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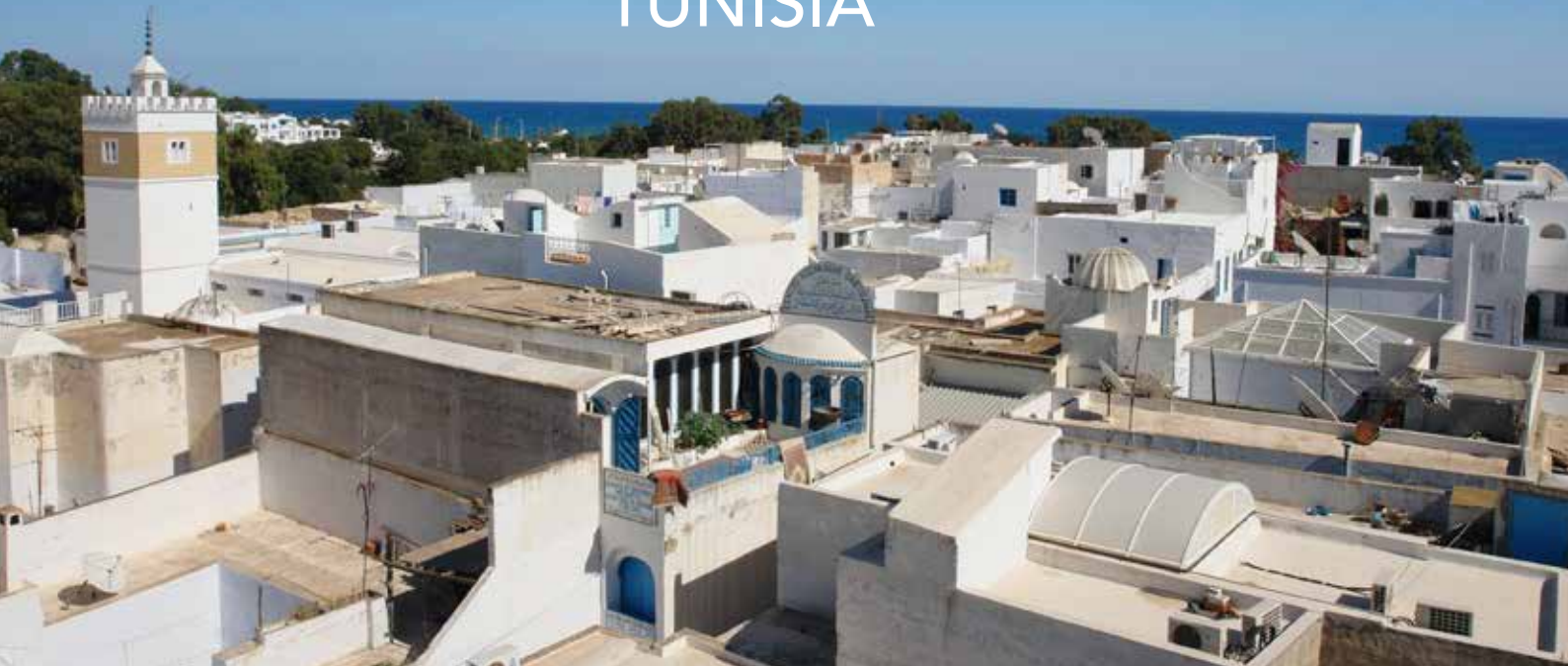
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TUNISIA



Proceedings of the World Telecommunication Standardization Assembly

Hammamet, Tunisia,
25 October - 3 November 2016

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

PROCEEDINGS OF THE WORLD TELECOMMUNICATION STANDARDIZATION ASSEMBLY

Hammamet, Tunisia, 25 October – 3 November 2016



FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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Proceedings of the World Telecommunication Standardization Assembly

(Hammamet, 2016)

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PART I

Resolutions and Opinions adopted by the Assembly of the ITU Telecommunication Standardization Sector*

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RESOLUTION 1 (Rev. Hammamet, 2016)

Rules of procedure of the ITU Telecommunication Standardization Sector

(Hammamet, 2016)^{1, 1bis}

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that the functions, duties and organization of the ITU Telecommunication Standardization Sector (ITU-T) are stated in Articles 17, 18, 19, 20 of the ITU Constitution and Articles 13, 14, 14A, 15 and 20 of the ITU Convention;
- b)* that, in accordance with the above articles of the Constitution and Convention, ITU-T shall study technical, operating and tariff questions and adopt Recommendations with a view to standardizing telecommunications on a worldwide basis;
- b)bis* that the International Telecommunication Regulations (ITR) contain references to relevant ITU-T Recommendations;
- c)* that the ITU-T Recommendations resulting from these studies must be in harmony with the ITRs in force, complement the basic principles therein and assist all those concerned in the provision and operation of telecommunication services to meet the objectives set down in the relevant articles of those Regulations;
- d)* that, accordingly, the rapid developments in telecommunication technology and services require timely and reliable ITU-T Recommendations to assist all Member States in the balanced development of their telecommunications;
- e)* that general working arrangements of ITU-T are stated in the Convention;
- f)* that the General Rules of conferences, assemblies and meetings of the Union adopted by the Plenipotentiary Conference, and Resolution 165 (Guadalajara, 2010) of the Plenipotentiary Conference, on deadlines for the submission of proposals and procedures for the registration of participants for conferences and assemblies of the Union, apply to the World Telecommunication Standardization Assembly (WTSA);
- g)* that, in accordance with No. 184A of the Convention, WTSA is authorized to adopt the working methods and procedures for the management of the activities of ITU-T in accordance with No. 145A of the Constitution;
- h)* that careful review of the more detailed working arrangements has been made in order to adapt them to meet the increasing demand for developing Recommendations with the most effective use of the limited resources available to Member States, Sector Members and ITU headquarters;
- i)* Resolution 72 (Rev. Busan, 2014) of the Plenipotentiary Conference, on linking strategic, financial and operational planning in ITU,

¹ Previously published (Geneva, 1956 and 1958; New Delhi, 1960; Geneva, 1964; Mar del Plata, 1968; Geneva, 1972, 1976 and 1980, Malaga-Torremolinos, 1984; Melbourne, 1988; Helsinki, 1993; Geneva, 1996; Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012).

^{1bis} This Hammamet, 2016 edition was initially published in 2016 and then republished in November 2017 to move the contents of Annex A (ITU-T Documentation) to Section *1bis*, as approved during the Assembly.

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.

SECTION 1

World Telecommunication Standardization Assembly

1.1 The World Telecommunication Standardization Assembly (WTSA), in undertaking the duties assigned to it in Article 18 of the ITU Constitution, Article 13 of the ITU Convention and the General Rules of conferences, assemblies and meetings of the Union, shall conduct the work of each assembly by setting up committees and group(s) to address organization, work programme, budget control and editorial matters, and to consider other specific matters if required.

1.2 It shall establish a Steering Committee, presided over by the chairman of the assembly, and composed of the vice-chairman of the assembly and the chairmen and vice-chairmen of the committees and any group(s) created by the assembly.

1.3 WTSA shall establish resolutions which define working methods and identify priority issues. Prior to and during the development process the following questions should be taken into consideration:

- a) If an existing Plenipotentiary Conference resolution identifies a priority issue, the need for a similar WTSA resolution should be questioned.
- b) If an existing resolution identifies a priority issue, the need to recycle this resolution at various conferences or assemblies should be questioned.
- c) If only editorial updates are required to a WTSA resolution, the need to produce a revised version should be questioned.
- d) If the actions proposed have been accomplished, the resolution should be viewed as fulfilled and the need for it should be questioned.

1.4 WTSA shall establish a Budget Control Committee and an Editorial Committee, the tasks and responsibilities of which are set out in the General Rules of conferences, assemblies and meetings of the Union (General Rules, Nos. 69-74):

- a) The "Budget Control Committee", *inter alia*, examines the estimated total expenditure of the assembly and estimates the financial needs of ITU-T up to the next WTSA and the costs entailed by the execution of the decisions of the assembly.
- b) The "Editorial Committee" perfects the wording of texts arising from WTSA deliberations, such as resolutions, without altering their sense and substance, and aligns the texts in the official languages of the Union.

1.5 In addition to the steering, budget control and editorial committees, the two following committees are set up:

- a) The "Committee on Working Methods of ITU-T", which submits to the plenary meeting reports including proposals on the ITU-T working methods for implementation of the ITU-T work programme, on the basis of the Telecommunication Standardization Advisory Group (TSAG) reports submitted to the assembly and the proposals of ITU Member States and ITU-T Sector Members.
- b) The "Committee on the ITU-T Work Programme and Organization", which submits to the plenary meeting reports including proposals on the programme and organization of the work of ITU-T consistent with ITU-T strategy and priorities. It shall specifically:
 - i) propose the maintenance, establishment or termination of study groups;
 - ii) review the general structure of study groups and Questions set for study or further study;
 - iii) produce a clear description of the general area of responsibility within which each study group may maintain existing and develop new Recommendations, in collaboration with other groups, as appropriate;
 - iv) propose the allocation of Questions to study groups, as appropriate;
 - v) recommend, when a Question or group of closely related Questions concerns several study groups, whether:
 - to accept proposals of ITU Member States or the recommendation of TSAG (where they differ);
 - to entrust the study to a single study group; or
 - to adopt an alternative arrangement;
 - vi) review, and adjust as necessary, the lists of Recommendations for which each study group is responsible;
 - vii) propose the maintenance, establishment or termination of other groups in accordance with Nos. 191A and 191B of the Convention.

1.6 The chairmen of study groups, the chairman of TSAG and the chairmen of other groups set up by the preceding WTSA should make themselves available to participate in the Committee on the Work Programme and Organization.

1.7 The plenary meeting of a WTSA may set up other committees in accordance with No. 63 of the General Rules.

1.8 All committees and groups referred to in 1.2 to 1.7 above shall normally cease to exist with the closing of WTSA except, if required and subject to the approval of the assembly and within the budgetary limits, the Editorial Committee. The Editorial Committee may therefore hold meetings after the closing of the assembly to complete its tasks as assigned by the assembly.

1.9 Prior to the inaugural meeting of WTSA, in accordance with No. 49 of the General Rules, the heads of delegation shall meet to prepare the agenda for the first plenary meeting and make proposals for the organization of the assembly, including proposals for chairmanships and vice-chairmanships of WTSA and its committees and group(s).

1.10 During WTSA, the heads of delegation shall meet:

- a) to consider the proposals of the Committee on the ITU-T Work Programme and Organization concerning the work programme and the constitution of study groups in particular;
- b) to draw up proposals concerning the designation of chairmen and vice-chairmen of study groups, TSAG and any other groups established by WTSA (see Section 2).

