future networks including IMT-2020”, Y.3116 “Traffic typization IMT-2020 management based on an artificial intelligent approach”, Y.3200 “Information centric networking for IMT-2020 and beyond - Requirements and capabilities of data object segmentation” are under approval.

2.2.3 **ITU-T SG17** consented draft Recommendation ITU-T X.1812 “Security framework based on trust relationship for IMT-2020 ecosystem” (under approval).

2.2.4 **ITU-T SG20** approved Recommendation [ITU-T Y.4421 “Functional architecture for unmanned aerial vehicles and unmanned aerial vehicle controllers using IMT-2020 networks”](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14653).

**2.3** **Internet-of-things (IoT)**

## 2.3.1 ITU-T SG3 is studying the roaming aspects of Internet-of-things (IoT) and Machine to Machine (M2M) including any related development and tariff principles.

## 2.3.2 ITU-T SG17 approved Recommendation ITU-T [X.1369 “Security requirements for IoT service platform”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14799).

## 2.3.3 ITU-T SG20 approved the following Recommendations ITU-T: [Y.4004 “Overview of smart oceans and seas, and requirements for their ICT implementations”](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16409); [Y.4123 “Requirements and capability framework of smart shopping mall”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14813), [Y.4212 “Requirements and capabilities of network connectivity management in the Internet of things”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14814); [Y.4213 “IoT requirements and capability framework for monitoring physical city assets”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14815); [Y.4421 “Functional architecture for unmanned aerial vehicles and unmanned aerial vehicle controllers using IMT-2020 networks”](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14653); [Y.4477 “Framework of service interworking with device discovery and management in heterogeneous Internet of things environments”](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=13709); [Y.4478 “Requirements and functional architecture for smart construction site services”](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15094); [Y.4480 “Low power protocol for wide area wireless networks”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14818); [Y.4562 “Functions and metadata of spatiotemporal information service for smart cities”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14833), [Y.4563 “Requirements and functional model to support data interoperability in IoT environments”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14819); [Y.4809 “Unified IoT Identifiers for Intelligent Transport Systems”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14739); [Y.4810 “Requirements of data security for the heterogeneous IoT devices”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14820); [Y.4811 “Reference framework of converged service for identification and authentication for IoT devices in decentralized environment”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14821).

2.3.4 SG20 determined the following draft Recommendations ITU-T: Y.4214 “Requirements of IoT-based civil engineering infrastructure health monitoring system”, and Y.4215 “Use cases, requirements and capabilities of unmanned aircraft systems for the Internet of Things” (all under approval).

2.3.5 The standardization of IoT test specifications is accelerating, supported by the increasing collaboration of ITU-T and oneM2M. ITU-T SG20 is also in close collaboration with LoRa Alliance and TMForum. SG20 created a new Correspondence Group on Artificial Intelligence of Things (CG-AIoT).

**Smart Cities**

2.3.6 Under the [United for Smart Sustainable Cities (U4SSC) initiative](https://www.itu.int/en/ITU-T/ssc/united/Pages/default.aspx), the following deliverables were published:[Guidelines on tools and mechanisms to finance smart sustainable cities projects](https://www.itu.int/en/publications/Documents/tsb/2021-A-U4SSC-deliverable-Guidelines-on-tools-and-mechanisms-to-finance-SSC-projects/index.html), [Digital solutions for integrated city management and use cases](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Digital-solutions-for-integrated-city-management-and-use-cases/index.html#p=1), [Compendium of survey results on integrated digital solutions for city platforms around the world](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Compendium-of-survey-results/index.html#p=1) and [Smart public health emergency management and ICT implementations](file:///C:\Users\Saran\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\97RS0L0D\§%09https:\www.itu.int\en\publications\Documents\tsb\2021-U4SSC-Smart-public-health-emergency-management-and-ICT-implementations\index.html#p=1).

2.3.7 The [6th meeting of the U4SSC Initiative](https://www.itu.int/en/ITU-T/ssc/united/Pages/202112/meeting.aspx) took place on 7 December 2021 where a new working group on Reference framework for an integrated management of a smart sustainable city (under the Thematic Group on City Platforms) and a new Thematic Group on Digital Transformation for People Smart Cities have been established.

