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| **Council 2021Virtual consultation of councillors, 8-18 June 2021** |  |
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| **Agenda item: PL 1.3** | **Document C21/33-E** |
| **7 April 2021** |
| **Original: English** |
| Report by the Secretary-General |
| ITU INTERNET ACTIVITIES: RESOLUTIONS 101, 102, 133, 180 AND 206 |

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| SummaryThis 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”*.The 2020 version of this report (C20/33) was originally prepared for submission to the 2020 session of the Council but was not reviewed.Action requiredThe Council is invited to **note** the report, as well as document [C20/33](https://www.itu.int/md/S20-CL-C-0033/en). 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), [*1336*](http://www.itu.int/md/S15-CL-C-0113/en)*,* [*1344*](http://www.itu.int/md/S15-CL-C-0112/en)*; 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) *and* [*C19/33*](https://www.itu.int/md/S19-CL-C-0033/en)*,* [*C20/33*](https://www.itu.int/md/S20-CL-C-0033/en)*.* |

# 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 the Virtual consultation of councillors (VCC-1) (9-12 June 2020) till date[[1]](#footnote-1).

# 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 270 new/revised [ITU-T Recommendations](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_status=-1,2&adf=2020-04-01&adt=2020-12-31&pg_size=100&details=0&field=acdefghijo) and other texts have been approved from 1 April to 16 December 2020.

**2.2 Multimedia**

2.2.1 ITU-T SG16 approved four ITU-T standards on versatile video coding, multimedia content delivery networks, IPTV accessibility, and IPTV gesture control interfaces. Work also continues in improving management, storage and delivery of video over IP networks.

**2.3 Distributed Ledger Technologies (DLT)**

2.3.1 The first eight foundational ITU-T standards were approved, addressing DLT system requirements, assessment criteria, a reference framework, terms and definitions, security threats, security framework, security guidelines for decentralized identity management, and security assurance*.* The DLT experts also agreed to organize a series of [DLT *"*meet-ups*"*](https://www.itu.int/en/ITU-T/webinars/Pages/dlt.aspx).

**2.4** **IMT-2020**

2.4.1 ITU-T SG13 approved fourteen ITU-T standards on IMT-2020 covering IMT-2020 for Information Centric Networking, fixed mobile convergence, network softwarization, network management and slice orchestration, SDN, AI-assisted analysis and machine learning, and agreed two Supplements on IMT-2020 standardization roadmap, and on use cases and migration aspects. ITU-T SG11 approved one ITU standard on energy efficient device-to-device signalling.

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

2.5.1 ITU-T SG2 agreed one Supplement on E.164.1 Identification codes and E.212 Mobile Network Codes numbering assignments for IoT.

2.5.2 ITU-T SG11 approved four ITU-T standards for IoT-based applications over SDN, heterogeneous IoT gateways, IoT testing framework, and testing IoT identification systems.

2.5.3 ITU-T SG17 approved six ITU-T standards on IoT security, personally identifiable information (PII) handling system, IoT security requirements, identity-based crypto in IoT devices, message authentication schemes, and IoT error logging format. A draft standard is under approval on *Secure software update procedure for IoT devices.*

2.5.4 ITU-T SG20 approved thirteen ITU-T standards on smart port, mobile IoT devices, accessibility for smart public transportation, IoT devices for smart home, AI for smart sustainable cities, sensor API, IoT using visible light communication, software framework for IoT device, smart fire smoke detection, DLT for IoT, smart cities and KPI management. The standardization of IoT test specifications is accelerating, supported by the increasing collaboration of ITU-T and oneM2M. SG20 continues its Internet-related activities through a huge work programme on IoT and smart sustainable cities.

**2.6 Smart Cities**

2.6.1 Under the [United for Smart Sustainable Cities (U4SSC) initiative](https://www.itu.int/en/ITU-T/ssc/united/Pages/default.aspx), three deliverables were published on circular cities, city transformation, and DLT. Several city snapshots were launched reporting on the implementation progress on the *Key Performance Indicators for Smart Sustainable Cities.*

2.6.2 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, with oneM2M on *oneM2M Security Solutions*, and with W3C on Decentralised Identifiers (DIDs). IEC, ISO, and ITU launched and kicked-off the IEC-ISO-ITU Joint Smart Cities Task Force (J-SCTF) as a means for standards coordination among the three SDOs.

