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|  | **Document CWG-Internet-21/2** |
| **16 January 2025** |
| **English only** |
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| Report by the Secretary-General | |
| ITU INTERNET ACTIVITIES: RESOLUTIONS 101, 102, 133, 180 AND 206 | |
| **Purpose**  This report summarizes ITU’s activities related to Plenipotentiary Conference (PP) Resolution 101 (Rev. Bucharest, 2022), “Internet Protocol-based networks”; Resolution 102 (Rev. Bucharest, 2022), “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. Bucharest, 2022), “Roles of administrations of Member States in the management of Internationalized (multilingual) domain names”; Resolution 180 (Rev. Bucharest, 202), “Promoting deployment of Internet Protocol version 6” and Resolution 206 (Dubai, 2018), “OTTs”.  **Action required**  In line with Resolution 102 (Rev. Bucharest, 2022), the Council Working Group on international Internet-related public policy issues is invited to **consider** and **discuss** the activities of the Secretary-General and Directors of the Bureaux in relation to the implementation of the resolutions.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **References**  [*CWG-Internet website*](https://www.itu.int/en/council/cwg-internet/Pages/default.aspx)*; Plenipotentiary Resolutions* [*101*](https://www.itu.int/en/council/Documents/basic-texts-2023/RES-101-E.pdf)*,* [*102*](https://www.itu.int/en/council/Documents/basic-texts-2023/RES-102-E.pdf)*,* [*133*](https://www.itu.int/en/council/Documents/basic-texts-2023/RES-133-E.pdf)*,* [*180*](https://www.itu.int/en/council/Documents/basic-texts-2023/RES-180-E.pdf) *(Rev. Bucharest, 2022), Resolution* [*206*](https://www.itu.int/en/council/Documents/basic-texts-2023/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/publications.aspx?lang=en&parent=T-RES-T.47-2022) *(Rev. Dubai, 2012),* [*48*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.48-2022) *(Rev. Geneva, 2022),* [*49*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.49-2016) *(Rev. Hammamet, 2016),* [*50*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.50-2022) *(Rev. Geneva, 2022),* [*52*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.52-2022) *(Rev. Hammamet, 2016),* [*58*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.58-2022)*,* [*60*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.60-2022)*,* [*64*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.64-2022) *(Rev. Geneva, 2022),* [*69*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.69-2022)*,* [*75*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.75-2022) *(Rev. Geneva, 2022),* [*98*](https://www.itu.int/pub/publications.aspx?lang=en&parent=T-RES-T.98-2022) *(Rev. Geneva, 2022);* [*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*](https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Documents/WTDC17_FinalReport_en.pdf)  *(Rev. Buenos Aires, 2017),* [*30*](https://www.itu.int/dms_pub/itu-d/opb/tdc/D-TDC-WTDC-2022-PDF-E.pdf)*,* [*45*](https://www.itu.int/dms_pub/itu-d/opb/tdc/D-TDC-WTDC-2022-PDF-E.pdf) *and* [*63*](https://www.itu.int/dms_pub/itu-d/opb/tdc/D-TDC-WTDC-2022-PDF-E.pdf) *(Rev. Kigali, 2022); 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)*,* [*C22/33*](https://www.itu.int/md/S22-CL-C-0033/en)*,* [*C23/33*](https://www.itu.int/md/S23-CL-C-0033/en)*,* [*C24/33*](https://www.itu.int/md/S24-CL-C-0033/en) | |

# 1 Introduction

This report describes ITU’s activities related to the 2022 Plenipotentiary Conference Resolutions 101, 102, 133, 180 and 206 for the reporting period from September 2024 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

The new/revised [ITU-T Recommendations](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=8265&isn_status=-1,2&details=0&field=acdefghijo) and other texts which have been approved for this reporting period, including those relevant to this Report, can be found under the different ITU-T Study Groups (SGs).

## 2.1 IMT-2020

In total,22 Recommendations were approved by ITU-T SGs 13 and 17, and 2 draft Recommendations are under approval in SG13. More information is available below.

