WTSA-16 Action Plan, V1.1

(18 January 2022)

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# Section I - List of WTSA-16 Resolutions and Opinion, and executive summary of action plan for implementation of WTSA-16 Resolutions

Table 1  
List of WTSA-16 Resolutions and Opinion, and executive summary of action plan for implementation of WTSA-16 Resolutions

| Resolution - Title\*\* | Action by | | | | | Collaboration with | | | Report to | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SGs | TSAG | TSB | Membership | GenSec | GenSec | BDT ITU-D | BR ITU-R | TSAG | Council | WTSA-20 | PP-18 |
| [Resolution 1](#Resolution_01) – Rules of procedure of the ITU Telecommunication Standardization Sector | all | X | X |  |  |  |  |  | X |  | X |  |
| [Resolution 2](#Resolution_02) – ITU Telecommunication Standardization Sector study group responsibility and mandates | all |  | X |  |  |  | X |  | X |  |  |  |
| [Resolution 7](#Resolution_07) – Collaboration with the International Organization for Standardization and the International Electrotechnical Commission | all | X | X | MSs |  |  |  |  |  |  |  |  |
| [Resolution 11](#Resolution_11) – Collaboration with the Postal Operations Council of the Universal Postal Union in the study of services concerning both the postal and the telecommunication sectors | SG3, SG12, SG17 |  | X |  |  |  |  |  |  |  |  |  |
| [Resolution 18](#Resolution_18) – Principles and procedures for the allocation of work to, and strengthening coordination and cooperation among, the ITU Radiocommunication, ITU Telecommunication Standardization and ITU Telecommunication Development Sectors | All SGs | X | X |  |  |  | X  TDAG | X  RAG | X  ISCG  ISC-TF |  |  |  |
| [Resolution 20](#Resolution_20) – Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources | SG2 |  | X |  |  |  |  |  |  | X |  |  |
| [Resolution 22](#Resolution_22) – Authorization for Telecommunication Standardization Advisory Group to act between world telecommunication standardization assemblies |  | X | X |  |  |  |  |  | X |  | X |  |
| [Resolution 29](#Resolution_29) – Alternative calling procedures on international telecommunication networks | SG2, SG3, SG12 |  | X | MSs |  |  | X |  |  |  |  |  |
| [Resolution 31](#Resolution_31) – Admission of entities or organizations to participate as Associates in the work of the ITU Telecommunication Standardization Sector |  |  |  |  |  |  |  |  |  |  |  |  |
| [Resolution 32](#Resolution_32) – Strengthening electronic working methods for the work of the ITU Telecommunication Standardization Sector |  | X | X |  |  |  | X |  | X |  |  |  |
| [Resolution 34](#Resolution_34) – Voluntary contributions |  |  | X | MSs, SMs, Associates |  |  |  |  |  |  |  |  |
| [Resolution 35](#Resolution_35) – Appointment and maximum term of office for chairmen and vice-chairmen of study groups of the Telecommunication Standardization Sector and of Telecommunication Standardization Advisory Group |  |  | X | MSs, SMs |  |  |  |  |  |  |  |  |
| [Resolution 40](#Resolution_40) – Regulatory aspects of the work of the ITU Telecommunication Standardization Sector |  | X |  | MSs |  | SecGen |  |  | X |  | X |  |
| [Resolution 43](#Resolution_43) – Regional preparations for world telecommunication standardization assemblies |  |  | X | MS | SecGen |  |  |  |  |  |  |  |
| [Resolution 44](#Resolution_44) – Bridging the standardization gap between developing and developed countries | All SGs | X | X  ITU regional offices | MSs, SMs |  |  | X | X | X | X | X | X |
| [Resolution 45](#Resolution_45) – Effective coordination of standardization work across study groups in the ITU Telecommunication Standardization Sector and the role of Telecommunication Standardization Advisory Group | All SGs,  All JCAs | X |  |  |  |  | X | X |  |  |  |  |
| [Resolution 47](#Resolution_47) – Country code top-level domain names | SG2 |  | X | MSs |  |  |  |  |  | X |  |  |
| [Resolution 48](#Resolution_48) – Internationalized (multilingual) domain names | SG16, regional groups |  | X | MSs, SMs |  |  |  |  |  | X |  |  |
| [Resolution 49](#Resolution_49) – ENUM | SG2 |  | X | MSs |  |  |  |  |  | X |  |  |
| [Resolution 50](#Resolution_50) – Cybersecurity | All SGs, SG17 |  | X | MSs, SMs, Associates, academia | SecGen | GCA | X |  | X | X |  |  |
| [Resolution 52](#Resolution_52) – Countering and combating spam | SGs, SG17 |  | X | MSs, SMs, Associates, academia |  | GCA | X |  | X |  |  |  |
| [Resolution 54](#Resolution_54) – Creation of, and assistance to, regional groups | all SGs, regional groups | X | X | Regions, MSs |  |  | X |  |  |  |  |  |
| [Resolution 55](#Resolution_55) – Promoting a gender equality in ITU Telecommunication Standardization Sector activities | WISE |  | X | MSs, SMs | SecGen | SecGen |  |  | X |  | X |  |
| [Resolution 58](#Resolution_58) – Encourage the creation of national Computer Incident Response Teams, particularly for developing countries | SG17 |  | X | MSs, SMs |  |  | X |  |  |  |  |  |
| [Resolution 59](#Resolution_59) – Enhancing participation of telecommunication operators from developing countries |  |  | X | MSs, SMs |  |  |  |  |  |  |  |  |
| [Resolution 60](#Resolution_60) – Responding to the challenges of the evolution of the identification/numbering system and its convergence with IP-based systems / networks | SG2, SG13 |  |  | MSs, SMs |  |  |  |  |  |  |  |  |
| [Resolution 61](#Resolution_61) – Countering and combating misappropriation and misuse of international telecommunication numbering resources | SG2, SG3 |  |  | MSs |  |  |  |  |  |  |  |  |
| [Resolution 62](#Resolution_62) – Dispute settlement | SG3 |  | X | MSs |  |  |  |  |  | X |  |  |
| [Resolution 64](#_Resolution_64_-) – IP address allocation and facilitating the transition to and deployment of IPv6 | SG2, SG3 |  | X | MSs, SMs |  |  | X |  |  | X | X |  |
| [Resolution 65](#Resolution_65) – Calling party number delivery, calling line identification and origin identification information | SG2, SG3, SG11, SG17 |  | X | MSs |  |  |  |  |  |  | X |  |
| [Resolution 66](#Resolution_66) – Technology Watch in the Telecommunication Standardization Bureau | All SGs |  | X | MSs, SMs |  |  |  | X | X |  |  |  |
| [Resolution 67](#Resolution_67) – Use in the ITU Telecommunication Standardization Sector of the languages of the Union on an equal footing | All SGs | X | X |  |  |  |  |  |  |  |  |  |
| [Resolution 68](#Resolution_68) – Evolving role of industry in the ITU Telecommunication Standardization Sector |  |  | X | SMs |  |  |  |  | X |  | X |  |
| [Resolution 69](#_Resolution_69_-) – Non-discriminatory access and use of Internet resources and telecommunications/information and communication technologies |  |  | X | MSs, SMs, Associates, academia |  | SecGen | X | X | X | X | X |  |
| [Resolution 70](#Resolution_70) – Telecommunication/information and communication technology accessibility for persons with disabilities and persons with specific needs | All SGs, SG16,  JCA-AHF | X | X | MSs, SMs |  |  | X | X |  | X |  |  |
| [Resolution 72](#Resolution_72) – Measurement and assessment concerns related to human exposure to electromagnetic fields | SG5 |  | X | MSs, SMs |  |  | X | X |  |  | X |  |
| [Resolution 73](#Resolution_73) – Information and communications technologies, environment and climate change | All SGs, SG5 | X | X | MSs, SMs, Associates | SecGen | SecGen | X | X | X | X | X |  |
| [Resolution 74](#Resolution_74) – Admission of Sector Members from developing countries in the work of the ITU Telecommunication Standardization Sector |  |  | X |  |  |  |  |  |  |  |  |  |
| [Resolution 75](#Resolution_75) – The ITU Telecommunication Standardization Sector's contribution in implementing the outcomes of the World Summit on the Information Society, taking into account the 2030 Agenda for Sustainable Development | All SGs |  | X | MSs, SMs, Associates, academia |  | SecGen |  |  |  | X |  |  |
| [Resolution 76](#Resolution_76) – Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU mark programme | All SGs, SG11, ITU-T CASC |  | X | MSs, SMs |  |  | X |  |  | X |  |  |
| [Resolution 77](#Resolution_76) – Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking | All SGs, SG13,  JCA-SDN | X | X | MSs, SMs, Associates, academia |  |  |  |  |  |  |  |  |
| [Resolution 78](#Resolution_76) – Information and communication technology applications and standards for improved access to e-health services | SG11, SG16, SG17, SG20 |  | X | MSs, SMs, academia |  |  | X | X |  |  |  |  |
| [Resolution 79](#Resolution_76) – The role of telecommunications/ information and communication technologies in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it | SG5 |  | X | MSs, SMs, academia |  |  | X |  |  |  |  |  |
| [Resolution 80](#Resolution_76) – Acknowledging the active involvement of the membership in the development of ITU Telecommunication Standardization Sector deliverables | All SGs | X | X | MSs |  |  |  |  |  |  |  |  |
| [Resolution 83](#_Resolution_83_-) – Evaluation of the implementation of resolutions of the World Telecommunication Standardization Assembly |  |  | X | MSs, SMs |  |  | X | X | X |  |  |  |
| [Resolution 84](#_Resolution_84_-) – Studies concerning the protection of users of telecommunication/information and communication technology services | All SGs, SG3, SG12, SG17 |  | X | MSs, SMs, Associates, academia |  |  | X |  |  |  |  |  |
| [Resolution 85](#_Resolution_85_-) – Strengthening and diversifying the resources of the ITU Telecommunication Standardization Sector |  |  | X |  |  |  |  |  |  | X |  |  |
| [Resolution 86](#_Resolution_86_-) – Facilitating the implementation of the Smart Africa Manifesto | All SGs |  | X |  |  |  | X |  |  |  |  |  |
| [Resolution 87](#_Resolution_87_-) – Participation of the ITU Telecommunication Standardization Sector in the periodic review and revision of the International Telecommunication Regulations |  | X | X | MSs, SMs |  |  |  |  |  | X |  |  |
| [Resolution 88](#_Resolution_88_-) – International mobile roaming | SG3 |  | X | MSs |  |  | X |  |  |  |  |  |
| [Resolution 89](#_Resolution_89_-) – Promoting the use of information and communication technologies to bridge the financial inclusion gap | All SGs, SG2, SG3 |  | X | MSs, SMs, Associates | SecGen | SecGen | X |  |  | X | X |  |
| [Resolution 90](#_Resolution_90_-) – Open source in the ITU Telecommunication Standardization Sector | All SGs | X | X | MSs, SMs, Associates, academia |  |  |  |  | X |  |  |  |
| [Resolution 91](#_Resolution_91_-) – Enhancing access to an electronic repository of information on numbering plans published by the ITU Telecommunication Standardization Sector | SG2 |  | X | MSs, SMs, Associates, academia |  |  |  |  |  |  |  |  |
| [Resolution 92](#_Resolution_92_-) – Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications | All SGs, SG11, SG12, SG13, SG15, SG17,  JCA-IMT2020 | X | X | MSs, SMs, Associates, academia |  |  | X | X |  |  |  |  |
| [Resolution 93](#_Resolution_93_-) – Interconnection of 4G, IMT-2020 networks and beyond | SG2, SG3, SG11, SG13, SG17, |  | X | MSs, SMs |  |  |  |  |  | X |  |  |
| [Resolution 94](#_Resolution_94_-) – Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology | SG13, SG16, SG17, SG20 | X | X | MSs, SMs, Associates, academia |  |  |  |  |  |  |  |  |
| [Resolution 95](#_Resolution_95_-) – ITU Telecommunication Standardization Sector initiatives to raise awareness on best practices and policies related to service quality | All SGs, SG12 |  | X | MSs, SMs, Associates, academia |  |  | X | X |  |  |  |  |
| [Resolution 96](#_Resolution_96_-) – ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information and communication technology devices | All SGs, SG2, SG11, SG17, SG20 |  | X | MSs, SMs, Associates, academia |  |  | X | X |  | X |  |  |
| [Resolution 97](#_Resolution_97_-) – Combating mobile telecommunication device theft | All SGs, SG11, SG17 |  | X | MSs, SMs |  |  | X | X |  |  |  |  |
| [Resolution 98](#_Resolution_98_-) – Enhancing the standardization of Internet of things and Smart Cities and Communities for global development | SG20 |  | X |  |  |  | X | X |  |  |  |  |
| [Opinion 1](#_Opinion_1_-) – Practical application of network externality premium | SG3 |  |  | MSs |  |  |  |  |  |  |  |  |

**Legend:**

\* Numbers in the Resolution Number column are hyperlinked to the full texts of the published Resolutions

\*\* The Resolution titles are hyperlinked to the status reports in this document below

GCA : Global Cybersecurity Agenda

GenSec : General Secretariat

ISCG : Inter-Sector Coordination Group

ISC-TF : Inter-Sector Coordination Task Force

MS : Member States

PP : Plenipotentiary Conference

SecGen : ITU Secretary-General

SG : Study Group

SM : Sector Member

The Action Plan for WTSA-16 Resolutions and Opinion includes references and linkages ITU-T documents and activities, and also to documents and activities of Council, Plenipotentiary Conference and the other Sectors. These references and links are updated with each update to the Action Plan.

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# Section II - Progress reports on implementation of the WTSA-16 Resolutions and Opinion

This section of the report shows the name of each WTSA-16 Resolution/Opinion, followed by the text of the "operative" portion of the Resolution, i.e., the *resolves*, *calls upon*, *instructs*, etc., a listing of the Action Items and due dates, with a column that indicates if a particular Action Item is ongoing by nature that has been met periodic goals, and another column that indicates if a particular Action Item has been completed. A box coloured with red indicates an item requiring attention or one that is in jeopardy. Further on in each section, detailed information on each Action Item will be provided. The Action Item number, in the first column of the chart of Action Items, is hyperlinked to the status report for that particular Action Item.

# Resolution 1 - Rules of procedure of the ITU Telecommunication Standardization Sector

***Resolution 1***

*resolves*

that the provisions referred to in *considering* *e)*, *f),* *g)* and *h)* above shall be further elaborated by the provisions of this resolution and the resolutions to which they refer, bearing in mind that, in the case of inconsistency, the Constitution, the Convention, the ITRs and the General Rules of conferences, assemblies and meetings of the Union (in that order) shall prevail over this resolution.

**5.17** The Director shall foster cooperation and coordination with the other standardization organizations for the benefit of all members and report to TSAG on these efforts.

**7.4.1.3** Notification of the result [concerning Deletion of a Question between WTSAs] will be given in a circular, and TSAG shall be informed by the Director. In addition, the Director shall publish a list of deleted Questions whenever appropriate, but at least once by the middle of a study period.

**9.8.2.2** Notification of the result [conferencing Deletion of Recommendations between WTSAs] shall be included in another circular, and TSAG shall be informed by a report from the Director. In addition, the Director shall publish a list of deleted Recommendations whenever appropriate, but at least once by the middle of a study period.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **01-01** | **TSB to prepare agreement with host country for WTSA-20 (resolves)** | **One year before WTSA-20** | **√** | **√** |
| WTSA-20 was planned to take place at Hyderabad, India, from 16 to 27 November 2020; ref. C19 Decision 608, [CL-19/45](https://www.itu.int/dms_pub/itu-s/md/19/sg/cir/S19-SG-CIR-0045!!PDF-E.pdf) (3 October 2019). WTSA-20 was deferred to take place at Hyderabad, India, from 23 February to 5 March 2021; ref. DECISION 608 (MODIFIED 2020), and new proposal is under Council consultation to take place at Hyderabad, India, from 1 to 9 March 2022. The second virtual consultation of councillors in November 2020, Council Decision 608 was further modified and approved by correspondence to reschedule the next WTSA in Hyderabad, India, from 1 to 9 March 2022, subject to the restoration of normal work and travel conditions in India and in other Member States. Following the successful consultation among ITU Member States carried out by Circular Letter [No. 20/51](https://www.itu.int/dms_pub/itu-s/md/20/sg/cir/S20-SG-CIR-0051!!PDF-E.pdf) of 22 December 2020, [CL-21/3](https://www.itu.int/md/S21-SG-CIR-0003/en) of 3 February 2021 announced the agreement of the required majority of the Member States of ITU (106 positive replies, 1 negative reply, 1 abstention), in accordance with No. 42 of the ITU Convention. As a result, the next WTSA was planned in Hyderabad India from 1 to 9 March 2022, preceded by the Global Standards Symposium (GSS) on 28 February 2022 and subject to the restoration of normal work and travel conditions in India and in other Member States. Due to ongoing uncertainty due to the COVID-19 pandemic, VCC2021 prepared a contingency plan for WTSA-20 in 2022 and additional consultations with host India. It was finally decided that WTSA-20 takes place in Geneva, Switzerland, 1-9 March 2022; ref. Circular letter No. [21/39](https://www.itu.int/dms_pub/itu-s/md/21/sg/cir/S21-SG-CIR-0039!!PDF-E.pdf), and ITU-SG DM Circulars [1018](https://www.itu.int/md/S21-DM-CIR-01018), [1019](https://www.itu.int/md/S21-DM-CIR-01019), and [1020](https://www.itu.int/md/S21-DM-CIR-01020). | | | |
| **01-02** | **TSB Director to prepare proposal for organization and structure of WTSA-20 (resolves)** | **3 months before WTSA-20** | **√** | **√** |
| A proposal ([TSAG-TD1187](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1187)) and practical information ([TSAG-TD1292](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1292)-R1) were submitted to the January 2022 TSAG meeting. | | | |
| **01-03** | **TSB Director to prepare report to WTSA-20 (§1.11.1, 5.7, 5.8, 5.9, 5.10)** | **WTSA-20** | **√** | **√** |
| * see [WTSA-C28](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0028) “Report of activities in ITU-T over the 2017-2021 Study period”; and * [WTSA-C23](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0023) “Report of the Telecommunication Standardization Advisory Group to the World Telecommunication Standardization Assembly (WTSA-20), Part I: General”. | | | |
| **01-04** | **All lead study groups shall inform TSAG on the progress of the work as defined in the scope of the lead study group activity. (Section 2.1.6)** | **Each TSAG meeting** | **√** |  |
| * **SG2 (four LSG roles):** SG2 sent its LSG report to TSAG ([TD7](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0007), [64](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0064), [67](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0067), [226](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0226), [264](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0264), [365](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0365), [477](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0477), [665](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0665), [797](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0797), [942](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0942), [1039](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1039), [1193](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1193)). * **SG3 (three LSG roles):** SG3 sent its LSG reports to TSAG (TSAG TDs [148](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0148), [301](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0301), [478](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0478), [798](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0798), [1040](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1040), [1194](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1194)). * **SG5 (three LSG roles):** SG5 sent its LSG reports to TSAG (ref. TSAG-TDs [149](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0149), [302](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0302), [479](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0479), [666](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0666), [799](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0799), [943](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0943), [1041](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1041), [1195](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1195)). * **SG9 (one LSG role):** SG9 sent its LSG reports to TSAG (TSAG TDs [150](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0150), [303](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0303), [480](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0480), [719](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0719), [800](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0800), [923](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0923), [1042](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1042), [1196](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1196)). * **SG11 (four LSG roles):** LSG reports (TSAG TDs [60](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0060), [221](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0221), [151](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0151), [304](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0304), [481](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0481), [667](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0667), [801](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0801), [944](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0944), [1043](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1043), [1197](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1197)) were sent to TSAG. * **SG12 (three LSG roles):** SG12 sent its LSG reports to TSAG (TSAG TDs [35](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0035), 152, [305](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0305), [482](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0482), [668](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0668), [802](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0802), [945](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0945), [1044](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1044)). * **SG13 (four LSG roles):** SG13 sent its LSG reports to TSAG (ref. TSAG-TDs [52](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0052), [155](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0155), 232, [306](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0306), 354, [508](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0508), 531, [669](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0669), [803](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0803), [946](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0946), [1045](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1045), [1198](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1198)). A report was sent on Big Data which contains a request for nomination of the lead SG for Big Data (ref. [**TSAG-TD32**](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0032)). Resolution 94 related activities (cloud) are depicted in TSAG [TD234](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0234). * **SG15 (four LSG roles):** SG15 sent Liaison Statements (ref. TSAG TDs [08](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0008), [09](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0009), [10](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0010), 154, 379, 380, 386-R1, [417](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0417), [483](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0483), [568](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-190923-TD-GEN-0568), [569](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-190923-TD-GEN-0569), [670](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0670), [804](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0804), [1046](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1046), [1199](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1199)) on its lead SG roles. * **SG16 (seven LSG roles):** TSAG TD [308](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0308), [484](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0484), [671](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0671), [805](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0805), [1047](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1047). * **SG17 (three LSG roles):** SG17 sent liaison statements (ref. TSAG-TDs [93](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0093), [94](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0094), [95](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0095), [236](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0236), [237](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0237), [238](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0238), [309](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0309), [485](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0309), [806](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0806), [947](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0947), [1048](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1048)) on its three lead SG roles.) on its three lead SG roles. * **SG20 (three LSG roles):** SG20 sent a Liaison Statement on the new structure of ITU-T SG20. (LS32 – LS on the new structure of ITU-T SG20). SG20 sent its LSG reports to TSAG (ref. TSAG-TDs [157](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0157/en), [312](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0312), [486](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0487), [672](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0672), [807](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0807), [948](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0948), [1049](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1049), [1200](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1200)). | | | |
| **01-05** | **TSB Director to report on fostered cooperation and coordination with the other standardization organizations (clause 5.17)** | **Each TSAG meeting** | **√** |  |
| * SG2 established communication process with CalConnect under ITU-T A.4 qualification and category A liaison with ISO/TC 154 to collaborate in particular for developing specifications of common interest. SG2 has an ongoing close cooperation with 3GPP TSG SA 5, and with 3GPP TSG SA on Cell-Broadcast based Public Warning Service over 3GPP Systems, with GSMA on EID Definition. * SG3 sent a liaison statement to 3GPP on the ongoing work of the new Technical Report on “IMT2020-Related Policy Considering MVNOs”. * SG5 progress report covers the collaboration with ETSI on smart energy and circular economy topics (ref. TSAG-[TD302](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0302)[TD666](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0666); [TD799](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-200921-TD-GEN-0799)). During the SG5 meeting held from 11-20 May 2020, 7 new work items were created and will be developed jointly with ETSI TC EE. Additionally, SG5 is establishing a liaison statement with ISO TC323 on Circular Economy. * SG9 established collaboration mechanism with CableLabs to maintain aligned DOCSIS-related specifications in Cablelabs and related ITU-T Recommendations in ITU-T SG9. Also SG9 maintained a coordination and collaboration through liaison exchanges with various SDOs including ITU-R SG1, SG5 and SG6, all ITU-T SGs and SCV, ETSI TC Cable and TC ATTM, IEEE 802.3, BROADBAND FORUM, DVB, EBU, Japan Cable Laboratories, SCTE, CCSA, ARIB, etc. * SG11 has a close collaboration with ETSI TC INT on different subjects (such as testing and interconnection requirements) and ILAC on developing Testing Laboratory recognition procedure. SG11 started collaboration with BBF, CableLabs, IEEE FNI Testbeds WG, IEEE INGR Future Networks, NGMN, NIST Advanced Networking Technologies Division (ANTD), O-RAN, TIP and TM Forum on Testbed Federations activities including a new Focus Group FG-TBFxG which was created by SG11 in December 2021. * SG12: In particular, work with 3GPP SA4 and MPEG, as well as with ETSI TC STQ, IETF, BBF to harmonize IP capacity and latency parameters. * SG13: TSAG-TD55 – report on open source community interactions on SDN, TD269 on JCA-IMT2020 activities. In addition at the SG13 meeting (Nov 2017) with the agreement of the convener of the Correspondence Group on Future Networks from the ISO/IEC JTC 1/SC 6 side, Shin-Gak Kang, SG13 agreed to formally close the named correspondence group as there has been no activity of this group since 2012. JCA-IMT2020 accepts inputs from different SDOs to populate the 5G standardization roadmap. ITU-T Y.3500-series Supplement 49 “Cloud Computing Standardization Roadmap” has a collection of specifications, Reports and activities of the other SDOs complementing the work in this area by ITU-T. Likewise do the ongoing SG13 projects (big data standardization roadmap, Artificial Intelligence Standardization Roadmap and roadmap on trustworthy networking and services and roadmap on Quantum Key Distribution Networks. FG-ML5G had the meeting and workshop alongside the Third Berlin 5G week, November 2019, Berlin, Germany. FG-NET2030 had presentations at each of its workshop from the representatives of other standards bodies. FG AN explores the grouds for collaboration with TM Forum. * SG15 and TSB hosted IEEE 802.1 and 802.3 interim meetings (22-26 January 2018) and held a joint IEEE 802-ITU-T SG15 workshop “Building Tomorrow’s Networks” on 27 January, which preceded the SG15 meeting from 29 January to 9 February 2018. These series of events facilitated collaboration between IEEE 802.1/802.3 and ITU-T SG15 on various technology areas. * SG15 and TSB hosted IEEE 802.1 and 802.3 interim meetings (20-24 January 2020) and held a joint IEEE 802-ITU-T SG15 workshop on mutual interest on 25 January, which preceded the SG15 meeting from 27 January to 7 February 2020. These series of events facilitated collaboration between IEEE 802.1/802.3 and ITU-T SG15 on various technology areas. * SG15 is collaborating with various organizations by liaisons and dual participation. * SG16 created JCA-MMeS to coordinate the multimedia e-services standardization work. * SG16 is collaborating with WHO on e-health activities including FG-AI4H and Safe Listening. * SG16 plans further collaboration with ISO/IEC JTC1 SC35 (User Interfaces) on visual presentation in audiovisual content of audio information and of sign language. The two existing joint video teams with MPEG will be consolidated into one group, the JVET, given the maturity of past joint projects and the approval of the 1st edition of H.266 “Versatile Video Coding”. * SG17 continues collaboration with JTC 1, OASIS, FIDO Alliance and other SDOs on various standards in X-series. In addition, SG17 maintains the ITU-T liaison relationship with ISO/IEC JTC 1 and the list of common/twin texts with JTC 1,. * SG17 continues collaboration with ETSI on TTCN-3 standards,and with SDL Forum on SDL standards in Z-series. * SG20 sent a series of Liaison statements to TSAG and other SDOs as follows:   + creation of the ITU-T Focus Group on Data Processing and Management to support IoT and Smart Cities and Communities"(FG-DPM).   + Sent a liaison statement to TSAG and other SDOs on ITU-T SG20 structure;   + Sent a liaison statement to TSAG on Collaboration process between ITU-T SG20 and oneM2M. ([TSAG-TD239](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0239));   + Sent liaison statement to Industrial Internet Consortium (IIC), ISO/IEC JTC1/SC27, ISO/IEC JTC1/SC41 on collaboration on the work on Security, privacy, trust and identification for IoT and SC&C.   + The SG20 progress report covers the collaboration with other SDOs (e.g. oneM2M, IEC, ISO, etc) (ref. TSAG-[TD312](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0312), [TD672](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0672), [TD672](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0672)).   + SG20 sent a liaison statement to TSAG for information on the Terms of Reference of Joint IEC-ISO-ITU Smart Cities Task force (ref. TSAG –[TD549](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-190923-TD-GEN-0549)).   + During the SG20 meeting that took place from 6-16 July 2020, oneM2M experts were invited to join the Q6/20 “Security, privacy, trust and identification for IoT and SC&C" meeting.   + SG20 sent a liaison statement to TSAG to inform on the collaboration between ITU and oneM2M (ref. [TSAG-TD882](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-200921-TD-GEN-0882)).   + SG20 sent a liaison statement to TSAG to inform on the collaboration between ITU-T and IEEE (ref. [TSAG-TD1105](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-211025-TD-GEN-1105)).   + SG20 sent a liaison statement to oneM2M on the information from TSAG on the draft submission and maintenance process for oneM2M specifications incorporated as ITU-T Recommendations.   + SG20 sent a liaison statement to LoRa Alliance on the collaboration between ITU-T and LoRA Alliance.   + SG20 sent a liaison statement to TMForum on the collaboration between ITU-T and TMForum. * TSAG representatives participated in the joint ISO, IEC, ITU-T task force on effective collaboration, and in the IEC/SG11 on hot topic radar. * Many workshops are organized in collaboration with other SDOs. | | | |
| **01-06** | **TSB Director to inform TSAG upon deleted Questions (clauses 7.4.1.3 and 9.8.2.2)** | **TSAG meetings** | **√** |  |
| * SG5 sent a liaison statement to TSAG (TSAG-TD182) on the new structure of ITU-T SG5 and revised text of Questions 6, 7 and 9. Q10/5 on Adaptation to climate change and low cost and sustainable resilient information and communication technologies (ICTs) was deleted. Circular 30 and 42. * SG9, at their January 2018 meeting, has merged Question 3/9 into Q1/9, and has initiated the deletion procedure for Q3/9; Q3/9 was deleted. * SG12 disbanded Question 18/12; ref TSAG-TD543. * SG15 sent a liaison statement to TSAG on merger of Q19/15 into Q18/15 from June 2017 meeting. SG15 sent a liaison statement on deletion of Q3/15 and update of Q12/15 from Jan/Feb 2018 meeting. * SG15 sent a liaison statement to TSAG on merger of Q9/15 into Q10/15, Q11/15 and Q12/15 (TSAG-TD383). * SG15 merged Q7/15 “Characteristics of optical components and subsystems” and Q6/15 “Characteristics of optical systems for terrestrial transport networks” into renamed Question 6/15 “Characteristics of optical components, subsystems and systems for optical transport networks”; and has initiated the deletion procedure for Question 7/15. * SG15 merged Q15/15 “Communications for smart grid” and Q18/15 “Broadband in-premises networking” into renamed Q18/15 “Technologies for in-premises networking and related access applications”; and has initiated the deletion procedure for Question 15/15. * TSAG in January 2021 endorsed the new or revised Questions proposed by Study Groups as report in TSAG R12,…,R22. A couple of former Questions were merged or discontinued. | | | |
| **01-07** | **TSB Director shall provide to WTSA (for information) a summary of the accounts for the years which have elapsed since the preceding WTSA, and the estimated expenses of ITU‑T to cover its financial requirements until the next WTSA for the subsequent biennial budgets and financial plan, as appropriate, taking into account the pertinent results of WTSA, including priorities. (clause 5.7)** | **WTSA-20** | **√** | **√** |
| See [WTSA-C29](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0029) “Report on estimated financial needs up to WTSA-24 and ITU-T expenses for the years 2016 to 2021”. | | | |
| **01-08** | **The Director shall submit for preliminary examination by the Budget Control Committee, and thereafter for approval by WTSA, the accounts for expenses incurred for the current WTSA. (clause 5.8)** | **WTSA-20** | **√** | **√** |
| See [WTSA-C31](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0031) “Budget of the World Telecommunication Standardization Assembly (WTSA-20)”; and  [WTSA-C32](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0032) “Contributions to the expenses of the World Telecommunication Standardization Assembly (WTSA-20)”. | | | |
| **01-09** | **ITU-T study groups to submit their report (Part I, Part II) to WTSA (clause 2.4.1)** | **WTSA-20** | **√** | **√** |
| See WTSA-C1, …, WTSA-C22. | | | |
| **01-10** | **The TSB Director shall submit to WTSA a report on the proposals that have been received from TSAG (see 4.9) concerning the organization, terms of reference and work programme of study groups and other groups for the next study period, as well as proposals on ways and means to increase ITU resources through ITU‑T. The Director may give views on these proposals (clause 5.9)** | **WTSA-20** | **√** | **√** |
| TSAG reviewed the draft proposals from the study groups, but did not submit any own proposals to WTSA-20. | | | |

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# Resolution 2 - ITU Telecommunication Standardization Sector Study Group responsibility and mandates

***Resolution 2***

resolves

1 that the mandate of each study group, which it shall use as the basis for organizing its study programme, shall consist of:

– a general area of responsibility, as set out in Annex A, within which the study group may amend existing Recommendations, in collaboration with other groups, as appropriate;

– a set of Questions related to particular areas of study, which are compatible with the general area of responsibility and which should be results-oriented (refer to Section 7 of Resolution 1 (Rev. Hammamet, 2016) of this assembly);

2 to encourage the study groups to consider collocation (e.g. of study group plenaries, working parties or rapporteur meetings) as a means to improve cooperation in some areas of work; the study groups involved will need to identify the areas in which they need to cooperate, based on their mandates, and keep TSAG and TSB informed,

instructs the Telecommunication Standardization Bureau

to support and facilitate the operational aspects of such collocation.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **02-01** | **TSB Counsellors to insert pointer on Resolution 2 webpage to location of updated SG structure, mandate or Annex C information within one month of change.** | **2017** | **√** | **√** |
| An updated Annex C is available on the ITU-T website here: https://www.itu.int/en/ITU-T/about/Pages/res2-annexc-sp16.aspx. Updates are recorded on this page shortly after approval.  Changes in mandate and lead SG roles are recorded directly under the "**Mandate and lead roles**" sub-page under each individual study group, http://itu.int/en/ITU-T/studygroups/2017-2020/*xx*/Pages/mandate.aspx, where *xx*=02, 03, 05, 09, 11, 12, 13, 15, 16, 17, 20. | | | |
| **02-02** | **Study groups to consider collocation (e.g. of study group plenaries, working parties or rapporteur meetings) as a means to improve cooperation in some areas of work; the study groups involved will need to identify the areas in which they need to cooperate, based on their mandates, and keep TSAG and TSB informed (resolves 2)** | **Ongoing** | **√** |  |
| * SG3 organized a workshop on Economic and Policy aspects of Artificial Intelligence during its meeting in April 2018. * SG3 organized a mini-workshop on Economic and Policy aspects of IoT during its meeting in April 2019. SG3/WP1 remains interested to organize a collocated meeting in 2019 with ITU-D SG1 but noted the difficulties to have such a meeting organized, and remains interested to continue the cooperation in 2020 towards considering a co-located meeting. * SG5 organized its meeting held from 13-22 May 2019 together with ETSI EE. The meeting was preceded by the 13th Symposium on ICT, Environment and Climate Change on 13 May 2019. The symposium was co-organized with 8 UN Agencies and Programmes and concluded with a [Call for Action](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action.pdf), which acknowledges the transformative potential of frontier technologies and the associated risks, while highlighting a course of actions that would build a shared vision on the use of these technologies. Additionally, two Smart Environment Panels on [GHG emissions trajectories for the ICT sector](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/event-20190515.aspx) and on [new ITU standards on soft errors that affect telecommunications](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/event-20190520.aspx) were held on 15 and 20 May respectively. * SG9 organized a workshop on “the future of TV in various regions” in co-location with the Study Group 9 meetings at almost every meeting in this Study Period. The workshops are co-organized with the three Sectors of the ITU and the relevant ITU regional office. In addition, SG9 has managed to organize various SG9 meetings hosted in the regions to ensure regional balanced participation. SG9 also hosted various meetings of the IRG-IBB as well as IRG-AVA, in co-location with SG9 meetings, to foster collaboration with ITU-T SG16 and ITU-R SG6 on relevant topics (e.g. Integrated Broadband Broadcast and Audiovisual Accessibility). * SG11 meetings, including SG11RG-EECAT meetings, are mostly collocated with relevant SG13 meetings. Also, in March 2019, the SG11 meeting was collocated with ETSI TC INT and organized a related ITU Workshop on Benchmarking of emerging technologies and applications - Internet related performance measurements. In March 2021, SG11 organized a joint ITU, ETSI, IEEE Workshop on Testbeds Federations for 5G and Beyond: Interoperability, Standardization, Reference Model and APIs. In May 2021, SG11 organized joint ITU/Mobile Wireless Forum webinar on "Combating Counterfeit and Irregular Mobile Devices: How to address the Problem". In November 2021, SG11 in close collaboration with SG2 and SG17 organized ITU Workshop on “Improving the security of signalling protocols”. * SG12 is collaborating with various organizations by liaisons and dual participation. * SG13 meetings are always collocated with SG11, except the SG13 meeting in March 2019, where it was invited to Zimbabwe, and in March 2021. FG-NET2030 meeting and workshop was convened in conjunction with ITU-D Regional Forum in May 2019 in St Petersburg, Russia. In addition, three ITU-T Regional Groups for EECAT region met at the same time and location. The FG ML5G meeting and workshop in June 2019 was co-located with the rapporteur groups of parent SG13. The FG-NET2030 meeting in October 2019 was co-located with the parent SG meeting. JCA-IMT2020 meeting in September 2018 was co-located with the Q4/11 Rapporteur Group meeting in China, JCA-IMT2020 meetings in October 2018, in July 2019, in January 2020 were held alongside the SG15 meeting in Geneva. Consolidation in Quantum (CQ) is a co-location of the quantum related rapporteur groups (4/17, 16/13) of SGs 13 and 17. It is in operation since December 2019. SG13RG-AFR virtual meeting was collocated in time with the SG20-RG-AFR meeting in June 2021. * SG15 and TSB hosted IEEE 802.1 and 802.3 interim meetings (22-26 January 2018) and held a joint IEEE 802-ITU-T SG15 workshop “Building Tomorrow’s Networks” on 27 January, which preceded the SG15 meeting from 29 January to 9 February 2018. These series of events facilitated collaboration between IEEE 802.1/802.3 and ITU-T SG15 on various technology areas. * SG15 and TSB hosted IEEE 802.1 and 802.3 interim meetings (20-24 January 2020) and held a joint IEEE 802-ITU-T SG15 workshop on mutual interest on 25 January, which preceded the SG15 meeting from 27 January to 7 February 2020. These series of events facilitated collaboration between IEEE 802.1/802.3 and ITU-T SG15 on various technology areas. * SG15 is collaborating with various organizations by liaisons and dual participation. * WP2/16 meeting was collocated with ISO/IEC JTC1/SC35 (User interfaces) in Geneva, February 2018. * SG16 hosted the Joint Video Experts Team ([JVET](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/video/jvet.aspx)) Joint Collaborative Team on Video Coding ([JCT-VC](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/video/jctvc.aspx)) as part of its ongoing collaboration with ISO/IEC JTC 1/SC 29/WG 11 (MPEG) for the development of enhanced capabilities for video coding as well as MPEG meeting for all of its SG meetings in this study period. * SG17 hosted a meeting of the [Anti-Abuse Telco Network Working Group of ETIS](https://www.etis.org/page/Anti_Abuse) on 21-23 March 2018 during the SG17 March 2018 meeting. * SG17 hosted a UN TF-CS/OTA meeting on 27-28 August 2019 during the SG17 Aug/Sept 2019 meeting. * SG17 Q11/17 meetings are mostly joint with ISO/IEC JTC 1/SC 6. * SG17 and SG13 held co-located Rapporteur Group Meetings of Q4/17 and Q16/13 on quantum information technologies since December 2019. * The JCA-IdM meetings are always collocated with the ITU-T SG17 meetings. * WP1/20 meeting organized collocated with oneM2M in Geneva from 15 to 19 January 2018. A joint session with oneM2M was held on 17 January 2018. The SG20 meeting held from 6 to 16 May 2018 in Cairo, Egypt was preceded by a [Forum on Exploring the Potential of Artificial Intelligence and Internet of Things](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180506/Pages/default.aspx) on 6 May 2018. Additionally, a Showcase on IoT solutions was held from 6 to 8 May 2018. * The ITU-T SG20 meeting held from 3 to 13 December 2018 in Wuxi, China was preceded by a [Forum on on Artificial Intelligence, Internet of Things and Smart Cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201812/Pages/default.aspx) held on 3 December 2018. * The ITU-T SG20 meeting held from 25 November to 6 December 2019 was preceded by the [5th ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/climatechange/dpm/05/Pages/default.aspx) on 25 November 2019. * The JCA-IoT and SC&C meeting is collocated with ITU-T SG20 meeting. * The JCA-IoT and SC&C meeting that took place on 26 June 2020 was preceded by a [Webinar on “Accelerating cities’ transformation through standards”](https://www.itu.int/en/ITU-T/climatechange/Pages/202006.aspx) that took place on 25 June 2020. * The JCA-IoT and SC&C meeting that took place on 23 April 2021 was followed by a [Virtual forum on “The Role of Standards in Accelerating Digital Transformation for Cities and Communities”](https://www.itu.int/en/ITU-T/climatechange/Pages/20210422.aspx) that took place on 23 April 2021. * The ITU-T SG20 Regional Groups meetings are mostly collocated with a forum or webinar on relevant topics. | | | |

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# Resolution 7 - Collaboration with the International Organization for Standardization and the International Electrotechnical Commission

***Resolution 7***

resolves

1 to continue inviting ISO and IEC to examine the ITU‑T study programme in the early stages of its studies and vice versa, and to further examine such programmes to take into account ongoing changes, in order to identify subjects where coordination seems desirable and would benefit the organizations, and to inform the Director of the Telecommunication Standardization Bureau (TSB);

2 to request the Director of TSB, after consultation with the study group management team concerned, to reply, and to furnish any additional information requested by ISO and IEC, as it becomes available;

3 to invite the Director of TSB, at the request of Member States, to review the agreement between ISO/IEC and ITU‑T, with a view to exploring options for accessing and publishing common texts, including a possible unified approach;

4 to request the Director of TSB to examine and update the programme of cooperation and priority of the study items among ITU‑T, ISO and IEC and highlight this information on the ITU‑T website on a regular basis;

5 to request the Director of TSB, the study groups and the Telecommunication Standardization Advisory Group to consider and propose further improvements to the procedures for cooperation between ITU‑T and ISO and IEC;

6 that the necessary contacts with ISO and/or IEC should be at the appropriate levels and coordination methods should be mutually agreed and regular coordination events arranged:

• for work where text should be drawn up mutually and kept aligned, procedures in accordance with Recommendation ITU‑T A.23 and the Guidelines for Cooperation therein apply;

• for other activities where coordination between ITU‑T and ISO and IEC is required (for example in relation to any mutual agreements, such as the Memorandum of Understanding on standardization in the field of electronic business), clear means of coordination shall be established and regular coordination contacts made;

7 to request the chairmen of study groups to take into account the related work programmes and the progress of projects in ISO, IEC and ISO/IEC JTC 1; further, to cooperate with these organizations as widely as possible and by appropriate means, in order to:

• ensure that the specifications which have been jointly drawn up remain aligned;

• collaborate in drawing up other specifications in fields of joint interest;

8 that, for reasons of economy, any necessary collaborative meetings take place to the extent possible in association with other relevant meetings;

9 that the report concerning such coordination indicate the status of alignment and compatibility of draft texts on points of common concern, in particular identifying any subject which could be dealt with in a single organization, and cases where cross-referencing would be helpful to users of published International Standards and Recommendations;

10 to invite administrations to contribute significantly to the coordination between ITU‑T on the one hand and ISO and IEC on the other by ensuring adequate coordination of national activities associated with the three organizations.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **07-01** | **TSB Director to consult with ISO and IEC on work programmes and follow through with study group management team. (resolves 1, 2, 4)** | **Ongoing** | **√** |  |
| The [World Standards Cooperation](mailto:http://www.worldstandardscooperation.org/) (WSC) meets annually in the February timeframe. In addition, the TSB Director, ISO Secretary General and IEC General Secretary meet periodically (two-three times a year) to discuss cooperation topics.  WSC meetings:   * The 20th meeting of the IEC/ISO/ITU World Standards Cooperation took place on 26 February 2021. * The 19th meeting of the IEC/ISO/ITU World Standards Cooperation took place on 21 February 2020. * The 18th meeting of the IEC/ISO/ITU World Standards Cooperation took place on 22 February 2019. * The 16th meeting of the IEC/ISO/ITU World Standards Cooperation took place on 16 February 2017 and was hosted by ITU. * The 17th meeting of the IEC/ISO/ITU World Standards Cooperation took place on 15 February 2018 and was hosted by ISO.   WSC members agree at their annual meeting on a three-year rolling plan. WSC issued a letter to agencies and organizations of IEC, ISO and ITU on increased national level coordination on the submission of proposals to IEC, ISO and ITU. Joint WSC activities include:   * World Standards Day * The theme of World Standards Day 2017 (14 October) was "Standards make cities smarter". * The theme of World Standards Day 2018 (14 October) was "The fourth industrial revolution". * The theme of World Standards Day 2019 (14 October 2019) was “Video: standards you can see”. * The theme of World Standards Day 2020 (14 October 2020) was “Protecting the planet with standards”. * The theme of World Standards Day 2021 (14 October 2021) was be “Standards for the SDGs”. * Academia * An event was held in Chicago, USA, on 11 August 2017; the focus was on the benefits of standards and on how education about standardization can benefit from methods and case studies highlighting the use of standards and their contribution to public welfare and organizations' performances. * The third edition of the WSC roundtable, [*Engaging academia in standardization for a sustainable future*](http://www.itu.int/en/ITU-T/extcoop/Pages/wsc-academia-16.aspx), organized by ITU-T in Bangkok on 17 November 2016, brought together university professors, students, standards leaders and representatives of industry and government, to debate the following topics:   + Collaboration among academia, industry, and global standards organizations to develop international standards for a sustainable future   + Gender dimension in international standardization   + Internet of Things (IoT) to accelerate sustainable development.   The second World Smart City Forum took place on the 13 – 14 November 2017 in Barcelona. The overall theme of this Forum was "Future cities – Solutions for common challenges". The third World Smart City Forum took place on 29 November 2018 in Santa Fe, Argentina. The Forum was preceded by Kaleidoscope 2018. The Forum was organized by ITU in partnership with IEC and ISO.   * SG5 appointed a liaison rapporteur to ISO/IEC JTC1/SC 39 (on Sustainability for and by Information Technologies), ISO TC323, IEC CISPR SC H, IEC CISPR SC I, IEC TC 100 TA14, IEC TC 111, IEC TC 106, IEC TC 108, IEC TC 81, IEC ACEC, IEC SC 77C, IEC SC 37A and IEC SC 37B. * SG9 appointed liaison representative to IEC TC100. * SG11 appointed liaison rapporteurs for ISO/IEC JTC 1/SC 6. * SG12 appointed liaison rapporteurs to IEC TCs 29 and 108, and ISO/TC 43. Liaison relationship with ISO/IEC JTC 1/SC29. * SG13 appointed liaison rapporteurs for ISO/IEC JTC 1/SCs 6, 38, 41 and WG9. * SG15 appointed liaison rapporteurs to IEC TC86, SC86A/WG1 (Fibre optics), IEC TC86, SC86A/WG3 (fibre optic cables), IEC TC86 SC86B (Fibre Optics Interconnections Devices and Passive Components), IEC TC86, SC86C (Fibre optics, Fibre optic systems and active devices) and exchange liaisons as necessary. * Following the activities of the ITU-T CASC, IEC established the Task Force (CMC TF ITU Requirements) which will be focused on defining the ITU requirements necessary for the inclusion of a testing laboratory and joint certification program with IECEE. * SG16 appointed liaison rapporteurs to IEC TC 100, ISO TC 215, ISO/IEC JTC 1/SC 6 WG 7, SC 29, SC 29/WG 1 (JPEG), SC 29/WG 11 (MPEG) and SC 35. * SG17 appointed liaison rapporteurs to IEC TC 25 and 57; ISO CASCO; ISO TC 12, 204, 215, 292 and 307; ISO/IEC JTC 1/SC 6, 7, 17, 25, 27, 31, 37, 38, 41 and 42, and ISO/IEC JTC 1/SC 27/WG 1, 4 and 5; * SG20 appointed a liaison rapporteur to ISO/IEC JTC 1/ SC41, ISO/IEC JTC 1/WG11 (on smart cities), and ISO SMCC. * SG20 provided comments to the ToR of a proposed Joint IEC-ISO-ITU Smart Cities Task Force. * The Joint IEC-ISO-ITU Smart Cities Task Force (J SCTF) was created in 2019. ITU-T SG20 has been designated as co-leader of the joint task force. SG20 designated a group of experts to represent ITU in this task force. * The Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF) has held the following meetings:   + First meeting, Virtual, 7 October 2020;   + Second meeting, Virtual, 24 February 2021;   + Third meeting, Virtual, 29 June 2021;   + Fourth meeting, Virtual, 27 and 29 September 2021 | | | |
| **07-03** | **TSB, in consultation with the study groups, to update programme of cooperation and priority among ITU-T, ISO and IEC, and update website (resolves 1, 4)** | **Ongoing** | **√** |  |
| * SG2 liaised with ISO/IEC JTC 1/SC17 (on Issuer Identifier Number) and SC27 (on Security). SG2 established category A-liaison with ISO/TC154. * SG5 liaised with IEC CISPR on topics related to EMC and with IEC SC37A on topics related to Surge Protective Device Module * SG11 is collaborating with ISO/IEC JTC1/SC6/WG7 on requirements, architecture, protocols and mechanisms for Future Network, IMT-2020 network and edge computing, and managed P2P communication. * SG12 continues to collaborate with ISO TCs, IEC TCs and ISO/IEC JTC 1/SCs on work items of common interest. * SG13 maintains the cloud computing standardisation roadmap as a Supplement 49 to Y.3500-series “Cloud computing standardization roadmap” (11/2018). In addition, it works on revision to the Supplement (40) on Big data Standardization roadmap. ISO work on AI is reflected in the artificial intelligence standardization roadmap. SG13 collaborates with ISO/IEC JTC1/SCs 6, 27, 29, 32, 38 42, AG4 on the work items of common interest. * SG15 is collaborating with IEC on optical fibres and smart grid. * SG16 continues to collaborate, also through its Focus Groups (FG-VM and FG-AI4AD) with ISO TCs, IEC TCs and ISO/IEC JTC 1/SCs on work items of common interest. * SG17 continues to work jointly with several ISO TCs, IEC TCs and ISO/IEC JTC 1/SCs on work items of common interest. * The mapping of SG17 Questions with TC or SC in IEC, ISO or ISO/IEC JTC 1 are periodically updated at each SG17 meeting. * SG20 continues to work jointly with ISO/IEC JTC1/SC41 on work items of common interest. * SG20 is collaborating with ISO and IEC through the Joint IEC-ISO-ITU Smart Cities Task Force (J SCTF). * The JCA-IoT and SC&C maintains the IoT and SC&C standards roadmap [online](https://www.itu.int/net4/itu-t/landscape#?topic=0.78&workgroup=1&searchValue=&page=1&sort=Revelance). The JCA IoT and SC&C standards roadmap has also been published as [Supplement ITU-T Y.Suppl.58](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14176): Internet of Things and smart cities and communities standards roadmap. | | | |
| **07-05** | **TSB Director to review the agreement between ISO/IEC and ITU‑T, with a view to exploring options for accessing and publishing common texts, including a possible unified approach (only upon request of a Member State) (resolves 3)** | **Ongoing** | **√** |  |
| No such requests have been received so far. | | | |
| **07-06** | **TSB Director, the study groups and TSAG to consider and propose further improvements to the procedures for cooperation between ITU-T and ISO and IEC (resolves 5)** | **Ongoing** | **√** |  |
| ITU-T, through TSAG members, participated in the ISO/IEC/ITU Joint Task Force on effective collaboration (JTFEC) was to develop proposals for increased collaboration with IEC and ITU. Two meetings took place. An understanding was accomplished with a mapping of barriers / opportunities for cooperation, and associated actions. Two sub groups were created on Joint IEC/ISO/ITU communication, and on Coordinated organization of standardization work in the future. ITU-T TSAG, IEC SMB, and ISO TMB each approved the creation of an IEC SMB/ISO TMB/ITU-T TSAG Standardization Programme Coordination Group (SPCG) for strategic coordination of future standardization work, coordination of existing standardization work, short-term related tasks identified by the SPCG and approved by the technical boards of IEC, ISO and ITU-T, and approved a communication statement.  During the ITU-T SG20 meeting in April 2019, the proposed ToR of the Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF) were revised, and it was agreed to submit the final version to the TSB Director for action and to TSAG for information. The revised ToR are contained in TD1301-R1. The objective of this task force is to build synergies and to promote minimization of overlap as applicable on ongoing works in ITU-T, IEC and ISO related to smart cities and communities; to maximize efforts in order to identify new areas of cooperation related to smart cities and communities; to develop an 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; and to prioritize future items that may arise from future World Smart City Forum (WSCF). During the 22nd JCA-IoT and SC&C meeting held on 28 November 2019 in Geneva, TSB secretariat reported on the creation of the Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF). TSB also informed that IEC, ISO and ITU were requested to designate a leader and experts to represent each corresponding organization. In this regard, ITU-T SG20 designated a leader and a group of experts to represent ITU at this group.  The J-SCTF organized on 26 June 2021 a Forum on “Strengthening IEC, ISO and ITU collaboration for Smart Cities”.  TSAG started works on a proposed new Appendix to Recommendation ITU-T A.23, and is consulting with the SPCG and ISO/IEC JTC 1 secretariat.  Despite a good working level relationship with ISO/TC 307, the lack of a standardized mechanism/guide for cooperation between ITU-T and ISO Technical Committees (similar to Recommendation ITU-T A.23 Annex A) was highlighted by delegates of FG-DLT (see FG-DLT status report), however, this issue was considered outside the scope of the Focus Group. | | | |
| **07-07** | **TSB to establish/maintain the necessary contacts with ISO and/or IEC should be at the appropriate levels and coordination methods should be mutually agreed and regular coordination events arranged (resolves 6)** | **Ongoing** | **√** |  |
| World Standards Collaboration (WSC) meetings and regular meetings of the ISO/IEC/ITU/UNECE MoU/MG on e-business facilitate coordination. A liaison officer is appointed from TSAG to ISO/IEC JTC 1.  ITU-T TSAG, IEC SMB, and ISO TMB each approved the creation of an IEC SMB/ISO TMB/ITU-T TSAG Standardization Programme Coordination Group (SPCG) for strategic coordination of future standardization work, coordination of existing standardization work, short-term related tasks identified by the SPCG and approved by the technical boards of IEC, ISO and ITU-T, and approved a communication statement.  During the ITU-T SG20 meeting in April 2019, the proposed ToR of the Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF) were revised, and it was agreed to submit the final version to the TSB Director for action and to TSAG for information. The revised ToR are contained in SG20-TD1301-R1.  The objective of this task force is to build synergies and to promote minimization of overlap as applicable on ongoing works in ITU-T, IEC and ISO related to smart cities and communities; to maximize efforts in order to identify new areas of cooperation related to smart cities and communities; to develop an 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; and to prioritize future items that may arise from future World Smart City Forum (WSCF). | | | |
| **07-08** | **The chairmen of study groups to take into account the related work programmes and the progress of projects in ISO, IEC and ISO/IEC JTC 1; further, to cooperate with these organizations as widely as possible and by appropriate means (resolves 7)** | **Ongoing** | **√** |  |
| * SG2 liaised with ISO/IEC JTC 1/SC17 about IIN specified in ITU-T E.118. SG2 liaised with ISO/TC154 to collaborate on disseminating time zone information and specify time zone data. SG2 liaised with ISO/TC 307 on management of blockchain systems. * SG5 informed ISO/IEC JTC 1/SC39 on the wok on Data Centre. * SG5 invited IEC TC 100 to continue with the collaboration for the development of standards on the Universal Power adapter that will contribute to e-waste reduction. * SG5 provided IEC SC77B/MT12 with comments to be taken into consideration in the next revision of IEC 61000-4-5 “Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test”. The liaison statement was sent for information also to IEC ACEC. * SG5 liaison rapporteur to IEC ACEC regularly reports on the work in progress. * SG5 informed ISO TC323 on the work on Circular Economy. * SG5 informed IEC SC37A on the development of a new work item for surge protective device module. * SG5 appointed a new liaison rapporteur to IEC TC8. * SG11 informed ISO/IEC JTC1/SC38/WG4 about ongoing activities related to cloud computing interoperability. SG11 were informed about the current issues and work items of JTC 1/SC 6/WG 7 and supported to hold a co-located meeting in April 2018 in Geneva. A joint meeting of Q6/11, Q7/11, Q8/11 and ISO/IEC JTC1/SC6/WG7 took place in Geneva on 17 April 2018. The meeting was focused on identifying areas of study which may become subjects for collaboration. Among the topics are: requirements, architecture, protocols and mechanisms for Future Network, IMT-2020 network and Edge computing, Managed P2P communication. SG11 invited ISO/IEC JTC1 SC41 to collaborate on developing new testing specification against ISO/IEC 30162 Internet of Things (IoT) — Compatibility requirements and model for devices within Industrial IoT systems. SG11 informed ISO/IEC JTC1/SC27 about new work item Q.QKDN\_profr “Quantum key distribution networks – Protocol framework” and agreed Technical Report ITU-T QSTR-USSD “Low resource requirement, quantum resistant, encryption of USSD messages for use in Financial services”. * SG12 – see action items 07-01 and 07-03. * SG13 liaison rapporteur for ISO/IEC JTC 1/WG9 (on Big Data) regularly reports on the work in progress at ISO side. SG13 has exchange with the ISO/IEC JTC 1/SCs 6, 27, 29, 32, 38, on cloud computing, SC6/WG7 on ICN and ISO TC 307 on Blockchain as a Service, with SC42 on big data and on AI and with AG4 on quantum key distribution. * SG15 appointed liaison rapporteurs to IEC TC86, SC86A/WG1 (Fibre optics), IEC TC86, SC86A/WG3 (fibre optic cables), IEC TC86 SC86B (Fibre Optics Interconnections Devices and Passive Components), IEC TC86, SC86C (Fibre optics, Fibre optic systems and active devices) and exchange liaisons as necessary. * SG16 formalized a new video collaborative group with MPEG (JTC1 SC29/WG11), the JVET (Joint Video Experts Group), towards the successor technology to H.265 HEVC. This follows an exploratory phase started in October 2015. The first edition of the new standard is approved as ITU-T H.266 “Versatile Video Coding” (2020-08). * SG16 collaborates with ISO/IEC JTC1/SC35 "User Interfaces" with [H.ACC-GAD](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14438); [H.ACC-GAP](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14440); [H.ACC-GVP](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14439), [F.ACC-AVSL](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16371), draft twin texts with ISO/IEC 20071 series on audio descriptions; audio presentation of text; visual presentation of audio information; presentation of sign language. It has also transposed ISO/IEC 20071-11 as twin text in ITU-T T.701.11 on alternative text presentation for images. * SG17 approved Recommendation ITU-T X.1085 (10/2016) | ISO/IEC 17922, ITU-T X.1058 (03/2017) | ISO/IEC 29151, ITU-T X.894 | ISO/IEC 24824-4 as common text with ISO/IEC JTC 1/SC 27. SG17 approved Recommendation ITU-T X.697 (10/2017) | ISO/IEC 8825-8 as common text with ISO/IEC JTC 1/SC 6. Common texts between SG17 and ISO/IEC, e.g., ITU-T X.500-series, X.680-690-series are maintained and updated. SG17 plans to hold a joint workshop with ISO/TC 307 to explore the collaboration in 2020. * SG20 liaison rapporteur for ISO/IEC JTC 1/SC41 regularly reports on the work in progress. * SG20 informed ISO/IEC JTC1/SC27 on ITU-T SG20 activities on identification, security, trust and interoperability related to IoT and Smart Cities and Communities. * SG20 informed IEC/TC65, ISO/TC184 and ISO/IEC/JTC1 on ITU-T SG20 work on smart manufacturing and/ or industrial Internet of things. * SG20 informed ISO/IEC JTC1/SC35 on ITU-T SG20 work on IoT accessibility. * SG20 informed ISO TC 268 on the initiation of new work items related to smart cities and communities. * SG20 presented ITU-T work items during meetings of the Joint IEC-ISO-ITU Smart Cities Task Force (J SCTF). | | | |
| **07-09** | **SGs, for reasons of economy, any necessary collaborative meetings to take place to the extent possible in association with other relevant meetings (resolves 8)** | **Ongoing** | **√** |  |
| A joint meeting of ISO TC22/SC31/WG8 and ITU-T Q27/16 took place (9-10 July 2019, Changchun); 11 participants attended. Some discussion took place to clarify on how to practically implement in sync the approval of ISO International Standards and SG16 Recommendations and a possible process was included as informative ANNEX to the terms of reference for the proposed joint project team on Vehicle Domain Service (JVDS). The ANNEX also provides some informal guidelines on how to implement detailed working procedures that will allow members of ITU-T SG16 and ISO TC22/SC31/WG8 to participate easily and on equal footing in the JVDS meetings. Subsequent JVDS meetings were organized to progress agreed common work items, [H.VDS-APR](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16373), [H.VDS-NWR](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16374), [H.VDS-PHYR](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16375), [H.VDS-UC](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16372).  As part of its ongoing collaboration with ISO/IEC JTC1 / SC29 / WG11 (MPEG), ITU-T SG16 hosted the Joint Video Experts Team (JVET) Joint Collaborative Team on Video Coding (JCT-VC) meetings at each of its meetings during the study period for the development of new and enhanced video coding standards. SG16 also hosted various ISO/IEC JTC1 / SC29 / WG1 (JPEG) meetings during the study period.  ITU-T SG16 hosted and the last Ad hoc meeting of IEC TC100 with ITU-T and ISO/IEC JTC1 (21 January 2017 PM).  Q11/17 meets collaboratively with ISO/IEC JTC 1/SC 6/WG10. | | | |

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# Resolution 11 - Collaboration with the Postal Operations Council of the Universal Postal Union in the study of services concerning both the postal and the telecommunication sectors

**Resolution 11**

resolves

that the relevant study groups of the ITU Telecommunication Standardization Sector (ITU-T) should continue to collaborate with the Postal Operations Council (POC) committees as necessary, on a reciprocal basis and with a minimum of formality, in particular by investigating issues of common interest such as quality of service (QoS), quality of experience (QoE), electronic services and security, digital financial services and transaction costs of mobile payment,

instructs the Director of the Telecommunication Standardization Bureau

1 to encourage and assist this collaboration between the two organs;

2 to consult with UPU on the establishment of a joint working group between ITU and UPU on digital financial services to share lessons learned through the implementation of projects in the area of digital financial inclusion in order to drive standardization activities in both organizations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Action Item | Action | Milestone | Periodic goals met | Completed |
| **11-01** | **ITU-T SGs to collaborate with the UPU POC committees on issues of common interest (resolves)** | **Ongoing** | **√** |  |
| UPU submitted UPU S68 “Postal identity management framework” for incorporation into an ITU-T Recommendation by ITU-T SG17 in 2018. SG17 initiated ITU-T A.5 qualification of UPU so that ITU-T A.25 could be applied. Due to lack of response from UPU, SG17 stopped this effort in September 2021. | | | |
| **11-02** | **TSB Director to consult with UPU on establishing a joint WG on digital financial services (i. TSB Dir 2)** | **Ongoing** | **√** | **√** |
| Following a meeting between TSB and UPU in January 2017, it was agreed to establish a joint ITU-UPU working group on Digital Financial Services. The main objective of the working group were to coordinate participation of both organization in the activities and events taking place on DFS. Areas in DFS which have been identified where potential activities could be undertaken are quality of service, security and identity. As a first activity, the DFS Glossary produced by the ITU-T Focus Group Digital Financial Services was published as joint ITU-UPU publication in October 2017. In 2018, 2019, 2020 and 2021, the ITU-UPU Working Group coordinated the participation of the respective organizations in the events related to digital financial services. UPU participated in the meetings of the FIGI Security Infrastructure and Trust Working Group in 2019 - 2021, and in the FIGI Symposium organised by ITU in 2017, 2019 and 2021. | | | |

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# Resolution 18 - Principles and procedures for the allocation of work to, and strengthening coordination and cooperation among, ITU Radiocommunication, ITU Telecommunication Standardization and ITU Telecommunication Development Sectors

**Resolution 18**

resolves

1 that RAG, TSAG and TDAG, meeting jointly as necessary, shall continue the review of new and existing work and its distribution among ITU‑R, ITU‑T and ITU‑D, for approval by Member States in accordance with the procedures laid down for the approval of new and/or revised Questions;

2 that, if considerable responsibilities in either two of three Sectors in a particular subject are identified:

*i)* the procedure given in Annex A to this resolution should be applied; or

*ii)* the matter should be studied by relevant study groups of the Sectors involved, with appropriate coordination (see Annexes B and C to this resolution); or

*iii)* a joint meeting may be arranged by the Directors of the Bureaux involved.

invites

1 RAG, TSAG and TDAG to continue to assist the Intersector Coordination Group on Matters of Mutual Interest in the identification of subjects common to the three Sectors and mechanisms to enhance cooperation and collaboration in all Sectors on matters of mutual interest;

2 the Directors of the Radiocommunication (BR), Telecommunication Standardization (TSB) and Telecommunication Development (BDT) Bureaux and ISC‑TF to report to the Intersector Coordination Group on Matters of Mutual Interest and the respective Sector advisory groups on options for improving cooperation at the secretariat level to ensure that close coordination is maximized,

instructs

1 the ITU‑T study groups to continue cooperation with the study groups of the other two Sectors so as to avoid duplication of effort and make use of the results of work done by the study groups of those two Sectors;

2 the Director of TSB to report annually to TSAG on the results of the implementation of this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **18-01** | **TSAG to continue to review work and its distribution and possible coordination between ITU-T, ITU-D, and ITU-R (resolves 1)** | **Ongoing** | **√** |  |
| TSAG RG-SC assists in actively conducting ITU Inter-Sector coordination through TDAG, RAG and Study Groups ([TSAG OLS1](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00001.zip), [TSAG OLS11](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00011.zip), [TSAG-OLS13](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=21665), [TSAG-OLS22](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00022.zip), [TSAG-OLS31](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00031.zip)) by updating and disseminating tables on the matching of ITU-D SG 1 and SG 2 Questions of interest to ITU-T study groups, and on the matching of ITU-R WPs of interest to ITU-T study groups. | | | |
| **18-02** | **TSAG to continue to assist the Intersector Coordination Group on Matters of Mutual Interest in the identification of subjects common to the three Sectors and mechanisms to enhance cooperation and collaboration in all Sectors on matters of mutual interest. (i. 1)** | **Ongoing** | **√** |  |
| See 18-01. TSAG RG-SC is collecting items on common subjects for future Inter-Sector coordination. | | | |
| **18-03** | **TSAG to continue to assist the Intersector Coordination Group on Matters of Mutual Interest in the identification of subjects common to the three Sectors and mechanisms to enhance cooperation and collaboration in all Sectors on matters of mutual interest. (i. 1)** | **Ongoing** | **√** |  |
| Collaboration with ITU-R and with ITU-D is a standing agenda point of TSAG, where TSAG examines existing methods and approaches to collaboration and/or cooperation with other sectors, with the view to encouraging ITU-T to work more collaboratively and/or cooperatively in a reciprocal manner, and review is performed on a regular basis based on information received. TSAG, established and maintains a close relationship with the RAG and TDAG in order to develop synergies with the objective of strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest (see 18-01).TSAG proposed revised ToR of ISCG ([TSAG-OLS14](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=21666)). TSAG regularly receives and considers the reports from the ISCG meetings.  The appointed TSAG representatives to ISCG are: Mr Vladimir Minkin and Mr Matano Ndaro (Vice-Chairmen of TSAG).  Three inter-Sector Rapporteur groups (IRGs) were created to work on items of interests to various ITU-T and ITU-R study groups.   * [IRG-AVA](https://www.itu.int/en/irg/ava/Pages/default.aspx): Intersector Rapporteur Group Audiovisual Media Accessibility, amongst ITU-T SG9, ITU-T SG16 and ITU-R SG6; * [IRG-AVQA](http://www.itu.int/en/irg/avqa/Pages/default.aspx): Intersector Rapporteur Group Audiovisual Quality Assessment, amongst ITU-T SG12 and ITU-R SG6; * [IRG-IBB](https://www.itu.int/en/irg/ibb/Pages/default.aspx): Intersector Rapporteur Group Integrated Broadcast-Broadband, between ITU-T SG9, ITU-T SG16 and ITU-R WP 6B. NOTE: IRG-IBB decided to terminate its mandate at the end of this Study Period, the collaboration on IBB topics will continue with usual liaison exchanges between ITU-T SG9, SG16 and ITU-R SG6.   More recently, ITU-D SG1 expressed interest in joining IRG-AVA. However, an IRG mechanism was not created at WTDC-17, they will not be able to join in an official capacity, other than the existing mechanisms (individual members; invited experts).  Additionally:   * SG2 sent one reply liaison statement to ITU-D SG2 on ongoing collaboration and another liaison statement on national emergency telecommunication system in developing countries. SG2 liaised with ITU-D on ClickFarms and countering and combatting the absence of CLI. SG2 liaised with ITU-R SG5 on revised Question ITU-R 101-5/5, with ITU-D SG1 on accessibility, with ITU-R 5D on energy saving management of 5G RAN system with AI, with ITU-D on Technical Report on Guidelines for Effective and Efficient National Numbering Resources Administration. * SG3 sent liaison statements to ITU-R SG1 on ITU-T Study Group 3 activities on shared use of spectrum and methodologies for spectrum valuation. * SG3 sent a liaison statement to ITU-R SG1 on ITU-T Study Group 3 activities on OTTs. * SG3 continues collaboration with ITU-D SG1 on the transition from IPv4 to IPv6 and International Mobile Roaming and methods of determining the costs of services related to telecommunication/ICT networks, including next-generation networks. SG3 started collaboration with ITU-D SG1 on draft ITU-T D.266 (D.OTTMNO). * SG3 continues collaboration with ITU-T SG2 mainly with the Rapporteur Group for Q8/3 on alternative calling procedures and on OTT bypass. SG3 collaborates with SG13 on big data and on IMT2020 policy matters, and with SG17 on dual numbering of draft ITU-T D.1140/X.1261 (D.DigID). * SG5 continues to collaborate with ITU-D on Telecommunications/ICTs for rural and remotes areas. * SG5 continues to collaborate with ITU-D and ITU-R on studies on human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs), and Electromagnetic compatibility (EMC) issues arising in the Telecommunication environment and EMF. SG5 organized a Workshop on “5G, EMF & Health” on 5 December 2017. The development of the programme was coordinated with ITU-D and ITU-R. ITU-T SG5 coordinated with ITU-D SG2 and ITU-R SG1 on the preparation of ITU Intersectoral response to “ICNIRP Public Consultation of the Draft ICNIRP Guidelines on Limiting EMF exposure (100 kHZ to 300 GHz”). SG5 sends regularly liaison statements to ITU-D and ITU-R on the progress of the work on human exposure to electromagnetic fields (EMFs). * SG5 sent a liaison statement to ITU-R SG1 and ITU-R SG5 on inter-Sector coordination. * SG5 sent a liaison statement to ITU-D SG1 and SG2 on matching of ITU-D SG1 and SG2 Questions of Interest to ITU-T SG5. * SG5 and SG20 organized the 8th Green Standards Week from 9 to 12 April 2018 in Zanzibar, Tanzania in cooperation with ITU-D and ITU-R. * SG5 coordinated with ITU-D and ITU-R a report on Turning Digital Technology Innovation into Climate Action and it was launched in September 2019 during the UN Climate Summit. * SG5 collaborates with ITU-D and ITU-R on topics related to Climate Change and with ITU-D on topics related to E-waste and Circular Economy. * The Focus Group on Environmental Efficiency for Artificial Intelligence and other emerging technologies (FG-AI4EE) sent a liaison statement to ITU-R and ITU-D Study Groups informing of the creation and the results of the first meeting of the FG-AI4EE. * SG9 is collaborating with ITU-D SG1 and SG2 on studies related to implementation of cable TV in developing countires. It is also collaborating with ITU-R SG6 and ITU-T SG16 on studies related to Integrated Broadcast Broadband (IBB) as well as Audiovisual Accessibility to cable TV. * SG11 continues collaborating with ITU-D SG2 on conformance and interoperability issues, combating counterfeiting. SG11 collaborates with ITU-R WP5A, WP5D, WP5C and ITU-D SG2 on disaster relief issues and use cases and testing related aspects. * SG12 experts contributed to programmes developed by the BDT. Active exchange of information with ITU-R WP6C on matters of common interest. * SG13 communicated the results of the cloud computing surveys (completed in Nov. 2016) to ITU-D with their manual on cloud computing project. SG13 nominated the liaison rapporteur for ITU-D. SG13 had an information session on 5G organized jointly with ITU-R WP 5D. FG NET2030 (runs under SG13) agreed in March 2019 to changes their ToR per the request from ITU-R WP5D. A set of ITU-T events in May 2019 in St Petersburg, Russia, were run in conjunction with the ITU-D Regional Forum. * SG15 continues to collaborate with ITU-R on power spectrum density (PSD) for G.fast/G.mgfast, xDSL and powerline communication (PLC). * SG15 sends Liaisons to ITU-D SG1 and 2, ITU-R SG1, 5 and 6 as well as to TSAG on ITU inter-Sector coordination on its lead SG activities (e.g., TSAG-TD386Rev.1, TSAG-TD570, TSAG-TD747, TSAG-TD1098). * SG15 sends Liaisons to ITU-R on visible light communication (free-space optical communication) to share information on the progress. * SG16 is collaborating with ITU-R SG6 on audiovidual media, and with ITU-D Q7/1 on ICT accessibility. * SG17 sent Liaisons to ITU-D SG1 and 2, TDAG in support of WTDC-14/WTDC-17 Resolutions and ongoing collaboration with ITU-D Q3/2 and Q9/2; to ITU-R SG4 and 5, as well as to TSAG on ITU inter-Sector coordination and SG17 lead SG activities. * SG20 sent a liaison statement to ITU-D and ITU-R on the new structure of SG20. SG20 collaborates with ITU-D with inputs on reports and events programmes on IoT and smart cities & communities topics. * SG20 together with ITU-D organized the 4th Asia-Pacific Regional Forum on Smart Sustainable Cities and e-Government 2018” on 4-6 July 2018 in Thanh Hoa City, Vietnam. * SG20 together with ITU-D organized a [Forum on Smart sustainable cities: technological trends, success stories and future prospects](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx). * SG20 sent liaison statements to ITU-D SG1 and SG2 on accessibility matters, collaboration on topics related to IoT and smart cities and communities and on collaboration on relevant topics of e-health. * SG20 sent a liaison statement to ITU-D on matching of ITU-D SG1 and SG2 Questions of interest to ITU-T Study Groups. * SG20 together with ITU-D and the regional office for Africa organized a Session on Session on "Smart Sustainable Cities & Communities" on 5 September 2019. * SG20 sent a liaison statement to ITU-D SG1 and SG2 on impact of IoT and snsing technologies. * SG20 sent a liaison statement to ITU-R WP 5D on development of a draft new report ITU-R M.[IMT.C-V2X] - Application of the Terrestrial Component of IMT for Cellular-V2X. * SG20 sent a liaison statement to ITU-R WP 5A on ITU-T SG20 terms and definitions. * SG20 sent a liaison statement to ITU-R WP 5D and ITU-R WP 5B on relevant ITU-T SG20 work item/s.   The inter-Sector coordination team (ISCT) on issues of mutual interest is composed by representatives of all three advisory groups, and works to identify subjects common to the three Sectors. It also seeks to identify the necessary mechanisms to strengthen the cooperation and joint activity among the three Sectors, with particular emphasis on the interests of developing countries. In addition, the ITU Inter-Sectoral Coordination Task Force (ISC-TF) is coordinating activities among the three Bureaux. | | | |
| **18-04** | **TSB Director to report annually to TSAG on the results of the implementation of this resolution. (i. 2)** | **Ongoing** | **√** |  |
| Accomplished through this document. | | | |
| **18-05** | **This resolution should also be brought to the attention of the ITU Radiocommunication and Telecommunication Development Sectors (footnote).** | **2017** | **√** | **√** |
| BDT and BR were informed. | | | |

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# Resolution 20 - Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources

**Resolution 20**

resolves to instruct

1 the Director of TSB, before assigning, reassigning and/or reclaiming international NNAI resources, to consult:

i) the chairman of Study Group 2, in liaison with the chairmen of the other relevant study groups, or if needed the chairman's delegated representative to resolve requirements as specified in relevant ITU‑T Recommendations; and

ii) the relevant administration(s); and/or

iii) the authorized applicant/assignee when direct communication with TSB is required in order to perform its responsibilities.