2.3.8 More than 150 cities worldwide are measuring their progress using *“Key Performance Indicators for Smart Sustainable Cities”* based on ITU standards (ITU-T Y.4903). Additionally, the following city snapshots were launched: [Mashhad, Iran (Islamic of)](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-City-Snapshot-Mashhad-Iran/index.html), [Larvik, Norway](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-City-Snapshot-Larvik-Norway/index.html#p=1), [Daegu, Korea (Republic of)](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-City-Snapshot-Daegu-Republic-of-Korea/index.html#p=1). The following county snapshot was launched: [More og Romsdal, Norway](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-City-Snapshot-More-og-Romsdal-Norway/index.html#p=1). The following verification reports were launched: [Mashhad, Iran (Islamic of)](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Verification-Report-Mashhad-Iran/index.html), [Larvik, Norway](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Verification-Report-Larvik-Norway/index.html#p=1), [Daegu, Korea (Republic of)](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Verification-Report-Daegu-Republic-of-Korea/index.html#p=1).

2.3.9 The first United for Smart Sustainable Cities (U4SSC) Austrian U4SSC Country Hub was approved during the last U4SSC meeting and will be hosted by the Austrian Economics Center in Vienna, Austria. one of the key objectives of this country hub is to promote the work of U4SSC in Austria.

2.3.10 SG20 continued coordination on IoT in its ITU-T JCA-IoT and SC&C. SG20 is collaborating with IETF on use of *"ppk"* URI scheme name in ITU-T Y.dec-IoT-arch *“Decentralized IoT communication architecture based on information centric networking and blockchain”*, with oneM2M on draft new *Recommendation ITU-T Y.oneM2M.SEC.SOL "oneM2M Security Solutions"*, with TMForum on draft Recommendation *ITU-T Y.TM.DM-API* “IoT Device Management API REST Specification” and *Y.TM.SM-API* “IoT Service Management API REST Specification”, with W3C on Decentralised Identifiers (DIDs) and with LoRa Alliance on Recommendation ITU-T Y.4480. The fourth J-SCTF meeting took place virtually on 27 and 29 September 2021, and the fifth meeting on 18 and 20 January 2022. It was clarified that J-SCTF will formally report to only three governing bodies of three SDOs (IEC SMB, ISO TMB, and ITU TSAG) and will informally exchange with SPCG, as appropriate, to share knowledge, ideas, and experiences.

## 2.4 IP Cable

2.4.1 ITU-T SG9 approved the following Recommendations ITU-T [J.483 “Architecture and Functional Specifications of a radio frequency (RF)/Internet protocol (IP) video switching system"](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14839); [J.1111 “Requirements for advanced IP-based digital video convergence service”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14840); [J.1303 “The specification of cloud-based converged media service to support IP and Broadcast Cable TV - System specification on collaboration between production media cloud and cable service cloud”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14842); [J.1304 “Functional requirements for service collaboration between cable television operator and OTT service provider”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14843); [J.1401 “Television Content Distribution Platforms: Requirements for Open Access and Signal Quality”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14844); [J.1612 “The Architecture for Smart Home Gateway”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14845), and [J.1631 "Functional requirements of E2E network platform for Cloud-VR services"](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14648).

2.4.2 SG9 agreed two technical papers (under publication): Technical Paper JSTP-IPVB-ACC “Analysis of the cost and complexity of IPVB technology”; and Technical Paper JSTP-IPVB-UC “Use cases and service scenario of IP Video Broadcast (IPVB) for CATV Networks”.

## 2.5 ITU-T SG2

SG2 consented draft Recommendations ITU-T Q.819 (ex Q.rest) “REST-based management services” and ITU-T X.786 (ex X.rest-ics) "Guidelines for implementation conformance statement proformas associated with REST-based management systems" (both under approval).

## 2.6 ITU-T SG11

ITU-T SG11 consented draft Recommendations ITU-T Q.3061 “Signalling requirements for service function paths load balancing traceroute in service function chaining”, Q.3631 “Interworking between ISDN and the IP Multimedia (IM) Core Network (CN) subsystem”, Q.3646 “Framework and protocols for signalling network analyses and optimization in VoLTE”, and Q.5003 “Signalling requirement and architecture for federated multi-access edge computing” (all under approval).