1.11 The programme of work of WTSA shall be designed to provide adequate time for consideration of the important administrative and organizational aspects of ITU-T. As a general rule:

1.11.1 WTSA shall consider reports from the Director of the Telecommunication Standardization Bureau (TSB) and, pursuant to No. 187 of the Convention, from the study groups and TSAG, on the activities during the previous study period, including a report from TSAG on the fulfilment of any specific functions that were assigned to it by the previous WTSA. While WTSA is in session, study group chairmen shall make themselves available to WTSA to supply information on matters which concern their study groups.

1.11.2 In those cases as indicated in Section 9, a WTSA may be asked to consider approval of one or more Recommendations. The report of any study group(s) or TSAG proposing such action should include information on why such action is proposed.

1.11.3 WTSA shall receive and consider the reports, including proposals of the committees it has established, and take final decisions on those proposals and on reports submitted to it by those committees and groups. On the basis of the proposals by the Committee on the Work Programme and Organization of ITU-T, it shall set up study groups and, where appropriate, other groups, and, taking into account consideration by the heads of delegation, appoint the chairmen and vice-chairmen of study groups, of TSAG and of any other groups it has established, taking account of Article 20 of the Convention and Section 3 below.

1.12 In accordance with No. 191C of the Convention, WTSA may assign specific matters within its competence to TSAG indicating the action required on these matters.

1.13 Voting

Should there be a need for a vote by Member States at WTSA, the vote will be conducted according to the relevant sections of the Constitution, Convention and the General Rules of conferences, assemblies and meetings of the Union.

SECTION 1*bis*

Documentation of ITU-T

1*bis*.1 General principles

In 1*bis*.1.1 and 1*bis*.1.2 below, the term "texts" is used for ITU-T resolutions, Questions, opinions, Recommendations, supplements, implementation guidelines, technical documents and reports, as defined in 1*bis*.2 to 1*bis*.10.

1*bis*.1.1 Presentation of texts

1*bis*.1.1.1 Texts should be as brief as possible, taking account of the necessary content, and should relate directly to the Question/topic or part of the Question/topic being studied.

1*bis*.1.1.2 Each text should include a reference to related texts and, where appropriate, to relevant provisions of the International Telecommunication Regulations (ITRs), without any interpretation or qualification of the ITRs or suggesting any change to them.

1*bis*.1.1.3 Texts (including resolutions, Questions, opinions, Recommendations, supplements, implementation guidelines, technical reports and handbooks) shall be presented showing their number, their title and an indication of the year of their initial approval, and, where appropriate, the year of approval of any revisions.

1*bis*.1.1.4 Annexes to any of these texts should be considered as having equivalent status, unless otherwise specified.

1*bis*.1.1.5 Supplements to Recommendations do not constitute an integral part of the Recommendations and shall not be considered as having equivalent status to Recommendations or annexes to Recommendations.

1*bis*.1.2 Publication of texts

1*bis*.1.2.1 All texts shall be published in electronic form as soon as possible after approval and may also be made available in paper form according to the publication policy of ITU.

1*bis*.1.2.2 Approved new or revised resolutions, opinions, Questions and Recommendations will be published by ITU in the official languages of the Union as soon as practicable. Supplements, implementation guidelines, technical reports and handbooks will be published, as soon as possible, in English only or in the six official languages of the Union, depending on the decision of the relevant group.

1*bis*.2 ITU-T resolutions

1*bis*.2.1 Definition

Resolution: A text of the World Telecommunication Standardization Assembly containing provisions on the organization, working methods and programmes of the ITU Telecommunication Standardization Sector.

1bis.2.2 Approval

WTSA shall examine and may approve revised or new WTSA resolutions proposed by Member States and Sector Members or suggested by TSAG.

1bis.2.3 Deletion

WTSA may delete resolutions based on proposals from Member States and Sector Members or suggested by TSAG.

1bis.3 ITU-T opinions

1bis.3.1 Definition

Opinion: A text containing a viewpoint, proposal or query aimed at study groups of the ITU Telecommunication Standardization Sector and the other ITU Sectors or international organizations, etc., and not necessarily related to a technical issue.

1bis.3.2 Approval

WTSA shall examine and may approve revised or new ITU-T opinions based on proposals from Member States and Sector Members or suggested by TSAG.

1bis.3.3 Deletion

WTSA may delete an opinion based on proposals from Member States and Sector Members or suggested by TSAG.

1bis.4 ITU-T Questions

1bis.4.1 Definition

Question: Description of an area of work to be studied, normally leading to the production of one or more new or revised Recommendations.

1bis.4.2 Approval

The procedure for approving Questions is set out in Section 7 of this resolution.

1bis.4.3 Deletion

The procedure for deleting Questions is set out in Section 7 of this resolution.

1bis.5 ITU-T Recommendations

1bis.5.1 Definition

Recommendation: An answer to a Question or part of a Question, or a text developed by the Telecommunication Standardization Advisory Group for the organization of the work of the ITU Telecommunication Standardization Sector.

NOTE – This answer, within the scope of existing knowledge and the research carried out by study groups and adopted in accordance with established procedures, may provide guidance on technical, organizational, tariff-related and operational matters, including working methods, may describe a preferred method or proposed solution for undertaking a specific task, or may recommend procedures for specific applications. These Recommendations should be sufficient to serve as a basis for international cooperation.

1bis.5.2 Approval

The procedure for approving Recommendations is set out in Section 8 of this resolution.

1bis.5.3 Deletion

The procedure for deleting Recommendations is set out in Section 8 of this resolution.

1bis.6 ITU-T supplements

1bis.6.1 Definition

The definition of supplement is found in clause 1.8.2.8 of Recommendation ITU-T A.1.

NOTE – Recommendation ITU-T A.13 deals with the subject of supplements to ITU-T Recommendations.

1bis.6.2 Agreement

The procedure for agreement of revised or new supplements is set out in Recommendation ITU-T A.13.

1bis.6.3 Deletion

The procedure for deletion of supplements is set out in Recommendation ITU-T A.13.

1bis.7 ITU-T implementation guidelines

1bis.7.1 Definition

Implementation guidelines: An informative publication containing information on the current knowledge, the present position of studies or good operating or technical practices, in certain aspects of telecommunications, which should be addressed to engineers, system planners or operating organizations who plan, design or use international telecommunication services or systems, paying particular attention to the requirements of developing countries.

NOTE – It should be self-contained, and should require no familiarity with other ITU-T texts or procedures, but should not duplicate the scope and content of publications readily available outside ITU.

1bis.7.2 Agreement

Each study group may agree revised or new implementation guidelines by consensus. The study group may authorize its relevant subordinate group to approve an implementation guideline.

1bis.7.3 Deletion

Each study group may delete implementation guidelines, by consensus.

1bis.8 ITU-T technical reports

1bis.8.1 Definition

An informative publication containing technical information, prepared by a study group on a given subject related to a current Question.

1bis.8.2 Agreement

Each study group may agree revised or new technical reports by consensus. The study group may authorize its relevant working party to approve technical reports.

1bis.8.3 Deletion

Each study group may delete technical reports, by consensus.

1bis.9 ITU-T handbooks

1bis.9.1 Definition

A text which provides a statement of the current knowledge, the present position of studies or good operating or technical practice, in certain aspects of telecommunications, which should be addressed to a telecommunication engineer, system planner or operating official who plans, designs or uses telecommunication services or systems, paying particular attention to the requirements of developing countries.

NOTE – It should be self-contained, and require no familiarity with other ITU-T texts or procedures.

1bis.9.2 Agreement

Each study group may agree revised or new handbooks by consensus. The study group may authorize its relevant working party to approve handbooks.

1bis.9.3 Deletion

Each study group may delete handbooks, by consensus.

SECTION 2

Study groups and their relevant groups

2.1 Classification of study groups and their relevant groups

2.1.1 WTSA establishes study groups in order for each of them:

- a) to pursue the goals laid down in a set of Questions related to a particular area of study in a task-oriented fashion;
- b) to review and, as necessary, to recommend amendment or deletion of existing Recommendations and definitions within its general area of responsibility (as defined by WTSA), in collaboration with their relevant groups as appropriate;
- c) to review and, as necessary, to recommend amendment of existing opinions within its general area of responsibility (as defined by WTSA), in collaboration with their relevant groups as appropriate.

2.1.2 To facilitate their work, study groups may set up working parties, joint working parties and rapporteur groups to deal with the tasks assigned to them (see Recommendation ITU-T A.1).

2.1.3 A joint working party shall submit draft Recommendations to its lead study group.

2.1.4 A regional group may be established within a study group to deal with Questions and studies of particular interest to a group of Member States and Sector Members in an ITU region.

2.1.5 A study group may be set up by WTSA in order to carry out joint studies with the ITU Radiocommunication Sector (ITU-R) and prepare draft Recommendations on questions of common interest. ITU-T shall be responsible for the management of this study group and approval of its Recommendations. WTSA shall appoint the chairman and vice-chairman of the study group², in consultation with the Radiocommunication Assembly (RA) as appropriate, and receive the formal report of the work of the study group. A report for information may also be prepared for RA. It may also be that RA sets up a study group in order to carry out joint studies with ITU-T and prepare draft Recommendations on questions of common interest and appoints the chairman and vice-chairman of the study group². In this case, ITU-R shall be responsible for the management of this study group and approval of its Recommendations.

² In special cases, WTSA may appoint the chairman and request the Radiocommunication Assembly to appoint a vice-chairman.

2.1.6 A study group may be designated by WTSA or TSAG as the lead study group for ITU-T studies forming a defined programme of work involving a number of study groups. This lead study group is responsible for the study of the appropriate core Questions. In addition, in consultation with the relevant study groups and, where appropriate, giving due consideration to the work of national, regional and other international standardization organizations (No. 196 of the Convention), the lead study group has the responsibility to define and maintain the overall framework and to coordinate, assign (in consultation with, and recognizing the mandates of, the relevant study groups) and prioritize the studies to be carried out by the study groups, and to ensure the preparation of consistent, complete and timely Recommendations. The lead study group shall inform TSAG on the progress of the work as defined in the scope of the lead study group activity. Issues which cannot be resolved by the study group should be raised for TSAG to offer advice and proposals for the direction of the work.

2.2 Meetings outside Geneva

2.2.1 Study groups or working parties may meet outside Geneva if invited to do so by Member States, ITU-T Sector Members or entities authorized in this respect by a Member State of the Union, and if the holding of a meeting outside Geneva is desirable (e.g. in association with symposia or seminars). Such invitations shall be considered only if they are submitted to a WTSA or to an ITU-T study group meeting and they shall be finally planned and organized after consultation with the Director of TSB and if they are within the credits allocated to ITU-T by the ITU Council.