In the Director's deliberations and consultations, the Director will consider the general principles for the allocation of NNAI resources, and the provisions of the relevant Recommendations in the ITU‑T E-, ITU-T F-, ITU-T Q- and ITU-T X-series, and those to be further adopted;

2 Study Group 2, in liaison the other relevant study groups, to provide to the Director of TSB:

i) advice on technical, functional and operational aspects in the assignment, reassignment and/or reclamation of international NNAI resources in accordance with the relevant Recommendations, taking into account the results of any ongoing studies;

ii) information and guidance in cases of reported complaints about misuses of international telecommunication NNAI resources;

3 the Director of TSB, in close collaboration with Study Group 2, and any other relevant study groups, to follow up with the administrations involved on the misuse of any international telecommunication NNAI resources and inform the ITU Council accordingly;

4 the Director of TSB to take the appropriate measures and actions where Study Group 2, in liaison with the other relevant study groups, has provided information, advice and guidance in accordance with *resolves to instruct* 2 and 3 above;

5 Study Group 2 to continue to study necessary action to ensure that the sovereignty of ITU Member States with regard to country code NNAI plans is fully maintained, including ENUM as enshrined in Recommendation ITU-T E.164 and other relevant Recommendations and procedures; this shall cover ways and means to address and counter any misuse of any international telecommunication NNAI resources.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **20-01** | **TSB Director to use procedures in relevant Recommendations upon receipt of new numbering, naming, addressing and identification resource requests (resolves 1)** | **Ongoing** | **√** |  |
| The Director has been following the relevant Recommendations in his deliberations and consultations for assigning, reassigning and/or reclaiming international NNAI. | | | |
| **20-02** | **SG2, in liaison with the other relevant SGs, to provide TSB Director with advice and guidance related to Resolution 20 (resolves 2)** | **Ongoing** | **√** |  |
| ITU-T SG2 agreed in its meeting of 29 March to 7 April 2017 that the Number Coordination Team (NCT), which is a permanent group for SG2 giving advice to the Director in accordance with WTSA Resolution 20 as stated in Appendix I of Rec. ITU-T E.164.1, would be composed of the Chairman of Study Group 2 (NCT chairman), the SG2 counsellor, the WP 1/2 chairman, the WP 1/2 vice-chairman, the Q1/2 Rapporteur (NCT secretary), and the Q1/2 associate Rapporteur(s). It was agreed that the NCT will continue to take the responsibility of the Assessment Committee for misuse of numbers, the role of which is to advise the TSB Director on actions relating to misuses of a numbering resource according to Recommendation ITU-T E.156.  The meeting also agreed to forward to the Director of TSB advice on the applications for new international shared codes and requests for extending the usage of assigned international shared codes, contained in 3.2, 3.3 and 3.6 of TD118 Rev.1 2 (GEN/2) (progress report for Question 1/2).  Advice and Guidance provided by ITU-T SG2 can be found in the meeting reports of SG2. | | | |
| **20-03** | **TSB Director, in close collaboration with SG2 and other relevant study groups, to follow-up with the administrations involved on misuse of international telecommunication NNAI resources and inform Council accordingly (resolves 3)** | **Council 2020** | **√** |  |
| Existing reports can be accessed at <https://www.itu.int/net/ITU-T/misuse/table.aspx>.  Activities related to misuse of numbering resources are reported to each ITU-T SG2 meeting.  The Director of TSB informed the ITU Council 2019 about the misuse cases of ITU telephone numbers and the numbering misuse report received recently. The TSB director and his representative have been in close collaboration with Study Group 2 experts in investigating the misuse case of one particular ITU telephone number and the received misuse reports.  SG2 approved Recommendation ITU-T E.156 (revised) “Guidelines for ITU-T action on reported misuse of E.164 number resources” and its Amendment 1 “Suggested guidelines for regulators, administrations and operating agencies authorized by Member States for dealing with number misappropriation” on 5 June 2020, the latter reproduces verbatim the attachment to WTSA Resolution 61 (Rev. Dubai, 2012). | | | |
| **20-04** | **SG2 to continue to study necessary action to ensure sovereignty of ITU Member States with regard to international telecommunication country code NNAI plans is maintained, including ENUM (resolves 5)** | **Ongoing** | **√** |  |
| Notifications of national numbering/identification plan update and assignment or reclamation of national numbering/identification resources were received and published in the ITU Operational Bulletin and ITU website. The ITU Operational Bulletin is now published in the six official languages.  SG2 approved Recommendation ITU-T E.218 (2004) Annex B “Management of the allocation of terrestrial trunk radio Mobile Country Codes - Annex B: Criteria and procedures for the assignment and reclamation of shared ITU T E.218 terrestrial trunk radio access mobile country codes ((T)MCC) for networks and their respective terrestrial trunk radio access mobile network codes ((T)MNCs)" on 5 June 2020.  SG2 approved Recommendation ITU-T E.212 (2016) Annex G “The international identification plan for public networks and subscriptions - Annex G: Assignment of shared E.212 mobile country codes (MCC) for trials" on 5 June 2020.  SG2 approved Recommendation ITU-T E.164.2 (revised) “E.164 numbering resources for trials” on 5 June 2020.  SG2 approved Recommendation ITU-T E.212 Annex H "The international identification plan for public networks and subscriptions - Annex H: Criteria and procedures for the assignment and reclamation of shared ITU-T E.212 mobile country codes (MCC) for regional and other international organizations (ROIO)/standards development organization (SDO)-specified networks and their respective mobile network codes (MNCs)" on 18 December 2021.  SG2 is progressing draft Recommendation ITU-T E.164.1 (revised) “Criteria and procedures for the reservation, assignment and reclamation of E.164 country codes and associated identification codes (ICs)”. | | | |

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# Resolution 22 - Authorization for Telecommunication Standardization Advisory Group to act between world telecommunication standardization assemblies

**Resolution 22**

resolves

1 to assign to TSAG the following specific matters within its competence between this assembly and the next assembly to act in the following areas in consultation with the Director of TSB, as appropriate:

*a)* maintain up-to-date, efficient and flexible working guidelines;

*b)* assume responsibility, including development and submission for approval under appropriate procedures, for the ITU‑T A‑series Recommendations (Organization of the work of ITU‑T);

*c)* restructure and establish ITU‑T study groups, taking into account the needs of the ITU‑T membership and in response to changes in the telecommunication marketplace, and assign chairmen and vice‑chairmen to act until the next WTSA in accordance with Resolution 35 (Rev. Hammamet, 2016) of this assembly;

*d)* issue advice on study group schedules to meet standardization priorities;

*e)* while recognizing the primacy of the study groups in carrying out the activities of ITU‑T, create, terminate or maintain other groups, including focus groups, appoint their chairmen and vice-chairmen, and establish their terms of reference with a defined duration, in accordance with Nos. 191A and 191B of the Convention, in order to enhance and improve the effectiveness of ITU‑T's work as well as promoting flexibility in responding rapidly to high-priority issues; such groups shall not adopt Questions or Recommendations, in accordance with Article 14A of the Convention, but work on a specific mandate;

*f)* identify changing requirements and provide advice on appropriate changes to be made to the priority of work in ITU‑T study groups, planning and allocation of work between study groups, having due regard for the cost and availability of resources;

*g)* review reports of and consider appropriate proposals made by coordination groups and other groups, and implement those that are agreed;

*h)* establish the appropriate mechanism and encourage the utilization, for example, of coordination groups or other groups, to address key topics of work which span several study groups, with a view to ensuring effective coordination of standardization topics in order to achieve suitable global solutions;

*i)* review progress in the implementation of the ITU‑T work programme, including fostering coordination and collaboration with other relevant bodies such as standardization organizations, forums and consortia outside of ITU;

*j)* advise the Director of TSB on financial and other matters;

*k)* approve the programme of work arising from the review of existing and new Questions and determine the priority, urgency, estimated financial implications and time-scale for the completion of their study;

*l)* group, as far as practicable, Questions of interest to developing countries, including the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition, in order to facilitate their participation in these studies;

*m)* address other specific matters within the competence of WTSA, subject to the approval of Member States, using the approval procedure contained in Resolution 1 (Rev. Hammamet, 2016) of this assembly, Section 9;

2 that TSAG examine implementation of the actions and achievement of the goals as reflected in the annual operational plans and in the WTSA‑16 Action Plan, which includes the WTSA resolutions, for the purpose of identifying possible difficulties and possible strategies for implementing key elements, and recommending solutions to the Director of TSB regarding them;

3 that revisions to the relevant procedures for the adoption of Questions and Recommendations by study groups, other than those referred to in Nos. 246D, 246F and 246H of the Convention, may be initiated by TSAG for approval by Member States between WTSAs, using the approval procedure contained in Resolution 1 (Rev. Hammamet, 2016) of this assembly, Section 9;

4 that TSAG provide liaison on its activities to organizations outside ITU in consultation with the Director of TSB, as appropriate;

5 that TSAG consider the implications, for ITU‑T, of market needs and new emerging technologies that have not yet been considered for standardization by ITU‑T, establish an appropriate mechanism to facilitate the examination of their consideration, for example assigning Questions, coordinating the work of study groups or establishing coordination groups or other groups, and appoint their chairmen and vice-chairmen;

6 that TSAG review and coordinate standardization strategies for ITU‑T by identifying the main technological trends and market, economic and policy needs in the fields of activity relevant to the mandate of ITU‑T, and identify possible topics and issues for consideration in ITU‑T's standardization strategies;

7 that TSAG establish an appropriate mechanism to facilitate standardization strategies, for example assigning Questions, coordinating the work of study groups or establishing coordination groups or other groups, and appoint their chairmen and vice-chairmen;

8 that TSAG consider the result of this assembly concerning GSS and take follow-up actions, as appropriate;

9 that a report on the above TSAG activities shall be submitted to the next WTSA.

instructs the Director of the Telecommunication Standardization Bureau

1 to take into consideration the advice and guidance of TSAG in order to improve the effectiveness and efficiency of the Sector;

2 to provide to each TSAG meeting a report on the implementation of WTSA resolutions and actions to be undertaken pursuant to their operative paragraphs;

3 to provide information about any work item that has not given rise to any contribution in the time interval of the previous two study group meetings through his or her report about study group activity;

4 to report to TSAG on the experience in the implementation of the A-series Recommendations for consideration by the ITU‑T membership.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **22-01** | **TSAG to consider results of WTSA concerning GSS, for appropriate action (resolves 8)** | **TSAG 2017** | **√** |  |
| The May 2017 TSAG meeting was provided with the outcome of GSS ([TSAG-TD58-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0058)). | | | |
| **22-02** | **TSAG to establish an appropriate mechanism to examine and coordinate work on emerging technologies (resolves 5)** | **TSAG 2017** | **√** | **√** |
| The May 2017 TSAG meeting established a new TSAG Rapporteur Group on Standardization Strategy which considers the rapid technological and market developments, and which is tasked to developed standardisation strategies for the Sector by identifying the main technological trends, and market, economic and policy needs in the ITU-T's fields of activity.  TSAG liaised with the ITU-T study groups on current and emerging hot topics ([TSAG OLS10](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00010.doc), [TSAG OLS16](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00016.doc), [TSAG-OLS32](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00032.zip)). TSAG liaised with the ITU-T study groups, IETF, IAB on “new IP” ([TSAG-OLS23](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00023.zip), [TSAG-OLS36](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00036.zip)). | | | |
| **22-03** | **TSAG report on its activities to WTSA-20 (resolves 9)** | **Last TSAG before WTSA-20**  **WTSA-20** | **√** | **√** |
| An initial (draft) report of TSAG to WTSA-20 was submitted to the February 2020 TSAG meeting (see [TSAG-TD694](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0694)). [TSAG-TD1208](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1208)-R3 holds the agreed draft TSAG reports to WTSA-20:  See [WTSA-C23](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0023) “Report of the Telecommunication Standardization Advisory Group to the World Telecommunication Standardization Assembly (WTSA-20), Part I: General”;  See [WTSA-C24](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0024) “Report of the Telecommunication Standardization Advisory Group to the World Telecommunication Standardization Assembly (WTSA-20), PART II: Draft revised Resolutions”;  See [WTSA-C25](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0025) “Report of the Telecommunication Standardization Advisory Group to the World Telecommunication Standardization Assembly (WTSA-20), PART III: draft revised Recommendations of the ITU-T A-Series”;  See [WTSA-C26](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-WTSA.20-C-0026) “Report of the Telecommunication Standardization Advisory Group to the World Telecommunication Standardization Assembly (WTSA-20), Part IV: TSAG report in respect of Resolution 22”. | | | |
| **22-04** | **TSAG to examine implementation of the actions and achievement of the goals as reflected in the annual operational plans and in the WTSA‑16 Action Plan (resolves 2)** | **TSAG 2021** | **√** |  |
| The May 2017, February/March 2018, December 2018, September 2019, and January 2022 TSAG meetings considered the annual operational plan (TSAG [TD053](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0053), [TD141](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0141), [TD293](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0293), [TD469](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0469), [TD659](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0659), [TD1187](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1187)), and the WTSA-16 action plan (TSAG [TD25-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0025)), [TD139-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0139), [TD292](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0292)-R1, [TD467](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0467), [TD657](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0657)[TD1186](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1186)). The TSAG RG-SOP e-meeting considered the ITU draft Operational Plan for 2021-2024 ([TD791](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0791)). | | | |
| **22-05** | **TSAG to review and coordinate standardization strategies for ITU‑T by identifying the main technological trends and market, economic and policy needs in the fields of activity relevant to the mandate of ITU‑T, and identify possible topics and issues for consideration in ITU‑T's standardization strategies (resolves 6)** | **TSAG 2020** | **√** |  |
| TSAG RG-StdsStrat was created in May 2017 and has conducted several interim e-meetings, results are reported in TSAG [TD215-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0215), [TD133-R2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0133), [TD315-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0315), [TD489](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0489), [TD675](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0675), [TD810-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-200921-TD-GEN-0810), [TD951-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-210111-TD-GEN-0951), and [TD1052](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-211025-TD-GEN-1052). TSAG liaised with the ITU-T study groups on current and emerging hot topics ([TSAG OLS10](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00010.doc), [TSAG OLS16](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00016.doc), [TSAG-OLS23](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00023.zip), [TSAG-OLS32](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00032.zip)). | | | |
| **22-06** | **TSAG to establish an appropriate mechanism to facilitate standardization strategies, for example assigning Questions, coordinating the work of study groups or establishing coordination groups or other groups, and appoint their chairmen and vice-chairmen (resolves 7)** | **TSAG 2017** | **√** | **√** |
| Done through creation of TSAG RG-StdsStrat, see 22-05, 22-02. | | | |
| **22-07** | **TSB Director to provide to each TSAG meeting a report on the implementation of WTSA resolutions and actions to be undertaken pursuant to their operative paragraphs (i. TSBDir 2)** | **TSAG 2021** | **√** | **√** |
| This document is tracking progress in the implementation of the operational parts within all WTSA-16 Resolutions. [TSAG-TD25-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0025) was presented to the May 2017 TSAG meeting, [TSAG-TD139-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0139) was presented to the February 2018 TSAG meeting, [TSAG-TD292](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0292) was presented to the December 2018 TSAG meeting, [TSAG-TD467](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0467) was presented to the September 2019 TSAG meeting, [TSAG-TD657](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0657) was presented to the February 2020 TSAG meeting. [TSAG-TD789](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0789) was presented to the TSAG RG-ResReview December 2020 e-meeting. [TSAG-TD1031](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1031) was presented to the TSAG-RG-ResREview e-meeting October 2021. [TSAG-TD1186](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1186) was presented to the TSAG RG-ResReview January 2022 e-meeting. | | | |
| **22-08** | **TSB Director to provide information about any work item that has not given rise to any contribution in the time interval of the previous two study group meetings through his or her report about study group activity (i. TSBDir 3)** | **TSAG 2021** | **√** |  |
| Study Groups monitor the list of stale work items based on a report provided by the SG secretariat at each study group meeting, or on request of the SG management. TSAG sent [OLS 006](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00006.zip) to all study groups reminding their duties to follow-up on stale work items.  TSAG compiles the statistics of the ITU-T study groups which includes the report on the stale work items ([TSAG-TD111-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0111), [TSAG-TD142](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0142), [TSAG-TD294, TSAG-TD470,](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0792) [TSAG-TD792](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0792), [TSAG-TD935](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0935)[TSAG-TD1034](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1034), [TSAG-TD1188](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1188)). | | | |
| **22-09** | **TSB Director to report to TSAG on the experience in the implementation of the A-series Recommendations for consideration by the ITU‑T membership (i. TSBDir 4)** | **TSAG 2021** | **√** |  |
| Regarding the liaison template in Rec. ITU-T A.1, TSB noticed that the "For Comment" field of liaison statements should be discontinued in Rec. ITU-T A.1 as was agreed by TSAG 2016; however, those changes were missed to be brought to WTSA-16. Hence, there is a need to correct ITU-T A.1 accordingly, and this was accomplished in the 2019 revision of ITU-T A.1.  Concerning the two Focus Groups (DFS and IMT-2020) that concluded end of 2016, positive experiences were made in the implementation of Rec. ITU-T A.7, in particular with the streamlined transfer of deliverables from the Focus Groups to the parent study groups as per Rec. ITU-T A.7 Appendix I, which was found very useful. | | | |
| **22-10** | **WTSA-16 requested TSAG to find a definition for “agreement” as applied to non-normative texts (WTSA-16 Proceedings, 5.4)** | **Completed** | **√** | **√** |
| TSAG approved revised Recommendation ITU-T A.13 (9/2019) “Non-normative ITU-T publications, including Supplements to ITU-T Recommendations”, which contains in clause 6.2 a statement addressing agreement for non-normative documents. | | | |
| **22-11** | **WTSA-16 instructed TSAG to conduct a holistic review of document development and approval procedures across Resolution 1, Recommendation ITU-T A.1, and Recommendation ITU-T A.13, and to prepare a proposal to the next Assembly (WTSA-16 Proceedings, 5.4)** | **Ongoing** | **√** |  |
| TSAG Rapporteur Group on Working Methods is discussing contributions addressing modifications to WTSA Resolution 1, and revisions to Recommendation ITU-T A.1. | | | |
| **22-12** | **WTSA-16 instructed TSAG to investigate further the procedures for the development and agreement of non-normative texts within ITU-T and assign the urgency of the issue (WTSA-16 Proceedings, 5.4)** | **Completed** | **√** | **√** |
| TSAG approved revised Recommendation ITU-T A.13 (9/2019) “Non-normative ITU-T publications, including Supplements to ITU-T Recommendations”, which constitutes a major overhaul and amendment of the former edition of ITU-T A.13, putting emphasis on the working methods and procedures relevant for non-normative texts, including provision of an ITU-T A.13 new work item template in Annex A. | | | |
| **22-13** | **WTSA-16 requested TSAG to take into account the text of paragraph 1bis.10 (in WTSA-16 Doc116[[1]](#footnote-2)) during the development of a draft revised WTSA Resolution 1 for consideration at WTSA-20 or for inclusion in Recommendation ITU-T A.1 (WTSA-16 Proceedings, 2.2.3)** | **Ongoing** | **√** |  |
| With revised Recommendation ITU-T A.13 (2019/09), no particular types of texts have been identified for which there is no specific approval/agreement procedure already in place, other than normative and non-normative texts, and for which there would be a need to consider amendments to WTSA Resolution 1 or to Recommendation ITU-T A.1. | | | |

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# Resolution 29 - Alternative calling procedures on international telecommunication networks

**Resolution 29**

resolves

1 to continue identifying and defining all forms of alternative calling procedures, to study their impact on all parties, and to develop appropriate Recommendations concerning alternative calling procedures;

2 that administrations and international telecommunication operators or operating agencies authorized by Member States should take, to the furthest extent practicable, all measures to suspend the methods and practices of any form of alternative calling procedures which seriously degrade the QoS and QoE of telecommunication networks, or prevent the delivery of CLI or OI information;

3 that administrations and international telecommunication operators or operating agencies authorized by Member States should take a cooperative approach to respecting the national sovereignty of others, and suggested guidelines for this collaboration are attached;

4 to instruct ITU-T Study Group 2 to study other aspects and forms of alternative calling procedures, including those associated with the interworking of legacy and IP-based infrastructures, and the consequent instances of hindrance, obscuring or spoofing of OI or CLI information, and the evolution of alternative calling procedures, including the use of over-the-top telephone applications that use telephone numbers, that may give rise to instances of fraudulent practices, and to develop appropriate Recommendations and guidelines;

5 to instruct ITU-T Study Group 3 to study the economic effects of alternative calling procedures, origin non-identification or spoofing and over-the-top telephone applications, on the effort of developing countries for sound development of their local telecommunication networks and services, and to develop the appropriate Recommendations and guidelines;

6 to instruct ITU‑T Study Group 12 to develop guidelines regarding the minimum QoS and QoE threshold to be fulfilled during the use of alternative calling procedures,

instructs the Director of the Telecommunication Standardization Bureau

to continue to cooperate with the Director of the Telecommunication Development Bureau in order to facilitate the participation of developing countries in these studies and to make use of the results of the studies, and in the implementation of this resolution.

invite Member States

1 to adopt national legal and regulatory frameworks requesting administrations and international telecommunication operators or operating agencies authorized by Member States to avoid using alternative calling procedures that degrade the level of QoS and QoE, to ensure the delivery of international CLI and OI information, at least to the destination operating agency, and to ensure the appropriate charging, taking into account the relevant ITU-T Recommendations;

2 to contribute to this work.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Action Item | Action | Milestone | Periodic goals met | Completed |
| **29-01** | **SG2 to study other aspects and all forms of alternative calling procedures, including those associated with the interworking of legacy and IP-based infrastructures, and the consequent instances of hindrance, obscuring or spoofing of OI or CLI information, and the evolution of alternative calling procedures, including the use of over-the-top telephone applications that use telephone numbers, that may give rise to instances of fraudulent practices, and to develop appropriate Recommendations and guidelines (resolves 4)** | **Ongoing** | **√** |  |
| SG2-C26 from Egypt on Impact of fraudulent routing of OTT telecommunication applications was received in SG2 meeting of 29 March to 7 April 2017. Regarding the specific routing aspects falling under the remit of Study Group 2, the participants are calling for contributions to further identify problems, but more importantly, to suggest potential solutions to those problems.  SG2-C66 from Russia and SG2-C49 and SG2-C69 from Egypt were received and discussed in SG2 meeting of 27 November to 1 December 2017.  A new work item on draft Recommendation ITU-T E.ACP on Alternative Calling Procedure was started at the SG2 meeting in December 2019, and the latest draft can be found in SG2-TD1093. Liaison statements were agreed and sent to SG3.  SG2-C315 and SG2-C316 from the United Arab Emirates were received and discussed at the the SG2 e-meeting of 31 May to 11 June 2021. | | | |
| **29-02** | **SG3 to study the economic effects of alternative calling procedures, origin non-identification or spoofing and over-the-top telephone applications, etc. on the effort of developing countries for sound development of their local telecommunication networks and services, and to develop appropriate Recommendations and guidelines (resolves 5)** | **Ongoing** | **√** |  |
| SG3 continues to liaise with SG2 on alternative calling procedures, especially in the development of the definition of “OTT Bypass”. The ongoing work item D.SIMBOX (Economic impact of SIMBOX bypass) and STUDY\_ACPMIS (Alternative Calling Procedures, and misappropriation and misuse of facilities and services) have not received recent contributions to progress the work. | | | |
| **29-03** | **TSB Director to facilitate developing countries' participation and make use of the work/studies of SG2 and SG3 on alternative calling procedures (i. TSBDir)** | **Ongoing** | **√** |  |
| The SG2 ad hoc group on developing country issues met during ITU-T SG2 meetings. Misuse and alternative calling procedures were agreed to be listed as areas for actions. Developing countries were encouraged to submit contributions on these topics to the subsequent ITU-T SG2 meetings.  ITU Inter-regional Standardization Forum on “Operational issues on numbering, emergency service and OTTs”, Dubai, United Emirates on 22 October 2019 was organized back-to-back with ITU-T SG2RG-AFR, SG2RG-ARB, and SG3RG-ARB. | | | |
| **29-04** | **SG12 to develop guidelines regarding the minimum QoS and QoE threshold to be fulfilled during the use of alternative calling procedures (resolves 6)** | **Ongoing** | **√** |  |
| SG12 reviewed WTSA-16 Resolution 29 in January 2017, calling for input on the QoS for ACP. One work item, G.ACP (Guidelines regarding the minimum QoS and QoE threshold to be fulfilled during the use of alternative calling procedures) is open, contributions are welcome. | | | |

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# Resolution 31 - Admission of entities or organizations to participate as Associates in the work of the ITU-T Telecommunication Standardization Sector

**Resolution 31**

resolves

1 that an interested entity or organization may join ITU‑T as an Associate and be entitled to take part in the work of a selected single study group;

2 that Associates are limited to the study group roles described below and excluded from all others:

• Associates may take part in the process of preparing Recommendations within a study group, including the following roles: meeting participant, contribution submitter, Recommendation editor, and, during the alternative approval process, provider of comments during the last-call period (but not during the additional review period);

• Associates may have access to documentation required for their work;

• an Associate may serve as rapporteur, responsible for directing the studies for the relevant study Question within the selected study group, except for taking part in any decision-making or liaison activities which are to be handled separately, in accordance with No. 248B of the Convention;

3 that the amount of the financial contribution for Associates be based upon the contributory unit for Sector Members as determined by Council for any particular biennial budgetary period,

requests

1 the Secretary-General to admit entities or organizations to participate as Associates in the work of a given study group or subgroups thereof following the principles set out in Nos. 241B, 241C, 241D and 241E of the Convention;

2 the Telecommunication Standardization Advisory Group to review on an ongoing basis the conditions governing the participation (including financial impact on the Sector budget) of Associates based on the experience gained within ITU‑T,

instructs the Director of the Telecommunication Standardization Bureau

to prepare the necessary logistics for the participation of Associates in the work of ITU‑T, including possible impacts of study group reorganization.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **31-02** | **TSB Director to continue to provide necessary logistics for participation of Associates** | **Ongoing** | **√** |  |
| All necessary logistics is being provided.   * 31 December 2016: 137 Associates * 28 February 2017: 136 Associates * 31 January 2018: 142 Associates * 31 October 2018: 161 Associates * 31 December 2019: 184 Associates * 31 August 2020: 199 Associates * 11 December 2020: 202 Associates * 30 November 2021: 224 Associates.   The current list of Associates may be found at <https://www.itu.int/en/myitu/Membership/ITU-Members/SMEs/Associates>. | | | |

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# Resolution 32 - Strengthening electronic working methods for the work of the ITU-T Telecommunication Standardization Sector

**Resolution 32**

resolves

1 that the principal EWM objectives of ITU‑T are:

• that collaboration between members on development of Recommendations should be by electronic means;

• that TSB, in close collaboration with the ITU Telecommunication Development Bureau (BDT), should provide facilities and capabilities for EWM at ITU-T meetings, workshops and training courses, particularly to assist developing countries that have bandwidth limitations and other constraints, including remote participation and electronic access, such as via LINUX-based platforms;

• to encourage electronic participation of developing countries in ITU-T meetings, by providing simplified facilities and guidelines, and by waiving any expenses for those participants, other than the local call or Internet connectivity charges;

• that TSB, in close collaboration with BDT, should provide facilities and capabilities for EWM at ITU-T meetings, workshops and training courses, and encourage participation of developing countries, by waiving, within the credits that the Council is empowered to authorize, any expenses for those participants, other than the local call or Internet connectivity charges;

• that TSB should provide all members of ITU‑T with appropriate and ready access to electronic documentation for their work, including a global, unified and consolidated view of document traceability;

• that TSB should provide appropriate systems and facilities to support the conduct of ITU‑T's work by electronic means;

• that all activities, procedures, studies and reports of ITU-T study groups be posted on the ITU-T website so as to facilitate navigation to find all relevant information,

• to consider developing a mobile‑friendly version of the ITU‑T website to facilitate easy access by smart mobile devices to information; and

• to simplify and facilitate enhanced searching for documents and/or information;

2 that these objectives should be systematically addressed in an EWM Action Plan, including individual action items identified by the ITU‑T membership or TSB, and prioritized and managed by TSB with the advice of the Telecommunication Standardization Advisory Group (TSAG),

instructs

1 the Director of TSB to:

• maintain the EWM Action Plan to address the practical and physical aspects of increasing the EWM capability of ITU‑T;

• identify and review costs and benefits of the action items on a regular basis;

• report to each meeting of TSAG on the status of the Action Plan, including the results of the cost and benefit reviews described above;

• provide the executive authority, budget within TSB, and resources to execute the Action Plan with all possible speed;

• develop and disseminate guidelines for the use of ITU‑T EWM facilities and capabilities;

• take action, in order to provide appropriate electronic participation or observation facilities (e.g. webcast, audioconference, web conference/document sharing, videoconference, etc.) in ITU‑T meetings, workshops and training courses for delegates unable to attend events in person, and coordinate with BDT to assist in the provision of such facilities; and

• provide an ITU-T website that is easy to navigate to find all relevant information, and in particular a classification mechanism and an enhanced search engine to extract documents and/or information that are related to a specific subject, topic or issue; and

• provide a mobile‑friendly version of the ITU‑T website;

2 TSAG to continue to:

• act as the point of contact between the ITU‑T membership and TSB on EWM matters, in particular providing feedback and advice on the contents, prioritization and implementation of the Action Plan;

• identify user needs and plan the introduction of suitable measures through appropriate subgroups and pilot programmes;

• request study group chairmen to identify EWM liaisons;

• encourage participation by all participants in the work of ITU‑T, especially EWM experts from TSAG, the study groups, TSB and appropriate ITU Bureaux and departments;

• continue its work electronically outside TSAG meetings as necessary to carry out its objectives.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **32-01** | **TSB to maintain EWM Action Plan to address the practical and physical aspects of increasing the EWM capability of ITU-T (i. TSBDir 1)** | **Ongoing** | **√** |  |
| EWM Action Plan is being maintained. Progress reports by EWM are regularly provided to TSAG. The EWM services and database application report is available in [TSAG-TD1191](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1191). | | | |
| **32-02** | **TSB to review and recommend new and revised capabilities of ITU-T tools and applications, and TSB Director report status of EWM Action Plan to each meeting of TSAG** | **TSAG 2020,**  **Ongoing** | **√** |  |
| TSB in close collaboration with the ITU IS Department developed and introduced several new electronic applications and services and further enhanced existing electronic facilities to support and improve the electronic working methods of the members. Since TSAG January 2021, key achievements include:  **Document Management System for Rapporteur Group Meetings**  The ITU IS Department together with TSB have developed a system for managing documents of ITU-T Rapporteur Group Meetings (RGM) in a well-structured and secured environment. This system which is based on MS SharePoint is now being used extensively by a majority of the ITU‑T Study Groups, notably Study Groups 2, 3, 9, 11, 13, 15, 16, 17 and TSAG.  The RGM system is continuously being improved following invaluable feedback from Rapporteurs. It is available for any Rapporteur group wishing to utilise it and take advantage of these improved capabilities such as:   * Improved RGM Document Sync Tool. * New RGM Document Sync Tool for Mac. * Automatic and real-time mirroring of documents in the IFA. * Automatic generation and update of documents lists. * Archiving of documents after the meeting. * Setting of deadlines with a procedure for managing late submissions. * Distinct permission levels on RGM sites and documents.   The current and past RGM meetings may be accessed here: <http://itu.int/go/itu-t/rgm>  **ITU-T SharePoint Collaboration Sites**  The ITU-T SharePoint Collaboration sites have been developed to further improve the electronic working methods of ITU-T Study Groups, Focus Groups and other groups. The collaboration sites allow participants to conduct online discussions, work on projects, make meeting plans or schedules, manage and store documents in a secure and shared environment. The ITU-T SharePoint collaboration home site may be accessed here: <https://extranet.itu.int/sites/ITU-T>  **MyWorkspace**  TSB created [MyWorkspace](https://www.itu.int/myworkspace), a user-friendly mobile platform that centralizes a set of applications and services developed to *strengthen electronic working methods for the work of ITU-T*, as stated in WTSA Resolution 32. As of December 2021, it receives an average of 4000 visits per month.  The platform is available as a Progressive Web Application for a better user experience on all types of devices. Secure access to MyWorkspace is enabled with ITU User Account TIES credentials.  The following applications and services are available from MyWorkspace:   * [MyMeetings](https://www.itu.int/myworkspace/#/MyMeetings): Remote participation service based on an open-source solution customized in-house to support requirements of both statutory and non-statutory ITU-T meetings. * ITU-T Chatbot: Instantaneous assistance to ITU-T members during MyMeetings sessions. * [MyEvents](https://www.itu.int/myworkspace/#/Myevents): Events management platform, which provides real time ITU-T events agenda, list of registered participants, speakers, and exhibitors, as well as a ‘matchmaking’ function to enable networking among participants. * [Calendar](https://www.itu.int/myworkspace/#/Calendar): Monthly calendar view of all ITU events with filters on ITU sectors and ITU-T working groups, with detailed information. * [ITU Translate](https://www.itu.int/myworkspace/#/Translate): Machine translation tool based on a neural network trained in-house on ITU documents official translations, supporting the six (6) ITU official languages. * [ITU-T Cloud](https://tsbcloud.itu.int/): In-ITU premises storage service allowing users to share and exchange files up to 10 GB per user. * [Mailing list](https://www.itu.int/myworkspace/#/Mailing): Subscription management with search function. * [Community](https://www.itu.int/myworkspace/#/Community): MyWorkspace user’s directory. * [MyDocuments](https://www.itu.int/myworkspace/#/Documents/MyDocuments): Simplified access to Study Group documents, per meeting, with multiple sorting and selection filters and full text search, and automatic translation from English into 5 other official ITU languages (available on request). * [Suggested meeting documents](https://www.itu.int/myworkspace/#/Documents/Suggested-Documents): List of documents based on pre-set users’ interests, with the option to bookmark favourites. * [Profile and preferences](https://www.itu.int/myworkspace/#/profile): User personal information and interests.   **Databases**  TSB also offers online databases for standards grouped by technical topics on 5G, cloud, IoT, security, …  **Meeting Documents Sync Application**  This application enables meeting participants to synchronize documents of ongoing ITU-T SG meetings from the ITU server to their local drive. The application is constantly enhanced and updated following feedback and suggestions from users.  **Editing Workflow**  Business process management internal for ITU-T Publications editing and Web publishing.  **Alternative Approval Process System**  Online solution to apply the ITU-T A.8 simplified and faster procedure used for seeking the 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.  **IPR Database**  It enables users to access all ITU-T Recommendations patents and software copyright declarations ([ITU-R and ITU-T Recommendations Patent Statement](https://www.itu.int/net4/ipr/search.aspx?sector=ITU&class=PS)).  **ITU-R/ITU-T Terms & Definitions Database**  This application lets users access all ITU-T Recommendations terms and definitions ([ITU Recommendation System](https://www.itu.int/br_tsb_terms)).  **Business Intelligence**  Solutions based on Power BI and Google Analytics to extract statistics of ITU-T activities.  **SDG Mapping**  Automatic mapping of ITU-T activities with UN SDGs by evaluating semantic relevance of texts.  **Biography Self-Service System**  It aids event organizers in searching for experts and helps them maintain the invitees’ biography up to date on the event website.  **Voice Diarization**  Speaker’s voice recognition and segmentation from recorded meeting. | | | |
| **32-03** | **TSB Director to develop budget estimate to implement EWM Action Plan and include it in budget request to Council; and identify and review costs and benefits of the action items on a regular basis; and to report to each meeting of TSAG on the status of the Action Plan, including the results of the cost and benefit reviews;**  **and provide the executive authority, budget within TSB, and resources to execute the Action Plan with all possible speed (i. TSBDir 1)** | **Council 2017,**  **TSAG 2017, Ongoing** | **√** |  |
| The four-year rolling ITU-T Operational Plan (2018-2021), including resource requirements, was submitted to Council-2017 in document [C17/29](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0029). It was also submitted to TSAG May 2017 as [TSAG-TD53](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0053). | | | |
| **32-04** | **TSB to develop and disseminate guidelines for use of ITU-T EWM facilities and capabilities; with appropriate and ready access to electronic documentation for their work, including a global, unified and consolidated view of document traceability (resolves 1)** | **Ongoing** | **√** |  |
| A site dedicated to providing immediate support and professional advice for SharePoint collaboration sites users is continuously being updated and is available at: <https://extranet.itu.int/ITU-T/support/>.  A comprehensive support and FAQs page offering RGM tips and best practices, and a very detailed online user guide for the RGM System complete with videos is available at:  <http://itu.int/go/itu-t/rgm-guide>.  Information on the different Electronic Working Methods Services being provided by TSB is available and regularly updated at <https://www.itu.int/en/ITU-T/ewm>.  TSB developed [ITUSearch](https://www.itu.int/search), a mobile-friendly search engine covering all ITU documents, websites, publications, and other type of resources.  On average, 65,000 search requests are performed each month using ITUSearch. The latest version of the search engine released includes following menus:   * [All](https://www.itu.int/search#?target=All&ex=false&q=TSAG&fl=0): Search on all ITU resources with Sector, type of document and language filtering. * [Multimedia](https://www.itu.int/search#?target=Media&ex=false&q=TSAG&fl=0): Search on ITU Facebook and Twitter accounts posts. * [Social media](https://www.itu.int/search#?target=Social%20media): Search on ITU Flickr and YouTube accounts resources. * [Basic text](https://www.itu.int/search#?target=Base%20text&ex=false&q=Resolution%2032&fl=0&sector=t&group=all&collection=General): Specialized full text search on latest ITU and Sectors Assemblies and Conferences in force basic texts in the 6 (six) ITU official languages. | | | |
| **32-05** | **TSAG to act as the point of contact between the ITU‑T membership and TSB on EWM matters, in particular providing feedback and advice on the contents, prioritization and implementation of the Action Plan (resolves 2)** | **Ongoing** | **√** |  |
| TSAG RG-WM is handling matters concerning electronic working methods. TSAG is considering contributions from membership and feedback from ITU-T study groups on EWM. | | | |
| **32-06** | **TSB Director to provide a mobile‑friendly version of the ITU‑T website;**  **and to simplify and facilitate enhanced searching for documents and/or information, and in particular a classification mechanism and an enhanced search engine to extract documents and/or information that are related to a specific subject, topic or issue (resolves 1, i. TSBDir 1)** | **Ongoing** | **√** |  |
| To improve and simplify access to ITU-T resources and information, the following websites have been developed:   * [ITUSearch](https://www.itu.int/search), which allows search on all ITU resources, including meeting documents, publications and web pages. * [MyWorkspace](https://www.itu.int/myworkspace/), a personalized website for TIES users that provides easy access to the information and services most valued by ITU-T delegates; * [ICT Standards Landscape](https://www.itu.int/net4/ITU-T/landscape), which provides simplified lists of ICT standards developed by ITU-T and other SDOs, pertaining to the same topics; * [National Numbering Plans](https://www.itu.int/net4/ITU-T/nnp), a prototype that has been developed to ease access to the information.   All new (dynamic) ITU-T web pages are mobile-friendly. | | | |
| **32-07** | **TSB, in close collaboration with the ITU Telecommunication Development Bureau (BDT), should provide facilities and capabilities for EWM at ITU-T meetings, workshops and training courses, particularly to assist developing countries that have bandwidth limitations and other constraints, including remote participation and electronic access, such as via LINUX-based platforms;**  **and encourage participation of developing countries, by waiving, within the credits that the Council is empowered to authorize, any expenses for those participants, other than the local call or Internet connectivity charges (resolves 1)** | **Ongoing** | **√** |  |
| TSB deployed a Web conferencing tool called MyMeetings, based on open source solution ([BigBlueButton](https://bigbluebutton.org/)) to provide a high-quality online meeting experience, with real-time sharing of   * sound, * video (according to ITU-T H.264 standard), * presentations, * instant messaging (chat), * screen share, * raise hand, * captioning, * interpretation;   This solution was chosen for its flexibility, ease of use and customization.  This web-based solution:   * spares the user having to install a third-party application; * works on fixed and mobile devices thanks to its responsive design; * supports low bandwidth communications and VoIP; * uses ITU authentication mechanism; * is fully hosted on ITU premises;   It covers the following types of meetings:   * Open E-Meetings (accessible to all users); * Private E-Meetings (accessible to a selected number of users); * Restricted E-Meetings (restricted to registered users);   MyMeetings was sucessfully used since March 2020 as the main tool for all ITU-T Statutory meetings running in fully virtual mode due to the COVID-19 global pandemic.  It is available on the [MyWorkspace](http://www.itu.int/myworkspace/) platform (restricted to users with an ITU account) as an application called “MyMeetings”.  As of December 2021, since its implementation in January 2019, 4458 sessions with a total of 91330 connections from 156 different countries have been supported with this solution.  Additionally, in a continuous effort to improve working methods for our delegates, TSB also offers the Zoom conferencing tool mainly for non-formal/ad-hoc meetings. | | | |
| **32-08** | **ITU-T study groups to post all activities, procedures, studies and ITU-T SG reports on the ITU-T website so as to facilitate navigation to find all relevant information (resolves 1)** | **Ongoing** | **√** |  |
| All ITU-T study groups regularly post their activities, reports on their respective websites.  A website dedicated to ITU-T, Smart Sustainable Cities is available at: <https://www.itu.int/en/ITU-T/ssc>.  Reports on smart sustainable cities are available at: <https://www.itu.int/en/ITU-T/ssc/united/Pages/reports-SSC.aspx>  A website dedicated to ITU-T, Environment, Climate Change and Circular Economy is available at: <https://www.itu.int/en/ITU-T/climatechange>  A website dedicated to ITU-T activities on human exposure to electromagnetic fields (EMFs) due to radio systems and mobile equipment is available at: <https://www.itu.int/en/ITU-T/emf/Pages/default.aspx>  A website dedicated to the United for Smart Sustainable Cities (U4SSC) initiative is available at: <https://www.itu.int/en/ITU-T/ssc/united/>. All publications on the U4SSC deliverables are available at: <https://www.itu.int/en/ITU-T/ssc/united/Pages/publications-U4SSC.aspx>. Publications on ITU’s implementation of the U4SSC KPIs are available at: <https://www.itu.int/en/ITU-T/ssc/united/Pages/publication-U4SSC-KPIs.aspx>  A website dedicated to implementation of ITU Conformity and Interoperability (C&I) programme is available at: [www.itu.int/go/citest](http://www.itu.int/go/citest)  SG2 maintains a dedicated webpage on [International Numbering Resources](https://www.itu.int/en/ITU-T/inr/Pages/default.aspx) and a numbering resource [Application Monitor](https://extranet.itu.int/sites/itu-t/studygroups/2017-2020/sg2/SitePages/Numbering%20Applications%20Monitor.aspx), which provides up-to-date information on applications  under study.  SG9 maintains a dedicated webpage including all workshops organized to discuss the “[Future of TV](https://www.itu.int/en/ITU-T/studygroups/2017-2020/09/Pages/workshops.aspx)”. Also the webpages on the [Intersector Rapporteurs Groups](https://www.itu.int/en/irg/Pages/default.aspx) are maintained updated by the responsible SG secretariat and linked from the SG9 and other SG pages.  SG11 activities to combat counterfeit and stolen ICT equipment are listed on a dedicated [web page](https://www.itu.int/en/ITU-T/studygroups/2017-2020/11/Pages/counterfeit.aspx)  The Technical Papers on the Economic impact of OTTs, DFS Glossary and the Methodologies for valuation of spectrum agreed by SG3 are published on ITU-T publications website.  SG12 maintains a [dedicated webpage](https://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/resolution95.aspx) covering SG12 activities related to WTSA-16 Resolution 95.  SG13 maintains the [SG13 Chairman's blog](https://www.itu.int/en/ITU-T/studygroups/2017-2020/13/Pages/CB-Future-Networks.aspx) where the technical articles in the field of the SG written by the experts of the group are kept. Also it keeps [a dedicate webpage](https://www.itu.int/en/ITU-T/studygroups/2017-2020/13/Pages/Tutorial-on-QKD.aspx) with the records/slides of all Technical Tutorials given by experts to SG13. It keeps its surveys accessible from its frontpage and all its flipbooks under the Special Topics of the SG homepage.  SG15 maintains a dedicated web page for each lead SG role in addition to the main page of SG15.  SG16 maintains a dedicated web page for each lead SG role, linked from the main page of SG16.  SG17 maintains a [dedicated web page](https://www.itu.int/en/ITU-T/studygroups/2017-2020/17/Pages/mandate.aspx) for its mandate and lead SG role, linked from the main page of SG17. [SG17 webpage](https://www.itu.int/en/ITU-T/studygroups/2017-2020/17/Pages/default.aspx) contains a wealth of easily accessible information on its work available to the public. | | | |
| **32-09** | **TSAG to identify user needs and plan the introduction of suitable measures through appropriate subgroups and pilot programmes (resolves 2)** | **TSAG** | **√** |  |
| TSB, when developing and piloting EWM tools and providing EWM services, is considering diverse user needs; see also 32-01, 32-02, 32-06, and 32-07; TSB does not see any additional needs for TSAG to create additional subgroups.  TSAG established [AHG on Governance and Management of E-meetings (AHG-GME)](https://www.itu.int/ifa/t/2017/tsag/exchange/AHG-GME/), which is identifying an initial set of issues that will form the basis for future studies with respect to detailing the governance and management of e-meetings. | | | |
| **32-10** | **TSAG to request study group chairmen to identify EWM liaisons (resolves 2)** | **TSAG 2020** | **√** |  |
| * SG13 EWM focal point is the SG13 Chairman. * SG15 EWM team meets regularly at every SG15 meeting and sends a Liaison to TSAG to report its activities. | | | |

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# Resolution 34 - Voluntary contributions

**Resolution 34**

resolves

1 to encourage the financing of specific projects, focus groups or other new initiatives, including any activities which help achieve the objectives of Resolution 44 (Rev. Dubai, 2012) of this assembly, on bridging the standardization gap, by voluntary contributions;

2 to invite Sector Members and Associates to finance voluntarily the participation of developing countries, and in particular remote participation using electronic working methods, in ITU-T meetings and workshops;

3 to invite Member States, Sector Members and Associates from both developing and developed countries to submit to the Director of the Telecommunication Standardization Bureau projects and other initiatives of interest for ITU‑T to be financed under voluntary contributions.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **34-01** | **TSB to solicit voluntary contributions for specific activities, e.g., projects, meetings, workshops, EWM** | **Ongoing** | **√** |  |
| Over the period mid October 2016 to February 2017, the Ministry of Science and ICT (MSIT) of Korea (Rep. of) has made a contribution to the BSG Fund. TSB is encouraging other voluntary contributions to the BSG Fund.  Over the period March 2017 until January 2018, the Ministry of Science and ICT (MSIT) of Korea (Rep. of) has made a contribution to the BSG Fund. TSB is encouraging other voluntary contributions to the BSG Fund.  Over the period February 2018 until July 2019, the Ministry of Science and ICT (MSIT) of Korea (Rep. of) has made a contribution to the BSG Fund. TSB is encouraging other voluntary contributions to the BSG Fund.  Over the period August 2019 until January 2020, the Ministry of Science and ICT (MSIT) of Korea (Rep. of) and the Telecommunications Regulatory Authority (TRA), UAE have made contributions to the BSG Fund. TSB is encouraging other voluntary contributions to the BSG Fund.  Over the period January to August 2020, various entities have made contributions to specific activities (AI, FNC, ITU AI/ML in 5G Challenge and U4SCC).  Over the period September 2020 to September 2021, various entities have made contributions to specific activities (AI, FNC, BSG and U4SCC).  Over the period October 2021 until December 2021, various entities have made contributions to specific activities (AI and U4SCC). | | | |
| **34-02** | **TSB presentations at workshops, regional meetings and other promotional events to include encouragement of voluntary contributions to fund new initiatives (also see** [**Resolution 44**](#Item44_01)**)** | **Ongoing** | **√** |  |
| TSB prepared a slide on encouragement of voluntary contributions; this slide is included in the TSB workshop package since August 2018. | | | |

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# Resolution 35 - Appointment and maximum term of office for chairmen and vice chairmen of study groups of the Telecommunication Standardization Sector and of the Telecommunication Standardization Advisory Group

**Resolution 35**

resolves

1 that candidates for the posts of chairmen and vice-chairmen of the ITU-T study groups and candidates for the posts of chairman and vice-chairmen of TSAG should be appointed according to the procedures given in Annex A, the qualifications given in Annex B and the guidelines given in Annex C to this resolution and *resolves* 2 of Resolution 58 (Rev. Busan, 2014);

2 that candidates for the posts of study group chairmen and vice-chairmen and candidates for the posts of chairman and vice-chairmen of TSAG should be identified, taking into account that, for each study group and for TSAG, WTSA will appoint the chairman and only the number of vice-chairmen deemed necessary for the efficient and effective management and functioning of the group in question, applying the guidelines given in Annex C;

3 that nominations for the posts of study group chairmen and vice‑chairmen or for a post of chairman and vice‑chairmen of TSAG should be accompanied by a biographical profile highlighting the qualifications of the individuals proposed, taking into careful consideration continuity in participation in ITU-T study groups or TSAG, and that the Director of the Telecommunication Standardization Bureau will circulate the profiles to the heads of delegation present at WTSA;

4 that the term of office for both chairmen and vice-chairmen should not exceed two terms of office between consecutive assemblies;

5 that the term of office in one appointment (e.g. as a vice-chairman) does not count towards the term of office for another appointment (e.g. as a chairman) and that steps should be taken to provide some continuity between chairmen and vice-chairmen;

6 that the interval between assemblies during which a chairman or vice-chairman is elected under No. 244 of the Convention does not count towards the term of office,

resolves further

1 that vice-chairmen of TSAG and study groups should be encouraged to assume the leadership role of activities in order to ensure equitable distribution of tasks and to achieve greater involvement by the vice-chairmen in the management and work of TSAG and the study groups;

2 that the appointment of vice-chairmen of study groups should be limited to three candidates from each region, taking into account Resolution 70 (Rev. Busan, 2014) and *resolves* 2 of Resolution 58 (Rev. Busan, 2014), to ensure equitable geographical distribution among the ITU regions so as to ensure that every region is represented by not more than three competent and qualified candidates,

invites Member States and Sector Members

1 to support their successful candidates for such posts in ITU-T, and support and facilitate their task during their term of office;

2 to promote the nomination of women candidates for the posts of chairmen and vice-chairmen of the ITU-T study groups and for the posts of chairman and vice-chairmen of TSAG.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **35-01** | **TSB Director to issue Circular soliciting candidates for SG chairmen and vice chairmen, especially to make the BSG responsibilities known before the appointment of chairmen/vice-chairmen of TSAG and ITU-T study groups (see also** [**Resolution 44**](#Item44_01)**) and to encourage women experts (see also** [**Resolution 55**](#Item55_01)**)** | **2021** | **√** | **√** |
| [TSB Circular 202](http://www.itu.int/md/T17-TSB-CIR-0202) and Corrigendum 4 “Candidates for chairmen and vice-chairmen of ITU-T study groups, the Telecommunication Standardization Advisory Group (TSAG) and the Standardization Committee for Vocabulary (SCV) for 2021-2024” are posted. | | | |

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# Resolution 40 - Regulatory aspects of work of the ITU Telecommunication Standardization Sector

**Resolution 40**

resolves

1 that, when determining whether a Question or Recommendation has policy or regulatory implications, particularly Questions or Recommendations which relate to tariff and accounting issues, study groups shall more generally consider possible topics such as:

– the right of the public to correspond;

– protection of telecommunication channels and installations;

– use of the limited numbering and addressing resources;

– naming and identification;

– secrecy and authenticity of telecommunications;

– safety of life;

– practices applicable to competitive markets;

– misuse of numbering resources; and

– any other relevant matters, including those identified by a decision of Member States, or recommended by TSAG, or Questions or Recommendations where there is any doubt about their scope;

2 to request TSAG to consult Member States on any relevant issues other than those specified above;

3 to instruct TSAG to study and identify the operational and technical areas related to quality of service/quality of experience (QoS/QoE) of telecommunications/information and communication technologies that might have policy and regulatory nature, taking into account the studies being carried out by the relevant study groups, and report that to the next WTSA,

invites Member States

to contribute actively to the work to be carried out on this matter.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **40-01** | **Study Groups to consider the Resolution when determining whether a Question or Recommendation has policy or regulatory implications (resolves 1)** | **First SG meeting,**  **Ongoing** | **√** |  |
| * SG2 uses both TAP and AAP. WP1/2 (Numbering, naming, addressing, routing and service provision) uses TAP by default, whereas WP2/2 (Telecommunication management and network and service operations) uses AAP by default. * SG3 uses TAP as the default process. * SG5 took a decision at its first meeting in the study period that all its Recommendations will follow the AAP process as default. * SG9 uses the AAP as the default process. During this Study Period five TAP Recommendations related to “Embedded common interface for exchangeable CA/DRM solutions” were developed and approved (ITU-T J.1012-J-1015.1). * SG11 uses the AAP in general. TAP was used for new Recommendation on ENUM signalling architecture (ITU-T Q.3643) and combating counterfeit and stolen ICT devices (ITU-T Q.5050 and ITU-T Q.5051). * SG12 applied TAP for ITU-T E.805 (ex E.RQUAL) and E.805.1 (ex E.QoSMgtMod), both in Question 12/12. * SG13 took a decision at its first meeting in the study period that all its Question Recommendations will follow the AAP path as default. In November 2017 the approval process for one SG13 Recommendation was changed to TAP per Member States’ request. Three new work items in 2021 were agreed to be developed under TAP as those might have regulatory aspects (Y.MNS-DLT-fr, Y.DPI-IMM-PIB and Y.NRS-DLT-arch). * SG15 uses the AAP as the default process but uses TAP as appropriate (e.g., for Recommendations on power spectrum density on G.fast/G.mgfast, xDSL, PLC and home networking). * SG16 uses the AAP as the default process. ITU-T T.35, its only TAP Recommendation, has not been reviewed in almost 20 years. * SG17 at its first meeting reviewed and assigned the default approval process to all its Questions. In addition, the approval process of each Recommendation is assigned when it is proposed to be established. * SG20 uses the AAP as the default process but uses TAP as appropriate. SG20 applied TAP for Recommendations ITU-T Y.4471, Y.4559, Y.4908, Y.4421, Y.4809, Y.4559, Y.4908 and draft Recommendation ITU-T Y.4214 and Y.4215 and plans to apply TAP for the following work items Y.RA-PHE, Y.dt-ITS, Y.RMDFS, Y.energy-data, Y.IoT-SPWE, Y.UIM-cs-framework, Y.EMM-Reqts, Y.EV-charging, Y.IoT-SFFS, Y.IoT-Vreqs, Y.IoT-MCSI and Y.KPI-Flood. | | | |
| **40-02** | **TSAG to study and identify the operational and technical areas related to quality of service/quality of experience (QoS/QoE) of telecommunications/information and communication technologies that might have policy and regulatory nature and report that to the next WTSA (resolves 3)** | **TSAG 2021,**  **WTSA-20**  **Ongoing** | **√** | **√** |
| * In response to WTSA Resolution 95, a number of work items have been created in SG12 Question 12 (Operational aspects of telecommunication network service quality). * SG12 applied TAP for ITU-T E.805 (ex E.RQUAL; Strategies to establish quality regulatory frameworks) and ITU-T E.805.1 (ex E.QoSMgtMod; Quality of service operational strategy for improved regulatory supervision of providers of mobile telecommunication services), both in Question 12/12. * SG12 also agreed on an updated edition of Supplement 9 (Guidelines on regulatory aspects of QoS) to ITU-T E.800-series Recommendations, also in Question 12/12.   Resolution 40 (Rev. Hammamet, 2016) on “Regulatory aspects of work of the ITU Telecommunication Standardization Sector” instructs TSAG to study and identify the operational and technical areas related to quality of service/quality of experience (QoS/QoE) of telecommunications/information and communication technologies that might have policy and regulatory nature and report that to the next WTSA:  While TSAG did not study this issue, the subject matter of QoS/QoE has been studied by ITU-T SG12 as the lead study group on quality of service and quality of experience, but also in several other study groups such as in SG3, 13, 16 and 20, where QoS and/or QoE aspects have been studied in their respective domains. The approval processes for such texts on QoS/QoE vary and are selected on various criteria, where AAP is chosen when there are no regulatory or policy implications in the texts, and otherwise, TAP applies. The technical study groups decide the nature of the approval process for a QoS/QoE related on a case-by-case basis. | | | |

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# Resolution 43 - Regional preparations for world telecommunication standardization assemblies

**Resolution 43**

resolves to instruct the Director of the Telecommunication Standardization Bureau

to maintain the organization, within the financial limitations established by the Plenipotentiary Conference, of at least one regional preparatory meeting per region, the closest in time possible to the next WTSA, followed by an informal meeting of the chairmen and vice-chairmen of the regional preparatory meetings and other interested parties, to be held not earlier than twelve months prior to WTSA,

invites the Secretary-General, in cooperation with the Directors of the Bureaux of the three Sectors

1 to consult with Member States and regional and subregional telecommunication organizations on the means by which assistance can be provided in support of their preparations for future WTSAs, including support for the organization of a "Bridging the Standardization Gap Forum" per region to address major issues of the next WTSA of interest to developing countries[[2]](#footnote-3)1;

2 on the basis of such consultations, to assist Member States and regional and subregional telecommunication organizations in such areas as:

i) the organization of informal regional and interregional preparatory meetings, and formal regional preparatory meetings if a region so requests;

ii) the identification of major issues to be resolved by the next WTSA;

iii) the development of coordination methods;

iv) the organization of information sessions on expected work for WTSA;

3 to submit, no later than the 2013 session of the ITU Council, a report on feedback from Member States concerning WTSA regional preparatory meetings, their results and the application of this resolution,

invites Member States

to participate actively in the implementation of this resolution,

invites regional and subregional telecommunication organizations

1 to participate in coordinating and harmonizing the contributions of their respective Member States in order to generate common proposals where possible;

2 to convene, if possible, informal interregional meetings in order to arrive at interregional common proposals.

| Action Item | Action | Milestone | Periodic goals met | Completed |
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| **43-01** | **TSB Director to organize, at the request of the region, at least one regional preparatory meeting per region for WTSA-20 between October 2019 and June 2020 (resolves)** | **2021** | **√** |  |
| The TSB Focal point for the Regions setup a webpage for the WTSA-20 regional preparatory meetings at <https://www.itu.int/en/ITU-T/wtsa20/prepmeet/Pages/default.aspx>. Another webpage was established to further extend and facilitate the dialogue with and across the Regions. The new page is “WTSA-20 Inter Regional Coordination” and can be found [here](https://www.itu.int/en/ITU-T/wtsa20/irc/Pages/default.aspx).  TSB participated and contributed to the preparatory work and over the Study Period assisted in the process of the Regional Preparatory Meetings with the Regional Organizations, and when necessary, with the assistance and in close cooperation with the ITU Regional Offices as necessary.  The process of regional preparatory meetings for WTSA-20 has started in 2019. The following meetings took place:  **AFRICA – ATU**   * ATU-1, 4 - 7 March 2019, Rabat, Morocco * ATU-2, 7 - 11 October 2019, Entebbe, Uganda * ATU coordination meeting for WTSA-20 preparation: 11 - 13 February 2020, Geneva, Switzerland, (in side-line with the TSAG meeting) * ATU-3, 28 - 30 July 2020, virtual meeting * ATU-4, 27 September - 1 October 2021, virtual meeting.   **AMERICAS – CITEL**   * 35th meeting of PCC.I Working Group for the preparation and follow-up of WTSA, WCIT and WTDC, 3 October 2019, Asunción, Paraguay * 36th meeting of COM/CITEL, 4-6 December 2019, Buenos Aires, Argentina * 36th meeting of PCC.I, 20 - 24 April 2020, virtual meeting * 37th meeting of PCC.I, 26 - 30 October 2020, virtual meeting * Virtual meeting of the Working Group for the preparation and follow-up of WTSA, WCIT and WTDC, 22 January 2021, virtual meeting * 38th Meeting of PCC.I, 28 ‐ 30 April 2021, virtual meeting * 39th Meeting of PCC.I, 4 - 8 October 2021, virtual meeting * WGCONF – CITEL PCC.I Working Group for the Preparation and follow-up of WTSA, WTDC and WCIT, 17 January 2022 (virtual meeting).   **ARAB STATES – LoS/ASTeam**   * 14th Arab Standardization team (ASTeam) meeting, 8 - 10 October 2019, Riyadh, Saudi Arabia * 15th ASTeam meeting, 15 - 16 April 2020, Virtual meeting * 16th ASTeam meeting, 2 September 2021, virtual meeting.   Other preparatory meetings are planned as following:   * ASTeam meeting, 6 – 9 December 2021 * ASTeam meeting, 6 – 9 February 2022 (exact dates to be confirmed).   **ASIA and the PACIFIC - APT**   * APT WTSA20-1, 11-15 June 2019, Tokyo, Japan * APT WTSA20-2, 13 - 15 May 2020, virtual meeting * APT WTSA20-3, 13 - 17 July 2020, virtual meeting * Virtual Interim Meeting of Working Groups of the APT WTSA-20, 18 - 21 August 2020 * Virtual Interim Meeting of Working Groups of the APT WTSA-20, 13 - 16 October 2020 * APT WTSA20-4, 16 - 20 November 2020, virtual meeting * APT WTSA20-e, Extra-ordinary meeting of APT preparatory meeting for WTSA-20, 17 - 19 November 2021 (virtual meeting)   **COMMONWEALTH OF INDIPENDENT COUNTRIES – RCC**   * Board of RCC Communication Administration Heads, 9 - 10 October 2018, Ashgabat Turkmenistan * Working Group on ITU of the RCC Commission on International cooperation coordination, 28 February 2019, Minsk, Belarus * RCC Commission on International cooperation coordination / Working Group on ITU of the RCC Commission on International cooperation coordination, 23 August 2019 (web-meeting) * RCC Commission on International cooperation coordination / Working Group on ITU of the RCC Commission on International cooperation coordination, 1 June 2020 (by correspondence) * RCC Telecommunications and Infocommunication Operators Board, 14 August 2020 (web-meeting) * RCC Commission on International cooperation coordination / Working Group on ITU of the RCC Commission on International cooperation coordination, 29 September 2020 (web-meeting) * Working Group on ITU of the RCC Commission on International cooperation coordination, 8 December 2020 * RCC Commission on International cooperation coordination / Working Group on ITU of the RCC Commission on International cooperation coordination, 17 February 2021 * 40th/31st Joint Meeting of the RCC Commission on the Coordination of International Cooperation and the RCC Working Group on Work with ITU, 27 August 2021 * 32nd Meeting of the Working Group on the Work with ITU under the RCC Commission on International Cooperation Coordination, 19, 21 and 22 October 2021 * Board of RCC Communication Administration Heads, 23 - 24 November 2021 (Tashkent, Uzbekistan) * 41st/33rd Joint RCC Commission on the Coordination of International Cooperation and the RCC Working Group on Work with ITU, December 2021 (exact dates to be confirmed), (hybrid meeting).   **EUROPE – CEPT**   * PT ITU-T meeting, 4 - 5 September 2019, Vilnius, Lithuania * PT ITU-T meeting, 21 - 23 January 2020, Copenhagen, Denmark * Com-ITU, 27 - 29 May 2020, virtual meeting * PT ITU-T meeting, 30 June - 1 July 2020, virtual meeting * PT ITU-T Web meeting, 24 August 2020 * PT ITU-T meeting, 8 - 9 September 2020, virtual meeting * Com-ITU meeting, 8 - 10 September 2020, virtual meeting * Com-ITU meeting, 10 November 2020, virtual meeting * Com-ITU meeting, 10 December 2020, virtual meeting * PT ITU-T meeting, 10 December 2020, virtual meeting * Com-ITU meeting, 20 – 22 January 2021, virtual meeting * PT ITU-T meeting, 1 - 3 March 2021, virtual meeting * PT ITU-T meeting, 5 - 7 May 2021, virtual meeting * Com-ITU meeting, 21 - 23 June 2021, virtual meeting * PT ITU-T meeting, 21 - 23 June 2021, virtual meeting * Com-ITU meeting, 13 September (PM) - 15 September 2021, virtual meeting * PT ITU-T meeting, 15 September 2021, virtual meeting * PT ITU-T Meeting, 19 October 2021 (AM), virtual meeting * Com-ITU Meeting, 22 - 25 November 2021, virtual meeting * PT ITU-T Meeting, 22 – 25 November 2021, virtual meeting   Other preparatory meetings are planned as following:   * PT ITU-T Meeting, 7 January 2022 (virtual meeting) * Com-ITU Meeting, 25 – 28 January 2022(virtual meeting) * Com-ITU Meeting, 15 - 18 February 2022 (virtual meeting) | | | |
| **43-02** | **TSB Director to invite Secretary General to consult Member States and regional telecommunication organizations on the means by which their preparations for WTSA-20 can be supported, including support for a Bridging the Standardization Gap Forum per region.** | **2021** | **√** |  |
| After WTSA-16, the strategy of organizing regional meetings, co-located with other events, has greatly been enhanced and was implemented to a great extent, allowing further coordination and increasing efficiency and lowering duplications of efforts. | | | |

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# Resolution 44 - Bridging the standardization gap between developing and developed countries

**Resolution 44**

resolves

1 that the action plan annexed to this resolution, having the objective of bridging the standardization gap between developed and developing countries, should be continued and be reviewed on an annual basis to take into account the requirements of developing countries;

2 that ITU-T, in collaboration with the other Sectors, especially the ITU Telecommunication Development Sector (ITU‑D), as appropriate, shall develop a programme to:

i) assist developing countries in developing strategies and methods that facilitate the process of linking innovations to the standardization process;

ii) assist developing countries in developing means to align their national industrial and innovation strategies towards the goal of achieving highest impact on their socio-economic ecosystems;

iii) assist developing countries on developing strategies in establishing national/international test laboratories for emerging technologies;

3 that, subject to Council approval, there should be free online access to the manuals, handbooks, directives and other ITU material related to understanding and implementation of ITU‑T Recommendations, particularly in the area of developing planning, operation and maintenance of telecommunication equipment and networks;

4 to support, within available or otherwise contributed resources, and on a case-by-case basis, the coordinated creation of regional groups of ITU-T study groups, and encourage cooperation and collaboration of these groups with other regional standardization entities;

5 to maintain in the annual budget of the Union a separate expenditure line item for bridging the standardization gap activities, while at the same time voluntary contributions should be further encouraged;

6 that interpretation shall be provided, based on the requests of participants, at all study group and working party plenary meetings and the entire meeting of TSAG,

further resolves that ITU regional offices

1 be engaged in the activities of TSB in order to promote and coordinate standardization activities in their regions so as to support the implementation of the relevant parts of this resolution and carry out the objectives of the action plan, launch campaigns to attract new Sector Members, Associates and academia from developing countries to join ITU-T, and provide the necessary assistance to the regional groups of ITU‑T study groups;

2 assist, within the offices' budgets, the vice-chairmen appointed with specific responsibilities, including, among others, the following:

i) closely work with ITU members in the region in order to mobilize them to participate in ITU standardization activities to assist in bridging the standardization gap;

ii) make mobilization and participation reports to the ITU body concerning the region;

iii) prepare and submit a mobilization programme for the regions that they represent at the first meeting of TSAG or a study group and send a report to TSAG;

iv) inform ITU members of programmes and initiatives within ITU-D that could assist in bridging the standardization gap;

3 organize and coordinate the activities of the regional groups of ITU-T study groups,

invites the Council

1 in view of the above *resolves*, in particular *resolves*6, to increase the ITU-T budgetary provisions for fellowships, interpretation and translation of documents for meetings of TSAG, ITU-T study groups and regional groups of ITU-T study groups,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the Radiocommunication Bureau and the Telecommunication Development Bureau

within available resources

1 to continue implementing the objectives of the action plan annexed to this resolution;

2 to encourage the formation of partnerships under the patronage of ITU‑T as one of the means for financing and implementing the objectives of the action plan annexed to this resolution;

3 to consider, whenever possible, holding workshops concurrently with meetings of the ITU‑T regional groups, in coordination and collaboration with the Director of BDT;

4 to assist developing countries with their studies, particularly in respect of their priority questions and towards developing and implementing ITU-T Recommendations;

5 to continue the activities of the implementation group established within TSB to organize, mobilize resources, coordinate efforts and monitor work related to this resolution and the associated action plan;

6 to carry out the necessary studies on the role of innovation management and innovation stimulation programmes on bridging the standardization gap between the developed and developing countries;

7 to include in the TSB budget proposal to the Council funds identified for the implementation of this resolution, taking into account financial constraints and existing and planned BDT activities;

8 to report on the implementation of this plan to future world telecommunication standardization assemblies and plenipotentiary conferences, with a view to reviewing this resolution and introducing the appropriate amendments in the light of implementation outcomes, as well as the budgetary adjustments needed;

9 to provide support and assistance to developing countries, if requested, in drafting/developing a set of guidelines on the application of ITU‑T Recommendations at the national level in order to enhance their participation in ITU-T study groups, with the assistance of the ITU regional offices, for bridging the standardization gap;

10 to enhance the use of electronic channels such as webinars or e-learning for education and training on the implementation of ITU-T Recommendations;

11 to provide support and all necessary measures for creating and ensuring the smooth functioning of the regional groups and to facilitate the organization of regional group meetings and workshops for disseminating information and increasing understanding of new Recommendations, in particular for developing countries;

12 to report on the effectiveness of the regional groups to the Council;

13 to conduct workshops and seminars, as appropriate, for disseminating information and increasing understanding of new Recommendations and implementation guidelines for Recommendations, in particular for developing countries;

14 to provide remote participation, where possible, for more ITU‑T workshops, seminars and forums, encouraging greater participation by developing countries;

15 to leverage existing ITU‑D platforms, such as the Global Innovation Platform, in order for developing countries to have greater involvement in ITU‑T's standardization work;

16 to study the possibility of generating additional revenue for ITU‑T activities on bridging the standardization gap, through identifying new financial resources not related to the voluntary contributions mentioned above,

instructs study groups of the ITU Telecommunication Standardization Sector and the Telecommunication Standardization Advisory Group

1 to be actively involved in the implementation of the programmes set forth in the action plan annexed to this resolution;

2 to consider including implementation guidelines for ITU‑T Recommendations where these could provide advice to assist developing countries in adopting them, with emphasis on Recommendations having regulatory and policy implications;

3 to coordinate joint meetings of regional groups of ITU-T study groups,

further instructs the study groups

1 to take account of the specific characteristics of the telecommunication environment of the developing countries in the process of establishing standards in the fields of planning, services, systems, operation, tariffs and maintenance, and to provide solutions/options relevant to developing countries wherever possible;

2 to take appropriate steps to have studies carried out on questions connected with standardization which are identified by WTDCs;

3 to continue liaising with ITU‑D study groups, where appropriate, when developing new or revised ITU-T Recommendations, on the specific needs and requirements of developing countries, in order to broaden the appeal and applicability of the Recommendations in those countries;

4 to identify the challenges that developing countries are facing with a view to bridging the standardization gap among Member States,

invites the Director of the Telecommunication Standardization Bureau

1 to work closely with the Directors of BDT and the Radiocommunication Bureau (BR) in order to encourage the formation of partnerships under the patronage of ITU-T as one of the means for financing the action plan;

2 to consider, whenever possible, holding workshops concurrently with meetings of the ITU-T regional groups, in coordination and collaboration with the Director of BDT,

invites regions and their Member States

1 to pursue the creation of regional groups of parent ITU-T study groups in their respective regions in accordance with *resolves* 4 of this resolution and Resolution 54 (Rev. Hammamet, 2016) of this assembly, and to support their meetings and activities, as appropriate, in coordination with TSB;

2 to take an active part in the activities of the ITU-T regional groups and support regional organizations in setting up regional frameworks for the development of standardization activities;

3 to create regional standardization bodies, as appropriate, and encourage joint and coordinated meetings of such bodies with the regional groups of the ITU-T study groups in the respective regions, so that these standardization bodies act as an umbrella for such regional group meetings;

4 to develop draft terms of reference and working methods for regional groups, for approval by the parent study group;

5 to share information on utilizing ITU‑T Recommendations,

encourages Member States and Sector Members

to take the objectives set out in the action plan in the annex to this resolution into account in their participation in ITU‑T.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **44-01** | **TSB to continue maintaining the BSG action plan in annex of Res. 44 and be reviewed by TSAG on an annual basis (resolves 1)** | **TSAG 2021,**  **Ongoing** | **√** |  | |
| The intersectoral task force is working on monitoring progress of implementation of Action Plan in Resolution 44.  [TSAG-TD610](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0610), and [TD727](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0727)-R1 provide an overview of the activities carried out under the purview of WTSA-16 Resolution 44. | | | | |
| **44-02** | **TSB to develop a programme to assist developing countries to develop methods, strategies, and means to link national innovations to standardization process (resolves 2)** | **Ongoing** | **√** |  | |
| * SG13 at its February 2017 meeting, reconfirmed the SG13 mentor. SG13 established the new work item Supplement Y.STS on *Development of socio-technical standards and their requirements* to look at the needs of developing countries from the perspective of required standardization. Later in 2018 it was turned into a Recommendation. A new Supplement on *Awareness on Use Cases and Migration Aspects of IMT-2020* was set up to help developing countries to implement 5G. It was agreed in July 2020 as Supplement 64 to Y.3100-series. Likewise Supplement 65 to ITU-T Y.3600-series (agreed in July 2020) gives guidance/shares experience about big data adoption in developing countries. In addition, the new technical report on use of ITU-T Recommendations by developing countries was approved in July 2020. * SG17 at its March 2017 meeting, appointed an SG17 mentor. * The [revised Guidelines](https://www.itu.int/en/ITU-T/gap/Documents/nss-rep-may.pdf) on establishing NSS were published in 2019. | | | | |
| **44-03** | **TSB Director to assist developing countries on developing strategies in establishing national/international test laboratories for emerging technologies (resolves 2, iii)** | **Ongoing** | **√** |  | |
| A Guideline on strategies in establishing national/international test laboratories for emerging technologies is currently under development. | | | | |
| **44-05** | **TSB further encourage voluntary contributions to the bridging the standardization gap fund (see also** [**Resolution 34**](#Resolution_34)**) (resolves 4)** | **Ongoing** | **√** |  | |
| TSB Director reports (TSAG-TD24, TD123) contain statements encouraging other voluntary contributions to the BSG Fund. | | | | |
| **44-11** | **SGs to take account of specific characteristics of telecommunication environment in developing countries, and provide solutions/options relevant to developing countries wherever possible. (f.i. SGs 1)** | **Ongoing** | **√** |  | |
| SGs review contributions from developing countries and derive requirements and/or studies based on the inputs received.   * Thus far, over 30 hands-on BSG trainings have been held for more than 700 delegates, representing 86 countries and 94 organizations. With the advent of the COVID-19 pandemic, since March 2020, 14 virtual BSG trainings have been organized for 354 delegates representing 40 countries and 56 organizations. * SG2: The continuation of the Ad hoc group on developing country issues was agreed at the SG2's first meeting (29 March to 7 April 2017) in this study period and the Ad hoc group met during all multi-day SG2 meetings. SG2RG-AFR was created in 2017 at the SG2 meeting of 27 November to 1 December 2017 and eventually met four times during the study period. SG2RG-AMR met three times during the study period, and SG2RG-ARB met four times. * SG3, through its five regional groups, is addressing the needs of developing countries within its mandate. As per Section 9.2 of WTSA Resolution 1, two regional Recommendations (ref. [ITU-T D.606R](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=325) and [ITU-T D.607R](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14367)) have been approved and one regional Recommendation has been determined. * SG5 held a Bridging the Standardization Gap (BSG) Hands-on Training Session for delegates from developing countries on Tuesday, 16 May 2017. During the ITU-T SG5 meeting (11-21 September 2018), a Bridging the Standardization Gap training to the SG5 Regional Group Chairmen was held on Friday 14 September 2018. The training provided an overview on how to strengthen the work of the Regional Groups. SG5 through its four regional groups is addressing the needs of developing countries. SG5 and SG20 organized a Bridging the Standardization Gap Training on "How to draft international standards" on 27 August 2019 in Abuja, Nigeria. The training was held during the 1st Digital African Week. * SG9 established a specific Question (Q4/9) to take into account studies related to developing countries. Contributions to SG9 from developing countries are increasing since the last Study Period and this allows taking into account developing countries needs when drafting ITU-T Recommendations. SG9 approved a Recommendation specifically addressing developing countries needs and established a related new subseries as follows: “J.1400-J.1409 - Television transport network and system deployment in developing countries” We expect the trend to continue in next Study Period. SG9 was planning a meeting in Gambia, Africa in September 2020 but it had to be postponed to the next Study Period due to COVID-19. SG9 will try again to organize a meeting in Africa in next Study Period with a co-located workshop on “The future of TV for Africa”. * SG11 approved the technical report QTR-CICT "Survey report on counterfeit ICT devices in Africa region". SG11 has organized regular BSG trainings, collocated with its meetings. The number of contributions from developing countries is stable. The third meeting of SG11RG-AFR took place in Tunis from 30 September – 2 October 2019 which was preceded by the ITU-T Study Group 11 Regional Workshop for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa”. According to received contributions from Africa region, SG11 started new work items on combating counterfeiting issues. The SG11RG-EECAT met in Saint Petersburg from 21-22 May 2019 and virtually on 20 October 2021. In total, seven contributions were submitted to the SG11 meeting following the results of those meetings. SG11 also organized the following virtual BSG training sessions: * 16 March 2021 * 30 November 2021 (together with ITU-T SG13) * SG12 and its regional group held several BSG hands-on training sessions. The January 2017 SG12 meeting saw various related contributions and consented four Recommendations of particular interest to developing countries. The meeting adopted an action plan on the implementation of Res. 95 (service quality), which is an item of great relevance to developing countries. In September 2017, SG12 requested TSB to disseminate a questionnaire on service quality regulatory frameworks via TSB Circular. Operating under SG12, the Quality of Service Development Group (QSDG) organized workshops on telecommunications service quality (back-to-back with SG12, SG12RG-AFR and QSDG meetings) in Geneva, Kigali and Singapore, QoS-themed webinars in 2020 and 2021. This included a workshop held entirely in Spanish targeting Spanish-speaking countries in Latin America. * SG13 has a regular BSG training alongside each of its RG-AFR and SG meetings. In addition, *a special training on technical Recommendations* was convened at the end of March 2018 alongside the SG13RG-AFR meeting. SG13 agreed the new Supplement 46 to Y.3500-seres “Scenarios of Implementing Cloud Computing in networks of developing countries”. At July 2018 meeting, SG13 agreed to dispatch two questionnaires\* designated to the developing countries with the aim to develop a Supplement on big data technologies implementation in developing countries and better shaping the work of Q5/13 “Applying networks of future and innovation in developing countries” (since 2021 titles is “Applying Future Networks and Innovation in Developing Countries”).   \*Questionnaire on use of ITU-T Recommendations in Developing Countries andQuestionnaire on Big Data Adoption in Developing Countries  See item 44-02 above. Also, SG13 in March 2019 set up a new SG13RG-EECAT, that at its first meeting in May 2019 in St Petersburg agreed to submit to SG13 5 proposals to start technical reports and Recommendations in SG13 of particular relevance to the countries from EECAT region. Furthermore, one of these new proposals was consented in December 2021 as new Recommendation ITU-T Y.3116 “Traffic typization IMT-2020 management based on an artificial intelligent approach”.   * SG15 had two work items to provide solutions to developing countries: "Optical fibre cables for direct surface application" (L.dsa) and "Criteria for optical cable installation with minimal existing infrastructure" (L.cci). L.dsa was approved as Recommendation ITU-T L.110 in August 2017. L.cci was approved as L.163 in November 2018). These Recommendations were promoted at WSIS Forum 2019 and Telecom World 2019 exhibiting manufactured cables according to Recommendation ITU-T L.110. SG15 organized a session “Bridging the digital divide: how ITU-T standards enable installation of optical fibre cable in remote areas” for WSIS Forum 2020 to promote standards on optical fibre for developing countries (ITU-T L.110, L.163 and L.1700). Details are at <https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/267>. A delegate from SG15 participated in WSIS2021 sessions “WSIS Stocktaking Series: The Coronavirus Response – ICT Case Repository” (twice – 3 February and 9 March 2021) and “WSIS Stocktaking Interactive Session” (21 May 2021). * SG17 at its first and second meetings organized the special session on addressing contributions from developing countries. SG17 has also organized BSG-hands-on trainings for delegates from developing countries. Creation of a SG17 Regional Group for the Arab Region was endorsed by SG17 March 2017 meeting. Since 2018, SG17 at each of its physical meetings organized the gathering of delegates from African region and Arab States respectively to facilitate the planning of these two regional groups of SG17. Virtual gathering of delegates from Africa was organized by SG17RG-AFR Chairman during SG17 virtual meetings in 2020 and 2021. A virtual SG17RG-AFR meeting was held on 28 September 2021 during ATU preparatory meeting for WTSA-20. * SG20 at its first meeting created four Regional Groups:   + ITU-T SG20 Regional Group for Eastern Europe, Central Asia and Transcaucasia   + ITU-T SG20 Regional Group for the Latin America Region   + ITU-T SG20 Regional Group for the Africa Region   + ITU-T SG20 Regional Group for the Arab Region.   SG20 is working on draft Recommendation ITU-T Y.SRC “Requirements for deployment of smart services in rural communities”, ITU-T Y.smart-evacuation “Framework of smart evacuation during emergencies in smart cities and communities” and ITU-T Y.isms “Technical framework for disaster monitoring system”.  SG20 organized a Bridging the Standardization Gap session on Internet of things (IoT) on 6 May 2018, Cairo Egypt. This session preceded the SG20 meeting (6-16 May 2018).  SG20 and its Regional Groups regularly organize Bridging the Standardization Gap training sessions collocated with their meetings.  The SG20RG-LATAM meeting took place on 11 and 12 September 2019 in El Salvador. A one-day Bridging the Standardization Gap (BSG) hands-on training session was held on 12 September 2019. SG20 has organized three virtual BSG training sessions:   * 17 June 2020 (together with ITU-T SG16) * 6 May 2021 (together with ITU-T SG5) * 4 October 2021 * The Green Standards Week 2018 was held in Zanzibar, Tanzania from 9 to 12 April 2018. During the GSW the following Regional Groups meeting took place:   + ITU-T Study Group 5 Regional Group for Africa (SG5RG-AFR)   + ITU-T Study Group 5 Regional Group for the Arab Region (SG5RG-ARB)   + ITU-T Study Group 20 Regional Group for Africa (SG20RG-AFR). * The [First Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx) took place from 27 to 30 August 2019 in Abuja, Nigeria. The following events and Regional Group meetings will take place:   + Bridging the Standardization Gap Training on "How to draft international standards", 27 August 2019 (morning only). * ITU-T Study Group 20 Regional Group for Africa (ITU-T SG20RG-AFR) meeting, 27-29 August 2019. * Training on "Smart Sustainable Cities, Products and Services", 27 August 2019 (afternoon only). * ITU Forum on "Smart Sustainable Africa", 28 August 2019. * ITU-T Study Group 5 Regional Group for Africa (ITU-T SG5RG-AFR) meeting, 29-30 August 2019. * Forum on "Human Exposure to Electromagnetic Fields (EMFs) in Africa", 29 August 2019 (afternoon only). * ITU Training on "E-waste Management and Circular Economy", 30 August 2019 (morning only). * The [SG20RG-AFR meeting](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/sg20rgafr/Pages/default.aspx) that took place on 03 June 2021 was preceded by the [Virtual Forum on “Accelerating Digital Transformation in Africa”](https://www.itu.int/en/ITU-T/climatechange/Pages/20210602.aspx) took place on 02 June 2021. | | | | |
| **44-12** | **SGs to continue liaise with ITU-D SGs, to assist developing countries with their priority questions for studies, such as identified by WTDC. (f.i. SGs 2)** | **Ongoing** | **√** |  | |
| * SG2 liaised with ITU-D SG1 and SG2 on mapping of Questions, and liaised with ITU-D SG2 on ongoing collaboration, topics of interests of developing countries, including numbering misuse, calling party number delivery and national emergency telecommunication system in developing countries. * SG3 liaised with ITU-D SG1 and SG2 on mapping of Questions. SG3 received several incoming liaison statements from the ITU Development Sector on subjects such as inter-sector coordination, on economic issues, on OTT, on draft ITU-T D.266 (D.OTTMNO), and on contribution related to Universal Services Fund for telemedicine and electronic health projects, and sent liaison replies to ITU-D SG1 Q4/1 on matters of shared spectrum, and replied to ITU-D SG1 Q3/1 for continued collaboration, to ITU-D SG1 and ITU-D SG2 on inter-Sector coordination. * SG5: Regular exchange of LSs on ICT, climate change, EMF and circular economy (including e-waste). * SG9 regularly exchanges LSs related to cable TV issues and accessibility to cable TV with ITU-D SGs fostering collaboration and coordination. Particularly SG9 involves systematically the ITU-D SGs in the thematic workshops-series on the future of TV in the regions. * SG11 regularly exchanges LSs related to conformance and interoperability issues, combating counterfeiting and disaster relief. * SG12: Active exchange of liaisons and information on network performance, QoS and QoE with ITU-D study groups. SG12: consented in January 2017, Amendment 1 to Recommendation ITU-T E.802 incorporating Annex A, which provides guidance on the selection of representative samples in the measurement of QoS parameters. The guidance takes into account these technical (statistical) and operational (practical QoS data collection) conditions by proposing a simple random sampling methodology. The amendment also adds Appendices IV and V with additional information on the implementation of the sampling algorithm included in Annex A, and on the use of sample-based QoS parameters. Work on this Amendment, which includes a software attachment, was largely driven by a delegate from Lesotho in order to increase the usability of E.802 in the day-to-day work of a regulator. Collaboration with BDT programmes on QoS, QoE and performance (e.g., ITU Academy), based on ITU-T Recommendations developed by SG12. * SG13 nominated a liaison rapporteur for ITU-D, Mr Fidelis Onah (Nigeria). It also informs on a regular basis the ITU-D Q3/1 about cloud computing work at SG13. A brief introduction of the IMT-2020 roadmap and JCA-IMT2020 work in SG13 was given at the ITU-D SG2 meeting in October 2020. The joint workshop with ITU-D was organized alongside the May 2019 SG13RG-EECAT meeting in St Petersburg, Russia. * SG15: Regular exchange of LSs on telecommunication network infrastructure. In particular, SG15 sends Liaisons to ITU-D SGs 1 and 2, ITU-R SGs 1, 5 and 6 as well as to TSAG on ITU inter-Sector coordination on its lead SG activities. * SG16: Regular exchange of LSs in particular on accessibility and e-health. * SG17 sent Liaisons to ITU-D SG1 and 2, TDAG in support of WTDC-14/WTDC-17 Resolutions and ongoing collaboration with ITU-D Q3/2 and Q9/2; to ITU-R SG4 and 5, as well as to TSAG on ITU inter-Sector coordination and SG17 lead SG activities. * SG20: Regular exchange of liaison statements on Internet of things (IoT) and smart cities & communities. * The Green Standards Week 2018 and 2019 was coordinated with the Regional offices of Africa and the Arab region and BDT. * The First Digital African Week (27-30 August 2019) was coordinated with the Regional office for Africa. | | | | |
| **44-13** | **SGs and TSAG to consider including implementation guidelines for ITU‑T Recommendations where these could provide advice to assist developing countries in adopting them, with emphasis on Recommendations having regulatory and policy implications. (i. SGs + TSAG 2)** | **TSAG 2021,**  **Ongoing** | **√** |  | |
| Study groups will develop implementation guidelines for new ITU-T Recommendations to enable developing countries to adopt them, based on received contributions. The ITU has developed guidelines for developing countries to establish standardization secretariats to better interface with ITU-T Study Groups to enhance their contributions to the ITU-T standardization process.   * SG9 Question 4/9 has published a supplement to J-series Recommendations: *(*[*J Suppl. 11*](https://www.itu.int/ITU-T/recommendations/index_sg.aspx?sg=9#:~:text=J%20Suppl.%2011%3A%20Guidelines%20for%20installing%20a%20digital%20television%20service%20for%20cable%20networks%20based%20on%20ITU%2DT%20Recommendations)*: Guidelines for installing a digital television service for cable networks based on ITU-T Recommendations)* which provides guidelines to be considered by developing countries that are planning to deploy fibre optic facilities and advanced digital transmission over hybrid fibre/coaxial (HFC) with the objective of introducing digital cable television services on their infrastructure. * SG11 agreed new Technical Report TR-SS7-DFS “SS7 vulnerabilities and mitigation measures for digital financial services transactions” and a Supplement 96 to ITU-T Q.series on framework for interconnection between VoLTE-based network and other networks supporting emergency telecommunications service (ETS). SG11 developed roadmap for the ITU-T Q.5050-series - Combat of counterfeit ICT and stolen mobile devices (Q Suppl.74) and developed ITU-T Q Suppl.73 “Guidelines for Permissive versus Restrictive System Implementations to address counterfeit, stolen and illegal mobile devices”. * SG12 has developed an application guide for Recommendation ITU-T P.863 (Recommendation ITU-T P.863.1). An application guide for Recommendation ITU-T E.804 (Recommendation ITU-T E.804.1) has also been adopted. * SG13: A new work item *Mechanism of identification of recommendations requiring implementation guidelines* was created in the work plan for Q5/13. Supplement 64 to ITU-T Y.3100-series of Recommendations “Awareness on Use Cases and Migration Aspects of IMT-2020” was agreed in July 2020.   In July 2020SG13 agreed an ITU-T Technical report ([SG13-TD306/PLEN](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG13-200720-TD-PLEN-0306)) “Use of ITU-T Recommendations by Developing Countries”, which presents the analysis and interpretation of the results of a questionnaire on use of ITU-T Recommendations in developing countries. See also item 44-02 above.   * SG15 publishes Supplements and technical reports to facilitate implementation. * SG16 develops guidelines to implement IPTV services, work advanced on [HSTP.IPTV-GUIDE.2](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14423) - IPTV service parameters for new IPTV service providers and completed in 2017 [HSTP-IPTV-GUIDE.1](https://www.itu.int/pub/T-TUT-IPTV-2017-GUIDE.1) - IPTV service deployment scenarios in high-speed broadband era. * SG17 August/September 2020 meeting finished revision of technical reports [2016 - XSTR-SUSS - Successful use of security standards](http://www.itu.int/pub/publications.aspx?lang=en&parent=T-TUT-SEC-2016) and [ITU-T Security Manual](https://www.itu.int/dms_pub/itu-t/opb/tut/T-TUT-SEC-2015-PDF-E.pdf). * SG20 is developing a Supplement on “Guidelines for digital inclusion in the development of digital urban technology and smart cities” (Y.Sup.digi-inc). SG20 develops and publishes Supplements and technical reports to facilitate implementation. * The May 2017 TSAG meeting considered and concluded on the issues, see TSAG R1 §17. * The December 2018 TSAG meeting considered a contribution in that context; see TSAG R3 §13. * The September 2019 TSAG meeting considered a contribution in that context; see TSAG R4 §12. | | | | |
| **44-14** | **SGs and TSAG to coordinate joint meetings of regional groups. (i. SGs + TSAG 3)** | **Ongoing** | **√** |  | |
| Meetings of Regional Groups are being held back-to-back, where they occur in the same region.   * SG2: SG2RG-AMR meeting on 7 March 2017 was co-located with SG3RG-LAC meeting from 6 to 10 March 2017 in Trinidad and Tobago. * SG2 Regional Group for the Americas and SG3 Regional Group for Latin America and the Caribbean were held back-to-back in March 2017. SG2 Regional Group for Africa, SG2 Regional Group for Arab States, and SG3 Regional Group for Arab States had a collocated meeting in Dubai, United Arab Emirates, 2019. In addition, these two groups held a joint virtual meeting on 17 May 2021. * SG2RG-AMR was co-located with SG3RG-LAC in Managua, Nicaragua in March 2019. * SG3 and SG20 regional groups for the Arab Region had collocated meeting from 19 to 22 November 2017. * SG3RG-ARB back-to-back with SG5RG-ARB in Kuwait City (Kuwait) were co-located in December 2018. * SG3-RGEECAT back-to-back with SG11-RGEECAT back-to-back with SG13-RGEECAT in Saint Petersburg, Russian Federation, in May 2019. * SG5 and SG3 regional group for the Arab Region had a collocated meeting from 17 to 20 December 2018 in Kuwait City, Kuwait. An ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World was held on 17 December 2018. * SG11RG-EECAT took place back-to-back with SG13RG-EECAT and SG3RG-EECAT in Saint-Petersburg from 21-22 May 2019. * SG12: Co-located SG12RG-AFR and QSDG meetings with Q12/12 Rapporteur Group Meetings and workshops on telecommunication service quality. * SG13 had co-located Regional Group (SG13RG-AFR) meeting with SG11 regional group in April 2017 in Africa. It also had another co-located Regional Group (SG13RG-EECAT) meeting with SG3RG-EECAT and SG11RG-EECAT in May 2019 in St Petersburg, Russia and SG13RG-AFR meeting collocated in time with SG20RG-AFR in June 2021 (both virtual events). * SG5 and SG20 regional groups for Latin America had a collocated meeting on 19 and 20 April 2018 in Cartagena de Indias, Colombia. * SG5 and SG20 regional groups for Africa and SG5 regional group for the Arab region had a collocated meeting from 9 to 12 April 2018 in Zanzibar, Tanzania during the Green Standards Week. * SG5 and SG20 regional group for Africa had a collocated meeting from 27 to 30 August 2019 in Abuja. * SG3 and SG20 regional group for Eastern Europe, Central Asia and Transcaucasia had a collocated meeting from 3-5 March 2020 in Minsk, Belarus. * SG17 has a regional group for Africa and a regional group for Arab Region. | | | | |
| **44-15** | **TSB Director to continue the activities of the Bridging the Standardization Gap (BSG) implementation group within TSB. (i. TSBDir 1)** | **Ongoing** | **√** |  | |
| The Intersectoral Task Force meets regularly to review progress on the implementation of WTSA-16 Resolution 44. Teleconference calls with the Directors of the ITU Regional Offices take place on a monthly basis. The Directors of the ITU Regional Offices are also invited to participate in the meeting of the BSG Task Force.  Thus far, over 30 hands-on sessions have been held for over 700 delegates, representing 86 countries and 94 organizations. There have also been tailored on-site sessions organized in Korea (Rep. of), Tunisia and India. These sessions focused on five key aspects: Strategy, Contribution, communication, Collaboration, and Consensus. | | | | |
| **44-19** | **TSB to assist requested developing countries to draft/develop a set of guidelines on the application of ITU-T Recommendations at the national level in order to enhance their participation in ITU-T SGs. (i. TBSDir 9)** | **Ongoing** | **√** |  | |
| TSB received a request by a member from a developing country on mobile roaming, and TSB is in the process of assisting that member. | | | | |
| **44-20** | **TSB to enhance the use of electronic channels such as webinars or e-learning for education and training on implementation of ITU-T Recommendations. (i. TBSDir 10)** | **Ongoing** | **√** |  | |
| The e-learning course on Recommendation ITU-T A.1: Working Methods of ITU-T study groups was launched in 2013. The main objectives of the e-learning course are to introduce the structures, management, coordination mechanisms and operating procedures of ITU-T study groups as defined in Recommendation ITU-T A.1.  Recommendation ITU-T A.1 describes general working methods for ITU-T study groups. It provides guidelines related to work methods, such as the conduct of meetings, preparation of studies, management of study groups, the role of Rapporteurs and the processing of ITU-T contributions and temporary documents. The course is intended for delegates participating in ITU-T study group meetings, especially new participants.  The course consists of six modules:   * Standardization in ITU-T * Managing the study groups * Coordination * Inputs to the study groups * Outputs of the study groups * Further infrastructure supporting the study group process   This course is currently in the process of being updated. Online video primers have also been developed and available on the BSG website at [www.itu.int/go/bridging](http://www.itu.int/go/bridging).  A second e-learning course was developed on **Introduction to Next Generation Networks (NGN).** The course provides an introduction to Next Generation Networks (NGN) and a better understanding of the drivers to migrate to NGN and possible influences on regulatory considerations, which are caused by technology innovation, especially impacts to the telecommunication regulatory frameworks.  The course is available on the ITU Academy website at <http://academy.itu.int>. | | | | |
| **44-21** | **TSB to provide support and all necessary measures for creation, organization of meeting and workshop of the regional groups to ensure their smooth functioning. (i. TSBDir 11)** | **Ongoing** | **√** |  | |
| Implemented in the context of [Action Item 44-24](#Item44_24) (see below). | | | | |
| **44-22** | **TSB Director to report the effectiveness of regional groups to the Council. (i. TSBDir 12)** | **Council 2017** | **√** | **√** | |
| TSB Director reported on the effectiveness of regional Groups to Council-17 ([C17/25](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0025)). TSB Director reported on the effectiveness of regional groups for bridging the standardization gap to Council-17 (C17/72, and C17/INF/9).  Regional Groups for ITU-T Study Groups have proven effective mechanisms to assist in bridging the standardization gap by stimulating effective participation in ITU-T Study Groups and increasing the number and quality of contributions from developing countries that could eventually lead to standards.  ITU-T now has 24 regional groups. | | | | |
| **44-23** | **TSB Director to work closely with BR and BDT Directors, to encourage partnership under the patronage of ITU-T as one of the means for financing the BSG action plan. (i. TSBDir 2)** | **Ongoing** | **√** |  | |
| BDT and BR are represented in the intersectoral Force as well as the Directors of the ITU Regional Offices. | | | | |
| **44-24** | **TSB to conduct BSG workshops and seminars for developing countries, concurrently with meetings of ITU-T regional groups if possible, in coordination/collaboration with ITU-D. (i. TSBDir 3)** | **Ongoing** | **√** |  | |
| SG13RG-AFR has a workshop alongside each of its meetings. It focuses on the areas of priority and top interest for the region.  A new strategy for the Standardization Forums was adopted under the BSG programme. These are now fully in line with the priorities of our study groups, and are mainly held in coordination with our regional groups. The Standardization Forums are also contributing in raising awareness of standards activities through the participation of key decision makers.  In 2017, 2018, 2019, and 2020 the following Forums were held:   * [ITU Regional Standardization Forum (RSF)](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg) on [“Smart sustainable cities: from concept to implementation”](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2020/03_Minsk/03_Minsk.aspx), Minsk, Belarus, 3 to 5 March 2020. * [7th SG13 Regional Workshop on "Standardization of future networks towards Building a better connected Africa"](https://www.itu.int/en/ITU-T/studygroups/2017-2020/13/sg13rgafr/Pages/default.aspx), 3-4 February 2020, Abuja, Nigeria. * [ITU Regional Standardization Forum (RSF) on “Addressing Competition Issues in ICT Economy”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201910/Pages/default.aspx), Colombo, Sri Lanka, 1 October 2019. * [ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends for an Inclusive, Sustainable and Trustworthy Digital World](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20190218/Pages/default.aspx), Antananarivo, Madagascar, 18 February 2019. * [ITU Inter-regional Standardization Forum on “Operational issues on numbering, emergency service and OTTs”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20191022/Pages/default.aspx), Dubai, United Emirates on 22 October 2019. * [ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20181217/Pages/default.aspx); Kuwait City, Kuwait, 17 December 2018. * [ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201806/Pages/default.aspx), X’ian, China, 27 August 2018 * [ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20180205/Pages/default.aspx), Kigali, Rwanda, 5 February 2018. * [ITU Regional Standardization Forum - Americas Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201703/Pages/default.aspx) (which focused on SG2 and SG3 topics), Port of Spain, Trinidad and Tobago, 6 March 2017, * [ITU Regional Standardization Forum -](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201710/Pages/default.aspx) Asia and Pacific Region (which focused on SG3 topics), Seoul, Korea (Rep. of), 24 October 2017, * [ITU Regional Standardization Forum - Arab Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/112017/Pages/default.aspx) (which focused on SG20 topics), Riyadh, Saudi Arabia, 19 November 2017, * 1st and 2nd [ITU Interregional Standardization Forum - Arab and African Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201712/Pages/default.aspx) on PKI for e-trust (Muscat, Oman, 11-12 December 2017; and, Tunis, Tunisia, 4-5 April 2019), * [ITU Regional Economic and Financial Forum of Telecommunications/ICTs for Africa](https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2017/Zimbabwe/home.aspx) (which focused on SG3 topics), Victoria Falls, Zimbabwe, 30-31 January 2017.   All SG12RG-AFR meetings concurred with QoS-themed seminars for developing countries.  Further the following events were held:   * [BSG Session on IoT](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20180506/Pages/default.aspx), Cairo, Egypt, 6 May 2018, * [BSG Interactive Workshop on Effectiveness in Standardization](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20180506/Pages/default.aspx), Tunis, Tunisia, 24 April 2018. | | | | |
| **44-26** | **TSB Director to consider implementation guidelines for ITU-T Recommendations where these could provide advice to assist developing countries in adopting them, with emphasis on Recommendations having regulatory and policy implications. (i. SGs 2)** | **Ongoing** | **√** |  | |
| Implemented in the context of [Action Item 44-28](#Item44_28) below. See also action item 44-13. | | | | |
| **44-28** | **TSB Director, in close collaboration with BDT and BR, providing training courses on standardization to developing countries. (i. TSBDir 13, 14)** | **Ongoing** | **√** |  | |
| The successful BSG hands-on effectiveness sessions are geared towards assisting developing countries in acquiring the right skills and capabilities for international standards-making and to draft contributions for ITU-T meetings. The sessions focus on the development of practical skills to maximize the effectiveness of developing countries' participation in the ITU-T standardization process, covering topics including relevant terms related to Study Group meetings, strategies for participation in study groups, drafting Contributions, presenting proposals, collaborative working methods and means of gaining support and building consensus. Over 30 BSG trainings and related sessions have organized and attended by over 700 delegates from 86 countries. Some of the training organized within this study period include:   * A BSG hands-on training was be offered to the delegates alongside SG13RG-AFR meeting at the end of March 2018 in Abidjan, Cote D’Ivoire. Additionally, SG13 has organized several BSG trainings during collocated with the SG meetings. * A BSG session was held on 27 January 2017 during the SG16 meeting (16-27 January 2017) in Geneva. * A joint BSG training was organized on 7 February 2017 for SG11 and SG13 in Geneva, Switzerland. SG11RG-AFR and SG13RG-AFR held a joint BSG training in Cairo, Egypt on 3 April 2017. * SG2RG-AMR and SG3RG-LAC organized a BSG training during their meetings, 9-10 February 2017 in Trinidad & Tobago. SG2 held another BSG session on 27 March 2017 in Geneva, Switzerland. * SG2RG-AFR and SG2RG-ARB held a BSG session on 6 December 2018, in Cairo, Egypt. * SG17 organized BSG trainings on 20 March 2017 and 30 August 2017 in Geneva, Switzerland. * SG12 RG-AFR held a BSG session on 27 July 2017 in Johannesburg, South Africa. SG12 also organized a BSG training in Geneva, Switzerland on 20 September 2017. * BSG training sessions were organized during the SG3RG-AO meeting held in Xi’an, China, 28-31 August 2018; during the SG3RG-AFR meeting held in Antananarivo, Madagascar, 18-22 February 2019; SG3RG-LAC meeting held in Managua, Nicaragua, 25-29 March 2019; and SG3RG-AO meeting held in Colombo, Sri-Lanka, 2-4 October 2019. * SG20 organized a [Training on Key performance indicators for smart sustainable cities to achieve the SDGs](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx) on 27 February 2019 in Minsk, Belarus. Additionally, SG20 organized a BSG training on 12 September 2017 in Geneva, Switzerland. * An ITU-T Leadership training was provided during the April 2019 SG3 meeting. * A two-day Interregional Arab-African Hands-on training on BSG was held in Dubai, United Arab Emirates on 19-20 October 2019. This training was in conjunction of the third meeting of ITU-T SG3 Regional Group for the Arab Region (SG3RG-ARB), as well as the meetings of ITU-T SG2 Regional Group for Africa (SG2RG-AFR) and ITU-T SG2 Regional Group for the Arab Region (SG2RG-ARB). This training was attended by 49 delegates from 21 countries. * SG5 held a one-day Bridging the Standardization Gap (BSG) Hands on Training session on 16 May 2017 during the SG5 meeting. A half-day BSG training was co-organized in Abuja, Nigeria on 27 August 2019, in collocation with SG5-RG-AFR and SG20-AFR. * A BSG training was organized on 12 September 2019 in El Salvador in collocation with SG20-RG-LATAM. * A BSG session was held during the SG11RG-AFR meeting (30 September-2 October 2019) in Tunis. Furthermore, SG11 organized a joint BSG session with SG13 on 8 November 2017 and another half-day BSG session on 25 November 2019 in Geneva, Switzerland. * In light of the ongoing COVID-19 pandemic, BSG trainings are being conducted virtually in collocation with online Study Group Meetings and Regional Group Meetings. Between March 2020 to November 2021, 14 virtual BSG trainings have been organized for 354 delegates from 40 countries and 56 organizations. | | | | |
| **44-29** | **Organizing in-depth tutorials on implementation of ITU-T Recommendations. (i. TSBDir 13)** | **Ongoing** | **√** |  | |
| A structured training course has been developed by TSB to provide guidelines on submitting effective proposals to Study Groups and navigating the international standards-making process. Since January 2016, 15 hands-on training courses on effectiveness in standards-making at ITU were conducted in Geneva for delegates of ITU-T SG2, SG9, SG11, SG12, SG13, SG16 and SG17. Additionally, on-site trainings were also conducted in Tunisia and in India, during which 114 delegates participated, from 29 countries and 60 different organizations.  SG17 maintains Technical Report ‘Successful use of security standards’. SG17 organized a BSG session in each SG17 meeting in 2017-2018. SG17 organizes a set of tutorials at each of its meetings with a variety of presenters both inside and outside the ITU. SG17 organized a series of ITU workshops on security aspects of new emerging technologies and applications, such as Blockchain (March 2017), ITS (August 2017), 5G security (March 2018), Advanced Cybersecurity Attacks and Ransomware (August 2018), AI/Machine learning (January 2019) and Fintech (August 2019).  A BSG-related session on ITU-T Approval Processes on regional Recommendations and on the ITU-T A.5 qualification and justification process was delivered during the SG3RG-AFR virtual meeting during 6-10 July 2020. | | | | |
| **44-30** | **Provision, by the TSB, of fellowships to eligible countries to attend relevant ITU-T meetings.** | **Ongoing** | **√** |  | |
| * Over the period mid October 2016 to February 2017, 73 fellowships were awarded; of which 8 fellowships were cancelled; for more details see [TSAG-TD24](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0024). * Over the period from March 2017 until January 2018, 155 fellowships were awarded; of which 36 fellowships were cancelled; for more details see [TSAG-TD123](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0123). * Over the period February to November 2018, 194 fellowships were awarded; of which 30 fellowships were cancelled, see [TSAG-TD291R2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0291). * Over the period December 2018 to July 2019, 191 fellowships were awarded; of which 46 fellowships were cancelled. * Over the period August 2019 to January 2020, 107 fellowships were awarded; of which 15 fellowships were cancelled. * Over the period January to August 2020, 33 fellowships were awarded; of which three fellowships were cancelled. * Over the period September 2020 to September 2021, due to COVID-19 restrictions, no fellowships were awarded. * Over the period October 2021 to December 2021, due to COVID-19 restrictions, no fellowships were awarded. | | | | |
| **44-31** | **TSB to provide interpretation on request of participants to all SG and WP plenary meetings and entire meeting of TSAG. (resolves 6)** | **Ongoing** | **√** |  | |
| Interpretation is provided to all SG3/WP meetings, to closing plenaries of ITU-T Study Group meetings, and to the opening and closing TSAG plenary meetings, and since 2018 to all TSAG Rapporteur Group meetings during the TSAG meetings.  Over the period February to November 2018, interpretation was provided to all closing plenaries of ITU-T Study Group meetings, to the opening plenaries of SG2 and SG11 and to the entire meeting of TSAG.  Over the period December 2018 to July 2019, interpretation was provided to all closing plenaries of ITU-T Study Group meetings, to the opening plenaries of SG2 and SG11 and to the entire meeting of SG3 and TSAG.  Over the period August 2019 to January 2020, interpretation was provided to all closing plenaries of ITU-T Study Group meetings, to the opening plenaries of SG2 and SG11 and to the entire meeting of TSAG.  Over the period January to August 2020, interpretation was provided to the closing plenary of ITU-T Study Group 15, to the opening and closing plenaries of ITU-T Study Group 11 (March) and to the entire meetings of SG3 and TSAG. One-way English-Russian interpretation on MyMeetings was provided at the closing plenary of ITU-T Study Group SG11 meeting (July) An interpretation trial in MyMeetings in Chinese was made for part of the closing plenary of ITU-T Study Group SG16 meeting.  Over the period September 2020 to September 2021, interpretation was provided to the entire meetings of TSAG + IRM (Sept. 2020 and Jan. 2021), SG3 (May 2021), to the closing plenary of SG11 (Dec. 2020), to the opening and closing plenaries of SG 11 (March 2021), to the closing plenary of SG5 (May 2021), to the RGMs Q1/3 and Q7/3 (January 2021), to the SG13RG-AFR (June 2021), to the SG20RG-AFR (June 2021), to the SG3RG-AFR (July 2021), to the SG2RG-AMR (Sept. 2021) and to the SG12RG-AFR (Sept.2021).  Sign Languages interpretation was provided to some sessions of SG16 (April and September 2021).  Over the period October 2021 to December 2021, interpretation was provided to SG20 (2days), IRM (1day), TSAG (2 days), SG11 (2 days) and SG3 (5 days). | | | | |
| **44-32** | **TSB Director to provide remote participation. (i. TSBDir 14)** | **Ongoing** | **√** |  | |
| TSB provides remote participation to ITU-T statutory, non-statutory as well as to other ad-hoc meetings.  The service applies to meetings taking place at Headquarters, as well as in the Regions, as applicable and regardless of the geographical location.  Furthermore, and in order to better adapt to the needs of ITU membership and to all stakeholders participating in ITU-T activities, TSB has improved the choices of tools and offers a variety of them, such as open source tools developed in house, as well as tools available on the market.  MyMeetings, the ITU-T open source solution for electronic meetings introduced in January 2019 by TSB, is now used as the main platform to organise ITU-T statutory meetings. The tool features some important elements found in ITU-T physical meetings, including participants’ list and affiliation, multilingual support, moderated floor request and captioning. In addition, the tool has put in place several layers of access control to make sure that only registered participants can have access to Statutory meetings. MyMeetings has also been used to host Rapporteur Group Meetings and non-statutory events, such as webinars. Other electronic meeting tools, such as Zoom, are also provided by TSB for hosting fully online (virtual) and any on-demand ad-hoc meetings. | | | | |
| **44-33** | **TSB Director to leverage existing ITU-D platforms. (I. TSBDir 15)** | **Ongoing** | **√** |  | |
| Ongoing. | | | | |
| **44-34** | **TSB Director to study the possibility of generating revenue for ITU-T on bridging the standardization gap, through identifying new financial resources not related to voluntary contributions. (i. TSBDir 16)** | **Ongoing** | **√** |  | |
| The Ministry of Science, ICT and Future Planning (MSIP) of Korea (Rep. of) and the Telecommunications Regulatory Authority (TRA), UAE have made contributions to the BSG Fund. TSB is encouraging other voluntary contributions to the BSG Fund. | | | | |
| **44-35** | **ITU-T study groups to identify the challenges that developing countries are facing with a view to bridging the standardization gap among Member States. (f.i. SGs 4)** | **Ongoing** | **√** |  | |
| * SG2: The Ad hoc group on developing country issues met during the SG2 meeting of 29 March to 7 April 2017 and agreed that "Combating misuse of national numbering resources", "Assignment of Mobile Codes", "Calling Party Number Delivery", "Alternative Calling Procedures", "OTT related issues", "IoT Identification" and "Digital Financial Services and Telecom Finance" are important areas under SG2 for developing countries. “SIM boxes activities and SIM registration enforcement as a solution for this issue”, “CLI spoofing”, “Numbering plan related issues” and “Call location identification in terms of emergency response” were added to the list following the meeting of the ad hoc group in July 2018. Further topics of interest were identified in December 2019: Numbering resources misuse and fraudulent activities, Numbering plan related issues, Call location identification in terms of emergency response, CLI spoofing and calling party number delivery, IoT and M2M numbering issues, and deemed impermissible traffic. These topics were discussed and reaffirmed at the joint e-meeting of SG2RG-AFR and SG2RG-ARB held on 17 May 2021, and at the e-meeting of SG2RG-AMR held on 7 September 2021. These topics remain under study in the ad hoc group on developing country issue, which meets at each full meet of ITU-T SG2. * SG3 approved the Terms of Reference of five of its Regional Groups. These ToRs include the identification of the challenges that developing countries are facing with a view to bridging the standardization gap. * SG5 develops Recommendations and Supplements on ICTs, climate change and circular economy including e-waste focused on developing countries. * SG5 is developing draft Recommendation ITU-T L.Counterfeit “Adequate Assessment and Sensitisation on Counterfeit ICT Products and their Environmental Impact”. * SG5 is developing draft Recommendation ITU-T L.SM\_B “Sustainable management of batteries resulting from ICT equipment”. * SG5 is developing draft Recommendation ITU-T L.HL\_e-waste “Guide for the institutions of higher learning to contribute in the effective management of e-waste". * SG9 organized a workshop on 26 May 2017 in Hangzhou, China on *"*[*TV and content delivery on Integrated Broadband Cable Networks*](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/201705/Pages/default.aspx)*".* One of the topics which was discussed is "planning, implementation and deployment of cable television systems, networks and services, particularly for developing countries". A SG9 meeting plus a workshop addressing [The Future of TV for the Americas](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201811/Pages/default.aspx) were also organized and took place in Bogotá, Colombia in November 2018. The workshop addressed developing countries issues especially in the region of central and south America. Q4/9 is dedicated to developing countries and studied for the whole Study Period how to address related issues by approving one Recommendation and one Supplement dedicated to developing countries. * In addition, SG9 tried to organize a dedicated workshop in Africa in September 2020 in Gambia, collocated with SG9 meeting. Unfortunately, COVID-9 pandemic led to the postponement of the Workshop and SG9 meeting in Africa which are now planned in 2023. * SG11 uses the RGs (SG11RG-AFR and SG11RG-EECAT) for identifying key challenges of importance to the regions. Among them, are combating counterfeiting and reliability of IMEI identifier. * SG12 Question 12 on “Operational aspects of telecommunication network service quality” addresses challenges associated with telecommunications service quality in developing countries. * SG13 has dedicated Question (Q5/13 "Applying networks of future and innovation in developing countries", since 2021 title is “Applying Future Networks and Innovation in Developing Countries”). Its regional group for Africa regularly reviews, updates the priorities for the continent (known as Action Plan) and encourages contributions from the region to these priority items. SG13 set up a new SG13RG-EECAT in March 2019. Priorities of the group are Big Data/Cloud Computing, Edge Mobile, Networks around 2030 and beyond. At its first meeting it received contributions specifying the challenges, priorities, particularities for the region. In March 2020 SG13 approved revised ToR for the SG13RG-AFR that lists in particular the new priorities for the region as *Future Computing and Data Processing, Machine Learning and Artificial Intelligence as applied to networks.* * The 8th SG13 Regional Workshop for Africa held back to back with the 8th SG13RG-AFR meeting (June 2021, virtual) had a panel discussion to tackle the challenges for Africa. Outcome of the panel is captured [here](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20210601/Documents/Workshop%20Outcomes.pdf?csf=1&e=QbeOMC). * SG15 liaises with ITU-D as necessary (e.g., when a relevant contribution is received). * SG17 at its first meeting supported the creation of a new Regional Group for the Arab region (SG17RG-ARB). SG17RG-ARB has held 3 meetings and SG17RG-AFR 2 physical and one virtual meetings until 2021. * SG16 Q28/16 on e-health created an ad hoc group to discuss the respective technology needs in developing countries. * SG20 is working on draft Recommendation ITU-T Y.SRC “Requirements for deployment of smart services in rural communities”, ITU-T Y.smart-evacuation “Framework of smart evacuation during emergencies in smart cities and communities”, ITU-T Y.eHealth-Semantic “Framework to support semantic mediation of eHealth services” and ITU-T Y.RA-PHE “Requirements and reference architecture of smart service for public health emergency”. SG20 is also working on draft Supplement ITU-T Y.Sup.DTAfrica “Digital transformation of cities and communities in Africa”. * The [7th ITU Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201704/Pages/default.aspx) was held from 3-5 April 2017 in Manizales, Colombia and concluded with the [Manizales Manifesto](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201704/Documents/Manifesto-Manizales-05-04-2017-Eng-Final.pdf). * The 8th ITU Green Standards Week was held from 9 to 12 April 2018 in Zanzibar, Tanzania. * The 1st Forum on Artificial Intelligence and Internet of Things in the development of Smart Sustainable Cities was held on 29-30 May 2018 in Buenos Aires, Argentina. An Information session on “Exploring the role of small medium enterprises (SMEs) in linking AI and IoT in smart cities” was held on 30 May 2018. * The [1st Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx) was held from 27 to 30 August 2019 in Abuja, Nigeria. * The [9th Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/default.aspx) was held from 1 to 4 October 2019 in Valencia, Spain. It concluded with a Call to Action available in the six UN official languages [[EN](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-EN.pdf)][[AR](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-AR.pdf)][[FR](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-FR.pdf)][[CH](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-CH.pdf)][[RU](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-RU.pdf)][[SPA](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-ES.pdf)] * The [Virtual Forum on “Accelerating Digital Transformation in Africa”](https://www.itu.int/en/ITU-T/climatechange/Pages/20210602.aspx) took place on 02 June 2021. * [Episode 4 of the Digital Transformation Webinar Series on “Smart Cities: a step towards digital transformation in Latin America”](https://www.itu.int/en/ITU-T/webinars/20210920/Pages/default.aspx) took place on 20 September 2021. | | | | |
| **44-36** | **TSB Director, in collaboration with the BR and BDT Directors, to report on the implementation of this plan to future world telecommunication standardization assemblies and plenipotentiary conferences, with a view to reviewing this resolution and introducing the appropriate amendments in the light of implementation outcomes, as well as the budgetary adjustments needed. (i.. TSBDir 8)** | **WTSA-20**  **PP-18** | **√** |  | |
| Resolution 44 (Rev. Hammamet, 2016) on “Bridging the standardization gap between developing and developed countries” instructs the TSB Director, in collaboration with the BR and BDT Directors, to report on the implementation of this plan to future world telecommunication standardization assemblies and plenipotentiary conferences, with a view to reviewing this resolution and introducing the appropriate amendments in the light of implementation outcomes, as well as the budgetary adjustments needed.  In this context, TSB, during this study period, has been regularly organizing on-site BSG training sessions collocated with ITU-T Study Group meetings and regional groups. Due to the ongoing COVID-19 pandemic, these BSG trainings are currently being organized virtually in order to continue enhancing standard-making capabilities in developing countries.  Through the pilot project for SMEs, TSB has paved the way for the participation of SMEs in ITU-T Study Groups, at reduced fees.  To further help developing countries coordinate activities on ICT standardization, TSB also encourages the establishment of NSS which can help improve participation in ITU-T Study Groups.  On the standards implementation front, TSB, through the United for Smart Sustainable Cities (U4SSC) has been supporting the application of relevant Key Performance Indicators (KPIs) for smart and sustainable cities as referred in different ITU-T Recommendations (including but not limited to ITU-T Y.4901, ITU-T Y.4902 and ITU-T4903) in several cities (such as Dubai, Riyadh, Bizerte, Singapore, Moscow, Daegu) across the globe. The U4SSC is supported by 17 United Nations agencies including ITU, UNECE, and UN-HABITAT. Additionally, programmes like Smart Incubator has been providing assistance to SMEs in commercializing their ICT-based solutions and services by guiding them on the adoption of relevant ITU-T standards.  As a part of the future activities envisioned as a part of the action plan, TSB together with BDT and BR could reinforce the implementation of ITU standards through the:   * Development of relevant online courses focussed on guiding developing countries on the implementation of ITU Standards * Organization of specialized trainings geared towards the application of ITU Standards relating to emerging technologies and digital transformation * Enhance support and guidance provided for the creation of NSS in different countries, with the assistance of ITU Regional Offices * Improving assistance to developing countries on the establishment and maintenance of test laboratories for leveraging and piloting emerging technology-based standards.   The TSB Director in [C18/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0035) also briefly reports on BSG matters and reported on BSG to PP-18. | | | | |