**2.1.1** ITU-T SG13approved the following 19 Recommendations:

 Y.3084, Information-centric networking in networks beyond IMT-2020 – Requirements and functional framework to support immersive live experience services

 Y.3085, Information-centric networking in networks beyond IMT-2020 – Requirements and functional framework enhancement to support deterministic communication services

 Y.3086, Information-centric networking in networks beyond IMT-2020 – Requirements and functional framework enhancement to support machine learning

 Y.3092, Digital twin for management and orchestration in IMT-2020 networks and beyond

 Y.3143, Quality of service assurance requirements and framework for smart healthcare supported by IMT-2020 and beyond

 Y.3144, Future networks including IMT-2020 – Requirements and functional architecture of distributed core network

 Y.3163, Network accelerating for edge computing in IMT-2020 networks and beyond

 Y.3164, Requirement of joint development and operation for IMT-2020 networks and beyond

 Y.3187, Architectural Framework for Machine learning function orchestrator in future networks including IMT-2020

 Y.3208, Fixed, mobile and satellite convergence – Session management with satellite backhaul for IMT-2020 networks and beyond

 Y.3209, Fixed, mobile and satellite convergence – Traffic scheduling for IMT-2020 networks and beyond

 Y.3210, Fixed, mobile and satellite convergence – Distributed ledger technology for IMT-2020 networks and beyond

 Y.3212, Fixed, mobile and satellite convergence – Requirements of supporting High Altitude Platform for IMT-2020 networks and beyond

 Y.3213, Fixed, mobile and satellite convergence – Policy control for IMT-2020 networks and beyond

 Y.3214, Fixed, mobile and satellite convergence – Service function chain (SFC) for IMT-2020 networks and beyond

 Y.3215, Fixed, mobile and satellite convergence – Requirements of network sharing for IMT-2020 networks and beyond

 Y.3216, Fixed, mobile and satellite convergence – Distributed core network for IMT-2020 networks and beyond

 Y.3401, Coordination of networking and computing in IMT-2020 networks and beyond – Capability framework

 Y.3162, Evaluating intelligence capability for network slice management and orchestration in IMT-2020 network and beyond.

Study Group 13 has 20 more draft Recommendations on IMT-2020 under development.

**2.1.2** ITU-T SG17approved the following three Recommendations:

 X.1818, Security controls for operation and maintenance of IMT-2020/5G network systems

 X.1819, Security capabilities of network layer for IMT-2020/5G edge computing

 X.1820, Security Requirements for Operation of IMT-2020/5G Core Network to Support Vertical Services.

## 2.2 Internet of Things (IoT) and Smart Cities

**2.2.1** In total, six Recommendations were approved by ITU-T SGs 5, 11, 16, 17, and 20. Two Supplements and one Technical Report were approved by SG20, one Technical Paper was approved by SG16, and 14 draft Recommendations are under approval in SGs 5, 17, and 20.

More information is available below:

– ITU-T SG5 approved [ITU-T L.1632](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=18973) “Identification method for building infrastructure equipment in a sustainable city”

– ITU-T SG17 approved the following three Recommendations and started approval of one more Recommendation on IoT security:

 X.1353, Blockchain-based Security Methodology for Zero-Touch Deployment of Massive IoT

 X.1354, Security controls for IoT systems

 X.2012, Security measure for digital twin system of smart cities

– ITU-T SG20 approved the following six Recommendations and started approval of one more Recommendation on smart cities and two more Recommendations on Internet of things (IoT):

 Y.4502, Requirements and functional architecture of IoT sensing quality management service

 Y.4227, IoT requirements and capabilities for support of blockchain

 Y.4228, Requirements and framework of Industrial IoT (IIoT) infrastructure for smart manufacturing

 Y.4503, Framework of common rule enablement for intelligent IoT services in heterogeneous IoT platform environments

 Y.4504, Service framework of prediction for intelligent IoT

 Y.4505, Minimal Interoperability Mechanisms for smart and sustainable cities and communities

 Y.4463, Framework of delegation service for Internet of Things devices

 Y.Sup.77, Digital transformation for people-centred smart cities and communities: an analysis of definitions

**2.2.2** The standardization of IoT test specifications is accelerating, supported by the increasing collaboration of ITU-T and oneM2M. ITU-T SG20 continued coordination on IoT in its ITU-T Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C) and is also in close collaboration with IETF, oneM2M, W3C, LoRa Alliance and TMForum.