## 2.7 QoS and QoE

2.7.2 ITU-T SG12 approved one ITU standard on a search algorithm for IP-based capacity parameters and methods of measurement”, and agreed one Supplement on maximum IP-Layer capacity measurements. The above work is harmonized with the IETF IP performance measurement working group (ippm); ETSI TC STQ; and BBF. SG12 also approved an ITU standard on Crowdsourcing approach for the assessment of end-to-end quality of service in fixed and mobile broadband networks, and agreed a Technical Paper on Performance metrics for end-to-end IPTV video quality.

**2.8 Networks**

2.8.1 ITU-T SG2 approved one ITU standard on smart operation, management and maintenance.

2.8.2 ITU-T SG3 agreed a Supplement on Principles for increased adoption and use of mobile financial services (MFSs) through effective consumer protection mechanisms.

2.8.3 ITU-T SG9 approved three ITU-T standards on IP cable modems; one draft standard is under approval on requirement of cloud-based converged media service to support IP and Broadcast Cable TV.

2.8.4 ITU-T SG11 approved 16 ITU-T standards covering VoLTE, remote testing, and testing of SDN-based equipment using OpenFlow protocol, parameter and service quality monitoring of virtualized broadband network gateways and web-browsing service, signalling architecture of orchestration in NGNe, fast deployment emergency telecommunication network, service function discovery, hybrid peer-to-peer communications, protocols for overlay content management and data streaming in managed P2P communications, testing augmented Reality applications, and addressing mobile devices with duplicate unique identifiers.

2.8.5 ITU-T SG13 approved an ITU standard on Service model of the Agriculture Information based Convergence Service, and agreed a Supplement on use cases and key network requirements for Network 2030.

2.8.6 ITU-T SG15 is developing Recommendations collaborating with various organizations such as IEC, IETF, IEEE, Broadband Forum, MEF, ETSI, 3GPP, OIF and ONF.

**2.9 Security**

A separate report on ITU’s activities related to building confidence and security in the use of ICTs is presented as [Document C21/18](https://www.itu.int/md/S21-CL-C-0018/en).

## 2.10 ITU-T Focus Groups

Several ITU-T Focus Groups are exploring emerging technologies and their potential impact on ITU standardization. At present, the following [ITU-T Focus Groups are active](https://www.itu.int/en/ITU-T/focusgroups/Pages/default.aspx): [*Focus Group on Artificial Intelligence for Health (FG AI4H)*](https://www.itu.int/en/ITU-T/focusgroups/ai4h); [*Focus Group on Vehicular Multimedia (FG VM*](https://www.itu.int/en/ITU-T/focusgroups/vm/Pages/default.aspx)*);* [*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); [*Focus Group on “AI for autonomous and assisted driving”*](https://www.itu.int/en/ITU-T/focusgroups/ai4ad/Pages/default.aspx) (FG-AI4AD); [*Focus Group on "Quantum Information Technology for Networks" (FG-QIT4N)*](https://www.itu.int/en/ITU-T/focusgroups/qit4n/Pages/default.aspx) *and* [*Focus Group on AI for Natural Disaster Management (FG-AI4NDM)*](https://www.itu.int/en/ITU-T/focusgroups/ai4ndm/Pages/default.aspx)*.*

**2.11** 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).

**2.12** ITU-D SG 1 and SG 2 continue their work on the [2018-2021 study period](https://www.itu.int/net4/ITU-D/CDS/sg/index.asp?lg=1&sp=2018) including on IP-related issues such as NGN interconnection, VoIP, cloud services, and strategies, policies, and technologies for the deployment of broadband.

**2.13** BDT continues implementing Internet broadband wireless connectivity and developing ICT applications to provide free or low-cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries (Burundi, Burkina Faso, Djibouti, Lesotho, Mali, Rwanda, Eswatini, Antigua and Barbuda, and St. Kitts and Nevis, etc.).

**2.14** 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”*.

**2.15** 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) – an advanced architecture for information management – in the use of its advanced digital object management features in ITU and interested UN agencies.

**2.16** 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 IPv6, IoT, 5G, NGN, Smart Sustainable Cities etc. Through the ITU Academy, a training course on Internet and IPv6 Infrastructure Security continues to be provided in the Asia-Pacific region by the Centre of Excellence ALTTC, in partnership with MDES (Thailand) and APNIC. Other sessions in 2020 include topics such as “Applications of satellite based IoT networks", “Digital Government and Smart City for Resilience", “Cybersecurity Policy & Strategy”, “Mobile broadband Internet, 5G and future services" etc.