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# Resolution 45 - Effective coordination of standardization work across study groups in the ITU Telecommunication Standardization Sector and the role of the ITU Telecommunication Standardization Advisory Group

**Resolution 45**

resolves

that the coordination of ITU‑T activities in regard to high-priority standardization issues and work related to more than one study group should ensure:

i) the identification of high-level objectives and priorities for ITU‑T studies from a global viewpoint;

ii) cooperation between study groups, including the avoidance of duplication of work and the identification of linkages between related work items;

iii) the planned coordination of time-frames, deliverables, objectives and milestones for standardization activities;

iv) that the interests of developing countries are taken into account and that their involvement in these activities is encouraged and facilitated;

v) cooperation and coordination with the ITU Radiocommunication and Telecommunication Development Sectors and with other, external, standardization bodies,

instructs the Telecommunication Standardization Advisory Group

1 to take an active role in ensuring coordination among study groups, particularly on high-priority standardization issues that are being studied in more than one study group, including:

i) to consider the work of any JCAs, and also recommend the establishment of such activities, if appropriate, and to invite coordination groups to hold the necessary meetings to achieve the objectives set for them;

ii) to identify requirements and provide determination on appropriate changes to be made where overlapping issues arise, which includes, but is not limited to, assignment of a mandate to a study group to lead on coordination work;

iii) to advise on further improvements to working methods of the joint coordination activities;

2 to take into account, and implement as necessary, advice given to TSAG by other groups established in the interests of effective coordination on high-priority and joint standardization topics.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **45-01** | **TSAG, at each meeting, to review status on the coordination of standardization work involving multiple study groups, ITU-R and/or ITU-D, and with other, external, standardization bodies, and take an active role in ensuring coordination among study groups with necessary actions to ensure effective coordination. (resolves 1)** | **Ongoing** | **√** |  |
| TSAG RG-SC assists in actively conducting ITU Inter-Sector coordination through TDAG, RAG and Study Groups ([TSAG OLS 1](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00001.zip), [TSAG OLS 11](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00011.zip), [TSAG-OLS13](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=21665), [TSAG-OLS22](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00022.zip), [TSAG-OLS31](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00031.zip)) by updating and disseminating tables on the matching of ITU-D SG 1 and SG 2 Questions of interest to ITU-T study groups, and on the matching of ITU-R WPs of interest to ITU-T study groups. See also action item 18-01. TSAG RG-WP handles coordination matters among ITU-T study groups. Since 2019, the ISCG has taken over the updating of the mapping tables across ITU-T, ITU-R, and ITU-D study groups.  TSAG RG-WP assists TSAG to continuously conduct coordination among the ITU-T study groups. | | | |
| **45-02** | **TSAG to take into account, and implement as necessary, advice given by other groups established in the interests of effective coordination on high-priority and joint standardization topics (resolves 2)** | **Ongoing** | **√** |  |
| * SG13 works together with SG2 on Recommendations on the IMT2020 management issues by means of dedicated correspondence group. * TSAG took into account the SPCG recommendations on the two proposed Focus Groups. * See also action item 22-05. | | | |

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# Resolution 47 - Country code top-level domain names

**Resolution 47**

instructs ITU-T Study Group 2

to continue studies, and to work with Member States and Sector Members, in their respective roles, recognizing the activities of other appropriate entities, to review Member States' ccTLD experiences,

instructs the Director of the Telecommunication Standardization Bureau

to take appropriate action to facilitate the above and to report to the ITU Council annually regarding the progress achieved in this area,

invites Member States

to contribute to these activities,

further invites Member States

to take appropriate steps within their national legal frameworks to ensure that issues related to delegation of country code top-level domains are resolved.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **47-01** | **SG2 to review and study contributions regarding MS' ccTLD experiences (instructs SG2)** | **Ongoing** |  |  |
| Actions by ITU-T SG2 depend on Contributions, but no such contributions has been received so far. | | | |
| **47-02** | **TSB Director to report to Council annually regarding progress in ccTLDs. (i. TSB Dir)** | **Ongoing, 3 months before Council** | **√** |  |
| The TSB Director reports annually in the Council document on "ITU Internet activities: Resolutions 101, 102 and 133", which includes updates regarding ccTLDs, if any. | | | |

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# Resolution 48 - Internationalized (multilingual) domain names

**Resolution 48**

resolves to instruct ITU-T Study Group 16 and other relevant study groups

to continue to study internationalized (multilingual) domain names, and to continue to liaise and cooperate with appropriate entities, whether intergovernmental or non-governmental, in this area,

instructs the Director of the Telecommunication Standardization Bureau

to take appropriate action to facilitate the above and to report to the ITU Council annually regarding the progress achieved in this area,

invites Member States, Sector Members and concerned regional groups

to contribute to these activities.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **48-01** | **SG16, and other relevant SGs, considering input contributions, to study internationalized (multilingual) domain names (i. SG16)** | **Ongoing** | **√** | **√**  **See comment below.** |
| Only one contribution was submitted in the study period 2009-2012 to ITU-T SG16, which resulted in an exchange of Liaison Statements with relevant external organizations. Feedback provided and lack of further activity (including in the past two study periods) suggest that the work is complete. | | | |
| **48-02** | **TSB Director to report to Council annually regarding progress achieved in internationalized (multilingual) domain names (i. TSB Dir)** | **Ongoing, 3 months before Council** | **√** |  |
| See [C17/33](https://www.itu.int/md/S17-CL-C-0033/en), and [C18/33](https://www.itu.int/md/S18-CL-C-0033/en). | | | |

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# Resolution 49 - ENUM

**Resolution 49**

resolves to instruct Study Group 2 of the ITU Telecommunication Standardization Sector

1 to study how ITU could have administrative control over changes that could relate to the international telecommunication resources (including naming, numbering, addressing, and routing) used for ENUM;

2 to evaluate the current interim procedure for ENUM delegation, and report back to the Director of the Telecommunication Standardization Bureau,

instructs the Director of the Telecommunication Standardization Bureau

to take appropriate action to facilitate the above and to report to the ITU Council annually regarding the progress achieved in this area, including the continuation of further studies in relation to draft Recommendation ITU-T E.A-ENUM (new version), on principles and procedures for the administration of E.164 country codes for registration into the Domain Name System, and draft Recommendation ITU-T E.A-N/GoC (new version), on administrative procedures for ENUM for E.164 country codes and associated ICs for networks and GICs for groups of countries,

invites Member States

to contribute to these activities,

further invites Member States

to take appropriate steps within their national legal frameworks to ensure proper implementation of this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **49-01** | **SG2 to study how ITU could have administrative control over changes that could relate to the international telecommunication resources used for ENUM (resolves 1)** | **Ongoing** |  |  |
| Actions by ITU-T SG2 depend on Contributions, but no such contributions have been received so far. | | | |
| **49-02** | **SG2 to evaluate the current interim procedure for ENUM delegation and report back to TSB Director. (resolves 2)** | **Ongoing** | **√** |  |
| Actions by ITU-T SG2 depend on Contributions.  ITU-T Study Group 2 agreed the updated ENUM interim procedure for geographic country codes at its meeting of 20 to 28 February 2019 following the discussion on a contribution from RIPE NCC. | | | |
| **49-03** | **TSB Director to report to Council annually regarding progress achieved in ENUM (i. TSBDir)** | **Ongoing, 3 months before Council** | **√** |  |
| The TSB Director reports annually in the Council document on "ITU Internet activities: Resolutions 101, 102 and 133", which includes updated Information on ENUM including information[[3]](#footnote-4) on approved ENUM delegations and ENUM trials, if any. | | | |

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# Resolution 50 - Cybersecurity

**Resolution 50**

resolves

1 to continue to give this work high priority within ITU‑T, in accordance with its competencies and expertise, including promoting common understanding among governments and other stakeholders of building confidence and security in the use of ICTs at the national regional and international level;

2 that all ITU‑T study groups continue to evaluate existing and evolving Recommendations, with respect to their robustness of design and potential for exploitation by malicious parties, and take into account emerging new services and applications to be supported by the global telecommunication/ICT infrastructure (e.g. including but not limited to cloud computing and IoT, which are based on telecommunication/ICT networks), according to their mandates in Resolution 2 (Rev. Hammamet, 2016) of this assembly;

3 that ITU‑T continue to raise awareness, within its mandate and competencies, of the need to harden and defend information and telecommunication systems from cyberthreats and cyberattacks, and continue to promote cooperation among appropriate international and regional organizations in order to enhance exchange of technical information in the field of information and telecommunication network security;

4 that ITU‑T should work closely with ITU‑D, particularly in the context of ITU-D Question 3/2 (Securing information and communication: Best practices for developing a culture of cybersecurity);

5 that ITU‑T continue work on the development and improvement of terms and definitions related to building confidence and security in the use of telecommunications/ICTs, including the term cybersecurity;

6 that global, consistent and interoperable processes for sharing incident-response related information should be promoted;

7 that Study Group 17, in close collaboration with all other ITU‑T study groups, establish an action plan to assess existing, evolving and new ITU‑T Recommendations to counter security vulnerabilities and continue to provide regular reports on security of telecommunications/ICT to the Telecommunication Standardization Advisory Group (TSAG);

8 that ITU‑T study groups continue to liaise with standards organizations and other bodies active in this field;

9 that security aspects are considered throughout the ITU‑T standards development process,

instructs the Director of the Telecommunication Standardization Bureau

1 to continue to maintain, in building upon the information base associated with the "ICT Security Standards Roadmap" and the ITU‑D efforts on cybersecurity, and with the assistance of other relevant organizations, an inventory of national, regional and international initiatives and activities to promote, to the maximum extent possible, the worldwide harmonization of strategies and approaches in this critically important area;

2 to contribute to annual reports to the ITU Council on building confidence and security in the use of ICTs, as specified in Resolution 130 (Rev. Busan, 2014);

3 to report to the Council on the progress of the activities on the "ICT Security Standards Roadmap";

4 to continue to recognize the role played by other organizations with experience and expertise in the area of security standards, and coordinate with those organizations as appropriate;

5 to continue the implementation and follow-up of relevant WSIS activities on building confidence and security in the use of ICTs, in collaboration with the other ITU Sectors and in cooperation with relevant stakeholders, as a way to share information on national, regional and international and non-discriminatory cybersecurity-related initiatives globally;

6 to cooperate with the Secretary-General's GCA and other global or regional cybersecurity projects, as appropriate, to develop relationships and partnerships with various regional and international cybersecurity-related organizations and initiatives, as appropriate, and to invite all Member States, particularly developing countries, to take part in these activities and to coordinate and cooperate with these different activities;

7 to support the Director of the Telecommunication Development Bureau in assisting Member States in the establishment of an appropriate framework among developing countries allowing rapid response to major incidents, and to propose an action plan to increase their protection, taking into account mechanisms and partnerships, as appropriate;

8 to support relevant ITU‑T study group activities related to strengthening and building confidence and security in the use of ICTs,

invites Member States, Sector Members, Associates and academia, as appropriate

1 to closely collaborate in strengthening regional and international cooperation, taking into account Resolution 130 (Rev. Busan, 2014), with a view to enhancing confidence and security in the use of ICTs, in order to mitigate risks and threats;

2 to cooperate and participate actively in the implementation of this resolution and the associated actions;

3 to participate in relevant ITU-T study group activities to develop cybersecurity standards and guidelines in order to build confidence and security in the use of ICTs;

4 to utilize relevant ITU-T Recommendations and supplements.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **50-01** | **TSB Director to continue to give this work high priority within ITU‑T, in accordance with its competencies and expertise, including promoting common understanding among governments and other stakeholders of building confidence and security in the use of ICTs at the national regional and international level. (resolves 1)** | **Ongoing** | **√** |  |
| * SG13: The first two ITU-T Recommendations on trust were consented in February 2017. Those are draft Recommendations ITU-T Y.3051 and Y.3052 dealing respectively with the basic principles of what trusted environment in ICT infrastructure is and overview of trust provisioning in ICT. Since then, two more Recommendations on trust (Y.3053 and Y.3054) were approved in SG13. * SG17: An [ITU Workshop on Security Aspects of Blockchain](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/201703/Pages/default.aspx) in Geneva, 21 March 2017, examined blockchain's potential to build trust into a wider variety of our interactions online. Technical sessions assessed the status of blockchain technology and its application, focusing on blockchain use-cases supporting security, privacy and trust. The workshop explored the surrounding policy and regulatory environment. An [ITU Workshop on Security Aspects of Intelligent Transport System](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201708/Pages/default.aspx) in Geneva, 28 August 2017 brought together ITU’s technical expertise and the security requirements of stakeholders interested in implementing secure intelligent transport system. It helped newly established Q13/17 on ITS security to develop its action and collaboration plan. * SG20: As part of the [Webinar series on Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx), [Episode 9 on “Addressing the Security Risks of Digital Transformation on IoT”](https://www.itu.int/en/ITU-T/webinars/20211206/Pages/default.aspx) took place on 06 December 2021. | | | |
| **50-02** | **All SGs to continue to evaluate existing and evolving new Recommendations for robustness of design and potential for malicious exploitation (e.g. on cloud computing and IoT based on telecommunication networks) (resolves 2).** | **Ongoing** | **√** |  |
| * SG17 has ongoing work to develop security standards for SDN, cloud computing, IoT. SG17 established new Q13/17 to study ITS security and Q14/17 to study security aspects of distributed ledger technology. * SG17 approved ITU-T X.1212, *Design considerations for improved end-user perception of trustworthiness indicators*, ITU-T X.1213, *Security capability requirements for countering smartphone-based botnets*, ITU-T X.1214, *Security assessment techniques in telecommunication/information and communication technology networks*, ITU-T X.1215, *User cases for structured threat information expression*, revised ITU-T X.1541, *Incident object description exchange format version 2*, and ITU-T X.1550, *Access control models for incident exchange networks* developed by Q4/17. * SG17 approved Recommendations ITU-T X.1361, …, 1368 on IoT security developed by Q6/17. * SG17 approved ITU-T X.1604, *Security requirements of network as a service (NaaS) in cloud computing,* ITU-T X.1605, *Security requirements of public infrastructure as a service (IaaS) in cloud computing,* and ITU-T X.1606 *Security requirements for communication as a service application environments* developed by Q8/17. * SG17 approved ITU-T X.1372, *Security guidelines for Vehicle-to-Everything (V2X) communication* and ITU-T X.1371, *Security threats to connected vehicles* developed by Q13/17. * SG17 approved ITU-T X.1401, *Security threats of distributed ledger technology,* ITU-T X.1402, *Security framework for distributed ledger technology,* ITU-T X.1403 *Security guidelines for using DLT for decentralized identity management,* and ITU-T X.1408 *Security threats and requirements for data access and sharing based on the distributed ledger technology* developed by Q14/17. * SG20 is working on draft Recommendations ITU-T Y.IoT-IoD-PT “Identity of IoT devices based on secure procedures and ensures privacy and trust of IoT systems”, ITU-T Y.IoT-Ath-SC “Framework of IoT-devices authentication in smart city”, ITU-T Y.oneM2M.SEC.SOL “oneM2M Security Solutions” and ITU-T Y.IoT-Smartcity-Risk “Reference framework of cybersecurity risk management of IoT ecosystems on smart cities”. SG20 approved Recommendations ITU-T Y.4807 “Agility by design for Telecommunications/ICT Systems Security used in the Internet of Things”, ITU-T Y.4810 “Requirements of data security for the heterogeneous IoT devices” and ITU-T Y.4811 “Reference framework of converged service for identification and authentication for IoT devices in decentralized environment”. | | | |
| **50-05** | **SG17 to continue develop and improve terms and definitions related to building confidence and security, including the term cybersecurity. (resolves 5)** | **Ongoing** | **√** |  |
| SG17 appointed Mr. Paul Najarian as its contact to SCV.  The ITU-T Security Compendium is continuously updated with all ITU-T security related terms and definitions.  SG17 consented ITU-T X.1400, *Terms and definitions for distributed ledger technology* and plans to approve revised ITU-T X.1252, *Baseline identity management terms and definitions* at its January 2021 SG17 meeting. | | | |
| **50-06** | **SG17 to promote global, consistent and interoperable processes for sharing incident-response related information. (resolves 6)** | **Ongoing** | **√** |  |
| SG17 developed draft Recommendation ITU-T X.1215 on use cases for structured threat information expression (STIX). | | | |
| **50-08** | **TSB Director to continue to maintain an inventory of initiatives and activities to promote harmonization of strategies and approaches in cybersecurity. (i. TSBDir 1)** | **Ongoing** | **√** |  |
| SG17 maintains a webpage of [Network Forensic and Vulnerability Organizations](http://www.itu.int/en/ITU-T/studygroups/2017-2020/17/Pages/nfvo.aspx). | | | |
| **50-09** | **TSB Director to report to annual reports to Council on actions taken under Resolution 50, and on ICT Security Standards Roadmap. (i. TSBDir 2, 3)** | **Annual, Council 2020** | **√** |  |
| TSB Director reports to Council are contained within [C17/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0018), [C18/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0018), [C19/20](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0018), [C20/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0018), and [C21/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0018).  SG17 keeps updating the ICT Security Standards Roadmap database. | | | |
| **50-10** | **TSB Director to continue contributing to WSIS security activities. (i. TSBDir 5)** | **Ongoing** | **√** |  |
| SG17 work on security standardization contributes to technical measures to implementation WSIS Action Line C5. | | | |
| **50-11** | **TSB Director to cooperate with GCA etc to develop relationship/partnership for ITU membership, esp. developing countries. (i. TSBDir 6)** | **Ongoing** | **√** |  |
| ITU General secretary is taking lead. | | | |
| **50-13** | **TSB Director to support BDT Director in assisting Member States in the establishment of an appropriate framework between developing countries allowing rapid response to major incidents, and to propose an action plan to increase their protection (i. TSBDir 7)** | **Ongoing** | **√** |  |
| BDT is taking lead. | | | |
| **50-14** | **TSB Director to support relevant ITU-T study group activities related to security (i. TSBDir 8)** | **Ongoing** | **√** |  |
| The TSB Director continuously is supporting security activities in the ITU-T study groups such as in SG11, SG17, SG20, and regional groups. | | | |
| **50-15** | **All ITU-T SGs to ensure that security aspects are considered throughout the ITU-T standards development process (resolves 9)** | **Ongoing** | **√** |  |
| SGs are encouraged to follow the same approach when applicable.   * SG9 has an entire Question dedicated to content protection and security issues including digital rights management (DRM) and Conditional Access. Q2/9 is a very active Question developing many security related Recommendations, some of which have policy and regulatory implication and therefore follow the TAP approval process. During this Study Period Q2/9 approved 16 revised or new ITU-T Recommendations and five new or revised Supplements on this topic: See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3929&isn_qu=4126&isn_status=-1,1,3,7,2&details=0&field=acdefghijo). * SG11 approved ITU-T Q.3057 “Signalling requirements and architecture for interconnection between trustable network entities” and approved a new Technical Report TR-SS7-DFS “SS7 vulnerabilities and mitigation measures for digital financial services transactions”. Also, SG11 revised series of ITU-T Q.731.3-6 in order to fix issues dealing with the spoofing of calling party number. The relevant brainstorming session on SS7 vulnerabilities and the impact on different industries including digital financial services took place in Geneva on 22 October 2019. SG11 is developing Q.Pro-Trust “Signalling procedures and protocols for enabling interconnection between trustable network entities in support of existing and emerging networks” and draft Recommendation Q.CIDA “Signalling requirements of calling line identification authentication”. SG11 agreed the Technical Report QSTR-USSD “Low resource requirement, quantum resistant, encryption of USSD messages for use in financial services”. In November 2021, SG11 in close collaboration with SG2 and SG17 organized ITU Workshop on “Improving the security of signalling protocols”. * Developed by SG12, Recommendation ITU-T Y.1550 “Considerations for realizing virtual measurement systems” highlights the need to consider security aspects in this context and refers to related SG17 work. * SG13 took a decision sometime in 2002 that each of its Recommendations will have an obligatory clause on security considerations. This practice was closely followed since 2002. SG13 published three technical reports on trust provisioning for future ICT infrastructures and services and seven Recommendations (ITU-T Y.3051-Y.3057). There are currently six more work items under development covering areas such as Decentralized Trustworthy Network Infrastructure (Y.DNI-fr), trust, functional architecture for trust enabled service provisioning (Y.trust-arch) etc. SG13 is developing a Standardization roadmap on Trustworthy Networking and Services: <https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16495> * ITU-T SG13 also studies quantum technologies, in particular, quantum key distribution networks (QKDN) to increase the security of networks communication. In 2019 it approved a first Recommendation on Quantum key distribution network (QKDN) in ITU-T Y.3800 “Overview on networks supporting quantum key distribution”. In total it approved seven Recommendations (ITU-T Y.3800-3806) and one Supplement has 12 open work items about QKDN. * SG13 is developing a Standardization roadmap on Quantum Key Distribution Networks: <https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=17189> * A flipbook “Trust in ICT" (2017) gives a snapshot of main concepts for Trust as applied to ICT and overview of standardization efforts worldwide to date. <https://www.itu.int/en/publications/Documents/tsb/2017-Trust-in-ICT-2017/index.html> * SG15 consults with SG17 on security issues as appropriate (e.g., by Liaisons). * SG16 Questions identify areas where security aspects may be needed and coordinate security considerations with relevant SGs, and SG17 in particular – for example secure software update for vehicular applications (Q27/16). Sometimes, specific suites are developed for SG16-defined systems, e.g. the ITU-T H.235-series on security for H.323 systems. * As the lead study group on security, SG17 develops Recommendations that help other SGs to ensure that security aspects are considered through ITU-T standards development process. * SG20 is working on draft Recommendations ITU-T Y.oneM2M.SEC.SOL “oneM2M Security Solutions”, ITU-T Y.IoT-IoD-PT “Identity of IoT devices based on secure procedures and ensures privacy and trust of IoT systems”, ITU-T Y.IoT-Smartcity-Risk “Reference framework of cybersecurity risk management of IoT ecosystems on smart cities” and ITU-T Y.IoT-Ath-SC “Framework of IoT-devices authentication in smart city”. SG20 approved Recommendations ITU-T Y.4807 “Agility by design for Telecommunications/ICT Systems Security used in the Internet of Things”, ITU-T Y.4810 “Requirements of data security for the heterogeneous IoT devices” and ITU-T Y.4811 “Reference framework of converged service for identification and authentication for IoT devices in decentralized environment”. | | | |
| **50-16** | **ITU-T to continue to raise awareness, within its mandate and competencies, of the need to harden and defend information and telecommunication systems from cyberthreats and cyberattacks, and continue to promote cooperation among appropriate international and regional organizations. (resolves 3)** | **Ongoing** | **√** |  |
| SG17 appointed Q3/17 Rapporteur Ms. Miho Naganuma as liaison officer to ASTAP EG IS. | | | |
| **50-17** | **ITU-T study groups should work closely with ITU-D (e.g. ITU-D Q3/2) (resolves 4)** | **Ongoing** | **√** |  |
| * SG17 sent liaison statements to ITU-D SG1 and 2 and TDAG on ongoing collaboration with ITU-D Q3/2 and Q9/2. | | | |
| **50-18** | **SG17, in close collaboration with all other ITU-T SGs, establish an action plan to assess existing, evolving and new ITU-T Recommendations to counter security vulnerabilities and continue to provide regular reports to TSAG (resolves 7)** | **Ongoing Each TSAG meeting** | **√** |  |
| SG17 in Q1/17 identified the need to develop a guideline on how to develop standards using security-by-design principle.  SG17 maintains and keeps updating an [*ICT security standards roadmap*](https://www.itu.int/en/ITU-T/studygroups/com17/ict/Pages/default.aspx) since 2006 which includes existing and ongoing ICT security standards in major SDOs, such as 3GPP, ETSI, FIDO Alliance, IEEE, IETF, ISO/IEC JTC 1/SC 27, OASIS, etc.  See SG17 report on LSG in TSAG [TD93](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0093), [TD236](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0236), [TD309](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0309), [TD485](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0485), [TD806](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0806), [TD947](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0947), [TD1048](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1048). | | | |
| **50-19** | **All ITU-T SGs continue liaise with standards organizations and other bodies active in this field (resolves 8)** | **Ongoing** | **√** |  |
| * SG2 liaises with relevant organizations as necessary, such as ISO/IEC JTC 1/SC27. * SG5 sent a liaison statement to all SDOs informing on SG5 lead study group activities. SG5 liaises with relevant organizations as necessary. * SG9 regularly liaises with relevant organizations to foster coordination and collaboration on cable TV security and content protection. * SG11 liaises with relevant organizations as necessary. * SG12 liaises with relevant organizations as necessary. * SG13 regularly communicates with ISO/IEC JTC 1/SC27 and ETSI on its work items with security implications. * SG15 liaises with relevant organizations as necessary. * SG16 liaises with relevant organizations as necessary. * SG17 liaises with relevant organizations as necessary, and developed common/twin texts with ISO/IEC JTC 1/SC 27 and adopted standards from OASIS and FIDO Alliance into ITU-T Recommendations. * SG20 sent a liaison statement to all SDOs and Forums informing on the new structure of SG20. SG20 liaises with relevant organizations as necessary. | | | |
| **50-20** | **TSB Director to continue to recognize the role played by other organizations with experience and expertise in the area of security standards, and coordinate with those organizations as appropriate (i. TSBDir 4)** | **Ongoing** | **√** |  |
| SG17 maintains and keeps updating an [*ICT security standards roadmap*](https://www.itu.int/en/ITU-T/studygroups/com17/ict/Pages/default.aspx) since 2006 which includes 2600+ existing and ongoing ICT security standards in major SDOs, such as 3GPP, ETSI, FIDO Alliance, IEEE, IETF, ISO/IEC JTC 1/SC 27, OASIS, etc.  SG17 liaises with relevant organizations as necessary, and developed common/twin texts with ISO/IEC JTC 1/SC 27 and adopted standards from OASIS and FIDO Alliance into ITU-T Recommendations. | | | |

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# Resolution 52 - Countering and combating spam

**Resolution 52**

resolves to instruct the relevant study groups

1 to continue to support ongoing work, in particular in Study Group 17, related to countering spam (e.g. e-mail) and to accelerate their work on spam in order to address existing and future threats within the remit and expertise of ITU‑T, as appropriate;

2 to continue collaboration with the ITU Telecommunication Development Sector (ITU‑D) and with the relevant organizations, including other relevant standards organizations (e.g. the Internet Engineering Task Force (IETF)), in order to continue developing, as a matter of urgency, technical Recommendations with a view to exchanging best practices and disseminating information through joint workshops, training sessions, etc.,

further instructs Study Group 17 of the ITU Telecommunication Standardization Sector

1 to report regularly to the Telecommunication Standardization Advisory Group on progress under this resolution;

2 to support ITU‑D Study Group 2 on countering and combating spam in its work providing technical training sessions and workshop activities in different regions related to spam policy, regulatory and economic issues and their impact;

3 to continue its work on developing Recommendations, technical papers, and other related publications,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide all necessary assistance with a view to expediting such efforts, working collaboratively with relevant parties that combat spam with a view to identifying opportunities, raising awareness for such activities and identifying possible collaboration, as appropriate;

2 to initiate a study – including sending a questionnaire to the ITU membership –indicating the volume, types (e.g. e-mail spam, SMS spam, spam in IP-based multimedia applications) and features (e.g. different major routes and sources) of spam traffic, in order to help Member States and relevant operating agencies identify such routes, sources and volumes and estimate the amount of investment in facilities and other technical means to counter and combat such spam, taking into account work that has already been carried out;

3 to continue to cooperate with the Secretary-General's initiative on cybersecurity and with the Telecommunication Development Bureau in relation to any item concerning cybersecurity under Resolution 45 (Rev. Dubai, 2014), and to ensure coordination among these different activities;

4 to contribute to the report of the Secretary General to the ITU Council on the implementation of this resolution,

invites Member States, Sector Members, Associates and academia

to contribute to this work,

further invites Member States

1 to take appropriate steps to ensure that appropriate and effective measures are taken within their national and legal frameworks to combat spam and its propagation;

2 to work collaboratively with all relevant stakeholders to counter and combat spam.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **52-01** | **SGs, particular SG17, to accelerate their work on spam (resolves 1)** | **Ongoing** | **√** |  |
| * The structure of countering spam by technical measures has been established, including five levels: technical strategy level, guideline level, framework level, technology level and supplement level. In this structure, branches of this structure are mainly based on the type of spam: e-mail spam, IP-based multimedia spam, mobile messaging spam, instant messaging spam, etc. * SG17 approved new Recommendations on combating spam are found at <https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3935&isn_qu=4215&isn_status=-1,2&details=0&field=acdefghijo>. * Ongoing standardization on combating spam are found at: <https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3935&isn_qu=4215&isn_status=-1,1,3&details=0&field=acdefghijo>. | | | |
| **52-02** | **SGs to collaborate with ITU-D and with the relevant organizations, including other relevant organizations (i.e. IETF) to develop Recommendations with a view to exchanging best practices; participate in workshops, training sessions, etc. (resolves 2)** | **Ongoing** | **√** |  |
| Q5/17, Countering spam by technical means, has exchanged best practices with ITU-T SG2, SG13, SG16, ITU-D Q22/1, M3AAWG, IETF STIR, GSMA SG and 3GPP SA3. Working liaison relationship has been established with those bodies. In addition, Q5/17 has reviewed all the relevant documents from the above bodies and from OECD, ENISA, and NIST.  During March 2018 ITU-T SG17 meeting, Q5/17 and ETIS AATN carried out a joint session~~.~~, discussed Anti-Spam, Cyber Threat Intelligence, Phishing, network resource abusing and other issues. | | | |
| **52-03** | **SG17 to report on progress of Resolution 52 to each meeting of TSAG (f.i. SG17 1)** | **Ongoing** | **√** |  |
| See SG17 LSG report to TSAG in [TD93](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0093), TD236, [TD309](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0309), [TD485](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0309), [TD806](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-200921-TD-GEN-0806), TD[947](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0947)TD[1048](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1048). | | | |
| **52-04** | **SG17 to initiate a study on spam indicating the volume, types (e.g. e-mail spam, SMS spam, spam in IP-based multimedia applications) and features (e.g. different major routes and sources) of spam traffic, in order to help Member States and relevant operating agencies identify such routes, sources and volumes and estimate the amount of investment in facilities and other technical means to counter and combat such spam, taking into account work that has already been carried out (i. TSB Dir 2)** | **March 2017** | **√** | **√** |
| SG17 in Q5/17 launched survey in October 2017 – February 2018. | | | |
| **52-05** | **SG17 to support ITU‑D Study Group 2 on countering and combating spam in its work providing technical training sessions and workshop activities in different regions related to spam policy, regulatory and economic issues and their impact. (f.i. SG17 2)** | **Ongoing** | **√** |  |
| BDT is taking the lead.  See action 52-02 SG17 collaboration with ITU-D SG2. | | | |
| **52-06** | **SG17 to continue its work on developing Recommendations, technical papers, and other related publications (f.i. SG17 3)** | **Ongoing** | **√** |  |
| SG17 has produced important publications on security work including:   * Security Manual * Success use of security standards.   See action 52-01. | | | |
| **52-07** | **TSB Director to contribute to the report of the Secretary General to the ITU Council on the implementation of this resolution. (i. TSB Dir 3)** | **Council 2020** | **√** |  |
| TSB Director reports to Council are contained within [C17/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0018), [C18/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0018), [C19/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0018), [C19/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0033), [C20/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0018), [C21/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0018). | | | |
| **52-08** | **TSB Director to provide all necessary assistance with a view to expediting such efforts, working collaboratively with relevant parties that combat spam with a view to identifying opportunities, raising awareness for such activities and identifying possible collaboration, as appropriate (i. TSBDir 1)** | **Ongoing** | **√** |  |
| A meeting of the [Anti-Abuse Telco Network Working Group of ETIS](https://www.etis.org/page/Anti_Abuse) was hosted on 21-23 March 2018 during SG17 March 2018 meeting.  An UN TF-CS/OTA meeting was hosted on 27-28 August 2019 during the SG17 August/September 2019 meeting. | | | |
| **52-09** | **TSB Director to continue to cooperate with the Secretary-General's initiative on cybersecurity and with the Telecommunication Development Bureau in relation to any item concerning cybersecurity under Resolution 45 (Rev. Dubai, 2014), and to ensure coordination among these different activities (i. TSB Dir 3)** | **Ongoing** | **√** |  |
| TSB participates in the ITU internal Inter-Sector cybersecurity coordination group. | | | |

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# Resolution 54 - Creation of, and assistance to, regional groups

**Resolution 54**

resolves

1 to support, on a case-by-case basis, the coordinated creation of regional groups of ITU‑T study groups;

2 to encourage cooperation and collaboration of regional groups with regional standardization entities (regional organizations, regional standardization bodies, and so forth);

3 to invite the ITU Council to consider providing support for the regional groups as appropriate,

invites the regions and their Member States

1 to pursue the creation of regional groups of parent ITU-T study groups in their respective regions, to take the necessary steps in accordance with *resolves* 1 to 3 of this resolution, and to support meetings and activities of the regional groups, as appropriate, in coordination with the Telecommunication Standardization Bureau;

2 to develop draft terms of reference and working methods for these regional groups, which are to be approved by the parent study group, as regards areas of concern to them;

3 to create regional standardization bodies, as appropriate, and encourage joint and coordinated meetings of such bodies with the regional groups of ITU-T study groups in their respective regions, so that these standardization bodies act as an umbrella for such regional group meetings,

invites the regional groups thus created

1 to disseminate information about telecommunication standardization and encourage the involvement of developing countries in standardization activities in their regions, and to submit written contributions to the parent study group in which they work in accordance with approved terms of reference reflecting the priorities of their respective regions;

2 to cooperate closely with the relevant respective regional organizations and ITU regional offices,

instructs study groups and the Telecommunication Standardization Advisory Group

to coordinate joint meetings of the regional groups of ITU-T study groups,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau

within the allocated or contributed resources that are available

1 to provide all necessary support for creating and ensuring the smooth functioning of the regional groups;

2 to consider, whenever possible, holding workshops concurrently with meetings of the ITU-T regional groups, in the relevant regions, and vice versa;

3 to take all necessary measures to facilitate the organization of meetings and workshops of the regional groups,

calls upon the Director of the Telecommunication Standardization Bureau

to cooperate with the Director of the Telecommunication Development Bureau in order to:

i) continue to provide specific assistance to regional groups;

ii) encourage the continuing development of computerized application tools related to their cost methodology by the members of the regional groups of Study Group 3;

iii) take appropriate steps to facilitate meetings of the current and future regional groups in order to promote the necessary synergies among the three Sectors and thereby improve the effectiveness and efficiency of the study groups,

further invites the regional groups thus created

to cooperate closely with the relevant respective regional organizations, standardization bodies and ITU regional offices, and to report on their work in their regions.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **54-01** | **TSB to support coordinated creation of regional groups of ITU-T study groups (resolves 1)** | **Ongoing** | **√** |  |
| The following regional groups have met since WTSA-16:  ITU-T Study Group 2   * SG2-RG-AMR, Virtual, 7 September 2021. * SG2-RG-AFR, SG2RF-ARB Virtual 17 May 2021. * SG2-RG-AFR, SG2RG-ARB: Dubai, United Arab Emirates from 23-24 October 2019. * SG2-RG-AMR: Managua, Nicaragua, 28-29 March 2019. * SG2-RG-AFR, SG2RG-ARB: Cairo, Egypt, from 4 – 6 December 2018. * SG2-RG-AFR, SG2RG-ARB: Tunisia, 26 - 27 April 2018. * SG2-RG-AMR: Port of Spain, Trinidad and Tobago, 07 March 2017.   ITU-T Study Group 3   * SG3-RG-AFR: virtual, 26-29 July 2021. * SG3-RG-ARB: virtual, 20 April 2021. * SG3-RG-LAC: virtual, 12-13 April 2021. * SG3-RG-AO: virtual, 12-14 April 2021 * SG3-RG-AFR: virtual, 6-9 April 2021. * SG3-RG-AFR: virtual, 6-10 July 2020. * SG3-RG-LAC: virtual, 15-17 July 2020. * SG3-RG-ARB: virtual, 28 July 2020. * SG3-RG-AO: virtual, 15-17 July 2020. * SG3-RG-EECAT: Minsk, Belarus, 4 March 2020. * SG3-RG-ARB: Dubai, United Arab Emirates from 23-24 October 2019. * SG3-RG-AO: Colombo, Sri Lanka, from 2 to 4 October 2019. * SG3-RG-AFR: Antananarivo (Madagascar) from 18 to 22 February 2019. * SG3-RG-LAC: Managua (Nicaragua) from 25 to 29 February 2019. * SG3-RG-ARB: Kuwait City (Kuwait) from 19 to 20 December 2018. * SG3-RGEECAT: Saint Petersburg (Russian Federation) on 21 May 2019. * SG3 Regional Group for Africa met in Victoria Falls (Zimbabwe) from 31 January to 3 February 2017. * SG3 Regional Group for Latin America and the Caribbean met in Port of Spain (Trinidad and Tobago) from 6 to 10 March 2017. * SG3 Regional Group for Asia and Oceania met in Seoul (Korea, Rep of.) from 24 to 27 October 2017 * SG3 Regional Group for the Arab region met in Riyadh (Saudi Arabia) from 21 to 22 November 2017. * SG3 Regional Group for Africa met in Kigali (Rwanda) from 5 to 8 February 2018.   ITU-T Study Group 5   * SG5, at its first meeting in May 2017 created the new regional group for Latin America (SG5RG-LATAM). It was decided to discontinue the SG5 Regional Group for the Americas region. * SG5-RG-LATAM held its first meeting on 19 April 2018 in Cartagena de Indias, Colombia. The second SG5RG-LATAM meeting was held on 24 October 2018 in Bogotá, Colombia. * SG5-RG-AFR and SG5RG-ARB met from 9 to 12 April 2018 in Zanzibar, Tanzania. * SG5-RG-AP met in Wuxi, China, on 3 December 2018. * SG5-RG-ARB met on 18 December 2018 in Kuwait City, Kuwait. * SG5-RG-AFR held its second meeting on 29 and 30 August 2019 in Abuja, Nigeria during the First Digital African Week. * SG5-RG-AP met online on 29-30 September 2020. * SG5-RG-LATAM was held as an e-meeting on 10 November 2020. * SG5-RG-AP meeting was organized online on 15-16 April 2021. * SG5-RG-AFR meeting was held as a virtual meeting on 28 September 2021. * SG5-RG-ARB meeting was organized as a virtual meeting on 29 September 2021. * SG5-RG-LATAM met online on 30 September 2021. * SG5-RG-AP met online on 19-20 October 2021.   ITU-T Study Group 11   * SG11-RG-RCC met in Saint-Peterburg on 22 June 2017, then the group was renamed as Eastern Europe, Central Asia And Transcaucasia (SG11RG-EECAT). * SG11-RG-EECAT met in Saint-Peterburg on 05-06 June 2018, 21-22 May 2019 and virtual on 20 October 2021. * SG11-RG-AFR met in Cairo (Egypt) on 6 April 2017, Tunis (Tunisia) on 23-25 April 2018 and 30 September – 02 October 2019.   ITU-T Study Group 12   * SG12-RG-AFR: Virtual (September 2021); N'Djamena, Chad (March 2020); Kigali, Rwanda (March 2019); Dakar, Senegal (March 2018); Johannesburg, South Africa (July 2017).   ITU-T Study Group 13   * SG13-RG-AFR: Cairo, Egypt April 2017; Abidjan, Cote D’Ivoire March 2018; Abuja, Nigeria, February 2020; June 2021 virtual. * SG13, at its February 2017 meeting, confirmed the continuation of SG13RG-AFR with newly appointed leadership its regional group. It has one meeting per year together with the workshop and BSG training. In March 2019 SG13 set up a new SG13RG-EECAT that had its inaugural meeting on 23 May 2019 in St Petersburg, Russia. The March 2020 SG13 meeting revised ToR for the SG13RG-AFR.   ***ITU-T Study Group 17***   * SG17 created the SG17 RG-AFR in last study period and created the SG17 RG-ARB at its first meeting in the 2017-2020 study period. SG17RG-ARB has held three meetings and SG17RG-AFR 2 meetings until 2020. * After approval of Recommendation ITU-T X.1060 *Framework for creation and operation of Cyber Defence Centres (CDC)* in June 2021,SG17RG-AFR expressed strong interest to implement it in Africa.SG17RG-AFR held an e-meeting during the ATU-4 WTSA-20 preparatory meeting on 28 September 2021 with a tutorial by Q3/17 and developed together with Q3/17 a questionnaire based on X.1060 to assess current and targeted CDC service capability in Africa. This online [survey](https://www.research.net/r/ITUTSG17CDCX1060) was launched for December 2021 – March 2022 as the first step for SG17RG**-**AFR effort to develop an implementation guideline of ITU-T X.1060 for African countries.   ***ITU-T Study Group 20***   * SG20 at its meeting created new regional groups for Regional Group for Latin America (RG-LATAM), for the African Region (RG-AFR), for the Arab Region (RG-ARB), and for Eastern Europe, Central Asia and Transcaucasia (RG-EECAT). * SG20 Regional Group for Eastern Europe, Central Asia and Transcaucasia (SG20RG EECAT) held its meeting from 20 to 22 June 2017 in Saint Petersburg, Russian Federation. A second SG20RG-EECAT meeting was held from 4 to 6 June 2018 in Saint Petersburg, Russian Federation. The third meeting of the SG20RG-EECAT was held from 26 to 28 February 2019 in Minsk, Belarus, It was collocated with a [Forum on "Smart sustainable cities: technological trends, success stories and future prospects"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx) (26-27 February 2019) and an ITU Training on “Key performance indicators for smart sustainable cities to achieve the SDGs” (27 February 2019). The fourth SG20RG-EECAT meeting took place on 5 March 2020 in Minsk, Belarus. The fifth SG20RG-EECAT meeting took place from 16-18 March 2021 in Minsk, Belarus. * SG20 Regional Group for the Arab region (SG20RG-ARB) held its first meeting from 9 to 10 August 2017 in Cairo, Egypt. A second meeting was held from 19 to 20 November 2017 in Riyadh, Saudi Arabia. A third meeting was held on 7 October 2019 in Riyadh, Saudi Arabia. * SG20 Regional Group for the African region (SG20RG-AFR) held its first meeting on 11 and 12 April 2018 in Zanzibar, Tanzania. SG20RG-AFR held its second meeting from 27 to 29 August 2019 in Abuja, Nigeria. The meeting took place during the First Digital African Week. The third SG20RG-AFR meeting took place virtually on 3 June 2021. * SG20 Regional Group for Latin America (SG20RG-LATAM) held its first meeting on 20 April 2018 in Cartagena de Indias, Colombia. The second meeting of the SG20RG-LATAM was held on 11 and 12 September 2019 in San Salvador, El Salvador. A one-day BSG training was held on 12 September 2019. The third meeting of the SG20RG-LATAM took place virtually on 13 and 14 October 2020. The next SG20RG-LATAM meeting will be held virtually on 20 September 2021.   In 2018, ITU celebrated 50 years of the existence of ITU-T Regional Groups, as the first 3 regional groups set up under ITU-T SG3 were established in 1968 by the 4th Plenary Assembly of the CCITT. ITU-T has, as of January 2018, 23 regional groups. | | | |
| **54-03**  **(44-25)** | **Regions to encourage the creation of regional standardization bodies as appropriate, develop draft terms of reference, and joint and coordinated meetings of such bodies with regional groups (see also** [**Resolution 44**](#Resolution_44)**). (invite regions 2, 3)** | **Ongoing** | **√** |  |
| * SG3 utilizes its regional groups to develop regional ITU-T Recommendations. * SG17 at its first meeting created a new regional group for the Arab region. * In this study period, March 2019 meeting, SG13 established a new SG13RG-EECAT. * SG20 at its meeting created new regional groups for Regional Group for Latin America (RG-LATAM), for the African Region (RG-AFR), for the Arab Region (RG-ARB), and for Eastern Europe, Central Asia and Transcaucasia (RG-EECAT). * The Second meeting of the ITU-T SG20RG-LATAM was preceded by the Standardization Committee of Telecommunications Regional Technical Commission (COMTELCA) on 9-10 September 2019**.** * ITU-T now has 24 regional groups: * Eight for Africa (Study Groups 2, 3, 5, 11, 12, 13, 17, and 20) * Four for the Americas (Study Groups 2, 3, 5, 20) * Five for the Arab States (Study Groups 2, 3, 5, 17, and 20) * Two for Asia and the Pacific (Study Groups 3 and 5) * Four for Eastern Europe, Central Asia and Transcaucasia (Study Groups 3, 11, 13, and 20). * One for Europe and the Mediterranean Basin (Study Group 3). | | | |
| **54-04**  **(**[**44-14**](#Item44_14)**)** | **SGs and TSAG to coordinate joint meetings of regional groups (i. RGs)** | **Ongoing** | **√** |  |
| * SG2RG-AMR and SG3RG-LAC met back-to-back 6-10 March 2017 including a regional standardisation forum in Trinidad Tobago. SG2 Regional Group for Africa, SG2 Regional Group for Arab states, and SG3 Regional Group for Arab States had a collocated meeting in Dubai, United Arab Emirates, 2019. SG2RG-AFR and SG2RG-ARB held a joint e-meeting on 17 May 2021. * SG2RG-AMR was co-located with SG3RG-LAC in Managua, Nicaragua in March 2019. * SG3RG-ARB back-to-back with SG5RG-ARB in Kuwait City (Kuwait) in December 2018. * SG3RG-EECAT back-to-back with SG11RG-EECAT back-to-back with SG13RG-EECAT in Saint Petersburg, Russian Federation, in May 2019. * SG3 and SG20 regional groups for the Arab Region had collocated meeting from 19 to 22 November 2017. * SG3 and SG5 regional groups for the Arab Region met from 17 to 20 December 2018 in Kuwait City, Kuwait. An ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in Fast-Changing Digital World took place on 17 December 2018. The Annual Regional Forum on IoT took place on 17 December and the Arab Standardization Team meeting took place on 20 December 2018. * SG5RG-AFR, SG20RG-AFR and SG5RG-ARB met in Zanzibar, Tanzania from 9 to 12 April 2018. * SG5RG-LATAM and SG20RG-LATAM met from 19 to 20 April 2018 in Cartagena de Indias, Colombia. * SG5RG-AFR and SG20RG-AFR met from 27 to 30 August in Abuja Nigeria, during the First Digital African Week. * SG11RG-AFR and SG13 RG-AFR met in Cairo 2-6 April 2017. * SG11RG-AFR second meeting took place in Tunis 23-25 April 2018, back-to-back with the related Workshop. SG11RG-EECAT, SG13RG-EECAT and SG3RG-EECAT met in Saint Peterburg from 21-23 May 2019. * SG12RG-AFR met back-to-back with a Q12/12 Rapporteur Group Meeting and a workshop on telecommunication service quality. * SG5-RG-AFR, SG5-RG-ARB, and SG5-RG-LATAM met online from 28 - 30 September 2021. * SG13 has dedicated Question (Q5/13 “Applying networks of future and innovation in developing countries”, since 2021 title is “Applying Future Networks and Innovation in Developing Countries”). SG13 continued the SG13 RG-AFR with updated ToR and priorities for the region. SG13 established in March 2019 a new SG13RG-EECAT. The 2017 meeting of SG13RG-AFR was co-located with the SG11RG-AFR in Cairo; in 2019 the meeting of SG13RG-EECAT was co-located with SG3RG-EECAT and SG11RG-EECAT in St Petersburg. * SG20RG-EECAT and SG11RG-EECAT met in Saint Petersburg, Russian Federation from 20 to 22 June 2017 back-to-back with the ITU Regional Workshop for CIS on “Internet of Things (IoT) and future networks” (19-20 June 2017). SG20RG-EECAT and SG11RG-EECAT met in Saint Petersburg, Russian Federation from 4 to 6 June 2018. An ITU Regional Forum on “Internet of Things, Telecommunication Networks and Big Data as Basic Infrastructure for Digital Economy” took place on 4,5, and 6 June 2018 (morning only). * SG3 and SG20 regional group for Eastern Europe, Central Asia and Transcaucasia had a collocated meeting from 3-5 March 2020 in Minsk, Belarus. The regional group meetings were collocated with the [ITU Forum “Smart sustainable cities: from concept to implementation”](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2020/03_Minsk/03_Minsk.aspx) that took place from 3-5 March 2020.   Also, see 54-01. | | | |
| **54-05**  (**44-21)** | **TSB to provide all necessary support for creation, organization of meetings and workshops of the regional groups to ensure their smooth functioning (see also** [**Resolution 44**](#Resolution_44)**). (i. TSB Dir 1)** | **Ongoing** | **√** |  |
| See 44-21. | | | |
| **54-06**  **(44-24)** | **TSB to conduct workshops for developing countries, concurrently with meetings of ITU-T regional groups in the relevant regions and vice versa, in coordination/collaboration with ITU-D (see also** [**Resolution 44**](#Resolution_44)**). (i. TSBDir 2)** | **Ongoing** | **√** |  |
| There were twelve Regional Standardization Forums (RSFs) held for developing countries or in developing countries during the 2013-2016 study period. These forums included tutorials on ITU-T working methods as well as more technically oriented events covering themes including human exposure to EMF, quality of service, smart water management, international mobile roaming, mobile financial services, digital identity, big data, etc.  A new strategy for the Standardization Forums was adopted under the BSG programme. These are now fully in line with the priorities of our study groups, and are mainly held in coordination with our regional groups. The Standardization Forums are also contributing by raising awareness of standards activities through the participation of key decision makers.  In 2017, 2018, 2019, 2020 and 2021 the following Forums were held:   * [ITU-Forum on "Future Networks and Conformance and Interoperability (C&I)"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2021/SPB-Oct.aspx), St. Petersburg, Russia, 19-22 October 2021 * [Episode 4 on “Smart Cities: a step towards digital transformation in Latin America”](https://www.itu.int/en/ITU-T/webinars/20210920/Pages/default.aspx), 20 September 2021. This episode is part of the [Webinar series on Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx). * [ITU-T SG20RG-AFR Virtual Forum on “Accelerating Digital Transformation in Africa”](https://www.itu.int/en/ITU-T/climatechange/Pages/20210602.aspx), 2 June 2021 * [ITU Regional Standardization Forum (RSF)](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg) on [“Smart sustainable cities: from concept to implementation”](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2020/03_Minsk/03_Minsk.aspx), Minsk, Belarus, 3 to 5 March 2020. * [7th SG13 Regional Workshop on “Standardization of future networks towards Building a better connected Africa”](https://www.itu.int/en/ITU-T/studygroups/2017-2020/13/sg13rgafr/Pages/default.aspx), 3-4 February 2020, Abuja, Nigeria. * [ITU Regional Standardization Forum (RSF) on “Addressing Competition Issues in ICT Economy”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201910/Pages/default.aspx), Colombo, Sri Lanka, 1 October 2019. * [ITU Inter-regional Standardization Forum on “Operational issues on numbering, emergency service and OTTs”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20191022/Pages/default.aspx), Dubai, United Emirates on 22 October 2019. * [Second Arab-African Interregional Standardization Forum on PKI for e-trust](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/2019040405/Pages/default.aspx), Tunis, Tunisia, 4-5 April 2019. * [ITU Regional Standardization Forum – Americas Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201703/Pages/default.aspx) (which focused on SG2 and SG3 topics), Port of Spain, Trinidad and Tobago, 6 March 2017. * [ITU Regional Standardization Forum – Asia and Pacific Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201710/Pages/default.aspx) (which focused on SG3 topics), Seoul, Korea (Rep. of), 24 October 2017. * [ITU Regional Standardization Forum – Arab Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/112017/Pages/default.aspx) (which focused on SG20 topics), Riyadh, Saudi Arabia, 19 November 2017. * [ITU Interregional Standardization Forum – Arab and African Region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201712/Pages/default.aspx) with a focus on [PKI for e-trust in the hyperconnected world](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201712/Pages/default.aspx), Muscat, Oman, 11-12 December 2017. * [ITU Regional Workshop on Deployment of VoLTE/ViLTE networks based on IMS: from Standardization to Implementation](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2018/10_Samarkand/10_Samarkand.aspx), Samarkand, Republic of Uzbekistan, 2-3 October 2018. * [ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/201806/Pages/default.aspx), X’ian, China, 27 August 2018. * [ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20180205/Pages/default.aspx), Kigali, Rwanda, 5 February 2018. * ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends in a Fast-Changing Digital World; Kuwait City, Kuwait, 17 December 2018. * ITU Regional Standardization Forum on Emerging Economic, Regulatory and Policy Trends for an Inclusive, Sustainable and Trustworthy Digital World, Antananarivo, Madagascar, 18 February 2019. * [ITU-UN-Habitat-UNDP Forum on Smart sustainable cities: technological trends, success stories and future prospects, 26-27 February 2019, Minsk, Belarus.](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx" \t "_blank) * [ITU Training on Key performance indicators for smart sustainable cities to achieve the SDGs, 27 February 2019 (11h30- 16h00), Minsk, Belarus.](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx" \t "_blank) * [ITU Regional Forum on “Internet of Things, Telecommunication Networks and Big Data as basic infrastructure for Digital Economy”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180604/Pages/default.aspx), Saint Petersburg, Russia, 4-6 June 2018. * ITU Workshop on International Numbering Resources (INRs) for the Americas, Managua, Nicaragua, 25-26 March 2019. * 4th ITU Workshop on Network 2030 jointly with ITU Forum on Future Applications and Services. Perspective 2030”, Saint-Petersburg, Russia Federation, 21-23 May 2019. * The First Digital African Week will be held from 27 to 30 August 2019 in Abuja, Nigeria. * [ITU Regional Workshop for CIS on "Internet of Things (IoT) and future networks"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2017/06_Saint_Petersburg/06_Saint_Petersburg.aspx), St Petersburg, Russia, 19-20 June 2017. * [Third ITU-T Study Group 11 Regional Workshop for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201909/Pages/default.aspx), Tunis, Tunisia, 30 September 2019. * [Second ITU-T Study Group 11 Regional Workshop for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180423/Pages/default.aspx), Tunis, Tunisia, 23 April 2018. * [SG 11 Regional Workshop for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20170405/Pages/default.aspx), Cairo, Egypt, 5 April 2017.   Workshops held in conjunction with meetings of SG12RG-AFR, in coordination with ITU-D:   * ITU Workshop on Performance, QoS and QoE for Multimedia Services, Johannesburg, 24-25 July 2017. * ITU Workshop on Performance, QoS and QoE for Multimedia Services, Dakar, 19-20 March 2018. * ITU Workshop on Network Performance, Quality of Service and Quality of Experience, Kigali, 4-5 March 2019. * ITU Workshop on Network Performance, Quality of Service and Quality of Experience, N’Djamena, 2-3 March 2020.   Workshops held in conjunction with meetings of SG9 or Rapporteurs meetings of SG9. Which were hosted in the regions, in coordination with ITU-D and regional offices:   * [TV and content delivery on Integrated Broadband Cable Networks](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201705/Pages/default.aspx), Hangzhou, China, 26 May 2017. * [The Future of TV for the Americas](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201811/Pages/default.aspx)*,* Bogotá, Colombia, 26 Nov 2018. * [Future Integrated Broadband Cable Networks](https://www.itu.int/en/ITU-T/studygroups/2017-2020/09/Wuhan-WSP/Pages/default.aspx) (Wuhan, China, 14 April 2019) * [The Future of Cable TV for Asia & Pacific](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20190903/Pages/default.aspx), Guangzhou, China, 3 September 2019. | | | |
| **54-07** | **TSB Director to cooperate with BDT Director to continue provide specific assistance to regional groups, encourage the continuing development of computerized application tools, and take appropriate steps to facilitate meetings of the current and future regional groups to improve the effectiveness and efficiency of the SGs (c.u. TSBDir i), ii), iii))** | **Ongoing** | **√** |  |
| TSB Director holds monthly coordination meetings with the ITU regional Directors. | | | |
| **54-08** | **Regional groups to cooperate closely with the relevant respective regional organizations, standardization bodies and ITU regional offices, and to report on their work in their regions (f.i. RGs).** | **Ongoing** | **√** |  |
| During this Study Period, the work of the ITU-T Regional Groups of Study Groups has been brought to the attention of and shared with each of the Regional and Areas Offices, so as to enhance awareness of the standardization work in each region, taking into account the needs and the requirements.  The work of Regional Groups of Study Groups has been shared with Regional Organizations, as well as with Regional Standards Organizations, during their General Assemblies and Annual Events, as well as to the attention of National Standardization Organizations.  The ITU Regional Offices and Area Offices reported to TSAG ([TSAG TD324](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0324)).  Regular participation of regional office representatives in SG12RG-AFR meetings and workshops organized by SG12.  SG11RG-EECAT meetings and relevant workshops were organized in close collaboration with ITU Moscow Regional office. Representatives of RCC attended those events.  Representatives of COMTELCA and CITEL participate actively in the regional group meetings for LATAM for ITU-T SG5 and SG20.  Representatives from the African Telecommunication Union participate actively in the regional group meetings for Africa for ITU-T SG5 and SG20. | | | |

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# Resolution 55 – Promoting gender equality in ITU Telecommunication Standardization Sector activities

**Resolution 55**

resolves

1 that ITU-T continue efforts to ensure that all its policies, work programmes, information dissemination activities, publications, study groups, seminars, courses, assemblies and conferences reflect the commitment to gender equality, and promote gender balance:

i) for posts, including those at the Professional and higher levels in TSB,

ii) in the selection of chairmen, vice- chairmen and rapporteurs of the ITU-T study groups and of TSAG;

2 that a high priority be accorded to gender mainstreaming in the management, staffing and operation of ITU-T;

3 that ITU-T continue to support WISE,

instructs the Director of the Telecommunication Standardization Bureau

1 to take the necessary steps to continue implementing the ITU GEM Policy, including, supporting the implementation of recommendations from the Joint Inspection Unit relevant to gender mainstreaming, supporting the Gender Focal Points for ITU-T, and encouraging TSB staff to undertake relevant training;

2 to continue the integration of a gender perspective in the work of TSB in accordance with the principles already applied in ITU;

3 to conduct an annual review on progress made in the Sector in advancing gender mainstreaming, including by collecting and reviewing statistics on ITU-T standardization activities by gender, and to share findings with TSAG and the next world telecommunication standardization assembly;

4 to encourage the participation of women in all aspects of ITU-T activities and support an increase in the number of women in ITU-T leadership positions by:

i) encouraging membership to include women on their delegations, by, inter alia, including in all circulation letters the statement, “The membership is invited to include women on their delegations whenever possible”;

ii) making the selection of women for TSB positions at the Professional and higher levels a top priority;

5 to support the ongoing work of WISE to ensure that all women have an opportunity to develop as ITU-T leaders by serving as rapporteurs or associate rapporteurs;

6 to post on a public-facing WISE webpage current information on the number of women attending Sector events, including administration or Sector Member affiliation and study group distribution, and identify the study groups in which women hold leadership positions;

7 to include gender balance as a factor in the distribution of financial assistance to attend ITU-T meetings where resources are available;

8 to join the ITU Secretary-General in participating in the Planet 50/50 initiative sponsored by the United Nations High Commissioner for Human Rights to tackle invisible gender bias as a Geneva Gender Champion on behalf of ITU-T,

invites the Secretary-General

1 to comply with the reporting obligations, as required by UNSWAP, on ITU-T activities aimed at promoting gender equality and the empowerment of women;

2 to encourage ITU staff to take account of the gender-neutral guidelines in the ITU English Language Style Guide and to avoid, as much as possible, the use of gender-specific terms,

invites Member States and Sector Members

1 to submit candidatures for chairman/vice-chairman posts in order to support the active involvement of women as well as men in standardization groups and activities and in their own administrations and delegations;

2 to actively support and participate in the work of TSB, to nominate experts for the ITU-T WISE group and to promote the use of ICTs for the economic and social empowerment of women and girls;

3 to encourage and actively support ICT education for girls and women, and support all measures that will help prepare them for a professional career in ICT standardization.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **55-02** | **TSB Director to take the necessary steps to continue implementing the ITU GEM Policy, including, supporting the implementation of recommendations from the Joint Inspection Unit relevant to gender mainstreaming, supporting the Gender Focal Points for ITU-T, and encouraging TSB staff to undertake relevant training (i. TSBDir 1)** | **Ongoing** | **√** |  |
| TSB continues to collaborate with the other Bureaux and the General Secretariat to build a framework to move the gender agenda forward, under the umbrella of the ITU Gender Taskforce. TSB staff have participated in various training activities including I Know Gender and Unconscious Bias. The female staff in the professional grade category were encouraged to participate in corporate initiatives on practical strategies for empowerment. Diversity of staff, gender equality and the empowerment of women continue to be among TSB’s priorities. | | | |
| **55-03** | **TSB Director to encourage the participation of women in all aspects of ITU-T activities and support an increase in the number of women in ITU-T leadership positions (encouraging membership to include women on their delegations, selection of women for TSB positions at the Professional and higher levels; selection of chairmen vice chairmen and rapporteurs of ITU-T SGs and of TSAG (resolves 1, i. TSBDir 4)** | **Ongoing** | **√** |  |
| Member States and Sector Members are encouraged to support the active involvement of women experts in standardization groups and activities by this Resolution. Currently, 53% TSB staff are women. The Director of TSB continues to promote women in higher grades. The number of women in the professional category has increased to 45% compared to 33% in 2016. | | | |
| **55-04** | **ITU-T to continue WISE; and post WISE web-page (resolves 3, i. TSBDir 5, 6)** | **Ongoing** | **√** |  |
| The first WISE event was held on 30 October 2016 at the World Telecommunication Standardization Assembly (WTSA) in Yasmine Hammamet, Tunisia. The event consisted of a workshop on practical skills for successful negotiations, as part of ITU-T’s commitment to promoting equality for men and women delegates attending its meetings and conferences, followed by a panel discussion highlighting the experiences of leading women from the ICT and standardization fields.  WISE web page is available at: <http://www.itu.int/en/ITU-T/wise/Pages/default.aspx> | | | |
| **55-05** | **TSB Director to conduct an annual review on progress made in ITU-T in advancing gender mainstreaming, and to share findings with TSAG and the next WTSA. (i. TSB Dir 3)** | **Ongoing**  **Annual TSAG meetings, WTSA-20** | **√** | **√** |
| Resolution 55 (Rev. Hammamet, 2016) on “Promoting gender equality in ITU Telecommunication Standardization Sector activities” instructs the TSB Director to conduct an annual review on progress made in ITU-T in advancing gender mainstreaming, and to share findings with TSAG and the next WTSA.  TSB continues to undertake actions to improve gender equality in TSB and ITU-T. TSB has endorsed the “Gender Responsive Standards” initiative by UNECE which aims to improve gender balance in standards development and ensure that the content and impacts of standards are gender responsive. Diversity of staff, gender equality and the empowerment of women continue to be among TSB’s priorities.  **Current status of the annual review:**   * Participation in ITU-T statutory meetings: 26% are women. The number is higher in non-statutory meetings, approximately 35%. * Leadership positions (Chairmen & Vice Chairmen): trends moving upwards currently at 18%. Still work to be done. * Staffing: Currently, 53% of TSB staff are women; 45% of staff in the professional category are women. * Training & Development: Staff in Study Group leadership positions on adopting a gender sensitive language in all documents & encouraging more and active participation of women in ITU events. Leadership skills for women in the professional category. * Promotions: The number of female staff in the professional category has more than quadrupled over the last 10 years. Currently 50% of staff at P5 level are women. In the Study Group department, the core of TSB’s work, 75% of staff at P5 level are women. From 2016 to 2021, 50% of promotions in TSB were awarded to qualified women in the professional category. In 2019, 80 per cent of promotions into higher grades in TSB were awarded to women mainly in the professional category.   **Actions by the Secretariat:**   * BSG trainings to encourage active participation of women from developing countries; * Gender aspect considered when awarding fellowships to attend ITU-T meeting; 24% of fellowships from 2017 to 2020 were awarded to women. Still work to be done. Topics on gender in various ITU-T initiatives, climate change, E-Waste, Kaleidoscope, AI for Good, etc.; * Various IT tools developed in-house to track and encourage active participation of men and women in ITU-T meetings, e.g. voice recognition platform.   **Members encouraged:**   * Member States encouraged to submit candidatures of qualified women for ITU-T leadership positions and nominate women as heads of delegations; * Sector Members encouraged to nominate women expert speakers for ITU-T events panels.   See also action item 55-01.  **Collaboration & Partnerships:**   * The secretariat partners and collaborates with other UN agencies UNECE, ISO, IEC, CEN –CENELEC and many SDOs & National Standard Bodies to move the gender agenda forward. * In 2019, endorsed the UNECE Gender Responsive Standards Initiative, committing to ensuring that the content and impact of implemented standards are gender responsive.   **Planned event and award ceremony at WTSA-20.** | | | |
| **55-06** | **Sec-Gen to comply with the UNSWAP reporting obligations on the ITU-T activities aimed at promoting gender equality and the empowerment of women, and encourage ITU staff to avoid as much as possible gender-specific language. (i. SecGen 1, 2)** | **Ongoing** | **√** |  |
| ITU Sec-Gen has complied with UN SWAP reporting obligations. ITU has been reporting on the United Nations System-Wide Action Plan on Gender Equality and the Empowerment of Women (UN-SWAP) since its endorsement by the CEB in 2012. ITU was commended for implementing new mandatory gender training as well for reporting UN-SWAP results to the Council. ITU continues efforts to incorporate a gender perspective in the work programmes, management approaches, and human resource development of the Union. For example, a gender element has now been incorporated into the staff electronic performance management and development system (ePMDS).  The Director of TSB, Mr Chaesub Lee, continues to undertake actions to improve gender equality in TSB and ITU-T. | | | |
| **55-07** | **TSB Director to join the ITU Secretary General in participating the Planet 50/50 initiative. (i. TSBDir 8)** | **Ongoing** | **√** |  |
| Then TSB Director supports the ITU Secretary General’s participation in the Planet 50/50 initiative and continues to encourage gender balanced panels in ITU-T meetings and conferences. | | | |

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# Resolution 58 – Encourage the creation of national computer incident response teams, particularly for developing countries

**Resolution 58**

resolves

to support the creation of national CIRTs in Member States where CIRTs are needed and are currently absent,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau

1 to identify best practices to establish CIRTs;

2 to identify where CIRTs are needed;

3 to collaborate with international experts and bodies to establish national CIRTs;

4 to provide support, as appropriate, within existing budgetary resources;

5 to facilitate collaboration between national CIRTs, such as capacity building and exchange of information, within an appropriate framework,

invites the Member States

1 to consider the creation of a national CIRT as a high priority;

2 to collaborate with other Member States and with Sector Members,

invites Member States and Sector Members

to cooperate closely with ITU-T and ITU‑D in this regard.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Action Item | Action | Milestone | Periodic goals met | Completed |
| **58-01** | **TSB Director, in collaboration with BDT Director and SG17, to identify best practices to establish CIRTs and identify where CIRTs are needed (i. TSBdir 1)** | **Ongoing** | **√** |  |
| BDT is taking the lead.  Q3/17 “Telecommunications information security management” and Q4/17 “Cybersecurity” prepared a global directory of cybersecurity organizations, including CIRTs, which is currently hosted and maintained by the TSB on the SG17 website at: <http://www.itu.int/ITU-T/studygroups/com17/nfvo/index.html>. This fosters global collaboration among organizations.  SG17 approved Recommendation ITU-T X.1060 “Framework for the creation and operation of a cyber defence center” in June 2021 and several African countries showed immediately high appreciation of its importance and strong interest of its implementation in African countries. SG17RG-AFR launched an online [survey](https://www.research.net/r/ITUTSG17CDCX1060) for December 2021 – March 2022 as the first step to develop an implementation guideline of ITU-T X.1060 for African countries. See action 54-01. | | | |
| **58-02** | **TSB Director, in collaboration with BDT Director, to facilitate capacity building and information exchange between national CIRTs (i. TSBdir 5)** | **Ongoing** | **√** |  |
| BDT is taking the lead.  SG17 approved ITU-T X.1215, *Use cases for structured threat information expression*. | | | |
| **58-03** | **Q3/17 to continue study the issue of CIRTs creation and possibility to provide a guideline in line with X.1056 (Security incident management for telecommunication organizations), in collaboration with Q4/17 and other relevant Questions and Recommendations (e.g., ITU-T E.409)** | **Ongoing** | **√** |  |
| Q3/17 started work in collaboration with Q4/17 and Q22/ITU-D and FIRST to study CIRT creation and developed Recommendation ITU-T X.1060 *Framework for the creation and operation of a cyber defence center*.  Q2/17 developed Recommendation ITU-T X.1046, *Guideline on Software-defined Security in SDN/NFV Network,* which supports automatic incident response. | | | |

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# Resolution 59 – Enhancing participation of telecommunication operators from developing countries

**Resolution 59**

resolves to invite the Director of the Telecommunication Standardization Bureau

1 to encourage Sector Members from the developed countries to promote the participation in ITU‑T activities of their subsidiaries installed in developing countries;

2 to develop mechanisms to support the effective participation by telecommunication operators from developing countries in standardization activities;

3 to raise the awareness of the developing countries regarding the benefits of participation and of becoming an ITU-T Sector Member and/or Associate,

invites Member States

to encourage their Sector Members to participate in ITU‑T activities.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **59-01** | **TSB to raise awareness of developing countries regarding the benefits of ITU-T membership (resolves 3)** | **Ongoing** | **√** |  |
| The benefits of ITU-T membership are being presented at ITU-T regional Study Groups meetings and workshops in developing countries. | | | |
| **59-02** | **TSB Director to encourage SMs from developing countries to promote their subsidiaries to participate in ITU-T activities (resolves 1)** | **Ongoing** | **√** |  |
| 13 Sector Members in total from developing countries attended CxO/CTO group meetings since 2017, and more than 100 operators from developing countries participated in ITU TelecomWorld events. The TSB Director took the opportunity to encourage those members and organizations from developing countries to participate in ITU-T activities. | | | |
| **59-03** | **TSB Director to grant fellowships for network operators from developing countries** | **Ongoing** | **√** |  |
| Fellowships are made available to attend ITU-T meetings, including study group meetings and regional study group meetings, workshops and seminars. These are allocated according to the following criteria: available TSB budget; active participation, including the submission of written contributions; equitable distribution among countries and regions; gender balance and network operators. The current policy is to allocate partial fellowships only.  All Collective Letters issued include information on fellowships and the necessary application form. TSB provides the fellowships in coordination with BDT.  Due to Covid restrictions, no fellowships were awarded since March 2021.  See also action item 44-30. | | | |

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# Resolution 60 – Responding to the challenges of the evolution of the identification/numbering system and its convergence with IP-based systems / networks