2.2.2 For meetings held outside Geneva, the provisions of Resolution 5 (Kyoto, 1994) of the Plenipotentiary Conference as well as of Council Decision 304 shall apply. Invitations to hold meetings of the study groups or their working parties away from Geneva shall be accompanied by a statement indicating the host's agreement to defray the additional expenditure involved and that it will provide at least adequate premises and the necessary furniture and equipment free of charge, except that in the case of developing countries equipment need not necessarily be provided free of charge if the government of the host so requests.

2.2.3 Should an invitation be cancelled for any reason, it shall be proposed to Member States or to other duly authorized entities that the meeting be convened in Geneva, in principle on the date originally planned.

2.3 Participation in meetings

2.3.1 Member States and other duly authorized entities pursuant to Article 19 of the Convention shall be represented in the study groups and their relevant groups, such as working parties and rapporteur groups, in whose work they wish to take part, by participants registered by name and chosen by them as qualified to investigate satisfactory solutions to the Questions under study. Exceptionally, however, registration by Member States and other duly authorized entities with a study group or its relevant group may be made without specifying the name of the participants concerned. Chairmen of meetings may invite individual experts as appropriate. Experts may present reports and submissions for information at the request of the chairmen of meetings; they may also participate in relevant discussions.

2.3.2 The meetings of Study Group 3 regional groups shall, in principle, be limited to delegates and representatives of Member States and operating agencies (for the definition of these terms see the Annex to the Constitution) in the region. However, each Study Group 3 regional group may invite other participants to attend all or part of a meeting to the extent that these other participants would be eligible to attend the meetings of the full study group.

2.3.3 The meetings of regional groups of other study groups shall, in principle, be limited to delegates and representatives from Member States, Sector Members and Associates of the study group concerned in the region. However, each regional group may invite other participants to attend all or part of a meeting, to the extent that these other participants would be eligible to attend the meetings of the full study group.

2.4 Reports of study groups to WTSA

2.4.1 All study groups shall meet sufficiently in advance of WTSA for the report of each study group to WTSA to reach administrations of Member States and Sector Members at least one month before WTSA.

2.4.2 The report of each study group to WTSA is the responsibility of the study group chairman, and shall include:

- a short but comprehensive summary of the results achieved in the study period;
- reference to all Recommendations (new or revised) that have been approved by the Member States during the study period, with a statistical analysis of activities per study group Question;
- reference to all Recommendations deleted during the study period;
- reference to the final text of all draft Recommendations (new or revised) that are forwarded for consideration by WTSA;
- the list of new or revised Questions proposed for study;
- review of joint coordination activities for which it is the lead study group;
- a draft standardization action plan for the following study period.

SECTION 3

Study group management

3.1 Within the mandate set out in WTSA Resolution 2, study group chairmen shall be responsible for the establishment of an appropriate structure for the distribution of work, after consulting with study group vice-chairmen. The study group chairmen perform the duties required of them within their study groups or within joint coordination activities.

3.2 Appointment of chairmen and vice-chairmen shall be based upon demonstrated competence both in technical content of the study group concerned and in the management skills required, taking into account the need to promote equitable geographical distribution and gender balance and the participation of developing countries. Those appointed should be active in the field of the study group concerned and committed to the work of the study group. Other considerations, including incumbency, shall be secondary.

3.3 The chairman of a study group should establish a management team, composed of all vice-chairmen, working party chairmen, etc., to assist in the organization of the work. The mandate of a vice-chairman shall be to assist the chairman in matters relating to the management of the study group, including substitution for the chairman at official ITU-T meetings or replacement of the chairman should he or she be unable to continue with study group duties. Each working party chairman provides technical and administrative leadership and should be recognized as having a role of equal importance to that of a study group vice-chairman. Each vice-chairman should be assigned specific functions based upon the study group's programme of work. The management team is encouraged to assist the chairman in the study group management role, for example in responsibilities for liaison activities, cooperation and collaboration with other standardization organizations, forums and consortia outside ITU, and promotion of the related study group activities.

3.4 On the basis of 3.2 above, appointed vice-chairmen should be considered first in the appointment of working party chairmen. However, that does not prevent other competent experts being appointed as working party chairmen.

3.5 To the extent possible, in accordance with WTSA Resolution 35 (Rev. Hammamet, 2016), and taking into account the need for demonstrated competence, appointment or selection to the management team should utilize the resources of as broad a range of Member States and Sector Members as possible, at the same time recognizing the need to appoint only the number of vice-chairmen and working party chairmen necessary for the efficient and effective management and functioning of the study group, consistent with the projected structure and work programme.

3.6 A chairman, vice-chairman or working party chairman, on accepting this role, is expected to have the necessary support of the Member State or Sector Member to fulfil this commitment throughout the period to the next WTSA.

3.7 Study group chairmen should participate in WTSA to represent the study groups.

SECTION 4

Telecommunication Standardization Advisory Group

4.1 In accordance with Article 14A of the Convention, the Telecommunication Standardization Advisory Group (TSAG) shall be open to representatives of administrations of Member States and representatives of ITU-T Sector Members and to chairmen of the study groups and other groups or their designated representatives. The Director of TSB or the Director's designated representatives shall participate in TSAG. The chairmen of the study groups and other groups, according to the case, or their designated representatives (e.g. vice-chairmen) shall also participate in TSAG.

4.2 TSAG's principal duties are to review priorities, programmes, operations, financial matters and strategies for ITU-T's activities, to review progress in the implementation of ITU-T's work programme, to provide guidelines for the work of the study groups and to recommend measures, *inter alia*, to foster cooperation and coordination with other relevant bodies, within ITU-T and with the Radiocommunication (ITU-R) and Telecommunication Development (ITU-D) Sectors and the General Secretariat, and with other standardization organizations, forums and consortia outside ITU, including the Universal Postal Union.

4.3 TSAG will 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 (and the coordination of that work with other Sectors), giving due regard to the cost and availability of resources within TSB and the study groups. TSAG shall monitor the activities of any joint coordination activities and may also recommend the establishment of such activities, if appropriate. TSAG may also advise on further improvements to ITU-T working methods. TSAG shall monitor the activities of the lead study groups and advise on the progress report as presented to TSAG. TSAG shall endeavour to ensure that the programmes of work across the study groups are successfully completed.

4.3bis WTSA shall appoint the chairman and vice-chairmen of TSAG in accordance with WTSA Resolution 35 (Rev. Hammamet, 2016).

4.4 WTSA may assign temporary authority to TSAG between two consecutive WSAs to consider and act on matters specified by WTSA. WTSA should assure itself that the special functions entrusted to TSAG do not require financial expenses exceeding the ITU-T budget. TSAG may consult with the Director on these matters, if necessary. TSAG should report to the next WTSA on its activities on the fulfilment of specific functions assigned to it, pursuant to No. 197I of the Convention and WTSA Resolution 22 (Rev. Hammamet, 2016). Such authority shall terminate when the following WTSA meets, although WTSA may decide to extend it for a specified period.

4.5 TSAG shall hold regular scheduled meetings, included on the ITU-T timetable of meetings. The meetings should take place as necessary, but at least once a year³.

4.6 In the interest of minimizing the length and costs of the meetings, the chairman of TSAG should collaborate with the Director in making appropriate advance preparation, for example by identifying the major issues for discussion.

4.7 In general, the same rules of procedure that apply to study groups shall also apply to TSAG and its meetings. However, at the discretion of the chairman, written proposals may be submitted during the TSAG meeting provided they are based on ongoing discussions taking place during the meeting and are intended to assist in resolving conflicting views which exist during the meeting.

4.8 A report on its activities shall be prepared by TSAG after each meeting. This report is to be made available within an objective of six weeks after the closure of the meeting and is to be distributed in accordance with normal ITU-T procedures.

4.9 TSAG shall prepare a report for the assembly on the matters assigned to TSAG by the previous WTSA. At its last meeting prior to WTSA, TSAG shall, pursuant to No. 197H of the Convention, prepare a report which summarizes its activities since the previous WTSA. This report shall offer advice on the allocation of work, and proposals on ITU-T working methods and on strategies and relations with other relevant bodies inside and outside ITU, as appropriate. The TSAG report to WTSA should also include proposals for WTSA Resolution 2, i.e. the titles of study groups with their responsibilities and mandates. These reports shall be submitted to the assembly by the Director.

³ The Director and the study group chairmen may use the opportunity of these meetings to consider any appropriate measure related to activities described in 4.4 and 5.5.

SECTION 5

Duties of the Director

5.1 The duties of the Director of the Telecommunication Standardization Bureau (TSB) are outlined in Article 15 and relevant provisions of Article 20 of the Convention. These duties are further elaborated in this resolution.

5.2 The Director shall take the necessary preparatory measures for meetings of WTSA, TSAG, study groups and other groups, and coordinate their work so that the meetings produce the best results in the shortest possible time. The Director shall fix, by agreement with TSAG and study group chairmen, the dates and programmes of TSAG, study group and working party meetings and shall group these meetings in time according to the nature of the work and the availability of TSB and other ITU resources.

5.2bis The Director shall ensure that the secretariat assigned to the study groups and regional groups works to support the membership in order to accomplish the objectives defined in the strategic plan (Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference).

5.3 The Director shall suggest editorial updates to WTSA resolutions and provide a recommendation as to whether the modifications are significant enough to warrant the production of a revised version.

5.4 The Director shall manage the allocation of the ITU-T financial and TSB human resources required for meetings administered by TSB in a manner that is consistent with the approved strategic and financial plans of the Sector and the budget approved by the Council, for dissemination of the associated documents to ITU Member States and Sector Members (meeting reports, contributions, etc.), for ITU-T publications, for the authorized operational support functions for the international telecommunication network and services (Operational Bulletin, code assignments, etc.) and for the operation of TSB.

5.4bis The Director shall promote the active participation of the membership, in particular developing countries, in the contribution-driven work of ITU-T and shall publish, in the chairman's report of each meeting of a study group or regional group, a complete account of resources used and fellowships requested and provided along with any extrabudgetary resources expended.

5.5 The Director shall provide the required liaison between ITU-T and other Sectors and the General Secretariat of ITU and with other standards development organizations (SDOs).

5.6 In the Director's estimate of the financial needs of ITU-T until the next WTSA as part of the biennial budgetary preparatory process of the Union, the Director shall prepare the financial estimates in accordance with relevant provisions of the Financial Regulations and Financial Rules, taking into account the relevant decisions of WTSA, including priorities for the work of the Sector.

5.7 The 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.

5.8 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.

5.9 The 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.

5.10 In addition, the Director may, within the limits specified in the Convention, submit to WTSA any report or proposal which would help to improve the work of ITU-T, so that WTSA may decide what action to take. In particular, the Director shall submit to WTSA such proposals concerning the organization and terms of reference of the study groups for the next study period as may be considered necessary.