## 2.7 ITU-T SG13

ITU-T SG13 approved the following Recommendations ITU-T: [Y.3606 "Big data - deep packet inspection mechanism for network big data"](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14776); [Y.3526 “Cloud computing - Functional requirements of edge cloud management”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14759); and [Y.3527 “Cloud computing - End-to-end fault and performance management framework of network services in inter-cloud”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14760). Draft Recommendations ITU-T Y.3180 “Mechanism of traffic awareness for application-descriptor-agnostic traffic based on machine learning”, Y.3527 “Cloud computing - End-to-end fault and performance management framework of network services in inter-cloud”, Y.3529 “Cloud computing - Data model framework for NaaS OSS virtualized network function”, and Y.3654 “Big data driven networking - Machine learning mechanism” are under approval.

## 2.8 Security

A separate report on ITU’s activities related to building confidence and security in the use of ICTs is presented as [Document C22/18](https://www.itu.int/md/S22-CL-C-0018/en).

## 2.9 ITU-T Focus Groups

[Eight Focus Groups are active](https://www.itu.int/en/ITU-T/focusgroups/Pages/default.aspx): [*ITU-T Focus Group on Testbeds Federations for IMT-2020 and beyond (FG-TBFxG)*](https://www.itu.int/en/ITU-T/focusgroups/tbfxg/Pages/default.aspx)*;* [*ITU-T Focus Group on AI for Natural Disaster Management (FG-AI4NDM)*](https://www.itu.int/en/ITU-T/focusgroups/ai4ndm/Pages/default.aspx); [*ITU-T Focus Group on Autonomous Networks (FG-AN)*](https://www.itu.int/en/ITU-T/focusgroups/an/Pages/default.aspx)*;* [*ITU-T Focus Group on Artificial Intelligence for Health (FG AI4H)*](https://www.itu.int/en/ITU-T/focusgroups/ai4h); [*ITU-T Focus Group on Vehicular Multimedia (FG VM*](https://www.itu.int/en/ITU-T/focusgroups/vm/Pages/default.aspx)*)*; [*ITU-T Focus Group on “Environmental Efficiency for AI and other Emerging Technologies”*](https://www.itu.int/en/ITU-T/focusgroups/ai4ee/Pages/default.aspx) (FG-AI4EE); [*ITU-T Focus Group on “AI for autonomous and assisted driving”*](https://www.itu.int/en/ITU-T/focusgroups/ai4ad/Pages/default.aspx) (FG-AI4AD); and [*ITU-T Focus Group on "Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture"*](https://www.itu.int/en/ITU-T/focusgroups/ai4a/Pages/default.aspx) *(FG-AI4A)*.

**2.10** TSB has not received feedback concerning any reported incidents with regard to [WTSA Resolution 69](https://www.itu.int/net/ITU-T/res69/Default.aspx) on *“Non-discriminatory access and use of Internet resources”* (so far there have been [37 incidents since 2009](https://www.itu.int/net/ITU-T/res69/secured/notifications.aspx)).

**2.11** ITU-D SG 1 and SG 2 continue their work on IP-related issues such as NGN interconnection, VoIP, cloud services, and strategies, policies, and technologies for the deployment of broadband. New Q1/1 is working on *“Strategies and policies for the deployment of broadband in developing countries”* (merging former Q1/1 and Q2/1).

**2.12** BDT continues implementing Internet broadband wireless connectivity and developing ICT applications to provide free or lowcost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries. The projects in Burundi, Burkina Faso, Djibouti, Rwanda, Eswatini, Antigua and Barbuda, and St. Kitts and Nevis have been implemented successfully

**2.13** ITU-R approved Recommendation ITU-R M.2083-0 *“IMT Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond”*, Resolutions ITU-R 65 *“Principles for the process of future development of IMT for 2020 and beyond”* and ITU-R 66 *“Studies related to wireless systems and applications for the development of the Internet of Things”*, and Report ITU-R M.2440-0 *“The use of the terrestrial component of International Mobile Telecommunications for narrowband and broadband machine-type communications”*.

**2.14** ITU continues its cooperation with the Corporation for National Research Initiatives (CNRI) and the DONA Foundation on the use of the Digital Object Architecture (DOA).