**Resolution 60**

resolves to instruct ITU-T Study Group 2, within the mandate of ITU‑T

1 to continue studying, in liaison with the other relevant study groups, the necessary requirements for the structure and maintenance of telecommunication identification/numbering resources in relation to the deployment of IP-based networks and the transition to NGN and FN;

2 to ensure the development of the administrative requirements for identification/numbering resource management systems in NGN and FN;

3 to continue developing guidelines, as well as a framework, for the evolution of the international telecommunication numbering system and its convergence with IP-based systems, in coordination with related study groups and associated regional groups, so that a basis for any new application can be provided,

instructs relevant study groups, and in particular ITU-T Study Group 13

to support the work of Study Group 2, to ensure that such applications are based on appropriate guidelines, as well as a framework, for the evolution of the international telecommunication numbering/identification system, and to help investigate their impact on the numbering/identification system,

instructs the Director of the Telecommunication Standardization Bureau

to take appropriate action to facilitate the foregoing work regarding the evolution of the numbering/identification system or its converged applications,

invites Member States and Sector Members

1 to contribute to these activities, taking into consideration their national concerns and experiences;

2 to participate in and to contribute to regional groups discussing the issue and to promote the participation of developing countries in those discussions.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **60-01** | **SG2, supported particularly by SG13, to study necessary requirements and related resource management systems regarding telecommunication identification/numbering resources in relation to the deployment of IP-based networks and the transition to NGN and FN, and to develop guidelines for evolution of the international telecommunication numbering system and its convergence with IP-based systems** | **Ongoing** | **√** |  |
| Actions by ITU-T SG2 depend on Contributions.  SG2 is studying draft Recommendation ITU-T E.112 (revised) “Arrangements to be made for controlling the telephone services between two countries”, and Recommendation ITU T E.370 (revised) “Service principles when public circuit-switched international telecommunication networks interwork with IP-based networks”. | | | |

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# Resolution 61 – Countering and combating misappropriation and misuse of international telecommunication numbering resources

**Resolution 61**

resolves to invite Member States

1 to ensure that ITU-T E.164 numbering resources are used only by the assignees and only for the purposes for which they were assigned, and that unassigned resources are not used;

2 to endeavour to ensure that operating agencies authorized by Member States release routing information to duly authorized agencies in cases of fraud, in accordance with national law;

3 to encourage administrations and national regulators to collaborate and share information on fraudulent activities related to misappropriation and misuse of international numbering resources, and to collaborate to counter and combat such activities;

4 to encourage all international telecommunication operators to enhance the effectiveness of ITU’s role and to give effect to its Recommendations, particularly those of ITU‑T Study Group 2, in order to promote a new and more effective basis to counter and combat fraudulent activities due to number misappropriation and misuse, which would help limit the negative effects of these fraudulent activities and the blocking of international calls;

5 to encourage administrations and international telecommunication operators to implement ITU‑T Recommendations in order to mitigate the adverse effects of fraudulent number misappropriation and misuse, including blocking of calls to certain countries,

resolves further

1 that administrations and operating agencies authorized by Member States take, to the furthest extent practicable, all reasonable measures to provide information necessary to address issues related to number misappropriation and misuse;

2 that administrations and operating agencies authorized by Member States should take note of and consider, to the furthest extent practicable, the “Suggested guidelines for regulators, administrations and operating agencies authorized by Member States for dealing with number misappropriation”, in accordance with the attachment to this resolution;

3 that Member States and national regulators should take note of instances of activities related to the misuse of international numbering resources, in accordance with Recommendation ITU‑T E.164, through relevant ITU‑T resources (e.g. the ITU-T Operational Bulletin);

4 to request Study Group 2 to study all aspects and forms of misappropriation and misuse of numbering resources, in particular of international country codes, with a view to amending Recommendation ITU‑T E.156 and its supplements and guidelines to support countering and combating these activities;

5 to request ITU-T Study Group 3, in collaboration with Study Group 2, to develop definitions for inappropriate activities, including inappropriate activities causing loss of revenue, related to misappropriation and misuse of international numbering resources specified in the relevant ITU-T Recommendations, and to continue to study such matters;

6 to request Study Group 3 to study the economic effects resulting from misappropriation and misuse of numbering resources, including call blocking.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **61-01** | **SG2 to study all aspects and forms of misappropriation and misuse of numbering resources, particular international country codes, with a view to amending Recommendation ITU-T E.156 and its supplements and guidelines** | **Ongoing** | **√** | **√** |
| Recommendation ITU-T E.156 (revised) “Guidelines for ITU-T action on reported misuse of E.164 number resources” was approved on 5 June 2020. | | | |
| **61-02** | **SG3 to develop definitions for inappropriate activities related to misappropriation and misuse of international numbering resources specified in ITU-T Recommendations** | **Ongoing** | **√** |  |
| ITU-T Study Group 3 is studying work item STUDY\_ACPMI, Alternative Calling Procedures, and misappropriation and misuse of facilities and services (CLI, CPND and OI), and in work item D.SIMBOX, Economic impact of SIMBOX bypass. SG3 is also liaising with SG2 on the definition of OTT Bypass. | | | |
| **61-03** | **SG3 to study the economic effects of misappropriation and misuse of numbering resources, including call blocking** | **Ongoing** | **√** |  |
| Q8/3 is studying work item STUDY\_ACPMI Alternative Calling Procedures, and misappropriation and misuse of facilities and services (CLI, CPND and OI). | | | |

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# Resolution 62 - Dispute settlement

**Resolution 62**

resolves to instruct ITU-T Study Group 3

1 to expedite its work on international connectivity, in order to facilitate the implementation of relevant resolutions;

2 to collect data with respect to the implementation and practical effects of the implementation of relevant resolutions and ITU-T D-series Recommendations,

invites Member States

1 to encourage each party to include in a negotiation or agreement related to, or arising out of, international connectivity matters a dispute settlement clause in such agreements;

2 to encourage all operating agencies domiciled within their territories to implement relevant ITU‑T Recommendations;

3 to contribute to ITU‑T's further work in the areas mentioned in this resolution,

instructs the Director of the Telecommunication Standardization Bureau

1 to report annually to the ITU Council with respect to the implementation of this resolution;

2 to provide all necessary support, within the existing budget, to Study Group 3 for its further work on this matter.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **62-01** | **SG3 to collect data with respect to implementation and practical effects of implementation of relevant resolutions and E-series Recommendations.** | **Ongoing** | **√** |  |
| SG3 approved Recommendation ITU-T D.198 that recognizes the right of any operator to present price/tariffs/rates charged for telecommunications services in any form deemed convenient for the operator, and recommends that telecommunications companies offering international connections/exchange of traffic make use as far as possible of the same templates/forms/format of data to represent traffic destinations and offered price/tariffs/rates including if required optional clarifying information or quality of service criteria.  SG3 finalized and issued in TSB Circular 168 Cor.1 on 14 May 2019 that contains a questionnaire on the implementation status of Recommendations ITU-T D.98 and D.97 on international mobile roaming; SG3 considered the results of Circular 168.  SG3 issued Circular 265 on 36 August 2020 that contains a questionnaire on dispute resolution processes; SG3 considered the results obtained from Circular 265. | | | |
| **62-03** | **TSB Director to prepare report to Council annually** | **Ongoing, 3 months before Council** | **√** |  |
| For the time being, there is nothing else to report to Council than reflected in 62-01. | | | |

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# Resolution 64 - IP address allocation and facilitating the transition to and deployment of IPv6

Resolution 64

resolves

1 to instruct ITU-T Study Groups 2 and 3, each according to its mandate, to continue to study the allocation of IP addresses, and to monitor and evaluate the allocation of IPv4 addresses which may be still available, returned or unused, in the interests of the developing countries;

2 to instruct Study Groups 2 and 3, each according to its mandate, to analyse statistics for the purpose of assessing the pace and geography of IPv6 address allocation and registration for interested members and, especially, developing countries, in collaboration with all relevant stakeholders;

3 to enhance the exchange of experiences and information with all stakeholders regarding the deployment of IPv6, with the aim of creating opportunities for collaborative efforts and the enhancement of technical skills, and to ensure that feedback exists to enrich ITU efforts to support the transition to and deployment of IPv6,

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Director of the Telecommunication Development Bureau

1 to continue the ongoing activities between the Telecommunication Standardization Bureau (TSB) and BDT, taking into consideration the involvement of those partners willing to participate and bring their expertise to assist developing countries with IPv6 migration and deployment, and respond to their regional needs as identified by BDT, taking into account Resolution 63 (Rev. Dubai, 2014);

2 to update and maintain the website which provides information about global activities related to IPv6, in order to facilitate awareness-raising and highlight the importance of IPv6 deployment for all ITU members and interested entities, as well as information related to training events being undertaken by ITU and relevant organizations (e.g. regional Internet registries (RIR), network operator groups and the Internet Society (ISOC));

3 to promote awareness of the importance of IPv6 deployment, facilitate joint training activities, involving appropriate experts from the relevant entities, provide information, including roadmaps and guidelines, and to assist in the continued establishment of IPv6 test-bed laboratories in developing countries in collaboration with appropriate relevant organizations, and to promote awareness of the advantages of IPv6 over IPv4 with regard to IoT given the substantial demand for IP addresses for IoT devices;

4 to support BDT in relevant IPv6 training for engineers, network operators and content providers that can enhance their skills and which they can further apply at their respective organizations,

further instructs the Director of the Telecommunication Standardization Bureau

to take appropriate action to facilitate the activities of Study Groups 2 and 3 in the area of IP addresses, and to report to the ITU Council and also to the 2020 world telecommunication standardization assembly, regarding the progress on action taken with respect to *resolves* above,

invites Member States and Sector Members

1 through the knowledge gained under *resolves* 3, to promote specific initiatives at the national level which foster interaction with governmental, private and academic entities and civil society for the purposes of the information exchange necessary for the deployment of IPv6 in their respective countries;

2 to ensure that newly deployed communication and computer equipment has IPv6 capability, as appropriate, taking into consideration a necessary period for the transition from IPv4 to IPv6;

3 to consider committing to an IPv6 transition and communicating progress,

invites Member States

1 to develop national policies to promote the technological update of systems, in order to ensure that the public services provided utilizing the IP protocol and the communications infrastructure and relevant applications of the Member States are compatible with IPv6;

2 to consider the possibility of national programmes to encourage Internet service providers (ISPs) and other relevant organizations to transition to IPv6;

3 to consider using government procurement requirements to encourage deployment of IPv6 among ISPs and other relevant organizations, if appropriate.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **64-02** | **SG2 (and SG3) to study allocation of IP addresses, and to monitor and evaluate IPv4 allocation for interested members and, especially, developing countries (resolves 1)** | **Ongoing** | **√** |  |
| The continuation of the Ad hoc group and the associated Correspondence Group to propose the methodology and work items needed to pursue the implementation of the parts of WTSA Resolution 64 "Internet protocol address allocation and facilitating the transition to and deployment of IPv6" relevant to Study Group 2, was agreed in the SG2 meeting of 29 March to 7 April 2017. The Ad hoc group on Resolution 64 met jointly with Q1/2. SG2-C.4 "Allocation of IP addresses and facilitation of IPv6 deployment." from the Central African Republic was presented. The meeting report is contained in TD105 (GEN/2).  During the SG2 meeting of 27 November to 1 December 2018, the ad hoc group (AHG) on WTSA-16 Resolution 64,” Internet protocol address allocation and facilitating the transition to and deployment of IPv6,” meet informally. The meeting approved the liaison prepared by the informal meeting to TSAG and IAB (IETF Internet Architecture Board), on "IAB statement on IPv6", which is a reply to TSAG-LS 3 contained in SG2-TD279/GEN.  In the SG2 meeting of 4 to 13 July 2018, a new routing method for Internet of Things worked out within a European research project was discussed. It uses ITU-T E.164 numbers in the prefix of the IPv6 address. See section 3.4 of Q1/2 meeting report ([SG2-TD398-R1](https://www.itu.int/md/T17-SG02-180704-TD-GEN-0398/en)/GEN). Liaisons with IETF on “Clarifications to IETF Process related to individual drafts and requests for IANA allocation related to IPv6 addressing” were exchanged ([SG2-TD458/GEN](https://www.itu.int/md/T17-SG02-180704-TD-GEN-0458/en) and [SG2-TD519](https://www.itu.int/md/T17-SG02-180704-TD-GEN-0519/en)/GEN). Updates were provided in the SG2 meeting of 20 to 28 February 2019, see section 3.11 of Q1/2 meeting report ([SG2-TD612-R1](https://www.itu.int/md/T17-SG02-190219-TD-GEN-0612/en)).  The ITU-T IPv6 secretariat received a submission with an IETF proposal for an Adaptive IPv4 Address Space called EzIP to use an IPv4 protocol header extension to allow for some bigger IPv4 address space to overcome IPv4 address depletion in domains that have not yet been migrated to IPv6. Relevant information was provided to SG2 ([SG2-TD427](https://www.itu.int/md/T17-SG02-180704-TD-GEN-0427/en)/GEN) and the participants noted that any proposal for study must be submitted as contributions.  SG3 is studying in work item STUDY IPV6 the economic impact of transition from IPv4 to IPv6. The updated Q6/3 is dedicated to the cost provision of services and impact of IPv6 deployment. | | | |
| **64-03** | **(SG2 and) SG3 to analyse statistics for the purpose of assessing the pace and geography of IPv6 addresses and registration for interested members and, especially for developing countries, in collaboration with all relevant stakeholders (resolves 2).** | **Ongoing** | **√** |  |
| SG20 started to develop within three work items concerning: a reference model of IPv6 subnet addressing plan for Internet of things deployment, a reference model of protocol suite for IPV6 interoperable Internet of things deployments, and the IPv6 potential for the Internet of things and smart cities. Unfortunately, due to lack of contributions, the three work items could not be completed and they were discontinued. | | | |
| **64-06** | **TSB Director, in collaboration with BDT Director, to continue project to assist developing countries with IPv6 migration and deployment. (i. TSBDir 1)** | **Ongoing** | **√** |  |
| Note: The ITU IPv6 project to assist developing countries with IPv6 migration and deployment is led by ITU-D; reports on the ITU IPv6 project are found in section 3 of SecGen’s report on ITU INTERNET ACTIVITIES: RESOLUTIONS 101, 102, 133 & 180 to CWG-Internet ([9/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-RCLINTPOL9-C-0002), [10/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-RCLINTPOL10-C-0002), [11/2](https://www.itu.int/md/S18-RCLINTPOL11-C-0002), [12/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-RCLINTPOL12-C-0002), [13/3](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-RCLINTPOL13-C-0003), [14/2R1](https://www.itu.int/md/S20-RCLINTPOL14-C-0002), [15/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-RCLINTPOL15-C-0002)[16/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-RCLINTPOL16-C-0002)), and to Council ([C33/17](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0033), [C33/18](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0033), [C19/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0033), [C20/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0033), [C21/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0033)) respectively. | | | |
| **64-07** | **TSB Director, in collaboration with BDT Director, to update and maintain the IPv6 portal website that provides information on global activities related to IPv6 and to training events of ITU and relevant orgs. (i. TSBDir 2)** | **Ongoing** | **√** |  |
| The ITU-T IPv6 webpage at <https://www.itu.int/en/ITU-T/ipv6/Pages/default.aspx> is maintained and has been updated. | | | |
| **64-08** | **TSB Director, in collaboration with BDT Director, to provide information, including roadmaps and guidelines to assist in the continued establishment of IPv6 test-bed labs in developing countries in collaboration with other orgs; and to promote awareness of the advantages of IPv6 over IPv4 with regard to IoT given the substantial demand for IP addresses for IoT devices. (i. TSBDir 3)** | **Ongoing** | **√** |  |
| Excellent collaboration and cooperation is ongoing between TSB, BDT in the context of smart sustainable cities.  The events below have been jointly organized with the support of the respective regional office:   * [ITU-UN-Habitat-UNDP Forum on Smart sustainable cities: technological trends, success stories and future prospects](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx), 26-27 February 2019, Minsk, Belarus, and * [4th Asia-Pacific Regional Forum on Smart Sustainable Cities and e-Government 2018](https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Pages/Events/2018/ssceg2018/home.aspx), 4-6 July 2018, Thanh Hoa city, Viet Nam.   A webinar is also planned on “Achieving the sustainable development goals (SDGs) in cities through digital transformation in the CIS region”, Virtual, 8 October 2020. This webinar is jointly organized by TSB, BDT and the regional office of the CIS region. | | | |
| **64-09** | **TSB Director to report to Council and to WTSA-20 (f.i. TSBDir)** | **Council 2020,**  **WTSA-20** | **√** | **√** |
| TSB Director's reports are contained in [C17/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0033), [C18/33](https://www.itu.int/md/S18-CL-C-0033/en), [C19/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0033), [C20/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0033), [C21/33](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0033).  Resolution 64 (Rev. Hammamet, 2016) on “IP address allocation and facilitating the transition to and deployment of IPv6” further instructs the TSB Director to take appropriate action to facilitate the activities of Study Groups 2 and 3 in the area of IP addresses, and to report to the ITU Council and also to the 2020 WTSA, regarding the progress on action taken with respect to resolves 1, 2, and 3.  The WTSA Action Plan provides in action item 64-02 (for *resolves 2*), and in action item 64-03 (for *resolves 3*) detailed reports on the allocation of IP addresses and on the situation within ITU-T SG 2, 3, and 20 and their studies. With respect to *resolves 3*, related information is reported in the action items 64-06, …, 64-08, and 64-10.  Collaboration between TSB and BDT yielded information exchange such as in workshops and seminars, in particular in the context of IP addresses for IoT devices. However, no results could be accomplished on the establishment of IPv6 test-bed labs in developing countries in collaboration with other organizations.  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” instructs the TSB Director to report to WTSA on the activities undertaken and achievements on these subjects, including proposals for further consideration as appropriate.  [TSAG-TD1082](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1032) contains the PP Action Plan; where action items 102-01, …, 102-07 contain the TSB Director’s report (with further information) on the implementation of that Resolution.  In summary, the TSB Director regularly reported the many activities and many achieved results of ITU-T as are in scope of Resolution 102 as well as of Resolutions 101, 133, 180, and 206 of the Plenipotentiary Conference to the Council Working Group on International Internet-related Public Policy Issues (CWG-Internet) and also to Council.  The TSB Director facilitated coordination and assistance in the development of public policy issues pertaining to Internet domain names and addresses and other Internet resources Results and activities by making the relevant ITU-T study groups aware of the open consultations conducted by CWG-Internet and the respective results. | | | |
| **64-10** | **TSB Director to support BDT in relevant IPv6 training for engineers, network operators and content providers that can enhance their skills and which they can further apply at their respective organizations (i. TSBDir 4)** | **Ongoing** | **√** |  |
| TSB has been coordinating and collaborating with BDT; such as in the IPv6 project for its planning and its implementation. | | | |

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# Resolution 65 - Calling party number delivery, calling line identification and origin identification information

**Resolution 65**

resolves

1 that international CLI, CPN delivery and OI shall be provided based on the relevant ITU‑T Recommendations where technically possible;

2 that the delivered CPN shall at least, where technically possible, be prefixed with country codes so that a terminating country can identify in which country the calls are originated, or identify the terminal that originates the call, before they are delivered from the originating country to that terminating country, known as OI information;

3 that, in addition to the country code if delivered, the delivered CPN and CLI shall include the national destination code, or sufficient information to allow proper billing and accounting, for each call;

4 that the OI information in a heterogeneous networking environment shall, where technically possible, be an identifier assigned to a subscriber by the originating service provider, or be replaced by a default identifier by the originating provider to identify the origin of the call;

5 that the CPN, CLI and OI information shall be transmitted transparently by transit networks (including hubs),

instructs

1 ITU-T Study Group 2, ITU-T Study Group 3 and, where required, ITU-T Study Group 11 and ITU‑T Study Group 17 to further study the emerging issues of CPN delivery, CLI and OI information, in particular for a heterogeneous networking environment, including security methods and possible validation techniques;

2 the study groups concerned to expedite work on Recommendations that would provide additional detail and guidance for the implementation of this resolution;

3 the Director of the TSB to report on the progress achieved by the study groups in implementing this resolution, which is intended to improve security and minimize fraud, and minimize technical harm as called for by Article 42 of the Constitution,

invites Member States

1 to contribute to this work and to cooperate in the implementation of this resolution.

2 to consider developing, within their national regulatory and legal frameworks, guidelines or other means for implementing this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **65-01** | **SG2, SG3, SG11 and SG17 to further study emerging issues of CPND, CLI and OI, including security methods and possible validation techniques (instructs 1)** | **Ongoing** | **√** |  |
| * SG2 in its meeting of 29 March to 7 April 2017, SG2-C17 (NTT) on Credibility of CLI , TD59 (GEN/2) (TSB) on machine learning and detection of abnormal activities in numbering misuse and caller ID spoofing and the paper "Toward authenticated caller ID transmission: the need for a standardized authentication scheme in Rec. ITU-T Q.731.3 calling line identification presentation" contained in TD80 (GEN/2) (TSB) were noted. SG2-C44 (Nepal) and SG2-C55 (Voxbone) were received and discussed in the SG2 meeting of 27 November to 1 December 2017. SG2-C130 (UK) and SG2-C131 (Russia) were received and discussed in the SG2 meeting of 4 to 13 July 2018. SG2-C183 (Egypt) was discussed in the SG2 meeting in February 2019. SG2-C205 (China Mobile Communications Corporation) was discussed at the SG2 meeting in December 2019. In June 2021, SG2-C315 (UAE) on " Fixed Lines as identifiers for OTT services" and SG2-C316 (UAE) on "Fraud case due to use of E.164 resources with the OTT services" were discussed, and SG2-C326 (Sudan) launched work on a new work item on "Methodologies to mitigate Wangiri Fraud". At the November 2021 meeting of ITU-T SG2, the experts agreed to start work on a new Technical Report on "Permitted call masking" (SG2-C361, Egypt). * SG3 is studying the work item STUDY\_ACPMIS, Alternative Calling Procedures, and misappropriation and misuse of facilities and services (CLI, CPND and OI), and the work item D.SIMBOX, the economic impact of SIMBOX bypass. * SG11 revised set of Recommendations ITU-T Q.731.3-Q.731.6 and approved ITU-T Q.3057 “Signalling requirements and architecture for interconnection between trustable network entities”. SG11 organized a Brainstorming session on SS7 vulnerabilities on 22 October 2019. SG11 is developing new draft Recommendation Q.CIDA “Signalling requirements of calling line identification authentication” and Q.Pro-Trust “Signalling procedures and protocols for enabling interconnection between trustable network entities in support of existing and emerging networks”. In November 2021, SG11 in close collaboration with SG2 and SG17 organized ITU Workshop on “Improving the security of signalling protocols”. | | | |
| **65-02** | **SGs to expedite work on Recommendations that would provide additional detail and guidance for the implementation of this resolution** | **Ongoing** | **√** |  |
| SG2 has Approved Recommendation ITU-T E.157 (revised) “International calling party number delivery” and Approved by Agreement a new Technical Report on spoofing at its e-meeting held from 31 May to 11 June 2021.  SG17 developed ITU-T X.Sup35 Supplement to ITU-T X.1254 on use cases of entity authentication assurance (EAA) framework. | | | |
| **65-03** | **TSB Director to report [to WTSA-20] on progress achieved by study groups in implementing Resolution 65 [instructs 3]** | **WTSA-20** | **√** | **√** |
| Resolution 65 (Rev. Hammamet, 2016) on “Calling party number delivery, calling line identification and origin identification information”instructs the Director of the TSB to report on the progress achieved by the study groups in implementing this resolution, which is intended to improve security and minimize fraud, and minimize technical harm as called for by Article 42 of the Constitution:  In June 2021, ITU-T SG2 Approved an updated version of E.157, "International calling party number delivery", which updates this Recommendation to ensure that originating operators shall be able to identify the calling party number that originated an international call; that originating and transit operators shall ensure the provision of the CPN over international networks, unless the calling party requests restriction; and that if the CPN is missing or incorrect, it may be replaced at the discretion of the national regulatory authority by a special allocated number. The Technical Report on "Countering spoofing" provides information that could assist in implementing measures to counter spoofing. In addition to the work described above (65-01), the SG2 experts discussed the "Global adaptation of STIR/SHAKEN" at the June 2021 meeting (SG2-TD1440/G), which was further discussed at the Q1/2 RGM (e-meeting, 6-10 September 2021). Further study is dependent on the submission of Contributions to future meetings.  ITU-T SG11 has been developing a set of standards on this matter. ITU-T SG11 revised Recommendations ITU-T Q.731.3, Q.731.4, Q.731.5 and Q.731.6, in order to specify an exceptional procedure for transit exchange connected to CPE (Customer Premises Equipment) with the purpose of providing predefined calling party number by the originating operator. For the time being, the implementation of such a change is in the hands of states and their legislation. Also, SG11 developed new Recommendation ITU T Q.3057, which defines the signalling architecture and requirements for interconnection between trustable network entities in support of existing and emerging networks. This approach may help financial institutions to build trustable connection with their customers.  SG11 continues its standardization focused on improving protocols and signalling messages exchange that may mitigate telephone fraud and spoofing. Additionally, the ongoing work of SG11 focuses on extension of the Recommendation ITU-T Q.3057 by defining algorithms for checking certificates for different protocols using Signalling Security Gateway (SSGW), which validates the signatures of other operator's certificates and allowing or blocking the signalling packets.  The requirements for Trusted Signalling Certification Authority (TSCA) and the framework on issuing and distribution of certificates among different operators need to be standardized. In this regard, ITU-T SG11 collaborates with ITU-T SG2, SG17 and other SDOs on this subject matter.  ITU-T SG2, SG11 and SG17 experts participated in the ITU Workshop on "Improving the security of signalling protocols" on 29 November 2021. The workshop aimed to exchange views on different measures to cope with the vulnerabilities of existing networks, services and protocols. The brainstorming session focused on the potential way forward to enhance the security mechanisms for different protocols. It was highlighted the importance to build a hierarchy of trust, country/regional first, then global where the digital certificates must be interoperable across different domains (SIP, SS7 and others). Also, it was pointed out that the trust anchor needs to be a globally trusted SDO, preferably one which is already in charge of numbering and this anchor must interoperate with existing repositories. It was indicated that there is a need to formulate a way to standardize these local/regional certification processes in order to keep the bad actors out. This standardization process should involve as many countries as possible in order to improve its applicability on the global scale. This certification process standardization must be connected to a largely accepted digital identity management frameworks for the operator plane and for the individual plane (Calling Line Identification - CLI), for example STIR/SHAKEN & ITU-T Q.3057, GANA for the operator plane and SG17's IdM for the individual plane can be considered.  The key takeaways of the Workshop are available in [SG11-TD1874/GEN](https://www.itu.int/md/T17-SG11-211201-TD-GEN-1874/en). | | | |

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# Resolution 66 - Technology Watch in the Telecommunication Standardization Bureau

**Resolution 66**

resolves to instruct the Director of the Telecommunication Standardization Bureau

1 to ensure that Technology Watch activities are performed within the Bureau and to submit the findings for contributing to the development of relevant ITU-T Recommendations;

2 to continue to provide the output of Technology Watch, with relevant findings and analysis, as soon as possible to the relevant study groups and the Telecommunication Standardization Advisory Group for their consideration and action in accordance with their mandates;

3 to continue to publish the main results of Technology Watch as brief summaries,

encourages Member States and Sector Members

to contribute actively to Technology Watch, by submitting topic proposals and abstracts for future activities and by reviewing and discussing the Technology Watch findings.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **66-01** | **TSB Director to continue the Technology Watch Function in TSB** | **Ongoing** |  |  |
|  | | | |
| **66-02** | **TSB to provide outputs of TWF to SGs and TSAG for their consideration and action** | **Ongoing**  **each TSAG meeting** |  |  |
|  | | | |
| **66-03** | **WTSA-16 instructed the TSB Director to report on an ongoing basis to TSAG concerning the implementation of Resolution 66 “Technology Watch in the Telecommunication Standardization Bureau” (WTSA-16 Proceedings, clause 5.4)** | **Ongoing**  **each TSAG meeting** | **√** |  |
| Accomplished through this document. | | | |

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# Resolution 67 – Use in the ITU Telecommunication Standardization Sector of the languages of the Union on an equal footing

**Resolution 67**

resolves

1 that the ITU‑T study groups, within their terms of reference, should continue their work on technical and operational terms and their definitions in English only;

2 that the work on standardization vocabulary within ITU‑T shall be based on the proposals made by the study groups in the English language, with the consideration and adoption of the translation into the other five official languages as proposed by the General Secretariat, and that this shall be ensured by SCV;

3 that, when proposing terms and definitions, the ITU‑T study groups shall use the guidelines given in Annex B to the "Author's guide for drafting ITU-T Recommendations";

4 that, where more than one ITU‑T study group is defining the same terms and/or concept, efforts should be made to select a single term and a single definition which is acceptable to all of the ITU‑T study groups concerned;

5 that, when selecting terms and preparing definitions, the ITU‑T study groups shall take into account the established use of terms and existing definitions in ITU, in particular those appearing in the online ITU Terms and Definitions database;

6 that the Telecommunication Standardization Bureau (TSB) should collect all new terms and definitions which are proposed by the ITU‑T study groups in consultation with SCV, and enter them in the online ITU Terms and Definitions database;

7 that SCV should work in close collaboration with the CCV in ITU‑R, holding joint meetings where possible, preferably online;

8 that, in its work, SCV should be guided by the provisions of Resolution 154 (Rev. Busan, 2014) and collaborate in this regard with CWG-LANG;

9 that the Telecommunication Standardization Advisory Group (TSAG) and the Radiocommunication Advisory Group should consider the feasibility of establishing a joint working body within ITU to deal with issues of vocabulary and use of all six languages of the Union on an equal footing, and to report to their respective assemblies,

instructs the Director of the Telecommunication Standardization Bureau

1 to continue to translate all Recommendations approved under the traditional approval process (TAP) in all the languages of the Union;

2 to translate all TSAG reports in all the languages of the Union;

3 to include in the circular that announces the approval of a Recommendation an indication of whether it will be translated;

4 to continue the practice of translating ITU‑T Recommendations approved under the alternative approval process (AAP), with the possibility of doubling the number of pages of such Recommendations translated, within the financial resources of the Union;

5 to monitor the quality of translation and associated expenses;

6 to bring this resolution to the attention of the Director of the Radiocommunication Bureau,

invites the Council

1 to take appropriate measures to ensure that information is posted on the ITU websites in the six official languages of the Union on an equal footing within budgetary limits, consistent with Council Resolution 1372;

2 to consider a review of Resolution 154 (Rev. Busan, 2014) to enable the feasibility of establishing a single working body within ITU to deal with issues of vocabulary and use of all six languages of the Union on an equal footing,

instructs the Telecommunication Standardization Advisory Group

to consider the best mechanism for deciding which Recommendations approved under AAP shall be translated, in light of the relevant Council decisions.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **67-01** | **SGs to follow the guidelines on the use of language and coordination on terms and definitions in this Resolution (resolves 1, 2, 3, 4, 5)** | **Ongoing** | **√** |  |
| All the ITU-T study groups have appointed their liaison rapporteur for SCV and submit their new terms and definitions to the SCV for harmonization in accordance with resolves 1-5 of this Resolution. | | | |
| **67-02** | **TSB to enter all new terms and definitions in the online ITU Terms and Definitions database (resolves 6)** | **Ongoing** | **√** |  |
| TSB continues to systematically enter new terms, definitions and abbreviations approved by the membership in ITU-T Recommendations into the online ITU Terms and Definitions database. | | | |
| **67-03** | **TSB Director to continue translate TAP Recs, TSAG reports in all languages of the Union, indicate in approval announcement whether a Rec will be translated (i. TSB Dir 1, 2, 3)** | **Ongoing** | **√** |  |
| TSB continues to translate all Recommendations approved under the traditional approval process (TAP), as well as all TSAG reports in all the languages of the Union on an equal footing. | | | |
| **67-05** | **TSAG to consider best mechanism to decide which AAP Rec shall be translated, in light of relevant Council decisions** | **Ongoing** | **√** |  |
| AAP Recommendations are translated in accordance with the needs expressed by the linguistic groups and the study groups, and within budget constraints. | | | |
| **67-06** | **TSB Director to continue the practice of translating ITU-T Recommendations approved under the alternative approval process (AAP), with the possibility of doubling the number of pages of such Recommendations translated, within the financial resources of the Union (i. TSB Dir 4)** | **Ongoing** | **√** |  |
| TSB translated 4 AAP Recommendations in the period September 2021 – December 2021, in accordance with requests previously received from the ITU-T Study Groups and linguistic groups, and within the allocated translation budget.  TSB translated 13 AAP Recommendations in the period August 2020 – September 2021, in accordance with requests previously received from the ITU-T Study Groups and linguistic groups, and within the allocated translation budget.  TSB translated 11 AAP Recommendations in the period January – August 2020, in accordance with requests previously received from the ITU-T Study Groups and linguistic groups, and within the allocated translation budget.  TSB translated 24 AAP Recommendations in the period October 2018 – July 2019, in accordance with requests previously received from the ITU-T Study Groups and linguistic groups, and within the allocated translation budget.  TSB translated 14 AAP Recommendations between February and November 2018, in accordance with requests previously received from the ITU-T Study Groups and linguistic groups, and within the allocated translation budget.  TSB translated 60 AAP Recommendations in the period March 2017 – January 2018, in accordance with requests previously received from the ITU-T Study Groups and linguistic groups, and within the allocated translation budget. | | | |
| **67-07** | **TSB Director to monitor the quality of translation and associated expenses (i. TSB Dir 5)** | **Ongoing** | **√** |  |
| Activities are ongoing within Decision 5 of PP-18. | | | |
| **67-08** | **TSB Director to bring this resolution to the attention of the Director of the Radiocommunication Bureau** | **Completed 2017** | **√** | **√** |
| BR was informed. | | | |
| **67-09** | **SCV to inform TSAG at least once per year of its activities and to report its results to the next WTSA (ToR #3)** | **Ongoing, TSAG, WTSA-20** | **√** | **√** |
| The SCV reported on its activities and status to TSAG in TSAG-TD388, [[TSAG-TD496](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0496)](https://www.itu.int/dms_pub/itu-t/md/17/tsag/td/181210/GEN/T17-TSAG-181210-TD-GEN-0360!!PDF-E.pdf), [TSAG-TD818](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0818), [TSAG-TD961](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0961) and TSAG-TD1060.  See WTSA-C30 “Report of ITU-T SCV to the World Telecommunication Standardization Assembly (WTSA-20)”. | | | |

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# Resolution 68 - Evolving role of industry in the ITU Telecommunication Standardization Sector

**Resolution 68**

resolves to instruct the Director of the Telecommunication Standardization Bureau

1 to continue to organize meetings for industry executives, e.g. CTO group meetings, in order to assist in identifying and coordinating standardization priorities and subjects;

2 to bring the needs of developing countries to those meetings by consulting them prior to the meetings and to encourage the participation of local industry representatives;

3 to encourage participation in the CTO group of a wide representation of industry, from the ITU‑T Sector Members from all regions;

4 to develop effective mechanisms to organize participation by industry representatives in those meetings (for example, having a stable composition and regular participation in the group by the CTO or alternate);

5 to continue to include the conclusions of the CTO group meetings in an official ITU‑T communiqué;

6 to take the conclusions of the CTO group into account in ITU‑T work, especially in the strategy function of TSAG and in the ITU‑T study groups as appropriate;

7 to produce a regular report to TSAG on the follow-up of the CTO conclusions;

8 to produce a report to the next WTSA assessing the outcomes of the CTO group over the period and examining the need to continue or enhance its activities,

encourages Sector Members from developing countries

to participate at the level of their executives in the CTO meetings, and to raise proposals in regard to their priority standardization areas as well as standardization priorities and needs of developing countries.

| Action Item | Action | Milestone | | | Periodic goals met | | Completed |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **68-01** | **TSB Director to organize CTO group meetings (resolves 1)** | **Ongoing** | | | **√** | |  |
| A CTO group meeting of 24 ICT industry executives and the strategic management of the ITU Telecommunication Standardization Sector (ITU-T) took place in in Hammamet, Tunisia, 23 October 2016, hosted by Tunisie Télécom. ICT industry executives have highlighted the importance of innovation capitalizing on VoLTE and other unique opportunities presented to network operators by advanced packet-based communications. Leaders agree that Gigabit-speed broadband access and data security will form key priorities to industry in coming years. These executives have also reaffirmed their request for regulation to provide a level playing field for competition between telecoms and OTT players in fields where they provide equivalent services. The meeting's full set of conclusions were issued as a [communiqué](http://www.itu.int/md/T13-WTSA.16-INF-0009/en).  Another CTO group meeting was held 13 November 2016 at the outset of ITU Telecom World 2016 in Bangkok, Thailand. The results of the ITU World Telecommunication Standardization Assembly 2016 (WTSA-16) and standards for future smart 5G systems were the key topics discussed at a meeting of 14 high-level ICT industry executives (CTOs) with the senior management of the ITU Telecommunication Standardization Sector (ITU-T) and the ITU Radiocommunication Sector (ITU-R). The meeting gave CTOs the opportunity to learn more about the key outcomes of WTSA-16, among which revised Resolution 68 calls on the ITU secretariat to continue organizing CTO meetings to assist in identifying and coordinating standardization priorities and subjects.  CTOs present in Bangkok also reviewed the results of a pre-WTSA 'CxO meeting' of high-level industry executives representing leading ICT companies, with the Arab and African regions especially well-represented. This meeting discussed strategies to accelerate the deployment of gigabit-speed broadband access networks and the new industry dynamics introduced by the rise of over-the-top (OTT) services.  Eight high-level industry executives and the strategic management of ITU's standardization arm, ITU-T, met for the first North-American CTO consultation meeting in San Jose, CA, US, 30 March 2017. The meeting issued a [communiqué](http://www.itu.int/en/ITU-T/tsbdir/cto/Documents/170330/communique-170330.pdf) outlining emerging trends in 5G innovation and associated demands on ITU-T standardization. Chief Technology Officers (CTOs) of leading ICT companies in North America have reaffirmed that fixed-mobile convergence will be fundamental to the success of 5G systems.  CTOs have also highlighted the great promise of information-centric networking to assist dynamic, performance-oriented management of ICT service quality, in addition acknowledging that high-performance 5G signal processing will demand significant innovation in chip architectures. CTOs also agree that identification, and associated protections of security and privacy, will be essential to the success of 5G use cases of the Internet of Things.  Achieving the full potential of 5G systems will demand true fixed-mobile convergence, ensuring that the wired and wireless elements of 5G networks operate in unison. CTOs emphasized that seamless 5G service operation will call for ITU-T standardization to support the emergence of a unified, access-independent framework for network management.  CTOs encouraged ITU to accelerate its standardization work on information-centric networking (ICN), acknowledging the great potential of ICN to assist in optimizing content distribution. ITU-T was urged to address the scalability, mobility and security of ICN solutions as well as to monitor related open-source projects.  5G will have significant impacts on the semiconductor industry, pushing digital signal-processing platforms to their limits. CTOs highlighted that ITU-T standardization should provide for novel chip architectures able to meet the high-performance signal processing demands of the 5G era, while concurrently achieving greater flexibility, security and lower power consumption.  Identity Management (IdM), and associated protections of security and privacy, will be essential to the success of 5G use cases under the banner of the Internet of Things. CTOs underlined the importance of the efficient, sustainable use of ITU's [international numbering resources](file:///C:/_Euchner/_ITU-T/ITU-T%20A.series/2017_05_TSAG/TSBDir%20report/v) allocated in support of the Internet of Things, as well as the value of related ITU standardization work on security and IdM.  CTOs were briefed on the results of the [ITU World Telecommunication Standardization Assembly 2016](http://www.itu.int/en/ITU-T/wtsa16/Pages/default.aspx), in particular the agreement of the new [WTSA Resolution 92](http://www.itu.int/pub/T-RES-T.92-2016) calling for ITU-T standardization to expand its study of the wireline networking innovations required to achieve the ambitious performance targets of 5G systems. See [full text of press release](http://newslog.itu.int/archives/1520).  The 9th Chief Technology Officer (CTO) group meeting took place 24 September 2017, Busan, Republic of Korea, see [communiqué](http://www.itu.int/en/ITU-T/tsbdir/cto/Documents/final_communique.pdf). The high-level ICT industry executives (CTOs) have highlighted the strategic importance of international standardization's support for the evolution of global telecommunications networks and the contribution of artificial intelligence (AI) to the reduction of operational expenditure and the improvement of the use and maintenance of networks.  A CxO group meeting took place 7 December 2017, Dubai, United Arab Emirates, see [communiqué](https://www.itu.int/en/ITU-T/tsbdir/CxO/Documents/CxO_Communique_7Dec.pdf). Attendees discussed how information and communication technologies (ICTs) will assist the response to challenges associated with globalization, changing climates and demographics and aging infrastructure, as well as enhance the quality of public services and create business environments supportive of growth and innovation. The meeting highlighted the opportunity for network operators to enable the shift towards a smarter society by building efficient, interoperable, reliable, scalable, secure ICT platforms.  The TSB Director’s North-American CTO consultation meeting took place 9 May 2018, California, United States; see [communiqué](https://www.itu.int/en/ITU-T/tsbdir/cto/Documents/Communique_CTO_.pdf). High-level ICT industry executives have called for ITU standardization work on security, privacy and trust to devote more attention to the implications of Artificial Intelligence (AI) and Machine Learning (ML), IMT-2020 (5G), and the rise of voice as a dominant human-machine interface. This call has come in parallel with reaffirmation of industry’s support for ITU’s leadership in evolving the transport network in support of 5G. 5G systems will incorporate advanced software-defined networking (SDN), network function virtualization (NFV) and cloud computing capabilities, significantly altering network architectures and network management-control. Network softwarization and slicing, underpinning deeply programmable networks able to be sliced into virtual networks with specialized capabilities such as low latency or high reliability, will give networks the agility required to support the specific requirements of any particular 5G application. CTOs highlighted federated network orchestration – the ability to achieve end-to-end network slicing across different operators’ networks – as an issue deserving of more attention.  Chief Technology Officers (CTOs) met with the senior management of the ITU TSB at the tenth annual CTO Meeting in Durban, South Africa, 9 September 2018, held in conjunction with ITU Telecom World, 10-13 September 2018. CTOs reaffirmed the importance of energy, transport, information, telecommunications and cross-border water resources for sustainable development. The increasing importance of OTT services – considering their exchange of sensitive personal data and growing relevance to critical infrastructure such as energy grids and road transport infrastructure – calls for more attention to be devoted to application security. Greater application security would require standard frameworks for the objective measurement of application security and interpretation of associated results. CTOs suggested standards for application security to offer a ‘label of trust’. Recognizing the increasing importance of quantum-safe public key cryptography, CTOs offered support for ITU standards to provide for interoperable quantum-safe communications, in particular the secure distribution of symmetric encryption keys. CTOs emphasized the need to remove impediments to small-cell deployment, an issue highly relevant to regulators in developing countries. CTOs called for ITU to study policy and regulatory questions relevant to accommodating 5G use cases and encouraging supporting market growth, innovation, collaboration and ICT infrastructure investment, studies that would consider the increasing importance of OTT services. CTOs encouraged ITU to host a workshop to discuss the concepts under study, including next-generation protocols. CTOs highlighted the importance of stakeholder collaboration to increase the number of smart city experiments able to transition to widespread commercialization. CTOs summarized the challenge facing standards developers as the need to provide common platforms for diverse forms of innovation, providing enablers fundamental to all applications and services. CTOs recognized the value of standards collaboration in meeting this challenge, making an example of the increasing collaboration of ITU and oneM2M.  Chief Technology Officers (CTOs) from China, Japan and Korea (Rep. of) met with the senior management of the ITU Telecommunication Standardization Bureau at a CTO consultation meeting in Tokyo, Japan, 16 July 2019, kindly hosted by Japan’s Telecommunication Technology Committee. CTOs discussed the evolution of standardization activities in view of the open-source movement and network ‘softwarization’, the value of Artificial Intelligence (AI) to the automation of network operation and maintenance, the importance of preparations for the arrival of quantum information technologies, the necessity of investment in all-fibre networks, and the increasing relevance of innovation in support of datacentre interconnection. CTOs highlighted the importance of the shift towards software-driven network management and orchestration, in parallel emphasizing the value of the open-source movement to the rapid, flexible allocation of network resources to be required in the 5G era and beyond. CTOs explored in particular the concept of ‘closed-loop’ standards, the concept of standardization and open-source projects taking a proactive approach to collaboration adopting well-aligned timelines, iterative interaction and harmonized terminology. Closed-loop standards development, said CTOs, results in working instances of standards and practical feedback to standardization projects, as well as standard-compliant code to open-source projects. CTOs discussed the value of AI to the automation of network service control. CTOs highlighted the role to be played by AI in the automation of network operation and maintenance, automation that CTOs said will continue to grow in importance as networks gain in complexity. ITU was encouraged to promote the availability of open data, an effort that CTOs said would require the development of a framework for data sharing as well as methods for the assurance and refinement of data quality. CTOs highlighted the importance of mechanisms to assess end-to-end Quality of Service (QoS) considering the increasing implementation of network slicing and AI. CTOs requested in addition that ITU develop standards promoting interoperable AI techniques with respect to networks, technologies and data. ITU members are preparing for the arrival of quantum information technologies based on the properties of quantum physics. CTOs highlighted their support for ITU’s ongoing standardization activities on security and network aspects of quantum information technologies. CTOs expressed their commitment to the expansion of the ecosystem of quantum specialists within ITU. They encouraged ITU to take a forward-looking approach to quantum information technologies so as to anticipate emerging standardization demands. CTOs also called for ITU to take up a leading role in bringing standards bodies together to ensure the effective coordination of quantum-relevant standardization activities. CTOs highlighted that 1-5 Gbit/s access speeds can support Virtual Reality, cloud gaming and smart cities. 5-10 Gbit/s access speeds, said CTOs, could bring us applications such as holographic communications and telemedicine. CTOs encouraged ITU to support industry in taking full advantage of ITU-standardized Fibre to the Home (FTTH) technologies. CTOs stressed the importance of high-speed data exchange, network slicing and virtualization, and High-Voltage Direct Current (HVDC) power supply. Increasing the speed and capacity of connections between servers, said CTOs, will call for the evolution of cables and connectors, network slicing, and the virtualization of network nodes. CTOs highlighted the potential of HVDC power supply to increase the energy efficiency of datacentre operations. CTOs encouraged ITU to promote 400 Gbit/s connections between servers as well as the adoption of HVDC power supplies. CTOs in addition requested that ITU investigate datacentre-relevant standardization activities underway across standards bodies with a view to identifying issues to be addressed by ITU standards.  High-level industry executives (CxOs) met with the senior management of the ITU Telecommunication Standardization Bureau on 11 December 2019 at the Telecom Review Summit in Dubai, United Arab Emirates, to exchange views on industry needs and related standardization priorities. The CxO meeting’s discussions revolved around industry preparations for IMT-2020/5G. CxOs discussed the innovation required to achieve ‘self-driving’ 5G networks; the importance of collaboration in the interests of 5G security; the benefits and practical aspects of network infrastructure sharing; the concept of ‘open’ radio access networks (RANs); and the insights gained from early 5G deployments and trials of 5G-enabled industrial IoT applications. CxOs also discussed the monitoring and assessment of AI performance in the context of autonomous driving; conformance assessment for radiocommunications supporting Intelligent Transport Systems; and the harmonization of approaches to the measurement of quality of service (QoS) perceived by users.  High-level industry executives (CxOs) met with ITU-T senior management on 7 December 2021 in Dubai, United Arab Emirates, and online. The objective was to discuss issues of key importance to the industry to guide ITU-T standardization work. See [communiqué.](https://www.itu.int/en/ITU-T/tsbdir/cto/Documents/Communique_ITU_CxO_07.12.2021_f.pdf) Attendees discussed industry priorities in fields including IMT-2020/5G, open RAN, light communication, AI and ML, environmental efficiency, supply chain security, and network infrastructure sharing. CxOs highlighted the significant value generated by industry digitalization in terms of increased safety, productivity, and efficiency in view of the COVID-19 pandemic and industry’s ability to respond to abrupt changes in supply and demand. CxOs recognized 5G as the key driver of digital transformation and discussed 5G deployment issues, including opportunities and challenges presented by network infrastructure sharing, suggesting that ITU standardization work could offer relevant guidance to industry in this regard. CxOs called for ITU’s work to support cross-sector partnerships and ICT standards for digital transformation in areas such as smart cities, health, energy, transportation, agriculture, finance, and the pursuit of a low-carbon future and the UNSDGs. | | | | | | |
| **68-02** | **TSB Director to develop effective mechanisms to attract industry executives and promote ITU-T membership (resolves 3, 4)** | **Ongoing** | | | **√** | |  |
| See 68-01.  TSB Director visited a number of prominent North American companies and universities to encourage their participation (March 2017).  TSAG RG-StdsStrat developed message about its standardization strategy works underway which was mass e-mailed in April 2019 to all ITU-T Sector Members.  The TSB Director organized a number of meetings with executives from industry and industry-related associations in 2020 with the aim of encouraging their active engagement in future CTO meetings, emerging Study Group topics and decision-making meetings. In addition, the TSB Director used these meetings to inform industry executives of the benefits of ITU-T membership, and highlighted the significant growth of new ITU-T Sector Members and Associates since 2017. | | | | | | |
| **68-03** | **TSB Director to bring the needs of developing countries to those CTO meetings by consulting them prior to the meetings (resolves 2)** | | **Ongoing** | **√** | |  | |
| They were informed of FG-DFS output and its impact on increasing financial inclusion. | | | | | | |
| **68-04** | **TSB Director to report on outcomes and follow-up of the CTO conclusions of the CTO group to TSAG and WTSA-20 (resolves 7, 8)** | **Ongoing**  **Next TSAG,**  **WTSA-20** | | | **√** | | **√** |
| The CxO communiqués are provided to TSAG and are considered by TSAG RG-StdsStrat.  TSAG RG-Strat is considering the CTO group communiqués and is working with TSAG and the SGs on the implementation.  Resolution 68 (Rev. Hammamet, 2016) on “Evolving role of industry in the ITU Telecommunication Standardization Sector” *resolves to instruct the TSB Director* to produce a report to the next WTSA assessing the outcomes of the CTO group over the period and examining the need to continue or enhance its activities:  The WTSA Action Plan reports in action item 68-01 on three CxO and seven organized CTO meetingsthat took place since WTSA-16. CxO meetings include a broader range of C-level participants as opposed to CTO meetings strictly reserved to Chief Technology Officers. The CxO communiqués are provided to TSAG and are considered by TSAG RG-StdsStrat, which considered them and has worked with TSAG and the SGs on the implementation.  The CTO group has provided valuable inputs and strategic guidance to ITU-T standardization over the past study period. It is recommended to continue engaging with the CTO group in the next study period. | | | | | | |
| **68-05** | **TSB Director to include the conclusions of the CTO group meetings in an official ITU-T communiqué. (resolves 5)** | **Ongoing** | | | **√** | |  |
| The outcomes of the CxO group meetings are published as ITU-T communiqués on the ITU-T [web-page](https://www.itu.int/en/ITU-T/tsbdir/cto/Pages/default.aspx). See action item 68-01. | | | | | | |

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# Resolution 69 - Non discriminatory access and use of Internet resources and telecommunications/information and communication technologies

**Resolution 69**

resolves to invite Member States

1 to refrain from taking any unilateral and/or discriminatory actions that could impede another Member State from accessing public Internet sites and using resources, within the spirit of Article 1 of the Constitution and the WSIS principles;

2 to report to the Director of the Telecommunication Standardization Bureau (TSB) on any incident of the kind referred to in *resolves* 1 above,

instructs the Director of the Telecommunication Standardization Bureau

1 to integrate and analyse the information on incidents reported from Member States;

2 to report this information to Member States, through an appropriate mechanism;

3 to report to the Telecommunication Standardization Advisory Group (TSAG) on progress on this resolution, in order for TSAG to evaluate the effectiveness of its implementation;

4 to report on progress on this resolution to the next world telecommunication standardization assembly,

instructs the Secretary-General

to report annually to the ITU Council on progress on this resolution,

invites the Directors of the Telecommunication Standardization Bureau, Radiocommunication Bureau and Telecommunication Development Bureau

to contribute to the report on progress on this resolution,

invites the ITU membership

to submit contributions to the ITU‑T study groups that contribute to the prevention and avoidance of such practices.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **69-01** | **TSB Director to integrate and analyse incident reports from Member States; and to report this information to Member States, through an appropriate mechanism (i. TSBDir 1, 2)** | **Ongoing** | **√** |  |
| Resolution 69 (Rev. Hammamet, 2016) since its first adoption in WTSA-08 aims to refrain Member States from taking any unilateral and/or discriminatory actions that could impede another Member State from accessing public Internet sites and using resources, within the spirit of Article 1 of the Constitution and the WSIS principles.  TSB has implemented a platform and tool since 2009 by which Member States can report and submit an incident related to this Resolution and raise that incident to the attention of the TSB Director, such that the TSB Director would take appropriate and necessary action on any such reported incidents. All Resolution 69 related reports and any replies for ITU TIES users’ access are maintained at: <https://www.itu.int/net/ITU-T/res69/secured/notifications.aspx>.  TSB has not received any incident reports since 2017.  All Resolution 69 related reports and any replies for ITU TIES users’ access are maintained at: <https://www.itu.int/net/ITU-T/res69/secured/notifications.aspx>. | | | |
| **69-03** | **TSB Director to submit progress report to TSAG, for TSAG to evaluate the effectiveness of its implementation. (i. TSBDir 3)** | **TSAG meetings** | **√** |  |
| This document. | | | |
| **69-04** | **TSB Director to report on progress on this resolution to WTSA-20 (i. TSBDir 4)** | **WTSA 2020** | **√** | **√** |
| Resolution 69 (Rev. Hammamet, 2016) aims to support Member States from taking any unilateral and/or discriminatory actions that could impede another Member State from accessing public Internet sites and using resources, within the spirit of Article 1 of the Constitution and the WSIS principles.  The TSB has implemented a platform and tool (see AI69-01) by which Member States can report and submit an incident related to this Resolution and raise that incident to the attention of the TSB Director, such that the TSB Director would take appropriate and necessary action on any such reported incidents. The TSB Director is instructed to report any such incident to Council, and report progress on the effectiveness of the implementation to TSAG and WTSA.  During this study period, TSB has not received any incident reports since 2017; and there have been only very few such reported incidents since the 2008. | | | |
| **69-05** | **ITU Secretary General to report annually to Council (i. Sec-Gen)** | **Council meetings** | **√** |  |
| The TSB Director reports annually in the Council document on "ITU Internet activities: Resolutions 101, 102 and 133" about updates regarding WTSA Resolution 69, if any. | | | |

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# Resolution 70 - Telecommunication/ information and communication technology accessibility for persons with disabilities and persons with specific needs

**Resolution 70**

resolves

1 that ITU‑T Study Group 16 shall continue giving high priority to work on the relevant Questions, Recommendation ITU‑T F.790, the guide for ITU‑T study groups on telecommunication accessibility guidelines for older persons and persons with disabilities, and Recommendation ITU‑T F.791 on accessibility terms and definitions;

2 that ITU study groups should consider aspects of universal design in their work, including the drafting of non-discriminatory standards, service regulations and measures for all persons, including persons with disabilities and older persons, with cross-cutting user-protection actions;

3 that all ITU-T study groups utilize the Telecommunications Accessibility Checklist, which makes it possible to incorporate the principles of universal design and accessibility;

4 that an ITU workshop be held to inform about the progress in the work and the results achieved by the study groups in charge of ICT accessibility before the next world telecommunication standardization assembly,

invites Member States and Sector Members

1 to consider developing, within their national legal frameworks, guidelines or other mechanisms to enhance the accessibility, compatibility and usability of telecommunication/ICT services, products and terminals;

2 to consider introducing services or programmes, including telecommunication relay services to enable persons with hearing and speech disabilities to utilize telecommunication services that are functionally equivalent to telecommunication services for persons without disabilities;

3 to participate actively in accessibility-related studies in ITU‑T, ITU‑R and ITU‑D, and to encourage and promote self‑representation by persons with disabilities in the standardization process so as to ensure their experiences, views and opinions are taken into account in all the work of study groups;

4 to consider designating focal points for the implementation and monitoring of this resolution;

5 to encourage the provision of differentiated and affordable service plans for persons with disabilities in order to increase the accessibility and usability of telecommunications/ICT for these persons;

6 to encourage the development of applications for telecommunication products and terminals to increase the accessibility and usability of telecommunications/ICT for persons with visual, auditory, verbal and other physical and mental disabilities;

7 to encourage regional telecommunication organizations to contribute to the work and consider implementing the results achieved in the study groups and the workshop on this topic;

8 to encourage industry to consider accessible features when designing telecommunication devices and services,

instructs the Director of the Telecommunication Standardization Bureau

1 to report to the ITU Council on the implementation of this resolution;

2 to contribute to the development of an ITU-wide internship programme for persons with disabilities who have expertise in the field of ICTs, so as to build capacity among persons with disabilities in the standards-making process and to raise awareness within ITU-T of the needs of persons with disabilities;

3 that ITU-T employ the technical papers FSTP-AM "Guidelines for accessible meetings" and FSTP-ACC-RemPart "Guidelines for supporting remote participation for all", as appropriate, to make it possible for persons with disabilities to be able to attend ITU meetings and events,

invites the Director of the Telecommunication Standardization Bureau

1 to identify and document examples of best practice for accessibility in the field of telecommunications/ICT for dissemination among ITU Member States and Sector Members;

2 to review the accessibility of ITU‑T services and facilities and consider making changes, where appropriate, pursuant to UNGA Resolution 61/106, on the Convention on the rights of persons with disabilities, and to report to the Council on these matters;

3 to work collaboratively on accessibility-related activities with the Directors of the Radiocommunication Bureau (BR) and the Telecommunication Development Bureau (BDT), in particular concerning awareness and mainstreaming of telecommunication/ICT accessibility standards, reporting findings to the Council as appropriate;

4 to work collaboratively on accessibility-related activities with ITU‑D, in particular developing programmes that enable developing countries to introduce services that allow persons with disabilities to utilize telecommunication services effectively;

5 to work collaboratively and cooperatively with other standardization organizations and entities, in particular, in the interest of ensuring that ongoing work in the field of accessibility is taken into account, in order to avoid duplication;

6 to work collaboratively and cooperatively with disability organizations in all regions to ensure that the needs of the disabled community are taken into account in all standardization matters;

7 to continue JCA-AHF, and any other accessibility coordination functions and advisory function within ITU‑T, in order to assist the Director of TSB in reporting the findings of the review of ITU‑T services and facilities;

9 to consider using accessibility resources in the meetings organized by ITU-T in order to encourage the participation of persons with disabilities in the standardization process,

instructs the Telecommunication Standardization Advisory Group

1 to revise the guide for ITU study groups – "Considering end-user needs in developing Recommendations",

2 to request study groups to facilitate, in their respective work, the implementation of new software, services and proposals enabling all persons with disabilities, including persons with age-related disabilities, to effectively use telecommunication/ICT services, and relevant guidelines for end‑user needs, in order specifically to include the needs of persons with disabilities, and to update this guide on a regular basis, based on contributions from Member States and Sector Members as well as the ITU‑T study groups, as appropriate.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **70-01** | **SG16 to continue work on accessibility with high priority. (resolves 1)** | **Ongoing** | **√** |  |
| Work on human factors and accessibility advanced in SG16 at [Q24](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/q24.aspx)/16 (Human factors related issues for improvement of the quality of life through international telecommunications, continuation of ITU-T Q4/2) and at [Q26/16](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/q26.aspx) (Accessibility to multimedia systems and services). Recently approved work includes [ITU-T F.930](https://www.itu.int/rec/T-REC-F.930-201803-I) (03/2018) - Multimedia telecommunication relay services. Completed updating work includes [ITU-T F.791](https://www.itu.int/rec/T-REC-F.791) (08/2018) - Accessibility terms and definitions, [ITU-T F.921](https://www.itu.int/rec/T-REC-F.921) (08/2018) - Audio-based indoor and outdoor network navigation system for persons with vision impairment, and [ITU-T H.871](https://www.itu.int/rec/T-REC-H.871-201907-P) (07/2019) - Safe listening guidelines for personal sound amplifiers. Q26/16 has prepared and updates of various Technical Papers that provide importance guidance on accessibility, see <https://itu.int/pub/T-TUT-FSTP>.  Following discussions started at the IRG-AVA, the SG16 accessibility experts have supported the idea for stronger collaboration with ISO/IEC JTC1 SC35 "User Interfaces" and held a joint information session on 12 February 2018; further, four of the work items are studied at Q26/16, [H.ACC-GAD](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14438); [H.ACC-GAP](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14440); [H.ACC-GVP](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14439), F.ACC-AVSL, draft twin texts with ISO/IEC 20071 series on audio descriptions; audio presentation of text; visual presentation of audio information; presentation of sign language. It has also transposed ISO/IEC 20071-11 as twin text in ITU-T T.701.11 on alternative text presentation for images. | | | |
| **70-02** | **TSB to hold an ITU workshop on progress and achievement of ITU-T SGs on ICT accessibility before WTSA-20 (resolves 4)** | **Before WTSA-20** | **√** |  |
| ITU-T organized a workshop together with G3ict on [Inclusive ICTs for Disaster and Emergency Preparedness for Persons with Disabilities and those with specific needs](http://www.itu.int/net4/wsis/forum/2017/Agenda/Session/229#intro), 12 June 2017 during WSIS Forum 2017. The workshop highlighted the urgent needs of ICT accessibility in emergency situations, to save the lives of those persons (two to four times more likely to get injured or die in case of a disaster), which can be improved by implementing ICT accessibility standards including ITU-T's.  ITU-T organized a workshop on “[Achieving an inclusive society by designing and implementing accessible ICTs](https://www.itu.int/net4/wsis/forum/2018/Pages/Agenda/Session/283#intro)” 22 March at [WSIS Forum 2018](https://www.itu.int/net4/wsis/forum/2018/Pages/Agenda#intro). This workshop addressed and promoted ITU-T accessibility standards, including [ITU-T F.921](https://www.itu.int/rec/T-REC-F.921), [ITU-T F.930](https://www.itu.int/rec/T-REC-F.930) and [ITU-T H.702](https://www.itu.int/rec/T-REC-H.702). During this workshop, the first trial within ITU of remote American Sign Language (ASL) Interpretation was successfully conducted with the ASL interpreters being based in Florida USA and received at ITU headquarters. Remote SL interpretation is not expected to replace onsite SL interpreters but it can fill a gap in cases of an emergency and where it is not possible to get an onsite SL interpreter in a specific language at any given time. (For example, in the WSIS-18 event, it was not possible to hire any ASL interpreters in Europe to be available onsite.)  For the ITU-EC Forum “[Accessible Europe: ICT for ALL](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2018/AE/AccessibleEurope.aspx)” Vienna, Austria, from 12 to 14 December 2018, ITU-T in collaboration with ITU Regional Office for Europe organizes a session focusing on telecom relay services.  SG16 and ITU Regional Office for Europe jointly organized a workshop on [Enhancing Human Life Using e-Services](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2019/eServices/Enhancing-Human-Life-Using-e-Services.aspx) on 25 March 2019 collocated with SG16 meeting, and accessibility was focused in the afternoon sessions.  ITU-T organized two workshop sessions at the ICT Accessibility Day of WSIS Forum 2019, 8 April 2019, on [Accessibility for Emerging Technologies](https://www.itu.int/net4/wsis/forum/2019/Agenda/ViewSession/147#intro); and on [Telecom Relay Services](https://www.itu.int/net4/wsis/forum/2019/Agenda/ViewSession/171#intro). International Sign (IS) interpretation was provided.  ITU-T participated in the following ITU events:   * [Accessible Americas 2019](https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Pages/EVENTS/2019/23940.aspx) (Quito, 20-22 November 2019) * [Accessible Europe 2019](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2019/AE/AccessibleEurope.aspx) (Malta, 4-6 December 2019).   Webinar sessions on accessibility were organized during WSIS Forum 2020:   * [Make Listening Safe and create the world where nobody's hearing is put in danger due to unsafe listening](https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/124) by ITU-T and WHO on 13 July 2020. * [How to engage the whole audience: Innovation in media accessibility](https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/132) by IRG-AVA on 15 July 2020. * [ICTs and Accessibility: Leaving Nobody Behind in the age of Smart Cities and Advances in Technology](https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/141) by JCA-AHF on 17 July 2020. * [Accessible media should not need to be a Right - it should be a Given](https://www.itu.int/net4/wsis/forum/2021/Agenda/Session/322) by IRG-AVA on 13 April 2021. * [Accessible ICT during the Covid-19 Pandemic](https://www.itu.int/net4/wsis/forum/2021/Agenda/Session/414) by JCA-AHF on 4 May 2021. | | | |
| **70-03** | **TSB Director to report to Council (i. TSBDir 1)** | **Council 2021** | **√** |  |
| See [C18/54](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0054). | | | |
| **70-04** | **TSB to identify, document and disseminate best practices for telecommunication/ICT accessibility among ITU membership. (i. TSBDir 1)** | **Ongoing** | **√** |  |
| TSB contributes to the activity of the Union in the field of Accessibility to ICTs, working in close cooperation with the ITU focal points on accessibility.  ITU-T SG16 progressed accessibilities studies. See 70-01 for recent work.  The ITU-T Joint Coordination Activity on Accessibility and Human Factors ([JCA-AHF](http://www.itu.int/en/ITU-T/jca/ahf/Pages/default.aspx)) disseminates accessibility information to ITU membership and other organizations.  The Intersector Rapporteur Group Audiovisual Media Accessibility (IRG-AVA) discusses and shares information on good practices for audiovisual media accessibility among ITU membership. | | | |
| **70-05** | **TSB Director to review and consider making changes to the accessibility of ITU-T services and facilities, pursuant to UNGA Res. 61/16, and to report to Council (i. TSBDir 2)** | **Ongoing Council 2021** | **√** |  |
| TSB continues to participate in the efforts led by the ITU General Secretariat to make ITU a more accessible organization, by providing services such as sign-language interpretation and captioning, and financial support in some cases, to engage persons with disabilities in the ITU-T standardization process. | | | |
| **70-06** | **TSB Director to work collaboratively with other Directors on accessibility activities on ITU wide awareness and mainstreaming of telecommunication/ICT Accessibility Standards, reporting findings to Council as appropriate (i. TSBDir 3)** | **Ongoing, Council 2021** | **√** |  |
| The ITU-T Joint Coordination Activity on Accessibility and Human Factors ([JCA-AHF](http://www.itu.int/en/ITU-T/jca/ahf/Pages/default.aspx)) serves as a useful coordination mechanism across ITU sectors and external SDOs and disability groups. Recent meeting was held virtually on 2 September 2021.  The Intersector Rapporteur Group Audiovisual Media Accessibility ([IRG-AVA](https://www.itu.int/en/irg/ava/Pages/default.aspx)) study topics related to audiovisual media accessibility, aiming at development of Recommendations, and other non-normative materials as appropriate. It addresses matters contributing to the coordination of the standardization work of the involved ITU-T and ITU-R groups and collaborates with other SDOs and other audiovisual media organizations (e.g., forums and consortia, research institutes and academia). Recent 21st meeting was held virtually on 16 November 2021.  TSB participates and contributes actively to the Inter-Sectoral Coordination Task Force ([ISC-TF](https://www.itu.int/en/general-secretariat/Pages/intersectoral-coordination.aspx)) on the area of accessibility. | | | |
| **70-07** | **TSB Director, in collaboration with BDT Director, in developing programmes to enable developing countries to introduce services to enable persons with disabilities to use ICT services effectively (i. TSBDir 4)** | **Ongoing** | **√** |  |
| The ITU-T JCA-AHF serves as a useful coordination mechanism across ITU sectors and external SDOs and disability groups, with representatives of ITU-D delegates and BDT. TSB contributes to and participates in Accessible Americas and Accessible Europe, led by the Regional Office for the Americas and the Regional Office for Europe respectively. | | | |
| **70-08** | **TSB to work collaboratively and cooperatively with other SDOs to avoid duplication, and with disability orgs to ensure accessibility needs are taken into account in standardization (i. TSBDir 5)** | **Ongoing** | **√** |  |
| ITU-T SG16 is seeking stronger collaboration with ISO/IEC JTC1 SC35 "User interfaces" for audiovisual media accessibility studies (see 70-01 above), as well as with IEC SyC-AAL and TC100 TA16, both working on active assisted living.  The [Memorandum of Understanding on electronic business](https://www.itu.int/en/ITU-T/ebusiness) (MoU) between IEC, ISO, ITU, and UN/ECE, and its Management Group (MG) organized on 21 October 2019 an MoU/MG webinar on eAccessibility for e-business.  TSB provided comments for coordination to EC’s draft new standardization requests on accessibility of products and services to the ESOs (ETSI, CEN and CENELEC) in September 2021. | | | |
| **70-09** | **TSB Director to contribute to the development of an ITU-wide internship programme to involve persons with disabilities and ICT expertise. (i. TSBDir 2)** | **Ongoing** | **√** |  |
| ITU-T SG16 had an intern in 2018 for studies on accessibility aspects for persons with mental issues. | | | |
| **70-10** | **TSB Director to continue the disability coordination and advisory function within ITU-T. (i. TSBDir 1)** | **Ongoing** | **√** |  |
| The ITU-T JCA-AHF serves as a useful coordination mechanism across ITU sectors and external SDOs and disability groups. The May 2017 TSAG meeting revised the ToR for JCA-AHF. | | | |
| **70-11** | **TSB Director to consider using accessibility resource to encourage participation of persons with disabilities (i. TSBDir 9)** | **Ongoing** | **√** |  |
| In addition to real time captioning at selected meetings, sign language interpretation has been provided within the TSB budget for delegates that requested these accessibility accommodations. Some experts had participation facilitated by TSB to participate in discussions of accessibility and human factor studies. Experimentation was made with remote provisioning of sign language interpretation as a response to COVID-19 pandemic. Real-time captioning in meetings was provided on-demand and subject to availability of resources to various meetings. | | | |
| **70-12** | **TSAG to revise the guide for ITU study groups – 'considering end-user needs in developing Recommendations', and request SGs to implement this guide (i. TSAG 1, 2)** | **Ongoing** | **√** |  |
| TSAG will consider updating the Revision of the Guide for ITU-T Study Groups *Considering End-User Needs in developing Recommendations*, now that ISO/IEC Guide 71/ITU-T Supplement 17 *Guide for addressing accessibility in standard* has been adopted. | | | |
| **70-13** | **TSB to employ the technical papers FSTP-AM "Guidelines for accessible meetings" and FSTP-ACC-RemPart "Guidelines for supporting remote participation for all", as appropriate, to make it possible for persons with disabilities to be able to attend ITU meetings and events (i. TSBDir 3)** | **Ongoing** | **√** |  |
| Accessibility of ITU-T meetings has been improving over the recent years, and more experience is gained as the existing guidelines are more deployed. With experiences gained, work is ongoing at SG16 to update both guidelines, [FSTP-AM](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14773) and [FSTP-ACC-RemPart](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14774). The next edition of the accessible remote meetings is planned as a Recommendation under ITU-T SG16, rather than Technical Paper. | | | |
| **70-14** | **ITU-T study groups to consider aspects of universal design in their work, including the drafting of non-discriminatory standards, service regulations and measures for all persons (resolves 2)** | **Ongoing** | **√** |  |
| ITU-T SG2 started work on draft Recommendation ITU-T E.disab “Specification of an international numbering resource for use in the provisioning of services for persons with disabilities and persons with specific needs”, and is collaborating with SG16.  SG2 started new Technical Report E.TR\_TRAFGR on the analysis of ITU-T F.930 for global resource assignment.  In SG20, Recommendation [ITU-T Y.4204](https://www.itu.int/rec/T-REC-Y.4204-201902-I/en) (02/19) - Accessibility requirements for the Internet of things applications and services, and [ITU-T Y.4211](https://www.itu.int/itu-t/recommendations/rec.aspx?rec=14577) (12/2020) “Accessibility requirements for smart public transportation services” were approved. | | | |

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# Resolution 72 - Measurement and assessment concerns related to human exposure to electromagnetic fields

**Resolution 72**

resolves

to invite ITU‑T, in particular Study Group 5, to expand and continue its work and support in this domain, including, but not limited to:

i) publishing and disseminating its technical reports, as well as developing ITU-T Recommendations to address these issues;

ii) developing, promoting and disseminating information and training resources related to this topic through the organization of training programmes, workshops, forums and seminars for regulators, operators and any interested stakeholders from developing countries;

iii) continuing to cooperate and collaborate with other organizations working on this topic and to leverage their work, in particular with a view to assisting the developing countries in the establishment of standards and in monitoring compliance with these standards, especially on telecommunication installations and terminals;

iv) cooperating on these issues with ITU‑R Study Groups 1 and 6, and with Study Group 2 of the ITU Telecommunication Development Sector (ITU‑D) in the framework of ITU-D Question 7/2;

v) strengthening coordination and cooperation with WHO in the EMF project so that any publications relating to human exposure to EMF are circulated to Member States as soon as they are issued,

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Directors of the other two Bureaux

within the available financial resources

1 to support the development of reports identifying the needs of developing countries on the issue of assessing human exposure to EMF, and to submit the reports as soon as possible to ITU-T Study Group 5 for its consideration and action in accordance with its mandate;

2 to regularly update the ITU-T portal on EMF activities including, but not limited to, the ITU EMF Guide, links to websites, and flyers;

3 to hold workshops in developing countries with presentations and training on the use of equipment employed in assessing human exposure to RF energy;

4 to extend support for developing countries while they establish their regional centres equipped with test benches for continuous monitoring of EMF levels, especially in selected areas where the public has concerns, and transparently provide the data to the general public by using, among other things, the modalities listed in Resolutions 44 (Rev. Hammamet, 2016) and 76 (Rev. Hammamet, 2016) of this assembly, in the context of the development of the regional test centres and of Resolution 177 (Rev. Busan, 2014) of the Plenipotentiary Conference;

5 to report to the next world telecommunication standardization assembly on measures taken to implement this resolution,

invites Member States and Sector Members

1 to contribute actively to the work by Study Group 5 in providing relevant and timely information, in order to assist developing countries in providing information and addressing measurement concerns related to RF exposure and EMF;

2 to conduct periodic reviews to ensure that ITU-T Recommendations related to exposure to EMF are followed;

3 to cooperate and share expertise and resources between developed and developing countries in order to help government administrations, especially in developing countries, to reinforce or establish an appropriate regulatory framework for protecting people and the environment from non-ionizing radiation;

4 to encourage the use of ITU-T Recommendations to build national standards for measuring and assessing EMF levels and inform the public of compliance with those standards,

further invites Member States

to adopt suitable measures in order to ensure compliance with relevant international recommendations to protect health against the adverse effect of EMF.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Action Item | Action | Milestone | Periodic goals met | Completed |
| **72-01** | **SG5 to develop, promote and disseminate information and training resources related to EMF through organizing training programmes, workshops, forums and seminars for regulators, operators etc and any interested stakeholders from developing countries (resolves ii)** | **Ongoing** | **√** |  |
| The first SG5 meeting took place from 15 to 24 May 2017. The SG5 second meeting took place from 13 to 22 November 2017. An ITU-ETSI workshop on “Towards Setting Environmental Requirements for 5G” was held on 23 November 2017. During the workshop a session on “Protections against environmental phenomena (e. g. lightnings) and electromagnetic compatibility, and human exposure to electromagnetic fields”. A Working Party 1/5 “EMC, lightning protection, EMF” meeting took place from 21-25 May 2018. The third SG5 meeting took place from 11 to 21 September 2018. The fourth SG5 meeting took place from 13 to 22 May 2019 in Geneva, Switzerland. The fifth SG5 meeting took place from 16 to 20 September 2019. The sixth SG5 meeting took place virtually from 11 to 20 May 2020 and the seventh SG5 meeting will take place virtually from 19 to 23 October 2020.  An [ITU Workshop on "5G, EMF & Health"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20171205/Pages/default.aspx) was held on 5 December 2017 in Warsaw, Poland. The main purpose of the workshop was to respond to ITU-T Resolution 72 (Rev. Hammamet, 2016) – "Measurement concerns related to human exposure to electromagnetic fields". This workshop provided an overview of the EMF, 5G and health issues to policy makers and other stakeholders with a special focus on Poland and identified a few actions for consideration of ITU-T Study Group 5: Environment, Climate Change and Circular Economy.  A Forum and Training on “With ICT’s everywhere – How safe is EMF?” was held on 10 April 2018 in Zanzibar, Tanzania during the 8th Green Standards Week. A [Forum on Human Exposure to Electromagnetic Fields (EMFs) in Africa](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/sg5rgafr/20190829/Pages/default.aspx) took place on 29 August 2019 during the [First Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx).  A [virtual Forum on Human Exposure to electromagnetic fields (EMFs) due to digital technologies](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2021/0510/Pages/default.aspx) was held on 10 May 2021. During the virtual Forum, the updated version of the EMF mobile app was launched. This version contains aspects on 5G and updates on WHO and ICNIRP Guidelines. The EMF mobile app is available in English, French, Russian, Spanish, Arabic and Chinese. | | | |
| **72-02** | **SG5 to coordinate with WHO in the EMF project so that fact sheets relating to human exposure to electromagnetic fields is circulated to Member States as soon as it is issued (resolves v)** | **Ongoing** | **√** |  |
| Special sessions on WHO updates on EMF issues take place for every SG5 meeting. TSB regularly participates in the WHO annual meetings of the International Advisory Committee (IAC) on Non-Ionizing Radiation and Health. | | | |
| **72-03** | **TSB Director, in collaboration with other Directors, to support the development of reports identifying needs of developing countries for consideration by ITU-T SG5 (i. TSBDir 1)** | **Ongoing** | **√** |  |
| All Reports on ICTs, EMF, environment and climate change are available at: <https://www.itu.int/en/ITU-T/climatechange/Pages/publications.aspx> | | | |
| **72-04** | **TSB Director, in collaboration with other Directors, to extend support for developing countries to establish regional test benches for continuous monitoring of EMF levels, and transparently provide the data to the general public (see also** [**Resolution 76**](#_Resolution_76_-)**) (i. TSBDir 4)** | **Ongoing** | **√** |  |
| * ITU-T Study Group 5 developed a [Supplement on The impact of RF-EMF exposure limits stricter than the ICNIRP or IEEE guidelines on 4G and 5G mobile network deployment](https://www.itu.int/rec/T-REC-K.Sup14-201909-I), which provides an overview of some of the challenges faced by countries, regions and cities that are about to deploy 4G or 5G infrastructures. It provides information on a simulation carried out in Poland of the impact of RF-EMF limits as an example of a wider phenomenon, applicable to several other countries that have set limits stricter than those contained in the ICNIRP or IEEE guidelines. The results of the simulation indicate that, where RF-EMF limits are stricter than ICNIRP or IEEE guidelines, the network capacity buildout (both 4G and 5G) might be severely constrained and prevent growing data traffic demand and the launching of new services on existing mobile networks being addressed. * The revised version of Recommendation ITU-T K.83 “Monitoring of electromagnetic field levels” contains and Appendix on Examples of the existing websites with EMF monitoring results". * ITU-T SG5 is working on a Technical Report on KSTR.EMF\_assess “Case studies of RF-EMF assessments”. This Technical Report will present results of case studies of RF-EMF exposure levels taken in different conditions and areas.   Additionally, TSB has worked with members states to organize workshops on Human Exposure to Electromagnetic fields ([Abuja, Nigeria, 29 August 2019](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/sg5rgafr/20190829/Pages/default.aspx); [Zanzibar, Tanzania, 10 April 2018](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/programme10.aspx); [Warsaw, Poland, 5 December 2017](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20171205/Pages/default.aspx)).  TSB has participated in several conferences around the world to brief on the standardization activities on Human Exposure to Electromagnetic Fields, for example at the Conference on “5G: Opportunities and Challenges” on 8 December 2019.  TSB presented a briefing on ITU activities on EMF and 5G at the “Breakfast on 5G with Focus on EMF at the European Parliament” held on 20 June 2018. | | | |
| **72-05** | **SG5 to publish and disseminate its technical reports, as well as develop ITU-T Recommendations on EMF (resolves i)** | **Ongoing** | **√** |  |
| SG5 approved the following Recommendations:   * ITU-T K.121"Guidance on the Environmental Management for Compliance with Radio Frequency EMF limits for Radiocommunication Base Stations" * ITU-T K.122 "Exposure levels in the close proximity of the radiocommunication antennas" * ITU-T K.124 "Overview of particle radiation effects on telecommunications systems". * ITU-T K.91 (rev) "Guidance for assessment, evaluation and monitoring of the human exposure to radio frequency electromagnetic fields" * ITU-T K.52 (rev) "Guidance on complying with limits for human exposure to electromagnetic fields" * ITU-T K.61 (rev) "Guidance on measurement and numerical prediction of electromagnetic fields for compliance with human exposure limits for telecommunication installation" * ITU-T K.70 (rev) "Mitigation techniques to limit human exposure to EMFs in the vicinity of radiocommunication stations" * ITU-T K.90 (rev) “Evaluation techniques and working procedures for compliance with exposure limits of network operator personnel to power-frequency electromagnetic fields” * ITU-T K.100 (rev) "Measurement of radio frequency electromagnetic fields to determine compliance with human exposure limits when a base station is put into service" * ITU-T K.145 (rev) “Assessment and management of compliance with RF EMF exposure limits for workers at radiocommunication sites and facilities”   Additionally, SG5 approved the following Supplements:   * K.Suppl.1 to ITU-T K.91 (rev) “Guide on electromagnetic fields and health" * K.Suppl.4 to ITU-T K.91 (rev) “Electromagnetic field considerations in smart sustainable cities” * K.Suppl.9 “5G technology and human exposure to RF EMF” * K.Suppl.13 “Radiofrequency electromagnetic field (RF-EMF) exposure levels from mobile and portable devices during different conditions of use” * K.Suppl.14 “The impact of RF-EMF exposure limits stricter than the ICNIRP or IEEE guidelines on 4G and 5G mobile network deployment” * K.Suppl.16 “Electromagnetic field (EMF) compliance assessments for 5G wireless networks”. * K.Suppl.19 “Electromagnetic field (EMF) strength inside underground railway trains” * K.Suppl.20 to ITU-T K.91 “Supplement on radiofrequency exposure evaluation around underground base stations”. | | | |
| **72-06** | **SG5 to cooperate with ITU-R SGs 1, 6, and with ITU-D SG 2 in the framework of ITU-D Q7/2 (resolves iv)** | **Ongoing** | **√** |  |
| SG5 frequently sends liaison statements to ITU-D SG2 and to ITU-R SGs 1 and 6 on the progress achieved on EMF topics. | | | |
| **72-07** | **TSB Director to regularly update the ITU-T portal on EMF activities including, but not limited to, the ITU EMF Guide, links to websites, and flyers (i. TSBDir 2)** | **Ongoing** | **√** |  |
| The EMF website is kept up to date and is available at: <https://www.itu.int/en/ITU-T/emf/Pages/default.aspx>. Additionally, the page on “[What is new on ITU-T Activities on EMF?](https://www.itu.int/en/ITU-T/emf/Pages/activities.aspx)” is kept up to date. | | | |
| **72-08** | **TSB Director to report to the next world telecommunication standardization assembly on measures taken to implement this resolution (i. TSBDir 5)** | **WTSA-20** | **√** | **√** |
| Resolution 72 (Rev. Hammamet, 2016) on “Measurement and assessment concerns related to human exposure to electromagnetic fields” instructs TSB Director to report to the next world telecommunication standardization assembly on measures taken to implement this resolution.  In the past six years, TSB has engaged extensive standardization activities on matters concerning human exposure to electromagnetic fields (EMFs). ITU-T Study Group 5 has published, developed and revised Technical Reports, Recommendations, and informative text that provide guidance for assessing EMF levels in ICT equipment and infrastructure, complying with limits for human exposure to EMFs, implementing mitigating techniques to ensure EMFs stay within exposure limits in ICTs and more. These standards have supported the ICT sector and city leaders to manage EMF and develop a shared understanding on emerging EMF trends particularly on topics related to 5G. TSB has also updated the EMF Estimator, which is a software application that implements the methodology described in ITU-T K.70 to calculate the cumulative radio frequency exposure levels in the vicinity of transmitting antennas.  TSB has collaborated with WHO and other field authorities to raise awareness on 5G and digital technologies and their impacts on EMF. A special session on WHO latest updates EMF issues was held in every SG5 meeting. TSB also actively participated WHO annual meetings to discuss Non-Ionizing Radiation and its impact on human health. As a result, a new version of the ITU EMF Mobile Application was developed. The EMF Mobile App now contains information on 5G with updates based on WHO and ICNIRP Guidelines. This EMF Mobile App is available in English, Arabic, Chinese, French, Russian and Spanish. TSB has also organized and participated in multiple workshops, forums, and training session to raise awareness on EMF issues, highlight the EMF aspect of digital technology, and demonstrate how ITU standards can be used to tackle these issues. It is important to highlight that TSB has also actively worked to take into consideration the perspective of developing countries on EMF issues. For example, TSB organized the Forum on Human Exposure to Electromagnetic Fields in Africa on 29 August 2019 during the First ITU Digital African Week.  TSB has also liaised with ITU-D SG2 and ITU-R SGs 1 and 6 on the progress achieved on EMF topics and ensuring harmonization and consistency on among the work of these groups. | | | |

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# Resolution 73 - Information and communications technologies, environment and climate change

**Resolution 73**

resolves

1 to continue and further develop the ITU‑T work programme initially launched in December 2007 on ICTs and climate change, as a high priority, in order to contribute to the wider global efforts to moderate climate change, as part of the United Nations processes;

2 to take into account the progress already made in the international symposia on ICTs, environment and climate change, held in various parts of the world[[4]](#footnote-5)2, by distributing their outcomes as widely as possible;

3 to continue to maintain and update the ITU-T Global Portal on ICTs, environment and climate change, extending its features by developing an electronic and interactive forum to share information and to disseminate ideas, standards and best practices on the relationships between ICTs and environmental sustainability, experiences and practices for disclosure, labelling schemes and recycling facilities;

4 to promote the adoption of Recommendations for enhancing the use of ICTs to serve as a potent and cross-cutting tool to assess and reduce GHG emissions, optimize energy and water consumption, minimize e-waste and improve its management across economic and social activities;

5 to increase awareness and promote information sharing on the role of ICTs in enhancing environmental sustainability, in particular by promoting the use of more energy-efficient[[5]](#footnote-6)3 devices and networks and more efficient working methods, as well as ICTs that can be used to replace or displace higher energy consuming technologies/uses;

6 to work towards the reductions in emissions of GHGs arising from the use of ICTs that are necessary to meet the goals of UNFCCC;

7 to work towards a reduction of the adverse environmental impact of environmentally unfriendly materials used in ICT products;

8 to bridge the standardization gap by providing technical assistance to countries to develop their national green ICT action plans, and develop a reporting mechanism in order to support countries in implementing their plan;

9 to set up e-learning programmes on Recommendations related to ICT, the environment and climate change,

instructs the Telecommunication Standardization Advisory Group

1 to coordinate the activities of ITU-T study groups in relation to their review of relevant standardization activities of other standards development organizations (SDOs) and facilitate collaboration between ITU and those SDOs in order to avoid duplication of, or overlap in, international standards, through in particular JCA ICT&CC;

2 to ensure that study groups carry out a review of both the appropriate existing ITU‑T Recommendations and all future Recommendations in order to assess their implications and the application of best practices in the light of the protection of environment and climate change;

3 to consider further possible changes to working procedures in order to meet the objective of this resolution, including extending the use of electronic working methods to reduce the climate-change impact, such as paperless meetings, virtual conferencing, teleworking, etc.,

instructs all study groups of the ITU Telecommunication Standardization Sector

1 to cooperate with Study Group 5 to develop appropriate Recommendations on ICTs, the environment and climate‑change issues within the mandate and competency of ITU‑T, including telecommunication networks used for monitoring and adapting to climate change, for example disaster preparedness, signalling and quality of service issues, taking into account any economic impact on all countries and in particular on developing countries;

2 to identify best practices and opportunities for new applications using ICTs to foster environmental sustainability, and to identify appropriate actions;

to identify and promote best practices towards implementing environmentally-friendly policies and practices, and to share use cases and key success factors;

4 to identify initiatives which support consistently successful and sustainable approaches that will result in cost‑effective application;

5 to identify and promote successful new energy-efficient technologies using renewable energy or alternative energy sources that are proven to work for both urban and rural telecommunication sites;

6 to liaise with the relevant ITU‑R and ITU‑D study groups and promote liaison with other SDOs and forums in order to avoid duplication of work, optimize the use of resources and accelerate the availability of global standards,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the other Bureaux

1 to report on progress on the application of this resolution annually to the Council and to the next world telecommunication standardization assembly;

2 to keep up to date the calendar of events relevant to ICTs, the environment and climate change based on proposals by TSAG and in close collaboration with the other two Sectors;

3 to launch pilot projects, aimed at bridging the standardization gap, on environmental sustainability issues, in particular in developing countries;