5.11 The Director may request assistance from the study group and TSAG chairmen regarding proposals for potential candidates for study group and TSAG chairmen and vice-chairmen, for consideration by the heads of delegation.

5.12 After the close of WTSA, the Director shall supply administrations of Member States and Sector Members taking part in the activities of ITU-T with a list of the study groups and other groups set up by WTSA, indicating the general areas of responsibility and the Questions that have been referred to the various groups for study, and requesting them to advise the Director of the study groups or other groups in which they wish to take part.

Furthermore, the Director shall supply the international organizations with a list of the study groups and other groups set up by WTSA, asking them to advise the Director of the study groups or other groups in which they wish to participate in an advisory capacity.

5.13 Administrations of Member States, Sector Members and other participating organizations are invited to supply these particulars after each WTSA as soon as possible and not later than two months after they have received the Director's circular, and to update them regularly.

5.14 In the interval between WTSAs, when circumstances so demand, the Director is authorized to take exceptional measures to ensure the efficiency of the work of ITU-T within the limits of the credits available.

5.15 In the interval between WTSAs, the Director may request assistance from the chairmen of study groups and the chairman of TSAG regarding the allocation of available financial and human resources so to be able to assure the most efficient work of ITU-T.

5.16 In consultation with the chairmen of study groups and the chairman of TSAG, the Director shall ensure an appropriate flow of executive summary information on the work of the study groups. This information should be designed to assist in following and appreciating the overall significance of the work progressing in ITU-T.

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.

SECTION 6

Contributions

6.1 Contributions should be submitted not later than one month before the opening of WTSA, and at any event the submission deadline for all contributions to WTSA shall be not later than 14 calendar days before the opening of WTSA in order to allow for their timely translation and thorough consideration by delegations. TSB shall immediately publish all contributions submitted to WTSA in their original language(s) on the WTSA website, even before their translation into the other official languages of the Union.

6.2 Contributions to study group, working party and TSAG meetings shall be submitted and formatted in accordance with Recommendations ITU-T A.1 and ITU-T A.2, respectively.

SECTION 7

Development and approval of Questions

7.1 Development or revision of Questions

7.1.0 Development of a draft new or revised Question for approval and inclusion in the work programme of ITU-T may be processed, preferably:

- a) through a study group and TSAG;
- b) through a study group and further consideration in the relevant committee of WTSA, when the study group meeting is its last in the study period prior to a WTSA;
- c) through a study group where urgent treatment is justified;

or,

through WTSA (see 7.1.10).

7.1.1 Member States, and other duly authorized entities, shall submit proposed Questions as contributions to the study group meeting which will consider the new or revised Question(s).

7.1.2 Each proposed Question should be formulated in terms of specific task objective(s) and shall be accompanied by appropriate information as listed in Appendix I to this resolution with the aim of managing as efficiently as possible the scarce ITU resources and optimizing the use of resources. This information should clearly justify the reasons for proposing the Question and indicate the degree of urgency, while taking into account the relationship of the work of other study groups and standardization bodies.

7.1.3 TSB shall distribute the proposed new or revised Questions to the Member States and Sector Members of the study group(s) concerned so as to be received at least one month before the study group meeting which will consider the Question(s).

7.1.4 New or revised Questions may also be proposed by a study group itself during a meeting.

7.1.5 Each study group shall consider the proposed new or revised Questions to determine:

- i) the clear purpose of each proposed Question;
- ii) the priority and urgency of new Recommendation(s) desired, or changes to existing Recommendations resulting from the study of the Questions;
- iii) that there be as little overlap of work as possible between the proposed new or revised Questions both within the study group concerned and with Questions of other study groups and the work of other standardization organizations.

7.1.6 Agreement by a study group to submit proposed new or revised Questions for approval is achieved by reaching consensus among the Member States and Sector Members present at the study group meeting when the proposed new or revised Question is discussed that the criteria in 7.1.5 have been satisfied.

7.1.7 TSAG shall be made aware by liaison statement from the study groups of all proposed new or revised Questions, in order to allow it to consider the possible implications for the work of all ITU-T study groups or other groups. In collaboration with the author(s) of proposed Question(s), TSAG shall review and, if appropriate, may recommend changes to these Question(s), taking into account the criteria in 7.1.5 above.

7.1.8 The opportunity for review of the Questions by TSAG prior to approval may be dispensed with only where urgent approval of the proposed Question is justified in the opinion of the Director of TSB, after consulting the chairman of TSAG and the chairman of any other study groups where overlap or liaison problems could arise.

7.1.9 A study group may agree to commence work on a draft new or revised Question before its approval.

7.1.10 If, despite the above provisions, a Member State or Sector Member proposes a Question directly to a WTSA, the latter either approves the new or revised Question or invites the Member State or Sector Member to submit the proposed Question to the next meeting of the relevant study group(s) to allow time for its thorough examination.

7.1.11 In order to allow for the specific characteristics of countries with economies in transition, developing countries⁴, and especially the least developed countries, TSB shall take account of the relevant provisions of WTSA Resolution 44 (Rev. Hammamet, 2016) in responding to any request submitted by such countries through the Telecommunication Development Bureau (BDT), particularly with regard to matters related to training, information, examination of questions which are not covered by the ITU-D study groups, and technical assistance required for the examination of certain questions by the ITU-D study groups.

7.2 Approval of new or revised Questions between WSAs (see Figure 7.1a)

7.2.1 Between WSAs, and after development of proposed new or revised Questions (see 7.1 above), the approval procedure for new or revised Questions is set out in 7.2.2 and 7.2.3 below.

⁴ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

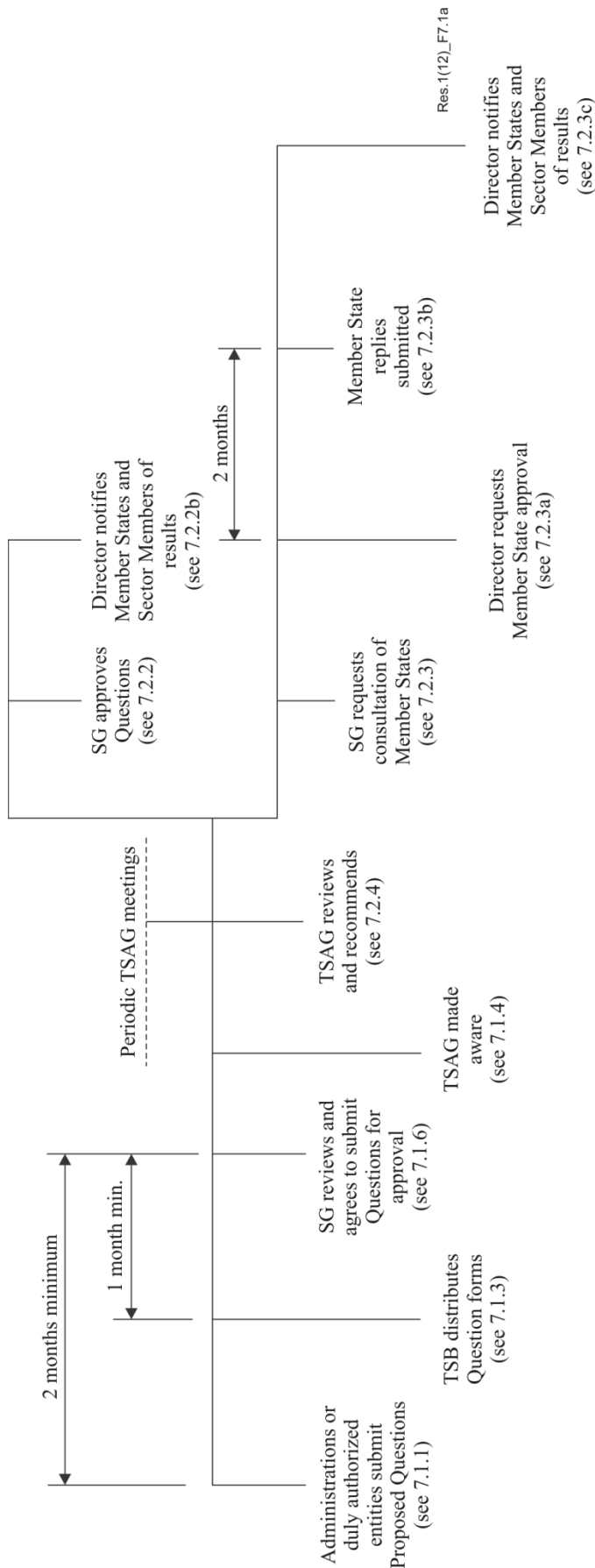


Figure 7.1a – Approval of new or revised Questions between WTSAAs

7.2.2 New or revised Questions may be approved by a study group if consensus at the study group meeting is achieved. In addition, some Member States and Sector Members (normally at least four) have to commit themselves to support the work, e.g. by contributions, provision of rapporteurs or editors and/or hosting of meetings. The names of the supporting entities should be recorded in the meeting report, together with the type of support to which they are committing.

- a) The proposed new or revised Question, once approved, shall have the same status as Questions approved at a WTSA.
- b) The Director shall notify the results by circular.

7.2.3 Alternatively, if the support as described in 7.2.2 has been offered, but consensus of the study group to approve a new or revised Question is not achieved, the study group may continue to consider the matter or request approval by consultation of the Member States.

- a) The Director shall request Member States to notify the Director within two months whether they approve or do not approve the proposed new or revised Question.
- b) A proposed Question is approved and has the same status as Questions approved at a WTSA, if:
 - a simple majority of all the Member States responding are in agreement; and
 - at least ten replies are received.
- c) The Director shall notify the results of the consultation by circular. (See also 8.2.)

7.2.4 Between WSAs, TSAG shall review the work programme of ITU-T and recommend revisions as necessary.

7.2.5 In particular, TSAG shall review any new or revised Question to determine whether it is in line with the mandate of the study group. TSAG may then endorse the text of any proposed new or revised Question or may recommend that it be modified. If TSAG recommends modifying the draft new or revised Question, the Question shall be returned to the relevant study group for reconsideration. TSAG will note the text of any new or revised Question already approved.

7.3 Approval of Questions by WTSA (see Figure 7.1b)

7.3.1 At least two months prior to WTSA, TSAG shall meet to consider, review and, where appropriate, recommend changes to Questions for WTSA's consideration, while ensuring that the Questions respond to the overall needs and priorities of the ITU-T work programme and are duly harmonized to:

- i) avoid duplication of effort;
- ii) provide a coherent basis for interaction between study groups;
- iii) facilitate monitoring overall progress in the drafting of Recommendations and other ITU-T publications;
- iv) facilitate cooperative efforts with other standardization organizations.

7.3.2 At least one month before WTSA, the Director shall inform the Member States and Sector Members of the list of proposed new and revised Questions, as agreed by TSAG.