**2.2.3** The [United for Smart Sustainable Cities (U4SSC)](https://u4ssc.itu.int/) initiative, supported by 19 UN bodies, advocates for public policy to ensure that ICTs –and ICT standards in particular– play a definitive role in accelerating digital transformation in cities. Under the [United for Smart Sustainable Cities (U4SSC) initiative](https://u4ssc.itu.int/), 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)

– [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)

– [Reference framework for integrated management of an SSC](http://u4ssc.itu.int/wp-content/uploads/2023/07/U4SSC-Reference-framework-integrated-management-of-an-SSC-E.pdf)

– [Procurement guidelines for smart sustainable cities](https://www.itu.int/en/publications/Documents/tsb/2023-U4SSC-Procurement-guidelines-for-SSC/index.html#p=1)

– [Compendium of practices on innovative financing for smart sustainable cities projects](https://www.itu.int/en/publications/Documents/tsb/2023-U4SSC-Compendium-Practices-Innovative-Financing-SSC-Projects/index.html#p=1), [Smart tourism: A path to more secure and resilient destinations](https://www.itu.int/en/publications/Documents/tsb/2022-U4SSC-Smart-tourism/index.html#p=1)

– [Redefining smart city platforms: Setting the stage for Minimal Interoperability Mechanisms](https://www.itu.int/en/publications/Documents/tsb/2022-U4SSC-Redefining-smart-cityplatforms/index.html#p=1)

– [Guiding principles for artificial intelligence in cities](https://www.itu.int/en/publications/Documents/tsb/2024-U4SSC-Guiding-principles-artificial-intelligence-in-cities/index.html#p=1).

**2.2.4** The [8th meeting of the U4SSC Initiative](https://u4ssc.itu.int/latest-meetings/8th-meeting/) took place on 19 September 2024 in Madrid, Spain, where the U4SSC Annual Work Plan for 2024-2025 focusing on further advancing digital transformation strategies, promoting green digital action, and continuing efforts to foster city-level resilience. It was agreed to establish a network of professional women in cities with a special focus on female mayors. In addition, the following new Thematic Groups were approved along with the work plan:

– Future Foresight for Cities

– Sustainable Digital Transformation in Buildings and Urban Energy

– Social Sustainability in People-centered City Governance

– Digital public infrastructure for cities.

**2.2.5** More than 200 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: [Anyang (Republic of)](https://www.itu.int/en/publications/Documents/tsb/2023-U4SSC-City-Snapshot-Anyang-Republic-of-Korea/index.html#p=1), [Canton of Geneva, Switzerland](https://www.itu.int/en/publications/Documents/tsb/2022-U4SSC-State-Snapshot-Canton-of-Geneva-Switzerland/index.html#p=1), [Kyebi, Ghana](https://www.itu.int/en/publications/Documents/tsb/2022-U4SSC-City-Snapshot-Kyebi-Ghana/index.html#p=1), [Tromsø, Norway](https://www.itu.int/en/publications/Documents/tsb/2022-U4SSC-City-Snapshot-Tromso-Norway/index.html), [Narvik, Norway](https://www.itu.int/en/publications/Documents/tsb/2022-U4SSC-City-Snapshot-Narvik-Norway/index.html#p=1), [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: [Anyang, Korea (Republic of)](https://www.itu.int/en/publications/Documents/tsb/2023-U4SSC-Verification-Report-Anyang-Republic-of-Korea/index.html#p=1); Canton of Geneva, Switzerland; Tromsø, Norway; Narvik, Norway; Mashhad, Iran (Islamic of); Larvik, Norway; Daegu, Korea (Republic of).

**2.2.6** The first United for Smart Sustainable Cities (U4SSC) Austrian U4SSC Country Hub was approved during the 6th U4SSC meeting and is hosted by the Austrian Economics Center in Vienna, Austria. The city of Kyebi, Ghana, has also set up a U4SSC Country Hub in Ghana which is the first in Africa. The key objectives of the U4SSC country hubs are to promote the work of U4SSC.

**2.2.7** A [Toolkit on Digital Transformation for People-Oriented Cities and Communities](https://toolkit-dt4c.itu.int/) has been developed to support cities and communities. The resources contained in this Toolkit include international standards and guidance, the latest research and projections, and cutting-edge reports on a variety of timely topics relevant to the digital transformation of cities and communities.