**2.17** ITU is also supporting the Costa Rican ICE strengthen its capacity building, including on NGN Networks, through a project called *“Desarrollo del conocimiento en tecnologías, para especialistas del ICE”*.

# 3. IPv6

**3.1** The updated [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 Malaysia University of Science and Technology continue working towards the establishment of an ITU IPV6/IoT Expertise Centre for supporting Member States in their transition from IPv4 to IPv6.

**3.3** Trainings/courses are being organized on all forms of IoT connectivity, including “*Certified IoT Security Professional”* in Morocco on 3-7 February 2020. Due to COVID-19, several other online training courses were also organised on Certified IPv6 Fundamentals and Certified Industry 4.0 in English and Arabic.

**3.4** BDT is also providing technical assistance on IPv6 to Montenegro, working closely with the Ministry of Economy, the Ministry of Public Administration and the University of Montenegro.

**3.5** 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.

**3.6** BDT is also working on the creation of an Information and Training Center on IP Telephony (technical, policy, economic and capacity building aspect) for the CIS region.

**3.7** BDT continues to provide assistance to countries on the implementation of IPv6 policies and IPv6 test bed as requested by Member States, e.g.: In the Africa region, assistance was provided in setting up of an Internet protocol version 6 (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.

**3.8** BDT is also focusing on a special program to train the trainers on “IPv6 Over 5G Networks” in order to assist developing countries to implement their 5G mobile and/or fixed networks.

**3.9** In the Arab region, 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.

**3.10** 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 to enable IoT, M2M, Internet of Everything (IoE), and other future technologies. 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 [Council Working Group on international Internet-related public policy issues (CWG-Internet)](https://www.itu.int/en/council/cwg-internet/Pages/default.aspx) did not hold a meeting during the CWG cluster in September 2020. The open consultation on [Expanding Internet Connectivity](https://www.itu.int/en/council/cwg-internet/Pages/consultation-sep2020.aspx) launched in February 2020 by the Group was extended until 15 December 2020. The fifteenth meeting of the CWG-Internet was held on 27-28 January 2020. An open consultation on [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) has been launched. A separate report is presented in [Document C21/51](https://www.itu.int/md/S21-CL-C-0051/en).

**4.2** ITU participated in the 15th IGF meeting, held virtually from 2-6 and 9-17 November 2020. The ITU SG was invited to speak at the opening ceremony of IGF on 9 November 2020. ITU also organized the annual EQUALs in Tech Awards and co-organized an Open Forum on Implementation of WSIS Action Lines for SDGs and WSIS Forum 2021 (co-organized by the WSIS Action Line Facilitators) at this IGF meeting.

**4.3** ITU continues to follow the issue of protecting intergovernmental organization (IGO) names and acronyms in any new gTLDs, as part of the IGO coalition composed of approximately 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

**5.1** [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 ITU standard on *“Differentiating between ENUM and Infrastructure ENUM”*. ITU-T SG11 approved two ITU standards on ENUM for IMS.

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

**6.1** BDT continues to provide assistance to countries in the creation of national IXPs, and on achieving efficient and cost-effective regional Internet connectivity 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) to enable local ISPs to connect directly together and exchange domestic traffic, typically with settlement-free peering, thereby reducing and/or saving cost on international transit while reducing latency (by avoiding local traffic to be carried internationally).

**6.3** In the Africa region, 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 Internet Exchange points to support high speed and high-quality broadband connectivity and access. Another sub-regional IXP is under consideration with Djibouti Telecom using their New Data Center and optical cables.

**6.4** BDT 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. This is a result of collaboration between ITU, UN ESCAP, TeleGeography and ITU Member States.

# 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”*. ITU-T SG2 is progressing two new work items on OTTs: TR.OTTnumber *“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”, and* further E.dit *“Deemed impermissible traffic”*, and E.ACP *“Alternative calling procedures”*. ITU-T SG3 approved one ITU-T standard on *voluntary commercial arrangements between telecommunications network operators and OTT providers*.

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1. A more detailed version of the report ([CWG-Internet-15/2](https://www.itu.int/md/S21-RCLINTPOL15-C-0002/en)) was presented to CWG-Internet. [↑](#footnote-ref-1)