7.3.3 The proposed Questions may be approved by WTSA in accordance with the General Rules of conferences, assemblies and meetings of the Union.

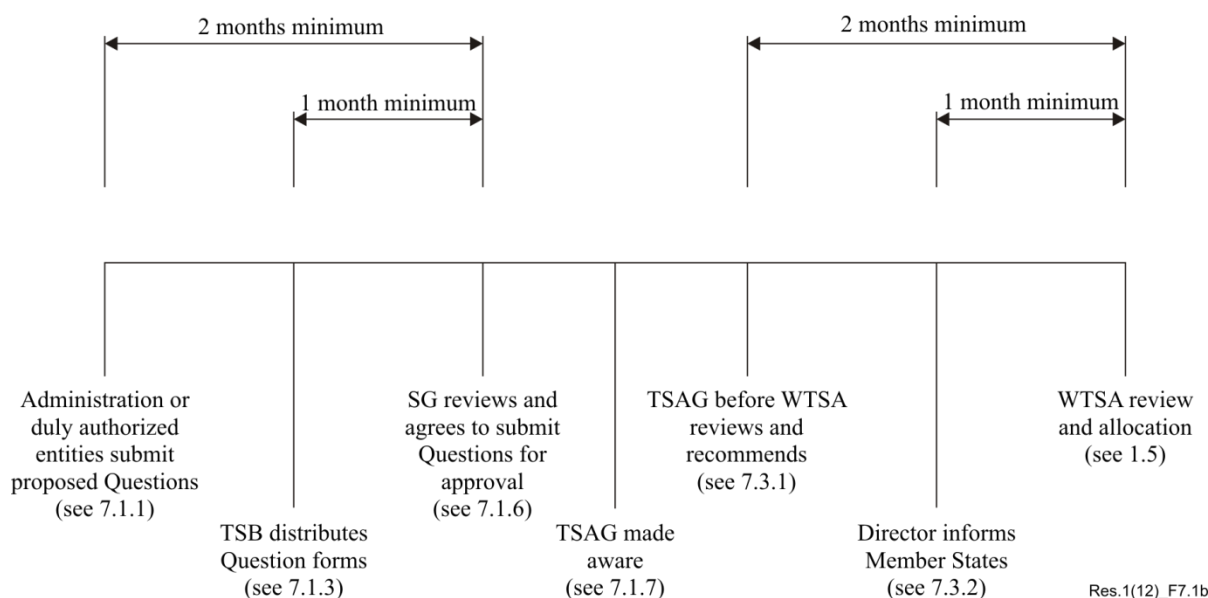


Figure 7.1b – Approval of new or revised Questions at WTSA

7.4 Deletion of Questions

Study groups may decide in each individual case which of the following alternatives is the most appropriate for the deletion of a Question.

7.4.1 Deletion of a Question between WTSAs

7.4.1.1 At a study group meeting, it may be agreed by consensus among those present to delete a Question, e.g. either because work has been terminated or because no contributions have been received at that meeting and at the previous two study group meetings. Notification about this agreement, including an explanatory summary of the reasons for the deletion, shall be provided by a circular. If a simple majority of the Member States responding has no objection to the deletion within two months, the deletion will come into force. Otherwise the issue will be referred back to the study group.

7.4.1.2 Those Member States which indicate disapproval are requested to provide their reasons and to indicate the possible changes that would facilitate further study of the Question.

7.4.1.3 Notification of the result 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.

7.4.2 Deletion of a Question by WTSA

Upon the decision of the study group, the chairman shall include in his or her report to WTSA the request to delete a Question. WTSA will decide as appropriate.

SECTION 8

Recommendation development and approval processes

8.1 ITU-T Recommendation approval processes and selection of the approval process

Procedures for approval of Recommendations which require formal consultation of Member States (traditional approval process, TAP) are specified in Section 9 of this resolution. Procedures for approval of Recommendations which do not require formal consultation of Member States (alternative approval process, AAP) are specified in Recommendation ITU-T A.8. In accordance with the Convention, the status of Recommendations approved is the same for both methods of approval.

"Selection" refers to the act of choosing AAP or choosing TAP for the development and approval of new and revised Recommendations.

8.1.1 Selection at a study group meeting

As a general approach, ITU-T Recommendations relating to numbering, addressing, tariff, charging and accounting questions are assumed to follow TAP. Likewise, ITU-T Recommendations relating to other questions are assumed to follow AAP. However, explicit action at the study group meeting can change the selection from AAP to TAP, and vice versa, if so decided by consensus of the Member States and Sector Members present at the meeting.

When determining whether a new or revised draft Recommendation has policy or regulatory implications, particularly related to tariff and accounting issues, study groups should refer to WTSA Resolution 40 (Rev. Hammamet, 2016).

If consensus is not achieved, the same process used at a WTSA, as described in 1.13 above, shall be used to decide the selection.

8.1.2 Selection at WTSA

As a general approach, ITU-T Recommendations relating to numbering, addressing, tariff, charging and accounting questions are assumed to follow TAP. Likewise, ITU-T Recommendations relating to other questions are assumed to follow AAP. However, explicit action at WTSA can change the selection from AAP to TAP, and vice versa.

8.2 Notification of the selection

When the Director of TSB notifies the membership that a Question has been approved, the Director shall also include notification of the proposed selection for the resulting Recommendations. If there are any objections, which must be based on the provisions of No. 246D of the Convention, they shall be forwarded to the next study group meeting, in writing, where there can be a reconsideration of the selection (see 8.3 below).

8.3 Reconsideration of the selection

At any time, up to the decision to put a draft new or revised Recommendation into the "Last Call" comment process, the selection can be reconsidered based on the provisions of No. 246D of the Convention. Any request for reconsideration must be in writing (e.g. a contribution, or if submitted after the expiry of the deadline for a contribution, a written document that is then reflected in a TD) to a study group or working party meeting, accompanied by the reasons for reconsideration of the selection. A proposal from a Member State or Sector Member to change the selection has to be seconded before it can be addressed by the meeting.

Using the same procedures as described in 8.1.1, the study group will decide if the selection will remain as is, or if it will be changed.

The selection may not be changed once the Recommendation has been consented (Recommendation ITU-T A.8, clause 3.1), or determined (see 9.3.1 below).

SECTION 9

Approval of new and revised Recommendations using the traditional approval process

9.1 General

9.1.1 Procedures for approval of new or revised Recommendations which require formal consultation of Member States (traditional approval process, TAP) are found in this section of WTSA Resolution 1. According to No. 246B of the Convention, draft new or revised ITU-T Recommendations are adopted by a study group in accordance with procedures established by WTSA, and Recommendations which do not require formal consultation of Member States for their approval are considered approved. Procedures for such approval of Recommendations (alternative approval process, AAP) are found in Recommendation ITU-T A.8. In accordance with the Convention, the status of Recommendations approved is the same for both methods of approval.

9.1.2 In the interests of speed and efficiency, approval should normally be sought as soon as the relevant texts are mature, by a formal consultation in which the Director of TSB asks Member States to delegate authority to the relevant study group to proceed with the approval process and subsequent agreement at a formal meeting of the study group.

The relevant study group may also seek approval at a WTSA.

9.1.3 In accordance with No. 247A of the Convention, the status of Recommendations approved is the same whether approval is at a study group meeting or at a WTSA.

9.2 Process

9.2.1 Study groups should apply the process described below for seeking the approval of all draft new and revised Recommendations, when they have been developed to a mature state. See Figure 9.1 for the sequence of events.

NOTE – A Study Group 3 regional group shall decide on its own to apply this procedure for the limited purpose of establishing regional tariffs. Any Recommendation adopted according to this procedure shall only apply to the Member States that are part of the regional group. The chairman of Study Group 3 shall be informed of the decision to apply this approval procedure and Study Group 3 at its next plenary meeting will examine the draft Recommendation in broad terms. If there is no objection as regards principles and methodology, the procedure shall be initiated. Only the Member States of the Study Group 3 regional group will be consulted by the Director for the approval of the draft Recommendation concerned.

9.2.2 Cases where approval of new or revised Recommendations should be deferred for consideration at a WTSA are:

- a) Recommendations of an administrative nature concerning ITU-T as a whole;
- b) where the study group concerned considers it desirable that WTSA itself should debate and resolve particularly difficult or delicate issues;
- c) where attempts to achieve agreement within the study groups have failed due to non-technical issues such as differing views on policy.

9.3 Prerequisites

9.3.1 Upon request of the study group chairman, the Director shall explicitly announce the intention to apply the approval procedure set out in this resolution when convening the meeting of the study group. Such requests shall be based upon a determination at a study group or working party meeting or, exceptionally, at a WTSA, that work on a draft Recommendation is sufficiently mature for such action. At this stage the draft Recommendation is considered to be "determined". The Director shall include the summary of the Recommendation. Reference shall be provided to the report or other documents where the text of the draft new or revised Recommendation to be considered may be found. This information shall also be distributed to all Member States and Sector Members.

9.3.2 Study groups are encouraged to establish an editing group in each study group to review the texts of new and revised Recommendations for suitability in each of the official languages.

9.3.3 The text of the draft new or revised Recommendation must be available to TSB in a final edited form in at least one of the official languages at the time that the Director makes the announcement of the intended application of the approval procedure set out in this resolution. Any associated electronic material included in the Recommendation (e.g. software, test vectors, etc.) must also be made available to TSB at the same time. A summary that reflects the final edited form of the draft Recommendation must also be provided to TSB in accordance with 9.3.4 below. The invitation to the meeting, together with the summary of the draft new or revised Recommendation, announcing the intended application of this approval procedure, shall be sent by the Director to all Member States and Sector Members so as to be received at least three months before the meeting. The invitation and the enclosed summary shall be distributed according to normal procedures, which include the use of the appropriate official languages.

9.3.4 The summary shall be prepared in accordance with the author's guide for drafting ITU-T Recommendations. It is a brief outline of the purpose and content of the new or revised draft Recommendation and, where appropriate, the intent of the revisions. No Recommendation shall be considered as complete and ready for approval without this summary statement.

9.3.5 The text of the draft new or revised Recommendation must have been distributed in the official languages at least one month prior to the announced meeting.

9.3.6 Approval may only be sought for a draft new or revised Recommendation within the study group's mandate as defined by the Questions allocated to it, in accordance with No. 192 of the Convention. Alternatively, or additionally, approval may be sought for amendment of an existing Recommendation within the study group's responsibility and mandate (see WTSA Resolution 2).

9.3.7 Where a draft new or revised Recommendation falls within the mandate of more than one study group, the chairman of the study group proposing the approval should consult and take into account the views of any other study group chairmen concerned before proceeding with the application of this approval procedure.