4 to support the development of reports on ICTs, the environment and climate change, taking into consideration relevant studies, in particular the ongoing work of Study Group 5, including issues related to, *inter alia, circular economy*, green data centres, smart buildings, green ICT procurement, cloud computing, energy efficiency, smart transportation, smart logistics, smart grids, water management, adaptation to climate change and disaster preparedness, and how the ICT sector contributes to annual reductions in GHG emissions, and submit the reports as soon as possible to Study Group 5 for its consideration;

5 to organize forums, workshops and seminars for developing countries in order to raise awareness and identify their particular needs and challenges in regard to environment and climate-change issues;

6 to develop, promote and disseminate information and training programmes on ICTs, environment and circular economy;

7 to report on progress of the ITU/WMO/UNESCO IOC Joint Task Force to investigate the potential of using submarine telecommunication cables for ocean and climate monitoring and disaster warning;

8 to promote the ITU-T Global Portal on ICTs, environment and climate change and its use as an electronic forum for the exchange and dissemination of ideas, experience and best practices on ICTs, the environment and climate change;

9 to report to TSAG on the progress regarding *invites the Secretary-General* below,

invites the Secretary-General

to continue to cooperate and collaborate with other entities within the United Nations in formulating future international efforts to address protection of the environment and climate change, contributing to the achievement of the goals of the 2030 Agenda for Sustainable Development,

invites Member States, Sector Members and Associates

1 to continue to contribute actively to Study Group 5 and other ITU-T study groups on ICTs, the environment and climate change;

2 to continue or initiate public and private programmes that include ICTs, the environment and climate change, giving due consideration to relevant ITU‑T Recommendations and relevant work;

3 to share best practices and raise awareness of the benefits associated with the use of green ICTs in accordance with relevant ITU Recommendations;

4 to promote the integration of ICT, climate, environmental and energy policies in order to improve environmental performance and enhance energy efficiency and resource management;

5 to integrate the use of ICTs into national adaptation plans so as to make use of ICTs as an enabling tool to address the effects of climate change;

6 to liaise with their national counterparts responsible for environmental issues in order to support and contribute to the wider United Nations process on climate change, by providing information and developing common proposals related to the role of telecommunications/ICTs in mitigating and adapting to the effects of climate change, so that they can be taken into consideration within UNFCCC.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **73-01** | **TSB Director to continue and develop the ITU-T ICT and Climate Change work programme (resolves 1)** | **Ongoing** | **√** |  |
| TSB is continuing to maintain the [Global Portal on Environment and Smart Sustainable Cities](https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx), which reflects the ITU-T Climate Change and Smart Sustainable Cities work programmes and provide a wealth of information and resource materials, and an overview of activities. | | | |
| **73-02** | **TSB to continue maintain, update, develop and promote the ITU-T Global Portal on ICTs, environment and climate change (resolves 2, 3)** | **Ongoing** | **√** |  |
| The ITU-T Global Portal on Environment and Smart Sustainable Cities is kept up to date and is available at: <https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx> | | | |
| **73-03** | **TSB to promote the adoption of ITU-T Recs as a potent and cross-cutting tool to assess and reduce GHG emission, optimize energy and water consumption, minimize e-waste, etc., increase awareness on the role of ICTs in enhancing environmental sustainability (resolves 4)** | **Ongoing** | **√** |  |
| The ITU-T [Global Portal on Environment and Smart Sustainable Cities](https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx) provides and promotes material on past and current activities such as:   * Green ICT Standards and Supplements. * Toolkit on Environmental Sustainability for the ICT Sector. * ICTs and Climate Change Adaptation, ICTs and Climate Change Mitigation. * ITU-T Reports and publications, surveys, and other external studies on the subject matter areas. * Events such as ITU Green Standards Week and Symposium on ICT, Environment and Climate Change. * Smart Water Management. * Greening the ICT Supply Chain, Smart Logistics and Green ICT Procurement. * ITU IoT and SC&C Standards Roadmap. * Frontier technologies such as AI, IoT, blockchain and smart sustainable cities.   In addition, TSB promotional activities occur through publication of news stories, in blogs, in interviews, and through speeches.  ITU developed the report on Turning Digital Technology Innovation into Climate Action that was launched during the UN Climate Summit.  ITU developed a Report on “[Frontier Technologies to protect the environment and tackle climate change](https://www.itu.int/en/publications/Documents/tsb/2020-Frontier-Technologies-to-Protect-the-Environment-and-Tackle-Climate-Change/index.html)” which was written together with 9 other UN Agencies and Programmes and was launched on Earth Day. | | | |
| **73-04** | **TSB to provide technical assistance to develop national green ICT action plan, and develop a reporting mechanism to support countries in implementing their plans (resolves 8)** | **Ongoing** | **√** |  |
| The events below have been organized to support the development of green ICT action plans:   * [Dialogues on Sustainable Digital Transformation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/Pages/default.aspx) held from 28 to 30 September 2021:   + [Sustainable Digital Transformation in Africa](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210928/Pages/default.aspx), 28 September 2021   + [Sustainable Digital Transformation in the Arab region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210929/Pages/default.aspx), 29 September 2021   + [Sustainable Digital Transformation in Latin America](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210930/Pages/default.aspx), 30 September 2021   These Dialogues were followed by the ITU-T Study Group 5 Regional Group for Africa, the Arab Region and Latin America.   * 10th Green Standards Week took place on 14-16 December 2021. * [9th Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/default.aspx) took place on 1-4 October 2019, Valencia, Spain and concluded with a [Call to Action](mailto:https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-The-9th-Green-Standards-Week/index.html). * [1st Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx) took place on 27-30 August 2019, Abuja, Nigeria in conjunction with [ITU-T Study Group 5 Regional Group for Africa (ITU-T SG5RG-AFR)](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/sg5rgafr/Pages/default.aspx) **and** [ITU-T Study Group 20 Regional Group for Africa (ITU-T SG20RG-AFR)](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/sg20rgafr/Pages/default.aspx)**.** * [A Massive Open Online Course (MOOC) on e-waste management](mailto:http://www.basel.int/Implementation/TechnicalAssistance/MOOC/tabid/4966/Default.aspx) **was developed to share insight into policy tools, international standards and best practices capable of stimulating the transition to sustainable e-waste management.** * [ITU (TSB and BDT) together with UNIDO and other partners are working together on a Global Environmental Facility (GEF) funded project in Latin America](mailto:https://www.itu.int/en/action/environment-and-climate-change/Pages/ewaste.aspx), which helps to strengthen regional cooperation in Latin- American countries. ITU-T developed a Case Study on [Implementation of ITU-T Standards on sustainable management of waste electrical and electronic equipment: The path to a Circular Economy in Costa Rica](https://staging.itu.int/en/publications/Documents/tsb/2021-Economia-Circular-Costa-Rica/index.html#p=1). ITU-T is also working with Argentina in the developing of one case study to implement ITU-T Recommendations in areas such as sustainable e-waste management or recycling of rare metals in ICT equipment, with a view to informing stakeholders, gaining new knowledge, establishing best practise guidelines, improving existing recommendations and more. ITU’s Development Sector (ITU-D) is supporting the project through its development of the Regional E-waste Monitor for Latin America. | | | |
| **73-05** | **TSB to setup e-learning programmes on Recommendations related to ICT, environment and climate change (resolves 9)** | **Ongoing** | **√** |  |
| The [ITU-T Global Portal on Environment and Smart Sustainable Cities](https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx), provides a wealth of information and resource materials for self-learning. Training materials relating to ICTs and climate change are currently being developed. | | | |
| **73-06** | **TSAG to coordinate ITU-T SGs through JCA on ICT and climate change, and ensure study groups carry out review of existing and future Recommendations to assess implications and application of best practices in light of environment protection and climate change (i. TSAG 1)** | **TSAG 2021,**  **Ongoing** |  | **√** |
| The JCA on ICT and climate change concluded its activities in 2015. | | | |
| **73-07** | **TSAG to consider revision of working methods to reduce climate change impact (i. TSAG 3)** | **TSAG 2021,**  **Ongoing** | **√** |  |
| The practice of carrying out virtual ITU-T meeting has a direct impact in travelling and has helped to reduce the impact to climate change.  ITU-T SG5 is currently working on draft Recommendation ITU-T L.VirtualMeetings “Methodology for estimating GHG emissions in the frame of virtual meetings and events”. This Recommendation will provide a methodology for estimating the GHG emissions related to virtual meetings and events, considering both their footprint and the emissions avoided in comparison with a physical event. | | | |
| **73-08** | **Study Groups, especially SG5, to develop Recommendations on ICTs, environment and climate change (i. SGs 1)** | **Ongoing** | **√** |  |
| SG5 approved the following Recommendations:   * Recommendation ITU-T L.1000 “Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices”; * Recommendation ITU-T L.1015 “Criteria for evaluation of the environmental impact of mobile phones”; * Recommendation ITU-T L.1020 "Circular Economy: Guide for Operators and Suppliers on approaches to migrate towards circular ICT goods and networks"; * Recommendation ITU-T L.1021 "Extended producer responsibility - Guidelines for sustainable e-waste management"; * Recommendation ITU-T L.1022 “Circular economy: Definitions and concepts for material efficiency for information and communication technology; * Recommendation ITU-T L.1023 “Assessment method for circular scoring"; * Recommendation ITU-T L.1024 “ Effect for global ICT of the potential of selling services instead of equipment on the waste creation and environmental impacts”; * Recommendation ITU-T L.1030 “E-waste management framework for countries”; * Recommendation ITU-T L.1031 “Guideline for achieving the e-waste targets of the Connect 2030 Agenda”; * Recommendation ITU-T L.1032 “Guidelines and certification schemes for e-waste recyclers” * Recommendation ITU-T L.1033 “Guidance for institutions of higher learning to contribute in the effective life cycle management of e-equipment and e-waste” * Recommendation ITU-T L.1060 “General principles for the green supply chain management of ICT manufacturing industry” * Recommendation ITU-T L.1205 "Interfacing of renewable energy or distributed power sources to up to 400 VDC power feeding systems"; * Recommendation ITU-T L.1206 "Impact on ICT equipment architecture of multiple AC, -48VDC or up to 400 VDC power inputs"; * Recommendation ITU-T L.1207 “Progressive migration of a telecommunication/information and communication technology site to 400 VDC sources and distribution”; * Recommendation ITU-T L.1210 “Sustainable power-feeding solutions for 5G networks”; * Recommendation ITU-T L.1220 "Innovative energy storage technology for stationary use - Part 1: Overview of energy storage"; * Recommendation ITU-T L.1221 “Innovative energy storage technology for stationary use - Part 2: Battery”; * Recommendation ITU-T L.1222 “Innovative energy storage technology for stationary use - Part 3: Supercapacitor technology”; * Recommendation ITU-T L.1303 “Functional requirements and framework of green data centre energy-saving management system”; * Recommendation ITU-T L.1304 “Procurement Criteria for Sustainable Data Centres”; * Recommendation ITU-T L.1305 “Data centre infrastructure management system based on big data and artificial intelligence technology"; * Recommendation ITU-T L.1315 "Standardization terms and trends in energy efficiency"; * Recommendation ITU-T L.1317 “Guidelines on energy efficient blockchain systems”; * Recommendation ITU-T L.1310 "Energy efficiency metrics and measurement methods for telecommunication equipment"; * Recommendation ITU-T L.1305 "Data centre infrastructure management system based on big data and artificial intelligence technology"; * Recommendation ITU-T L.1316 “Energy efficiency framework”; * Recommendation ITU-T L.1325 "Green ICT solutions for telecom network facilities"; * Recommendation ITU-T L.1332 "Total network infrastructure Energy efficiency metrics"; * Recommendation ITU-T L.1351 “Base station site energy parameter measurement methodology”; * Recommendation ITU-T L.1360 "Energy control of SDN architecture"; * Recommendation ITU-T L.1361 “Measurement method for energy efficiency on Network Function Virtualization”; * Recommendation ITU-T L.1362 “Interface for power management in network function virtualization environments – Green abstraction Layer version 2"; * Recommendation ITU-T L.1370 “Sustainable and intelligent building services”; * Recommendation ITU-T L.1371 “A methodology for assessing and scoring the sustainability performance of office buildings"; * Recommendation ITU-T L.1380 "Smart energy solution for telecom sites"; * Recommendation ITU-T L.1381 “Smart energy solution for data centre"; * Recommendation ITU-T L.1382 “Smart energy solution for telecommunication rooms"; * Recommendation ITU-T L.1383 “Smart energy solutions for cities and home applications” * Recommendation ITU-T L.1440 "Methodology for environmental impact assessment of information and communication technologies at city level"; * Recommendation ITU-T L.1450 “Methodologies for the assessment of the environmental impact of the information and communication technology sector”; * Recommendation ITU-T L.1451 "Methodology for assessing the aggregated positive sector-level impacts of ICT in other sectors"; * Recommendation ITU-T L.1460 “Connect 2020 greenhouse gases emissions - Guidelines”; * Recommendation ITU-T L.1470 "GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement"; * Recommendation ITU-T L.1471 “Guidance and criteria for ICT organisations on setting Net Zero targets and strategies”; * Recommendation ITU-T L.1504 "ICT and adaptation of agriculture to the effects of climate change"; * Recommendation ITU-T L.1505 "Use of ICT in the adaptation of the Fisheries Sector to the Effects of Climate Change"; * Recommendation ITU-T L.1506 "Framework of climate change risk assessment for telecommunication and electrical facilities"; * Recommendation ITU-T L.1507 “Use of ICT sites to support environmental sensing”.   SG5 is working on Setting Environmental Requirements for 5G and is developing a series of technical reports, supplements, and international standards that will study environmental aspects of 5G such as: electromagnetic compatibility (EMC); electromagnetic fields (EMF); energy feeding and efficiency; and resistibility. SG5 is currently working on:   * K.5G-lightning - Practical guide for lightning protection, earthing and bonding, and safety consideration of 5G radio base station; * L.ENV-KPI-5G-ARCH – Environmental KPIs/metrics for 5G architectures. * L.1331 - Assessment of mobile network energy efficiency. The revised version will include aspects of 5G. * L.BBU - Requirements and use cases of liquid cooling solutions and high energy efficiency solutions for 5G BBU in C-RAN mode   These four dimensions of 5G environmental sustainability will remain the focus of ITU-T Study Group 5's new standardization project on '5G environmental requirements' for the Study Period 2017- 2020.  ITU-T SG5 within Q9/5 “Climate change and assessment of information and communication technology (ICT) in the framework of the Sustainable Development Goals (SDGs)” developed Recommendation ITU-T L.1470 “GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement”. The development of this Recommendation was in collaboration with the Science Based Targets initiative (SBTi), the Global eSustainability Initiative (GeSi), the International Energy Agency (IEA) and GSMA. Additionally, SG5 developed Supplement 37 and Supplement 38 on “Guidance to operators of mobile networks, fixed‑ networks and data centres and manufacturers on setting 1.5°C aligned targets compliant with Recommendation ITU-T L.1470.  At its meeting in May 2019, ITU-T SG5 created the [Focus Group on "Environmental Efficiency for Artificial Intelligence and other Emerging Technologies" (FG-AI4EE).](https://www.itu.int/en/ITU-T/focusgroups/ai4ee/Pages/default.aspx) The FG-AI4EE is identifying the standardization gaps related to the environmental performance of AI and other emerging technologies including automation, augmented reality, virtual reality, extended reality, smart manufacturing, industry 5.0, cloud/edge computing, nanotechnology, 5G, among others. The focus group will develop technical reports and technical specifications to address the environmental efficiency, as well as water and energy consumption of emerging technologies.  The First meeting of the FG-AI4EE took place on 12 December 2019 in Vienna, Austria. It was preceded by a Forum on Environmental Efficiency for Artificial Intelligence and other Emerging Technologies. The work of the FG-AI4EE is carried out in three Working Groups:   * WG1 - Requirements of AI and other Emerging Technologies to Ensure Environmental Efficiency. * WG2 - Assessment and Measurement of the Environmental Efficiency of AI and Emerging Technologies. * WG3 - Implementation Guidelines of AI and Emerging Technologies for Environmental Efficiency.   The second and third meeting of the FG-AI4EE were held on 10 December 2020 and 8 April 2021, respectively. The fourth meeting of the FG-AI4EE took place on 21 October 2021.  SG2 started work on draft Recommendation ITU-T M.resm-AI "Requirements for energy saving management of 5G RAN system with AI". | | | |
| **73-09** | **TSB Director, in collaboration with other Directors, to keep update the calendar of events relevant to ICTs, environment and climate change (i. TSBDir 2)** | **Ongoing** | **√** |  |
| The calendar of events relevant to ICTs, environment and climate change is kept up to date and is available at: <https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx> | | | |
| **73-11** | **TSB Director, in collaboration with other Directors, to support development of reports on ICTs, environment and climate change, particularly relevant to ongoing work of SG5, and submit the reports as soon as possible to Study Group 5 for its consideration (i. TSBDir 4)** | **Ongoing** | **√** |  |
| ITU-T SG5 together with ITU-D, ITU-R and the General Secretariat developed a [Report on Turning Digital Technology Innovation into Climate Action.](https://www.itu.int/en/publications/Documents/tsb/2019-Turning-digital-technology-innovation-into-climate-action/index.html)  All Reports on ICTs, environment and climate change are available at: <https://www.itu.int/en/ITU-T/climatechange/Pages/publications.aspx> | | | |
| **73-12** | **TSB Director, in collaboration with other Directors, to organize forums, workshops and seminars for developing countries to raise awareness and identify needs. (i. TSBDir 5)** | **Ongoing** | **√** |  |
| The 7th ITU Green Standards Week was held from 3 to 5 April 2017 in Manizales, Colombia. It was dedicated to the theme "Circular Economy and Smart Sustainable Cities". A Forum on "Environment, climate change and circular economy" was held on 4 and 5 April 2017.  The [7th ITU Green Standards Week (GSW-17)](http://newslog.itu.int/archives/1493) has concluded with the adoption of the [Manizales Manifesto](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201704/Documents/Manifesto-Manizales-05-04-2017-Eng-Final.pdf), expressing the shared commitment of the event's over 850 participants to the development of resource-efficient "Circular Economies" and Smart Sustainable Cities.  GSW-17 was held in Manizales, Colombia, 3-5 April 2017, hosted by the Municipality of Manizales and Colombia's Ministry of Information and Communication Technologies. The event explored contemporary challenges to city governance and the well-being of city inhabitants, examining the role to be played by information and communication technologies (ICTs) in the pursuit of the United Nations' [New Urban Agenda](http://www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda/) and [Sustainable Development Goals](http://www.itu.int/en/sustainable-world/Pages/default.aspx).  The energy efficiency of 5G systems and electromagnetic compatibility (EMC) requirements to ensure interference-free 5G operation have been identified as high-priority fields of standardization to be addressed by ITU's expert group for 'environment and circular economy', [ITU-T Study Group 5](https://www.itu.int/en/ITU-T/about/groups/Pages/sg05.aspx). This was one of the key conclusions of a [workshop on the environmental requirements of 5G systems](http://www.etsi.org/news-events/events/1217-towards-setting-environmental-requirements-for-5g) co-organized by ITU and ETSI in Sophia Antipolis, 23 November 2017, in conjunction with a meeting of ITU-T Study Group 5, 13-22 November 2017.  The [8th ITU Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/default.aspx) was held from 9 to 12 April 2018, in Zanzibar, Tanzania. It was dedicated to the theme “Linking Circular Economy and Industry 4.0”. It was co-organized together with UN Habitat, United Nations University (UNU), United Nations Industrial Development Organization (UNIDO), Basel Convention and UN Environment. It was kindly hosted by the Universal Communications Service Access Fund (UCSAF) and Tanzania Communications Regulatory Authority (TCRA). The GSW was organized in cooperation with ITU-D and ITU-R.  The [12th ITU Symposium on ICT, Environment and Climate Change](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/Programme09.aspx) was held on 9 April 2018 in Zanzibar, Tanzania.  A workshop on “The role of International Standards and of the Basel Convention in tackling e-waste and achieving a Circular Economy” was held on 23 March 2018 in Geneva, Switzerland.  A [Thematic Workshop on Connecting the Circular model of E-waste Management to the Sustainable Development Goals](https://www.itu.int/net4/wsis/forum/2019/Agenda/ViewSession/240) took place on 11 April 2019 in Geneva, Switzerland.  The[**13th ITU Symposium on ICT, Environment and Climate Change**](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Pages/default.aspx), Geneva, Switzerland took place on 13 May 2019 in Geneva, Switzerland. The Symposium was organized with eight UN Agencies and Programmes. It concluded with a Call for Action (available in [[ENG](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action.pdf)][[AR](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action_AR.pdf)][[FR](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action_FR.pdf)][[CH](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action_CH.pdf)][[RU](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action_RU.pdf)][[SPA](https://www.itu.int/en/ITU-T/climatechange/symposia/201905/Documents/Call_for_Action_SPA.pdf)]), which acknowledges the transformative potential of frontier technologies and the associated risks, while highlighting a course of actions that would build a shared vision on the use of these technologies.  An [STI Forum Side Event: Frontier Technologies to Protect the Environment and Tackle Climate Change](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/event-20190514.aspx) took place on 14 May 2019 in Geneva, Switzerland.  A [Smart Environment Panel on GHG emissions trajectories for the ICT sector](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/event-20190515.aspx) was held on 15 May 2019.  A [HLPF Side Event: "Harnessing Frontier Technologies for Accelerating Climate Actions and the SDGs"](https://www.itu.int/en/ITU-T/climatechange/Pages/20190709.aspx) took place on 9 July 2019 in New York.  The [1st Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx) was held from 27 to 30 August 2019 and had the following structure:   * Bridging the Standardization Gap Training on "How to draft international standards", 27 August 2019 (morning only) * ITU-T Study Group 20 Regional Group for Africa (ITU-T SG20RG-AFR) meeting, 27-29 August 2019 * Training on "Smart Sustainable Cities, Products and Services", 27 August 2019 (afternoon only) * ITU Forum on "Smart Sustainable Africa", 28 August 2019 * ITU-T Study Group 5 Regional Group for Africa (ITU-T SG5RG-AFR) meeting, 29-30 August 2019 * Forum on "Human Exposure to Electromagnetic Fields (EMFs) in Africa", 29 August 2019 (afternoon only), * ITU Training on "E-waste Management and Circular Economy", 30 August 2019 (morning only).   The 9th Green Standards Week took place from 1 to 4 October 2019 in Valencia, Spain. The GSW was dedicated to theme “Connecting cities with the sustainable development goals” and was organized with more than 20 partners. The GSW’s structure was the following:   * **Day 1 - Tuesday, 1 October 2019** * [Leadership Panel on "Connecting Smart Sustainable Cities with the Sustainable Development Goals"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-02.aspx) * [U4SSC Award Ceremony & Photo Session](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-03.aspx) * [Forum on "Frontier Technologies to Tackle Climate Change and Achieve a Circular Economy"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-04.aspx) * **Day 2 - Wednesday, 2 October 2019** * [Forum on "Smart Governance in Cities"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-06.aspx) * [Valencia: Smart City](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-07.aspx) * **Day 3 - Thursday, 3 October 2019** * [4th meeting of the United for Smart Sustainable Cities Initiative (U4SSC)](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-05.aspx) * Meeting of the Spanish Expert Committee on Smart Sustainable Cities - by invitation only * **Day 4 - Friday, 4 October 2019** * [Training on Building Smarter and More Sustainable Cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-08.aspx).   The 9th GSW concluded with a Call to Action urging city stakeholders to accelerate the transition to Smart Sustainable Cities using ICTs and new frontier technologies. The Call to Action is available in [English](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-EN.pdf), [Spanish](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-ES.pdf), [Russian](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-RU.pdf), [Arabic](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-AR.pdf), [French](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-FR.pdf) and [Chinese](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-CH.pdf).  A [Webinar on Using international standards to tackle the e-waste challenge](https://www.itu.int/en/ITU-T/climatechange/Documents/Events/Webinar_%20using_%20international_%20standards_to_tackle_the_e-waste_challenge.pdf) was held on 1 and 2 April 2020.  A Webinar on Explore a circular vision for the ICT sector was held on 14 and 16 April 2020.  A [session on "Using international standards to build smart sustainable cities and tackle climate change, e-waste and nature loss"](https://www.itu.int/en/ITU-T/climatechange/Pages/20201015.aspx) was held on 15 October 2020.  A side event on International Standards and Sustainable Green & Innovative Power Solutions to bring Broadband Internet Connectivity to Rural and Remote Areas was held on 22 June 2021.  A [VEF side event on Unlocking the potential of digital technologies for a sustainable energy transition](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/Pages/ITU-T-SG5-side-event-on-Vienna-Energy-Forum.aspx) was held on 6 July 2021.  A [Session on the Emerging Technology Week 2021: Towards a sustainable digital transformation and a net-zero emission with emerging technology](https://www.itu.int/en/ITU-D/Conferences/ET/2021/Pages/Programme.aspx) was held on 8 July 2021.  A series of Sustainable Digital Transformation Dialogues were held from 28 to 30 September 2021:   * [Sustainable Digital Transformation in Africa](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210928/Pages/default.aspx), 28 September 2021 * [Sustainable Digital Transformation in the Arab region](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210929/Pages/default.aspx), 29 September 2021 * [Sustainable Digital Transformation in Latin America](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210930/Pages/default.aspx), 30 September 2021.   The 10th Green Standards Week took place from 14 to 16 December 2021. The structure of the 10th GSW was the following:   * **Day 1:**[**14 December 2021:** High-level dialogue on sustainable e-waste management and the circular economy in Latin America](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/202112/Pages/day-01.aspx) * **Day 2:**[**15 December 2021:** Sustainable e-waste management in Costa Rica](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/202112/Pages/day-02.aspx) * **Day 3:**[**16 December 2021:** Beyond COP26 – Accelerating Net-Zero Through a Sustainable Digital Transformation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/202112/Pages/day-03.aspx) | | | |
| **73-13** | **TSB Director to report (to TSAG) progress of ITU/WMO/UNESCO IOC Joint Task Force to investigate the potential of using submarine telecom cables for ocean and climate monitoring and disaster warning (i. TSBDir 7)** | **TSAG 2021,**  **Ongoing** | **√** |  |
| See also the TSB Director's Reports to TSAG.  The [ITU/WMO/UNESCO-IOC Joint Task Force on SMART[[6]](#footnote-7) Cable Systems](http://www.itu.int/en/ITU-T/climatechange/task-force-sc/Pages/default.aspx) is leading an ambitious new project to equip submarine communications cables with climate and hazard-monitoring sensors to create a global observation network capable of providing earthquake and tsunami warnings as well as data on ocean climate change and circulation. These new ''SMART (green) cables' would collect data of great value to the scientific community, as well industries such as fisheries and energy. The JTF is developing a pilot project (a so-called 'wet demonstrator') with the active participation of cable suppliers, owners and researchers from existing ocean observatories. Experts have deemed the project to be technically feasible with the JTF members now working to solve business, legal and economic challenges. In order to identify qualified candidates to provide materials and services needed to realize the Wet Demonstrator project, an RFI (request for information) was sent to various organizations at the end of 2016. Several positive responses were received, and they are now under study. ITU standardization continues to tackle disaster relief, network resilience and recovery, recognizing that the 21st century is playing host to an increasing prevalence of extreme weather events.  On 2 August 2019, the joint task force published a detailed peer-reviewed article in the journal “Frontiers in Marine Science”: “SMART Cables for Observing the Global Ocean: Science and Implementation”. TSB introduced the activities of this JTF at a BDT workshop (Session on frontier ICTs for climate action, <https://www.itu.int/en/ITU-D/Study-Groups/2018-2021/Pages/meetings/session-Q6-2-oct19.aspx>) (Geneva, 15 October 2019) and at an OECD Workshop on Digital Technologies in the Ocean Economy: Exploring the Future (Brussels, 20-21 November 2019). Currently, various projects are ongoing toward the deployment of SMART submarine cables.  ITU-T SG15, Q8/15 adopted work items on SMART cables and dedicated submarine cables for measurement.  In October 2021, “SMART submarine cables” was endorsed as a project forming part of the UN Decade of Ocean Science for Sustainable Development 2021-2030.  Information on this Task Force including publications and workshop information is available at its web page at <http://www.itu.int/en/ITU-T/climatechange/task-force-sc/Pages/default.aspx>. | | | |
| **73-14** | **ITU Secretary-General to continue cooperation and collaboration with other United Nations entities contributing to the achievement of the goals of the 2030 Agenda for Sustainable Development (i. SecGen)** | **Ongoing** | **√** |  |
| The ITU Secretary-General is cooperating with UNFCCC, UNEP and WMO in the context of climate change and SDGs. | | | |
| **73-15** | **TSB Director to report to TSAG on progress on cooperation with other UN entities, see** [**73-14**](#Item73_10) **(i. TSBDir 9)** | **TSAG meetings** | **√** |  |
| See TSB Director's reports to TSAG. | | | |
| **73-16** | **TSB to work towards the reductions in emissions of GHGs arising from the use of ICTs, and to work towards a reduction of the adverse environmental impact of environmentally unfriendly materials used in ICT products (resolves 6 ,7)** | **Ongoing** | **√** |  |
| SG5 approved the following Recommendations:  Under Q7/5 - Circular economy including e-waste:   * ITU-T L.1015 “Criteria for evaluation of the environmental impact of mobile phones”; * ITU-T L.1023 “Assessment method for Circular Scoring"; * ITU-T L.1024 “Effect for global ICT of the potential of selling services instead of equipment on the waste creation and environmental impacts” * ITU-T L.1031 “Guideline on implementing the e-waste reduction target of the Connect 2020 Agenda”; * Under Q9/5 - Climate change and assessment of information and communication technology (ICT) in the framework of the Sustainable Development Goals (SDGs); * ITU-T L.1460 “Connect 2020 greenhouse gases emissions”; * ITU-T L.1450 “Methodologies for the assessment of the environmental impact of the information and communication technology sector”. * ITU-T L.1451 “Methodology for assessing the aggregated positive sector-level impacts of ICT in other sectors” * ITU-T L.1470 “GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement” * ITU-T L.1471 “Guidance and criteria for information and communication technology organisations on setting Net Zero targets and strategies”   SG5 consented the following Recommendations:   * Draft ITU-T L.1016 (ex. L.TWS) “Method for Evaluation of the Environmental and Safety Performance of True Wireless Stereo Headphones”; * Draft ITU-T L.1035 (ex. L.SM\_Batteries) “Sustainable management of batteries resulting from ICT equipment”; * Draft ITU-T L.1036 (ex. L.ewaste-base\_station) “Scheduled waste management for base station (inclusive of e‑waste)”   SG5 is currently working on the following work items:   * ITU-T L.NCIe “Carbon data intensity for network energy performance monitoring”; * ITU-T L.SCCA “Supply-chain based carbon accounting information guidelines for ICT manufacturing industries”; * ITU-T L.GPSIM “Good practices for the sanitization of the information media in end-of-life ICT devices”; * ITU-T L.ICT\_PROCURE “ Public procurement of ICTs to mitigate the adverse effects of e‑waste”; * ITU-T L.Database “Guidance for the creation of an ITU database on GHG emissions of the global ICT sector”; * ITU-T L.Biodiversity\_footprint “Methodology for the assessment of the footprint of an ICT organization on biodiversity”; * ITU-T L.Biodiversity\_opportunities “Development of guidance on how to assess the second order effects of ICT solutions on biodiversity, including positive effects”; * ITU-T L.GHGintensities “GHG emissions intensity indicators for telecom network operators”; * A series of “Methodologies for accounting Greenhouse Gas Emissions of Base Station sites, Data Centres and Telecommunication rooms and Industrial Parks”; * A series of Measurement methodologies and Best Practices for decarbonization of Industrial Park, Base station sites, and Data Centre and Telecommunication room, and smart cities in support of Net Zero * ITU-T L.AUVE “Effects of ICT enabled autonomy on vehicles longevity and waste creation”; * ITU-T L.CE\_Industry 4.0 “Circular Economy and Industry 4.0”; * ITU-T L.Counterfeit “Adequate Assessment and Sensitisation on Counterfeit ICT Products and their Environmental Impact”; * ITU-T L.ICT\_CE “ICT response to circular economy”; * ITU-T L.E-waste-collection “Guidelines on the collection, pre-treatment, dismantling, valorization and final disposal of WEEE”; * ITU-T L.GDSPP “Requirements for a global digital sustainable product passport to achieve a circular economy” * ITU-T L.Mat\_frame “Assessment of material efficiency of ICT network goods (circular economy). Part 1: General for server and data storage equipment"; * ITU-T L.ME\_DD “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 2: server and data storage product secure data deletion functionality"; * ITU-T L.ME\_AF “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 3: Server and data storage product availability of firmware and of security updates to firmware"; * ITU-T L.ME\_RM “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 4: Server and data storage product critical raw materials"; * ITU-T L.ME\_DIS “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 5: Server and data storage product disassembly and disassembly instruction"; * ITU-T L.Suppl.resource\_sav “Examples of resource saving by using ICT technologies” * ITU-T L.TCFD “Application of the activities of the Task Force on Climate-related Financial Disclosures in the ICT sector”; * ITU-T L.VirtualMeetings “Methodology for estimating GHG emissions in the frame of virtual meetings and events”; * ITU-T L.Suppl.Decarbonization “Decarbonisation strategies to implement Recommendation ITU-T L.1470 trajectories"; * ITU-T L.Enablement “Assessment of GHG emissions reductions enabled by ICT services in support of the Net Zero transition"; * ITU-T L.NZ solutions “Best practices to achieve Net Zero with information and communication technologies”, among others; * ITU-T L.FrameworkBIMSssc “Framework of Building Infrastructure Management System for Sustainable City”, among others. | | | |
| **73-17** | **TSAG to ensure that study groups carry out a review of both the appropriate existing ITU-T Recommendations and all future Recommendations in order to** **assess their implications and the application of best practices in the light of the protection of environment and climate change (i. TSAG 2)** | **Ongoing** | **√** |  |
| ITU-T SG5 regularly checks that its Recommendations are updated with the latest information in order to assess their implications and the application of best practices in the light of the protection of environment and climate change. | | | |
| **73-18** | **Study groups to identify and promote best practices, initiatives and opportunities for new applications using ICTs to foster environmental sustainability, and to identify appropriate actions (i. SGs 2, 3, 4, 5)** | **Ongoing** | **√** |  |
| * SG2: Liaised with SG5 on energy management issues, including updates on Recommendation ITU-T M.3381 (ex. M.resm-AI), "Requirements for energy saving management of 5G RAN system with AI", which was Consented in November 2021. * SG11 developed Recommendation ITU-T Q.5022 “Energy efficient D2D communication protocol for IMT 2020 network”. * SG12 revised Recommendation ITU-T P.1301 on Subjective quality evaluation of audio and audiovisual multiparty telemeetings, thereby contributing to higher quality telemeetings, reducing the need for travel. * SG13: A while ago took a decision to complement its Recommendations with the clause on environmental considerations, if applicable. It has energy-saving Recommendations approved (Y.3021, Y.3022) and Y.2072 “Framework for an energy-sharing and trading platform” (05/2018). SG13 had some interactions with SG5 on energy efficiency as applied to IMT-2020 networks. In 2021 had three ongoing work items on energy efficiency management (Y.dv-ess, Y.energy-brokerage and Y.IMT2020-REEM). * SG15 includes power saving mode in Recommendations as appropriate. * SG16 approved Recommendation ITU-T F.747.9 on requirements and architecture for energy management services. * SG20 approved Recommendations ITU-T Y.4207 “Requirements and capability framework of smart environmental monitoring” and ITU-T Y.4466 “Framework of smart greenhouse service”. SG20 is currently working on draft Recommendations ITU-T Y.IoT-SLF “Framework and capabilities for smart livestock farming based on Internet of things”, draft Recommendation ITU-T Y.water-SFP “Framework of monitoring of water system for smart fire protection", draft Recommendation ITU-T Y.smart-oceans “Overview of smart oceans and seas and requirements for their ICT implementations" and draft Supplement ITU-T Y.Sup.SmartAgri-usecases “Use cases of IoT based smart agriculture". | | | |
| **73-19** | **Study groups to liaise with the relevant ITU-R and ITU-D study groups and promote liaison with other SDOs and forums in order to avoid duplication of work, optimize the use of resources and accelerate the availability of global standards (i. SGs 6)** | **Ongoing** | **√** |  |
| * SG3 liaised with ITU-D on OTTs and ITU-R on ITU-T D.264. * SG5 liaises with relevant organizations as necessary. * SG9 liaises with relevant organizations as necessary. * SG11 liaises with relevant organizations as necessary. * SG12 liaises with relevant organizations as necessary. * SG13 liaises with relevant organizations as necessary. In addition, it liaises with ITU-R WP5D regularly. In March 2019 per request from ITU-R WP5D is revised the ToR for its FG NET2030. * SG15 liaises with relevant organizations as necessary. * SG16 liaises with relevant organizations as necessary. * SG20 liaises with relevant organizations as necessary. | | | |
| **73-20** | **TSB Director to report on progress on the application of this resolution annually to the ITU Council and to the next world telecommunication standardization assembly (i. TSBDir 1)** | **Council 2021**  **WTSA-20** | **√** | **√** |
| The TSB Director in [C18/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0035) briefly reports on climate change matters, and plans to submit a report to WTSA-20.  Resolution 73 (Rev. Hammamet, 2016) on “Information and communications technologies, environment and climate change” instructs the TSB Director to report on progress on the application of this resolution to next WTSA.  In the past 6 years, TSB has carried out extensive standardization, awareness raising, and knowledge sharing activities as well as collaboration on ICT and climate change in line with Resolution 73. ITU-T Study Group 5 has developed standards that provide authentic guidance for measuring and improving the energy efficiency of ICT equipment and infrastructure, reducing their environmental impacts, particularly with regards to e-waste and GHG emission, implementing the environmental targets of the ITU Connect 2030 Agenda, and adopting a circular approach to ICT.  To highlight one of ITU’s green standards, Recommendation ITU-T L.1470 is providing guidance for members of the ICT sector to set the emission-reduction trajectories needed to cut the ICT sector’s emissions by 45% in line with the climate targets set in the Paris Agreement. These recommended emission-reduction targets are the first targets specific to the ICT industry to be approved by the Science Based Target Initiative. This standard provides the ICT sector with the tool it needed to set a clear pathway to reach net zero emissions. Overall, the green standards developed by ITU-T SG5 have contributed significantly to accelerating climate actions in the ICT sector and achieving a sustainable digital transformation. The group is also regularly revising the information contained in the standards to assess their implications and reflect on emerging needs.  Recognizing the climate change impacts brought on by various working methods, such as virtual meetings, ITU-T SG5 is already working on a draft Recommendation that will provide a methodology for estimating the GHG emissions related to virtual meetings and events, considering both their footprint and the emissions avoided in comparison with a physical event.  To further focus on identifying the standardization requirements for achieving environmental efficiency in digital technologies, the Focus Group on Artificial Intelligence and other Emerging Technologies (FG-AI4EE) was created in 2019. The focus group is working to develop technical reports and technical specifications that aim to address the environmental efficiency, as well as water and energy consumption aspect of emerging technologies through an inclusive and participatory process.  Significant progress was also made in the [ITU/WMO/UNESCO-IOC Joint Task Force on SMART[[7]](#footnote-8) Cable Systems](http://www.itu.int/en/ITU-T/climatechange/task-force-sc/Pages/default.aspx), which aims to equip submarine communications cables with climate and hazard-monitoring sensors to create a global observation network. The group has published a detailed peer-reviewed article and gave presentations in two workshops in 2019. In October 2021, the “SMART submarine cables” project was endorsed as a project forming part of the UN Decade of Ocean Science for Sustainable Development 2021-2030.  TSB has provided technical assistance to support countries to implement national green ICT action plan and develop mechanisms to use ICT more sustainably and combat climate change through different activities. For example, TSB has organized the [Dialogues on Sustainable Digital Transformation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/Pages/default.aspx) which aimed to support developing regions to identify common solutions for achieving a sustainable digital transformation. TSB also participated in developing the [Massive Open Online Course (MOOC) on e-waste management](mailto:http://www.basel.int/Implementation/TechnicalAssistance/MOOC/tabid/4966/Default.aspx)**,** which is a-learning programmes that contains insight into policy tools, international standards and best practices capable of stimulating the transition to sustainable e-waste management. TSB is also working together with BDT and UNIDO on a project funded by the Global Environmental Facility (GEF) to strengthen regional cooperation in Latin American countries. In this project, ITU-T developed one case study on the implementation of Recommendation ITU-T L.1031 “Guideline for achieving the e-waste targets of the Connect 2030 Agenda” and Recommendation ITU-T L.1032 “Guidelines and certification schemes for e-waste recyclers” in Costa Rica. ITU-T is also developing a case study on Argentina in implementing ITU-T e-waste standards in a view to informing stakeholders, gaining new knowledge, establishing best practise guidelines, improving existing recommendations and more.  TSB has also organized forums, workshops and seminars that paid attention to the need of developing countries. TSB organized a series of events that took place in developing regions in order to take into consideration their needs and raise awareness on key issues. Among these events are the [1st Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx) which took place in Abuja, Nigeria, in 2019, the [7th ITU Green Standards Week (GSW-17)](http://newslog.itu.int/archives/1493) which took place in Manizales, Colombia in 2017, the [8th ITU Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/default.aspx) which took place in Zanzibar, Tanzania in 2018, and the [12th ITU Symposium on ICT, Environment and Climate Change](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/Programme09.aspx) which took place also in Zanzibar, Tanzania in 2018. In 2021, the 10th Green Standards Week was dedicated to Driving Sustainable Digital Transformation through e-waste management and circular economy with special focus in Latin America. Each of one of these events contained workshops and seminars on a given environment and ICT topic. In addition, TSB has also organized forums that aimed to raise awareness on the environmental impacts of digital technologies and the importance of achieving a sustainable digital transformation.  TSB has promoted the adoption of ITU-T Recommendation through the ITU [Global Portal on Environment and Smart Sustainable Cities](https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx), which contains a wealth of information on the latest ITU publications and publications developed by other creditable entities on environment and smart sustainable city topics. Most noticeably, ITU has developed the report on “*Turning Digital Technology Innovation into Climate Action”*, which was launched during the UN Climate Summit, and “*Frontier Technologies to protect the environment and tackle climate change*” which was written together with 9 other UN Agencies and Programmes and was launched on Earth Day. Additionally, ITU participated in the Technical Working Group on Innovation, Technology and Data as part of the preparations for the High-level Dialogue on Energy which was held in September 2021. The technical working group produced a Theme Report on Innovation, Technology and Data. The report contains a case study on the Implementation of Recommendation ITU-T L.1381 'Smart energy solutions for data centres' in China. | | | |
| **73-21** | **TSB Director to develop, promote and disseminate information and training programmes on ICTs, environment and circular economy (i. TSBDir 6)** | **Ongoing** | **√** |  |
| The [ITU-T Global Portal on Environment and Smart Sustainable Cities](https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx), provides a wealth of information and resource materials for self-learning. Training materials relating to ICTs, smart sustainable cities and climate actions are currently being developed; see also 73-05. | | | |

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# Resolution 74 - Admission of Sector Members*\** from developing countries in the work of the ITU Telecommunication Standardization Sector

**Resolution 74**

resolves

to encourage the adoption of the necessary measures to enable new members from developing countries to join ITU‑T and to be entitled to take part in the work of the ITU‑T study groups and other groups within ITU‑T, taking into consideration levels of financial contributions equal to those applied for developing countries for admission to the study groups in the ITU Telecommunication Development Sector (ITU‑D).

*\** Such Sector Members from developing countries shall not be affiliated in any way to any Sector Member of a developed country, and shall be limited to those Sector Members of developing countries (including the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition) having an income per capita according to the United Nations Development Programme not exceeding a threshold to be determined.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Action Item | Action | Milestone | Periodic goals met | Completed |
| 74-02 | TSB Director encourage the adoption of the necessary measures to enable new members from developing countries to join ITU‑T and to be entitled to take part in the work of the ITU‑T study groups and other groups within ITU‑T, taking into consideration levels of financial contributions equal to those applied for developing countries for admission to the study groups in the ITU Telecommunication Development Sector (ITU‑D). | Ongoing | √ |  |
| As of 31 August 2020, nine ITU-T Sector Members have taken advantage of the reduced fee (Unit 1/16) established by PP-10 for new ITU-T Sector Members from developing countries. | | | |

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# Resolution 75 - The ITU Telecommunication Standardization Sector's contribution in implementing the outcomes of the World Summit on the Information Society, taking into account the 2030 Agenda for Sustainable Development

**Resolution 75**

resolves

1 to continue ITU‑T's work on the implementation of WSIS outcomes and the WSIS Vision beyond 2015 and follow-up activities within its mandate;

2 that ITU‑T should contribute to achievement of the objectives of the 2030 Agenda for Sustainable Development, through and in harmony with the WSIS framework;

3 that ITU‑T should carry out the activities under *resolves* 1 and 2 above in cooperation with other relevant stakeholders, as appropriate;

3 that the relevant ITU-T study groups should consider in their studies the output of WG‑WSIS and CWG‑Internet,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide WG-WSIS with a comprehensive summary of ITU-T activities on implementation of the WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development;

2 to ensure that concrete objectives and deadlines for activities in connection with WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development, are developed and reflected in the operational plans of ITU-T in accordance with Resolution 140 (Rev. Busan, 2014) and Council 2016 Resolution 1332;

3 in implementing the WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development, within the mandate of ITU‑T, to pay special attention to the needs of the developing countries;

4 to provide information on emerging trends based on ITU-T activities;

5 to take appropriate action to facilitate the activities for implementation of this resolution;

6 to submit contributions to the relevant annual reports of the ITU Secretary-General on these activities,

invites Member States, Sector Members, Associates and academia

1 to submit contributions to relevant ITU‑T study groups and to the Telecommunication Standardization Advisory Group, where appropriate, and contribute to WG-WSIS on implementing WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development within the ITU mandate;

2 to support and collaborate with the Director of TSB in implementing relevant WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development, in ITU‑T,

3 to submit contributions to WG-WSIS,

invites Member States

to submit contributions to the CWG-Internet,

invites all stakeholders

1 to participate actively in ITU WSIS implementation activities, including in ITU-T, to support achieving the 2030 Agenda for Sustainable Development, as appropriate;

2 to participate actively in the online and physical open consultations of CWG-Internet.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **75-01** | **Study Groups carry out activities to implement WSIS outcome and consider in their studies the output of WG-WSIS and CWG-Internet (resolves 4)** | **Ongoing** | **√** |  |
| ITU-T's work contributes to the implementation of these ITU mandates. ITU-T Study Groups continue their developments and activities in line with the relevant WSIS Action Lines and SDGs and are following the roadmap for ITU’s activities to help achieve the 2030 Agenda for Sustainable Development.  For the entire set of ITU-T study group Questions that came into force in January 2021, ITU-T study groups provided assignments of the Questions to the WSIS Action Lines, and to the UN Sustainable Development Goals.  WSIS Action Lines C2 (I&C infrastructure), C5 (ICT confidence and security), and C6 (e-environment) are the main WSIS Actions Lines for ITU-T study groups, addressing subjects such as ICTs, security and cybersecurity for building confidence and security in the use of ICTs, conformance and interoperability, accessibility, ICT infrastructure, and enabling environment, while some study group activities and results exist also for other WSIS Action Lines, among them C4 (e-learning and capacity building), C7 (e-health, environmental aspects, ICT applications) and C9 (media). Detailed results are contained in the annual reports of the “ITU Contribution to the Implementation of WSIS Outcomes, taking into account the 2030 Agenda for Sustainable Development”, at <https://www.itu.int/en/itu-wsis/Pages/Contribution.aspx>.  See also 75-02 below.   * SG5 works on topics related to E-waste and Circular Economy. A Thematic Workshop on “Connecting the Circular model of E-waste Management to the SDGs” was organized on 11 April 2019. * SG11 approved Recommendation ITU-T Q.3960 "Framework of Internet related performance measurements" (July 2016). In October 2019, SG11 agreed a new Supplement 71 to ITU-T Q-series Recommendations “Testing methodologies of Internet related performance measurements including e2e bit rate within the fixed and mobile operator's networks”. Following WSIS Forum 2021 session 406 “Combating counterfeit telecommunication/ICT devices and software”, SG11 advanced relevant ongoing work items. * Following the WSIS session "Governance of the Services Quality in the Internet – Customers, Technologies and Institutions" (June 2016), ITU-T SG12, the lead study group on QoS approved Recommendation ITU-T Y.1545.1 “Framework for monitoring the quality of service of IP network services” and revised of Recommendation ITU-T Y.1540 “Internet protocol data communication service - IP packet transfer and availability performance parameters”. Also see action items related to WTSA-16 Resolution 95. * SG13: The first two new ITU-T Recommendations on trust were approved: [Y.3051](http://www.itu.int/ITU-T/aap/aapid/7857/show.aspx) "The basic principles of trusted environment in ICT infrastructure", Y.3052 "Overview of trust provisioning for ICT infrastructures and services". See Mr Gyu Myoung Lee's [presentation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/iot/201703/Documents/Presentations/S5-1-Gyu%20Myoung%20Lee-Trust-in-IoT.pdf) at 12 March 2017 Forum on Data management forum, Dubai/UAE. Trust standardization was followed by approval of ITU-T Y.3053 “Framework of trustworthy networking with trust-centric network domains”, ITU-T Y.3054 “Framework of Trust-based Media Services”, ITU-T Y.3055 “Framework for trust-based personal data management”, ITU-T Y.3056 “Framework for bootstrapping of devices and applications for open access to trusted services in distributed ecosystems” and ITU-T Y.3057 “A trust index model for ICT infrastructures and services”. As a side event at WSIS Forum of March 2018, SG13 offered a presentation on machine learning for IMT-2020 given by the FG ML5G chairman, Slawomir Stanczak. The White Paper “[Network 2030 - A Blueprint of Technology, Applications and Market Drivers Towards the Year 2030 and Beyond](https://www.itu.int/en/ITU-T/focusgroups/net2030/Documents/White_Paper.pdf)” by the ITU-T FG NET2030 gives a vision on the network around 2030 – 2035. Recommendation ITU-T Y.3800 “Overview on networks supporting quantum key distribution” sets a framework for studying a new security techniques under the name quantum key distribution network. It was followed by Recommendations ITU-T Y.3801, Y.3802, Y.3803, Y.3804, Y.3805 and Y.3806. * SG16 started a new work item on key performance indicators for telecommunication relay services following an outcome of the workshop session on [Achieving an inclusive society by designing and implementing accessible ICTs](https://www.itu.int/net4/wsis/forum/2018/Pages/Agenda/Session/283#intro) at [WSIS Forum 2018](https://www.itu.int/net4/wsis/forum/2018/Pages/Agenda#intro). * SG17 work on ICT security contributes to all UN SDGs, and the most to SDGs 8 (Decent Work and Economic Growth), 9 (Industry, Innovation and Infrastructure), and 11 (Sustainable Cities and Communities). * As part of the work of the U4SSC initiative and SG20, the following activities were carried out: two thematic workshops were organized during WSIS-19 on “En-gendering the smart city” and United for Smart Sustainable Cities: Blockchain for Cities. One thematic [workshop on “Simple Ways to be Smart”](https://www.itu.int/net4/wsis/forum/2021/Agenda/Session/249) was organized during the WSIS-21. The U4SSC published a series of deliverables including on [Blockchain for smart sustainable cities](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Blockchain-for-smart-sustainable-cities/index.html), [Simple ways to be smart](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Simple-ways-to-be-smart/index.html), [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) and Digital solutions for integrated city management and use cases. To celebrate the World Cities Day 2021, ITU organized a WSIS TalkX session on [World Cities Day: Building Climate Resilient Cities with Digital Transformation](https://www.itu.int/net4/wsis/forum/2022/Agenda/Session/109) that took place on 28 October 2021. | | | |
| **75-02** | **TSB Director to provide CWG-WSIS a comprehensive summary of ITU-T activities on implementation of the WSIS outcome (i. TSBDir 1)** | **Council 2021** | **√** |  |
| Revised WTSA-16 Resolution linked-in the Agenda 2030 for sustainable development goals into the WSIS outcomes.  ITU made available the SDG mapping tool (see <https://www.itu.int/net4/CRM/SDG>) which maps the PP-14 Resolution 71 ITU strategic objectives against the WSIS Action Lines (in particular ITU's lead Action Lines C2, C5, C6), and the 17 sustainable development goals with their targets and online reports on various outputs and key activities.  For ITU-T, the SDG mapping tool reports on ITU-T activities and results on SDGs #1 (target 1.4), #3 (targets 3.6, 3.8), #4 (targets 4.4, 4.a, 4.b), #5 (target 5.b), #6 (target 6.4), #7 (target 7.a), #8 (target 8.2), #9 (targets 9.1, 9.4, 9.5, 9.c), #10 (target 10.6), #11 (targets 11.3, 11.5, 11.b), #12 (target 12.4), #13 (targets 13.1, 13.3, 13.a, 13.b), #14 (target 14.a), #16 (target 16.9), and #17 (targets 17.6, 17.8, 17.9, 17.11).  Since January 2017 (and some texts beforehand), in total 1767 new and revised ITU-T Recommendations and other output texts have been mapped against the 11 WSIS Action Lines and 17 UN sustainable development goals, and the following statistics are obtained:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **SDG** | | | | | | | | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | | 0 | 7 | 88 | 13 | 0 | 13 | 77 | 98 |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **SDG** | | | | | | | | | | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | | 1798 | 10 | 224 | 39 | 65 | 0 | 0 | 20 | 21 |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **WSIS AL** | | | | | | | | | | | | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **C9** | **C10** | **C11** | | 30 | 1753 | 0 | 33 | 255 | 365 | 465 | 5 | 39 | 9 | 28 |   For the entire set of ITU-T study group Questions that came into force in January 2021, [TSAG RG-StdsStrat TD70](https://extranet.itu.int/sites/itu-t/studygroups/2017-2020/tsag/strategy/_layouts/15/WopiFrame.aspx?sourcedoc=%7B59852BF8-2C3C-4E31-928F-0C9EC71C7A11%7D&file=TD070%20Assignments%20of%20the%20ITU-T%20study%20group%20Questions%20to%20the%20WSIS%20Action%20Lines,%20and%20to%20the%20UN%20Sustainable%20Development%20Goals.docx&action=default) collects the provided assignments of the Questions to the WSIS Action Lines, and to the UN Sustainable Development Goals.  TSB Director's report to Council is contained in [C17/47](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0047), [C18/08](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-CL-C-0008), [C19/53](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0053). TSB Director's reports are included in [WG-WSIS-30/02](https://www.itu.int/md/S17-WSIS30-C-0002), [WG-WSIS-31/07](https://www.itu.int/md/S17-WSIS31-C-0007), [WG-WSIS-32-03](https://intranet.itu.int/sites/itu-t/Collaborative%20documents/WTSA-16_ActionPlan/WG-WSIS-32-03), [WG-WSIS&SDG-33-07](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CWGWSIS33-C-0007), [WG-WSIS&SDG-34-02](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CWGWSIS34-C-0002), [WG-WSIS-37-07 Rev.1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CWGWSIS37-C-0007)  The annual reports of ITU’s contribution to the implementation of the WSIS Outcomes are available at <https://www.itu.int/en/itu-wsis/Pages/Contribution.aspx>. | | | |
| **75-03** | **TSB Director to ensure concrete objectives and deadlines for activities in connection with WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development in ITU-T operational plan. (i. TSBDir 2)** | **Ongoing** | **√** |  |
| The ITU Strategic plan 2020-2023 approved by PP-18 takes into account the 2030 agenda for SDGs. | | | |
| **75-04** | **ITU-T study groups and TSB to contribute to achievement of the objectives of the 2030 Agenda for Sustainable Development** | **Ongoing** | **√** |  |
| See 75-02.   * SG5 has a dedicated Question on "Climate change and assessment of information and communication technology (ICT) in the framework of the Sustainable Development Goals (SDGs)".   Additionally, SG5 is working on Energy efficiency and 5G and circular economy including e-waste. SG5 created the Focus Group on Environmental Efficiency for Artificial Intelligence and other emerging technologies.   * For SG13 involvement, please see its work on 5G and trusted infrastructures. * ITU-T SG20 works in particular to help countries and cities to achieve SDG 11 on Sustainable Cities and Communities. ITU is organizing a [Webinar series on Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx) which discusses topics related to Digital transformation for cities and communities. ITU-T SG20 created a new Focus Group on "Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture" (FG-AI4A) to help achieve SDG2, SDG6, SDG8, SDG9, SDG12, SDG13 and SDG15. U4SSC is a UN initiative coordinated by ITU, UN-Habitat and UNECE and supported by other 14 UN bodies to achieve SDG11. * Updated ITU roadmaps for WSIS Action Lines C2, C5 and C6 are provided in TSAG-[TD41](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0041). The General Secretariat is preparing in 2019 a further update to the ITU roadmaps for WSIS Action Lines C2, C5 and C6 which includes amendments by ITU-T. * For the entire set of ITU-T study group Questions that came into force in January 2021, [TSAG RG-StdsStrat TD70](https://extranet.itu.int/sites/itu-t/studygroups/2017-2020/tsag/strategy/_layouts/15/WopiFrame.aspx?sourcedoc=%7B59852BF8-2C3C-4E31-928F-0C9EC71C7A11%7D&file=TD070%20Assignments%20of%20the%20ITU-T%20study%20group%20Questions%20to%20the%20WSIS%20Action%20Lines,%20and%20to%20the%20UN%20Sustainable%20Development%20Goals.docx&action=default) collects the provided assignments of the Questions to the WSIS Action Lines, and to the UN Sustainable Development Goals. * SG17 assigned its Questions in most relevance to UN SDGs 8 (Decent Work and Economic Growth), 9 (Industry, Innovation and Infrastructure), and 11 (Sustainable Cities and Communities). * ITU is organizing the [Sustainable Digital Transformation Dialogues (SDTD)](https://itu.int/go/SDTD) taking place virtually from 28 to 30 September 2021. The overarching theme of this virtual event is to lead a global discussion on sustainable digital transformation (particularly in the Africa, Arab, and Latin America regions) and the Sustainable Development Goals. The main objective is to provide an international platform where all stakeholders can gather to share their experiences and identify common solutions and opportunities in sustainable digital transformation. It encourages a closer look at the role played by policies and international standards in the process and how these may facilitate positive change. Through meaningful exchanges of dialogues, the event will reshape the global narratives of digital transformation and create new opportunities for cooperation and collaboration. | | | |
| **75-05** | **TSBDir to provide information on emerging trends based on ITU-T activities (*instructs 3*).** | **Ongoing** | **√** |  |
| TSB organizes a wealth of ITU Workshops, seminars, webinars each year, that address emerging technologies and trends; see <https://www.itu.int/en/ITU-T/Workshops-and-Seminars>. Other related activities are ITU AI Summits, and ITU-T Focus Groups that investigate new trends. The activities are reported regularly in the TSB Director activities report to TSAG. | | | |

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# Resolution 76 - Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU mark programme

**Resolution 76**

resolves

TSB

2 that ITU-T Study Group 11 coordinates the Sector's activities related to the ITU C&I programme across all study groups;

3 that ITU‑T Study Group 11 continues to undertake activities within the C&I programme, including pilot projects on conformance/interoperability testing;

4 that ITU‑T Recommendations to address interoperability testing shall be progressed as quickly as possible;

5 that ITU‑T, in collaboration with the other Sectors as appropriate, shall develop a programme to:

i) assist developing countries in capacity building on C&I (Pillar 3) and establishing test centres in developing countries, aimed at promoting regional integration and common C&I programmes (Pillar 4);

ii) assist developing countries in establishing regional or subregional C&I centres and encourage cooperation with governmental and non-governmental, national and regional organizations and international accreditation and certification bodies, to prevent any overlaps caused by or imposed on ICT equipment;

iii) develop and improve the mutual recognition of C&I testing results, mechanisms and data analysis techniques between different regional testing centres;

6 that conformance testing requirements shall provide for verification of the parameters defined in the current and future ITU‑T Recommendations as determined by the study groups developing the Recommendations, and for interoperability testing to take into account user needs and consider the market demand, as appropriate;

7 that a set of methodologies and procedures should be developed for remote testing using virtual laboratories;

8 that ITU, being a world standardization body, can address the impediments to harmonization and growth of worldwide telecommunications and promote the visibility of ITU standards (ensure interoperability), by means of having an ITU testing mark regime, taking into account the technical and legal implications, if any, and/or any revenue-generating possibilities, taking into consideration *recognizing j)*,

instructs the Director of the Telecommunication Standardization Bureau

1 in cooperation with the Radiocommunication Bureau and the Telecommunication Development Bureau (BDT), to continue to conduct as necessary exploratory activities in each region in order to identify and prioritize the problems faced by developing countries related to achieving interoperability of telecommunication/ICT equipment and services;

2 to implement the action plan agreed and subsequently revised by the Council (Documents C12/48, C13/24, C14/24, C15/24 and C16/24);

3 considering *resolves*7, to accelerate the implementation of Pillar 1, so as to ensure gradual and smooth accomplishment of the other three pillars and the possible implementation of the ITU Mark;

4 in cooperation with the Director of BDT to implement an ITU C&I programme for possible introduction of a database identifying products' conformance and origin;

5 to publish an annual plan of C&I activities which could attract more members' participation;

6 to facilitate the development and implementation of an ITU‑T C&I test laboratory recognition procedure;

7 to involve experts and external entities as appropriate;

8 to submit the results of the activities carried out under the action plan to the Council for its consideration and required actions,

instructs the study groups

1 to accelerate accomplishing the pilot projects started by ITU‑T study groups and identify possible existing ITU‑T Recommendations that would be candidates for C&I testing, taking into account the needs of the membership and that are capable of providing end-to-end interoperable services on a global scale, adding to their content, if necessary, specific requirements within their scope;

2 to prepare the ITU‑T Recommendations identified in *instructs the study groups* 1 above, with a view to conducting C&I tests as appropriate;

3 to continue and enhance cooperation, as appropriate, with interested stakeholders, including other SDOs, forums and consortia, in order to optimize studies to prepare test specifications especially for those technologies in *instructs the study groups* 1 and 2 above, taking into account user needs and in consideration of the market demand for a conformity assessment programme;

4 to submit to CASC a list of ITU‑T Recommendations which could be candidates for the joint IEC/ITU certification scheme, taking into account market needs,

instructs the ITU Telecommunication Standardization Sector Conformity Assessment Steering Committee

to study and define a procedure to recognize testing laboratories that are competent to test according to ITU‑T Recommendations, in collaboration with existing certification schemes such as that of IEC,

invites the Council

to consider the Director's report referred to in i*nstructs the Director of the Telecommunication Standardization Bureau* 8 above,

invites Member States and Sector Members

1 to contribute to the implementation of this resolution by, including, but not limited to:

i) actively providing requirements for testing activities on C&I through contributions to related study groups;

ii) considering potential collaboration on future C&I activities;

iii) contributing to the Product Conformity Database;

2 to encourage national and regional testing entities to assist ITU‑T in implementing this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **76-01** | **ITU-T SGs to continue working on the pilot projects for conformity to ITU‑T Recommendations and continue developing the necessary C&I testing Recommendations for telecommunication equipment as quickly as possible (resolves 1)** | **Ongoing** | **√** |  |
| * SG2 notified SG11 on the SG2 focal point to CASC via a liaison statement after its meeting of 29 March to 7 April 2017. SG2 notified SG11 on appointment of ITU-T technical experts via a liaison after its meeting of 27 November to 1 December 2017. * SG5 appointed a Focal Point to ITU-T CASC. * SG9 appointed a Focal Point to ITU-T CASC and provided relevant information to SG11 and CASC related to Recommendations that are relevant for C&I. * SG11 finalized the first set of Recommendations (58) which specify requirements and relevant test specifications for basic call and some supplementary services for SIP-IMS.   SG11 approved several new recommendations and technical papers/reports, which define test specifications and testing frameworks. Among them are:   * ITU-T Q.3952: The architecture and facilities of Model network for IoT testing; * ITU-T Q.4016: Testing specification of call establishment procedures based on SIP/SDP and ITU-T H.248 for a real-time fax over IP service; * ITU-T Q.3940: NGN/IMS interconnection tests between network operators at the IMS ‘Ic’ interface and NGN NNI/SIP-I; * ITU-T Q.4041.1: Cloud computing infrastructure capabilities interoperability testing – part 1: Interoperability testing between CSC and CSP; * ITU-T Q.4060-Q.4068 which define testing specifications for IMT-2020 and IoT * ITU-T Q.3641: IMS references to Release 11 for communication between IMS and NGN Networks in order to support the end-to-end service interoperability; * ITU-T Q.3642: IMS references to Release 12 for communication between IMS and NGN Networks to support the end-to-end service interoperability; * ITU-T Q.4014.1: PSTN/ISDN terminal equipment using IP Multimedia core network subsystem; Conformance testing; Part 1: PICS; * ITU-T Q.4014.2: PSTN/ISDN terminal equipment using IP Multimedia core network subsystem; Conformance testing; Part 2: TSS&TP; * ITU-T Q.4042.1: Cloud interoperability testing about web application – part 1: Interoperability testing between CSC and CSP; * ITU-T Q.3056: Signaling procedures of the probes to be used for remote testing of network parameters; * ITU-T Q.3963: The compatibility testing of SDN-based equipment using OpenFlow protocol.   In 2016, SG11 approved a new Recommendation ITU-T Q.3960 “Framework of Internet related performance measurements” which describes the framework for Internet related performance measurements which can be established at the national or international level, providing customers of the existing public telecommunication operator’s networks the possibility to measure the customer’s connection to the Internet. Afterwards, SG11 agreed new Supplement 71 to ITU-T Q-series Recommendations “Testing methodologies of Internet related performance measurements including e2e bit rate within the fixed and mobile operator’s networks” which describes the testing procedures of data transmission speed within the fixed and mobile operator’s networks which can be established at the national or international level, providing customers of the existing public telecom networks the possibility to estimate the access related performance. Following the outcomes of the ITU Workshop on Benchmarking of emerging technologies and applications. Internet related performance measurements (Geneva, 11 March 2019), it was noted that the approach highlighted in ITU-T Q.3960 (2016) and Supplement 71 (2019) is compliant with the Net Neutrality regulation 2015/2120 from BEREC and OECD 2014 report, underlying that TCP protocol is widely used by customer application. This information was presented during ITU Workshop on 11 March 2019.  In 2021, SG11 organized a joint ITU, ETSI, IEEE workshop on testbed federations. Afterwards, SG11 approved new Recommendation ITU-T Q.4068 “Open APIs for interoperable testbed federations”. The new Focus Group on Testbeds Federations for IMT-2020 and beyond (FG-TBFxG) was established by SG11 in December 2021.  Following two years of study, SG11 agreed one Supplement and approved a set of new ITU-T Recommendations dealing with VoLTE/ViLTE interconnection, as follows:   * ITU-T Q.3640: Framework of interconnection of VoLTE/ViLTE-based networks; * ITU-T Q.3642: IMS references to Release 12 for communication between IMS and NGN Networks to support the end-to-end service interoperability; * ITU-T Q.3643: Signalling architecture of distributed infrastructure ENUM networking for IMS; * ITU-T Q.3953: VoLTE/ViLTE interconnection testing for interworking and roaming scenarios; * Q.Supplement 69: Framework for interconnection between VoLTE-based network and other networks supporting emergency telecommunications service (ETS); * SG12: January 2017 meeting provided feedback to SG11/CASC and TSAG regarding tests of the compatibility between mobile phones and vehicle hands-free terminals. SG12 appointed focal point to CASC. Regular exchange of LSs with SG11. * SG12 approved Recommendation ITU-T Y.1545.1 “Framework for monitoring the quality of service of IP network services” and revised Recommendation ITU-T Y.1540 “Internet protocol data communication service – IP packet transfer and availability performance parameters”. Following over 20 years as an in-force Recommendation, the 2019 Edition of Y.1540 recognizes many changes in the design of IP services and in the protocols employed by end-users. It introduces the new Annex A that defines IP-layer Capacity parameters in ways that cater toward assessment, and provides requirements for methods of measurement of IP-layer Capacity. This new Annex is the result of years of study, and application of SG12 principles of accurately evaluating performance parameters and methods of measurement against a “ground truth” reference in laboratory and field measurements. It also provides background on why TCP-based measurements fail to meet normative requirements. * SG13: In 2021 contributed to the SG11 conformity and interoperability testing project with five Recommendations on machine learning. Also, FG-AN is looking at Proof-of-Concept applying technologies including AI/ML. * SG15: Regular exchange of LSs with SG11. * SG16 created an IPTV Testing Team to assist with C&I testing of IPTV services and terminals, which has been listed under SG11’s list of pilot projects. * SG16 started a new pilot project of conformity assessment against Recommendation ITU-T H.700 series, as listed on the relevant [webpage](http://www.itu.int/go/pilot-projects) on the C&I portal and established an ITU IPTV testing team. The team and Keio University conducted conformance testing on ITU-T H.721 using [HSTP-CONF H721 – Conformance testing specification for ITU-T H.721](http://www.itu.int/pub/T-TUT-IPTV-2015-H721) (2015) on 17 January 2017, Geneva during the ITU-T SG16 meeting, and the required tests were successfully conducted. The next IPTV test event is planned to be held during next Q13/16 Rapporteur meeting in Geneva. * SG16 continues updating conformance testing specifications for the H.810 Continua Design Guidelines (CDG) in the H.810-series. * SG16 progresses work towards a conformance testing spec for H.870 “Guidelines for safe listening devices/systems”. * SG16 approved FSTP-CONF-F921 (2018) “Compliance procedure and requirements for audio-based indoor and outdoor network navigation system for persons with vision impairment” that is the checklist for compliance testing with Recommendation ITU-T F.921. * During the last study period, SG17 provided extensive information to SGs and Q12/17 offered assistance to other Questions or SGs for issues related to conformance and interoperability testing principles and methodology to assist in supporting Res. 76. This work has been transferred to SG11. TTCN-3 Recommendations are continually updated in Q12/17 in this study period. * SG20 approved Recommendations ITU-T Y.4500.15 “oneM2M- Testing framework” and ITU-T Y.4500.13 “oneM2M – Interoperability Testing”. Recommendation ITU-T Y.4500.15 “oneM2M- Testing framework” provides a methodology for development of conformance and interoperability test strategies, test systems and the resulting test specifications for oneM2M standards. Recommendation ITU-T Y.4500.13 “oneM2M – Interoperability Testing” specifies Interoperability Test Descriptions for the oneM2M primitives. ITU-T SG11 agreed to assign numbers from ITU-T Q.series for those two Recommendations as follows: ITU-T Y.4500.13/Q.3954 and ITU-T Y.4500.15/Q.3955 accordingly. | | | |
| **76-02** | **ITU-T Study groups accelerate accomplishing the pilot projects started by ITU‑T study groups and to identify existing ITU-T Recommendations that would be candidates for C&I testing (i. SGs 1)** | **Ongoing** | **√** |  |
| * SG9 has provided information related to Recommendations that are relevant for C&I to SG11 with regular liaisons exchanges. * SG11 maintains the list of ongoing pilot projects and updated the list of pilot projects according to the received inputs from ITU-T SGs. * SG12 consented several revised and new Recommendations that have been identified for testing. Regular exchange of LSs with SG11. * SG13 approved five new Recommendations that have been passed over to SG11 for consideration for testing. Started exchange of LSs with SG11 on this subject in 2021. * SG15: Regular exchange of LSs with SG11. * SG16 updated the conformance testing specifications for the H.810 Continua Design Guidelines (CDG) in the H.810-series to the 4th edition (“Keratin”, CDG 2017); approved a new technical paper [FSTP-CONF-F921 (2018)](https://www.itu.int/pub/T-TUT-FSTP-2018-CONF.F921) – Compliance procedure and requirements for audio-based indoor and outdoor network navigation system for persons with vision impairment, which describes the checklist for compliance testing with Recommendation ITU-T F.921 at the SG16 meeting in July 2018; and [HSTP-CONF-H702](https://www.itu.int/pub/T-TUT-IPTV-2017-H702) – Conformance testing specification for H.702 at SG16 meeting in January 2017. SG16 completed a technical paper on conformance testing of accessible IPTV terminals (HSTP-CONF-H702). * SG16 progresses work towards a conformance testing spec for H.870 “Guidelines for safe listening devices/systems”. * SG20 approved Recommendations ITU-T Y.4500.15/Q.3955 (2018) “oneM2M- Testing framework” and ITU-T Y.4500.13/Q.3954 (2018) “oneM2M – Interoperability Testing”. Recommendation ITU-T Y.4500.15/Q.3955 “oneM2M- Testing framework” provides a methodology for development of conformance and interoperability test strategies, test systems and the resulting test specifications for oneM2M standards. Recommendation ITU-T Y.4500.13/Q.3954 “oneM2M – Interoperability Testing” specifies Interoperability Test Descriptions for the oneM2M primitives. | | | |
| **76-03** | **ITU-T Study groups, in continued and enhanced cooperation with other entities as appropriate, to prepare test specifications for those key technologies identified by** [**76-02**](#Item76_01) **(i. SGs 2)** | **Ongoing** | **√** |  |
| * SG5, SG9, SG11, SG12, SG15, SG16, SG20: see 76-02. | | | |
| **76-04** | **SG11 to coordinate the Sector’s activities related to the ITU C&I programme across all SGs (resolves 2)** | **Ongoing** | **√** |  |
| * SG11 supports the coordination of ITU’s C&I activities while also acting as the first point of contact for organizations interested in contributing to this work. * ITU-T SG11 maintains a list of key technologies within its mandate which the ITU-T Study Groups consider suitable for C&I testing. This remains a living list and forms input to the first pillar of the four-pillar C&I programme which delineates C&I work into four separate but interdependent categories:  1. Conformity assessment 2. Interoperability events 3. Human resource capacity building 4. Assistance in the establishment of test centres and C&I programmes in developing countries   Pillars 1 and 2 are led by the Telecommunication Standardization Bureau (TSB), while Pillars 3 and 4 are led by the Telecommunication Development Bureau (BDT).   * Several SGs provided updated information to SG11, *inter alia* SG16. * SG15 exchanges LSs with SG11 regularly on C&I reference table. | | | |
| **76-05** | **TSB Director, in cooperation with BR and BDT Directors, to continue to conduct exploratory activities in each region to identify and prioritize the problems faced by developing countries related to interoperability of telecommunication/ICT equipment and services (i. TSBDir 1)** | **Ongoing** | **√** |  |
| * SG11 conducted Workshops * on *“Combating Counterfeit Using Conformance and Interoperability Solutions” (June 2016).* * on *“Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa”* (5 April 2017). * on *“Control plane of IMT-2020 and emerging networks. Current issues and the way forward”* (Geneva, Switzerland, 15 November 2017), which also includes overview of 5G testing issues. * on *“Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa”* (Tunis, 23 April 2018). * on *“Deployment of VoLTE/ViLTE networks based on IMS: from Standardization to Implementation”* (Uzbekistan, 2-3 October 2018), which also includes issues related to VoLTE/ViLTE roaming testing. * on “*Benchmarking of emerging technologies and applications. Internet related performance measurements”* (Geneva, 11 March 2019). * *on Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa, Tunis, Tunisia, 30 September 2019.* * *Testbeds Federations for 5G & Beyond: Interoperability, Standardization, Reference Model & APIs (15-16 March 2021, joint ITU/ETSI/IEEE Workshop)* * *ITU-Forum on Future Networks and Conformance and Interoperability (C&I), St.Petersburg, Russia, 19-22 October 2021.* | | | |
| **76-06** | **TSB Director, in cooperation with BDT Director, to implement the ITU C&I action plan (i. TSBDir 2)** | **Ongoing** | **√** |  |
| TSB, BDT and BR Directors informed ITU Council on the implementation of the ITU C&I action plan ([C17/24](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0024), [C18/35](https://www.itu.int/dms_pub/itu-s/md/18/cl/c/S18-CL-C-0035!!PDF-E.pdf), [C19/35](https://www.itu.int/md/S19-CL-C-0035/en), [C20/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0035), [C21/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0035) Reports of TSB Director). | | | |
| **76-07** | **TSB Director, in cooperation with BDT Director, to implement the ITU C&I programme for possible introduction of a database identifying products’ conformance and origin (i. TSBDir 4)** | **Ongoing** | **√** |  |
| The ITU [Product Conformity Database](http://www.itu.int/net/itu-t/cdb/ConformityDB.aspx), endorsed by PP Resolution 177 to provide industry with a means to publicize the conformance of ICT products and services with ITU-T’s international standards was launched on 18 December 2014. The “ICT Product Conformity Database” enables industry to publicize the conformance of ICT products and services to ITU-T Recommendations, assisting users in their efforts to select standards-compliant products.  The database is regularly updated and currently contains more than 500 entries. Five categories of products and services have been registered in the database:   * e-Health solutions complying with the specifications of Recommendation ITU-T H.810 “Interoperability design guidelines for personal health systems”, a transposition of the Continua Design Guidelines. The testing procedures are specified in the ITU-T H.820-H.850 sub-series of Recommendations. * Mobile phones compatible with Bluetooth-enabled vehicle hands-free terminals. This compatibility is determined in accordance with the “Chapter 12 tests” (“Verification of the transmission performance of short-range wireless (SRW) transmission enabled phones”) of ITU-T P.1100 and ITU-T P.1110. * Ethernet products complying with ITU-T G.8011/Y.1307 “Ethernet Services Characteristics”. This standard and the corresponding tests are based on the work of MEF (formerly called the Metro Ethernet Forum). * IPTV system compatible with Recommendations ITU-T H.721 “IPTV terminal devices: Basic model” and ITU-T H.702 “Accessibility profiles for IPTV systems” tested at the ITU test event in May 2017. The testing procedures are specified in the ITU-T Technical papers HSTP-CONF-H721 and HSTP-CONF-H702 respectively. * MNP system compatible with ITU-T Q.Supplement 4 “Number portability – Capability set 1 requirements for service provider portability (All call query and Onward routing)”. The testing procedures are specified in the Recommendation ITU-T Q.3905. | | | |
| **76-08** | **TSB Director to identify and involve experts and external entities (i. TSBDir 7)** | **Ongoing** | **√** |  |
| ITU-T is inviting fixed network operators to establish an alliance to promote the basic requirements for IMS-based equipment which were adopted by SG11.  TSB is in touch with ETSI and IEEE on testbed federations initiative.  ITU-T SG11 continues [collaborating with ETSI TC INT](https://www.itu.int/md/T13-SG11-151202-TD-GEN-0913/en), aimed at developing standards for SIP-IMS conformity testing, Internet related performance measurements, framework of an interconnection among VoLTE/ViLTE-based networks, requirements and relevant test specifications. | | | |
| **76-09** | **TSB Director, in collaboration with other Sectors, develop a programme to assist developing countries in capacity building on C&I (Pillar 3) and establishing test centres in developing countries, aimed at promoting regional integration and common C&I programmes (Pillar 4) (resolves 5 i)** | **Ongoing** | **√** |  |
| ITU-T SG11 is collaborating with ITU-D SG2 Q4/2 on C&I issues.  TSB conducted thematical Workshops during SG11RGs meetings. In addition, TSB Secretariat facilitates the implementation of ITU Testing Laboratory recognition procedure on ITU-T Recommendations. Among 11 Technical experts appointed by CASC there is one expert from Africa Region. Following outcomes of the ITU-T CASC meetings, SG11 decided that ITU recognizes the Testing Laboratories (TLs) which are accredited by an Accreditation Body that is a signatory to the ILAC MRA for testing, which scope of accreditation contains ITU-T Recommendation(s).  TSB launched the Testing Laboratories database and therefore, the relevant request needs to be submitted through the online form which is available on the ITU C&I Portal ([www.itu.int/go/citest](http://www.itu.int/go/citest)).  Any TL, including non-ITU members, which expresses its interest to be accredited against ITU-T Recommendations to be further recognized by ITU, needs to approach Accreditation Body (AB) that is a signatory to the ILAC MRA. The list of ABs is available at: <https://ilac.org/signatory-search/>. Afterwards, once the accreditation is given to the TL and relevant application form submitted to ITU by TL, the TL can be recognized by ITU accordingly. | | | |
| **76-10** | **TSB Director, in collaboration with other Sectors, develop a programme to assist developing countries in establishing regional or subregional C&I centres (resolves 5 ii)** | **Ongoing** | **√** |  |
| See 76-09 | | | |
| **76-11** | **TSB Director to report C&I activities carried out under the action plan to Council (i. TSBDir 8)** | **Ongoing**  **Council 2021** | **√** |  |
| TSB, BDT and BR Directors informed ITU Council on the implementation of the ITU C&I action plan (see [C17/24](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0024), [C18/35](https://www.itu.int/dms_pub/itu-s/md/18/cl/c/S18-CL-C-0035!!PDF-E.pdf), [C19/35](https://www.itu.int/md/S19-CL-C-0035/en), [C20/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0035), [C21/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0035) Reports of TSB Director). | | | |
| **76-12** | **TSB Director to accelerate the implementation of Pillar 1 (i. TSBDir 3)** | **Ongoing** | **√** |  |
| ITU-T maintains the [Product Conformity Database](http://www.itu.int/net/itu-t/cdb/ConformityDB.aspx) and [list](https://www.itu.int/en/ITU-T/C-I/Pages/HFT-mobile-tests/HFT_testing.aspx) of mobile phones. ITU assisted companies on conducting relevant test events (e.g. pilot projects).  Following establishment of ITU TL Recognition procedure (see 76-09), all ICT products tested against ITU-T Recommendation by TLs recognized by ITU may be registered in the [ITU Product Conformity Database](https://www.itu.int/net/itu-t/cdb/ConformityDB.aspx), based on the request. The relevant requests need to be submitted via [online form](https://www.itu.int/net/itu-t/cdb/secured/Register16.aspx) accordingly. | | | |
| **76-13** | **TSB Director to publish an annual plan of C&I activities which could attract more members’ participation (i. TSBDir 5)** | **Ongoing** | **√** |  |
| All information about C&I activities is available on the ITU C&I portal ([www.itu.int/go/citest](http://www.itu.int/go/citest)). | | | |
| **76-14** | **TSB Director to facilitate the development and implementation of an ITU‑T C&I test laboratory recognition procedure** | **Ongoing** | **√** |  |
| TSB collaborates with IECEE and ILAC/IAF on testing laboratory recognition procedures.  TSB Secretariat facilitates the implementation of the ITU Testing Laboratory recognition procedure on ITU-T Recommendations. Following presentation of IECEE at the CASC meeting in July 2020, due to financial implications for new ITU/IEC TL recognition procedure, it was decided that such standalone procedure, which comes with extra costs for TLs, is not needed, as there is no financial benefit in return for TLs that might wish to populate the ITU Product Conformity Database only. CASC decided to discontinue collaboration with IECEE on the TL recognition procedure and joint certification scheme for the time being.  In the meantime, TSB is collaborating with ILAC in order to assist CASC to elaborate recognition procedure of TLs kindly provided by ILAC, without any additional assessment. There are no financial implications for ITU for implementing such procedures. Financial implications for TLs are to be covered by the cost structures of the accreditation bodies (Abs).  The updated MoU among ITU, ILAC and IAF is under discussion among secretariats of the three organizations.  In March 2021, CASC decided that ITU may recognize TLs that have been accredited by ILAC MRA signatories AB which have ITU-T Recommendations in its scope of accreditation. ITU may approach those TLs. A test laboratory accredited for ITU-T Recommendations may apply to ITU-T for recognition by supplying, amongst other things: the identity of the AB (ILAC MRA signatory) performing the accreditation and relevant part of the scope of accreditation. TSB launched the ITU Testing Laboratories database. The relevant request needs to be submitted through the online [application form](https://www.itu.int/net/itu-t/cdb/secured/reg-tldb.aspx) which is available on the ITU C&I Portal ([www.itu.int/go/citest](http://www.itu.int/go/citest)).  To promote this activity, TSB organized Regional Workshops on C&I. The third ITU-T Study Group 11 Regional Workshop for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa” took place in Tunis (Tunisia) on 30 September 2019, followed by the ITU-T SG11 Regional group meeting for Africa (SG11RG-AFR). In October 2021, ITU organized [ITU-Forum on "Future Networks and Conformance and Interoperability (C&I)"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2021/SPB-Oct.aspx), St.Petersburg, Russia, 19-22 October 2021. | | | |
| **76-15** | **ITU-T Study groups to submit to CASC a list of ITU‑T Recommendations which could be candidates for the joint IEC/ITU certification scheme, taking into account market needs (i. SGs 4)** | **Ongoing** | **√** |  |
| In 2016, ITU-T CASC established a [List](https://www.itu.int/md/T13-SG11-160627-TD-GEN-1306/en) of ITU-T Recommendations that may become subject of joint certification schemes according to the inputs received from ITU-T SGs and ITU members.  Among others, ITU-T SG16 requested CASC to set up a joint ITU/IEC certification schemes for several ICT technologies that have strong demand of the ICT market. Among them are:  • “safe listening” driven by SG16 in close collaboration with WHO;  • “video surveillance”;  • “Accessibility features in IPTV systems”.  However, following information provided by IECEE on financial applications, CASC decided that the standalone ITU/IECEE TL recognition procedure, which come with extra costs for TLs, is not needed, as there is no financial benefit in return for TLs that might wish to populate the ITU Product Conformity Database only (see 76-16).  Due to lack of proposals on joint certification schemes taking into consideration the above-mentioned financial implications, CASC decided to discontinue collaboration with IECEE on joint certification scheme for the time being. | | | |
| **76-16** | **ITU-T CASC to study and define a procedure to recognize testing laboratories that are competent to test according to ITU‑T Recommendations, in collaboration with existing certification schemes such as that of IEC (i. ITU CASC)** | **Ongoing** | **√** |  |
| SG11, at its February 2017 meeting, approved a new ITU-T SG11 Guideline “ITU-T CASC procedure to appoint ITU-T technical experts” which describes the procedures to appoint an ITU-T technical expert to be involved in the testing laboratory assessment teams of existing conformity assessment programmes (e.g. ILAC, IECEE, etc.), for assessing /checking the competence of Testing Laboratories which requested such recognition against one or a set of ITU-T Recommendation(s).  In addition, IECEE informed the ITU-T CASC about the received responses on IECEE inquiry on ITU Recommendations to be used for certification. Among IECEE members which provided feedback are: Italy, Slovenia, Switzerland and Viet Nam. ITU-T CASC noted that there is market need for conformance testing against ITU-T Recommendations.  CASC collaborates with IECEE and ILAC on developing Testing Laboratory recognition procedure and establishing joint certification schemes. During the CASC meeting in July 2020, IEC presented the roles and requirements for the Testing Laboratories and the Certification Bodies using the IECEE CB Scheme. It was noted that the IECEE programme with ITU will have financial implication. Following discussion taken place at the CASC meeting, it was decided that the standalone ITU/IECEE TL recognition procedure, which comes with extra costs for TLs, is not needed, as there is no financial benefit in return for TLs who might wish to populate the ITU Product Conformity Database only.  Due to lack of proposals on joint certification schemes taking into consideration the above-mentioned financial implications, CASC decided to discontinue collaboration with IECEE on joint certification scheme for the time being  Also, in July 2020, ILAC presented outcomes of ILAC survey to identify Testing Laboratories accredited to perform testing in accordance with ITU-T Recommendations. The response rate was reasonable at 68%. CASC collaborates with ILAC on the development of procedures on how TLs, kindly provided by ILAC, might be recognized by ITU without any additional assessment. CASC revised the existing Guideline “ITU-T CASC procedure to appoint ITU-T technical expert” and appointed 11 technical experts proposed by ITU-T SG2, SG5 and SG16 and several individuals. It was noted that the appointed ITU-T technical experts might be included in the ILAC assessment team to assess Testing Laboratories (TLs), which demand to be recognized as TLs with the competence on particular ITU-T Recommendations. Also, the list of focal points of ITU-T SGs to CASC was updated according to received inputs from ITU-T SGs.  In March 2021, CASC decided that ITU may recognize TLs that have been accredited by ILAC MRA signatories AB which have ITU-T Recommendations in its scope of accreditation. ITU may approach those TLs. A test laboratory accredited for ITU-T Recommendations may apply to ITU-T for recognition by supplying, amongst other things: the identity of the AB (ILAC MRA signatory) performing the accreditation and relevant part of the scope of accreditation. TSB launched ITU Testing Laboratories database. The relevant request needs to be submitted through the online [application form](https://www.itu.int/net/itu-t/cdb/secured/reg-tldb.aspx) which is available on the ITU C&I Portal ([www.itu.int/go/citest](http://www.itu.int/go/citest)).  More details are available on the ITU-T CASC [web page](https://www.itu.int/en/ITU-T/studygroups/2013-2016/11/Pages/CASC.aspx). | | | |
| **76-17** | **TSB Director, in collaboration with other Sectors, develop a programme to develop and improve the mutual recognition of C&I testing results, mechanisms and data analysis techniques between different regional testing centres (resolves 5 iii)** | **Ongoing** | **√** |  |
| ITU-D Guidelines covering C&I Programmes, Mutual Recognition Agreement (MRA), and establishment of testing centers were published. C&I Assessment Studies aiming to promote collaboration in regional organizations for establishing a harmonic C&I Programmes were done and follow-up is ongoing. In 2019 the ECOWAS region has been studied. | | | |
| **76-18** | **ITU-T to set up methodologies and procedures for remote testing using virtual laboratories (resolves 7)** | **Ongoing** | **√** |  |
| SG11 Q16/11 has a mandate to develop such methodologies. SG11 developed ITU-T Q.3056 “Signaling procedures of the probes to be used for remote testing of network parameters”.  In March 2021, TSB organized a joint ITU, ETSI, IEEE workshop on testbed federations which is considered as a tool for remote testing. The outcomes of the workshop were used for finalizing new Recommendation ITU-T Q.4068 “Open APIs for interoperable testbed federations” which was finally approved in August 2021. In December 2021, SG11 established new Focus Group on Testbeds Federations for IMT-2020 and beyond (FG-TBFxG, [www.itu.int/go/fgtbf](http://www.itu.int/go/fgtbf)). | | | |