**2.2.8** A [Digital Transformation Resource Hub](https://www.itu.int/cities/dt-resource-hub/) has been created in February 2023. The Digital Transformation Resource Hub provides a wide range of quality publications on digital transformation topics, including smart sustainable cities, cities’ actions to tackle COVID-19, artificial intelligence, Internet of things, blockchain, digital twin, metaverse and digital transformation trends.

**2.2.9** The International Telecommunication Union (ITU), together with other organizations and UN agencies, has been organizing the [Digital Transformation Dialogues (DTD)](https://www.itu.int/cities/digitaltransformationdialogues/). DTD offer a dynamic platform to facilitate a deeper understanding of emerging technologies to reshape traditional processes, improve operational efficiency and unlock new possibilities for innovation and standardization. The Digital Transformation Dialogues seeks to address evolving themes associated with digital transformation, foster cooperation among city stakeholders, and examine the role of standardization within this domain. The Digital Transformation Dialogues serve as a unique platform for highlighting the latest work and outcomes of the ITU-T Focus Groups, Initiatives and ITU-T Study Groups.

**2.2.10** Throughout 2024, the ITU has consistently published the Digital Transformation and Cities Digest, with editions being released in [January](https://www.itu.int/cities/wp-content/uploads/2024/01/ITU-Digital-Transformation-and-Cities-Digest-Jan2024.html), [March](https://www.itu.int/cities/wp-content/uploads/2024/03/ITU-Digital-Transformation-and-Cities-Digest-Mar2024.htm), [May](https://www.itu.int/cities/wp-content/uploads/2024/05/ITU-Digital-Transformation-and-Cities-Digest-May2024.htm) and [July](https://www.itu.int/cities/wp-content/uploads/2024/07/ITU-Digital-Transformation-and-Cities-Digest-July2024.htm). Copies of the Digest are available for access on the [Digital Transformation and Cities Digest webpage](https://www.itu.int/cities/dt-digest/).

## 2.3 IP Cable

There is no update in this reporting period since September 2024.

## 2.4 IPTV, Content Delivery Networks (CDN) and Digital Signage

ITU-T SG16 approved the following Recommendations:

– J.1292, Functional requirements for cable set-top box supporting Ultra-High-Definition video and virtual reality services

 J.1381, Requirements of E2E Network Platform for Cloud-based Object Wave Transmissions

 Revised J.224, Fifth-generation transmission systems for interactive cable television services - IP cable modems

 Revised J.225, Fourth-generation transmission systems for interactive cable television services - IP cable modems

 J.Sup10, Correspondence between CableLabs DOCSIS Specifications and ITU-T J-series Recommendations.

## 2.5 IP performance

There has been no update in this reporting period since September 2024.

## 2.6 IP-based Cloud/edge computing and Big Data

In total, 13 Recommendations were approved by ITU-T SGs 9, 11, 13, and 16. and four draft Recommendations are under approval in SGs 13 and 17. More information is available below.

– ITU-T SG13 approved four Recommendations:

 Y.2347, Requirements of next-generation network evolution for support network and cloud interworking

 Y.3552, Cloud computing – Functional requirements of edge cloud

 Y.3553, Cloud Computing – Distributed cloud functional architecture

 Y.3554, Cloud computing – Functional framework of Platform as a Service management for cloud-native applications

 Y.3163, Network accelerating for edge computing in IMT-2020 networks and beyond

 Y.3047, Requirements and capabilities of network awareness based on cloud computing

– ITU-T SG16 approved F.748.40 on technical specification for artificial intelligence cloud platform: Data annotation.

– ITU-T SG17 approved the following four Recommendations and started approval of Recommendation ITU-T X.1648 on edge computing security:

 X.1384, Security requirements and guidelines for vehicular edge computing

 X.1819, Security capabilities of network layer for IMT-2020/5G edge computing.

 X.1600, Security architecture of edge cloud

 X.1647, Security guidelines for selecting computing methods and resources from Cloud Service Providers

– ITU-T SG21 started approval of two Recommendations:

 F.748.39, Functional requirements and reference architecture of artificial intelligence cloud platform for smart grid operation and maintenance

 F.743.28, Functional framework and requirements for intelligent inspection system based on cloud-edge-device collaboration in smart grids.