9.3.8 ITU-T Recommendations are to be elaborated with a view to being applied as broadly and openly as possible, so as to ensure their widespread use. Recommendations are to be elaborated keeping in mind the requirements relating to intellectual property rights and in accordance with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC available at <http://www.itu.int/ITU-T/ipr/>. For example:

9.3.8.1 Any party participating in the work of ITU-T should, from the outset, draw the attention of the Director to any known patent or to any known pending patent application, either of their own or of other organizations. The "Patent Statement and Licensing Declaration" form from the ITU-T website is to be used.

9.3.8.2 ITU-T non-member organizations that hold patent(s) or pending patent application(s), the use of which may be required in order to implement an ITU-T Recommendation, can submit a "Patent Statement and Licensing Declaration" to TSB using the form available at the ITU-T website.

9.3.9 In the interests of stability, once a new or revised Recommendation has been approved, approval should not normally be sought within a reasonable period of time for any further amendment of the new text or the revised portion, respectively, unless the proposed amendment complements rather than changes the agreement reached in the previous approval process or a significant error or omission is discovered. As a guideline, in this context "a reasonable period of time" would be at least two years in most cases.

9.3.10 Any Member States considering themselves to be adversely affected by a Recommendation approved in the course of a study period may refer their case to the Director, who shall submit it to the relevant study group for prompt attention.

9.3.11 The Director shall inform the next WTSA of all cases notified under 9.3.10 above.

9.4 Consultation

9.4.1 Consultation of the Member States encompasses the time period and procedures beginning with the announcement by the Director of the intention to apply the approval procedure (9.3.1) up to seven working days before the beginning of the study group meeting. The Director shall request Member States' opinions within this period on whether they assign authority to the study group that the draft new or revised Recommendations should be considered for approval at the study group meeting. Only Member States are entitled to respond to this consultation.

9.4.2 If TSB has received a statement (or statements) indicating that the use of intellectual property, e.g. the existence of a patent, or a copyright claim, may be required in order to implement a draft Recommendation, the Director shall indicate this situation in the circular announcing the intention to invoke the Resolution 1 approval process (see Appendix II to this resolution).

9.4.3 The Director shall inform the Directors of the other two Bureaux, as well as recognized operating agencies, scientific and industrial organizations and international organizations participating in the work of the study group in question, that Member States are being asked to respond to a consultation on a proposed new or revised Recommendation. Only Member States are entitled to respond (see 9.5.2 below).

9.4.4 Should any Member States be of the opinion that consideration for approval shall not proceed, they should advise their reasons for disapproving and indicate the possible changes that would facilitate further consideration and approval of the draft new or revised Recommendation.

9.4.5 If 70 per cent or more of the replies from Member States support consideration for approval at the study group meeting (or if there are no replies), the Director shall advise the chairman that consideration of the approval may proceed. (With the authorization given by Member States that the study group may proceed with the approval process, they also recognize that the study group may make the necessary technical and editorial changes in accordance with 9.5.2 below.)

9.4.6 If less than 70 per cent of the replies received by the due date support consideration for approval at the study group meeting, the Director shall advise the chairman that consideration of the approval may not proceed at that meeting. (Nevertheless, the study group should consider the information provided under 9.4.4 above.)

9.4.7 Any comments received along with responses to the consultation shall be collected by TSB and submitted as a TD to the next meeting of the study group.

9.5 Procedure at study group meetings

9.5.1 The study group should review the text of the draft new or revised Recommendation as referred to in 9.3.1 and 9.3.3 above. The meeting may then accept any editorial corrections or other amendments not affecting the substance of the Recommendation. The study group shall assess the summary statement referred to in 9.3.4 in terms of its completeness and ability to concisely convey the intent of the draft new or revised Recommendation to a telecommunication expert who has not participated in the study group work.

9.5.2 Technical and editorial changes may only be made during the meeting as a consequence of written contributions, of results from the consultation process (see 9.4 above) or of liaison statements. Where proposals for such revisions are found to be justified but to have a major impact on the intent of the Recommendation or to depart from points of principle agreed at the previous study group or working party meeting, consideration of this approval procedure should be deferred to another meeting. However, in justified circumstances the approval procedure may still be applied if the chairman of the study group, in consultation with TSB, considers:

- that the proposed changes are reasonable (in the context of the advice issued under 9.4 above) for those Member States not represented at the meeting, or not represented adequately under the changed circumstances; and
- that the proposed text is stable.

9.5.3 After debate at the study group meeting, the decision of the delegations to approve the Recommendation under this approval procedure must be unopposed (but see 9.5.4, regarding reservations, 9.5.5 and 9.5.6). See No. 239 of the Convention.

9.5.4 In cases where a delegation does not elect to oppose approval of a text, but would like to register a degree of reservation on one or more aspects, this shall be noted in the report of the meeting. Such reservations shall be mentioned in a concise note appended to the text of the Recommendation concerned.

9.5.5 A decision must be reached during the meeting on the basis of a text available in its final form to all participants at the meeting. Exceptionally, but only during the meeting, a delegation may request more time to consider its position. Unless the Director is advised of formal opposition from the Member State to which the delegation belongs within a period of four weeks from the end of the meeting, the Director shall proceed in accordance with 9.6.1.

9.5.5.1 A Member State which requested more time to consider its position and which then indicates disapproval within the four-week interval specified in 9.5.5 above is requested to state its reasons and to indicate the possible changes that would facilitate further consideration and future approval of the draft new or revised Recommendation.

9.5.5.2 If the Director is advised of formal opposition, the study group chairman, after consultation with the parties concerned, may proceed according to 9.3.1 above, without further determination at a subsequent working party or study group meeting.

9.5.6 A delegation may advise at the meeting that it is abstaining from the decision to apply the procedure. This delegation's presence shall then be ignored for the purposes of 9.5.3 above. Such an abstention may subsequently be revoked, but only during the course of the meeting.

9.6 Notification

9.6.1 Within four weeks of the closing date of the study group meeting or, exceptionally, four weeks after the period described in 9.5.5, the Director shall notify whether the text is approved or not, by circular. The Director shall arrange that this information is also included in the next available ITU Notification. Within this same time period, the Director shall also ensure that any Recommendation agreed to during the study group decision meeting is available online in at least one official language, with an indication that the Recommendation may not be in its final publication form.

9.6.2 Should minor, purely editorial amendments or corrections of evident oversights or inconsistencies in the text as presented for approval be necessary, TSB may correct these with the approval of the chairman of the study group.

9.6.3 The Secretary-General shall publish the approved new or revised Recommendations in the official languages as soon as practicable, indicating, as necessary, a date of entry into effect. However, in accordance with Recommendation ITU-T A.11, minor amendments may be covered by corrigenda rather than a complete reissue. Also, where appropriate, texts may be grouped to suit market needs.

9.6.4 Text shall be added to the cover sheets of all new and revised Recommendations urging users to consult the ITU-T patent database and the ITU-T software copyright database. Suggested wording is:

- "ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed intellectual property right. ITU takes no position concerning the evidence, validity or applicability of claimed intellectual property rights, whether asserted by ITU Member States and Sector Members or by others outside of the Recommendation development process."
- "As of the date of approval of this Recommendation, ITU had/had not received notice of intellectual property, protected by patents/software copyrights, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the appropriate ITU-T databases available via the ITU-T website."

9.6.5 See also Recommendation ITU-T A.11 concerning the publication of lists of new and revised Recommendations.

9.7 Correction of defects

When a study group identifies the need for implementers to be made aware of defects (e.g. typographical errors, editorial errors, ambiguities, omissions or inconsistencies and technical errors) in a Recommendation, one mechanism that may be employed is an implementers' guide. This guide is an historical document recording all identified defects and their status of correction, from their identification to final resolution. Implementers' guides shall be agreed by the study group or agreed by one of its existing working parties with the concurrence of the study group chairman. Implementers' guides shall be made available by posting on the ITU-T website with open access.

9.8 Deletion of Recommendations

Study groups may decide in each individual case which of the following alternatives is the most appropriate for the deletion of Recommendations.

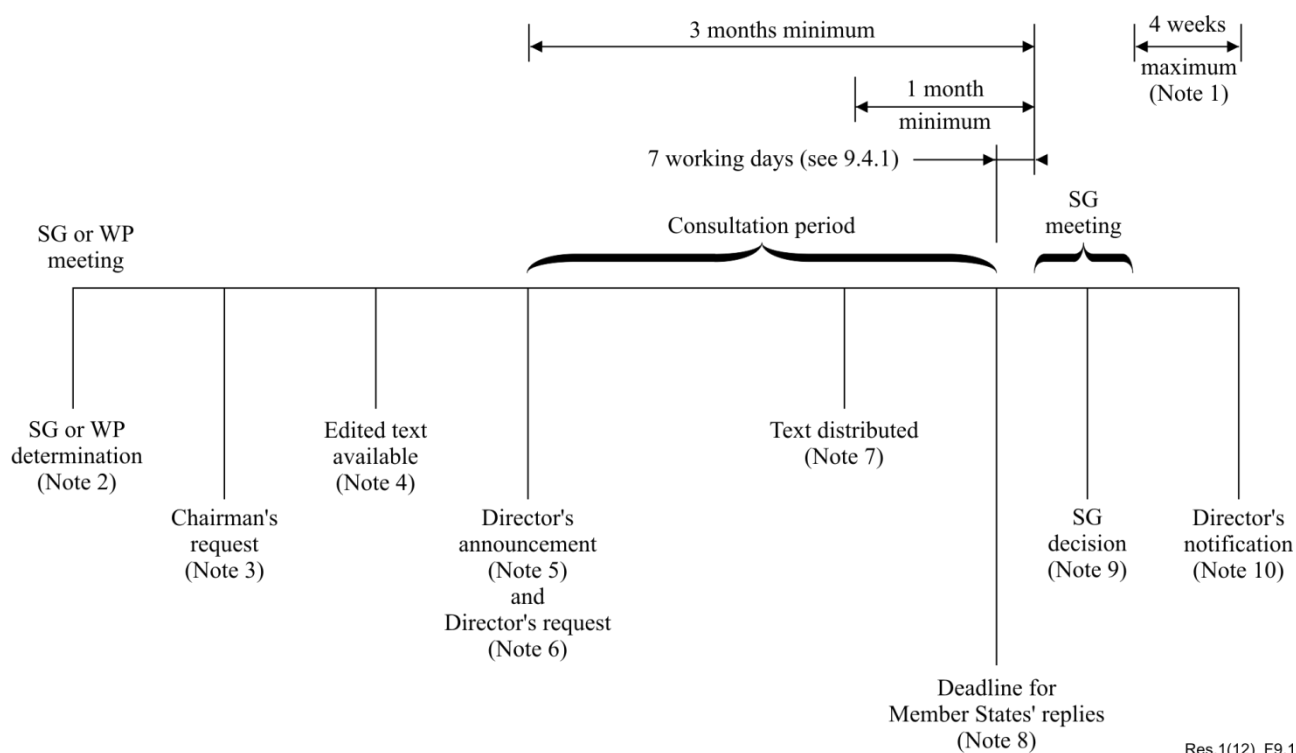
9.8.1 Deletion of Recommendations by WTSA

Upon the decision of the study group, the chairman shall include in his or her report to WTSA the request to delete a Recommendation. WTSA should consider the request and act as appropriate.