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# Resolution 77 – Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking

**Resolution 77**

resolves to instruct study groups of the ITU Telecommunication Standardization Sector

1 to continue and enhance collaboration and cooperation with different standards development organizations (SDOs), industry forums, and open-source software projects on SDN, as appropriate, taking into account the outcome of TSAG work on open source;

2 to continue to expand and accelerate the work on SDN standardization, especially carrier SDN;

3 to research the advancement of emerging technology such as NFV container/docker to evolve the SDN technology;

4 to continue to develop the ITU‑T SDN standards to enhance interoperability between the controller products;

5 to consider the potential implications of the SDN orchestrator layer for ITU‑T operation supporting system (OSS) related work,

instructs Study Group 13

to continue the JCA-SDN work, to coordinate and help plan the work so as to ensure that ITU-T SDN standardization is progressed in a well-coordinated manner and more efficiently among relevant study groups, to study the SDN-related work programmes (including NFV, programmable networks and network as a service) in ITU-T study groups, as well as in other SDOs, forums and consortia, for use in its coordination function, and to provide information on this work for use by the relevant study groups in planning their work,

instructs the Telecommunication Standardization Advisory Group

to examine the matter, consider the input of study groups and take the necessary actions, as appropriate, with a view to deciding on the necessary SDN standardization activities in ITU‑T, with the following actions:

• to continue coordination and assistance in SDN standardization across different ITU‑T study groups effectively and efficiently;

• to continue collaboration with other SDN-related standards bodies and forums;

• to coordinate the work on technical issues of SDN across the study groups according to their areas of expertise;

• to define a clear strategic vision for SDN standardization and an important active role that ITU‑T should play,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide the necessary assistance with a view to expediting such efforts, in particular using any opportunity within the allocated budget to exchange opinions with the telecommunication/ICT industry, including through the chief technology officer (CTO) meetings under Resolution 68 (Rev. Hammamet, 2016) of this assembly and in particular to promote participation of the industry in SDN standardization work in ITU‑T;

2 to conduct workshops, with other relevant organizations, for capacity building on SDN, so that the gap in technology adoption in developing countries may be bridged at the early stages of implementation of SDN-based networks, and to organize the annual SDN&NFV workshop with open source solutions representation to share the progress in SDN/NFV standards and real experience in the current carrier network,

invites Member States, Sector Members, Associates and academia

to submit contributions for developing SDN standardization in ITU‑T.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **77-01** | **SGs to continue to expand and accelerate work on SDN standardization, especially carrier SDN (resolves SG 2)** | **Ongoing** | **√** |  |
| * SG2: A new work item M.inomsa on “SDN/NFV based network operation system architecture” (TD95 Rev.1 (GEN/2)) was agreed in the SG2 meeting of 29 March to 7 April 2017. The SG2 meeting of 27 November to 1 December 2017 agreed that the work item M.inomsa be changed to M.somm “Framework of smart operation, management and maintenance”, and draft Recommendation ITU-T M.3041 “Framework of smart operation, management and maintenance” was approved in February 2020. Recommendation ITU-T M.3373 (ex M.rcsnsm) “Requirements for synergy management of cloud and SDN-based network” was Approved in October 2020. * SG5 consented draft Recommendation ITU-T L.1362 “Interface for power management in network function virtualization environments “Green abstraction layer version 2””. * SG11 approved several new Recommendations on SDN, as follows: * ITU-T Q.3713: Signalling requirements for BNG (Broadband Network Gateway) pool; * ITU-T Q.3740: Signalling Requirements for SDN and NFV based Central Office services; * ITU-T Q.3715: Signalling requirements for dynamic bandwidth adjustment on demand on broadband network gateway implemented by software defined networking technologies; * ITU-T Q.3714: Signalling requirements of SDN-based access networks with media independent management capabilities; * ITU-T Q.3716: Signalling requirements for mapping between physical and virtual networks; * ITU-T Q.3717: Signalling requirements for automatic management of IP address pool by SDN technologies on BNG; * ITU-T Q.3718: Signalling requirements of the Sew interface for Virtual Data Center; * ITU-T Q.3719: Signalling requirements for the separation of control plane and user plane in vBNG (Broadband Network Gateway); * ITU-T Q.3720: Procedures for virtualized broadband network gateway acceleration with programmable acceleration card; * ITU-T Q.3745: Protocol for time constraint IoT-based applications over SDN; * ITU-T Q.3963: The compatibility testing of SDN-based equipment using OpenFlow protocol; * ITU-T Q.4061: Framework of software-defined network controller testing. * SG12 approved Recommendations ITU-T Y.1550 “Considerations for realizing virtual measurement systems” and ITU-T E.475 “Guidelines for intelligent network analytics and diagnostics”. * SG13 has a dedicated Question on SDN Q21/13 “Network softwarization including software-defined networking, network slicing and orchestration” (since 2021 title is “Networks beyond IMT-2020: Network softwarization”). In addition, some studies on SDN are convened by Q2/13, Q20/13 and Q.23/13 in a particular area. Approved in September 2017 – January 2018 three new Recommendations on softwarization and orchestration ITU-T Y.3110 “IMT-2020 Network Management and Orchestration Requirements”, ITU-T Y.3111 “IMT-2020 Network Management and Orchestration Framework”, ITU-T Y.3150 “High level technical characteristics of network softwarization for IMT-2000”. Furthermore, since May 2018 approved ITU-T Y.3112 “Framework for the support of multiple network slicing” and ITU-T Y.2323 “Requirements and capabilities of orchestration in next generation network evolution” in 2018. ITU-T Y.3151 “High-level technical characteristics of network softwarization for IMT-2020 – Part: SDN”, ITU-T Y.3152 “Advanced data plane programmability for IMT-2020” and ITU-T Y.3153 “Network slice orchestration and management for providing network services to 3rd party in the IMT-2020 network” were approved in 2019, Y.3154 “Resource pooling for scalable network slice service management and orchestration in the IMT-2020 network”, Y.3150 revision and Y.3156 “Framework of network slicing with AI-assisted analysis in IMT-2020 networks” – in 2020, Y.3157 “IMT-2020 network slice configuration” – 2021.. According to the Action plan for IMT2020 standardization in SG13, the first Technical Package to be published is on softwarization. In November 2017 SG13 agreed on a new technical package “*IMT-2020 network management and orchestration*”. Slicing and softwarization were the topics of each of the workshop SG13 (its subgroup) convened. Through its daughter group, JCA-IMT2020, maintained the collaboration with other SDOs working in the area of SDN, slicing, softwarization and IMT-2020 and beyond in general. JCA-IMT2020 maintains the IMT2020 and beyond standardization roadmap that includes the SDN roadmap. * SG15: Q12/15 and Q14/15 are working on this technology area. * SG17 approved X.Sup30 *Supplement to ITU-T X.805 on Security guidelines for mobile virtual network operators* and Recommendations ITU-T X.1042 *Security services using software-defined networking*, ITU-T X.1044 *Security Requirements of Network Virtualization*, ITU-T X.1045 *Security service chain architecture for networks and applications*, ITU-T X.1046 *Framework of software-defined security in software-defined networks/network functions virtualization networks*, and ITU-T X.1047 *Security requirements and architecture for network slice management and orchestration.* * SG20 approved Recommendation ITU-T Y.4421 “Functional architecture for unmanned aerial vehicles and unmanned aerial vehicle controllers using IMT-2020 networks”. | | | |
| **77-03** | **TSAG to examine the matter, consider the input of study groups and take the necessary actions, as appropriate, with a view to deciding on the necessary SDN standardization activities in ITU‑T (incl. continue coordination and assistance in SDN standardization across different ITU‑T study groups effectively and efficiently; continue collaboration with other SDN-related standards bodies and forums; coordinate the work on technical issues of SDN across the study groups according to their areas of expertise; define a clear strategic vision for SDN standardization and an important active role that ITU‑T should play) (i. TSAG)** | **TSAG meeting** | **√** | **√** |
| In reply to this action point TSAG established the [ITU-T JCA-SDN](https://www.itu.int/en/ITU-T/jca/sdn/Pages/default.aspx) in the last study period (in 2013). This JCA maintained the online roadmap with the work on SDN, NFV and softwarization running in ITU-T and SDOs. It served as a tool to coordinate the SDN related studies across the world. From 2015 SG13 became parent group to the JCA-SDN. With closure of the JCA-SDN its roadmap was inherited by the [ITU-T JCA-IMT2020](https://www.itu.int/en/ITU-T/jca/imt2020/Pages/default.aspx). The current version of the [online roadmap on IMT-2020 and beyond](https://www.itu.int/net4/ITU-T/landscape#?topic=0.130&workgroup=1&searchValue=&page=1&sort=Revelance) has [a branch devoted to SDN.](https://www.itu.int/net4/ITU-T/landscape#?topic=0.130.1&workgroup=1&searchValue=&page=1&sort=Revelance) TSAG is kept regularly informed on the progress of studies on SDN through the SG13 Lead Study Group report, portion on IMT-2020 standardization and JCA-IMT2020 operation. | | | |
| **77-04** | **TSB Director to assist the exchange of opinions in CTO meetings and to promote SDN standardization work in ITU-T (i. TSBDir 1)** | **Ongoing** | **√** |  |
| * The TSB Director’s North-American CTO consultation meeting (9 May 2018, California, United States) recognized that 5G systems will incorporate advanced software-defined networking (SDN), network function virtualization (NFV) and cloud computing capabilities, significantly altering network architectures and network management-control. Network softwarization and slicing, underpinning deeply programmable networks able to be sliced into virtual networks with specialized capabilities such as low latency or high reliability, will give networks the agility required to support the specific requirements of any particular 5G application. CTOs highlighted federated network orchestration – the ability to achieve end-to-end network slicing across different operators’ networks – as an issue deserving of more attention. * See aspects on virtual orchestration addressed during the [third annual ITU IMT-2020/5G Workshop and Demo Day – 2018, Geneva, Switzerland](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201807/Pages/Programme.aspx). * Aspects of NFV and SDN in networked sliced architectures were discussed during the [**Sixth SG13’s Regional Workshop for Africa on “Standardization of future networks: What opportunities for Africa?”**](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/standardization/20180326/Pages/default.aspx), Abidjan, Côte d’Ivoire, 26 – 27 March 2018. * Slicing was one of the topics at the First ITU workshop on Network 2030 in October 2018, New York; addressed during the TSB Director CxO consultation meetings (16 July 2019, Tokyo, Japan; September 2019, Budapest, Hungary, and 11 December 2019, Dubai, United Arab Emirates), and the Study Group Leadership Assembly, Budapest, 9-10 September 2019. SG13 Regional workshops for Africa has SDN and softwarization on its programme each time (Nigeria 2020, virtual workshop in 2021). | | | |
| **77-06** | **Study groups to continue and enhance collaboration and cooperation with different standards development organizations (SDOs), industry forums, and open-source software projects on SDN, as appropriate, taking into account the outcome of TSAG work on open source (resolves SGs 1)** | **Ongoing** | **√** |  |
| * SG2 notified ETSI and TMF on the creation of the new work item on “Integrated network operation and management system architecture to support SDN/NFV management” via liaison statement after the SG2 meeting of 29 March to 7 April 2017. SG2 notified ETSI and TMF of the changes to the above work item via liaison statement after the SG2 meeting of 27 November to 1 December 2017, i.e., M.inomsa was agreed to be changed to M.somm “Framework of smart operation, management and maintenance”. SG2 notified ETSI and TMF the progress of M.somm. * SG11 exchanged information with ETSI ISG NFV, SG13 and JCA-IMT2020. * SG12: Q8/12 entertains LS relationship with relevant organizations. * SG13 has a short report to TSAG (in a form of LS [TSAG-TD55](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0055)) about current experience with the communication with open source community. SG13 exchanged information with SDOs via the operation of the JCA-SDN, that came to the end of its lifetime at the end of 2017. Its main work on the SDN standardization roadmap was input into the JCA-IMT2020. SG13 exchanged information with SDOs via the operation of the JCA-IMT2020. In addition, SG13 regularly exchanges LSs with SDOs working in the area of SDN, NFV and softwarization. * SG15: Regular exchange of LSs with relevant organizations. * SG17 is collaborating with SG13 and JCA-SDN on its work on SDN security through regular exchanges of SG17 progress. * SG20 regularly exchange information with SG13 and JCA-IMT2020. | | | |
| **77-07** | **Study groups to research the advancement of emerging technology such as NFV container/docker to evolve the SDN technology (resolves SGs 3)** | **Ongoing** | **√** |  |
| * SG2, SG11, SG12, SG13, SG15: see 77-01. * SG11 approved new Recommendation such as:   + ITU-T Q.3054 “Signalling architecture for virtualization of control network entities”;   + ITU-T Q.4043 “Interoperability testing requirements of virtual switch”;   + ITU-T Q.4067 “Signalling requirements for the virtualized network function lifecycle management in a testing environment”;   + ITU-T Q.3716 “Signalling requirements for mapping between physical and virtual networks”;   + ITU-T Q.3717 “Signalling requirements for automatic management of IP address pools by software-designed network technologies on a broadband network gateway”;   + ITU-T Q.3719 “Signalling requirements for the separation of control plane and user plane in a virtualized broadband network gateway (vBNG)”;   + ITU-T Q.3720 “Procedures for virtualized broadband network gateway acceleration with programmable acceleration card”.   SG11 continues to study the signalling requirements for telemetry of virtual broadband network services.   * SG13 has two Questions to look after the emerging technologies: Q1/13 “Innovative services scenarios, deployment models and migration issues based on Future Networks” (since 2021 title is “Future Networks: Innovative Service Scenarios, including Environmental and Socio Economical Aspects”) and Q2/13 “Next-generation network (NGN) evolution with innovative technologies including software-defined networking (SDN) and network function virtualization (NFV)”. In addition, has Q21/13 “Network softwarization including software-defined networking, network slicing and orchestration” (since 2021 title is “Networks beyond IMT-2020: Network softwarization”). FG ML5G was in operation 2017 – 2020. It drew up ten technical specifications for machine learning (ML) for future networks, including interfaces, network architectures, protocols, algorithms and data formats. FG-NET2030 was in operation 2018 – 2020. It looked at the innovative service scenarios and network solution to be in operation around 2030 – 2035. FG AN was established in December 2020. It looks at exploratory evolution in future networks, and dynamic adaptation to future environments, technologies, and use cases. | | | |
| **77-08** | **Study groups to continue to develop the ITU‑T SDN standards to enhance interoperability between the controller products (resolves SG 4)** | **Ongoing** | **√** |  |
| * SG2, SG11, SG12, SG13, SG15, SG17: see 77-01. * SG11 consented ITU-T Q.4043 “Interoperability testing requirements of virtual switch” and Recommendation ITU-T Q.4061 “Framework of software-defined network controller testing”. | | | |
| **77-09** | **Study groups to consider the potential implications of the SDN orchestrator layer for ITU‑T operation supporting system (OSS) related work (resolves SG 5)** | **Ongoing** | **√** |  |
| * SG2 and SG13: see 77-01. | | | |
| **77-10** | **SG13 to continue the JCA-SDN work, to coordinate and help plan the work so as to ensure that ITU-T SDN standardization is progressed in a well-coordinated manner and more efficiently among relevant study groups, to study the SDN-related work programmes (including NFV, programmable networks and network as a service) in ITU-T study groups, as well as in other SDOs, forums and consortia, for use in its coordination function, and to provide information on this work for use by the relevant study groups in planning their work (i. SG13)** | **Ongoing** |  | **√** |
| Action item 77-10 was maintained by the JCA-SDN until is demission at the end of 2017, when its task regarding item 77-10 became part of the regular work of the JCA-IMT2020. | | | |
| **77-11** | **TSB Director to conduct workshops, with other relevant organizations, for capacity building on SDN; and to organize the annual SDN&NFV workshop with open source solutions representation to share the progress in SDN/NFV standards and real experience in the current carrier network (i. TSB Dir 2)** | **Ongoing** | **√** |  |
| * SG13 convened a one day workshop on 18 July 2018 on 5G roadshow with demonstrations of some Proof-of-Concepts including NFV/SDN. In addition, the SDN and its particularities were subject of the different sessions at every workshop SG13 organized (18 in the reporting period). See for more details item 77-04 above. A flipbook [5G Proof-of-Concept Demonstrations](https://www.itu.int/dms_pub/itu-t/opb/tut/T-TUT-IMT-2017-PDF-E.pdf) has few real trials description and evaluation of how slicing in 5G network works. | | | |

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# Resolution 78 – Information and communication technology applications and standards for improved access to e-health services

**Resolution 78**

resolves to instruct the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau and the Director of the Radiocommunication Bureau

1 to consider with priority the enhancement of telecommunication/ICT initiatives in e‑health and to coordinate their related standardization activities;

2 to continue and further develop ITU activities on telecommunication/ICT applications for e-health in order to contribute to the wider global efforts concerning e-health;

3 to work collaboratively with WHO, academia and other relevant organizations on activities related to e-health in general and to this resolution in particular;

4 to organize seminars and workshops on e-health for developing countries and gauge the needs of the developing countries, which are the countries with the greatest need for e-health applications,

instructs Study Groups 16 and 20 of the ITU Telecommunication Standardization Sector, in collaboration with the relevant study groups, particularly Study Groups 11 and 17 of the ITU Telecommunication Standardization Sector

1 to identify and document examples of best practice for e-health in the field of telecommunications/ICT, for dissemination among ITU Member States and Sector Members;

2 to coordinate activities and studies relating to e-health among the relevant study groups, focus groups and other relevant groups in ITU-T, the ITU Radiocommunication Sector (ITU-R) and ITU‑D, in order in particular to foster awareness of telecommunication/ICT standards pertaining to e-health;

3 for ensuring the broad deployment of e-health services in diverse operating conditions, to study communication protocols relating to e-health, especially among heterogeneous networks;

4 within the current mandate of the ITU-T study groups, to give priority to the study of security standards (e.g. for communications, services, network aspects and service scenarios for databases and record handling, identification, integrity and authentication) relating to e-health, taking into account *recognizing d)*,

invites Member States

to consider, as appropriate, the development and/or enhancement of frameworks, which may include legislation, regulations, standards, codes of practice and guidelines, to enhance the development of telecommunication/ICT services, products and terminals for e-health and e-health applications, within the scope of Resolution 130 (Rev. Busan, 2014) of the Plenipotentiary Conference*,*

encourages Member States, Sector Members and academia

to participate actively in ITU-T studies on e-health, through the submission of contributions and by other appropriate means.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **78-01** | **TSB Director, in collaboration with BDT and BR Directors, to develop ITU e-health activities (resolves TSBDir 1, 2, 3)** | **Ongoing** | **√** |  |
| Following a workshop in September 2016 on [brain image applications in e-health](https://www.itu.int/en/ITU-T/gsi/iptv/Pages/201609WSbrain.aspx), SG16 organized a mini-workshop on the [same theme](https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/workshops.aspx) at the Rapporteurs meeting, 14 February 2018.  The ITU-T Focus Group on Artificial Intelligence for Health ([AI4H](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Pages/default.aspx)) was established by ITU-T SG16 at its meeting in Ljubljana, Slovenia, 9-20 July 2018. The Focus Group 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. It has established 20 health topic areas for further development e.g. symptoms, ophthalmology, outbreaks, histology, and malaria. The topic groups are supported by the work of a number of working groups that cover “horizontal” topics such as regulatory considerations, clinical evaluation, data quality and data assessment, and operations. An ad hoc group was formed to identify and document best practices on the use of AI and other digital technologies to assist in health emergencies, such as the COVID-19.  Q28/16 experts collaborate in the development of the BDT & WHO document on a digital health platform accelerator toolkit. | | | |
| **78-03** | **TSB Director, in collaboration with BDT and BR Directors, to organize e-health seminars and workshops for developing countries and gauge their needs for e-health (resolves TSBDir 4)** | **Ongoing** | **√** |  |
| ITU and WHO organized a workshop on “[The Make Listening Safe Initiative](https://www.itu.int/net4/wsis/forum/2018/Pages/Agenda/Session/243#intro)” on 19 March at [WSIS Forum 2018](https://www.itu.int/net4/wsis/forum/2018/Pages/Agenda#intro).  To ensure appropriate implementation of [ITU-T H.870](https://www.itu.int/rec/T-REC-H.870/en) “Guidelines for safe listening devices/systems”, WHO, ITU-T and ITU-D’s Digital Inclusion Programme developed a [Toolkit for Safe Listening Devices and Systems](https://itu.int/go/safelistening/toolkit).Q28/16 coordinates its work with ITU-D Q2/2.  ITU and PAHO organized an [Episode on the role of digital technologies on aging and health](https://www.itu.int/en/ITU-T/webinars/20211207/Pages/default.aspx), which took place on 07 December 2021. This episode is part of the [Webinar series on Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx). | | | |
| **78-04** | **SG16 and SG20, in collaboration with relevant SGs, particular SG11 and SG17, to identify, document and disseminate e-health best practices for ITU membership (i. SGs16+20 1)** | **Ongoing** | **√** |  |
| * Q28/16 continues the development of the Continua Design Guidelines (ITU-T H.810 series) in cooperation with PCHA. About 60 documents (Recs and Technical Papers) are currently in-force that resulted from this collaboration and are regularly updated. * Q28/16 achieved at the July 2018 SG16 meeting [ITU-T H.870](https://www.itu.int/rec/T-REC-H.870-201808-I/en) “Guidelines for safe listening devices/systems”, its first outcome of a series of technical standards on the desired behaviour of safe listening music players. Q26/16 produced a derivate specification found in ITU-T H.871 on personal sound amplifiers. With WHO, Q28/16 is working on a 2nd edition of H.870 as well as on its conformance testing specification. * Q28/16 also completed a new [ITU-T F.780.1](https://www.itu.int/rec/T-REC-F.780.1) “Framework for telemedicine systems using ultra-high-definition imaging” in July 2018 and started work on a conformance testing specification for it. * Q2/20 is currently working on draft Recommendation ITU-T Y.4214 (ex Y.IoT-CEIHMon-Reqts) “Requirements of IoT-based civil engineering infrastructure health monitoring system”. * Q3/20 is currently working on draft Recommendation ITU-T Y.cnce-IoT-arch “Functional architecture of cellular-radio network capability exposure for smart hospital based on Internet of things” and Y.RA-PHE “Requirements and reference architecture of smart service for public health emergency”. * Q4/20 is currently working on draft Recommendation ITU-T Y.eHealth-Semantic “Framework to support Web of Objects ontology based semantic mediation of eHealth services”. * SG20 approved [Recommendation ITU-T Y.4908](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=13679) “Performance evaluation frameworks of e-health systems in the IoT”. U4SSC published a new report on Smart public health emergency management and ICT implementations in December 2021. * Jointly with SG16 and SG20, SG17 organized two joint ITU/WHO workshops on digital COVID-19 certificates on 11 August and 28 November 2021, to promote ITU-T ICT security standards on public key infrastructure, digital identity management and digital trust framework for implementation of global interoperable digital COVID-19 certificates to facilitate global combat against COVID-19 pandemic. | | | |
| **78-05** | **SG16 and SG20, in collaboration with relevant SGs, particular SG11 and SG17, for ensuring the broad deployment of e-health services in diverse operating conditions, to study communication protocols relating to e-health, especially among heterogeneous networks (i. SGs 16+20 3)** | **Ongoing** | **√** |  |
| ITU-T cooperates with PCHA and WHO for dissemination of exiting ITU-T Recommendations.  Q28/16 continues the development of the Continua Design Guidelines (ITU-T H.810-H.850 series) in cooperation with PCHA.  ITU-T SG16 works with WHO and its experts on safe listening, including promotion of adoption of H.870. In particular, an ITU-T [H.870 adoption tool kit](https://www.itu.int/dms_pub/itu-d/opb/phcb/D-PHCB-SAFE_LIS.01-2019-PDF-E.pdf) was developed with the assistance of ITU-D and launched in February 2019.  See action 78-04 above, the two joint ITU/WHO workshops on digital COVID-19 certificates promote ITU-T ICT security standards based global interoperable digital COVID-19 certificates and relevant authentication. | | | |
| **78-06** | **SG16 and SG20, in collaboration with relevant SGs, particular SG11 and SG17, to give priority to study of security standards relating to e-health (i. SGs 16+20 4)** | **Ongoing** | **√** |  |
| A significant number of contributions are regularly received by Q28/16 on e-health to progress its currently [open work items](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3934&isn_qu=4208&isn_status=-1,1,3,7&pg_size=100&details=0&field=acdefghijo).  See 78-04.  SG13 work on trusted ICT contributes to the privacy sensitive information sharing as applied to e-health. ITU-T SG13 published three technical reports on trust provisioning for future ICT infrastructures and services and six Recommendations (ITU-T Y.3051-Y.3056).  SG17 is studying on decentralized identity management and PKI based on distributed ledger technology, developed ITU-T X.1403 *Security guidelines for using DLT for decentralized identity management* and is working onX.srdidm *Security requirements for decentralized identity management systems using distributed ledger technology,* | | | |
| **78-07** | **SG16 and SG20, in collaboration with relevant SGs, particular SG11 and SG17, to coordinate activities and studies relating to e-health among the relevant study groups, focus groups and other relevant groups in ITU-T, the ITU Radiocommunication Sector (ITU-R) and ITU‑D, in order in particular to foster awareness of telecommunication/ICT standards pertaining to e-health (i. SGs 16+20 2)** | **Ongoing** | **√** |  |
| SG16 created in January 2017 a JCA on multimedia aspects of E-services ([JCA-MmeS](https://www.itu.int/en/ITU-T/jca/mmes/Pages/default.aspx)) that includes coordination of the standardization work on e-health.  FG NET2030 (2018 – 2020) was looking after the e-health future solutions (remote surgery, remote patient monitoring and e-medicine).  SG20 through the JCA on IoT and SC&C provides a platform for information sharing and coordination of the standardization work on digital health and relevant IoT aspects.  TSAG October 2021 meeting established a new *ITU-T Joint Coordination Activity on digital COVID-19 certificate* *(ITU-T JCA-DCC)* under the auspices of TSAG chaired by Mr Heung-Youl Youm. | | | |

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# Resolution 79 – The role of telecommunications/ information and communication technology in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it

**Resolution 79**

resolves to instruct the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau

1 to pursue and strengthen the development of ITU activities in regard to handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it;

2 to assist developing countries to undertake proper assessment of the size of e-waste;

3 to address the handling and controlling of e‑waste and to contribute to global efforts designed to deal with the increasing hazards which arise therefrom;

4 to work in collaboration with the relevant stakeholders, including academia and relevant organizations, and to coordinate activities relating to e-waste among the ITU study groups, focus groups and other relevant groups;

5 to organize seminars and workshops to enhance awareness of the hazards of e-waste and the methods of treating it, particularly in developing countries, and gauge the needs of the developing countries, which are the countries that suffer most from the hazards of e-waste,

instructs ITU-T Study Group 5, in collaboration with the relevant ITU study groups

1 to develop and document examples of best practice for handling and controlling e-waste resulting from telecommunications/ICT and methods of treating and recycling it, for dissemination among ITU Member States and Sector Members;

2 to develop Recommendations, methodologies and other publications relating to handling and controlling e-waste resulting from telecommunications/ICT and methods of treating it, within the relevant study groups, focus groups and other relevant groups in ITU, in order, in particular, to foster awareness of the environmental hazards of e-waste;

3 to study the impact of used telecommunication/ICT equipment and products brought into developing countries and give appropriate guidance, taking into account *recognizing further* above, to assist developing countries,

invites Member States

1 to take all necessary measures to handle and control e-waste in order to mitigate the hazards which can arise from used telecommunication/ICT equipment;

2 to cooperate with each other in this area;

3 to include e-waste management policies in their national ICT strategies,

encourages Member States, Sector Members and academia

to participate actively in ITU-T studies on e-waste, through the submission of contributions and by other appropriate means.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **79-01** | **TSB Director, in collaboration with BDT Director, to develop ITU activities to handle, control and treat e-waste of telecommunication and IT equipment (resolves 1)** | **Ongoing** | **√** |  |
| The [ITU-T, Environment, Climate Change and Circular Economy](https://www.itu.int/en/ITU-T/climatechange/Pages/default.aspx) portal features reports, events such as the Green Standards Week, material for training, and activities on e-waste and circular economy. | | | |
| **79-02** | **TSB Director, in collaboration with BDT Director, to assist developing countries to undertake proper assessment of the size of e-waste (resolves 2)** | **Ongoing** | **√** |  |
| ITU-T SG5 together with UNIDO started the implementation of the project “Strengthening of National Initiatives and Enhancement of Regional Cooperation for the Environmentally Sound Management of POPs in Waste of Electronic or Electrical Equipment (WEEE) in Latin-American Countries. As part of this project, ITU-T developed one case study on the implementation of Recommendation ITU-T L.1031 “Guideline for achieving the e-waste targets of the Connect 2030 Agenda” and Recommendation ITU-T L.1032 “Guidelines and certification schemes for e-waste recyclers” in Costa Rica. | | | |
| **79-03** | **TSB Director, in collaboration with BDT Director, to organize seminars and workshops for developing countries and gauge their needs for e-waste (resolves 5)** | **Ongoing** | **√** |  |
| A Forum on “Environment, climate change and circular economy” was held on 4 and 5 April 2017 in Manizales, Colombia.  A workshop on “The role of International Standards and of the Basel Convention in tackling e-waste and achieving a Circular Economy” was held on 23 March 2018 in Geneva, Switzerland.  The 12th ITU Symposium on ICT, Environment and Climate Change was held on 9 April 2018 in Zanzibar, Tanzania.  A [Thematic Workshop on Connecting the Circular model of E-waste Management to the Sustainable Development Goals](https://www.itu.int/net4/wsis/forum/2019/Agenda/ViewSession/240) was held on 11 April 2019 in Geneva, Switzerland.  The 13th Symposium on ICT, Environment and Climate Change was organized on 13 May 2019 in Geneva, Switzerland.  A Forum on Smart Sustainable Africa was held on 28 August 2019 and a Training on E-waste management and Circular Economy was held on 30 August 2019. Both events will take place during the 1st Digital African Week in Abuja, Nigeria.   * A [Forum on “Frontier Technologies to Tackle Climate Change and Achieve a Circular Economy”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-04.aspx) was on 1 October 2019 in Valencia, Spain. This Forum took place during the 9th Green Standards Week. * A webinar on “Using International Standards to tackle the e-waste challenge” was held on 1 and 2 April 2020. Another webinar on Explore a circular vision for the ICT sector was held on 14 and 16 April 2020. * A [session on “Using international standards to build smart sustainable cities and tackle climate change, e-waste and nature loss”](https://www.itu.int/en/ITU-T/climatechange/Pages/20201015.aspx) was held on 15 October 2020.   A series of Sustainable Digital Transformation Dialogues were held from 28 to 30 September 2021:   * Sustainable Digital Transformation in Africa, 28 September 2021 * Sustainable Digital Transformation in the Arab region, 29 September 2021 * Sustainable Digital Transformation in Latin America, 30 September 2021.   The 10th Green Standards Week took place from 14 to 16 December 2021. The structure of the 10th GSW was the following:   * **Day 1:**[**14 December 2021:** High-level dialogue on sustainable e-waste management and the circular economy in Latin America](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/202112/Pages/day-01.aspx) * **Day 2:**[**15 December 2021:** Sustainable e-waste management in Costa Rica](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/202112/Pages/day-02.aspx) * **Day 3:**[**16 December 2021:** Beyond COP26 – Accelerating Net-Zero Through a Sustainable Digital Transformation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/202112/Pages/day-03.aspx) | | | |
| **79-04** | **SG5, in collaboration with relevant SGs, to identify, document and disseminate e-waste best practices for ITU membership (i. SG5 1)** | **Ongoing** | **√** |  |
| SG5 under Q7/5 – Circular economy including e-waste is working on these topics. Some current work items are: ITU-T L.AUVE “Effects of ICT enabled autonomy on vehicles longevity and waste creation”; ITU-T L.CE\_Industry 4.0 “Circular Economy and Industry 4.0”; ITU-T L.Counterfeit “Adequate Assessment and Sensitisation on Counterfeit ICT Products and their Environmental Impact”; ITU-T L.ICT\_CE “ICT response to circular economy”; ITU-T L.E-waste-collection “Guidelines on the collection, pre-treatment, dismantling, valorisation and final disposal of WEEE”;ITU-T L.GDSPP “Requirements for a global digital sustainable product passport to achieve a circular economy”;; ITU-T L.Mat\_frame “Assessment of material efficiency of ICT network goods (circular economy). Part 1: General for server and data storage equipment”; ITU-T L.ME\_DD “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 2: server and data storage product secure data deletion functionality”; ITU-T L.ME\_AF “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 3: Server and data storage product availability of firmware and of security updates to firmware”; ITU-T L.ME\_RM “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 4: Server and data storage product critical raw materials”; ITU-T L.ME\_DIS “Assessment of material efficiency of ICT network infrastructure goods (circular economy). Part 5: Server and data storage product disassembly and disassembly instruction”. The complete list of current ongoing work can be found [here](https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3928&isn_qu=4120&isn_status=-1,1,3,7&details=0&field=acdefghijo).  ITU-T SG5 collaborated with the Basel Convention and other partners to develop a MOOC on E-waste in order to provide information on the ITU-T Recommendations on E-waste. | | | |
| **79-05** | **SG5, in collaboration with relevant SGs, to develop Recommendations, methodologies and other publications on e-waste (i. SG5 2)** | **Ongoing** | **√** |  |
| * SG5: ITU has approved the following Recommendations: * Recommendation ITU-T L.1002 “External universal power adapter solutions for portable ICT devices” for a universal charger for laptops and other portable devices. The new standard provides for improved energy efficiency and reduced greenhouse gas emissions and is expected to lead to significant reductions in e-waste. * Recommendation ITU-T L.1006 “Test suites for assessment of the External universal power adapter solutions for stationary information and communication technology devices” defines test methods for UPA to demonstrate the compliance with ITU-T Recommendation L.1001. * Recommendation ITU-T L.1007 “Test suites for assessment of the External universal power adapter solutions for portable information and communication technology devices” defines test methods for UPA to demonstrate the compliance with ITU-T Recommendation L.1002. * Recommendation ITU-T L.1015 “Criteria for evaluation of the environmental impact of mobile phones” focuses on the criteria to be used for evaluation of the environmental impact of mobile phones. It considers all life cycle stages of mobile phones such as the design, production, use and end of life management. The Recommendation also defines a minimum level of environmental performance. * Recommendation ITU-T L.1020 “Circular Economy: Guide for Operators and Suppliers on approaches to migrate towards circular ICT goods and networks” suggests approaches of circular economy (CE) for information and communication technology (ICT) goods and networks. It focuses particularly on the next steps in improving circularity in the operators′ supply chain. * Recommendation ITU-T L.1021 “Extended Producer Responsibility – Guidelines for Sustainable E-waste Management” offers a description of the extended producer responsibility system in dealing with e- waste. The Recommendation goes in details regarding the different existing forms of EPR globally, not only in theoretical terms but also with a practical view to their feasibility, challenges and pre- requisites. * Recommendation ITU-T L.1022 “Circular Economy: Definitions and concepts for material efficiency for ICT” contains a guide to the circular economy (CE) aspects, parameters, metrics and indicators for information and communication technology (ICT) based on current approaches, concepts and metrics of the CE as defined in existing standards, while considering their applicability for ICT. * Recommendation ITU-T L.1023 “Assessment Method for Circular Scoring”. This Recommendation outlines an assessment methodology for circularity scoring of ICT goods. * Recommendation ITU-T L.1024 “The potential impact of selling services instead of equipment on waste creation and the environment – Effects on global information and communication technology” utilizes information compiled from stakeholders that provides insights into cases in the information and communication technology (ICT) ecosystem, in which ICT goods are sold as services or subscriptions rather than products. * Recommendation ITU-T L.1030 “E-waste management framework for countries” provides a management framework for e-waste to countries. It summarizes the different steps that countries need to adopt in order to put in place an e-waste management system. The different steps of the e-waste management system described in this Recommendation will be further elaborated in future Recommendations. * Recommendation ITU-T L.1031 “Guideline on implementing the e-waste reduction target of the Connect 2020 Agenda” describes a three-step approach to address the e-waste reduction target of the Connect 2020 Agenda. These steps consist of guidance on developing an e-waste inventory, approaches to design e-waste prevention and reduction programs, and the supportive measures required for successfully implementing the Connect 2020 e-waste target. * Recommendation ITU-T L.1032 “Guidelines and certification schemes for e-waste recyclers” is part of a series of ITU-T Recommendations that considers requirements for recyclers of waste information and communication technology (ICT). This Recommendation addresses, in particular, the informal sector that is involved in waste electrical and electronic equipment (WEEE) collection and dismantling. * Recommendation ITU-T L.1033 “Guidance for institutions of higher learning to contribute in the effective life cycle management of e-equipment and e-waste” | | | |
| **79-06** | **SG5, in collaboration with relevant SGs, to study the impact of telecom/ICT e-waste to developing countries and give guidance to assist developing countries (i. SG5 3)** | **Ongoing** | **√** |  |
| See 79-04. | | | |

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# Resolution 80 – Acknowledging the active involvement of the membership in the development of ITU Telecommunication Standardization Sector deliverables

**Resolution 80**

resolves

that it is important to acknowledge significant contributors to the work of ITU-T,

instructs the Director of the Telecommunication Standardization Bureau

to acknowledge the value of active participation of the membership, in particular academia, universities and their associated research establishments, in the standardization activities of ITU, by collaborating closely with Member States and their respective bodies that formulate public policies in areas such as education, science, technology, industry and commerce in order to highlight the importance of contribution to ITU-T study group deliverables,

instructs the Telecommunication Standardization Advisory Group

to establish criteria that guide study groups to clearly acknowledge contributors to the development of study group deliverables;

instructs the study groups of the ITU Telecommunication Standardization Sector

to acknowledge contributors to the development of study group deliverables, in particular those from academia, universities and associated research establishments, based on the criteria established by the Telecommunication Standardization Advisory Group (TSAG),

invites Member States

to collaborate with ITU-T and to encourage research funding organizations and/or research institutions in their countries to acknowledge the criteria established by TSAG in the evaluation of the productivity of professionals from academia, universities and associated research establishments.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **80-01** | **TSB Director to collaborate with Member States to acknowledge the value of active membership participation and contribution to ITU-T SG deliverables (i. TSBDir)** | **Ongoing** | **√** |  |
| At WTSA-12, Resolution 80 was approved with the aim of stimulating further participation of academia, universities and their associated research establishments in the work of ITU-T through the acknowledgment of their contributions to the development of ITU-T deliverables.  The rationale behind this was that the performance of academics is evaluated on their publications (books, papers, patents, etc.), courses taught, thesis advisory roles, and research projects accomplished, while the efforts applied to writing, editing or presenting contributions to ITU-T, do not count towards grants and career progression for academia members.  Incentive mechanisms were thought to be necessary to make key standardization processes, such as authorship of contributions and editorship, more attractive to academia members.  Therefore, this Resolution 80 called on ITU-T to modify the publication procedures for its standardization documents, including Recommendations, by acknowledging somewhere in each document detailed information about its editorship and main contributors.  However, the ITU Legal Affairs Unit (LAU) clearly stated that ITU solely holds copyrights on its publications (cf. Resolution 66 of Plenipotentiary Conference), and that the so-called “contributors” should not be perceived as co-authors of the texts in question.  At its meeting held in June 2013, TSAG agreed to task ITU-T SG9 to explore different mechanisms to implement Resolution 80. Based on ITU-T SG9 analysis, at its meeting in February 2016, TSAG approved a set of options (Guidelines [TD 899 (GEN/9)](http://www.itu.int/md/T13-SG09-160121-TD-GEN-0899/en): 1. Use of bibliographic references, 2. Lists of participants and contributors per meeting, and 3. Lists of contributors’ names on a given Recommendation’s webpage) to acknowledge contributors to the development of SGs deliverables and encouraged all SGs to implement them.  WTSA-16 approved a slightly revised version of Res. 80, strengthening the need to acknowledge contributors to the development of SGs deliverables and to study new criteria. Nonetheless, some legal points were not fully settled and would require further discussion and clarification. In particular, the notion of “significant contribution” is hard to define and poses a constraint in the effective implementation of the Resolution.  The collective nature of the ITU standardization process was reiterated by LAU. Hence, no contributors/authors can be acknowledged within the text of the Recommendation itself. This poses the need to redirect efforts towards exploring alternative solutions.  For a detailed summary of all actions undertaken with respect to WTSA Resolution 80, please see [WTSA-16 Contribution 59](https://www.itu.int/md/T13-WTSA.16-C-0059/en).  Moreover, in line with option 1 of the guidelines (“Bibliographic references for the purpose of acknowledging input to the content of an ITU-T Recommendation will consist of peer-reviewed publications and/or books that are considered useful for the understanding and/or development of the deliverable”), researchers that are members of the ITU are encouraged to submit their research work to the scientific, peer-reviewed publications of the ITU which are free of charge for both authors and readers: the [ITU Kaleidoscope academic conferences](https://www.itu.int/en/ITU-T/academia/kaleidoscope/Pages/default.aspx) Proceedings and the [ITU Journal on Future and Evolving Technologies](https://www.itu.int/en/journal/j-fet/Pages/default.aspx) (ITU J-FET). | | | |
| **80-02** | **TSAG to establish criteria that guide study groups options on how to clearly acknowledge contributors (i. TSAG)** | **TSAG meetings** | **√** |  |
| See 80-01. | | | |
| **80-04** | **ITU-T study groups to acknowledge contributors to the development of study group deliverables, in particular those from academia, universities and associated research establishments, based on the criteria established by the TSAG (i. SGs)** | **Ongoing** | **√** |  |
| * In SG2’s meeting in September 2016 in the last study period, it was noted that the TSAG meeting of 1-5 February 2016 agreed that the trial in SG9 be rolled out to other ITU-T Study Groups who would then have options as derived by the TSB from the SG9 guidelines. The Chairman invited SG2 Questions to consider which of the options would be suitable for implementation in SG2, taking into account the SG9 Guidelines, some aspects of which are still under study. * SG3 continue to actively encourage and to increase participants from research institutions and academia. * SG5 and SG20 actively encourage the participation of Academia in the work under study. * SG9 has actively contributed for the implementation of Resolution 80 in the last Study Period, in coordination with TSAG, and plans to continue being active in this field. Academic participants are welcomed and encouraged by SG9 Management. SG9 welcomed two new academia members in ITU-T in this Stud Period, one of them was appointed Rapporteur for Q11/9 and co-chair of IRG-AVA. * SG11 encourages Academia to participate in the work of the group. Most of them are very active as they are in charge of the development several standards. In March 2020, a new SME member joined SG11. * SG12: Academia participate and are among the top contributors (number of contributions). * SG13 maintained on ongoing basis an acknowledgement webpage since the beginning of the study period until September 2019. Co-authors of the FG NET2030 White Paper are listed on this publication. The same applies to the second deliverable of this FG “New Services and Capabilities for Network 2030: Description, Technical Gap and Performance Target Analysis” and FG NET2030 technical specification on NET2030 architecture. The first Deliverable of the FG-AN (on use cases for Autonomous Networks), lists all the contributors to this publication. * SG16 encourages the participation of Academia in the work under study. * A link was added to the SG17 web page to acknowledge the SG17 management team, SG17 Rapporteurs and Associate Rapporteurs. | | | |

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# Resolution 83 – Evaluation of the implementation of resolutions of the World Telecommunication Standardization Assembly

**Resolution 83**

resolves to invite Member States and Sector Members

1 to indicate, as part of the preparatory meetings for WTSA, the status of implementation of the resolutions adopted for the previous study period;

2 to make proposals to improve the implementation of resolutions,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with Directors of the other Bureaux

to take the necessary actions to assess the implementation of WTSA resolutions by all parties concerned,

instructs the Director of the Telecommunication Standardization Bureau

to take account of the implementation of WTSA resolutions and submit an assessment report to TSAG.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **83-01** | **TSB Director to take the necessary actions to assess the implementation of WTSA resolutions by all parties concerned (i. TSBDir)** | **Ongoing** | **√** |  |
| The May 2017 TSAG meeting considered the plan to establish a new Rapporteur Group later during this study period and closer to the next WTSA, with the objective to review the WTSA Resolutions and the achieved progress during the current study period.  The February/March 2018 TSAG meeting established TSAG RG-ResReview. | | | |
| **83-02** | **TSB Director to take account of the implementation of WTSA resolutions and submit an assessment report to TSAG (i. TSBDir)** | **Ongoing TSAG 2021** | **√** | **√** |
| Progress on implementation of the WTSA Resolutions is reported in this document. The WTSA-16 Action plan was submitted ([TSAG-TD25-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0025), [TSAG-TD139-R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0139), [TSAG-TD292](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-181210-TD-GEN-0292), [TSAG-TD467](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0467), [TSAG-TD657](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0657), [TSAG-TD789](https://www.itu.int/md/T17-TSAG-200921-TD-GEN-0789), [TSAG-TD932](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0932), [TSAG-TD1031](https://www.itu.int/md/T17-TSAG-211025-TD-GEN-1031), and [TSAG-TD1186](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-220110-TD-GEN-1186)) and presented to TSAG. | | | |

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# Resolution 84 – Studies concerning the protection of users of telecommunication/information and communication technology services

**Resolution 84**

resolves

1 to continue developing relevant ITU-T Recommendations in order to provide solutions ensuring and protecting the rights of users and consumers of telecommunication/ICT services, notably in the areas of quality, security and tariff mechanisms;

2 that the study groups concerned should expedite work on Recommendations that would provide additional detail and guidance for the implementation of this resolution;

3 that ITU-T Study Group 3, where appropriate with ITU-T Study Groups 2, 12 and 17, within their mandates, should carry out studies, including on standards for the protection of consumers and users of telecommunication/ICT services,

invites the Director of the Telecommunication Standardization Bureau

1 to assist the Director of the Telecommunication Development Bureau in the implementation of Resolution 196 (Busan, 2014);

2 to strengthen relations with other standards development organizations involved in resolving issues of protection of telecommunication/ICT service users,

invites Member States

to consider the creation of an enabling environment in which telecommunication operators can provide telecommunication/ICT services for their users, with the appropriate quality, level of confidence and security, and stimulating competitive, fair and affordable prices, and in order in general to protect users of telecommunication/ICT services,

invites Member States, Sector Members, Associates and academia

to contribute to this work by submitting contributions to the relevant ITU-T study groups on Questions related to the protection of users of telecommunication/ICT services, and to collaborate on implementing this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **84-01** | **ITU-T Study Groups (SGs 3, 12, 17) to continue developing relevant ITU-T Recommendations in order to provide solutions ensuring and protecting the rights of users and consumers of telecommunication/ICT services, notably in the areas of quality, security and tariff mechanisms, and to expedite work on those Recommendations that would provide additional detail and guidance for the implementation of this resolution (resolves 1, 2)** | **Ongoing** | **√** |  |
| * SG3: Recommendation ITU-T D.263 on Costs, Charges and Competition for Mobile Financial Services (MFS) was approved. SG3 agreed the ITU-T Technical Report DSTR-DFSUAAFR on Digital Financial Services – Review of DFS User Agreements in Africa: A Consumer Protection Perspective, and ITU-T Technical Report DSTR-DFSCP on Digital Financial Services – Commonly identified Consumer Protection themes for Digital Financial Services. SG3 is studying the work item D.ConsumerMFS the aspects of consumer protection in mobile financial services, and the work item D.OTTConsumer the customer redress mechanism and consumer protection. SG3 approved Recommendation ITU-T D.1102, Customer redress and consumer protection mechanisms for OTTs. * SG12: A work plan for Res.95 was adopted in January 2017 and circulated widely. The work of Q12/12 and activities undertaken in response to Resolution 95 on service quality address the protection of users of telecommunication/information and communication technology services. * SG17 approved ITU-T X.1058 | ISO/IEC 29151 *Information technology – Security techniques – Code of practice for personally identifiable information protection*, ITU-T X.1148 *Framework of de-identification process for telecommunication service providers*, ITU-T X.1363 *Technical framework of PII (Personally Identifiable Information) handling system in IoT environment,* andITU-T X.Sup32 *Supplement to ITU-T X.1058 - Code of practice for personally identifiable information protection for telecommunications organizations.* SG17 is working on X.guide-cdd *Security guidelines for combining de-identified data using trusted third party*, X.rdda *Requirements for data de-identification assurance,* X.vide *Guideline of visual feature protection and secure sharing mechanisms for de-identification* and X.sa-dsm *Security architecture of data sharing management based on the distributed ledger technology*. | | | |
| **84-02** | **ITU-T SG3, where appropriate with ITU-T Study Groups 2, 12 and 17, within their mandates, should carry out studies, including on standards for the protection of consumers and users of telecommunication/ICT services (resolves 3)** | **Ongoing** | **√** |  |
| * SG3 agreed to hold an interim rapporteur group meeting (RGM) of Q12/3. Discussions will include protection of consumers and users of Mobile Financial Services. The RGM on Q12/3 agreed on a baseline text for a new Draft Recommendation on Principles for increased adoption and use of MFS through effective consumer protection mechanisms. SG3 agreed the ITU-T Technical Report DSTR-DFSUAAFR on Digital Financial Services – Review of DFS User Agreements in Africa: A Consumer Protection Perspective, and ITU-T Technical Report DSTR-DFSCP on Digital Financial Services – Commonly identified Consumer Protection themes for Digital Financial Services. SG3 is studying in work item D.ConsumerMFS the aspects of consumer protection in mobile financial services, and developed Recommendation ITU-T D.1102, the customer redress mechanism and consumer protection. * SG12: see 84-01. | | | |
| **84-03** | **TSB Director to assist the Director of the Telecommunication Development Bureau in the implementation of Resolution 196 (Busan, 2014) (i. TSBDir 1)** | **Ongoing** | **√** |  |
| See SG12 action item 84-01, was communicated to the BDT. Active exchange of information with BDT and ITU-D Study Groups. | | | |
| **84-04** | **TSB Director to strengthen relations with other standards development organizations involved in resolving issues of protection of telecommunication/ICT service users (i. TSBDir 2)** | **Ongoing** | **√** |  |
| * Collaboration between SG12 and ETSI TC STQ and other SDOs working on QoS and QoE matters. | | | |

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# Resolution 85 - Strengthening and diversifying the resources of the ITU Telecommunication Standardization Sector

**Resolution 85**

resolves to instruct the Director of the Telecommunication Standardization Bureau

to participate in the study referred to in noting b) above, for possible new measures to generate additional revenue for ITU-T, including revenues that may be obtained from INRs and conformance and interoperability testing.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **85-01** | **TSB Director to participate in the study identifying all possible sources of revenue for the Union without restriction to INR, for possible new measures to generate additional revenue for ITU-T, including revenues that may be obtained from INRs and conformance and interoperability testing (resolves i. TSBDir)** | **Council 2021** | **√** | **√** |
| See [C17/43](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0043), [CWG-FHR 8/18](https://www.itu.int/md/S18-CLCWGFHRM8-C-0018), [C19/47](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-CL-C-0047), [C20/47](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0047), [C21/47](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0047). | | | |

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# Resolution 86 - Facilitating the implementation of the Smart Africa Manifesto

**Resolution 86**

resolves to invite study groups of the ITU Telecommunication Standardization Sector

1 to develop ITU-T Recommendations aimed at implementing emerging technologies, with a special focus on developing countries;

2 to collaborate with the Smart Africa office in regard to standards relating to emerging technologies, with more emphasis on use cases and scenarios for developing countries through regional meetings, forums, workshops, etc.,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau

1 to establish mechanisms for collaboration and cooperation between ITU-T study groups and the Smart Africa office in the development of standards;

2 to continue supporting the Smart Africa Manifesto in accordance with Resolution 195 (Busan, 2014);

3 to provide assistance to Smart Africa and African regional groups from within the assigned budget in order to support pilot projects aimed at speeding up the implementation of ITU standards and Recommendations;

4 to strengthen training and guide Smart Africa member states, partner organizations and industries in their adoption of ITU-T standards.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **86-01** | **All ITU-T Study Groups to develop ITU-T Recommendations aimed at implementing emerging technologies, with a special focus on developing countries (resolves 1)** | **Ongoing** | **√** |  |
| See also action item 44-11.   * SG2 created the [Focus Group on AI for Natural Disaster Management (FG-AI4NDM)](https://www.itu.int/en/ITU-T/focusgroups/ai4ndm/Pages/default.aspx) at its meeting on 18 December 2021, recognizing that the situation is particularly acute in small island developing states (SIDS) and least developed countries (LDCs), and for vulnerable populations. The focus group met for the first time in March 2021 and organized its activities into four working groups: WG-Data, WG-Modelling, WG-Comms and WG-Roadmaps. The FG-AI4NDM has been exploring various use-cases through ten Topic Groups and one Work Stream on “Tools supporting AI for Natural Disaster Management”. * SG3RG-AFR determined draft new regional Recommendation ITU-T D.608R “OTT Voice Bypass”, as per Section 9.2 of WTSA Resolution 1. * SG5 created the Focus Group on Environmental Efficiency for AI and other emerging technologies (FG-AI4EE). The FG-AI4EE held its first meeting on 12 December 2019 and is carrying out its work within three working groups:   + Requirements of AI and other Emerging Technologies to Ensure Environmental Efficiency   + Assessment and Measurement of the Environmental Efficiency of AI and Emerging Technologies   + Implementation Guidelines of AI and Emerging Technologies for Environmental Efficiency. * SG9 has a specific Question (Q4/9) to take into account studies related to developing countries. Contributions to SG9 from developing countries are increasing since the last Study Period and this allows taking into account developing countries needs when drafting ITU-T Recommendations. SG9 was planning a meeting in Gambia, Africa in September 2020 which was postponed to 2023 due to COVID-19. Q4/9 developed and approved one Recommendation and one Supplement specifically addressing developing countries issues: ITU-T [J.1401 and J Sup.11.](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14182) See [here](https://www.itu.int/ITU-T/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3929&isn_qu=4134&isn_status=-1,1,3,7,2&details=0&field=acdefghijo). * SG11 is developing new Supplement Q.Sup.CFS-AFR “Guidelines on combating counterfeit and stolen mobile devices in African region”. * SG12: the work of Question 12/12 “Operational aspects of telecommunication network service quality” is particularly relevant to and attracts participation of delegates from developing countries. Also see Resolution 95. * SG13 has Question Q5/13 "Applying networks of future and innovation in developing countries" (since 2021 title is “Applying Future Networks and Innovation in Developing Countries”) dealing with innovations for developing countries, to name. Has a SG13RG-AFR each meeting of which is co-located with the workshop on new challenges or opportunities for Africa. Published in November 2017 the Supplement 46 to Y.3500-series of Recs “Scenarios of Implementing Cloud Computing in networks of developing countries” largely based on the replies to the questionnaires and contributions from Africa. For two new questionnaires designated for developing countries see action 44-11 above. A new SG13RG-EECAT was set up in March 2019 and had inaugural meeting in May 2019 in St Petersburg. It brought 5 proposals for a new work items of interest for EECAT region. Supplement 64 to ITU-T Y.3100-series "Awareness on Use Cases and Migration Aspects of IMT-2020", Supplement 65 to ITU-T Y.3600-series "Big Data Adoption in Developing Countries" and technical report "Use of ITU-T Recommendations by Developing Countries" were approved in July 2020 and aim to provide guidance for the developing countries. * SG15 had two work items to provide solutions to developing countries: "Optical fibre cables for direct surface application" (L.dsa) and "Criteria for optical cable installation with minimal existing infrastructure" (L.cci). L.dsa was approved as Recommendation ITU-T L.110 in August 2017. Draft L.cci was approved as L.163 in November 2018. These Recommendations were promoted at WSIS Forum 2019 and Telecom World 2019 exhibiting manufactured cables according to Recommendation ITU-T L.110. SG15 organized a session “Bridging the digital divide: how ITU-T standards enable installation of optical fibre cable in remote areas” for WSIS Forum 2020 to promote standards on optical fibre for developing countries (ITU-T L.110, L.163 and L.1700). Details are at <https://www.itu.int/net4/wsis/forum/2020/Agenda/Session/267>. A delegate from SG15 participated in WSIS2021 sessions “WSIS Stocktaking Series: The Coronavirus Response – ICT Case Repository” (twice – 3 February and 9 March 2021) and “WSIS Stocktaking Interactive Session” (21 May 2021). * SG16 continues work on [FTSP.EH-DEV](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14081) - Issues list for enhancing accessibility to e-health services and applications in developing countries, initiated in January 2018. * SG17 developed Recommendation ITU-T X.1060 Framework for the creation and operation of a cyber defence centre which was interested by African countries for implementation. See action 54-01 for more details. * SG20 is working on draft Recommendation ITU-T Y.SRC “Requirements for deployment of smart services in rural communities”, ITU-T Y.smart-evacuation “Framework of smart evacuation during emergencies in smart cities and communities”, ITU-T Y.eHealth-Semantic “Framework to support Web of Objects ontology based semantic mediation of eHealth services”, ITU-T Y.RA-PHE “Requirements and reference architecture of smart service for public health emergency” and draft Supplement ITU-T Y.Sup.DTAfrica “Digital Transformation of Cities and Communities in Africa”. * SG20 established a new [ITU-T Focus Group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A)](https://itu.int/go/fgai4a). FG-AI4A will serve as an open platform to explore the potential of AI and IoT to support innovative practices for agricultural production processes. * SG20 established a new Correspondence Group on Artificial intelligence of Things (CG-AIoT). * U4SSC created a new Thematic Group on Digital Transformation for People Oriented Cities. | | | |
| **86-02** | **All ITU-T Study Groups to collaborate with the Smart Africa office in regard to standards relating to emerging technologies, with more emphasis on use cases and scenarios for developing countries through regional meetings, forums, workshops, etc (resolves 2)** | **Ongoing** | **√** |  |
| * SG12: Participation of Smart Africa representative in SG12RG-AFR meeting (Kigali, March 2019) * SG17 regional group for Africa is working on implementation of ITU-T X.1060 Framework for the creation and operation of a cyber defence centre in Africa. See action 54-01. * SG20: ITU organized [Virtual Forum on “Accelerating Digital Transformation in Africa”](https://www.itu.int/en/ITU-T/climatechange/Pages/20210602.aspx), which took place on 2 June 2021. The forum was followed by the third meeting of ITU-T Study Group 20 Regional Group for Africa (SG20RG-AFR), which took place virtually on 3 June 2021. | | | |
| **86-03** | **TSB Director to establish mechanisms for collaboration and cooperation between ITU-T study groups and the Smart Africa office in the development of standards (i. TSBDir 1)** | **Ongoing** | **√** |  |
| * [1st Digital African Week](https://www.itu.int/en/ITU-T/climatechange/Pages/1st-Digital-African-Week.aspx) took place on 27-30 August 2019, Abuja, Nigeria in conjunction with [ITU-T Study Group 5 Regional Group for Africa (ITU-T SG5RG-AFR)](https://www.itu.int/en/ITU-T/studygroups/2017-2020/05/sg5rgafr/Pages/default.aspx) and [ITU-T Study Group 20 Regional Group for Africa (ITU-T SG20RG-AFR)](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/sg20rgafr/Pages/default.aspx) to foster the implementation of ITU-T Recommendations with the support of the Smart Africa office. * The session “[Sustainable Digital Transformation in Africa](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/20210928/Pages/default.aspx)” was held on 28 September 2021 during the [Sustainable Digital Transformation Dialogues](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/sg05rg/sdtd/Pages/default.aspx). * The seventh SG13 Regional Workshop on "Standardization of future networks towards building a better connected Africa", Abuja, Nigeria, 3-4 February 2020, had a presentation about the activities of Smart Africa. | | | |
| **86-04** | **TSB Director to continue supporting the Smart Africa Manifesto in accordance with Resolution 195 (Busan, 2014) (i. TSBDir 2)** | **Ongoing** | **√** |  |
| Ongoing. | | | |
| **86-05** | **TSB Director to provide assistance to Smart Africa and African regional groups from within the assigned budget in order to support pilot projects aimed at speeding up the implementation of ITU standards and Recommendations (i. TSBDir 3)** | **Ongoing** | **√** |  |
| Ongoing. | | | |
| **86-06** | **TSB Director to strengthen training and guide Smart Africa member states, partner organizations and industries in their adoption of ITU-T standards (i. TSBDir 4)** | **Ongoing** | **√** |  |
| Ongoing. | | | |

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# Resolution 87 - Participation of the ITU Telecommunication Standardization Sector in the periodic review and revision of the International Telecommunication Regulations

**Resolution 87**

resolves to instruct the Director of the Telecommunication Standardization Bureau

1 to undertake the necessary activities within the Director's field of competence in order to fully implement Resolution 146 (Rev. Busan, 2014) and Council Resolution 1379;

2 to submit the result of these activities to EG-ITR,

instructs the Telecommunication Standardization Advisory Group

to provide advice to the Director of the Telecommunication Standardization Bureau consistent with Resolution 146 (Rev. Busan, 2014) and Council Resolution 1379,

invites Member States and Sector Members

to participate in and contribute to the implementation of this resolution.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **87-01** | **TSB Director to undertake the necessary activities within the Director's field of competence in order to fully implement Resolution 146 (Rev. Busan, 2014) and Council Resolution 1379 (resolves TSBDir i. 1)** | **Ongoing** | **√** |  |
| TSB Director reported to the 3rd meeting of the Expert Group (17-19 January 2018) on the responses received from the ITU-T study groups regarding the International Telecommunication Regulations. Further updates by some ITU-T study groups were presented at TSAG 26 February – 2 March 2018. TSB Director conducted additional consultations with ITU-T Study Group Chairmen and reported the results in EG-ITRs-4/INF/2 to EG-ITR in April 2018.  TSBDir submitted an update in [EG-ITRs-5/INF/01](https://www.itu.int/md/S21-EGITR5-INF-0001) to the 5th EG-ITR meeting, provides some TSB secretariat updates (relative to EG-ITRs-4/INF/02) on the identified list of Recommendations. | | | |
| **87-02** | **TSB Director to submit the result of these activities to EG-ITR (resolves TSBDir i. 2)** | **Council 2021** | **√** |  |
| See [C17/26](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0026), [EG-ITRs-3/5](https://www.itu.int/md/S18-CLEGITR3-C-0005/en) with the TSB Director’s input on ITRs.  TSBDir submitted an update in [EG-ITRs-5/INF/01](https://www.itu.int/md/S21-EGITR5-INF-0001) to the 5th EG-ITR meeting, provides some TSB secretariat updates (relative to EG-ITRs-4/INF/02) on the identified list of Recommendations. | | | |
| **87-03** | **TSAG to provide advice to the Director of the Telecommunication Standardization Bureau consistent with Resolution 146 (Rev. Busan, 2014) and Council Resolution 1379 (i. TSAG)** | **TSAG meetings** | **√** |  |
| The May 2017 TSAG meeting recognized the wide disparity of views and considered the relevant provisions in Resolution 146 (Rev., Busan, 2014), Resolution 1379 of ITU Council, and Resolution 87 (Hammamet, 2016), and conducted further consultation through the TSAG Chairman with the Chairman of the Expert Group on ITRs. The meeting concluded to task the Chairman of TSAG to collect any relevant background information on the implementation of the 2012 ITRs from the ITU-T study groups, and to provide that information to the TSB Director for him to include in his report to the expert group when it meets in September 2017. TSAG sent liaison statement [LS008](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00008.docx) to all ITU-T Study Groups requesting them to provide any relevant background information on the implementation of the existing 2012 ITRs. | | | |

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# Resolution 88 - International mobile roaming

**Resolution 88**

resolves

that ITU-T Study Group 3 must continue to study the economic effects of IMR rates,

instructs the Director of the Telecommunication Standardization Bureau

1 to organize initiatives, in collaboration with the Director of the Telecommunication Development Bureau (BDT), to raise awareness of the benefits to the consumer of lowering IMR rates;

2 to propose cooperative approaches to foster the implementation of Recommendations ITU-T D.98 and ITU-T D.97, and to lower IMR rates among the Member States, by promoting capacity-building programmes, workshops and guidelines for international cooperation agreements,

invites Member States

1 to take measures towards the implementation of Recommendations ITU-T D.98 and ITU-T D.97;

2 to collaborate in the efforts to lower IMR rates by taking regulatory measures when applicable.

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| Action Item | Action | Milestone | Periodic goals met | Completed |
| **88-01** | **ITU-T SG3 continue to study the economic effects of IMR rates (resolves)** | **Ongoing** | **√** |  |
| SG3 agreed to hold a Rapporteur Group meeting on Q7/3 in January 2017 to discuss contributions received on IMR.  In April 2019, SG3 established a new work item for a technical study on roaming aspects of IoT and M2M; liaison cooperation with SG2 is taking place on this subject. SG3 is studying in various work items at international level (TR\_IoTM2M\_roaming, D.IoT/M2M Roaming) and regional level (STUDY\_ROAMREG, D.ONARegionalRoaming, D6\_R\_ROAM, D7\_R\_ROAM) tariff, economic and policy issues of roaming.  SG3 finalized and issued in TSB Circular 168 Cor.1 on 14 May 2019 a questionnaire on the implementation status of Recommendations ITU-T D.98 and D.97 on international mobile roaming; SG3 is considering the results of Circular 168. | | | |
| **88-02** | **TSB Director to organize initiatives, in collaboration with the Director of the Telecommunication Development Bureau (BDT), to raise awareness of the benefits to the consumer of lowering IMR rates (i. TSBDir 1)** | **Ongoing** | **√** |  |
| TSB developed a new [online tool for international mobile roaming cost analysis](https://www.itu.int/net4/roamingtool) which helps to forecast the cost of international mobile roaming voice calls compared to domestic mobile voice calls. | | | |
| **88-03** | **TSB Director to propose cooperative approaches to foster the implementation of Recommendations ITU-T D.98 and ITU-T D.97, and to lower IMR rates among the Member States, by promoting capacity-building programmes, workshops and guidelines for international cooperation agreements (i. TSBDir 2)** | **Ongoing** | **√** |  |
| See 44-19.  SG3 finalized a questionnaire on the implementation status of Recommendations ITU-T D.98 and D.97, issued in a TSB Circular letter 168 Cor.1 on 14 May 2019 to all Member States and all ITU-T Sector Members. SG3 is considering the results of Circular 168. | | | |

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# Resolution 89 - Promoting the use of information and communication technologies to bridge the financial inclusion gap

**Resolution 89**

resolves

1 to continue and further develop the ITU-T work programme, including the ongoing work in Study Groups 2 and 3, in order to contribute to the wider global efforts to enhance financial inclusion, as part of the United Nations processes;

2 to conduct studies and develop standards and guidelines in the areas of interoperability, digitization of payments, consumer protection, quality of service, big data and security of digital financial services transactions, where such studies, standards and guidelines do not duplicate efforts taking place in other institutions and relate to the mandate of the Union;

3 to encourage collaboration between telecommunication regulators and financial services authorities to develop and implement standards and guidelines;

4 to encourage the use of innovative digital tools and technologies, as appropriate, to advance financial inclusion,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the other Bureaux

1 to report on progress on the implementation of this resolution annually to the Council, and to the 2020 world telecommunication standardization assembly;

2 to support the development of reports and best practices on digital financial inclusion, taking into consideration relevant studies, where clearly within the mandate of the Union and not duplicative of work for which other SDOs and institutions are responsible;

3 to establish a platform or, where possible, connect to those already existing, for peer learning, dialogue and experience-sharing in digital financial services among countries and regions, regulators from telecommunication and financial services sectors, industry experts and international and regional organizations;

4 to organize workshops and seminars for the ITU membership in collaboration with other relevant SDOs and institutions with primary responsibility for financial services standards development, implementation and capacity building, in order to raise awareness and identify regulators' particular needs and challenges in enhancing financial inclusion,

instructs the relevant study groups of the ITU Telecommunication Standardization Sector

1 to organize the necessary work and studies in order to expand and accelerate the work on digital financial services, starting with their first meeting in the next study period;

2 to coordinate and collaborate with other relevant SDOs and institutions with primary responsibility for financial services standards development, implementation and capacity-building, and with other groups within ITU,

invites the Secretary-General

to continue to cooperate and collaborate with other entities within the United Nations and other relevant entities in formulating future international efforts for effectively addressing financial inclusion,

invites Member States, Sector Members and Associates

1 to continue to contribute actively to ITU-T study groups on issues related to use of ICTs to enhance financial inclusion, within the mandate of the Union;

2 to promote the integration of ICT, financial services and consumer-protection policies in order to enhance usage of digital financial services with the objective of increasing financial inclusion,

invites Member States

1 to develop and implement national strategies to address financial inclusion as a matter of priority and to leverage ICTs to bring financial services to the unbanked;

2 to undertake reforms that will leverage ICTs to achieve gender equality within the objectives of this resolution;

3 to increase coordination, as appropriate, among national regulatory authorities, in order to remove obstacles preventing non-bank service providers from accessing payment system infrastructures and financial service providers from accessing communications channels, and to foster conditions for affordable and more secure transfer of remittances in both source and recipient countries, including by promoting competitive and transparent market conditions.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **89-01** | **ITU-T Study Groups to continue and further develop the ITU-T work programme, including the ongoing work in Study Groups 2 and 3, in order to contribute to the wider global efforts to enhance financial inclusion, as part of the United Nations processes;**  **and to conduct studies and develop standards and guidelines in the areas of interoperability, digitization of payments, consumer protection, quality of service, big data and security of digital financial services transactions, where such studies, standards and guidelines do not duplicate efforts taking place in other institutions and relate to the mandate of the Union;**  **and to organize the necessary work and studies in order to expand and accelerate the work on digital financial services, starting with their first meeting in the next study period (resolves 1, 2, i. SGs 1)** | **Ongoing** | **√** |  |
| * Reports from FG DFS were forwarded to SGs 2, 3, 12, 16 and 17 to integrate in their work. * SG2 worked on Telecom Finance in the last study period. SG2, after its meeting of 29 March to 7 April 2017, expressed via a liaison statement its willingness to work further on the reports agreed by the ITU-T Focus Group Digital Financial Services in its last meeting in December 2016 if TSAG decides to send these reports to SG2. SG2-C72: Draft recommendation: Digital Financial Services Terms and Definitions were received in the SG2 meeting of 27 November to 1 December 2017. SG2 liaised with SG3 on the technical report on DFS glossary. * SG3 agreed on a draft new Question on Mobile Financial Services, approved a new work item on Big Data governance, on a draft new Question on Mobile Financial Services, and on a Glossary for Digital Financial Services (DFS). The group also approved new Recommendation ITU-T D.263 on Costs, charges and competition for Mobile Financial Services (MFS). SG3 RGM on Q12/3 agreed on baseline texts for two new Draft Recommendations on Mobile Financial Services. SG3 agreed nine reports of the Focus Group on Digital Financial Services (FG-DFS) to be published as SG3 Technical Reports. SG3 is studying in several work items (D.AgentMFS, D.ConsumerMFS, D.EMoneyMFS, D.InteropCompetition, D.MFSCM, D.MFScoop) the economic and policy issues related to mobile financial services. SG3 developed a technical report on the gloassary for digital financial services. SG3 finalized and agreed new D.Suppl4 “ITU-T D.263 – Supplement on Principles for increased adoption and use of mobile financial services (MFSs) through effective consumer protection mechanisms”. * SG11 agreed a technical report on SS7 vulnerabilities and mitigation measures for digital financial services transactions based on the report from FIGI Security Infrastructure and Trust Working Group. SG11 approved ITU-T Q.3057 “Signalling requirements and architecture for interconnection between trustable network entities” and agreed a new Technical Report QSTR-USSD “Low resource requirement, quantum resistant, encryption of USSD messages for use in financial services”. SG11 is developing Q.Pro-Trust “Signalling procedures and protocols for enabling interconnection between trustable network entities in support of existing and emerging networks”. * SG12 approved Recommendations ITU-T G.1033 “Quality of service and quality of experience aspects of digital financial services” (based on FG DFS outputs) and ITU-T P.1502 “Methodology for QoE testing of digital financial services” (based on FIGI Security, Infrastructure and Trust Working Group outputs). A dedicated Question to study perceptual and field assessment principles for QoS and QoE of DFS (Question 20/12) was created in January 2021. * SG13 has 9 ongoing work items on Big Data, approved ITU-T Y.3602 on data provenance, ITU-T Y.3650 “Framework of big data driven networking”, ITU-T Y.3603 “Big data - Requirements and conceptual model of metadata for data catalogue”, Y.3604 “Big data - Overview and requirements for data preservation”, ITU-T Y.3605 “Big data - Reference architecture”, Y.3606 “Big data – Deep packet inspection mechanism for big data in network”. Focus Group ML5G looked after the machine learning algorithms and data formats. Also, SG13 published Y.3600-series Supplement 40 "Big Data Standardisation Roadmap” which will be revised in 2022: <https://www.itu.int/rec/T-REC-Y.Sup40/en> Since summer 2018 SG13 has been working on quantum key distribution network that resulted in approval of the first seven Recommendations, including the basic one, ITU-T Y.3800 “Overview on networks supporting quantum key distribution” in October 2019. SG13 maintains the standardization roadmap on QKDN as draft Supplement on its work programme. * SG16 started in January 2017 a new work item on the use of blockchain for multimedia systems and applications. SG16 continues work on [F.HFS-BC](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=14770) - Requirements and framework for blockchain-based human factor service models. The new [Question 22/16](http://itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/q22.aspx) on Distributed ledger technologies (DLT) and e-services continues part of the work of the now closed [ITU-T Focus Group on distributed ledger technologies](https://www.itu.int/en/ITU-T/focusgroups/dlt/Pages/default.aspx). DLT are building blocks to many verticals, there included digital financial services, in particular when a trusted third party is not involved. Topics of interest for DFS that are being studied by Q22/16 include digital evidence services, digital invoices and smart contracts.   + Two technical papers and three ITU-T Recommendations have been approved:   + [ITU-T HSTP.DLT-UC](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16354): Distributed ledger technologies: Use cases   + [ITU-T HSTP.DLT-RF](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16353): Distributed ledger technology: Regulatory framework   + [ITU-T F.751.0 (ex F.DLS)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14071): Requirements for distributed ledger systems   + [ITU-T F.751.1 (ex F.DLT-AC)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14705): Assessment criteria for distributed ledger technology (DLT) platforms   + [ITU-T F.751.2 (ex H.DLT)](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14706): Reference framework for distributed ledger technologies   The following work items are now being further developed:   * + [ITU-T F.DLT-FIN](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16656): Financial distributed ledger technology application guideline   + [ITU-T H.DLT-DE](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=15071): Digital evidence services based on distributed ledger technologies   + [ITU-T H.DLT-GTI](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16653): DLT governance and technical interoperability framework   + [ITU-T H.DLT-INV](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16367): General framework of DLT-based invoices   + [ITU-T H.DLT-TFR](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16368): Technical framework for DLT regulation   + [ITU-T H.DLT-VERI](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16366): Formal verification framework for smart contract   + [ITU-T HSTP.DLT-Risk](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=16658): DLT-based application development risks and their mitigations   Updated information can be found at: <https://itu.int/ITU-T/workprog/wp_search.aspx?sg=16&q=22>.   * The technical reports on security for digital financial services (DFS) and Distributed Ledger Technologies for DFS from the Focus Group Digital Financial Services were presented at the SG17 meeting in March 2017. * ITU-T SG17 has developed Recommendation ITU-T X.1149 *Security framework of open platform for FinTech services*, ITU-T X.1405 *Security threats and requirements for digital payment services based on distributed ledger technology* and is working on X.saf-dfs *Security assurance framework for digital financial services*, X.srscm-dlt *Security Requirements for Smart Contract Management based on the distributed ledger technology*. * SG20 has approved the following Recommendations:   + ITU-T Y.4118 on “Internet of things requirements and technical capabilities for support of accounting and charging” provides accounting and charging requirements for IoT as well as an IoT accounting and charging technical capability framework, in order to assist in the standardization of accounting and charging technical mechanisms for IoT and to facilitate the development of the IoT market. The Recommendation focuses on the network layer capabilities and service support and application support layer capabilities, as well as business use cases applied to IoT.   + ITU-T Y.4114 on specific requirements and capabilities of the IoT for Big Data. This Recommendation complements the developments on common requirements of the IoT [ITU-T Y.2066] and functional framework of the IoT [ITU-T Y.2068] in terms of the specific requirements and capabilities that the IoT is expected to support in order to address the challenges related to Big Data. It also constitutes a basis for further standardization work (e.g. functional entities, APIs and protocols) concerning Big Data in the IoT.   + ITU-T Y.4120 “Requirements of Internet of things applications for smart retail stores”. Retail stores are one of the important application fields of the Internet of Things (IoT). The usage of the IoT enables “smart retail stores”. The IoT can enable a safe and efficient retail store management system for non-stop operation (24 hours / 365 days): the collection and monitoring in real time of information related to the various kinds of equipment in stores may allow early detection of equipment failure and accurate prediction of equipment problems. This Recommendation provides requirements of IoT applications for smart retail stores.   + ITU-T Y.4805 on "Identifier service requirements for the interoperability of Smart City applications" explores the set of requirements for identifier services used in Smart City. An identifier service for Smart City must be scalable and secure, and not only promote interoperability among different Smart City applications, but also compatible with any existing practices in the application domain.   + ITU-T Y.4200 on "Requirements for interoperability of smart city platforms". This Recommendation defines the requirements for interoperability of a smart city platform (SCP) and reference points in order to ensure the correct functioning of the city services.   + ITU-T Y.4459 on “Digital entity architecture framework for IoT interoperability” introduces digital entity architecture and its prospective in addressing interoperability and security among IoT applications.   + ITU-T Y.4476 on “OID-based resolution framework for transaction of distributed ledger assigned to IoT resources” specifies a resolution framework for the transactions of a distributed ledger assigned to IoT resources. This Recommendation describes the concepts, functional requirements, architecture and procedures of an OID-based resolution framework by using DLT. | | | |
| **89-02** | **ITU-T Study Groups to encourage collaboration between telecommunication regulators and financial services authorities to develop and implement standards and guidelines;**  **and to coordinate and collaborate with other relevant SDOs and institutions with primary responsibility for financial services standards development, implementation and capacity-building, and with other groups within ITU (resolves 3, i. SGs 2)** | **Ongoing** | **√** |  |
| SG3 continues its work on this topic (ref. work item D.MFScoop).  SG9 is organizing a series of workshops on the future of TV in the various regions of the ITU. A session on regulatory and policy aspects is always organized where regulators are invited to speak and discuss on urgent related-issues requiring attention in their region.  SG11 organized a “Brainstorming session on SS7 vulnerabilities and the impact on different industries including digital financial services” (Geneva, 22 October 2019). On 29 November 2021, SG11 in close collaboration with SG2 and SG17 organized ITU Workshop on “Improving the security of signalling protocols” which among other issues, focused on the certificate-based signalling solution defined in ITU-T Q.3057 as a potential approach which may help financial institutions to build trustable connection with their customers.  SG12 workshops address QoS and QoE matters related to digital financial services.  The FIGI Security Infrastructure and Trust WG led by TSB set up a FIDO authentication server which can be used by developers for testing their applications and a Security Lab that can be used to test for vulnerabilities of DFS applications based on USSD, STK and Android. | | | |
| **89-03** | **ITU-T Study Groups to encourage the use of innovative digital tools and technologies, as appropriate, to advance financial inclusion (resolves 4)** | **Ongoing** | **√** |  |
| SG12: see 89-01 and 89-02 | | | |
| **89-04** | **TSB Director to report on progress on the implementation of this resolution annually to the Council, and to the 2020 world telecommunication standardization assembly (i. TSBDir 1)** | **Council 2021**  **WTSA-20** | **√** | **√** |
| A report (see [C17/68](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0068)) has been sent to Council 2017 on the outputs of the ITU-T Focus Group Digital Financial Services and the activities planned for the next phase of digital financial services (DFS). See also C19/35 Annex 1. A report (in [C20/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0035)) was sent to Council 2020 on the activities under Financial Inclusion Global Initiative (FIGI) and the standardization activities in the ITU-T Study Groups and Focus Groups related to digital financial services for the period 2019/20.  Resolution 89 (Hammamet, 2016) on “Promoting the use of information and communication technologies to bridge the financial inclusion gap” instructs the TSB Director to report on progress on the implementation of this resolution to the 2020 WTSA.   1. **Background**   Pursuant to WTSA-16 [Resolution 89](https://www.itu.int/dms_pub/itu-t/opb/res/T-RES-T.89-2016-PDF-E.pdf), ITU has implemented a number of activities aimed at enhancing the use of ICTs in bridging the financial inclusion gap through the following:   1. The Financial Inclusion Global Initiative (FIGI) programme 2. The ITU-T Study Groups and Focus Groups work programme (more details can be found in WTSA-16 Action Plan 89-01 and 89-05). 3. The DFS Security Lab established as part of the activities under FIGI to promote the recommendations on security best practices for digital finance and vulnerability testing in mobile payment applications as well as encourage collaboration among telecon and financial services regulators on security for digital financial services. 4. Organisation of webinars on digital financial services (More information can be found in WTSA Action Plan 89-07) 5. Digital Currency Global Initiative. 6. **Financial Inclusion Global Initiative (FIGI)**   FIGI was established in 2017 as a collective action to advance research in digital finance and accelerate digital financial inclusion in developing countries. FIGI 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 funded national implementations in three countries, namely China, Egypt and Mexico, and established 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 to support the country implementation.  ITU implemented the following activities under FIGI umbrella between 2017 - 2021:   * ITU held three FIGI Symposia attended **by over 2000 participants from 148+ countries** in 2017, 2019 and 2021. The three FIGI Symposium helped exchange knowledge, insights and lessons learned gathered by FIGI’s working groups, country implementation programs and related stakeholders to understand ‘what works’ for scaling up digital financial services and fostering financial inclusion globally. FIGI Symposia included representation from regulators, industry leaders, digital financial services providers and international partners across the financial and ICT sectors and focused on dialogue. More information about the three FIGI Symposia can be found in WTSA Action Plan 89-07. * The FIGI SIT Working Group led by ITU produced 16 technical reports around areas such as infrastructure security, strong authentication, quality of service, addressing fraud, protection of consumer data and privacy, and securing mobile payment applications. These reports were disseminated to the ITU-T Study Groups 3, 11, 12 and 17 for incorporation in their standardization work and led to new work items, technical reports and ITU-T Recommendations (See WTSA Action Plan 89-05 for more details). * Setting up of the DFS Security Lab at the ITU to conduct security tests on mobile payment applications and to promote the security recommendations from FIGI at level of emerging economies. * FIGI Security Clinics were held on 4-5 December 2019 in Geneva and in November 2020 as online events for Mexico and Egypt to disseminate the recommendations of the FIGI SIT WG (For more information about the Security Clinics please refer to WTSA Action Plan 89-07).  1. **DFS Security Lab**   When it comes to security of mobile payment applications for both those based on USSD or STK and those operating on smartphones and based on Android or iOS, it was observed that there is not a common approach for regulators, developers and DFS providers to test DFS mobile apps in a complex mobile ecosystem in order to verify the level of assurance on security with regards to systemic vulnerabilities. The DFS Security Lab aims to address this issue.  The DFS Security Lab adopts the OWASP Mobile Top 10 Security risks methodology to conduct security testing of mobile payment applications operating on USSD, STK and Android environments and provide guidance to DFS regulators on adopting security best practices for managing security risks to DFS applications and the telecommunications infrastructure. The DFS Security Lab is collaborating with DFS regulators (both telecom and Central Banks) in emerging economies to provide guidance on implementation of the security recommendations from FIGI and conduct security tests on mobile payment applications.  The DFS Security Lab services are as follows:   1. Conduct security tests on mobile payment applications operating on USSD, STK and Android using the OWASP Mobile Top 10 Security Risks. 2. Support regulators to implement [DFS security recommendations](https://figi.itu.int/working-group-reports/) from FIGI. 3. Provide guidance on managing the DFS ecosystem security risks and mitigation measures. 4. Provide developer resources for implementing FIDO authentication using the Lab FIDO authentication server; 5. Organize security clinics targeting DFS regulators and providers to stay up to date with new vulnerabilities and mitigation measures and for guidance on implementation of the security recommendations from FIGI;   In 2021, the Security Lab conducted online security clinics for the following countries: Nigeria, Uganda, Eswatini, Tunisia, Zimbabwe and Malawi.   1. **Standardization Activities in ITU-T Study Groups and Focus Groups related to DFS**   ITU-T Study Groups 3, 11, 12, 16, 17 and 20 developed technical reports and ITU-T Recommendations related to digital financial services (see WTSA action Plan 89-01 and 89-05 for more details). The 28 technical reports from Focus Group Digital Financial Services were submitted to all Study Groups for incorporation in their standardization activities. A number of these reports were adopted as technical reports in ITU-T SG 3. The reports from FIGI SIT working groups were also transferred to ITU-T SG3, 11, 12 and 17.   1. **Digital Currency Global Initiative**   The [Digital Currency Global Initiative](https://www.itu.int/en/ITU-T/extcoop/dcgi/Pages/default.aspx) (DCGI) is a collaboration between ITU and Future of Digital Currency Initiative of Stanford University and was established in July 2020. Its main objectives are to:   * 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, technology trends in digital currency and the use cases related to financial inclusion, operational efficiency and interoperability; * 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 Digital Currency Global Initiative brings together Central Banks, digital currency platform providers, payment service providers, fintech companies and academia and provides a platform to share the latest findings on implementation of central bank digital currencies, stablecoins, and cryptocurrencies and related use cases. More details about the Digital Currency Global Initiative can be found in WTSA Action Plan 89-06.   1. **Summary**   A number of activities were successfully implemented under the FIGI programme and in the standardization work in the Study Groups and Focus Groups for WTSA-16 Resolution 89 to bridge the financial inclusion gap. The reports from FIGI SIT WG provided additional inputs to the standardization work of ITU-T Study Groups for DFS. In addition, the DFS Security Lab established under FIGI will enable dissemination of the security recommendations and best practices for security of mobile payment applications (from ITU-T SG 17) at level of emerging economies and also provide a platform for DFS regulators in emerging economies to address cybersecurity risks for digital finance. It is expected that the ongoing collaboration with the Gates Foundation on digital financial services post FIGI as well as the Digital Currency Global Initiative with Future of Digital Currency at Stanford University exploring the applications of digital currencies would lead to further inputs to the standardization work of ITU-T Study Groups on digital financial services. | | | |
| **89-05** | **TSB Director to support the development of reports and best practices on digital financial inclusion, taking into consideration relevant studies, where clearly within the mandate of the Union and not duplicative of work for which other SDOs and institutions are responsible (i. TSBDir 2)** | **Ongoing** | **√** |  |
| The outputs of the Focus Group were published in March 2017 (See [TSAG-TD36](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0036)). The Focus Group produced a series of 28 technical reports:   1. DFS Ecosystem (12 technical reports) 2. Interoperability (5 technical reports) 3. Consumer protection (3 technical reports) 4. Technology, Innovation and Competition (7 technical reports) 5. Main Recommendations.   SG3 agreed nine reports of the Focus Group on Digital Financial Services (FG-DFS) to be published as SG3 Technical Reports. SG3 developed a technical report on the glossary for digital financial services. [Recommendation ITU-T G.1033](https://www.itu.int/rec/T-REC-G.1033-201910-I/en) from ITU-T SG 12 highlights important aspects related to quality of service (QoS) and quality of experience (QoE) that require consideration in the context of digital financial services and was based on the QoS KPIs reports from the FG DFS.  The outputs of ITU-T Focus Group Digital Currency including Digital Fiat Currency, were published in September 2019 (see [TSAG TD 476](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-190923-TD-GEN-0476)). The focus group produced seven technical reports under three themes:   1. Regulatory Requirements and Economic Impact of Central Bank Digital Currency (three technical reports). 2. Reference Architecture Options and Digital Currency Use Cases (two technical reports). 3. Security (two technical reports).   The reports of the Focus Group have been forwarded by TSAG to ITU-T Study Groups 16 and 17 for integration in their standardization work.  The FIGI Security, Infrastructure, and Trust Working Group led by TSB held four face-to-face meetings in 2018 and 2019 and 35 e-meetings between 2018 - 2021. FIGI SIT WG finalized the following 16 technical reports and resources between 2019 and 2021 (which are available for download on the [FIGI website](https://figi.itu.int/figi-resources/working-groups/):   1. Unlicensed digital investment schemes, 2. Security aspects of Distributed Ledger Technologies (DLT), 3. Mitigating SS7 Security Vulnerabilities, 4. Methodology for measurement of KPIs for QoS for DFS, 5. Big Data, Machine learning, Consumer protection and privacy , 6. DFS Security Assurance Framework, 7. DFS Security audit guidelines, 8. Implementing secure authentication technologies for DFS and 9. Developer resources for implementation of FIDO Universal Authentication Framework (UAF) in DFS. 10. [Security testing of DFS applications operating in USSD and STK environments.](https://www.itu.int/en/ITU-T/extcoop/figisymposium/Documents/20-00383%20Security%20testing%20for%20USSD%20and%20STK%20based%20Digital%20Financial%20Services%20applications.pdf) 11. Security analysis of KaiOS feature phone platform for DFS 12. [Methodology for measurement of Quality of Service parameters for interoperability and cross border mobile money payment use cases](https://www.itu.int/en/ITU-T/extcoop/figisymposium/Documents/Methodology%20for%20inter-operator%20and%20cross-border%20P2P%20money%20transfers.pdf) 13. [DFS Consumer Competency Framework.](https://www.itu.int/en/ITU-T/extcoop/figisymposium/Documents/20-00382_Consumer%20Competency%20Framework.pdf) 14. eKYC use cases for digital financial services 15. [Security Audit of DFS applications under Android](https://figi.itu.int/wp-content/uploads/2021/05/Security-audit-of-various-DFS-applications.pdf) 16. [Use of telecom data](https://www.itu.int/pub/T-TUT-DFS-2021-5) for digital financial inclusion   In emerging economies, USSD and STK are most common platform for digital financial services applications although Android DFS apps are gaining popularity as smartphone ownership rises. Enhancing security of digital finance applications and cyber-resilience is a critical part of a country’s development strategy as it promotes financial inclusion through digital financial services. In November 2020, the [DFS Security Lab](https://figi.itu.int/figi-resources/dfs-security-lab/) was established in ITU to support regulators to implement DFS security recommendations from FIGI, provide a standard methodology for regulators and DFS providers to conduct security tests on mobile payment applications (i.e., USSD, STK and Android DFS applications) to check for systemic vulnerabilities, and provide guidance on managing the DFS ecosystem security risks and mitigation measures.  The methodology for measurement of KPIs for QoS for DFS was submitted to ITU-T Study Group 12 and was subsequently approved as an ITU-T Recommendation in December 2019. The report Mitigating SS7 Security Vulnerabilities was submitted to ITU-T Study Group 11 and led to the creation of a work item on this topic.  The reports from FIGI SIT WG on *DLT Security*, *DFS Security Assurance Framework*, *Security Audit Guidelines*, *eKYC use cases for DFS* and *Implementing secure authentication technologies*, [*Security Audit of DFS applications under Android*](https://figi.itu.int/wp-content/uploads/2021/05/Security-audit-of-various-DFS-applications.pdf) and *Security testing of DFS applications operating in USSD and STK environments* were transferred to ITU-T Study Group 17 where they will be incorporated as technical reports in the standards being developed by the Study Group.  The reports on *DFS Consumer Competency Framework* and *Big data, Machine Learning, Consumer Protection and Privacy,* were transferred to ITU-T Study Group 3 in 2020. | | | |
| **89-06** | **TSB Director to establish a platform or, where possible, connect to those already existing, for peer learning, dialogue and experience-sharing in digital financial services among countries and regions, regulators from telecommunication and financial services sectors, industry experts and international and regional organizations (i. TSBDir 3)** | **Ongoing** | **√** |  |
| A new global programme to advance research in digital finance and accelerate digital financial inclusion in developing countries, the Financial Inclusion Global Initiative (FIGI), was launched in July 2017 by the World Bank Group, the International Telecommunication Union (ITU) and the Committee on Payments and Market Infrastructures (CPMI) of the Bank for International Settlements, with support from the Bill & Melinda Gates Foundation (see text of full press release). FIGI is an outcome of the work that was carried out in the ITU-T Focus Group Digital Financial Services (FG DFS) (which concluded in December 2016). FIGI programme has been completed in September 2021.  The main objective of FIGI was to deliver implementation solutions and work towards accelerating the implementation of country-led reform actions to meet national financial inclusion targets and the goal of Universal Financial Access by 2020.  FIGI has enabled national authorities in developing and emerging markets to better utilize the potential of digital technologies for financial inclusion, and to manage associated risks. The design of country programs will be informed by the PAFI framework and guiding principles, which were developed by a task force of financial regulators chaired by the World Bank and CPMI, by the recommendations of the ITU-T Focus Group on Digital Financial Services, and by the BMGF’s Level One Project principles.  In particular, FIGI had three main components:  1. Accelerate implementation of financial inclusion strategies in three countries (country implementation), namely: China, Egypt and Mexico. This activity is led by the World Bank with collaboration from the Development Bureau (BDT).  2. Established three working groups to tackle three sets of outstanding challenges for reaching universal financial access: (a) electronic payment acceptance, (b) digital ID for financial services, and (c) security, infrastructure and trust. The Standardization Bureau, ITU leads the Security, Infrastructure and Trust Working Group, whilst the other two working groups are led by the World Bank.  3. The annual FIGI Symposium was organised by TSB and acted as a common platform that brings together regulatory bodies of the telecom and financial sectors, standards organizations, national authorities, the private sector, DFS operators and the Fintech community on relevant topics and to share emerging insights from the working groups and country programs.  FIGI Working Groups developed knowledge, technical reports, guidelines, and policy recommendations on the following three areas: Security, Infrastructure and Trust; Digital ID for Financial Services; and Electronic Payments Acceptance. Each working group held two face to face meetings in 2017 and several e-meetings.  The Security, Infrastructure and Trust (SIT) Working Group was led by TSB and it brought together telecom regulators, Central Banks and DFS providers to discuss the important security challenges and emerging issues facing digital financial services provision. Its main objective is to identify effective mitigation strategies and measures to address the changing threats and vulnerabilities landscape in the DFS ecosystem in order to preserve confidentiality of information, integrity of transactions and availability of the service. The working group studied the following DFS security challenges that were outlined in the report on Security aspects for DFS (from the ITU-T Focus Group Digital Financial Services) more in depth: communications infrastructure vulnerabilities (e.g. USSD security, man in the middle attacks etc), application security for DFS, interoperable authentication technologies, security of distributed ledger technologies and use cases for financial inclusion, methodology to measure the quality of service KPIs for DFS and protect data privacy and integrity of consumer data and transactions. The SIT working group also included a workstream on Cybersecurity for Financial Institutions coordinated by the World Bank to support financial sector authorities to better understand the threats, targets, risks and impacts of cyberattacks, and to deploy adequate tools to increase cybersecurity. ITU-T Study Groups 3, 11, 12 and 17 are involved in the activities of the Security, Infrastructure and Trust working group. The outputs of this working group were disseminated to ITU-T Study Groups 3, 11, 12 and 17.  TSAG created a new [ITU-T Focus Group on Digital Currency including Digital Fiat Currency](https://www.itu.int/en/ITU-T/focusgroups/dfc/Pages/default.aspx)' (FG DFC) to investigate the emerging questions of how best to standardize and regulate the interoperability and security aspects of digital fiat currency. The group held its first meeting on 12-13 October 2017 in Beijing, China. At the first meeting of the Focus Group, three working groups were established: Regulatory requirements and economic impact; Ecosystem and Reference Architecture; and Security. The Focus Group worked in close cooperation with ITU-T Study Groups as well as other bodies in the field of digital currency, such as [ISO/TC68/SC2](https://www.iso.org/committee/49670.html), [ISO/TC68/SC8](https://www.iso.org/committee/6534796.html) and [ISO/TC307](https://www.iso.org/committee/6266604.html). The [Focus Group Digital Currency including Digital Fiat Currency](https://www.itu.int/en/ITU-T/focusgroups/dfc/Pages/default.aspx) (FG DFC) completed its work in June 2019.  The Focus Group produced seven technical reports under three themes:   * Regulatory Requirements and Economic Impact of Central Bank Digital Currency (three technical reports). * Reference Architecture Options and Digital Currency Use Cases (two technical reports). * Security (two technical reports).   The reports were endorsed by TSAG at its meeting in September 2019 and the reports were submitted to Study Groups 16 and 17 as inputs for their standardization work.  ITU has created a unique platform at the ITU Telecom World events (2017, 2018, 2019) bringing together artificial intelligence as a key enabler of smart and emerging applications in digital financial services and urban living – smart banking and smart cities. The TSB Director organized the Smart ABC programme to address the technological developments in artificial intelligence, digital financial services and smart cities making innovative use of ICTs to improve quality of life, efficiency of services, productivity and competitiveness.  The third edition of the Smart ABC Programme was held at ITU Telecom World 2019, the leading tech event for governments, corporates and SMEs taking place in Budapest, Hungary, 9-12 September 2019. Digital Currency Global Initiative The [Digital Currency Global Initiative](https://www.itu.int/en/ITU-T/extcoop/dcgi/Pages/default.aspx) (DCGI) is a collaboration between ITU and Future of Digital Currency Initiative of Stanford University. Its main objectives are to:   * 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, technology trends in digital currency and the use cases related to financial inclusion, operational efficiency and interoperability; * 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 DCGI will continue the dialogue and research initiated by the ITU Focus Group  on Digital Currency including Digital Fiat Currency on pilot implementations, use cases, applications and developing specifications for technical standards that will foster adoption, universal access, and ultimately financial inclusion. Participation in the Digital Currency Global Initiative is open to everyone.  The first e-meeting of the Digital Currency Global Initiative was held on 22-23 July 2020 and some 157 participants from 40 countries participated in the event. The participants include Central Banks, digital currency platform providers, fintech companies, payment service providers, academia and international organizations.  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 main objectives of the Innovative Use pillar will be to study pilot implementations of digital currencies and to develop the appropriate benchmarking and evaluation frameworks through the Digital Currency Lab to be set up by Stanford University. Under the Engagement pillar the objective will be to provide a platform for sharing lessons learned on digital currency projects and organise an annual conference (DC3 Conference – From cryptocurrencies to CBDCs) to disseminate the findings of the working groups and the digital currency lab. The DC3 Conference – From cryptocurrencies to CBDCs will be held online from 25-27 January 2022. | | | |
| **89-07** | **TSB Director to organize workshops and seminars for the ITU membership in collaboration with other relevant SDOs and institutions with primary responsibility for financial services standards development, implementation and capacity building, in order to raise awareness and identify regulators' particular needs and challenges in enhancing financial inclusion (i. TSBDir 4)** | **Ongoing** | **√** |  |
| TSB organised a workshop on Digital Financial Services and Financial Inclusion on 19 April 2017, hosted by the World Bank in Washington D.C. The objective of the workshop was to present the findings of the Focus Group Digital Financial Services and to provide more information on the work to be undertaken as a follow up to the Focus Group activities. Under the Financial Inclusion Global Initiative, TSB will be holding a Symposia in November 2017 to showcase DFS solutions and to share lessons learned from stakeholders under various themes.  The first [FIGI Symposium](https://www.itu.int/en/ITU-T/extcoop/figisymposium/2017/Pages/default.aspx) was organized by ITU on 29 November – 1 December 2017 in Bangalore, India and hosted by the Ministry of Communications, India. Three annual FIGI Symposium are planned between 2017-2020 in order to provide a forum for dialogue between regulators from telecom and financial services, DFS providers and all concerned stakeholders, and to share their experience and views on the main challenges to be addressed for scaling up DFS. The main objectives of the Symposium were to:   * + - * Provide a unique platform for regulators, policymakers and DFS experts to share lessons learned about the different digital financial models and services, the regulatory sandbox; * approach, ways to mitigate risks in fast changing ICT and digital payment environments, and the impact of emerging technologies on the ecosystem;   + - * Showcase digital financial inclusion initiatives and innovations taking place at the international level; and       * Provide thought leadership on digital financial inclusion strategies and technological innovations in the area of DFS.   Some 289 participants from different regions participated in the Symposium held in India. The event was opened by the Minister of Communications, India. The event had a broad profile in terms of participants from different areas of expertise in DFS such as policymakers, financial sector regulators, telecom regulators, payment service providers, Fintechs, mobile network operators, banks, DFS providers, and academia.  An [ITU Workshop on Standards for Digital Fiat Currency for Universal Financial Access](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/dfc/201710/Pages/default.aspx) was held on 12 October 2017 preceding the first meeting of the Focus Group Digital Currency including Digital Fiat Currency (FG DFC). The workshop provided a broad overview of the challenges that central bank issued digital currency poses to regulators and more specifically with regards to regulatory issues, interoperability with other payment systems, architecture components that are needed for deploying central bank issued digital currency and security of transactions.  [**Financial Inclusion Global Initiative (FIGI) Symposium**](https://www.itu.int/en/ITU-T/extcoop/figisymposium/2019/Pages/default.aspx), Cairo, Egypt, 21-24 January 2019. The [FIGI Symposium](https://www.itu.int/en/ITU-T/extcoop/figisymposium/2019/Pages/default.aspx) 2019 and [Hackathon](https://www.itu.int/en/ITU-T/extcoop/figisymposium/2019/Pages/hackathon.aspx) were held on 21-24 January 2019, in Cairo, Egypt. The event attracted some 289 participants from Central Banks, telecom regulators, DFS providers, payment service providers and fintech companies. Most participants were from developing countries. The theme of the second edition of the FIGI Symposium, was **Enabling an Inclusive DFS Ecosystem: National and Thematic Insights**. The Symposium sessions provided insights into national implementations of digital financial services in FIGI pilot countries, Egypt, China, and Mexico and provided a platform for countries to share lessons learned on digital financial inclusion. Throughout three days of workshops, discussion panels and capacity building sessions, the Symposium highlighted the innovative role that financial services and ICT regulators and private enterprises can each bring to enhance financial inclusion efforts and to achieve the United Nations Sustainable Development Goals to reduce poverty and promote gender equality in financial inclusion. The Symposium also offered a unique networking opportunity with the different stakeholders and players in the DFS ecosystem.  The Symposium was preceded by a Hackathon which saw the participation of 55 participants from Egypt. The FIGI Hackathon proposed actions to encourage the emergence of a marketplace for open APIs enabling small merchants to adopt e-payment services at low cost. It was an opportunity for local start-ups to show their skills and expertise in developing ICT solutions for bridging the financial inclusion gap. 350 app developers applied to enter the competition. 55 developers (13 teams), all from Egypt, were shortlisted. These 55 developers worked with open APIs (Application Programming Interfaces) offered by 8 technology partners to develop apps with potential to incentivize electronic payment. The technology partners for the APIs were: GSMA, Paysky, InSwitch, Orange, PayFort, Accept, Fawry and CIB.  The teams made their pitching in front of a jury panel of 10 experts in app development and financial inclusion and four apps were shortlisted as potential winners. Apps were judged on their degree of innovation, quality of user experience, feasibility and scalability. Three winning teams were awarded 11’000 USD worth of prize. A Facebook live session was conducted during the Hackathon by Mr Fred Werner and his team and this received over 1.1K views. A [digital media toolkit](https://trello.com/b/nkUZjYO4/figi-symposium-digital-media-kit) gathering all communication materials, video interviews and news articles can be accessed for further information. The next edition of the FIGI Symposium will take place in June 2021 (it was initially planned in 2020 but has been moved to 2021 due to the threat of the coronavirus).  The [FIGI Symposium 2021](https://figi.itu.int/) took place over six weeks as a virtual event from 18 May- 24 June 2021 (every Tuesday and Thursday). The online event was very well attended - more than **1,782** unique attendees from 148 countries (including 132 developing and LDC countries) for the six week period. The Opening Ceremony with Queen Maxima, UNSGSA video keynote attracted the highest number of online participants: **468**. The FIGI Symposium website generated more than **110K views** from users coming from more than **180 different countries.** In comparison, the physical editions of the Symposium in 2017 in India and 2019 in Egypt, had 284 and 305 participants respectively. The virtual edition was able to reach more participants and with the recordings made available after the event and online promotion, a significant number of people were able to view the sessions if they missed it. The viewing of the recorded sessions (Zoom replay and YouTube) helped increase the reach of the virtual event, threefold, with some 5,312 views. The online event also attracted participation from more women compared to 2017 and 2019, **428 female participants attended** in 2021, compared to 100 in 2019, and 54 in 2017.  The FIGI Symposium 2021 agenda included various sessions [across six core FIGI themes](https://figi.itu.int/programme/#list-view):   * [FinTech for Financial Inclusion](https://figi.itu.int/event/fintech-for-inclusion/) covering *remittances, new approaches to regulating FinTech, deep dives on regulating digital payments and open banking*, as well as a showcase of *China’s approach towards financial inclusion*; * [Protecting Consumers](https://figi.itu.int/event/protecting-consumers/) covering consumer risks to *FinTech, technologies for complaints handling, and technologies for Supervision*; * [Cybersecurity and Trust](https://figi.itu.int/event/cybersecurity-and-trust/) including an *IMF– World Bank Cyber-resilience event* among other sessions around *data privacy, security of DFS applications and related security audits, and measuring quality of service*; * [Gender Equity](https://figi.itu.int/event/gender-equity/) including approaches to increase *women’s representation in digital finance* and implications of *financial capability for female consumers*; * [Digital ID](https://figi.itu.int/event/digital-id/) covering policy guidance to promote *digital ID, authentication and e-KYC*; and * [Payments Acceptance](https://figi.itu.int/event/electronic-payments-acceptance/) covering the regulation of *intermediaries for electronic payments* as well as applying new *tools* to conduct diagnostics, identify innovations, incentives and reforms applicable for a particular market.   A [FIGI Security Clinic](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201912/Pages/default.aspx) was held on 4-5 December 2019 at ITU Headquarters to present the outputs of the FIGI Security, Infrastructure and Trust (SIT) Working Group and provide some deep dive sessions on the implementation of the findings from the working group reports. Over 80 participants, mainly IT Security professionals, attended the event.  The first day sessions focused on the presentations of the reports of the Security, Infrastructure and Trust Working Group. The second day of the event consisted of a series of security clinics targeting mainly those who are actively involved in technical security implementation in the area of digital financial services. Some of the topics of the deep dive sessions on the second day of the event were:   * Implementation of decentralised ID for DFS; * Tracking digital Ponzi schemes; * Implementation of Fast Identity Online (FIDO) Universal Authentication Framework (based on [Recommendation ITU-T X.1277](https://www.itu.int/rec/T-REC-X.1277-201811-I)) for DFS; and * Guidelines for Android Digital Financial Services application security testing.   TSB organised the [Insights on DFS webinar series](https://www.itu.int/en/ITU-T/webinars/Pages/dfs.aspx) focusing on digital financial services with the objective of providing insights on the innovative applications of telecommunications services, digital payments and fintech in addressing COVID-19 triggered social distancing and lockdown and share lessons learned from governments and DFS stakeholders on the measures that they are implementing. Ten webinars were held between May and July 2020 attracting over 870 participants from 105 countries. The webinars focused on topics such as digital identity, strong authentication technologies, security of digital financial transactions, handling fraud and scams, digital credit technologies and central bank digital currency. | | | |