**2.15** Several trainings were provided through [ITU Academy](https://academy.itu.int/) and the [ITU Centers of Excellence](https://academy.itu.int/index.php?option=com_content&view=article&id=154&Itemid=588&lang=en) network, covering topics such as *“*AI for Good: Technology, Strategy and Policy Development*”*, “Future Broadband: Ultra-broadband Internet, Clouds, IoT and Artificial Intelligence”, *“*Strategic Aspects for Internet Governance and Innovations”, “Emerging Technology for the Last Mile Connectivity” etc.

**2.16** ITU is supporting the Costa Rican Institute of Electricity (ICE) strengthen its capacity building through a project called *“Desarrollo del conocimiento en tecnologías, para especialistas del ICE”*.

# 3. IPv6

**3.1** The [ITU-T IPv6 webpage](https://www.itu.int/en/ITU-T/ipv6/Pages/default.aspx) highlights the IPV6 activities within ITU-T.

**3.2** BDT and MUST (Malaysia University of Science and Technology) are now working independently towards the establishment of an ITU IPV6/IoT Expertise Centre for supporting Member States in their transition from IPv4 to IPv6 in order to support for IoTs and Industry 4.0.

**3.3** Trainings/courses are being organized on all forms of IoT connectivity, including information security and privacy. Due to Covid-19, several online training courses were organised for 25 participants at a time: National Workshop on IPv6 Policy, Strategy and Implementation for Montenegro 20-21 April 2021; “ITU Certified IPv6 and IoT Workshop for Montenegro” 10 to 14 May 2021; and ITU Virtual Training on IPv6 Over 5G Networks for the Philippines Virtual 17 to 21 May 2021. BDT is planning to organize a “Certified IPv6 and IoT Training for South Africa” 28 February to 4 March 2022.

**3.4** BDT is also providing technical assistance on IPv6 to Montenegro. Other similar workshops on IoT Ecosystems and/or IPv6 over 5G Networks including IPv6 to support Industry 4.0 are planned for Argentina, Morocco, Senegal, Sri Lanka, Thailand, Malaysia and Vietnam etc. BDT is also working on the creation of an Information and Training Center on IP Telephony for the CIS region.

**3.5** BDT continues to provide assistance to countries on the implementation of IPv6 policies and IPv6 test bed as requested by Member States, e.g.: assistance was provided in setting up of an IPv6 testbed in Côte d’Ivoire and Uganda, to be used as sub-regional test beds for IPv4 to IPv6 migration in Western and Eastern Africa, respectively; in Zimbabwe to be used as a sub-regional testbed for IPv4 to IPv6 migration in Southern Africa; and in Cameroon, to be used as a sub-regional testbed for IPv4 to IPv6 migration in Central Africa. An IPv6 test bed installation is ongoing in Sierra Leone.

**3.6** BDT is also focusing on a special program to train the trainers on “IPv6 Over 5G Networks. A project on human capacity building in relation to IPv6 was implemented under the framework cooperation agreement signed between the UAE’s Telecommunications Regulatory Authority (TRA) and ITU.

**3.7** The [final report](https://www.itu.int/pub/D-STG-SG01.01.1-2017) in response to ITU-D SG 1 [Question 1/1](https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2014&rgq=D14-SG01-RGQ01.1&stg=1) is available and explores through case studies the experiences of countries in transitioning from IPv4 to IPv6. An essential Guide has been developed also in order to assist developing countries to implement IPv6 over 5G Networks.

# 4. Internet-related public policy issues including the management of domain names and addresses

**4.1** [The Virtual Meeting – Physical Online Open Consultation (February – September 2021)](https://www.itu.int/md/S21-OPCWGINT9-C-0003/en) for the topic [*The role of the Internet and international Internet-related public policy in mitigating the impact of COVID-19 and possible future pandemics*](https://www.itu.int/en/council/cwg-internet/Pages/consultation-feb2021.aspx) took place on 20 September 2021. The 16th [CWG-Internet](https://www.itu.int/en/council/cwg-internet/Pages/default.aspx) [virtual meeting took place on 23 September 2021](https://www.itu.int/md/S21-RCLINTPOL16-C-0008/en) and launched an Online Open Consultation (October – December 2021) on [*The Environmental Impacts and Benefits of the Internet*](https://www.itu.int/en/council/cwg-internet/Pages/consultation-oct2021.aspx)*.* The [17th CWG-Internet](https://www.itu.int/md/S22-RCLINTPOL17-C/en) virtual meeting took place on 19-20 January 2022.