9.8.2 Deletion of Recommendations between TSAs

9.8.2.1 At a study group meeting it may be agreed to delete a Recommendation, either because it has been superseded by another Recommendation or because it has become obsolete. This agreement must be unopposed. Information about this agreement, including an explanatory summary about the reasons for the deletion, shall be provided by a circular. If no objection to the deletion is received within three months, the deletion will come into force. In the case of objection, the matter will be referred back to the study group.

9.8.2.2 Notification of the result 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.



NOTE 1 – Exceptionally, an additional period of up to four weeks would be added if a delegation requested more time under 9.5.5.

NOTE 2 – SG or WP DETERMINATION: The study group or working party determines that work on a draft Recommendation is sufficiently mature and requests the SG chairman to make the request to the Director (9.3.1).

NOTE 3 – CHAIRMAN'S REQUEST: The SG chairman requests that the Director announce the intention to seek approval (9.3.1).

NOTE 4 – EDITED TEXT AVAILABLE: Text of the draft Recommendation, including the required summary, must be available to TSB in final edited form in at least one official language (9.3.3). Any associated electronic material included in the Recommendation must also be made available to TSB at the same time.

NOTE 5 – DIRECTOR'S ANNOUNCEMENT: The Director announces the intention to seek approval of the draft Recommendation at the next SG meeting. The invitation to the meeting with the announcement of the intention to apply the approval procedure should be sent to all Member States and Sector Members so as to be received at least three months before the meeting (9.3.1 and 9.3.3).

NOTE 6 – DIRECTOR'S REQUEST: The Director requests Member States to inform the Director whether they approve or do not approve the proposal (9.4.1 and 9.4.2). This request shall contain the summary and reference to the complete final text.

NOTE 7 – TEXT DISTRIBUTED: Text of the draft Recommendation must have been distributed in the official languages at least one month before the announced meeting (9.3.5).

NOTE 8 – DEADLINE FOR MEMBER STATES' REPLIES: If 70% of replies received during the consultation period indicate approval, the proposal shall be accepted (9.4.1, 9.4.5 and 9.4.7).

NOTE 9 – STUDY GROUP DECISION: After debate, the study group reaches unopposed agreement to apply the approval procedure (9.5.3 and 9.5.2). A delegation can register a degree of reservation (9.5.4), can request more time to consider its position (9.5.5) or can abstain from the decision (9.5.6).

NOTE 10 – DIRECTOR'S NOTIFICATION: The Director notifies whether the draft Recommendation is approved or not (9.6.1).

Figure 9.1 – Approval of new and revised Recommendations using TAP – Sequence of events

APPENDIX I
(to Resolution 1 (Rev. Hammamet, 2016))

Information for submission of a Question

- Source
- Short title
- Type of Question or proposal⁵
- Reasons or experience motivating the proposed Question or proposal
- Draft text of Question or proposal
- Specific task objective(s) with expected time-frames for completion
- Relationship of this study activity to other:
 - Recommendations
 - Questions
 - study groups
 - relevant standardization organizations

Guidelines for drafting Question text are available on the ITU-T website.

APPENDIX II
(to Resolution 1 (Rev. Hammamet, 2016))

Suggested text of the note to be included in the circular

TSB has received a statement(s) indicating that the use of intellectual property, protected by one or more issued or pending patent(s) and/or software copyright(s), may be required to implement this draft Recommendation. Available patent and software copyright information can be accessed via the ITU-T website.

⁵ Background Question, task-oriented Question designed to lead to a Recommendation, proposal for a new manual, revised manual, etc.

RESOLUTION 2 (Rev. Hammamet, 2016)

ITU Telecommunication Standardization Sector study group responsibility and mandates

*(Helsinki, 1993; Geneva, 1996; Montreal, 2000; Florianópolis, 2004;
Johannesburg, 2008; 2009¹; Dubai, 2012; 2015²; 2016³; Hammamet, 2016)*

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

the resolutions adopted by this assembly, which contain many instructions and implications for the work of the relevant study groups,

considering

- a)* that the mandate for each study group needs to be clearly defined in order to avoid duplication of effort between study groups and to ensure the coherence of the overall work programme of the ITU Telecommunication Standardization Sector (ITU-T);
- b)* that ITU-T has to evolve in order to stay relevant to the changing telecommunication environment and to its membership interests;
- c)* that collocation of study group, working party or rapporteur group meetings could also be a means to avoid duplication of work and to improve efficiency of work; in practice, collocation enables:
 - attendees' participation in the work of more than one study group;
 - reduction in the need for exchange of liaison statements between the study groups concerned;
 - saving costs for ITU and for ITU members and other experts;
- d)* that the World Telecommunication Standardization Assembly (WTSA), through Resolution 22, assigns authority to the Telecommunication Standardization Advisory Group (TSAG) in the interval between WTSAs to restructure and establish ITU-T study groups in response to changes in the telecommunication marketplace,

noting

that the study group structure, responsibilities and mandates agreed at WTSA may be modified in the interval between WTSAs, and that the current study group structure, responsibility and mandates may be found on the ITU-T website or obtained from the Telecommunication Standardization Bureau (TSB),

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 to this resolution, within which the study group may amend existing Recommendations, in collaboration with other groups, as appropriate;

¹ Changes to the ITU-T Study Group 5 mandate agreed by TSAG on 30 April 2009.

² Creation of ITU-T Study Group 20 by TSAG on 5 June 2015.

³ Changes to the ITU-T Study Group 20 lead study group role agreed by TSAG on 5 February 2016.

- 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.

ANNEX A (to Resolution 2 (Rev. Hammamet, 2016))

PART 1 – GENERAL AREAS OF STUDY

ITU-T Study Group 2

Operational aspects of service provision and telecommunication management

ITU-T Study Group 2 is responsible for studies relating to:

- numbering, naming, addressing and identification requirements and resource assignment, including criteria and procedures for reservation, assignment and reclamation;
- routing and interworking requirements;
- principles of service provision, definition and operational requirements;
- operational and management aspects of networks, including network traffic management, designations and transport-related operations procedures;
- operational aspects of interworking between traditional telecommunication networks and evolving networks;
- evaluation of feedback from operators, manufacturing companies and users on different aspects of network operation;
- management of telecommunication services, networks and equipment via management systems, including support for next-generation networks (NGN), cloud computing, future networks (FN), software-defined networking (SDN), IMT-2020, and the application and evolution of the telecommunication management network (TMN) framework;
- ensuring the consistency of the format and structure of identity management (IdM) identifiers;
- specifying interfaces to management systems to support the communication of identity information within or between organizational domains; and
- the operational impact of the Internet, convergence (services or infrastructure) and new services, such as over-the-top (OTT), on international telecommunication services and networks.

ITU-T Study Group 3

Tariff and accounting principles and international telecommunication/ICT economic and policy issues

ITU-T Study Group 3 is responsible, *inter alia*, for studying international telecommunication/ICT policy and economic issues and tariff and accounting matters (including costing principles and methodologies), with a view to informing the development of enabling regulatory models and frameworks. To this end, Study Group 3 shall in particular foster collaboration among its participants with a view to the establishment of rates at levels as low as possible consistent with an efficient service and taking into account the necessity of maintaining independent financial administration of telecommunications on a sound basis. Additionally, Study Group 3 will study the economic and regulatory impact of the Internet, convergence (services or infrastructure) and new services, such as over-the-top (OTT), on international telecommunication services and networks.

ITU-T Study Group 5

Environment, climate change and circular economy

ITU-T Study Group 5 is responsible for studying ICT environmental aspects of electromagnetic phenomena and climate change.

Study Group 5 will also study issues related to resistibility, human exposure to electromagnetic fields, circular economy, energy efficiency and climate-change adaptation and mitigation.

It is responsible for studies relating to:

- protection of telecommunication networks and equipment from interference and lightning;
- electromagnetic compatibility (EMC), particle radiation effects, and assessment of human exposure to electromagnetic fields (EMF) produced by ICT installations and devices, including cellular phones and base stations;
- the existing copper network outside plant and related indoor installations;
- achieving energy efficiency and sustainable clean energy in ICTs;
- methodologies for assessing the environmental impact of ICT, publishing guidelines for using ICTs in an eco-friendly way, dealing with e-waste issues (also including the environmental impact of counterfeit devices), enhancing rare-metal recycling and energy efficiency of ICT, including infrastructures.

Study Group 5 is responsible for studies on how to use ICTs to help countries and the ICT sector to adapt to the effects of environmental challenges, including climate change, in line with the Sustainable Development Goals (SDGs).

Study Group 5 also identifies the needs for more consistent and standardized eco-friendly practices for the ICT sector (e.g. labelling, procurement practices, standardized power supplies/connectors, eco-rating schemes).

ITU-T Study Group 9

Television and sound transmission and integrated broadband cable networks

ITU-T Study Group 9 is responsible for studies relating to:

- use of telecommunication systems for contribution, primary distribution and secondary distribution of television, sound programmes and related data services including interactive services and applications, extendable to advanced capabilities such as ultra-high definition, 3D, multiview and high-dynamic range television, etc.;
- use of cable and hybrid networks, primarily designed for television and sound-programme delivery to the home, as integrated broadband networks to also carry voice or other time-critical services, video-on-demand (e.g. over-the-top (OTT)), interactive services, multiscreen services, etc. to customer premises equipment (CPE) in the home or enterprise.

ITU-T Study Group 11

Signalling requirements, protocols, test specifications and combating counterfeit products

ITU-T Study Group 11 has been attributed the responsibility for studies related to signalling-system architecture, signalling requirements and protocols, for all types of networks and technologies, future networks (FN), software-defined networking (SDN), network function virtualization (NFV), cloud-computing networks, VoLTE/ViLTE-based network interconnection, virtual networks, IMT-2020 technologies, multimedia, next-generation networks (NGN), flying ad-hoc networks, tactile Internet, augmented reality and signalling for legacy network interworking.

Study Group 11 is also responsible for studies to combat counterfeiting products including telecommunication/ICT and mobile device theft.

Study Group 11 will also develop test specifications for testing conformance and interoperability (C&I) for all types of networks, technologies and services, a testing methodology and test suites for standardized network parameters in relation to the framework for Internet-related performance measurement, as well as for existing technologies (e.g. NGN) and emerging technologies (e.g. FN, cloud, SDN, NFV, IoT, VoLTE/ViLTE, IMT-2020 technologies, flying ad-hoc networks, tactile Internet, augmented reality, etc.).