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# Resolution 90 - Open source in the ITU Telecommunication Standardization Sector

**Resolution 90**

resolves

that the Telecommunication Standardization Advisory Group (TSAG) continue to work on the benefits and disadvantages of the implementation of open-source projects in relation with the work of the ITU Telecommunication Standardization Sector (ITU-T), as appropriate,

instructs all applicable study groups of the ITU Telecommunication Standardization Sector, within available financial resources

1 to provide inputs to TSAG enquiries on open source as listed in TSAG Report 8, July 2016;

2 to consider output from TSAG on open source, in order to study the value of using open source to develop reference implementations of ITU-T Recommendations, as appropriate;

3 considering the output of the studies under instructs 2 above, to continue using open source as appropriate;

4 to support the use of open-source projects in their work, as appropriate, taking into account the outcome of the TSAG study;

5 to continue engaging with open-source projects,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide open source related training (e.g. tutorials, seminars, workshops) to ITU-T participants, in collaboration with open-source communities and the Telecommunication Development Bureau, taking into account the ITU-T objective to bridge the standardization gap and digital gender gap and the budgetary constraints of the Union;

2 to submit a report to TSAG annually on progress achieved in implementing this resolution,

instructs the Telecommunication Standardization Advisory Group

to continue fulfilling of the outcomes of TSAG Report 8 concerning open source,

invites the ITU Council Working Group on financial and human resources

to evaluate any potential financial implications for the Union of implementing this resolution,

invites the ITU membership

to contribute to the implementation of this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **90-01** | **TSAG continue to work on the benefits and disadvantages of the implementation of open-source projects in relation with the work of the ITU Telecommunication Standardization Sector (ITU-T), as appropriate and to continue fulfilling of the outcomes of TSAG Report 8 concerning open source (resolves, i. TSAG)** | **TSAG meetings** | **√** | **√** |
| TSAG RG-SC is studying the subject of open source and sent a liaison statement [LS004](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00004.docx) to all ITU-T study groups requesting information on activities related to open source as directed by Resolution 90, and specifically in response to a questionnaire.  The TSB Director’s IPR-AHG is studying IPR issues in the context of open source.  TSAG contributed in [TSAG-TD601-R1](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0601) to a survey on open-source software conducted by the ISO/IEC JTC 1/AG3 advisory working group on OSS. | | | |
| **90-02** | **All ITU-T Study Groups to provide inputs to TSAG enquiries on open source as listed in TSAG Report 8, July 2016 (i. SGs 1)** | **TSAG meetings** | **√** | **√** |
| * SG2 replied to TSAG-LS4 in [TD229](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0229). * SG5 replied to TSAG-LS4 in [TD175](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0175) informing of the possibility of developing an open source methodology to build a circular economy with reference to an ongoing work item on criteria for evaluation of the environmental impact of mobile phones. * SG9 replied to TSAG-LS4 in [TD180](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0180). * SG11 replied to TSAG-LS4 in [TD220](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0220). * SG12 replied to TSAG-LS4 in [TD202](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0202), and [TD205](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0205), reporting on ongoing open source activities. * SG13 sent a liaison statement to TSAG ([TD55](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0055https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-170501-TD-GEN-0032)) from its February 2017 meeting to report on the progress in communication to date. Demonstrations at the 11 July 2017 5G workshop dealt with the open source solutions. The flipbook with 5G Proof-of-Concepts, outcomes of the two IMT-2020 workshops, was published. * SG15 replied to TSAG-LS4 in [TD189](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0189). SG15 is using open-source software tools to translate between two different descriptive languages that are in SG15 Recommendations. * SG16 replied to TSAG-LS4 ([TD212](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0212/en)) from its Oct. 2017 meeting reporting on experiences in SG16 about open code and with a request for the preparation of some guidance material on open source licenses. * SG17 replied to TSAG-LS4 in [TD195](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0195). * SG20 replied to TSAG-LS4 in [TD200](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-TSAG-180226-TD-GEN-0200) informing that ITU-T SG20 studies IoT and Smart Cities and develops standards to support and build them. Many projects in the area of IoT and Smart Cities have been developed with open source. Collaboration between ITU-T and open source communities is a tool to achieve interoperability among IoT and smart city platforms, systems and devices. | | | |
| **90-03** | **All ITU-T Study Groups to consider output from TSAG on open source, in order to study the value of using open source to develop reference implementations of ITU-T Recommendations, as appropriate;**  **and considering the output of the studies under instructs 2 above, to continue using open source as appropriate (i. SGs 2, 3)** | **Ongoing** | **√** |  |
| * Following previous agreements in SG16 and SG12, ITU-T G.191 (software tool library) was launched in September 2017 as an open source project in GitHub. The first cycle was completed with the approval of revised Recommendation ITU-T G.191 in January 2019. * SG13: see 90-02.   SG13 at its February 2017 meeting developed a short report on its experience with open source. At October 2019 meeting it took initial steps towards exploring the commonalities and potential close collaboration with the Open Network Automation Platform on cloud computing management and service orchestration.   * SG16: See 90-2 and TSAG-LS4 ([TD212](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0212/en)). | | | |
| **90-04** | **All ITU-T Study Groups to support the use of open-source projects in their work, as appropriate, taking into account the outcome of the TSAG study;**  **and to continue engaging with open-source projects (i. SGs 4, 5)** | **Ongoing** | **√** |  |
| * SG11 Workshop on “*Control plane of IMT-2020 and emerging networks. Current issues and the way forward”* encouraged SG11 to establish collaboration with open source communities to speed up the de facto standards. SG11 describes the Device Identification, Registration and Blocking System (DIRBS) which is available as open source and it is consistent with the International Telecommunication Union's recommendations for addressing illegal and non-type approved devices in a country (ITU-T Q.5050). * SG12: Open source concepts and tools are used in the development of Recommendations to assess quality of adaptive-bitrate video streaming, and to further enhance the software tool library (Recommendation ITU-T G.191). Various open source reference implementations of Recommendations developed by SG12 are available. * SG13 see point 90-2 above. A workshop and demo day on Network 2030, 13 January 2020, Lisbon, Portugal, used the open source solutions for some demos. * SG15 (Q12 and 14/15) is collaborating with Open Networking Foundation (ONF) so that products from open source community can be used for ITU-T Recommendations. * SG15 (Q14/15) is engaging with Informal Inter-SDO Open Model Initiative (IISOMI) in the Open Source SDN [OSSDN] Eagle project. * SG16 has a number of activities on open-source software, see [TD212](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0212/en) Annex A. | | | |
| **90-05** | **TSB Director to provide open source related training (e.g. tutorials, seminars, workshops) to ITU-T participants, in collaboration with open-source communities and the Telecommunication Development Bureau, taking into account the ITU-T objective to bridge the standardization gap and digital gender gap and the budgetary constraints of the Union (i. TSBDir 1)** | **Ongoing** | **√** |  |
| A joint ITU and NGMN workshop on [Open Source and standards for 5G](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/itu-ngmn/Pages/20170111.aspx) was organized in Seattle, WA, USA, 1 Nov. 2017. More than 80 participants representing the open source community, SDOs and industry players, including the TSB Director, attended this workshop. Open source remains an important opportunity in the critical path for evolution of standards development, in order to maintain ITU-T relevance in the market place. The workshop discussed patent licensing issues in the context of "open source", the advantages of using running code to make the standardization process faster and more relevant, while IPR issues remain a concern when deploying open source code in commercial projects.  SG13: see 90-2. | | | |
| **90-06** | **TSB Director to submit a report to TSAG annually on progress achieved in implementing this resolution (i. TSBDir 2)** | **TSAG meetings** | **√** |  |
| The progress in the implementation of Resolution 90 is reported in this document. | | | |
| **90-07** | **TSB Director to invite the ITU Council Working Group on financial and human resources, to evaluate any potential financial implications for the Union of implementing this resolution.** | **Council** |  |  |
| Nothing can be reported so far. | | | |

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# Resolution 91 - Enhancing access to an electronic repository of information on numbering plans published by the ITU Telecommunication Standardization Sector

**Resolution 91**

resolves to instruct Study Group 2 of the ITU Telecommunication Standardization Sector

to study this matter on the basis of contributions received and information from TSB and to organize the necessary work in order to determine the requirements for electronic access to a repository of numbering resources reserved, assigned or allocated to each operator/service provider (to the extent available) within every country, including presentation of E.164 national numbering plans on the basis of Recommendation ITU-T E.129, and international numbering resources assigned by the Director of TSB,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide the necessary assistance for the ITU members by providing details of existing information resources relating to the presentation of national numbering plans and international numbering resources;

2 based on the results of the above-mentioned Study Group 2 studies, to organize and maintain such an electronic repository as described above, within the allocated budget,

invites Member States, Sector Members, Associates and academia

to submit, to meetings of Study Group 2 and the Telecommunication Standardization Advisory Group, contributions with a view to the organization of such an electronic repository,

invites Member States

pursuant to the relevant ITU-T Recommendations, to make available information on the presentation of their national numbering plans and amendments thereto in a timely manner, so as to ensure that the electronic repository remains up to date.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **91-01** | **ITU-T SG2 to study the matter of enhancing access to an electronic repository of information on numbering plans on the basis of contributions received and information from TSB and to organize the necessary work in order to determine the requirements for electronic access to a repository of numbering resources reserved, assigned or allocated to each operator/service provider (to the extent available) within every country, including presentation of E.164 national numbering plans on the basis of Recommendation ITU-T E.129, and international numbering resources assigned by the Director of TSB (resolves SG2)** | **Ongoing** | **√** |  |
| In the SG2 meeting of 29 March to 7 April 2017, SG2-C23 (OJSC 'Multiregional TransitTelecom', PJSC "Rostelecom") proposes a way to Enhancing access to an electronic repository of information on numbering plans published by the ITU Telecommunication Standardization Sector.  SG2 started work on a new Technical Report TR.G4Dir "Guidance for the Director TSB on the requirements for electronic access to a repository of numbering resources". | | | |
| **91-02** | **TSB Director to provide the necessary assistance for the ITU members by providing details of existing information resources relating to the presentation of national numbering plans and international numbering resources (i. TSBDir 1)** | **Ongoing** | **√** |  |
| In the SG2 meeting of 29 March to 7 April 2017, TSB introduced the status of the on-going work and provided a draft version of XML Schema Definition (XSD) for National Numbering Plans presentation (SG2-TD143/GEN). The meeting requested that a similar update be provided at the next meeting.  TSB provided an update accordingly in the SG2 meeting of 27 November to 1 December 2017 (SG2-TD233-R1/GEN), the meetings of SG2RG-AFR and SG2RG-ARB in April 2018, the SG2 meeting of 4 to 13 July 2018 (SG2-TD419/GEN), the meetings of SG2RG-AFR and SG2RG-ARB in December 2018 and the SG2 meeting of 20 to 28 February 2019 (SG2-TD631-R1).  SG2 developed a draft technical report TR.EENM “Guidelines for effective and efficient national numbering resources administration”, which was agreed at the June 2021 meeting of SG2. | | | |
| **91-03** | **TSB Director to organize and maintain such an electronic repository as described above, within the allocated budget (i. TSBDir 2)** | **Ongoing** | **√** |  |
| In autumn 2017, TSB started planning a new repository for ITU national numbering plans (NNPs) based on methodology introduced in Recommendation ITU-T E.129.  TSB has been continuing to develop this new repository for [ITU national numbering plans (NNPs)](https://www.itu.int/net4/ITU-T/nnp/). A prototype of the new repository of national numbering plans is available at: <https://www.itu.int/net4/itu-t/nnp>. The new repository is now up to date. | | | |

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# Resolution 92 - Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications

**Resolution 92**

resolves to invite the Telecommunication Standardization Advisory Group

1 to facilitate coordination of the standardization activities related to the non-radio side of IMT (especially IMT-2020) among all relevant study groups, focus groups, joint coordination activities, etc.;

2 to encourage, in cooperation with Study Group 13 and other relevant study groups, collaboration with other standards development organizations (SDOs) on a wide range of issues associated with the non-radio aspects of IMT-2020,

instructs study groups of the ITU Telecommunication Standardization Sector

1 to strengthen the cooperation and coordination on IMT (especially IMT-2020) standardization activities with a positive and double-win spirit, in order to ensure a productive and practical standard solution for the global ICT industry;

2 to promote efficiently the standardization research work on the non-radio side network technologies of IMT;

3 to be responsible for the research and annual reporting of ITU-T's standards strategy on IMT,

instructs Study Group 13

1 to maintain the roadmap of IMT standardization activities in ITU-T, which should include work items to progress standardization work related to the non-radio side of IMT, and share this with relevant groups of ITU-R and ITU-D as the mission of the lead group for IMT (especially IMT-2020);

2 to promote the studies on network requirements and architecture, network softwarization, network slicing, network capability openness, network management and orchestration, fixed-mobile convergence and emerging network technology (such as ICN, etc.);

3 to establish the Joint Coordination Activity for IMT-2020 (JCA IMT-2020) and coordinate the standardization activities of IMT (especially IMT-2020) among all relevant study groups and focus groups and other SDOs,

instructs Study Group 15

to promote the studies on IMT's fronthaul and backhaul network standardization activities, which should establish the necessary structure and work items to progress the standards work on fronthaul/backhaul network requirements, architecture, function and performance, management and control, synchronization, etc., for IMT-2020,

instructs Study Group 11

to promote the studies on standardization activities related to the non-radio aspects of IMT signalling, protocol and testing,

instructs Study Group 12

to promote the studies on standardization activities related to the non-radio aspects of IMT service, QoS and quality of experience (QoE),

instructs Study Group 17

to promote the studies on standardization activities related to IMT network and applications security,

instructs the Director of the Telecommunication Standardization Bureau

1 to bring this resolution to the attention of the Directors of the Radiocommunication Bureau and the Telecommunication Development Bureau;

2 to conduct seminars and workshops on the standard strategic, technical solutions and network applications for IMT (especially IMT-2020), taking into account specific national and regional requirements,

encourages the Directors of the three Bureaux

to investigate new ways to improve the efficiency of ITU work on IMT,

invites Member States, Sector Members, Associates and academia

1 to participate actively participate in the standardization activities of ITU-T on developing Recommendations on non-radio aspects of IMT;

2 to share standard strategy, network evolution experience and application cases of IMT in relevant seminars and workshop events.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **92-01** | **TSAG to facilitate coordination of the standardization activities related to the non-radio side of IMT (especially IMT-2020) among all relevant study groups, focus groups, joint coordination activities, etc.;**  **and to encourage, in cooperation with Study Group 13 and other relevant study groups, collaboration with other standards development organizations (SDOs) on a wide range of issues associated with the non-radio aspects of IMT-2020 (resolves TSAG 1,2)** | **Ongoing** | **√** |  |
| * SG13 at its February 2017 meeting organized a joint information session on 5G developments with ITU-R WP 5D. * A new JCA-IMT2020 was established by the SG13 since the beginning of the current study period. Its main deliverable is the IMT-2020 roadmap collecting the standardization efforts on IMT-2020 at ITU and outside. SG13 took steps to explore the closer cooperative work with some other SDOs and forums. In October 2019 SG13 established a new work item, Supplement with the IMT-2020 standardization roadmap and approved it in March 2020 as Supplement 59 to ITU-T Y.3100-series. * Work worldwide on IMT-2020 was presented at the workshop “[IMT-2020/5G workshop and demo day](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201707/Pages/default.aspx)”, 11 July 2017, Geneva. Work worldwide on IMT-2020 was presented at the third annual ITU workshop on [IMT-2020/5G and demo day](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201707/Pages/default.aspx)”, 18 July 2018 Geneva, as well as at each second FG NET2030 workshop (2018 - 2020). * A new FG (ML5G) was established to look into the networks self-training and self-organizing as applied to the IMT-2020. It accomplished its duties in July 2020 and produced in total 11 outputs. * A new FG (NET2030) was established to look into the networks far beyond the existing, those what will be in operation around 2030 – 2035. It finished its work in July 2020 having produced 8 Deliverables. * A new Focus Group on Testbed Federations for IMT-2020 and beyond (FG-TBFxG) was established by SG11 in December 2021. It will focus on APIs to be used in testbed federations and relevant use cases. * A Workshop on Machine Learning for 5G and beyond took place in Geneva, 29 January 2018. It elaborated the approach of operating with data to train systems and shared the known experiences in this domain. * A Workshop on Network 2030 took place in New York, 2 October 2018. It gathers the views of what the future networks might look like and what kind of services to deliver. Further five workshops on this topic increased awareness and understanding of future networks and their abilities and innovations. FG-NET2030 published a White Paper “[Network 2030 - A Blueprint of Technology, Applications and Market Drivers Towards the Year 2030 and Beyond](https://www.itu.int/en/ITU-T/focusgroups/net2030/Documents/White_Paper.pdf)” and “New Services and Capabilities for Network 2030: Description, Technical Gap and Performance Target Analysis” Deliverable. * SG15 appointed a liaison rapporteur to SG13 on 5G/IMT-2020 issues. | | | |
| **92-02** | **All ITU-T study groups to strengthen the cooperation and coordination on IMT (especially IMT-2020) standardization activities with a positive and double-win spirit, in order to ensure a productive and practical standard solution for the global ICT industry;**  **and to promote efficiently the standardization research work on the non-radio side network technologies of IMT (i. SGs 1, 2)** | **TSAG meetings,**  **Ongoing** | **√** |  |
| * SG2: Liaised with SG13 on IMT-2020 management. * SG3 liaised with SG13 and its related Focus Group, 3GPP, and JCA-IMT2020 on work item STUDY\_IMT2020MVNOs, a Technical Paper on 5G related policy considering MVNOs. SG3 also nominated a representative of ITU-T SG3 to the JCA-IMT2020 group. * SG5 is working on Setting Environmental Requirements for 5G and is developing a series of technical reports, supplements, and international standards that will study environmental aspects of 5G such as: electromagnetic compatibility (EMC); electromagnetic fields (EMF); energy feeding and efficiency; and resistibility. SG5 is currently working on:   + L.5G\_sav - Energy saving technologies and best practices for 5G RAN equipment;   + L.EE\_5G - Energy efficiency Metrics and measurement methodology for 5G base station;   + L.EE\_slicing - Energy efficiency and Slicing of IMT2020/5G;   + L.ENV-KPI-5G-ARCH – Environmental KPIs/metrics for 5G architectures.   SG5 approved the following Recommendations and Supplements:   * + Recommendation ITU-T L.1210 “Sustainable power-feeding solutions for 5G networks”   + Recommendation ITU-T L.1220 "Innovative energy storage technology for stationary use - Part 1: Overview of energy storage"   + Recommendation ITU-T L.1221 “Innovative energy storage technology for stationary use - Part 2: Battery”   + Recommendation ITU-T L.1222 "Innovative energy storage technology for stationary use - Part 3: Supercapacitor technology"   + Recommendation ITU-T L.1380 “Smart energy solution for telecom sites”   + Recommendation ITU-T L.1381 “Smart energy solution for data centre"   + Recommendation ITU-T L.1382 “Smart energy solution for telecommunication rooms"   + K.Suppl.1 “Guide on electromagnetic fields and health"   + K.Suppl.4 "Electromagnetic field considerations in smart sustainable cities"   + K.Suppl.8 "Resistibility analysis of 5G systems"   + K.Suppl.9 "5G technology and human exposure to RF EMF"   + K.Suppl.10"Analysis of EMC aspects and definition of requirements for 5G systems"   + K.Suppl.14 “The impact of RF-EMF exposure limits stricter than the ICNIRP or IEEE guidelines on 4G and 5G mobile network deployment”   + K.Suppl.16 “Electromagnetic field (EMF) compliance assessments for 5G wireless networks”   + L.Suppl.36 to ITU-T L.1310 "Study on methods and metrics to evaluate energy efficiency for future 5G systems". * SG11: WP2/11 "Control and management protocols for IMT-2020" studies issues related to IMT-2020 control plane. SG11 approved the following Recommendations on IMT-2020 signalling:   + ITU-T Q.5001 "Signalling requirements and architecture of intelligent edge computing" which is based on AI technologies;   + ITU-T Q.5002 “Signalling requirement and architecture for media service entity attachment”;   + ITU-T Q.5020 “Protocol requirements and procedures for network slice lifecycle management”;   + ITU-T Q.5021 “Protocol for managing capability exposure APIs in IMT-2020 network";   + ITU-T Q.5022 “Signalling procedure of energy efficient device-to-device communication for IMT-2020 network”;   + ITU-T Q.5023 “Protocol for managing intelligent network slicing with AI-assisted analysis in IMT-2020 network”.   In December 2021, SG11 consented two Recommendations related to IMT-2020. Twelve draft Recommendations are under study.  SG11 created new subcategories for ITU-T Q.series recommendations dealing with signalling requirements for IMT-2020, as follows:   * + Q.5000-Q.5049: Signalling requirements and protocols for IMT-2020   + Q.5000-Q.5019: Signalling requirements and architecture of IMT-2020   + Q.4060-Q.4099: Testing specifications for IMT-2020 and IoT.   In November 2017, SG11 organized a [Workshop](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201711/Pages/default.aspx) on “*Control plane of IMT-2020 and emerging networks. Current issues and the way forward”*, which goal was to identify current issues on signalling protocols for emerging networks, including interconnection, worldwide practices and perspectives on the implementation of 5G/IMT-2020/emerging networks and potential new areas for standardization on control plane of the 5G/IMT-2020/emerging networks.   * SG12 works on QoS and QoE aspects of IMT-2020 networks and application scenarios. Recommendation ITU-T Y.1550 is applicable to IMT-2020 networks. * SG13, through its JCA-IMT2020, coordinates work with the focus on the non-radio aspects within ITU-T and coordination of the communication with standards development organizations, consortia and forums also working on IMT2020 related standards. Tool for this is the IMT-2020 and beyond standardization roadmap.   To date (15.12.2021) SG13 has approved 48 new Recommendations on IMT-2020, 6 Supplements. It has ~60 work items under development, and three published flipbooks on IMT-2020.  At the first meeting in this study period SG13 created the action plan towards the more effective IMT-2020 standardization known as Technical Packages. It has 5 chapters. In 2017 SG13 had opened communication channels with BBF and 3GPP to work on FMC in context of 5G.  SG13 supervises the JCA-IMT2020.   * SG15 works on technologies for fronthaul, middlehaul, backhaul and synchronization collaborating with relevant organizations including SG13. SG15 agreed on a revised technical report GSTR-TN5G “Transport network support of IMT-2020/5G” at the SG15 meeting in October 2018. SG15 is working on various Recommendations, Supplements, Technical Reports, etc. on transport support for IMT-2020/5G. * SG15 is developing Recommendations on metro transport network (MTN) for transport support for IMT-2020/5G as Recommendation ITU-T 8300 series “mobile network transport aspects”. * SG20 approved Recommendation ITU-T Y.4421 “Functional architecture for unmanned aerial vehicles and unmanned aerial vehicle controllers using IMT-2020 networks”. | | | |
| **92-03** | **All ITU-T study groups to be responsible for the research and annual reporting to TSAG of ITU-T's standards strategy on IMT (i. SGs 3)** | **TSAG 2021** | **√** |  |
| * SG3 started a new work item to develop a technical paper on IMT2020-related policy considering MVNOs. SG3 liaised with SG13 regarding this work item. * SG11 updated IMT-2020 roadmap providing feedback to SG13. * SG13 annually reports to TSAG regarding the request in item 92-03, see SG13 Lead Study Group Report to TSAG. SG13 maintains and updates the roadmap on IMT with deliverables and activities from three ITU Sectors and SDOs. This roadmap aligns SG13’s IMT-2020 and beyond standardization strategies to the new trends in this technical field. October 2019 SG13 meeting agreed to publish a snapshot of this roadmap as a Supplement in March 2020. * SG20 updates the IMT-2020 roadmap and provides feedback to SG13. * SGs 5, 12, 15: See 92-02. | | | |
| **92-04** | **SG13 to maintain the roadmap of IMT standardization activities in ITU-T, which should include work items to progress standardization work related to the non-radio side of IMT, and share this with relevant groups of ITU-R and ITU-D as the mission of the lead group for IMT (especially IMT-2020) (i. SG13 1)** | **Ongoing** | **√** |  |
| One of the tasks of ITU-T JCA-IMT2020 is to maintain the roadmap of mobile communication studies and activities across three ITU Sectors and facilitate communication with SDOs, operating in this technical area. See also items 92-01 – 03 above. | | | |
| **92-05** | **SG13 to promote the studies on network requirements and architecture, network softwarization, network slicing, network capability openness, network management and orchestration, fixed-mobile convergence and emerging network technology (such as ICN, etc.) (i. SG13 2)** | **Ongoing** | **√** |  |
| A one day ITU workshop on 5G roadshow is planned on 11 July 2017 in Geneva, Switzerland. Central part of it was the slicing and softwarization concepts and their PoC demos. A one day third annual ITU workshop on IMT-2020 and demo day took place on 18 July 2018 in Geneva, Switzerland. Central part of it was the slicing and softwarization concepts as well as Information-Centric Networking working solutions and their PoC demos.  The 5th SG13 regional workshop for Africa had a dedicated sessions on 5G in general and on SDN. NFV and slicing in particular. The 6th, 7th and 8th SG13 regional workshops for Africa had each a dedicated session on 5G in general. SG13 Action plan on IMT-2020 shapes in a form of package the 5G related deliverables belong to according to the technical topics. The first package deliverables are devoted to the softwarization concept.  ITU Focus Group [on Machine Learning for Future Networks including 5G](http://www.itu.int/en/ITU-T/focusgroups/ml5g/Pages/default.aspx) (FG-ML5G, in operation 2017 - 2020) looked after the basis for ITU-T standardization to assist machine learning in bringing more automation and intelligence to ICT network design and management. It explored how technical standardization could support emerging applications of machine learning in fields such as big data analytics, network management and orchestration, and security and data protection.  A workshop “Machine Learning for 5G and beyond” was convened alongside the first FG meeting. Each next FG meeting was associated with the workshop.  FG NET2030 (in operation 2018 – 2020) was looking at the technologies to support networks and services around year 2030. As part of promotion of its area of expertise it published in May 2019 a White Paper with vision on Network 2030.  Three flipbooks were issued to promote the ITU-T IMT-2020 achievements to date.  Each second workshop of the FG NET2030 has a presentation about IMT-2020. | | | |
| **92-06** | **SG13 to establish the Joint Coordination Activity for IMT-2020 (JCA IMT-2020) and coordinate the standardization activities of IMT (especially IMT-2020) among all relevant study groups and focus groups and other SDOs (i. SG13 2)** | **Ongoing** | **√** |  |
| ITU-T SG13 created in February 2017 a new ITU-T Joint Coordination Activity on IMT2020 (ITU-T JCA-IMT2020) which coordinates the ITU-T IMT2020 standardization work among different SGs on the non-radio aspects within ITU-T and coordinate the communication with standards development organizations, consortia and forums also working on IMT2020 related standards. July 2020 SG13 meeting agreed continuation of the JCA-IMT2020 for 2021 with revised ToR. December 2021 SG13 meeting agreed continuation of the JCA-IMT2020 for 2022 with the same ToR and revised title “Joint Coordination Activity on IMT2020 and Beyond”. | | | |
| **92-07** | **SG15 to promote the studies on IMT's fronthaul and backhaul network standardization activities, which should establish the necessary structure and work items to progress the standards work on fronthaul/backhaul network requirements, architecture, function and performance, management and control, synchronization, etc., for IMT-2020 (i. SG15)** | **Ongoing** | **√** |  |
| SG15: see 92-02 | | | |
| **92-08** | **SG11 to promote the studies on standardization activities related to the non-radio aspects of IMT signalling, protocol and testing (i. SG11)** | **Ongoing** | **√** |  |
| SG11: see 92-02. | | | |
| **92-09** | **SG12 to promote the studies on standardization activities related to the non-radio aspects of IMT service, QoS and quality of experience (QoE) (i. SG12)** | **Ongoing** | **√** |  |
| SG12 established a work item on QoS framework for IMT-2020 in January 2016, considering the gap analysis output of the first phase of FG IMT-2020.  An [**ITU Workshop on Performance, QoS and QoE for Multimedia Services**](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/qos/201707/Pages/default.aspx), organized on 24-25 July 2017, in Johannesburg, South Africa, discussed **KPIs and methods for measuring and evaluating the QoS/QoE in LTE and LTE-Advanced networks, QoS/QoE regulatory and policy aspects, network performance and QoS requirements for 5G networks, and ITU-T activities on QoS/QoE.**  Recommendation ITU-T Y.1550 is applicable to IMT-2020 networks. | | | |
| **92-10** | **SG17 to promote the studies on standardization activities related to IMT network and applications security (i. SG17)** | **Ongoing** | **√** |  |
| ITU-T SG17 organized an [ITU workshop on 5G Security](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180319/Pages/default.aspx) on 19 March 2018, prior to the next SG17 meeting on 20-29 March 2018 in Geneva, Switzerland.  SG17 approved Recommendations ITU-T X.1811 *Security guidelines for applying quantum-safe algorithms in 5G systems,* ITU-T X.1812 *Security framework based on trust relationship for IMT-2020 ecosystem* and is working on several 5G security standardization work items, see SG17 5G Security Standardization Roadmap at https://www.itu.int/itu-t/workprog/wp\_item.aspx?isn=17201. | | | |
| **92-11** | **TSB Director to bring this resolution to the attention of the Directors of the Radiocommunication Bureau and the Telecommunication Development Bureau (i. TSBDir 1)** | **Ongoing** |  | **√** |
| BR and BDT were informed. | | | |
| **92-12** | **TSB Director to conduct seminars and workshops on the standard strategic, technical solutions and network applications for IMT (especially IMT-2020), taking into account specific national and regional requirements (i. TSBDir 2)** | **Ongoing** | **√** |  |
| Network softwarization and slicing took centre stage at a [5G workshop and demo day](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201707/Pages/default.aspx) held in Geneva, 11 July 2017 as well as the third annual ITU workshop in IMT-2020 and demo day on 18 July 2018 in Geneva. The workshop brought together a diverse set of interests – standards bodies, industry associations, operators, manufacturers, and academic and research institutes – to discuss the networking innovations necessary to achieve the 5G vision. Network softwarization and slicing, underpinning deeply programmable networks able to be sliced into virtual networks with very specialized capabilities, gives networks the agility required to support the specific requirements of any particular 5G application. The ambitious performance targets of 5G systems and the wide variety of envisioned 5G applications will demand future networks to be agile all-around players able to perform a wide array of specialized functions.  The 5th SG13 regional workshop for Africa had a dedicated sessions on 5G in general and on SDN, NFV and slicing in particular.  The 6th, 7th and 8th SG13 regional workshops for Africa had each a dedicated session on 5G.  An ITU Workshop on "Control plane of IMT-2020 and emerging networks. Current issues and the way forward" was held on 15 November 2017, in Geneva, Switzerland, which showed the importance to develop related protocols for control plane of IMT-2020 and emerging networks dedicated to different scenarios, using SDN, NFV, and network slicing as the fundamental supporting technologies. Operators, vendors and testing laboratories presented their practice and perspectives on SDN/NFV related emerging technologies and provided very valuable experiences, while research works on new emerging technologies such as IoT IMS, AI, ICN, Fog/Edge Computing, etc. were introduced.  ITU-T SG15 had in Fall 2017 a workshop on transport requirements for 5G.  ITU-T SG17 work on 5G Security see 92-10.  A [joint ITU-NGMN Alliance Workshop on Open Source and Standards for 5G](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/itu-ngmn/Pages/20170111.aspx) took place in Bellevue (Seattle), USA, 1 November 2017. See 90-05 for details.  FG ML5G convened a workshop [on Machine Learning for 5G and beyond](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180129/Pages/default.aspx) on 29 January 2018 in Geneva and in [San Jose, United States, on 7 August 2018](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180807/Pages/default.aspx). Through its lifetime (2017 – 2020) in total it had 6 workshops devoted to the machine learning for 5G.  See item 92-05 above. | | | |
| **92-13** | **TSB Director to investigate new ways to improve the efficiency of ITU work on IMT.** | **Ongoing** | **√** |  |
| ITU and the [NGMN Alliance](http://www.ngmn.org/home.html) have signed a cooperation agreement formalizing their mutual commitment to the development of next-generation mobile broadband technologies. The agreement highlights the mutual intent of ITU and NGMN to coordinate their contributions to the development of 5G technology and architecture. This cooperation will also extend to the management of the interplay of intellectual property rights and standardization in the 5G era, and the creation of an enabling environment for open-source software to assist in shaping the future of broadband. | | | |

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# Resolution 93 - Interconnection of 4G, IMT-2020 networks and beyond

**Resolution 93**

resolves

that ITU-T Recommendations to address network architectures, roaming principles, numbering issues, charging and security mechanisms as well as interoperability and conformance testing for interconnection of 4G, IMT-2020 networks and beyond shall be progressed as quickly as possible,

instructs the Director of the Telecommunication Standardization Bureau

1 to continue to conduct, as necessary, exploratory activities among telecommunication operators in order to identify and prioritize the problems related to achieving interconnection of IP-based networks such as 4G, IMT-2020 and beyond;

2 to submit the results of these activities to the ITU Council for its consideration and required actions,

instructs the study groups

1 to identify as soon as possible future ITU-T Recommendations that need to be developed associated with the interconnection of 4G, IMT-2020 networks and beyond;

2 to cooperate, as appropriate, with interested stakeholders and alliances in order to optimize studies on this particular subject,

further instructs Study Group 11

to develop ITU-T Recommendations which specify the framework and signalling architectures to be used for establishing interconnection of 4G, IMT-2020 networks and beyond to achieve interoperability worldwide,

further instructs Study Group 2

to develop ITU-T Recommendations which specify the ENUM architecture to be used for interconnection of 4G, IMT-2020 networks and beyond, including administrative control that could relate to the international telecommunication resources (including naming, numbering, addressing, and routing),

invites Member States and Sector Members

to contribute to the implementation of this resolution,

invites Member States

to encourage telecommunication operators to assist ITU-T in implementing this resolution.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **93-01** | **Study groups (SGs 2, 3, 11, 13, 17) to progress as quickly as possible ITU-T Recommendations to address network architectures, roaming principles, numbering issues, charging and security mechanisms as well as interoperability and conformance testing for interconnection of 4G, IMT-2020 networks and beyond;**  **and to identify as soon as possible future ITU-T Recommendations that need to be developed associated with the interconnection of 4G, IMT-2020 networks and beyond;**  **and to cooperate, as appropriate, with interested stakeholders and alliances in order to optimize studies on this particular subject (resolves, i. SGs 1, 2)** | **Ongoing** | **√** |  |
| * SG2 is working on two ENUM related work items: E.A-ENUM, “Principles and procedures for the administration of E.164 country codes for registration into the Domain Name System”, and E.ENUMINF, “Differentiating between ENUM and Infrastructure ENUM”. There was discussion on carrier ENUM for VoLTE/ViLTE in liaison with SG11 in the last study period. Liaised with SG11 on the work item under SG11, i.e., draft new Recommendation ITU-T Q.3643 "Signalling architecture of distributed ENUM networking for IMS", which was subsequently Approved by ITU-T SG11 in July 2020. * SG3 is studying policy and regulatory aspects related to IMT-2020, such as IMT2020-related policy considering MVNOs. Several work items address roaming aspects at the international and regional level. * SG11 approved new ITU-T Recommendations and agreed Supplements dealing with VoLTE/ViLTE interconnection, as follows:   + ITU-T Q.3640: Framework of interconnection of VoLTE/ViLTE-based networks;   + ITU-T Q.3641: IMS references to Release 11 for communication between IMS and NGN networks to support end-to-end service interoperability;   + ITU-T Q.3642: IMS references to Release 12 for communication between IMS and NGN Networks to support the end-to-end service interoperability;   + ITU-T Q.3643: Signalling architecture of distributed infrastructure ENUM networking for IMS;   + ITU-T Q.3644: Requirements for signalling network analyses and optimization in VoLTE;   + ITU-T Q.3645: Protocol at interface between two distributed ENUM servers for IMS;   + ITU-T Q.3953: VoLTE/ViLTE interconnection testing for interworking and roaming scenarios;   + ITU-T Q.Supplement 69: Framework for interconnection between VoLTE-based network and other networks supporting emergency telecommunications service (ETS);   + ITU-T Q.Supplement 72: Signalling requirements for IMS emergency telecommunications service in support of multiple accesses.   The initiative is being undertaken in close cooperation with other standards bodies, building on existing standards and answering to industry's need for a unified international reference for VoLTE/ViLTE interconnection.  In addition, SG11 is studying the 5G control plane, relevant protocols and related testing methodologies.   * SG13 continues to support the shift to software-driven network management and orchestration. The group is progressing draft 5G standards addressing subjects including network architectures, network capability exposure, network slicing, network orchestration, network management-control, and frameworks to ensure high quality of service. 5G wireline standards developed by ITU-T Study Group 13 and approved since 2017 include   + ITU-T Y.3100 "Terms and definitions for IMT-2020" provides a foundational set of terminology to be applied universally across 5G-related standardization work.   + ITU-T Y.3102 "Framework of the IMT-2020 network".   + ITU-T Y.3103 “Business Role-based Models in IMT-2020”.   + ITU-T Y.3104 “Architecture of the IMT-2020 network”.   + ITU-T Y.3109 “Quality of service assurance-related requirements and framework for virtual reality delivery using mobile edge computing supported by IMT-2020”   + ITU-T Y.3110 “IMT-2020 network management and orchestration requirements”.   + ITU-T Y.3113 “Requirements and framework for latency guarantee in large-scale networks including the IMT-2020 network”   + ITU-T Y.3072 “Requirements and capabilities of name mapping and resolution for information-centric networking in IMT-2020”.   + ITU-T Y.3074 “Framework for directory service for management of large numbers of heterogeneously-named objects in IMT-2020”.   + ITU-T Y.3075 “Requirements and capabilities of information-centric networking routing and forwarding based on control and user plane separation in IMT-2020”   + ITU-T Y.3076 ”Architecture of ICN-enabled edge network in IMT-2020”   + ITU-T Y.3077 “Framework for interworking of heterogeneous application domain connected objects through information-centric networking in IMT-2020”   + ITU-T Y.3111 "IMT-2020 network management framework" establishes a framework and related principles for the design of 5G network management.   + ITU-T Y.3112 "Framework for the support of Multiple Network Slicing".   + ITU-T Y.3310 "IMT-2020 network management requirements" describes the capabilities required to support emerging 5G services and applications.   + ITU-T Y.3130 “Requirements of IMT-2020 fixed mobile convergence” was approved early 2018.   + ITU-T Y.3131 "Functional architecture for supporting fixed mobile convergence in IMT-2020 networks".   + ITU-T Y.3132 "Mobility management for fixed mobile convergence in IMT-2020 networks".   + ITU-T Y.3134 “IMT-2020 fixed mobile convergence functional requirements for management and orchestration”   + ITU-T Y.3135 “Service scheduling to support fixed-mobile convergence in the IMT 2020 network”   + ITU-T Y.3136 “Session management for fixed mobile convergence in IMT-2020 networks”   + ITU-T Y.3150 “High-level technical characteristics of network softwarization for IMT-2020”   + ITU-T Y.3155 “Enhanced software-defined networking data plane for IMT-2020”   + ITU-T Y.3156 “Framework of network slicing with AI-assisted analysis in IMT-2020 networks”   + ITU-Y Y.3157 “IMT-2020 network slice configuration”   + ITU-T Y.3170 “Requirements of machine learning based QoS assurance for IMT-2020 network”.   + ITU-T Y.3172 “Architectural framework for machine learning in future networks including IMT-2020”.   + ITU-T Y.3176 “Machine learning marketplace integration in future networks including IMT-2020”   + ITU-T Y.3177 “Architectural framework for artificial intelligence-based network automation for resource and fault management in future networks including IMT-2020”   + ITU-T Y.3178 “Functional framework of AI-based network service provisioning in future networks including IMT-2020”   + ITU-T Y.3179 “Architectural framework for machine learning model serving in future networks including IMT-2020”   + ITU-T Y.3324 “Requirements and architectural framework for autonomic management and control of IMT-2020 networks”.   SG13 approved a new 'Supplement' to Y-series ITU standards, a supplement which provides an overview of "standardization and open-source activities related to network softwarization of 5G".  SG13 in addition approved a two new 'Supplements to Y-series ITU standards, a supplement which provides an overview, standardization gaps a Proof-of-Concept for Information-Centric Networking and PoC for Data service using INC in IMT-2020. Another Supplement on use cases and migration aspects of IMT-2020 was published in mid 2020.  ITU's programme on ["International Mobile Telecommunications for 2020 and beyond (IMT-2020)"](http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/imt-2020/Pages/default.aspx) defines the framework and overall objectives of the 5G standardization process as well as the roadmap to guide this process.   * SG15 agreed on a technical report GSTR-TN5G “Transport network support of IMT-2020/5G” at the SG15 meeting in Jan/Feb 2018. Timing and synchronization is crucial to the efficient operation of advanced mobile-wireless technologies. Industry looks to ITU-T for standards to support the synchronized mobile backhaul essential to the success of wireless systems through 4G, 5G and beyond. The new Rec. ITU-T G.8272.1/Y.1367.1 "Timing characteristics of enhanced primary reference time clocks" specifies the requirements of enhanced primary reference time clocks (ePRTCs) suitable for time and phase synchronization in packet networks. The new standard will enable highly accurate time synchronization and levels of reliability translating into holdover capabilities up to several days, with technology typically based on a combination of GNSS (Global Navigation Satellite Systems, such as GPS) and atomic clocks (e.g. caesium clocks). The ePTRCs provided for by Rec. ITU-T G.8272.1/Y.1367.1 will make it possible to design synchronization networks where the prolonged loss of GNSS would not impact the performance of the network, an important consideration amid increasing concerns around GNSS vulnerability. A planned future edition of Rec. ITU-T G.8272.1/Y.1367.1, based on the further development of atomic clock technology, will include an option for holdover periods potentially as long as 80 days. * ITU-T SG17 work on 5G Security see 92-10. | | | |
| **93-02** | **TSB Director to continue to conduct, as necessary, exploratory activities among telecommunication operators in order to identify and prioritize the problems related to achieving interconnection of IP-based networks such as 4G, IMT-2020 and beyond (i. TSB Dir 1)** | **Ongoing** | **√** |  |
| ITU organized a [Regional Workshop on Deployment of VoLTE/ViLTE networks based on IMS: from Standardization to Implementation](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10_Samarkand/10_Samarkand.aspx) in Samarkand (Republic of Uzbekistan) from 2-3 October 2018.  ITU organized a Workshop on "Protocol Enhancements for IMS to be used in LTE/IMT-2020 Networks and Beyond" (virtual, 5 July 2021) | | | |
| **93-03** | **TSB Director to submit the results of these activities to the ITU Council for its consideration and required actions (i. TSB Dir 2)** | **Council 2021** | **√** |  |
| See reports in CWG-Internet [10/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-RCLINTPOL10-C-0002), CWG-Internet [11/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S18-RCLINTPOL11-C-0002), [CWG-Internet 12/2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-RCLINTPOL12-C-0002), [CWG-Internet-13/3](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S19-RCLINTPOL13-C-0003). | | | |
| **93-04** | **SG11 to develop ITU-T Recommendations which specify the framework and signalling architectures to be used for establishing interconnection of 4G, IMT-2020 networks and beyond to achieve interoperability worldwide (i. SG11)** | **Ongoing** | **√** |  |
| SG11 progresses on some work items dealing with VoLTE/ViLTE interconnection following the discussion at the ITU [Workshop](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/conformity-interoperability/20150112/Pages/default.aspx) on 1 December 2015.  The achieved results are highlighted in clause 93-01 above. | | | |
| **93-05** | **SG2 to develop ITU-T Recommendations which specify the ENUM architecture to be used for interconnection of 4G, IMT-2020 networks and beyond, including administrative control that could relate to the international telecommunication resources (including naming, numbering, addressing, and routing) (i. SG2)** | **Ongoing** |  |  |
| Actions by ITU-T SG2 depend on Contributions, but no such contributions have been received so far. | | | |

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# Resolution 94 - Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology

**Resolution 94**

resolves to instruct Study Groups 13, 16, 17 and 20 of the ITU Telecommunication Standardization Sector

1 to evaluate existing, evolving and new Recommendations with respect to cloud-based event data technology;

2 to make recommendations to the Telecommunication Standardization Advisory Group on how to address the topics that are outside the mandate of the study groups,

instructs the Telecommunication Standardization Advisory Group

to drive a concerted effort across relevant study groups to accelerate standardization work on cloud-based event data technology,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide the necessary assistance to speed up standardization work on cloud-based event data technology and to encourage participation and contributions from Member States, particularly developing countries;

2 to organize (a) workshop(s) to collect requirements and inputs on this topic from a wide range of various stakeholders,

invites Member States, Sector Members, Associates and academia

to submit contributions for developing standards for cloud-based event data technology.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **94-01** | **ITU-T Study Groups 13, 16, 17, 20 to evaluate existing, evolving and new Recommendations with respect to cloud-based event data technology (resolves 1)** | **Ongoing** | **√** |  |
| * SG13 requested the Rapporteurs of Questions 17/13, 18/13 and 19/13 to inspect their deliverables from the perspective of event management study. See SG13-TD234. * The work in SG16 on visual surveillance progressed with the approval of new Recommendation ITU-T H.626.2 (ex H.CSVSArch) that defines an architecture for cloud storage in visual surveillance systems. SG16 also completed Recommendation ITU-T F.743.8 "Requirements for cloud computing platform supporting a visual surveillance system" in March 2019. Other WIs continue under development that apply cloud technology to visual surveillance ([H.CCVS](http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=14070), Architecture for cloud computing in visual surveillance). * SG17 in its first and second meetings discussed and observed potential value of EDR (Event Data Recorder - a core of the event data technologies) to broader industry sectors beyond the aviation industry and agreed that the security aspects of EDR should be led by Q4/17 (Cybersecurity) as well as in other Questions of SG17.   SG17 recognized that the cloud based event data technology highlighted in WTSA-16 Resolution 94 is based on a core technology of EDR (Event Data Recorder) rather than based on the cloud computing technology. SG17 believes that the technology should not be limited to a specific sector application such as aviation industry, but should be applicable for other sectors such as automotive, maritime and railway industries.  SG17 has continued discussing issues concerning the security aspects of event data technologies, where Question 4/17 is taking the lead and will be collecting information from each Question on existing Recommendations that are useful to consider the security aspects of cloud-based event data technologies; Q13/17 will be studying EDR in the context of ITS. SG17 sent liaison letters to SAE/ICAO and APT ASTAP. SG17 also informed TSAG on the findings of the studies (see [TSAG-TD235](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0235/en)).  SG17 Q13/17 is working on draft new Recommendation X.edrsec *Security guidelines for cloud-based event data recorders in automotive environment*.   * SG20 is working on draft Recommendation ITU-T Y.AI-DECCS “Functional architecture of AI enabled device-edge-cloud collaborative services for IoT and smart city” and Y.IoT-CONV-fr “Convergence framework for enhancement of service intelligence based on Internet of Things”. | | | |
| **94-02** | **ITU-T Study Groups 13, 16, 17, 20 to make recommendations to the Telecommunication Standardization Advisory Group on how to address the topics that are outside the mandate of the study groups (resolves 2)** | **TSAG meetings,**  **Ongoing** | **√** |  |
| No issues identified so far. | | | |
| **94-03** | **TSAG to drive a concerted effort across relevant study groups to accelerate standardization work on cloud-based event data technology (i. TSAG)** | **TSAG meetings** | **√** |  |
| Activities are well coordinated, no need for TSAG action. | | | |
| **94-04** | **TSB Director to provide the necessary assistance to speed up standardization work on cloud-based event data technology and to encourage participation and contributions from Member States, particularly developing countries (i. TSBDir 1)** | **Ongoing** | **√** |  |
| After the closure of the FG AC, SG13 approached the FG audience via its mailing list inviting to continue the studies in the areas of aviation applications of cloud computing for flight data monitoring in the SG13, Q17/13 and extended its invitation to contributions. This plie was reinforced from SG13 November 2017 meeting (see SG13-TD234), its July 2018 meeting, and every further SG13 meeting in current study period. | | | |
| **94-05** | **TSB Director to organize (a) workshop(s) to collect requirements and inputs on this topic from a wide range of various stakeholders (i. TSBDir 2)** | **Ongoing** | **√** |  |
| TSB organized a number of ITU workshops, ITU regional forums, and other events, which considered aspects of event data technologies, in particular within the context of IoT and smart cities and communities, and on data processing and management:   * [5th ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/climatechange/dpm/05/Pages/default.aspx), 25 November 2019, Geneva; * [4th ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20190719/Pages/default.aspx), Geneva, 19 July 2019; * [3rd ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201901/Pages/default.aspx), Seoul, Korea (Rep. of), 14 January 2019; * 2nd [ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180917/Pages/default.aspx), 17 September 2018, Tunis, Tunisia; * [1st ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180219/Pages/default.aspx), 19 February 2018, Brussels, Belgium. * [ITU Regional Forum on “Internet of Things, Telecommunication Networks and Big Data as Basic Infrastructure for Digital Economy”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180604/Pages/default.aspx), 4-6 June 2018 (AM only), St. Petersburg, Russian Federation; * First Forum on "Data Management: Transforming Data Into Value"; 12 March 2017, Dubai, UAE.   See also 94-01, and 94-04. | | | |

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# Resolution 95 - ITU Telecommunication Standardization Sector initiatives to raise awareness on best practices and policies related to service quality

**Resolution 95**

resolves that the ITU Telecommunication Standardization Sector

1 continue to develop the necessary Recommendations on performance, QoS and QoE;

2 in close collaboration with the ITU Telecommunication Development Sector (ITU-D), develop initiatives to raise awareness of the importance of keeping users informed about the quality of the services offered by operators;

3 in close collaboration with ITU-D and the ITU regional offices, provide references that assist developing and least developed countries in establishing a national quality measurement framework suitable to perform QoS and QoE measurement;

4 organize workshops, training programmes and further initiatives to promote wider participation of regulators, operators and suppliers in the international debate on service quality and raise awareness of the importance of QoS and QoE measurement,

instructs the Director of the Telecommunication Standardization Bureau

in order to implement resolves 2 and 4 above, to continue to support the activities of QSDG for open operational and regulatory discussions among regulators, operators and suppliers about new strategies to deliver better QoS and QoE to users,

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Director of the Telecommunication Development Bureau

1 to assist developing and least developed countries in identifying human and institutional capacity-building opportunities for establishing national quality measurement frameworks;

2 to conduct activities in each region in order to identify and prioritize the problems faced by developing and least developed countries related to the provision of acceptable service quality to users;

3 based on results of instructs 2 above, to assist developing and least developed countries in elaborating and implementing actions to improve service quality and keep users informed,

instructs study groups of the ITU Telecommunication Standardization Sector, according to their mandate

1 to elaborate Recommendations providing guidance to regulators in regard to defining strategies and testing methodologies to monitor and measure QoS and QoE;

2 to study QoS and QoE evaluation scenarios, measurement strategies and testing tools to be adopted by regulators and operators;

3 to study and provide guidance to regulators in regard to sampling methodologies for QoS measurements at a local, national and global level;

4 to provide references relating to minimal satisfactory key performance and key quality indicators for evaluating the quality of services;

5 to implement strategies to raise participation of developing and developed countries from all regions in all their activities,

invites the membership

1 to collaborate with ITU-T in implementing this resolution;

2 to participate in ITU-T Study Group 12 and QSDG initiatives by providing contributions, expertise, knowledge and practical experiences relating to the work of Study Group 12.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **95-01** | **ITU-T SG12 to continue to develop the necessary Recommendations on performance, QoS and QoE (resolves 1)** | **Ongoing** | **√** |  |
| For these and the below items, please see detailed SG12 work plan on implementation of WTSA Res.95 in [SG12-TD1630](https://www.itu.int/md/T17-SG12-211012-TD-GEN-1630/en).  A huge number of work items related to Res.95 were completed and other are under development, as summarized on a [dedicated webpage](https://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/resolution95.aspx). The results of a questionnaire (see [TSB Circular 62](https://www.itu.int/md/T17-TSB-CIR-0062/en)) on service quality regulatory frameworks and were presented in a workshop on 26 November 2018.  During the first SG12 meeting of the 2017-2020 study period, eleven Recommendations were consented (5 new, 5 revised, 1 amendment), and two informative text were agreed (1 supplement, 1 amendment). SG12 completed work on conversational speech quality analysis (now Recommendation ITU‑T P.804) and gaming quality of experience (ITU-T G.1032).  The second meeting of SG12 in this study period witnessed consent of 10 draft Recommendations, agreement of two Supplements and creation of 12 new work items, including five of those work items related to WTSA-16 Resolution 95 on *ITU-T initiatives to raise awareness on best practices and policies related to service quality*. Addressing the same Resolution, SG12 adopted a questionnaire on service quality regulatory frameworks for dissemination by TSB (see [TSB Circular 62](https://www.itu.int/md/T17-TSB-CIR-0062/en)). SG12 initiated studies on the effect of so-called SIM-boxing on QoS and QoE (related to WTSA‑16 Resolution 29) and on QoS and QoE aspects of digital financial services (related to WTSA‑16 Resolution 89).  Nine Recommendations were consented (4 new, 2 revised, 3 Amendments), and three non-normative texts were agreed (1 Amendment, 1 Implementers’ Guide, 1 Technical Report) by the third meeting of the study period (see [here](https://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/1805-summary.aspx) for details).  In its fourth meeting ten Recommendations were consented (4 new, 5 revised, 1 Amendment), see [here](https://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/1811-summary.aspx).  At the end of the [fifth SG12 meeting of the study period](https://www.itu.int/en/ITU-T/studygroups/2017-2020/12/Pages/1905-summary.aspx), one Recommendation was determined, and eleven Recommendations were consented (4 new, 5 revised, 1 Amendment, 1 Corrigendum) by the meeting. The meeting also agreed on one informative Amendment.  The sixth SG12 meeting approved two Recommendations (1 new, 1 revised) and consented 14 Recommendations (11 new, 1 revised, 1 Amendment, 1 Corrigendum).  At the seventh SG12 meeting, 4 Recommendations were consented (2 new, 1 revised, 1 Amendment) by the meeting. The meeting also agreed on one Amendment of an Appendix to a Recommendation, one Supplement, and one Technical Paper. ​  One Recommendation was determined and five Recommendations were consented (2 new, 2 revised, 1 Corrigendum) by the eighth meeting. The meeting also agreed on two Supplements (1 new, 1 revised) and new Appendices to one Recommendation.  During the ninth meeting, one Recommendation was approved (TAP) with no opposition and 2 revised Recommendations were consented by the meeting. The meeting also agreed on three informative Amendments.  At the tenth SG12 meeting, eleven Recommendations were consented (1 new, 5 revised, 4 Corrigenda, 1 Amendment) by the meeting. The meeting also agreed on one Supplement and one Corrigendum to the Bibliography of one Recommendation.  The final SG12 meeting resulted in five consented Recommendations (2 new, 3 revised), and 3 agreed Supplements. | | | |
| **95-02** | **ITU-T SG12 and TSB Director in close collaboration with the ITU Telecommunication Development Sector (ITU-D), develop initiatives to raise awareness on of the importance of keeping users informed about the quality of the services offered by operators;**  **and in close collaboration with ITU-D and the ITU regional offices, provide references that assist developing and least developed countries in establishing a national quality measurement framework suitable to perform QoS and QoE measurement (resolves 2, 3)** | **Ongoing** | **√** |  |
| SG12 delegates contributed to the development of a QoS Regulation Manual and the QoS Training Programme, in close collaboration with the BDT. An e-learning module delivered via ITU Academy was updated to reflect ITU-T Recommendations including ITU-T E.805, E.806 and E.812. SG12 leadership also reviewed QoS related indicators for BDT surveys. Representatives of the ITU regional and area offices contributed to the workshops on telecommunications service quality in Johannesburg, Rio de Janeiro, Dakar, Geneva, Kigali, Singapore and N’Djamena. | | | |
| **95-03** | **ITU-T SG12 and TSB Director organize workshops, training programmes and further initiatives to promote wider participation of regulators, operators and suppliers in the international debate on service quality and raise the awareness of the importance of QoS and QoE measurement (resolves 4)** | **Ongoing** | **√** |  |
| The Quality of Service Development Group, operating under SG12, organized seven face-to-face workshops since WTSA-16 (Johannesburg, Rio de Janeiro, Dakar, Istanbul, Geneva, Kigali, Singapore). During the COVID-19 pandemic, a number of webinars were held, including one which was held in Spanish. All workshops were held in collocation with related SG12 events, see <https://www.itu.int/en/ITU-T/Workshops-and-Seminars/qos/Pages/default.aspx>. | | | |
| **95-04** | **TSB Director in order to implement resolves 2 and 4 above, to continue to support the activities of QSDG for open operational and regulatory discussions among regulators, operators and suppliers about new strategies to deliver better QoS and QoE to users (i. TSBDir)** | **Ongoing** | **√** |  |
| The QSDG held three face-to-face meetings (Johannesburg, July 2017, Istanbul, September 2018, Singapore, August 2019), and organized workshops for open operational and regulatory discussions among regulators, operators and suppliers about new strategies to deliver better QoS and QoE to users (see 95-03). | | | |
| **95-05** | **TSB Director to assist developing and least developed countries in identifying human and institutional capacity-building opportunities for establishing national quality measurement frameworks (i. TSBDir 1)** | **Ongoing** | **√** |  |
| * Facilitated the development and review of regional QoS and QoE frameworks for SADC and WATRA. An e-learning module delivered via ITU Academy was updated to reflect ITU-T Recommendations including ITU-T E.805 (on establishing regulatory frameworks), E.806 and E.812. | | | |
| **95-06** | **TSB Director to conduct activities in each region in order to identify and prioritize the problems faced by developing and least developed countries related to the provision of acceptable service quality to users (i. TSBDir 2)** | **Ongoing** | **√** |  |
| See 95-04 and 95-05. | | | |
| **95-07** | **TSB Director based on results of instructs 2 above, to assist developing and least developed countries in elaborating and implementing actions to improve service quality and keep users informed (i. TSBDir 3)** | **Ongoing** | **√** |  |
| * In November 2017, TSB issued [TSB Circular 62](https://www.itu.int/md/T17-TSB-CIR-0062/en) which contains a questionnaire on the status of national service quality regulatory frameworks. Initial results were presented at the SG12 meeting in May 2018. The results were introduced in the ITU Workshop on Telecommunication Service Quality Regulatory Frameworks and Experience Driven Networking, Geneva, 26 November 2018. * TSB organized workshops addressing the topic of service quality regulatory frameworks, see 95-03. * TSB facilitated the development of a [Quality of Service Regulation Manual](https://www.itu.int/pub/D-PREF-BB.QOS_REG01-2017) issued by the BDT late 2017. * TSB facilitated the development and review of regional QoS and QoE frameworks for SADC and WATRA. * TSB facilitated the development, review and update of the [Quality of Service Training Programme](https://academy.itu.int/index.php?option=com_content&view=article&id=101&Itemid=642&lang=en) under the auspices of the ITU Academy. * Results of the questionnaire and the workshops are reflected in Recommendations developed in the course of the study period, including ITU-T E.804.1, E.805, E.805.1, E.806, E.812. | | | |
| **95-08** | **Study groups to**   * **elaborate Recommendations providing guidance to regulators in regard to defining strategies and testing methodologies to monitor and measure QoS and QoE (i. SGs 1)** * **to study QoS and QoE evaluation scenarios, measurement strategies and testing tools to be adopted by regulators and operators (i. SGs 2)** * **to study and provide guidance to regulators in regard to sampling methodologies for QoS measurements at a local, national and global level (i. SGs 3)** * **to provide references relating to minimal satisfactory key performance and key quality indicators for evaluating the quality of services (i. SGs 4)** * **to implement strategies to raise participation of developing and developed countries from all regions in all their activities (i. SGs 5)** | **Ongoing** | **√** |  |
| * SG2 Consented ITU-T Recommendation M.3365 (ex M.rvqms “Requirements for QoE management of video in visual surveillance” on 11 June 2021. * SG3 has an ongoing work item Study\_ EPQoS, to cover all economic and policy aspects pertaining to quality of service (QoS) and experience (QoE) in the provision of international telecommunication services. The areas of focus include inter-relations between QoS and QoE regulation and impact thereof on customer satisfaction, pricing and competition. This study will also cover a gap analysis on the work done in SG12 including the gaps identified by SG12 Chairman in his presentation to SG3 contained in [TD87](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG03-180409-TD-PLEN-0087) (SG3, April 2018). SG3 is developing work item D.Framework, a framework for ICT service delivery with the guaranteed QoS and requested bitrate on fixed & mobile data networks, for development of efficient economic mechanisms and models of interaction in the "operator-provider-user" chain. * SG12 activities, outputs, and ongoing work items cover all of the points listed above (including but not limited to ITU-T E.802, ITU-T E.804, ITU-T E.804.1, ITU-T E.805, ITU-T E.805.1, ITU-T E.806, ITU-T E.812, ITU-T E.840). On the matter of IP performance, SG12 approved revised Recommendation ITU-T Y.1540 “Internet protocol data communication service - IP packet transfer and availability performance parameters”. Following over 20 years as an in-force Recommendation, the 2019 Edition of Y.1540 recognizes many changes in the design of IP services and in the protocols employed by end-users. It introduces the new Annex A that defines IP-layer Capacity parameters in ways that cater toward assessment, and provides requirements for methods of measurement of IP-layer Capacity. This new Annex is the result of years of study, and application of SG12 principles of accurately evaluating performance parameters and methods of measurement against a “ground truth” reference in laboratory and field measurements. It also provides background on why TCP-based measurements fail to meet normative requirements. * Guidance on Interpreting ITU-T Y.1540 maximum IP-layer capacity measurements, as well as information about the open source implementation of the measurement methodology, is provided (and regularly updated) in Y-series Supplement 60. * SG11 agreed Supplement 71 to ITU-T Q-series of Recommendations “Testing methodologies of Internet related performance measurements including e2e bit rate within the fixed and mobile operator’s networks”. Following the outcomes of the ITU Workshop on Benchmarking of emerging technologies and applications - Internet related performance measurements (Geneva, 11 March 2019), it was noted that the approach highlighted in ITU-T Q.3960 (2016) and Supplement 71 (2019) is compliant with Net Neutrality regulation 2015/2120 from BEREC and OECD 2014 report, underlying that TCP protocol is widely used by customer application.   Also, SG11 approved ITU-T Q.3056 Signalling procedures of the probes to be used for remote testing of network parameters” and Q.3916 “Signalling requirements and architecture for the Internet service quality monitoring system”.   * WTSA-16 confirmed the continuation of the Q6/13 "Quality of service (QoS) aspects including IMT-2020 networks" (since 2021 title is “Networks beyond IMT2020: Quality of service (QoS) mechanisms”) in SG13 shifting its accent to 5G and beyond.   SG13 approved Recommendation ITU-T Y.3170 “Requirements of machine learning based QoS assurance for IMT-2020 network” (09/18) that looks in particular into the capabilities for QoS anomaly detection and prediction using machine learning, ITU-T Y.3106 “Quality of service functional requirements for the IMT-2020 network” (04/2019), ITU-T Y.3107 “Functional architecture for QoS assurance management in the IMT-2020 network” (08/2019), ITU-T Y.3109 “Quality of service assurance-related requirements and framework for virtual reality delivery using mobile edge computing supported by IMT-2020” (04/2021) and ITU-T Y.3175 “Functional architecture of machine learning-based quality of service assurance for the IMT-2020 network” (04/2020), Y.3172 “Architectural framework for machine learning in future networks including IMT-2020” (06/2019).   * SG16 develops [FSTP-TRS-KPI](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=13312) “Technical Paper: Key performance indicators for telecommunication relay services”. * SG20 is developing draft Recommendation ITU-T Y.NCE.arch.EIoT on “Functional architecture enhancement with network capability exposure to support flexible QoS/QoE requirements from enterprise IoT services and applications”, ITU-T Y.IoT-SQMS “Requirements and functional architecture of IoT sensing quality management service” and ITU-T Y.DPM-qm “Requirements and functional model to support data quality management in IoT”. * Q3/20 addresses topics on IoT and SC&C architectures, protocols and QoS/QoE. | | | |

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# Resolution 96 - ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information and communication technology devices

**Resolution 96**

resolves

1 to explore ways and means to combat and deter telecommunication/ICT device counterfeiting and tampering in order to protect industry, governments and consumers from counterfeit and tempered telecommunication/ICT devices;

2 that Study Group 11 should be the lead study group in the area of combating counterfeit and tampered telecommunication/ICT devices,

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Director of the Telecommunication Development Bureau

1 to organize workshops and events across the ITU regions to promote the work in this field, involving all stakeholders and raising awareness of the impact of counterfeit and tampered telecommunication/ICT devices;

2 to assist developing countries in preparing human resources to combat the spread of counterfeit and tampered telecommunication/ICT devices, by providing capacity-building and training opportunities;

3 to work in close collaboration with relevant stakeholders, such as WTO, WIPO, WHO and WCO, on activities relating to combating counterfeit and tampered telecommunication/ICT devices, including restricting the trading, export and circulation of these telecommunication/ICT devices internationally;

4 to coordinate activities relating to combating counterfeit and tampered telecommunication/ICT devices through study groups, focus groups and other related groups;

5 to assist Member States in taking the necessary actions to apply relevant ITU-T Recommendations for combating counterfeit and tampered telecommunication/ICT devices, including the use of conformity assessment systems,

instructs the Director of the Telecommunication Standardization Bureau

1 to collaborate with industry associations, consortia and forums to identify possible technological measures, both software and hardware, that may be developed to deter tampering and the use and spread of counterfeit and tampered telecommunication/ICT devices;

2 to submit the results of these activities to the ITU Council for its consideration and required action;

3 to involve experts and external entities as appropriate;

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Directors of the Radiocommunication and Telecommunication Development Bureaux

1 to assist Member States in addressing their concerns with respect to counterfeit and tampered telecommunication/ICT devices, through information sharing at regional or global level, including conformity assessment systems;

2 to assist all the membership, considering relevant ITU-T Recommendations, in taking the necessary actions to prevent or detect the tampering with and/or duplication of unique telecommunication/ICT device identifiers, interacting with other SDOs related to these matters,

instructs Study Group 11 of the ITU Telecommunication Standardization Sector, in collaboration with other study groups concerned

1 to continue developing Recommendations, technical reports and guidelines to address the problem of counterfeit and tampered ICT equipment and to support the Member States in anti-counterfeiting activities;

2 to collect, analyse and exchange information about counterfeiting and tampering practices in the ICT sector, and how ICTs could be used as a tool to combat them;

3 to study existing as well as new reliable, unique, persistent and secure identifiers, in collaboration with ITU-T Study Groups 2, 17 and 20, that have the potential to be used in combating counterfeit and tampered products and telecommunication/ICT devices, including their scope of application and level of security in the context of their possible duplication/cloning;

4 to develop methods of assessing and verifying identifiers used for purposes of combating counterfeit production;

5 with the involvement of relevant standardization organizations, to develop mechanisms as appropriate for identifying counterfeit production, by means of unique identifiers that are resistant to duplication and respond to confidentiality/security requirements;

6 to study possible solutions, including frameworks to discover identity management information, that could support combating of counterfeit and tampered telecommunication/ICT devices;

7 to identify a list of technologies/products, used for testing conformance with ITU-T Recommendations, in order to help in efforts to combat counterfeit ICT production,

invites Member States

1 to take all necessary measures, including collaboration, cooperation and exchange of experiences and expertise with other Member States, to combat counterfeit and tampered telecommunication/ICT devices in a country/region, as well as globally;

2 to adopt national legal and regulatory frameworks to combat counterfeit and tampered telecommunication/ICT devices;

3 to consider measures to mitigate the import, circulation and sale of counterfeit and tampered telecommunication ICT/devices from the market;

4 to consider solutions, to be used to differentiate between authentic/genuine and counterfeit or tampered telecommunication/ICT devices, e.g. establishing a centralized national reference database of authorized equipment;

5 to conduct awareness campaigns for consumers on the adverse impact of counterfeit and tampered products and telecommunication/ICT devices on the environment and on their own health, as well as on the degraded reliability, quality of serviceQoS and performance of such telecommunication/ICT devices,

invites Sector Members

to collaborate with governments, administrations and telecommunication regulators in combating counterfeit and tampered telecommunication/ICT devices,

invites all the membership

1 to participate actively in ITU studies relating to combating counterfeit and tampered telecommunication/lCT devices by submitting contributions;

2 to take the necessary actions to prevent or detect tampering of unique telecommunication/ICT device identifiers, in particular regarding cloned telecommunication/ICT devices;