## 2.7 Distributed ledger technology (DLT)/blockchain

**2.7.1** ITU-T SG2 approved Recommendation ITU-T M.3366 Requirements for management of blockchain system.

**2.7.2** ITU-T SG13 approved three Recommendations and started approval of Y.2348 Functional architecture of network resource sharing based on distributed ledger technology:

– Y.2349, Requirements and framework of multi-dimensional resource matching of next-generation network evolution based on distributed ledger technology

– Y.3210, Fixed, mobile and satellite convergence - Distributed ledger technology for IMT‑2020 networks and beyond

– Y.3326, Requirements and framework of distributed software-defined network intelligence capability enhancement based on distributed ledger technology.

**2.7.3** ITU-T SG17 started approval of Recommendation ITU-T X.1355, Security risk analysis framework for Internet of Things (IoT) devices.

**2.7.4** ITU-T SG20 started approval of Y.4508, Functional requirements and architecture of blockchain-based activity logs management for IoT data processing and management.

## 2.8 Intelligent Transport System (ITS)

**2.8.1** ITU-T SG17 approved X.Sup.43 Supplement to X.1813 – Security deployment scenarios for cellular vehicle-to-everything (C-V2X) services supporting ultra-reliable and low latency communication (URLLC) and started approval of X.1385, Security requirements and guidelines for telecommunications in an urban air mobility (UAM) environment.

**2.8.2** Study Group 20 started approval of Y.4230 – Requirements and capability framework of public smart charging service for electric vehicles.

## 2.9 Quantum technologies

**2.9.1** ITU-T SGs 11, 13 and 17 have studied quantum technologies, esp. key distribution network (QKDN), since the last study period 2017-2021 and have approved 40+ Recommendations in Y.3800-series and Q.4160-series (QKDN). X.1700-series (Quantum security) (see <https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=8265&isn_status=-1,2&title=quantum&details=0&field=acdefghijo>).

**2.9.2** In this reporting period, SG13 approved the following Recommendations on QKDN:

– Y.3808, Integration of quantum key distribution network and secure storage network

– Y.3810, Quantum key distribution network interworking – Framework

– Y.3813, Quantum key distribution network interworking – Functional requirements

– Y.3817, Quantum key distribution network interworking – Requirements for quality of service assurance

– Y.3818, Quantum key distribution network interworking – Architecture

– Y.3820, Quantum Key Distribution Network Interworking – Software Defined Networking Control

– Y.3822, Quantum key distribution networks – Requirements for autonomic quality of service assurance

– Y.3824, Quantum key distribution network federation – Reference models

– Y.3825, Integration of quantum key distribution network and time-sensitive network - framework

– Y.3826, Integration of quantum key distribution network and user network supporting end-to-end modern cryptography services – framework.

**2.9.3** ITU-T SG17 approved two Recommendations on QKDN security:

– X.1716, Authentication and authorization in quantum key distribution networks (QKDN)

– X.1717, Security requirements and measures for quantum key distribution networks (QKDN) – control and management.

## 2.10 Security

**2.10.1** ITU-T SG17 approved the following Recommendations, in addition to what’s reported above:

– X.1237, Technical security framework for personally identifiable information protection while countering mobile messaging spam

– X.1471, Reference monitor for online analytics services

– X.1283, Threat Analysis and guidelines for securing password and password-less authentication solutions

– X.1456, Security guidelines for digital financial service (DFS) applications based on unstructured supplementary service data (USSD) and subscriber identification module tool kit (STK)

– X.Sup.41, Supplement to ITU-T X.1254: e-KYC use cases in digital financial services

– X.Sup.42, Supplement to ITU-T X.1254: Implementation of secure authentication technologies for digital financial services.

**2.10.2** ITU-T SG13 approved Y.Sup.84 Supplement to Y.3050-series: Standardization roadmap on Trustworthy Networking and Services.