**4.2** ITU participated in the 16th IGF meeting held in Katowice, Poland from 6 to 10 December 2021, including the opening ceremony and high-level sessions, organizing the annual EQUALs in Tech Awards, and co-organizing Open Forums on (1) Implementation of WSIS Action Lines for SDGs and WSIS Forum 2022 with the WSIS Action Line Facilitators and (2) Strengthening Global Digital Capacity Development with UNDP and the Office of the Secretary-General's Envoy on Technology.

**4.3** ITU continues to follow the issue of protecting IGO names and acronyms in any new gTLDs, as part of the IGO coalition composed of 35 IGOs including OECD, UN, UPU, WHO, WIPO, and the World Bank.

**4.4** In allthe activities listed in the various sections of this Report, particularly with regard to beneficiary countries on IPv6, broadband and capacity building activities, ITU aims to address the challenges faced by landlocked developing countries as per the Vienna Programme of Action.

# 5. ENUM

[Updated Information on ENUM](http://www.itu.int/ITU-T/inr/enum/) is being maintained by ITU-T. ITU-T SG2 is continuing work on a new draft Recommendations ITU-T E.A-ENUM, "Principles and procedures for the administration of E.164 country codes for registration into the Domain Name System" and ITU-T E.ENUMINF *“Differentiating between ENUM and Infrastructure ENUM”*. In November 2021 ITU-T SG2 liaised with RIPE NCC on ENUM and Interim procedures for Geographic Country Codes, seeking clarification on the purpose of the RIPE Database as a provisioning tool for the ENUM Tier 0 registry, and whether this has any effect on the Interim procedures for the delegation of Geographical Country Codes (updated in February 2019).

# 6. International Internet Connectivity (IIC)/Internet Exchange Points (IXPs)

**6.1** BDT continues to provide assistance to countries in the creation of national IXPs, by, for example, developing model interconnection as a basis for formulating National and Regional IXPs, as in the case of Guatemala; and supporting strengthening capabilities of the national IXPs (Montenegro) and the National Internet Exchange in Timor Leste.

**6.2** BDT is assisting to establish SIXP (Samoa IXP). Assistance on IXP is also being provided to Mongolia. Technical assistance on QoS and QoE is being provided to Barbados. BDT is providing assistance to support the implementation of One Network Area roaming in West Africa and supporting the setting up of national and regional IXPs. Another sub-regional IXP is under consideration with Djibouti Telecom.

**6.3** BDT, in collaboration with UN ESCAP, TeleGeography and ITU Member States, has also developed an [ICT-data mapping platform](https://www.itu.int/itu-d/tnd-map-public/) to take stock of IXPs locations, national backbone connectivity (optical cables, microwave links and satellite earth stations) as well as of other key metrics of the ICT sector.

**6.4** ITU-T SG3 agreed ITU-T [D.Suppl. 5 “Implementation guidelines for Recommendation ITU-T D.52 focusing on operationalization of regional Internet exchange points”](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14879).

# 7. OTT

**7.1** Under **ITU-D Q3/1**, work continues on *“Emerging technologies, including cloud computing, m-services and OTTs: Challenges and opportunities, economic and policy impact for developing countries”*.

**7.2** **ITU-T SG2** is progressing two work items on OTTs: TR.OTTnum *“Current use of E.164 numbers as identifiers for OTTs”* and E.sup.OTTnum *“Guidance on the use of E.164 numbers as identifiers for OTTs”*. ITU-T SG2 is also progressing a draft Recommendation ITU-T E.dit *“Deemed impermissible traffic”*, and a draft Recommendation ITU-T E.ACP *“Alternative calling procedures”*. **ITU-T SG3** approved Recommendation ITU-T [D.1102 “Customer redress and consumer protection mechanisms for OTTs”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14730). Draft regional Recommendation ITU-T D.608R “OTT Voice Bypass” is under approval in SG3-RG-AFR. **ITU-T SG9** approved Recommendation ITU-T [J.1304 “Functional requirements for service collaboration between cable television operator and OTT service provider”](https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14843).

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