3 to collaborate and share expertise in this area.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **96-01** | **All ITU-T study groups to explore ways and means to combat and deter telecommunication/ICT device counterfeiting and tampering in order to protect industry, governments and consumers from counterfeit and tempered telecommunication/ICT devices (resolves 1)** | **Ongoing** | **√** |  |
| * SG2: Liaison statement with SG11 on this issue and considers that a key component of any work in this area is the ability to uniquely identify devices. The identification schemes that may be utilised in addressing these issues are therefore of particular interest to SG2. * SG5: Q7/5 is working on "Circular economy including e-waste” This question also deals with ICT counterfeit devices". ITU-T SG is working on draft Recommendation ITU-T L.Counterfeit “Adequate Assessment and Sensitisation on Counterfeit ICT Products and their Environmental Impact”. * SG11 approved a survey report on counterfeit ICT devices in Africa region and new Recommendation ITU-T Q.5050 “Framework for solution to combat counterfeit ICT devices”, which defines the reference framework and requirements to be considered when deploying solutions to combat the circulation and use of counterfeit ICT devices.   SG11 approved new Recommendation ITU-T Q.5052 “Addressing mobile devices with duplicate unique identifiers” and ITU-T Q.5053 “Mobile device access list audit interface”.  SG11 conducted Questionnaire on Reliability of International Mobile Equipment Identity (IMEI), which was initiated according to the ITU-T SG11 decision in October 2019 (TSB Circular 207).  The new Technical Report ITU-T QTR-RLB-IMEI “Reliability of IMEI” was agreed by SG11. This technical report addresses key challenges faced by a range of stakeholders that arise from cloned/tampered IMEIs, including concerns about the misuse of IMEI numbers raised by Member States at ITU Council-17 and ITU Council-18. It also proposes ways to improve IMEI reliability and preventive steps for solving the issues on a national and international level.  SG11 agreed ITU-T Q Supplement 74 “Roadmap for the Q.5050-series - Combat of Counterfeit ICT and Stolen Mobile Devices”, ITU-T Q Supplement 73 “Guidelines for Permissive versus Restrictive System Implementations to address counterfeit, stolen and illegal mobile devices” and ITU-T Q Supplement 75 “Use Cases on the Combat of Counterfeit ICT and Stolen Mobile Devices”.  In March 2021, SG11 set up a new Question 17/11 “Combating counterfeit or tampered telecommunication/ICT software” and started a new work item TR-MCM-Use-Cases “Use Cases on the combat of Multimedia Content Misappropriation”.  SG11 is developing several Recommendations/Technical Papers/Technical Reports/Supplements, as follows:   * Technical Report (TR-CF-QoS) "Impact of Counterfeit Mobile devices on Quality of Service”; * Supplement Q.Sup.CEIR-EIR-int “Common approaches and interfaces for data exchange between CEIR and EIR”; * Supplement (Q.Sup.CFS-AFR) "Guidelines on combating counterfeit and stolen mobile devices in African region". * SG12 is discussing the impact of counterfeit devices on QoS and QoE. Contributions by members addressing the identification of counterfeit devices were forwarded to SG11. * SG20 developed Recommendation ITU-T Y.4808 " Digital entity architecture framework to combat counterfeiting in IoT ". | | | |
| **96-02** | **SG11 is the lead study group in the area of combating counterfeit and tampered telecommunication/ICT devices (resolves 2)** | **Ongoing** | **√** |  |
| See 96-01 | | | |
| **96-03** | **TSB Director to organize workshops and events across the ITU regions to promote the work in this field, involving all stakeholders and raising awareness of the impact of counterfeit and tampered telecommunication/ICT devices (i. TSBDir 1)** | **Ongoing** | **√** |  |
| SG11 conducted its Regional workshop for Africa on "[Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/20170405/Pages/default.aspx)" (5 April 2017, Cairo, Egypt). The event gave an overview of the current situation on combating counterfeiting, new trends and mechanisms in ICT counterfeiting, tampering and/or duplication of unique device identifiers and the implementation of C&I regimes in the region. The outcomes of the workshop identifies the key priorities for African countries in standardization of issues highlighted during the event.  The second ITU-T Study Group 11 regional [workshop for Africa](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180423/Pages/default.aspx) on "Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa" took place in Tunis, Tunisia on 23 April 2018, followed by the second ITU-T SG11 Regional Group meeting for Africa (SG11RG-AFR) (23-25 April 2018). During SG11RG-AFR meeting, it was noted that duplication/cloning and tampering of unique identifiers of ICT devices, such as IMEI, are still a huge problem in the African Region. Also, it was stated that ITU should address this problem by proposing secure mechanisms to be used for identification of ICT devices, not limited to mobile phones (see [R2](https://www.itu.int/md/T17-SG11RG.AFR-R-0002/en)).  In July 2018, ITU-T SG11 organized a [Workshop on "Global approaches on combating counterfeiting and stolen ICT devices"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180723/Pages/default.aspx). One of the aims of the Workshop was to focus on concerns raised by ITU Member States during Council-18 on tampering with unique telecommunication device identifiers used in ICT devices such as IMEI. During Workshop, it was noted that the reliability of ICT identifiers are still a key important issue for most of countries. Following the outcomes of the Workshop, ITU-T SG11 was encouraged to take some actions, which aim to increase reliability of existing ICT identifiers. The details are available in the SG11 Report ([R11](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG11-R-0011))*.*  The third ITU-T Study Group 11 Regional Workshop for Africa on “Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa” took place in Tunis, Tunisia on 30 September 2019 followed by the third ITU-T SG11 Regional Group meeting for Africa (SG11RG-AFR) (30 September – 2 October 2019). It was noted that that counterfeit devices particularly mobile phones in the region is a major concern. There is the need to find mechanisms to secure supply chain and so it was commended to establish of regional or sub-regional CEIR to combat counterfeit and stolen ICT devices.  ITU organized a Workshop on “Combating counterfeit telecommunication/ICT devices and software” during WSIS Forum 2021. In May 2021, ITU organized a joint ITU/MWF webinar on “Combating Counterfeit and Irregular Mobile Devices: How to address the Problem”. | | | |
| **96-04** | **TSB Director to assist developing countries in preparing human resources to combat the spread of counterfeit and tampered telecommunication/ICT devices, by providing capacity-building and training opportunities (i. TSBDir 2)** | **Ongoing** | **√** |  |
| TSB in collaboration with BDT conducted a study in Africa in accordance with the outcome of the results of the ITU-T SG11 meeting (22-29 April 2015) where it was recognized that counterfeit and substandard ICT devices pose a lot of challenges in developing countries, particularly the Africa region. The Survey report on counterfeit ICT devices in Africa region was approved by ITU-T SG11 in February 2017. The survey identified strong demand for an African Regional Group within Study Group 11. | | | |
| **96-05** | **TSB Director to work in close collaboration with relevant stakeholders, such as WTO, WIPO, WHO and WCO, on activities relating to combating counterfeit and tampered telecommunication/ICT devices, including restricting the trading, export and circulation of these telecommunication/ICT devices internationally (i. TSBDir 3)** | **Ongoing** | **√** |  |
| Following the outcomes of the first SG11RG-AFR meeting, ITU is going to start collaboration with Africa Region organizations (ATU, WATRA, EACO, SADC) on combating counterfeiting.  SG11 informed OECD, WIPO, WTO, 3GPP, MWF, GSMA as well as regional organizations (APT, ATU, CITEL, CEPT, RCC) and ITU SGs on the current activities related to combating counterfeiting.  TSB secretariat participated in and gave an overview of ITU-T activities on combating counterfeit and stolen ICT devices at the coordination meeting of IGOs working in the area of building respect for Intellectual Property (IP) in 2019, 2020 and 2021.  Following outcomes of the SG11RG-AFR meeting (30 September – 2 October 2019), it was noted that there is a necessity to begin extensive discussion within the region for implementation of strategies for combating counterfeiting mobile devices and fraud. In this regard, there is call for African regulators associations to arrange a joint meeting in order to set up a common strategy based on the proposed technical report. This approach will help all members states of the Africa region to protect innovations, brands and genuine products in the market and support products circulation to protect health, safety and security of consumers in the Africa region. | | | |
| **96-06** | **TSB Director to coordinate activities relating to combating counterfeit and tampered telecommunication/ICT devices through study groups, focus groups and other related groups (i. TSBDir 4)** | **Ongoing** | **√** |  |
| See 96-01 | | | |
| **96-07** | **TSB Director to assist Member States in taking the necessary actions to apply relevant ITU-T Recommendations for combating counterfeit and tampered telecommunication/ICT devices, including the use of conformity assessment systems (i. TSBDir 5)** | **Ongoing** | **√** |  |
| SG11 established an action plan for implementation of WTSA-16 Resolution 96, which identifies the need to define relevant ITU-T Recommendations for combating counterfeit and tampered telecommunication/ICT devices.  During WSIS Forum 2021 Session 406 “Combating counterfeit telecommunication/ICT devices and software” it was highlighted that [ITU Conformity Product Database](https://www.itu.int/net/itu-t/cdb/ConformityDB.aspx) might become a tool to facilitate combating counterfeiting. | | | |
| **96-08** | **TSB Director to collaborate with industry associations, consortia and forums to identify possible technological measures, both software and hardware, that may be developed to deter tampering and the use and spread of counterfeit and tampered telecommunication/ICT devices (i. TSBDir 1)** | **Ongoing** | **√** |  |
| One demo zone was deployed during ITU Workshop on Global approaches on combating counterfeiting and stolen ICT devices (July 2018): IMEI-DOA solution to combat counterfeiting ICT devices (Rostelecom).  TSB collaborates with industry and as a result the new ITU members joined SG11 as Associates.  The Device Identification, Registration and Blocking System (DIRBS) is available as open source and it could be used for addressing illegal and non-type approved devices in a country (ITU-T Q.5050). | | | |
| **96-09** | **TSB Director to submit the results of these activities to the ITU Council for its consideration and required action (i. TSBDir 2)** | **Council 2021,**  **Ongoing** | **√** |  |
| The reports of the current activities on combating counterfeiting are contained in [C17/24](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S17-CL-C-0024) [C19/35](https://www.itu.int/md/S19-CL-C-0035/en), [C20/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S20-CL-C-0035), [C21/35](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=S21-CL-C-0035) Reports of TSB Director. | | | |
| **96-10** | **TSB Director to involve experts and external entities as appropriate (i. TSBDir 3)** | **Ongoing** | **√** |  |
| ITU works in collaboration with relevant stakeholders. | | | |
| **96-11** | **TSB Director to assist Member States in addressing their concerns with respect to counterfeit and tampered telecommunication/ICT devices, through information sharing at regional or global level, including conformity assessment systems (i. TSBDir 1)** | **Ongoing** | **√** |  |
| SG11, at its February 2017 meeting, approved a technical report on "ITU survey report on counterfeit ICT devices in Africa region", gathers information on challenges, use cases and efforts in place to address the problem of counterfeit ICT devices and collects information from Member States in the region to progress the on-going study on Counterfeit ICT devices, in ITU-T SG11 and ITU-D Study Groups.  SG11 conducted several Regional workshops for Africa, as follows:   * [Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa](http://www.itu.int/en/ITU-T/Workshops-and-Seminars/20170405/Pages/default.aspx) (5 April 2017, Cairo, Egypt); * Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa (Tunis, Tunisia on 23 April 2018); * Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa took place in Tunis, Tunisia on 30 September 2019.   In July 2018, ITU-T SG11 organized a [Workshop on "Global approaches on combating counterfeiting and stolen ICT devices"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180723/Pages/default.aspx).  In May 2021, ITU organized two events:   * ITU Workshop on “Combating counterfeit telecommunication/ICT devices and software” during WSIS Forum 2021 * Joint ITU/MWF webinar on “Combating Counterfeit and Irregular Mobile Devices: How to address the Problem”. | | | |
| **96-12** | **TSB Director to assist all the membership, considering relevant ITU-T Recommendations, in taking the necessary actions to prevent or detect the tampering with and/or duplication of unique telecommunication/ICT device identifiers, interacting with other SDOs related to these matters (i. TSBDir 2)** | **Ongoing** | **√** |  |
| * SG11 approved Recommendation ITU-T Q.4063 "The framework of testing of identification systems used in IoT".   Following the decision of Council-18 (C18/107, clause 2), ITU, in particular TSB, should be studying the questions raised by members on IMEI security in one of the ITU-T study groups. Council-18 report (C18/107) requested “ITU-T study groups, in particular Study Group 11, to continue to develop Recommendations, technical reports and guidelines to address the problems posed by counterfeits".  TSB conducted a Questionnaire on Reliability of International Mobile Equipment Identity (IMEI), which was initiated according to the ITU-T SG11 decision in October 2019 (TSB Circular 207).  In July 2020, based on the report developed by TSB, SG11 agreed Technical Report QTR-RLB-IMEI "Reliability of IMEI identifier". This technical report contains a study about key vulnerabilities on IMEI reprogramming on mobile devices and proposals to improve IMEI reliability.   * SG11 approved Recommendation ITU-T Q.5053 “Mobile device access list audit interface” and Recommendation ITU-T Q.5052 “Addressing ICT mobile devices with duplicate unique identifiers”. * SG20 approved Recommendation ITU-T Y.4808 "Digital entity architecture framework to combat counterfeiting in IoT. | | | |
| **96-13** | **SG11 to continue developing Recommendations, technical reports and guidelines to address the problem of counterfeit and tampered ICT equipment and to support the Member States in anti-counterfeiting activities (i. SG11 1)** | **Ongoing** | **√** |  |
| SG11: see 96-01. | | | |
| **96-14** | **SG11 to collect, analyse and exchange information about counterfeiting and tampering practices in the ICT sector, and how ICTs could be used as a tool to combat them; (i. SG11 2, 3)** | **Ongoing** | **√** |  |
| SG11 approved Q Supplement 75 “Use Cases on the Combat of Counterfeit ICT and Stolen Mobile Devices”. | | | |
| **96-15** | **SG11 to study existing as well as new reliable, unique, persistent and secure identifiers, in collaboration with ITU-T Study Groups 2, 17 and 20, that have the potential to be used in combating counterfeit and tampered products and telecommunication/ICT devices, including their scope of application and level of security in the context of their possible duplication/cloning;**  **and to develop methods of assessing and verifying identifiers used for purposes of combating counterfeit production (i. SG11 3, 4)** | **Ongoing** | **√** |  |
| SG2: see 96-01.  SG11: see 96-12.  SG20: see 96-01. | | | |
| **96-16** | **SG11 with the involvement of relevant standardization organizations, to develop mechanisms as appropriate for identifying counterfeit production, by means of unique identifiers that are resistant to duplication and respond to confidentiality/security requirements (i. SG11 5)** | **Ongoing** | **√** |  |
| See 96-12 | | | |
| **96-17** | **SG11 to study possible solutions, including frameworks to discover identity management information, that could support combating of counterfeit and tampered telecommunication/ICT devices (i. SG11 6)** | **Ongoing** | **√** |  |
| In March 2019, further to TSB Circular 105 of 5 September 2018, and pursuant to clause 9.5 of Resolution 1 (Rev. Hammamet, 2016), SG11 approved new Recommendation ITU-T Q.5050 “Framework for solution to combat counterfeit ICT devices”. This Recommendation contains the reference framework and requirements to be considered when deploying solutions to combat the circulation and use of counterfeit ICT devices.  In 2020, SG11 approved new Recommendation ITU-T Q.5052 “Addressing mobile devices with duplicate unique identifier” which identifies challenges and proposes mechanisms to enable the detection of mobile devices with duplicate identifiers present on operator networks, at national and international environment, as well as recommending mechanisms for validating the legitimacy of such devices. | | | |
| **96-18** | **SG11 to identify a list of technologies/products, used for testing conformance with ITU-T Recommendations, in order to help in efforts to combat counterfeit ICT production (i. SG11 7)** | **Ongoing** | **√** |  |
| During WSIS Session 406 “Combating counterfeit telecommunication/ICT devices and software” (May 2021), it was highlighted that ITU Product Conformity Database might become a tool to facilitate combating counterfeiting. | | | |

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# Resolution 97 - Combating mobile telecommunication device theft

**Resolution 97**

resolves

1 that ITU-T should explore all applicable solutions and develop ITU-T Recommendations to combat and deter mobile device theft, offering all interested parties a forum for encouraging discussion, member cooperation, the exchange of best practices and guidelines and the dissemination of information on combating mobile device theft;

2 that ITU-T should, in collaboration with the relevant standards organizations, develop solutions to address the problem of duplication of unique identifiers;

3 that ITU-Т Study Group 11 should be the lead study group at ITU-T on activities relating to combating mobile telecommunication device theft,

resolves to instruct the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the Radiocommunication Bureau and Telecommunication Development Bureau

1 to compile information on best practices developed by industry or governments and promising trends in combating mobile device theft;

2 to facilitate, in collaboration with industry organizations and standards development organizations (SDOs), the standardization and dissemination of Recommendations, technical reports and guidelines to combat mobile device theft and its negative effects, specifically regarding the exchange of identifiers of mobile devices reported stolen or lost, and to prevent lost or stolen mobile devices from accessing mobile networks;

3 to consult with the Sector's relevant study groups, manufacturers of mobile devices, manufacturers of telecommunication network components, operators, telecommunication SDOs as well as developers of promising technologies related to these matters, in order to identify existing and future technological measures, both software and hardware, to mitigate the consequences of the use of stolen mobile devices;

4 to provide assistance, within ITU-T's expertise and within available resources, as appropriate, in cooperation with relevant organizations, to Member States, if so requested, in order to reduce mobile device theft and the use of stolen mobile devices in their countries,

instructs Study Groups 11 and 17 of the ITU Telecommunication Standardization Sector, within their mandates and in collaboration with other interested study groups,

1 to develop Recommendations, technical reports and guidelines to address the problem of mobile telecommunication device theft and its negative effects;

2 to study any possible solutions to combat the use of stolen mobile telecommunication devices with tampered (changed without authorization) identities and to prevent them from accessing the mobile network;

3 to study any technologies that can be used as a tool for combating mobile telecommunication device theft;

4 to draw up a list of identifiers used in mobile telecommunication/ICT devices,

invites Member States and Sector Members

1 to take all necessary measures to combat mobile telecommunication device theft and its negative effects;

2 to cooperate and share expertise in this area;

3 to participate actively in ITU studies relating to the implementation of this resolution by submitting contributions;

4 to take the necessary actions to prevent or discover and control tampering (unauthorized changing) of unique mobile telecommunication/ICT device identifiers and prevent tampered devices from accessing mobile networks.

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **97-01** | **ITU-T study groups should explore all applicable solutions and develop ITU-T Recommendations to combat and deter mobile device theft, offering all interested parties a forum for encouraging discussion, member cooperation, the exchange of best practices and guidelines and the dissemination of information on combating mobile device theft (resolves 1)** | **Ongoing** | **√** |  |
| * SG11 established a plan for implementation of the Resolution 97 (WTSA-16) and approved new Recommendation ITU-T Q.5051 “Framework for Combating the use of Stolen Mobile Devices”. * SG17 developed Recommendation ITU-T X.1127 (2017) "Functional security requirements and architecture for mobile phone anti-theft measures". | | | |
| **97-02** | **ITU-T study groups should, in collaboration with the relevant standards organizations, develop solutions to address the problem of duplication of unique identifiers (resolves 2)** | **Ongoing** | **√** |  |
| * SG2: see 96-01. * SG11 informed OECD, WIPO, WTO, 3GPP, MWF, GSMA as well as regional organizations (APT, ATU, CITEL, CEPT, RCC) and ITU SGs on the current activities related to mobile device theft. TSB secretariat participated in and gave an overview of ITU-T activities on combating counterfeit and stolen ICT devices at the coordination meeting of IGOs working in the area of building respect for Intellectual Property (IP) in 2019, 2020 and 2021. | | | |
| **97-03** | **SG11 should be the lead study group at ITU-T on activities relating to combating mobile telecommunication device theft (resolves 3)** | **Ongoing** | **√** |  |
| SG11 informs ITU SGs on the ongoing work related to mobile device theft and encourages their active participation on this matter.  SG11 established an action plan for implementation of WTSA-16 Resolution 97. | | | |
| **97-04** | **TSB Director to compile information on best practices developed by industry or governments and promising trends in combating mobile device theft (i. TSBDir 1)** | **Ongoing** | **√** |  |
| SG11 will follow up the plan for implementation of Resolution 97 (WTSA-16). SG11 approved Q Supplement 75 “Use Cases on the Combat of Counterfeit ICT and Stolen Mobile Devices”. | | | |
| **97-05** | **TSB Director to facilitate, in collaboration with industry organizations and standards development organizations (SDOs), the standardization and dissemination of Recommendations, technical reports and guidelines to combat mobile device theft and its negative effects, specifically regarding the exchange of identifiers of mobile devices reported stolen or lost, and to prevent lost or stolen mobile devices from accessing mobile networks (i. TSBDir 2)** | **Ongoing** | **√** |  |
| SG11 follows up the plan for implementation of Resolution 97 (WTSA-16). SG11 developed new ITU-T Q Supplement 73 " Guidelines for Permissive versus Restrictive System Implementations to address counterfeit, stolen and illegal mobile devices". SG11 agreed ITU-T Q Supplement 74 “Roadmap for the Q.5050-series - Combat of Counterfeit ICT and Stolen Mobile Devices”.  In May 2021, ITU organized a joint webinar with Mobile Wireless Forum on "Combating Counterfeit and Irregular Mobile Devices: How to address the Problem". | | | |
| **97-06** | **TSB Director to consult with the Sector's relevant study groups, manufacturers of mobile devices, manufacturers of telecommunication network components, operators, telecommunication SDOs as well as developers of promising technologies related to these matters, in order to identify existing and future technological measures, both software and hardware, to mitigate the consequences of the use of stolen mobile devices (i. TSBDir 3)** | **Ongoing** | **√** |  |
| SG11 follows up the plan for implementation of Resolution 97 (WTSA-16). New members were involved in SG11 related activities following consultations and ITU Workshops.  One demo zone was deployed during ITU Workshop on Global approaches on combating counterfeiting and stolen ICT devices (July 2018): Combat Mobile Device Theft with blockchain-based Global IMEI Storage and Services Innovation, Deutsche Telekom, SAP and Camelot ITLab. | | | |
| **97-07** | **TSB Director to provide assistance, within ITU-T's expertise and within available resources, as appropriate, in cooperation with relevant organizations, to Member States, if so requested, in order to reduce mobile device theft and the use of stolen mobile devices in their countries (i. TSBDir 4)** | **Ongoing** | **√** |  |
| In July 2017, the Director of TSB communicated with the GSMA on the misuse of International Mobile Equipment Identity (IMEI) numbers in mobile handsets, see [CWG-FHR 8/19](https://www.itu.int/md/S18-CLCWGFHRM8-C-0019). All interested ITU members are invited to contribute to SG11 proposing the way forward. ITU-T, in particular ITU-T SG11 is looking forward to continuing collaboration with GSMA to address such issues.  The second ITU-T Study Group 11 regional [workshop for Africa](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180423/Pages/default.aspx) on "Counterfeit ICT Devices, Conformance and Interoperability Testing Challenges in Africa" took place in Tunis, Tunisia on 23 April 2018, followed by the second ITU-T SG11 Regional Group meeting for Africa (SG11RG-AFR) (23-25 April 2018). During SG11RG-AFR meeting, it was noted that duplication/cloning and tampering of unique identifiers of ICT devices, such as IMEI, are still a huge problem in the African Region. Also, it was stated that ITU should address this problem by proposing secure mechanisms to be used for identification of ICT devices, not limited to mobile phones (see [R2](https://www.itu.int/md/T17-SG11RG.AFR-R-0002/en)).  In July 2018, ITU organized a [Workshop on "Global approaches on combating counterfeiting and stolen ICT devices"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180723/Pages/default.aspx). One of the aims of the Workshop was to focus on concerns raised by ITU Member States during Council-18 on tampering with unique telecommunication device identifiers used in ICT devices such as IMEI. During Workshop, it was noted that the reliability of ICT identifiers are still a key important issue for most of countries. Following the outcomes of the Workshop, ITU-T SG11 was encouraged to take some actions, which aim to increase reliability of existing ICT identifiers. ITU-T SG11 decided to request TSB Director to inform Council about outcomes of this workshop. The details are available in the SG11 Report ([R11](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG11-R-0011))*.*  Following the decision of Council-18 (C18/107, clause 2), ITU, in particular TSB, should be studying the questions raised by members on IMEI security in one of the ITU-T study groups. Council-18 report (C18/107) requested “ITU-T study groups, in particular Study Group 11, to continue to develop Recommendations, technical reports and guidelines to address the problems posed by counterfeits". Based on the report prepared by TSB, the new Technical Report ITU-T QTR-RLB-IMEI “Reliability of IMEI” was agreed by SG11. | | | |
| **97-08** | **SGs 11 and 17 to develop Recommendations, technical reports and guidelines to address the problem of mobile telecommunication device theft and its negative effects (i. SGs11+17 1)** | **Ongoing** | **√** |  |
| * SG11 approved ITU-T Q.5051 "Framework for combating the use of Stolen Mobile ICT Devices". * SG11 approved Recommendation ITU-T Q.5052 “Addressing mobile devices with duplicate unique identifier” and ITU-T Q.5053 “Mobile device access list audit interface”. * SG17 developed Recommendation ITU-T X.1127 (2017) "Functional security requirements and architecture for mobile phone anti-theft measures". | | | |
| **97-09** | **SGs 11 and 17 to study any possible solutions to combat the use of stolen mobile telecommunication devices with tampered (changed without authorization) identities and to prevent them from accessing the mobile network (i. SGs11+17 2)** | **Ongoing** | **√** |  |
| SG11: see 97-08. | | | |
| **97-10** | **SGs 11 and 17 to study any technologies that can be used as a tool for combating mobile telecommunication device theft (i. SGs11+17 3)** | **Ongoing** | **√** |  |
| SG11, SG17: see 97-08. | | | |
| **97-11** | **SGs 11 and 17 to draw up a list of identifiers used in mobile telecommunication/ICT devices (i. SGs11+17 4)** | **Ongoing** | **√** |  |
| SG11 approved ITU-T Q.5052 “Addressing mobile devices with duplicate unique identifier” which identifies challenges and proposes mechanisms to enable the detection of mobile devices with duplicate identifiers present on operator networks as well as recommending mechanisms for validating the legitimacy of such devices. | | | |

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# Resolution 98 - Enhancing the standardization of Internet of things and smart cities and communities for global development

**Resolution 98**

resolves to instruct Study Group 20 of the ITU Telecommunication Standardization Sector

1 to develop ITU-T Recommendations aimed at implementing IoT and SC&C, including, but not limited to, on issues related to emerging technologies and vertical industries;

2 to continue, within its mandate, to work with a special focus on the design of a roadmap and harmonized and coordinated international telecommunication standards for the development of IoT, taking into account the needs of each region and fostering a competitive environment;

3 to collaborate with IoT-related standards organizations and other stakeholders such as industry forums and associations, consortia and SDOs, as well as other relevant ITU-T study groups, and to take into account relevant work;

4 to collate, evaluate, assess and share IoT use cases from the interoperability and standardization standpoints for data and information exchange,

instructs the Director of the Telecommunication Standardization Bureau

1 to provide necessary assistance in order to take advantage of every opportunity, within the assigned budget, to promote quality standardization work in a timely manner, and to communicate with telecommunication and ICT industries in order to promote their participation in ITU-T's standardization activities on IoT and SC&C;

2 to carry out, in collaboration with Member States and cities, pilot projects in cities related to SC&C key performance indicator (KPI) assessment activities, aimed at facilitating the deployment and implementation of IoT and SC&C standards worldwide;

3 to continue to support the United for Smart Sustainable Cities Initiative (U4SSC), launched by ITU together with the United Nations Economic Commission for Europe (UNECE) in May 2016, and share its deliverables with ITU-T Study Group 20 and other study groups concerned;

4 to continue encouraging cooperation with other international standardization organizations and other related organizations, in order to increase the development of international telecommunication standards and reports that facilitate the interoperability of IoT services,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the Telecommunication Development Bureau and the Radiocommunication Bureau

1 to prepare reports considering, in particular, the needs of developing countries in terms of the study of IoT and its applications, sensor networks, services and infrastructure;

2 to continue disseminating ITU publications on IoT and SC&C, as well as organizing forums, seminars and workshops on the subject, taking into account the needs of developing countries, in particular,

| Action Item | Action | Milestone | Periodic goals met | Completed |
| --- | --- | --- | --- | --- |
| **98-01** | **SG20 to develop ITU-T Recommendations aimed at implementing IoT and SC&C, including, but not limited to, on issues related to emerging technologies and vertical industries (resolves i. SG20 1)** | **Ongoing** | **√** |  |
| * [SG20](http://www.itu.int/en/ITU-T/about/groups/Pages/sg20.aspx) continues to develop standards that leverage IoT technologies to address urban-development challenges. A key part of this study is the standardization of end-to-end architectures for IoT and mechanisms for the interoperability of IoT applications and datasets employed by various vertically oriented industry sectors.   SG20 has approved the following Recommendations on IoT and SC&C such as:   * + ITU-T Y.4003 “Overview of smart manufacturing in the context of Industrial Internet of Things”;   + ITU-T Y.4004 “Overview of smart oceans and seas, and requirements for their ICT implementations”;   + ITU-T Y.4051 “Vocabulary for smart cities and communities”,   + ITU-T Y.4101 “Common requirements and capabilities of a gateway for Internet of Things applications“;   + ITU-T Y.4101/Y.2067 “Common requirements and capabilities of a gateway for Internet of Things applications”;   + ITU-T Y.4113 “Requirements of the network for the Internet of Things”;   + ITU-T Y.4114 “Specific requirements and capabilities of the IoT for Big Data”;   + ITU-T Y.4115 “Reference architecture for IoT device capability exposure“;   + ITU-T Y.4116 “Requirements of transportation safety service including use cases and service scenarios”;   + ITU-T Y.4117 “Requirements and capabilities of Internet of Things for support of wearable devices and related services”;   + ITU-T Y.4118 “Internet of Things requirements and technical capabilities for support of accounting and charging”;   + ITU-T Y.4119 “Requirements and capability framework for IoT-based automotive emergency response system”;   + ITU-T Y.4120 “Requirements of Internet of Things applications for smart retail stores”;   + ITU-T Y.4121 “Requirements of an Internet of Things enabled network for support of applications for global processes of the earth”;   + ITU-T Y.4122 “Requirements and capability framework of edge computing-enabled gateway in the IoT”;   + ITU-T Y.4200 “Requirements for interoperability of smart city platforms”;   + ITU-T Y.4201 “High-level requirements and reference framework of smart city platform”;   + ITU-T Y.4202 “Framework of wireless power transmission application service”;   + ITU-T Y.4203 “Requirements of things description in the Internet of Things”;   + ITU-T Y.4204 “Accessibility requirements for the Internet of things applications and services”;   + ITU-T Y.4205 “Requirements and reference model of IoT-related crowdsourced systems”;   + ITU-T Y.4206 “Requirements and capabilities of user-centric work space service”;   + ITU-T Y.4207 “Requirements and capability framework of Smart Environmental Monitoring”;   + ITU-T Y.4208 “IoT requirements for support of edge computing”;   + ITU-T Y.4209 “Requirements for interoperation of the smart port with the smart city”;   + ITU-T Y.4210 “Requirements and use cases for universal communication module of mobile IoT devices”;   + ITU-T Y.4211 “Accessibility requirements for smart public transportation services”;   + ITU-T Y.4212 “Requirements and capabilities of network connectivity management in the Internet of things”;   + ITU-T Y.4213 “IoT requirements and capability framework for monitoring physical city assets”;   + ITU-T Y.4415 “Architecture of web of objects based virtual home network”;   + ITU-T Y.4416 “Architecture of the Internet of Things based on NGNe”;   + ITU-T Y.4417 “Framework of self-organization network in the IoT environments”;   + ITU-T Y.4418 “Functional architecture of gateway for IoT applications”;   + ITU-T Y.4419 “Requirements and Capability Framework of Smart Utility Metering (SUM)”;   + ITU-T Y.4420 “Framework of IoT based monitoring and management for Lift”;   + ITU-T Y.4421 “Functional architecture for unmanned aerial vehicles and unmanned aerial vehicle controllers using IMT-2020 networks”;   + ITU-T Y.4451 “Framework of constrained device networking in the IoT environments”;   + ITU-T Y.4452 “Functional framework of Web of Objects”;   + ITU-T Y.4453 “Adaptive software framework for IoT devices”;   + ITU-T Y.4455 "Reference architecture for IoT network service capability exposure“;   + ITU-T Y.4456 “Requirements and Functional Architecture for Smart Parking Lot in Smart City”;   + ITU-T Y.4457 “Architectural framework for transportation safety services”;   + ITU-T Y.4458 “Requirements and functional architecture of smart street light service”;   + ITU-T Y.4459 “Digital entity architecture framework for IoT interoperability”;   + ITU-T Y.4460 “Architectural reference model of devices for IoT applications”;   + ITU-T Y.4461 “Framework of open data in smart cities”;   + ITU-T Y.4462 “Requirements and functional architecture of open IoT identity correlation service”;   + ITU-T Y.4463 “Framework of delegation service for IoT devices”;   + ITU-T Y.4464 “Framework of blockchain of things as decentralized service platform”;   + ITU-T Y.4465 “Framework of IoT Services based on Visible Light Communications”;   + ITU-T Y.4466 “Framework of smart greenhouse service”;   + ITU-T Y.4467 “Minimum set of data structure for automotive emergency response system”;   + ITU-T Y.4468 “Minimum set of data transfer protocol for automotive emergency response system”;   + ITU-T Y.4469 “Reference architecture of spare computational capability exposure of IoT devices for smart home”;   + ITU-T Y.4470 “Reference architecture of artificial intelligence service exposure for smart sustainable cities”;   + ITU-T Y.4471 “Functional architecture of network-based driving assistance for autonomous vehicles”;   + ITU-T Y.4473 “SensorThings API - Sensing”;   + ITU-T Y.4474 “Functional architecture for IoT services based on Visible Light Communications”;   + ITU-T Y.4475 “Lightweight intelligent software framework for IoT devices”;   + ITU-T Y.4476 “OID-based resolution framework for transaction of distributed ledger assigned to IoT resources”;   + ITU-T Y.4477 “Framework of service interworking with device discovery and management in heterogeneous Internet of things environments”;   + ITU-T Y.4478 “Requirements and functional architecture for smart construction site services”;   + ITU-T Y.4480 “Low power protocol for wide area wireless networks”;   + ITU-T Y.4553 “Requirements of smartphone as sink node for IoT applications and services”;   + ITU-T Y.4555 “Service functionalities of self-quantification over Internet of things”,   + ITU-T Y.4556 “Requirements and functional architecture of smart residential community”;   + ITU-T Y.4558 “Requirements and functional architecture of smart fire smoke detection service”;   + ITU-T Y.4559 “Requirements and functional architecture of base station inspection services using unmanned aerial vehicles”;   + ITU-T Y.4560 “Blockchain-based data exchange and sharing for supporting Internet of things and smart cities and communities”;   + ITU-T Y.4561 “Blockchain-based Data Management for supporting Internet of things and smart cities and communities”;   + ITU-T Y.4563 “Requirements and functional model to support data interoperability in IoT environments”;   + ITU-T Y.4702 “Common requirements and capabilities”;   + ITU-T Y.4805 “Identifier service requirements for the interoperability of Smart City applications”;   + ITU-T Y.4806 “Security capabilities supporting safety of the Internet of Things”;   + ITU-T Y.4807 “Agility by design for Telecommunications/ICT Systems Security used in the Internet of Things”;   + ITU-T Y.4808 “Digital entity architecture framework to combat counterfeiting in IoT”;   + ITU-T Y.4809 “Unified IoT Identifiers for intelligent transport systems”;   + ITU-T Y.4811 “Reference framework of converged service for identification and authentication for IoT devices in decentralized environment”;   + ITU-T Y.4904 “Smart sustainable cities maturity model”;   + ITU-T Y.4905 “Smart sustainable city impact assessment”;   + ITU-T Y.4906 “Assessment Framework for digital transformation of sectors in smart cities”;   + ITU-T Y.4907 “Reference architecture of blockchain-based unified KPI data management for smart sustainable cities”;   + ITU-T Y.4908 “Performance evaluation frameworks of e-health systems in the IoT”.   As part of the collaboration with oneM2M, SG20 has approved 17 Recommendations and 6 Technical Reports. Some of the Recommendations approved are: ITU-T Y.4500.1 “oneM2M- Functional Architecture”, ITU-T Y.4500.2 “oneM2M- Requirements”, ITU-T Y.4500.10 "oneM2M- MQTT Protocol Binding“, ITU-T Y.4500.11 "oneM2M- Common Terminology“, ITU-T Y.4500.12 "oneM2M Base Ontology“, ITU-T Y.4500.13 "oneM2M- Interoperability Testing“, and ITU-T Y.4500.14 "oneM2M- LwM2M Interworking“, among others.  SG20 has agreed nineteen Supplements:   * + ITU-T Y.Suppl.56 “Use cases of smart cities and communities”;   + ITU-T Y.Suppl.57 to ITU-T Y.4409 “Implementation Guidelines to Recommendation ITU-T Y.4409”;   + ITU-T Y.Suppl.58 “Internet of Things and smart cities and communities standards roadmap”;   + ITU-T Y.Supp.52 to ITU-T 4000 series “Methodology for building digital capabilities during enterprises' digital transformation”;   + ITU-T Y.Supp.53 to ITU-T Y.4000 series “IoT Use cases”;   + ITU-T Y.Suppl.54 to ITU-T Y.4000 series “Framework for Home Environment Profiles and Levels of IoT Systems”;   + ITU-T Y.Supp.45 to ITU-T Y.4000 series "An overview of smart cities and communities and the role of information and communication technologies";   + ITU-T Y.Supp.34 to ITU-T Y.4000 series "Smart Sustainable Cities - Setting the stage for stakeholders' engagement";   + ITU-T Y.Supp.33 to ITU-T Y.4000 series "Smart Sustainable Cities - Master plan";   + ITU-T Y.Supp.32 to ITU-T Y.4000 series "Smart sustainable cities - a guide for city leaders";   + ITU-T Y.Suppl.61 “Features of application programming interface (APIs) for IoT data in smart cities and communities”;   + ITU-T Y.Suppl.62 “Overview of blockchain for supporting Internet of things and smart cities and communities in data processing and management aspects”;   + ITU-T Y.Suppl.63 “Unlocking Internet of things with artificial intelligence”;   + ITU-T Y.Suppl.68 “Framework for Internet of Things ecosystem Master Plan”;   + ITU-T Y.Suppl.69 “Web based data model for IoT and smart city systems and services”.   SG20 approved Recommendations are found at: <https://www.itu.int/ITU-T/recommendations/index_sg.aspx?sg=20>  SG20 ongoing work items are found at: <https://www.itu.int/ITU-T/workprog/wp_search.aspx?sg=20>   * Q6/17 title was updated to highlight its mandate on IoT security and approved:   + ITU-T X.1361, *Security framework for the Internet of things based on the gateway model*,   + ITU-T X.1362, *Simple encryption procedure for Internet of things (IoT) environments*,   + ITU-T X.1363, *Technical framework of personally identifiable information (PII) handling system in Internet of things (IoT) environment*,   + ITU-T X.1364, *Security requirements and framework for narrow band Internet of things*,   + ITU-T X.1365, *Security methodology for the use of identity-based cryptography in support of Internet of things services over telecommunication networks*,   + ITU-T X.1366, *Aggregate message authentication scheme for IoT environment*,   + ITU-T X.1367, *Standard format for Internet of things error logs for security incident operations*,   + ITU-T X.1368, *Secure firmware/software update for Internet of things (IoT) devices,*   + ITU-T X.1369, *Security Requirements for IoT Service Platform,*   + X.Suppl.31, *Supplement 31 to ITU-T X-series Recommendations - ITU-T X.660 Guidelines for using object identifiers for the Internet of things.*   SG17 approved Recommendations on IoT Security are found at <https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3935&isn_status=-1,2&sum=IoT&details=0&field=acdefghijo> SG17 ongoing work items on IoT security are found at: <https://www.itu.int/itu-t/workprog/wp_search.aspx?isn_sp=3925&isn_sg=3935&isn_status=-1,1,3&sum=IoT&details=0&field=acdefghijo>. | | | |
| **98-02** | **SG20 to continue, within its mandate, to work with a special focus on the design of a roadmap and harmonized and coordinated international telecommunication standards for the development of IoT, taking into account the needs of each region and fostering a competitive environment (resolves i. SG20 2)** | **Ongoing** | **√** |  |
| The [IoT and Smart Cities and Communities Standards Roadmap](https://www.itu.int/net4/itu-t/roadmap#?topic=0&workgroup=1&searchValue=&page=1&sort=Revelance) documents complete as well as ongoing work on IoT and Smart Cities and Communities by ITU-T as well as a range of standards other standards bodies.This roadmap is maintained by the [Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C)](http://www.itu.int/en/ITU-T/jca/iot/Pages/default.aspx) and is available [online](https://www.itu.int/net4/itu-t/landscape#?topic=0.78&workgroup=1&searchValue=&page=1&sort=Revelance). The JCA IoT and SC&C Roadmap is also available as [Supplement ITU-T Y.Suppl.58](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14176): Internet of Things and smart cities and communities standards roadmap.  Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C) meetings took place as follows:   * Virtual, 7 October 2021 * Virtual, 23 April 2021 * Virtual, 26 June 2020 * Geneva, 28 November 2019 * Geneva, 10 April 2019 * Wuxi, China, 6 December 2018 * Cairo, Egypt, 10 May 2018 * Geneva, 7 September 2017 * Dubai, 16 March 2017. | | | |
| **98-03** | **SG20 to collaborate with IoT-related standards organizations and other stakeholders such as industry forums and associations, consortia and SDOs, as well as other relevant ITU-T study groups, and to take into account relevant work (resolves i. SG20 3)** | **Ongoing** | **√** |  |
| * ITU at its March 2017 meeting of ITU-T SG20 in Dubai (UAE) established a new Focus Group on "Data Processing and Management to support IoT and Smart Cities & Communities" to research data processing and management in the context of smart cities. The Focus Group will review existing technical platforms and related guidelines for data processing and management, with a view to identifying standardization demands to be addressed by ITU-T SG20. A key priority of the Focus Group is to propose mechanisms supporting the interoperability of datasets and data-management systems. The group is investigating established data-management technologies as well as emerging trends such as blockchain, promoting efficient, scalable approaches to the management of systems data. The new ITU-T Focus Group on "Data Processing and Management (DPM) to support IoT and Smart Cities & Communities" (FG DPM) had its first meeting from 17 to 19 July 2017 in Geneva, Switzerland. The work of the FG-DPM is being carried out through five Working Groups: WG1 - Use Cases, Requirements and Applications/Services; WG2 - DPM Framework, Architectures and Core Components; WG3 - Data sharing, Interoperability and Blockchain; WG4 - Security, Privacy and Trust including Governance and WG5 - Data Economy, commercialization, and monetisation. A number of Internet-related topics are being addressed by this FG such as DPM in the context of IoT, web-based microdata and metadata formats for IoT, blockchain usage in IoT for data management, security, privacy, and trust including data governance in DPM. Since its creation, FG-DPM has had the following meetings:   + First FG-DPM meeting, 17-19 July 2017, Geneva, Switzerland.   + Second FG-DPM meeting, 20-25 October 2017, Geneva, Switzerland.   + Third FG-DPM meeting, 20-23 February 2018, Brussels, Belgium.   + Fourth FG-DPM meeting, 1-3 May 2018, Cairo, Egypt.   + Fifth FG-DPM meeting, 17-20 September 2018, Tunis, Tunisia.   + Sixth FG-DPM meeting, 14-18 February 2019, Bundang, Seoul, Korea (Rep. of).   + Seventh FG-DPM meeting, 3-7 April 2019, Geneva.   The last meeting of the FG-DPM took place from 15 to 19 July 2019 in Geneva, Switzerland. The FG-DPM concluded with 15 deliverables as follows:   * Technical Specification “Data Processing and Management for IoT and Smart Cities and Communities: Vocabulary”; * Technical Report “Data Processing and management for IoT and smart cities and communities: methodology for data processing and management concept building”; * Technical Specification “Use case analysis and requirements for data processing and management to support IoT and smart cities and communities” * Technical Specification “Data processing and management framework for IoT and smart Cities and communities" * Technical Report on “Web based data model for IoT and smart city”; * Technical Specification D3.2: SensorThings API – Sensing; * Technical Specification D3.3: Framework to support data interoperability in IoT environments; * Technical Report D3.5: Overview of blockchain for supporting IoT and SC&C in DPM aspects * Technical Specification “Blockchain-based data exchange and sharing for supporting IoT and SC&C”; * Technical Specification D3.7: Blockchain-based data management for supporting IoT and SC&C; * Technical Specification “Identity framework in blockchain to support DPM for IoT and SC&C”; * Technical Report “Framework for security, privacy, risk and governance in data processing and management”; * Technical Report “Overview of technical enablers for trusted data”; * Technical Report “Framework to support data quality management in IoT”; * Technical Specification “Data economy: commercialization, ecosystem and impact assessment”.   At the SG20 meeting held from 25 November to 6 December 2019, the FG-DPM deliverables were discussed during the Questions’ sessions and it was decided to adopt some of the deliverables as shown in the table below:   | **FG-DPM Deliverable** | **Q** | **Decision Taken** | **Work Item** | **Title** | | --- | --- | --- | --- | --- | | D2.1 - Data processing and management framework for IoT and smart cities and communities | 1/20 | A new work item was created to develop a Recommendation. | Y.DPM-framework | Data processing and management framework for IoT and smart cities and communities | | D2.3 - Web based data model for IoT and smart city | 1/20 | A new work item was created to develop a Supplement. | Approved  ITU-T Y.Suppl.69 | Web based data model for IoT and smart city | | D3.3 - Framework to support data interoperability in IoT environments | 1/20 | A new work item was created to develop a Recommendation. | Y.DPM-interop | Requirements and functional model to support data interoperability in IoT environments | | D4.4 - Framework to support data quality management in IoT | 1/20 | A new work item was created to develop a Recommendation. | Y.DPM-qm | Requirements and functional model to support data quality management in IoT | | Part of D3.3 - Framework to support data interoperability in IoT environments | 4/20 | A new work item was created to develop a Recommendation taking into consideration part of D.3.3 from the FG-DPM and Recommendation ITU-T Y.4452. | Y.eHealth-Semantic | Architecture of web of objects based semantic mediation model in eHealth service | | D3.7 - Blockchain-based data management for supporting IoT and SC&C | 4/20 | A new work item was created and Recommendation ITU-T 4561 was approved in August 2020. | Approved  ITU-T Y.4561 | Blockchain-based Data Management for supporting IoT and SC&C | | D3.5 - Overview of blockchain for supporting IoT and SC&C in DPM aspects | 4/20 | A new work item was created and Y.Suppl.62 ITU-T 4000 series was agreed in July 2020. | Agreed  ITU-T Y.Suppl.62 | Overview of blockchain for supporting IoT and SC&C in DPM aspects | | D3.6 - Blockchain-based data exchange and sharing for supporting IoT and SC&C | 4/20 | A new work item was created and Recommendation ITU-T Y.4560 was approved in August 2020. | Approved  ITU-T Y.4560 | Blockchain-based data exchange and sharing for supporting IoT and SC&C | | D3.2 - SensorThings API – Sensing | 4/20 | A new work item was created and Recommendation ITU-T 4473 was approved in August 2020. | Approved  ITU-T Y.4473 | SensorThings API - Sensing |  * The [Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C)](http://www.itu.int/en/ITU-T/jca/iot/Pages/default.aspx) is assisting in initiating active collaboration with relevant SDOs and Forums. The JCA is maintaining the IoT and Smart Cities and Communities Standards Roadmap which documents complete as well as ongoing work on IoT and Smart Cities and Communities carried out by ITU-T as well as by other SDOs and Forums. The last JCA- IoT and SC&C meeting took place on 28 November 2019 in Geneva, Switzerland. The IoT and SC&C standards roadmap is available online [here](https://www.itu.int/net4/itu-t/landscape#?topic=0.78&workgroup=1&searchValue=&page=1&sort=Revelance). The JCA IoT and SC&C Roadmap is also available as [Supplement ITU-T Y.Suppl.58](https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=14176): Internet of Things and smart cities and communities standards roadmap. * SG17 and SG20 decided to discontinue the Correspondence Group on Security and Privacy for IoT (CG-IoTsec). Future coordination on IoT security will be conducted by Q6/17 and Q6/20.   SG20 is closely collaborating with oneM2M. 1 work item on ITU-T Y.oneM2M.SEC.SOL “oneM2M Security Solutions” is currently under study, 17 new Recommendations were approved and 6 Technical Reports were agreed.  SG20 is closely collaborating with LoRa Alliance. SG20 approved [Recommendation ITU-T Y.4480 on “Low power protocol for wide area wireless networks”](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=17210).  ITU-T SG20 is also closely collaborating with ISO and IEC. An ISO-IEC-ITU Working team on Smart City Terminology was created in July 2017 and ITU hosted its first meeting. Since 2016, ITU together with ISO and IEC has been organizing an annual World Smart City Forum ([Singapore, 13 July 2016](https://www.worldsmartcity.org/2016event/), [Barcelona, 15 November 2017](https://www.worldsmartcity.org/2017event/) and [Santa Fe, 29 November 2018](https://www.worldsmartcity.org/)). Additionally, SG20 revised the proposed ToR of the Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF) which were agreed (TD1301-R1) by the three SDOs. Since 2019, the Joint IEC-ISO-ITU Smart Cities Task Force (J-SCTF) has held the following meetings:   * Virtual, 7 October 2020; * Virtual, 24 February 2021; * Virtual, 29 June 2021; * Virtual, 27 and 29 September 2021. | | | |
| **98-04** | **SG20 to collate, evaluate, assess and share IoT use cases from the interoperability and standardization standpoints for data and information exchange (resolves i. SG20 4)** | **Ongoing** | **√** |  |
| Three case studies were published on [“Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Moscow”](https://www.itu.int/en/publications/Documents/tsb/2018-U4SSC-Case-of-Moscow/index.html#p=1), [“Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Singapore”](https://www.itu.int/en/publications/Documents/tsb/2017-Implementing-ITU-T-International-Standards-to-Shape-Smart-Sustainable-Cities-The-Case-of-Singapore/index.html#p=1) and [“Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Dubai](https://www.itu.int/en/publications/Documents/tsb/2016-DubaiCase/index.html#p=1)”. These case studies detail Dubai's, Singapore’s and Moscow’s ambitious and trailblazing journey towards becoming a smart city, a venture worthy of emulation by other aspiring smart cities around the world. Several city snapshots, city verification reports and city factsheets have been developed to highlight the SSC initiative and experience of other cities in implementing the KPIs for SSC. Find out more on ITU’s implementation of the U4SSC KPIs at: <https://www.itu.int/en/ITU-T/ssc/united/Pages/publication-U4SSC-KPIs.aspx>  An [ITU forum on data management for the Internet of Things and smart cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/iot/201703/Pages/default.aspx) sponsored by Etisalat and Du, took place 12 March 2017 in Dubai, United Arab Emirates, which helped identify the need for the new ITU Focus Group on DPM. The workshop's final report can be downloaded [here](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/iot/201703/Documents/FORUMOUTCOME-Final-12March2017.docx).  SG20 developed Recommendations ITU-T Y.4200 “Requirements for interoperability of smart city platforms”, ITU-T Y.4209 “Requirements for interoperation of the smart port with the smart city” and ITU-T 4805 “Identifier service requirements for the interoperability of Smart City applications”.  Deliverables completed by the Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM) are available at: <https://www.itu.int/pub/T-FG-DPM>  ITU, with other organizations and UN agencies, organized a series of webinars on "[Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx)". Episode 6 on “[Smart City Platforms](https://www.itu.int/en/ITU-T/webinars/20211101/Pages/default.aspx)” took place on 01 November 2021 and Episode 11 on “[Blockchain-based data management for supporting Internet of things and smart cities and communities](https://www.itu.int/en/ITU-T/webinars/20211208/Pages/default.aspx)” took place on 08 December 2021.  In December 2021, U4SSC published the deliverables on “[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)” and “[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)”.  See 98-03 | | | |
| **98-05** | **TSB Director to provide necessary assistance in order to take advantage of every opportunity, within the assigned budget, to promote quality standardization work in a timely manner, and to communicate with telecommunication and ICT industries in order to promote their participation in ITU-T's standardization activities on IoT and SC&C (i. TSBDir 1)** | **Ongoing** | **√** |  |
| A Global Portal on Environment and Smart Sustainable Cities has been created and provides references to external resources on these issues (see: <https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx>).  The following events and activities have been organized:  2021   * Webinar series on Digital transformation for cities and communities, 2021-2022 * DT4CC Episode #12: IoT for Earth Observation and Sustainable Development – opportunities and challenges, Virtual, 14 December 2021 * DT4CC Episode #11: Blockchain-based data management for supporting Internet of things and smart cities and communities, Virtual, 8 December 2021 * DT4CC Episode #10: The role of digital technologies on aging and health, Virtual, 7 December 2021 * 6th Meeting of the United for Smart Sustainable Cities (U4SSC) Initiative, Virtual, 7 December 2021 * DT4CC Episode #9: Addressing the Security Risks of Digital Transformation on IoT, Virtual, 6 December 2021 * DT4CC Episode #8: Network capabilities and emerging technologies to support IoT-enabled verticals, Virtual, 18 November 2021 * DT4CC Episode #7: Crowdsourced Systems: A people-led paradigm, Virtual, 2 November 2021 * DT4CC Episode #6: Smart City Platforms, Virtual, 1 November 2021 * Webinar to celebrate World Cities Day on Building climate resilient cities with digital transformation, Virtual, 28 October 2021 * DT4CC Episode #5: Smart sustainable cities maturity model and impact assessment, Virtual, 24 September 2021 * DT4CC Episode #4: Smart Cities: a step towards digital transformation in Latin America (Spanish only), Virtual, 20 September 2021 * DT4CC Episode #3: Smart sustainable city architectures: challenges and opportunities, Virtual, 16 September 2021 * DT4CC Episode #2: IoT-based automotive emergency response system, Virtual, 14 September 2021 * DT4CC Episode #1: Digital twins in cities, Virtual, 8 September 2021 * ITU/OiER Webinar on Accelerating the Path to Cities’ Digital Transformation, Virtual, 8 September 2021 * ITU-T SG20RG-AFR Virtual forum on “Accelerating Digital Transformation in Africa”, Virtual, 2 June 2021 * Virtual Forum on “The Role of Standards in Accelerating Digital Transformation for Cities and Communities”, Virtual, 23 April 2021 * WSIS Thematic Workshop on “Simple Ways to be Smart”, Virtual, 29 March 2021   2020   * Webinar on “Smart sustainable cities and frontier technologies in Latin America”, Virtual session, 8 December 2020 * Virtual forum on “Digital Transformation of Cities and Communities”, Virtual session, 7 December 2020 * Webinar on “Accelerating cities' transformation through standards”, 25 June 2020 * Webinar on “Accelerating cities' transformation through standards”, 25 June 2020 * ITU Forum “Smart sustainable cities: from concept to implementation”, 3-5 March 2020, Minsk, Belarus * WUF10 Networking event on “Governing and managing smart sustainable cities”, 10 February 2020, Abu Dhabi, UAE   2019   * 5th ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities, 25 November 2019, Geneva * World Cities Day - Session on "Smart and sustainable cities: Changing the world: innovations and better life for future generations", 31 October 2019 (15h00-16h30), New York, UNHQ * 9th Green Standards Week: Training on Building Smarter and More Sustainable Cities, 4 October 2019, Valencia, Spain * 9th Green Standards Week: Meeting of the Spanish Expert Committee on Smart Sustainable Cities (RECI), 3 October 2019, Valencia, Spain * 9th Green Standards Week: València: Smart City, 2 October 2019, Valencia, Spain * 9th Green Standards Week: Forum on "Smart Governance in Cities", 2 October 2019, Valencia, Spain * 9th Green Standards Week: Leadership Panel on "Connecting Smart Sustainable Cities with the Sustainable Development Goals", 1 October 2019, Valencia, Spain * Session on "Smart Sustainable Cities & Communities", 5 September 2019, Addis Ababa, Ethiopia * 1st Digital African Week: * ITU Forum on "Smart Sustainable Africa", 28 August 2019, Abuja, Nigeria * 1st Digital African Week: Training on "Smart Sustainable Cities, Products and Services", 27 August 2019, Abuja, Nigeria * Fourth ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities, Geneva, 19 July 2019 * IoT Week, 11-21 June 2019, Aarhus, Denmark * Thematic Workshop on En-gendering the smart city, 11 April 2019 (13h15 - 14h00), Room C2, ITU headquarters, Geneva, Switzerland * Thematic Workshop on United for Smart Sustainable Cities: Blockchain for Cities, 11 April 2019 (09h00 - 10h45), Room K1, ITU headquarters, Geneva, Switzerland * Vienna Cybersecurity Week - Session on Connecting Smart Sustainable Cities with the Sustainable Development Goals, 12 March 2019 (16h30 - 18h00), Vienna, Austria * ITU Training on Key performance indicators for smart sustainable cities to achieve the SDGs, 27 February 2019 (11h30- 16h00), Minsk, Belarus * ITU-UN-Habitat-UNDP Forum on Smart sustainable cities: technological trends, success stories and future prospects, 26-27 February 2019, Minsk, Belarus * Third ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities, Bundang, Seoul Korea (Rep. of), 14 January 2019.   2018   * ITU Forum on Artificial Intelligence, Internet of Things and Smart Cities, 3 December 2018, Wuxi, China * World Smart City Forum, 29 November 2018, Santa Fe, Argentina * Second ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities, 17 September 2018, Tunis, Tunisia * Shaping smarter and more sustainable cities: Striving for Sustainable Development Goals, 12 July 2018, New York, United States * The 4th Asia-Pacific Regional Forum on Smart Sustainable Cities and e-Government 2018, 4-6 July 2018, Thanh Hoa city, Viet Nam * IoT Week 2018, 4-7 June 2018, Bilbao, Spain * ITU Regional Forum on “Internet of Things, Telecommunication Networks and Big Data as Basic Infrastructure for Digital Economy”, 4-6 June 2018 (AM only), St. Petersburg, Russian Federation * Information Session on "Exploring the Role of Small Medium Enterprises (SMEs) in Linking AI and IoT in Smart Cities", 30 May 2018 (9:30 to 11:30 a.m.), Buenos Aires, Argentina * 1st Forum on Artificial Intelligence and the Internet of Things in Smart Sustainable Cities in Latin America, 29-30 May 2018, Buenos Aires, Argentina * Forum on Artificial Intelligence and Internet of Things in the development of Smart Sustainable Cities, 11 April 2018, Zanzibar, Tanzania * Forum on Exploring the Potential of Artificial Intelligence and Internet of Things, 6 May 2018, Cairo, Egypt * Bridging the Standardization Gap Session on Internet of Things (IoT), 6 May 2018, Cairo, Egypt * 1st ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities, 19 February 2018, Brussels, Belgium.   2017   * World Smart City Forum, 15 November 2017, Barcelona, Spain * IoT Week 2017, 6-9 June 2017, Geneva, Switzerland * Workshop on Smart Sustainable Cities, 1-2 June 2017, Samarkand, Uzbekistan * XVIII Ibero-American Meeting of Digital Cities, 3 April 2017, Manizales, Colombia * Special session on Smart Sustainable Manizales, 4 April 2017 (14:00 - 15:00), Manizales, Colombia * First Forum on "Data Management: Transforming Data Into Value", 12 March 2017, Dubai, UAE.   Other events can be found at: <https://www.itu.int/en/ITU-T/climatechange/Pages/events.aspx> | | | |
| **98-06** | **TSB Director to carry out, in collaboration with Member States and cities, pilot projects in cities related to SC&C key performance indicator (KPI) assessment activities, aimed at facilitating the deployment and implementation of IoT and SC&C standards worldwide (i. TSBDir 2)** | **Ongoing** | **√** |  |
| A new standard (ITU-T L.1603/Y.4903) gives general guidance to cities and provides key performance indicators for smart sustainable cities to help cities achieve the Sustainable Development Goals (SDGs). This Recommendation was revised under the U4SSC initiative with the input of several cities and UN Agencies and programmes. These KPIs were developed to establish the criteria to evaluate ICT’s contributions in making cities smarter and more sustainable, and to provide cities with the means for self-assessments in order to achieve the sustainable development goals (SDGs). Over 150 cities worldwide are already implementing these KPIs. The list of all the KPIs for SSC along with its collection methodology are contained in [“Flipbook on Collection Methodology for Key Performance Indicators for Smart Sustainable Cities”](https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Collection-Methodology/index.html).  United for Smart Sustainable Cities Key Performance Indicators based on Recommendation ITU-T Y.4903/L.1603 “Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals" are being implemented in over 150 cities worldwide.  Case studies developed on U4SSC KPIs include:   * Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Moscow * Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Singapore * Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Dubai.   City Snapshots developed on U4SSC KPIs include:   * Ålesund, Asker, Aukra, Aure, Averøy, Baerum, Bodo, Fjord, Gjemnes, Gjøvik, Hareid, Haugesund, Herøy, Hustadvika, Karmoy, Kristiansand, Kristiansund, Molde, Ørsta, Rana, Rauma, Sande, Smøla, Stavanger, Stranda, Sunndal, Surnadal, Sykkylven, Tingvoll, Trondheim, Ulstein, Vanylven, Vestnes, Volda, Larvik (in Norway) * Bizerte (in Tunisia) * Moscow (in Russian Federation) * Riyadh (in Saudi Arabia) * Pully, Switzerland * Valencia (in Spain) * Esperanza, Santa Fe (in Argentina) * Wels (in Austria) * Mashhad (in Islamic Republic of Iran) * Daegu (in Republic of Korea)   County Snapshot developed on U4SSC KPIs include:   * More og Romsdal (in Norway)   City Verification Reports developed on U4SSC KPIs include:   * Ålesund, Asker, Baerum, Bodo, Gjøvik, Haugesund, Karmoy, Kristiansand, Kristiansund, Molde, Rana, Stavanger, Trondheim, Larvik (in Norway) * Bizerte (in Tunisia) * Krimpen aan den Ijssel (in Netherlands) * Riyadh (in Saudi Arabia) * Pully (in Switzerland) * Valencia (in Spain) * Esperanza, Santa Fe (in Argentina) * Mashhad (in Islamic Republic of Iran) * Daegu (in Republic of Korea)   City Factsheets developed on U4SSC KPIs include:   * Ålesund (in Norway) * Bizerte (in Tunisia) * Riyadh (in Saudi Arabia) * Pully (in Switzerland) * Valencia (in Spain) * Mashhad (in Islamic Republic of Iran)   Please find ITU’s implementation of the U4SSC KPIs available at: <https://www.itu.int/en/ITU-T/ssc/united/Pages/publication-U4SSC-KPIs.aspx> | | | |
| **98-07** | **TSB Director to continue to support the United for Smart Sustainable Cities Initiative (U4SSC), launched by ITU together with the United Nations Economic Commission for Europe (UNECE) in May 2016, and share its deliverables with ITU-T Study Group 20 and other study groups concerned (i. TSBDir 3)** | **Ongoing** | **√** |  |
| The [United for Smart Sustainable Cities (U4SSC)](https://www.itu.int/en/ITU-T/ssc/united/Pages/default.aspx) is a UN initiative coordinated by ITU, UNECE and UN-Habitat and supported by 14 other UN Agencies and Programmes namely: CBD, ECLAC, FAO, UNDP, UNECA, UNESCO, UNEP, UNEP-FI, UNFCCC, UNIDO, UNOP, UNU-EGOV, UN-Women and WMO. The U4SSC advocates for public policies aimed at ensuring a catalytic role for information and communication technologies (ICTs) in enabling the transition to smart sustainable cities and also to achieve SDG11 “Make cities and human settlements inclusive, safe, resilient and sustainable”.  The second meeting of the U4SSC was held on 5 April 2017 in Manizales, Colombia. During this meeting, the ToR of the U4SSC initiative were revised and the future plan of action was presented and approved. The third meeting of the U4SSC was held on 26 April 2018 in Malaga, Spain. The fourth meeting of the U4SSC took place in Valencia, Spain in October 2019. The fifth U4SSC meeting took place virtually on 09 October 2021. During this meeting, the ToR of the U4SSC initiative were revised, the set of deliverables developed within U4SSC were presented and the future plan of action was presented and approved. The 6th U4SSC meeting took place virtually on 7 December 2021. A website dedicated to the United for Smart Sustainable Cities (U4SSC) initiative is available at: <https://www.itu.int/en/ITU-T/ssc/united/>.  The U4SSC has developed the following deliverables:   * [Collection Methodology for Key Performance Indicators for Smart Sustainable Cities](https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Collection-Methodology/mobile/index.html) * [Flipbook on "Connecting cities and communities with the SDGs"](https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Deliverable-Connecting-Cities/index.html) * [Flipbook on "Enhancing innovation and participation in smart sustainable cities"](https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Enhancing-innovation/index.html) * [Flipbook on "Implementing SDG11 by connecting sustainability policies and urban planning practices through ICTs"](https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Implementing-sustainable-devt/index.html). * Flipbook on [City Science Application Framework](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-City-Science-Application-Framework/index.html). and its [8 case studies](https://www.itu.int/en/ITU-T/ssc/united/Pages/city-science-case-studies.aspx).   + [Air quality management in Southern California, USA](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Air-quality-management-in-Southern-California-USA/index.html)   + [Smart Dubai Happiness Meter in Dubai, United Arab Emirates](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Smart-Dubai-Happiness-Meter-in-Dubai-United-Arab-Emirates/index.html)   + [Crime prediction for more agile policing in cities - Rio de Janeiro, Brazil](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Crime-prediction-for-more-agile-policing-in-cities-Rio-de-Janeiro-Brazil/index.html)   + [Data driven energy savings in the Hyperdome shopping centre in Queensland, Australia](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Data-driven-energy-savings-in-the-Hyperdome-shopping-centre-in-Queensland-Australia/index.html)   + [Fine dust filtration in Stuttgart, Germany](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Fine-dust-filtration-in-Stuttgart-Germany/index.html)   + [Smart Dubai - Rashid - City Concierge](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Smart-Dubai-Rashid-City-Concierge/index.html)   + [Identifying the cascading effects on vital objects during flooding](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Identifying-the-cascading-effects-on-vital-objects-during-flooding/index.html)   + [Unlocking the potential of trust-based AI for city science and smart cities](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-Unlocking-the-potential-of-trust-based-AI-for-city-science-and-smarter-cities/index.html) * [A Guide to Circular Cities](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-A-guide-to-circular-cities/index.html) and its [8 Case studies](https://www.itu.int/en/ITU-T/ssc/united/Pages/publications-U4SSC.aspx)   + [Energy Efficiency in Buildings](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Energy-efficiency-in-buildings/index.html)   + [City Solid Waste Management](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-City-solid-waste-management/index.html)   + [Affordable Housing and Social Inclusion](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Affordable-housing-and-social-inclusion/index.html)   + [Urban Mobility](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Urban-mobility/index.html)   + [Re-use of Consumer Goods and Tools Loaning](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Re-use-of-consumer-goods-and-tools-loaning/index.html)   + [Reducing Food Waste](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Reducing-food-waste/index.html)   + [Participatory Urban Planning](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Participatory-urban-planning/index.html)   + [Circularity to Promote Local Businesses and Digitization](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Case-study-Circularity-to-promote-local-businesses-and-digitization/index.html) * [Accelerating city transformation using frontier technologies](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Deliverable-Accelerating-city-transformation/index.html) * [Blockchain for smart sustainable cities](https://www.itu.int/en/publications/Documents/tsb/2020-U4SSC-Blockchain-for-smart-sustainable-cities/index.html) * [Simple ways to be smart](https://www.itu.int/en/publications/Documents/tsb/2021-U4SSC-Simple-ways-to-be-smart/index.html) * [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   Please find all U4SSC deliverables available at: <https://www.itu.int/en/ITU-T/ssc/united/Pages/publications-U4SSC.aspx>  U4SSC is currently working on the following Thematic Groups:   * Economic recovery in cities and urban resilience building in the time of COVID-19 * Innovative Financing Instruments for Smart Sustainable Cities * Guiding principles for artificial intelligence in cities * Procurement Guidelines for Smart Sustainable Cities * City Platforms   The fourth meeting of the U4SSC took place on 3 October 2019 in Valencia, Spain during the 9th Green Standards Week (1-4 October 2019, Valencia, Spain). During the meeting the [Report on City Science Application Framework](https://www.itu.int/en/publications/Documents/tsb/2019-U4SSC-City-Science-Application-Framework/index.html) was launched.  The U4SSC developed a set of international key performance indicators (KPIs) for Smart Sustainable Cities (SSC) to establish the criteria to evaluate ICT´s contributions in making cities smarter and more sustainable, and to provide cities with the means for self-assessments in order to achieve the sustainable development goals (SDGs). The list of all the KPIs for SSC along with its collection methodology are contained in the Flipbook on ["Collection Methodology for Key Performance Indicators for Smart Sustainable Cities".](https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Collection-Methodology/index.html) Currently several city factsheets are being developed which will highlight the main smart and sustainable initiatives of the participating cities. They will also describe the performance of the cities in the implementation of the KPIs.  The following City Snapshots were launched during the 4th U4SSC meeting: [[Ålesund, Norway](https://www.itu.int/en/ITU-T/ssc/united/Documents/U4SSC-Snapshots/City_Snapshot_Alesund_Norway.pdf)] [[Bizerte, Tunisia](https://www.itu.int/en/ITU-T/ssc/united/Documents/U4SSC-Snapshots/City_Snapshot_Bizerte_Tunisia.pdf)] [[Moscow, Russia](https://www.itu.int/en/ITU-T/ssc/united/Documents/U4SSC-Snapshots/City_Snapshot_Moscow_Russia.pdf)] [[Riyadh, Saudi Arabia](https://www.itu.int/en/ITU-T/ssc/united/Documents/U4SSC-Snapshots/City_Snapshot_Riyadh_Saudi-Arabia.pdf)] [[Pully, Switzerland](https://www.itu.int/en/ITU-T/ssc/united/Documents/U4SSC-Snapshots/City_Snapshot_Pully_Switzerland.pdf)]  Additionally, the *Verification Report: Pully under the microscope* was launched during the 4th USSSC meeting. The report is available in [English](https://www.itu.int/en/ITU-T/ssc/united/Documents/pully-under-the-microscope-u4ssc-E.pdf) and [French](https://www.itu.int/en/ITU-T/ssc/united/Documents/pully-%C3%A0-la-loupe-indicateurs-u4ssc-F.pdf).  The first United for Smart Sustainable Cities (U4SSC) Austrian U4SSC Country Hub will be hosted by the Austrian Economics Center in Vienna, Austria. The main objective of this country hub is to promote the work of U4SSC.  A [Global Portal on Environment and Smart Sustainable Cities](https://www.itu.int/en/ITU-T/climatechange/resources/Pages/env-and-ssc.aspx) has been created and provides references to external resources on these issues.  See also 98-06. | | | |
| **98-08** | **TSB Director to continue encouraging cooperation with other international standardization organizations and other related organizations, in order to increase the development of international telecommunication standards and reports that facilitate the interoperability of IoT services (i. TSBDir 4)** | **Ongoing** | **√** |  |
| Ongoing collaboration with ISO and IEC on the organization of World Smart City Forums and working team on Smart City Terminology and the recently created IEC-ISO-ITU Joint Smart City Task Force.  Ongoing collaboration with TM Forum.  Ongoing collaboration with oneM2M.  Ongoing collaboration with IEEE.  Ongoing collaboration with LoRa Alliance.  See 98-03 | | | |
| **98-09** | **TSB Director to prepare reports considering, in particular, the needs of developing countries in terms of the study of IoT and its applications, sensor networks, services and infrastructure (i. TSBDir 1)** | **Ongoing** | **√** |  |
| SG13 approved the new Supplement 46 to Y.3500-series on cloud computing scenarios for developing countries.  SG20 is also working on draft Supplement ITU-T Y.Sup.DTAfrica “Digital transformation of cities and communities in Africa”. | | | |
| **98-10** | **TSB Director to continue disseminating ITU publications on IoT and SC&C, as well as organizing forums, seminars and workshops on the subject, taking into account the needs of developing countries, in particular (i. TSBDir 2)** | **Ongoing** | **√** |  |
| * An [ITU Forum on Data Management: Transforming Data Into Value - Expanding the IoT Potential with a special focus on smart cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/iot/201703/Pages/default.aspx) took place on 12 March 2017 in Dubai, United Arab Emirates. The outcome of the Forum can be found [here](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/iot/201703/Documents/FORUMOUTCOME-Final-12March2017.docx). * The [Seventh Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201704/Pages/default.aspx) (GSW-17) was held from 3 to 5 April 2017 in Manizales, Colombia, and was kindly hosted by the Ministry of Information Technologies and Communications and the Municipality of Manizales, Colombia; organized by ITU together with Municipality of Manizales, the University of Manizales, the Economic Commission for Latin American and the Caribbean (ECLAC), the United Nations Industrial Development Organization (UNIDO), the United Nations Environment Programme (UNEP), the Basel Convention, the Basel Convention Regional Centre for the South American Region (CRBAS), the United Nations Economic Commission for Europe (UNECE), the United Nations Human Settlements Programme (UN-Habitat), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Telecommunications Regional Technical Commission (COMTELCA), the Inter-American Telecommunication Commission (CITEL), CAF - Development Bank of Latin America, and the Inter-American Association of Telecommunication Enterprises (ASIET). The 7th Green Standards Week was dedicated to the theme of "Circular Economy and Smart Sustainable Cities" and explored the policies, standards and best practices required to transition to resource-efficient Circular Economy and Smart Sustainable Cities.   The GSW concluded with the Manizales Manifesto. This laid down defined actions to be adopted by cities to build their own SSC in line with the New Urban Agenda, the Paris Agreement, the SDGs and the Connect 2020 Agenda, taking into account important concepts like circular economy, gender equality, knowledge societies, IoT, artificial intelligence.   * A workshop on Smart Sustainable Cities was held from 1 to 2 June 2017 in Samarkand, Uzbekistan. * The 7th IoT Week, organized on 6-9 June 2017, in Geneva, Switzerland, comprised over 200 sessions and activities, which provided an overview of the latest developments in the Internet of Things (IoT) domain, and concluded with the "Internet of Things Declaration to Achieve the Sustainable Development Goals". * ITU organized jointly with IEC and ISO the World Smart City Forum in Barcelona, November 2017. * An [ITU Regional Workshop for CIS countries on "Internet of Things (IoT) and future networks"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2017/06_Saint_Petersburg/06_Saint_Petersburg.aspx), organized in St. Petersburg, Russia, on 19-20 June 2017, shared experiences in the field of the Internet of Things development and considered international standardization of the Internet of Things (IoT), perspectives of implementing IoT technologies in telecom networks in the CIS region, future telecom networks development in the region, and international standardization of the technologies of the future networks and its applications. * ITU-T organized a showcase event on IoT from 16 to 18 January 2018. This event counted with the participation of the following exhibitors: nTels; Spirent Communications, KETI and OIZOM. The showcase aimed at accelerating the discussions on the development of international standards, addressing the importance of interoperability of IoT products produced by different manufacturers and demonstrating cutting edge IoT technologies to a range of attendees from ITU Member States, industry, operators, academia and others. * The [1st ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180219/Pages/default.aspx) took place on 19 February 2018 in Brussels, Belgium. * The [8th Green Standards Week](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/default.aspx) took place from 9 to 12 April 2018 in Zanzibar, Tanzania. The GSW was dedicated to the theme “Linking circular economy and Industry 4.0” and was organized together with UN Habitat, United Nations University (UNU), United Nations Industrial Development Organization (UNIDO), Basel Convention and UN Environment at the kind invitation of the Universal Communications Service Access Fund (UCSAF) and Tanzania Communications Regulatory Authority (TCRA). A [Forum on Artificial Intelligence and Internet of Things in the development of Smart Sustainable Cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201804/Pages/Programme11.aspx) took place on 11 April 2018. * A [Forum on Exploring the Potential of Artificial Intelligence and Internet of Things](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180506/Pages/default.aspx) and a [Bridging the Standardization Gap Session on Internet of Things (IoT)](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/bsg/20180506/Pages/default.aspx) took place on 6 May 2018 in Cairo, Egypt. * The [1st Forum on Artificial Intelligence and the Internet of Things in Smart Sustainable Cities in Latin America](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180530/Pages/default.aspx) was held on 29 and 30 May 2018 in Buenos Aires, Argentina. An [Information Session on “Exploring the Role of Small Medium Enterprises (SMEs) in Linking AI and IoT in Smart Cities”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180531/Pages/Programme.aspx). * An [ITU Regional Forum on “Internet of Things, Telecommunication Networks and Big Data as Basic Infrastructure for Digital Economy”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180604/Pages/default.aspx) took place from 4 to 6 June 2018 in St. Petersburg, Russian Federation. * The [IoT Week 2018](https://iotweek.org/iot-week-bilbao/), took place from 4 to 7 June 2018 in Bilbao, Spain. * The [4th Asia-Pacific Regional Forum on Smart Sustainable Cities and e-Government 2018](https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Pages/Events/2018/ssceg2018/home.aspx) was held from 4 to 6 July 2018 in Thanh Hoa city, Viet Nam. * A side event on [Shaping smarter and more sustainable cities: Striving for Sustainable Development Goals](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180712/Pages/default.aspx) took place on 12 July 2018 in New York, United States. The side event was jointly organized by the Ministry of Digital Policy, Telecommunications and Media, Greece, International Telecommunication Union (ITU), United Nations Economic Commission for Europe (UNECE), United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Permanent Mission of the United Arab Emirates to the United Nations New York. It provided a platform to: debate the impact of frontier technologies such as artificial intelligence (AI), blockchain, and internet of things (IoT) on cities; present the international key performance indicators (KPIs) for Smart Sustainable Cities (SSC), developed by U4SSC, that establishes a criteria to evaluate ICT's contributions in making cities smarter and more sustainable and that provides cities with the means for self-assessments in order to achieve the sustainable development goals (SDGs); and discuss the opportunities and challenges faced in shaping smart and sustainable cities at the local level. * A [Second ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180917/Pages/default.aspx) was held on 17 September 2018, Tunis, Tunisia. * A [Forum on Artificial Intelligence, Internet of Things and Smart Cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201812/Pages/default.aspx) took place on 3 December 2018 in Wuxi, China. * The [**Third ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities**](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201901/Pages/default.aspx), Seoul, Korea (Rep. of), 14 January 2019. * An[**ITU-UN-Habitat-UNDP Forum "Smart sustainable cities: technological trends, success stories and future prospects"**](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/02_Minsk/02_Minsk.aspx), took place on 26-27 February 2019 in Minsk, Belarus. * An ITU Training on Key performance indicators for smart sustainable cities to achieve the SDGs, took place on 27 February 2019 in Minsk, Belarus. * A session on “Connecting Smart Sustainable Cities with the Sustainable Development Goals” took place on 12 March 2019 in Vienna, Austria during the Vienna Cybersecurity Week. * A Thematic Workshop on United for Smart Sustainable Cities: Blockchain for Cities took place on 11 April 2019 in Geneva. * A Thematic Workshop on En-gendering the smart city took place on 11 April 2019 in Geneva, Switzerland. * [**4th ITU Workshop on Network 2030 jointly with ITU Forum on Internet of Things: Future Applications and Services. Perspective 2030**](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201905/Pages/default.aspx), Saint-Petersburg, Russian Federation, 21-23 May 2019. * The [IoT Week 2019](https://iotweek.org/iot-week-bilbao/) took place from 17 to 21 June 2019 in Aarhus, Denmark. * An ITU Training on “Smart Sustainable Cities , Products and Services” (27 August 2019) and an ITU Forum on Smart Sustainable Africa (28 August 2019) took place in Abuja, Nigeria during the 1st Digital African Week. * A Session on “Smart Sustainable Cities & Communities” took place on 5 September 2019 in Addis Ababa, Ethiopia. * The 9th Green Standards Week took place from 1 to 4 October 2019 in Valencia, Spain. The 9th GSW is co-ordinated with more than 20 partners and is dedicated to the theme “Connecting Smart Sustainable Cities with the Sustainable Development Goals”. The structure of the GSW was as follows:   + **Day 1 - Tuesday, 1 October 2019**     - [Leadership Panel on "Connecting Smart Sustainable Cities with the Sustainable Development Goals"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-02.aspx)     - [U4SSC Award Ceremony & Photo Session](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-03.aspx)     - [Forum on "Frontier Technologies to Tackle Climate Change and Achieve a Circular Economy"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-04.aspx)   + **Day 2 - Wednesday, 2 October 2019**     - [Forum on "Smart Governance in Cities"](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-06.aspx)     - [Valencia: Smart City](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-07.aspx)   + **Day 3 - Thursday, 3 October 2019**     - [4th meeting of the United for Smart Sustainable Cities Initiative (U4SSC)](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-05.aspx)     - Meeting of the Spanish Expert Committee on Smart Sustainable Cities - by invitation only   + **Day 4 - Friday, 4 October 2019**     - [Training on Building Smarter and More Sustainable Cities](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Pages/programme-08.aspx)   The 9th Green Standards Week concluded with a call to action urging city stakeholders to accelerate the transition to Smart Sustainable Cities using ICTs and new frontier technologies. The Call to Action is available in [English](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-EN.pdf), [Spanish](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-ES.pdf), [Russian](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-RU.pdf), [Arabic](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-AR.pdf), [French](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-FR.pdf) and [Chinese](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/gsw/201910/Documents/9thGSW2019-Valencia-CalltoAction-CH.pdf).   * The [5th ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities](https://www.itu.int/en/ITU-T/climatechange/dpm/05/Pages/default.aspx) took place on 25 November 2019 in Geneva, Switzerland. * The first meeting of the [Thematic Group on the United for Smart Sustainable City Index](https://www.itu.int/en/ITU-T/climatechange/Pages/20191014-meeting.aspx) took place on 13 December 2019 in Vienna, Austria. * The WUF10 Networking event on "Governing and managing smart sustainable cities" took place on 10 February 2020 in Abu Dhabi, UAE. * The ITU Forum "Smart sustainable cities: from concept to implementation" took place on 3-5 March 2020 in Minsk, Belarus. * The [Webinar on "Accelerating cities' transformation through standards"](https://www.itu.int/en/ITU-T/climatechange/Pages/202006.aspx) took place virtually on 25 June 2020. * The [Virtual forum on "Digital Transformation of Cities and Communities"](https://www.itu.int/en/ITU-T/climatechange/Pages/20201207.aspx) took take place virtually on 7 December 2020. * The [Webinar Smart sustainable cities and frontier technologies in Latin America”](https://www.itu.int/en/ITU-T/climatechange/Pages/202012.aspx) took place virtually on 8 December 2020. * The [WSIS Thematic Workshop on "Simple Ways to be Smart"](https://www.itu.int/net4/wsis/forum/2021/Agenda/Session/249) took place virtually on 29 March 2021. * The [Virtual Forum on "The Role of Standards in Accelerating Digital Transformation for Cities and Communities"](https://www.itu.int/en/ITU-T/climatechange/Pages/20210422.aspx) took place virtually on 23 April 2021. * The [ITU-T SG20RG-AFR Virtual forum on “Accelerating Digital Transformation in Africa”](https://www.itu.int/en/ITU-T/climatechange/Pages/20210602.aspx) took place virtually on 2 June 2021. * The ITU together with [International Electrotechnical Commission (IEC)](https://www.iec.ch/homepage) ​and [International Organization for Standardization (ISO)](https://www.iso.org/home.html) organized the IEC-ISO-ITU Joint Smart Cities Task Force (J-SCTF) [Forum on “Strengthening IEC, ISO and ITU collaboration for Smart Cities”](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2021/0621/Pages/default.aspx). This forum took place virtually on 21 June 2021 from 12h00-15h00 CEST/Geneva time. * The [ITU/OiER Webinar on Accelerating the Path to Cities’ Digital Transformation](https://www.itu.int/en/ITU-T/webinars/20210908/Pages/default.aspx) took place virtually on 8 September 2021. * [Webinar series on Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx) – the following episodes took place from September – December 2021.   + 8 September 2021 Episode #1: [Digital twins in cities](https://www.itu.int/en/ITU-T/webinars/202109/Pages/default.aspx) co-organized with the International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO)   + 14 September 2021 Episode #2: [IoT-based automotive emergency response system](https://www.itu.int/en/ITU-T/webinars/20210914/Pages/default.aspx)   + 16 September 2021 Episode #3: Smart sustainable city architectures: challenges and opportunities co-organized with oneM2M   + 20 September 2021 Episode #4: [Smart Cities: a step towards digital transformation in Latin America](https://www.itu.int/en/ITU-T/webinars/20210920/Pages/default.aspx) co-organized with Regional Telecommunications Technical Commission (COMTELCA)   + 24 September 2021 Episode #5:[Smart sustainable cities maturity model and impact assessment](https://www.itu.int/en/ITU-T/webinars/20210924/Pages/default.aspx) co-organized with Austrian Economics Center   + 1 November 2021 Episode #6: Smart City Platforms co-organized with China Information Communication Technologies Group (CICT), Electronics and Telecommunications Research Institute (ETRI) and Spanish Association for Standardization (UNE)   + 2 November  2021 Episode #7: [Crowdsourced Systems: A people-led paradigm](https://www.itu.int/en/ITU-T/webinars/20211102/Pages/default.aspx) co-organized with Bournemouth University   + 18 November 2021 Episode #8: Network capabilities and emerging technologies to support IoT-enabled verticals co-organized with CICT, China Mobile, China Unicom, EADN, Huawei, OKI and Tencent   + 6 December 2021 Episode #9: [Addressing the Security Risks of Digital Transformation on IoT](https://www.itu.int/en/ITU-T/webinars/20211206/Pages/default.aspx) co-organized with ITU-T Study Group 17   + 7 December 2021 Episode #10: [The role of digital technologies on aging and health](https://www.itu.int/en/ITU-T/webinars/20211207/Pages/default.aspx) co-organized with Pan American Health Organization (PAHO)   + 8 December 2021 Episode #11: [Blockchain-based data management for supporting Internet of things and smart cities and communities](https://www.itu.int/en/ITU-T/webinars/20211208/Pages/default.aspx) co-organized with Open & Agile Smart Cities (OASC) and United Nations University (UNU)   + 14 December 2021 Episode #12: [Interoperability of IoT and satellite data for Earth observation supporting sustainable development](https://www.itu.int/en/ITU-T/webinars/20211214/Pages/default.aspx)co-organized with Mandat International and World Meteorological Organization (WMO) * The [Webinar to celebrate World Cities Day on Building climate resilient cities with digital transformation](https://www.itu.int/net4/wsis/forum/2022/Agenda/Session/109) took place virtually on 28 October 2021.   ITU-T SG20 is organizing the following events:   * The [Webinar series on Digital transformation for cities and communities](https://www.itu.int/en/ITU-T/webinars/Pages/dt4cc.aspx) will take place virtually from 2021-2022. * [DTC4CC Episode #13: Architecting the Web of Things](https://www.itu.int/en/ITU-T/webinars/20220203/Pages/default.aspx) will take place virtually on 3 February 2022.   Other events can be found at: <https://www.itu.int/en/ITU-T/climatechange/Pages/events.aspx>  All ITU-T publications on IoT and Smart Sustainable Cities are available [here](https://www.itu.int/en/ITU-T/climatechange/Pages/publications.aspx). | | | |

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# Opinion 1 - Practical application of network externality premium

**Opinion 1**

*is of the opinion that*

*considering the progress achieved so far within Study Group 3 those Member States concerned may wish to review the respective positions at the WTSA 2008 and possibly withdraw the reservations about Recommendation ITU-T D.156,*

*invites Member States*

*to take all measures necessary for the effective implementation of Recommendation ITU-T D.156,*

*invites the Council*

*in its session of 2013, to report on this subject to the Plenipotentiary Conference 2014, in accordance with Plenipotentiary Resolution 22 (Rev. Antalya, 2006).*

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# Appendix – Obsolete action items from WTSA-12 Action Plan

Note – Action items from the WTSA-12 Action Plan, which are obsolete or were considered completed at WTSA-16, are no longer listed in this Action Plan:

* 07-02;
* 22-01, 22-02, 22-03 (action item numbers reused);
* 31-01;
* 33-02, 33-03, 33-04; (Resolution 33 suppressed)
* 35-01 (but provision still exists in Resolution);
* 43-01, 43-02, 43-03 (but provision still exists in Resolution);
* 44-04, 44-06, 44-08, 44-09, 44-10, 44-16, 44-17, 44-18, 44-22 (but provision still exists in Resolution);
* 54-02;
* 55-05 (new action item);
* 65-03 (but provision still exists in Resolution);
* 67-04;
* 69-02, 69-04 (but provision still exists in Resolution);
* 70-02 and 70-09 (but provision still exists in Resolution);
* 71-01;
* 74-01;
* 76-11;
* 77-01, 77-02, 77-03 and 77-05 (but provision still exists in Resolution);
* 81-01, 81-02, 81-03 (Resolution 81 was suppressed);
* 82-01, 82-02, 82-03 (Resolution 82 was suppressed);
* OP-01-02.

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1. **[1*bis*.10** If there is no specific approval/agreement procedure for a text and consensus at the study group meeting is not achieved, in exceptional circumstances, in accordance with the General Rules of conferences, assemblies and meetings of the Union, the same process used at a WTSA, as described in 1.13 above, shall be used.] [↑](#footnote-ref-2)
2. 1 These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-3)
3. <http://itu.int/ITU-T/inr/enum/>. [↑](#footnote-ref-4)
4. 2 Kyoto, Japan, 15-16 April 2008; London, United Kingdom, 17-18 June 2008; [Quito, Ecuador](http://www.itu.int/ITU-T/worksem/climatechange/200907/index.html), 8‑10 July 2009; Seoul Virtual Symposium, 23 September 2009; Cairo, Egypt, 2-3 November 2010; Accra, Ghana, 7-8 July 2011; Seoul, Republic of Korea, 19 September 2011; and Montreal, Canada, on 29-31 May 2012, Turin, Italy, 6-7 May 2013; Kochi, India, 15 December 2014; Nassau, Bahamas, 14 December 2015; and Kuala Lumpur, Malaysia, 21 April 2016. [↑](#footnote-ref-5)
5. 3 With respect to efficiency, promotion of efficient use of materials used in ICT devices and network elements should also be a consideration. [↑](#footnote-ref-6)
6. Science Monitoring and Reliable Telecommunications [↑](#footnote-ref-7)
7. Science Monitoring and Reliable Telecommunications [↑](#footnote-ref-8)