**2.10.3** Study Group 11 developed a set of standards defining the procedure for incorporating and validating digital public-key certificates at the signalling level, including signing the CLI in SS7-based and VoIP-based networks. More details are available on the dedicated webpage at: <https://itu.int/go/SIG-SECURITY>. Among standards recently developed are:

– ITU-T Q.3062, Signalling procedures and protocols for enabling interconnection between trustable network entities in support of existing and emerging networks;

– ITU-T Q.3063, Signalling procedures of calling line identification authentication;

– Amd.2 to ITU-T Q.931, ISDN user-network interface layer 3 specification for basic call control. Amendment 2: Extensions for the support for the calling line identification authentication

– Amd.6 to ITU-T Q.1902.3, Bearer Independent Call Control protocol (Capability Set 2) and Signalling System No. 7 ISDN User Part: Formats and codes. Amendment 6: Extensions for the support for the calling line identification authentication

– Amd.7 to ITU-T Q.763, Signalling System No. 7 – ISDN User Part formats and codes. Amendment 7: Extensions for the support for the calling line identification authentication.

Currently, SG11 is developing draft new Recommendation ITU-T Q.TSCA, Requirements for issuing End-Entity and Certification Authority certificates for enabling trustable signalling interconnection between network entities, which defines requirements for the verification of information elements in certificate signing requests.

**2.10.4** ITU-T SG2 is developing a draft new Recommendation ITU-T E.RAA4Q.TSCA, Registration Authority Assignment criteria to issue digital public certificates for use by Q.TSCA, which defines the criteria for the selection of registration authorities for use in relation to Q.TSCA, and the process by which the criteria would be used to select registration authorities to support the allocation of digital public certificates that will facilitate implementation in support of Q.TSCA.

**2.10.5** ITU-T SG20 developedRecommendation and [Technical Report YSTR-IADIoT](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=17917), Intelligent Anomaly Detection System for IoT.

## 2.11 ITU-T Focus Groups

In total, two ITU-T Focus Groups are active:

– [ITU-T Focus Group on cost models for affordable data services](https://www.itu.int/en/ITU-T/focusgroups/cd) (FG-CD);

– [Focus Group on Artificial Intelligence Native for Telecommunication Networks (FG‑AINN)](https://www.itu.int/en/ITU-T/focusgroups/ainn/Pages/default.aspx) .

**2.12** In the reporting period, TSB has not received reports or information concerning any incidents covered by WTSA Resolution 69 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)).

**2.13** ITU-D SG 1 and SG 2 continue their work on IP-related issues and have organised special sessions on IP broadband satellite connectivity, digital broadcasting, including hybrid technical solutions. Details can be found at: [ITU Development Study Groups](https://www.itu.int/itu-d/sites/studygroups/).

**2.14** BDT, in collaboration with Intelsat, is working together to connect 100 schools to broadband Internet, and the beneficiary countries include but are not limited to: Burundi, Cambodia, Central African Republic, Mongolia, Mexico, Niger, Nepal, Papua New Guinea; The Philippines, Laos, Timor Leste, Zambia, Zimbabwe.

Projects have been implemented successfully by BDT on Internet broadband wireless connectivity to provide free or low-cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries. The impact for the countries where projects have been implemented includes but is not limited to:

– Burundi: 10 cities connected in 2.5 GHz frequency band, 15 engineers trained for operations and maintenance, and 437 schools, hospitals and Government agencies connected.

– Djibouti: 20 cities connected in 2.5 GHz Frequency Band, and 48 Schools, 43 Hospitals/clinics and 23 Ministries connected.

– Eswatini: 4G LTE Broadband Wireless Network installed in 10 sites and 15 technical training sessions completed for local experts on the RF Monitoring and Planning and Operation and Maintenance of the deployed 4G LTE Broadband Wireless Network.

Other initiatives are also ongoing related to this subject such as GIGA and Partner2Connect. More information is available in Document [C24/35](https://www.itu.int/md/S24-CL-C-0035/en).

**2.15** 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”.

**2.16** Several training courses were provided through the [ITU Academy](https://academy.itu.int/) and the [ITU Academy Training Centers](https://academy.itu.int/itu-d/projects-activities/centres-excellence/coe-overview), covering topics such as “Future fixed and mobile broadband internet”, “cloud computing and IoT/AI”, “Key aspects and governance of Internet of things, big data and artificial intelligence”, and “The Last Mile Internet Connectivity”. A total of 457 participants took those courses, of which 154 received a certificate.

# 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, including [approved](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=-1&isn_status=-1%2c2&title=IPv6&details=0&field=aebcgfkjl) and [under development](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=-1&isn_status=-1%2c1&title=IPv6&pg_size=100&details=0&field=aebcgfkjl) ITU-T deliverable related to IPv6. Trainings/courses are being organized on all forms of IoT connectivity, including information security and privacy.

**3.2** BDT and Telecommunications and Post Regulatory Authority- of Sudan are operating a regional “ITU IPv6 and IoT Expertise Center for Arab Region” hosted by TPRA-Sudan to [provide trainings](https://www.itu.int/en/ITU-D/Regional-Presence/ArabStates/Pages/Projects/IPv6%26IoT/IPV6-IOT.aspx).

**3.3** BDT is also providing technical assistance on IPv6 to Montenegro. The IPv6 Laboratory is operational at the University of Montenegro. Capacity-building programs are taking place to train students and operators at this newly established IPv6 Laboratory.

**3.4** BDT is providing assistance on IPv6 test bed implementation in Cameroon and in Congo. Technical assistance is being provided to Iraq, State of Palestine, Somalia, and Sudan for developing their national IPv6 transition strategies and the creation of national IPv6 task forces.

**3.5** BDT is also focusing on a special program to train the trainers on “IPv6 Over 5G Networks”.

**3.6** The [final report](https://www.itu.int/pub/D-STG-SG01.01.1-2017) in response to ITU-D SG1 [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](https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/Publications.aspx) is available 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** Pursuant to the twentieth meeting of the CWG-Internet, ITU launched an open consultation on [The role of public policy in promoting multilingualization of the Internet](https://www.itu.int/en/council/cwg-internet/Pages/consultation-oct2024.aspx) in November 2024.

**4.2** ITU participated in the 19th IGF meeting in Riyadh, Saudi Arabia, on 15-19 December 2024, including the opening ceremony and high-level sessions. ITU also organized several sessions, including on the WSIS+20 process, WSIS Forum 2024 Open Consultation, and the CWG-Internet. ITU also contributed to various working groups and dynamic coalitions of the IGF.

**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.

**4.5** ITU continues to actively follow discussions in GAC as an observer.

**4.6** ITU has also been following and contributing to the ongoing Global Digital Compact process. More information on this is contained in Document [CWG-WSIS&SDG-42/10](https://www.itu.int/md/S25-CWGWSIS42-C-0010/en).

# 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 Recommendation to differentiate between ENUM and Infrastructure ENUM. ITU-T SG2 is continuing work on a new draft Recommendation ITU-T E.ENUMINF *“*Differentiatingbetween ENUM and Infrastructure ENUM”. ITU-T SG2 experts have noted that a number of countries have stale delegates (i.e., either not functioning due to technical reasons, or not registered in the RIPE database), and are discussing the expected usefulness of ENUM delegation of E.164 Geographic Country Codes in the future.

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

BDT continues its work on providing assistance on IXP related issues. Assistance was provided to the Armenian Government and industry to help the ARMIX to analyse data on IXP performance with the following results:

– Good peering efficiency was found in terms of the number of network addresses peering with Internet Exchange Point

– Mobile network performance above regional peers assessed (average 33.13 Mbps down, 19.83 Mbps up).

Internet Exchange Points locations are available at the ICT Infrastructure interactive mapping: <https://bbmaps.itu.int/bbmaps/>.

# 7 OTT

**7.1** Under ITU-D Q3/1, work continues on the use of telecommunications/ICTs for disaster risk reduction and management.

**7.2** ITU-T SG2 is progressing with two work items on OTTs (TR.OTTnum “Current use of E.164 numbers as identifiers for OTTs”, and draft Recommendation ITU-T E.ACP “Alternative calling procedures”).

**7.3** ITU-T SG3 approved [Regional Recommendation ITU-T D.608R “OTT voice bypass”](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14772) (Africa region) and [Regional Recommendation ITU-T D.700R “Principles for dealing with OTTs”](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=15576) (Arab region). SG3 also agreed on [ITU-T Technical Report DSTR-OTTBypass “OTT Bypass”](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=18200) (under publication) and [ITU-T Technical Report DSTR-STUDY\_DRCI “Dispute Resolution Processes”](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=18168) between traditional telecommunication services providers and over-the-top (OTT) providers.

Study Group 3 is currently working on:

– D.GuidelinesCostContribution;

– D.OTTBypass: Recommendation on “OTT Bypass”; and

– [Study on “Policy, regulatory, and economic aspects of OTTs in the context of international telecommunication/ICT services and networks”](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=18579).

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