In addition, Study Group 11 will study a way to implement a testing laboratory recognition procedure in ITU-T through the work of the ITU-T Conformity Assessment Steering Committee (CASC).

ITU-T Study Group 12

Performance, quality of service and quality of experience

ITU-T Study Group 12 is responsible for Recommendations on performance, quality of service (QoS) and quality of experience (QoE) for the full spectrum of terminals, networks, services and applications ranging from speech over fixed circuit-based networks to multimedia applications over networks that are mobile and packet based. Included in this scope are the operational aspects of performance, QoS and QoE; the end-to-end quality aspects of interoperability, and the development of multimedia quality assessment methodologies, both subjective and objective.

ITU-T Study Group 13

Future networks, with focus on IMT-2020, cloud computing and trusted network infrastructures

ITU-T Study Group 13 is responsible for studies relating to the requirements, architectures, capabilities and APIs as well as softwarization and orchestration aspects of converged future networks (FN), specifically focusing on IMT-2020 non-radio related parts. This also includes IMT-2020 project management coordination across all ITU-T study groups and release planning and implementation scenarios. It is responsible for studies relating to cloud-computing technologies, big data, virtualization, resource management, reliability and security aspects of the network architectures considered. It is responsible for studies relating to fixed-mobile convergence (FMC), mobility management, and enhancements to existing ITU-T Recommendations on mobile communications, including the energy-saving aspects. Furthermore, Study Group 13 responsibility includes studies on emerging network technologies for IMT-2020 networks and FN, such as information-centric networking (ICN)/content-centric networking (CCN). Study Group 13 is also responsible for studies relating to standardization of concepts and mechanisms to enable trusted ICT, including framework, requirements, capabilities, architectures and implementation scenarios of trusted network infrastructures and trusted cloud solutions in coordination with all study groups concerned.

ITU-T Study Group 15

Networks, technologies and infrastructures for transport, access and home

ITU-T Study Group 15 is responsible in ITU-T for the development of standards for the optical transport network, access network, home network and power utility network infrastructures, systems, equipment, optical fibres and cables. This includes related installation, maintenance, management, test, instrumentation and measurement techniques, and control plane technologies to enable the evolution toward intelligent transport networks, including the support of smart-grid applications.

ITU-T Study Group 16

Multimedia coding, systems and applications

ITU-T Study Group 16 is responsible for studies relating to ubiquitous multimedia applications, multimedia capabilities for services and applications for existing and future networks. This encompasses accessibility; multimedia architectures and applications; human interfaces and services; terminals; protocols; signal processing; media coding and systems (e.g. network signal processing equipment, multipoint conference units, gateways and gatekeepers).

ITU-T Study Group 17

Security

ITU-T Study Group 17 is responsible for building confidence and security in the use of information and communication technologies (ICT). This includes studies relating to cybersecurity, security management, countering spam and identity management. It also includes security architecture and framework, protection of personally identifiable information, and security of applications and services for the Internet of things (IoT), smart grid, smartphone, software-defined networking (SDN), Internet protocol television (IPTV), web services, social network, cloud computing, big data analytics, mobile financial system and telebiometrics. Study Group 17 is also responsible for the application of open system communications, including directory and object identifiers, and for technical languages, the method for their usage and other issues related to the software aspects of telecommunication systems and test specification languages in support of conformance testing to improve the quality of Recommendations.

ITU-T Study Group 20

Internet of things (IoT) and smart cities and communities

Study Group 20 is responsible for studies relating to Internet of things (IoT) and its applications, and smart cities and communities (SC&C). This includes studies relating to big data aspects of IoT and SC&C, e-services and smart services for SC&C.

PART 2 – LEAD ITU-T STUDY GROUPS IN SPECIFIC AREAS OF STUDY

- SG2 Lead study group on numbering, naming, addressing, identification and routing
 Lead study group on service definition
 Lead study group on telecommunications for disaster relief/early warning, network resilience and recovery
 Lead study group on telecommunication management
- SG3 Lead study group on tariff and accounting principles relating to international telecommunications/ICT
 Lead study group on economic issues relating to international telecommunications/ICT
 Lead study group on policy issues relating to international telecommunications/ICT
- SG5 Lead study group on electromagnetic compatibility, lightning protection and electromagnetic effects
 Lead study group on ICTs related to the environment, climate change, energy efficiency and clean energy
 Lead study group on circular economy, including e-waste
- SG9 Lead study group on integrated broadband cable and television networks
- SG11 Lead study group on signalling and protocols, including for IMT-2020 technologies
 Lead study group on establishing test specifications, conformance and interoperability testing for all types of networks, technologies and services that are the subject of study and standardization by all ITU-T study groups
 Lead study group on combating counterfeiting of ICT devices
 Lead study group on combating the use of stolen ICT devices
- SG12 Lead study group on quality of service and quality of experience
 Lead study group on driver distraction and voice aspects of car communications
 Lead study group on quality assessment of video communications and applications
- SG13 Lead study group on future networks such as IMT-2020 networks (non-radio related parts)
 Lead study group on mobility management
 Lead study group on cloud computing
 Lead study group on trusted network infrastructures
- SG15 Lead study group on access network transport
 Lead study group on home networking
 Lead study group on optical technology
 Lead study group on smart grid

- SG16 Lead study group on multimedia coding, systems and applications
 Lead study group on ubiquitous multimedia applications
 Lead study group on telecommunication/ICT accessibility for persons with disabilities
 Lead study group on human factors
 Lead study group on multimedia aspects of intelligent transport system (ITS) communications
 Lead study group on Internet protocol television (IPTV) and digital signage
 Lead study group on multimedia aspects of e-services
- SG17 Lead study group on security
 Lead study group on identity management
 Lead study group on languages and description techniques
- SG20 Lead study group on Internet of things (IoT) and its applications
 Lead study group on smart cities and communities, including its e-services and smart services
 Lead study group for Internet of things identification

ANNEX B

(to Resolution 2 (Rev. Hammamet, 2016))

Points of guidance to ITU-T study groups for development of the post-2016 work programme

B.1 This annex provides points of guidance to study groups for the development of post-2016 study Questions in accordance with their proposed structure and general areas of responsibility. The points of guidance are intended to clarify, where appropriate, interaction between study groups in certain areas of common responsibility, and are not intended to provide a comprehensive list of such responsibilities.

B.2 This annex will be reviewed by TSAG as necessary to facilitate interaction between study groups, to minimize duplication of effort and to harmonize the overall ITU-T work programme.

ITU-T Study Group 2

ITU-T Study Group 2 is the lead study group for numbering, naming, addressing and identification (NNAI), routing and service definition (including future services or mobile services). It is responsible for creating principles of service and operational requirements, including billing and operational quality of service/network performance. Service principles and operational requirements must be developed for current and evolving technologies.

Study Group 2 is to define and describe services from a user's point of view to facilitate global interconnection and interoperation and, to the extent practicable, ensure compatibility with the International Telecommunication Regulations and related intergovernmental agreements.

Study Group 2 should continue to study service policy aspects, including those that may arise in the operation and provision of transborder, global and/or regional services, taking due account of national sovereignty.

Study Group 2 is responsible for studying, developing and recommending general principles of NNAI and routing for all types of network.

The chairman of Study Group 2 (or, if necessary, the chairman's delegated representative), in consultation with Study Group 2 participants, should provide technical advice to the Director of TSB concerning general principles for NNAI and routing and the effect on allocation of international codes.

Study Group 2 should provide the Director of TSB with advice on technical, functional and operational aspects in the assignment, reassignment and/or reclamation of international numbering and addressing resources in accordance with the relevant ITU-T E- and F-series Recommendations, taking into account the results of any ongoing studies.

Study Group 2 should recommend measures to be taken to assure operational performance of all networks (including network management) in order to meet the requisite in-service network performance and quality of service.

As the lead study group on telecommunication management, Study Group 2 is also responsible for the development and maintenance of a consistent ITU-T work plan, prepared with the cooperation of relevant ITU-T study groups, on activities associated with telecommunication management and with operations, administration and management (OAM). In particular, this work plan will focus on activities involving two types of interfaces:

- for fault, configuration, accounting, performance and security management (FCAPS) interfaces between network elements and management systems, and between management systems; and
- for transmission interfaces between network elements.

In support of market-acceptable FCAPS interface solutions, Study Group 2 studies will identify service-provider and network-operator requirements and priorities for telecommunication management, continue the evolution of the telecommunication management framework currently based on telecommunication management network (TMN), next-generation network (NGN), software-defined networking (SDN) concepts, and address the management of NGN, cloud computing, future networks (FN), SDN and IMT-2020.

Study Group 2 FCAPS interface solutions will specify reusable management information definitions via protocol-neutral techniques, continue management information modelling for the major telecommunication technologies, such as optical and IP-based networking, and extend management technology choices consistent with market needs, industry recognized value, and major, emerging technical directions.

To support the generation of such interface solutions, Study Group 2 will strengthen the collaborative relationships with standards development organizations (SDOs), forums, consortia and other experts as appropriate.

Additional studies will also cover network and service operational requirements and procedures, including support for network traffic management, support for the Service and Network Operations (SNO) group, and designations for interconnections among network operators.

Study Group 2 will hold meetings back-to-back with those of Study Group 3.

Study Group 2 will work on relevant identification aspects in collaboration with Study Group 20 for Internet of things (IoT) and with Study Group 17, as per the mandate of each study group.

ITU-T Study Group 3

ITU-T Study Group 3 should study and develop Recommendations, technical papers, handbooks and other publications for members to respond positively and proactively to the evolution of international telecommunication/ICT markets, in order to ensure that the policy and regulatory frameworks governing these markets remain relevant, for the benefit of users and the global economy, and to enable a policy environment for digital transformation.

In particular, Study Group 3 should ensure that tariffs, economic policies and regulatory frameworks are forward-looking and serve to encourage take-up and use, industry innovation and investment. Furthermore, these frameworks need to be adequately flexible to adjust to rapidly evolving markets, emerging technologies and business models, while ensuring the necessary competitive safeguards, the protection of consumers and the maintenance of trust.

In this context, the work of Study Group 3 should also consider new and emerging technologies and services so its work will help drive new economic opportunities and enhance societal benefits in different areas including healthcare, education and sustainable development.

Study Group 3 should study and develop appropriate instruments, with a view to creating an enabling policy environment for the transformation of markets and industries, through the promotion of open, innovation-driven and accountable institutions.

New services are emerging which will be provided by a combination of new and traditional operators. This is changing the international telecommunication landscape and it is therefore incumbent on Study Group 3 to develop Recommendations, handbooks and guidelines, to enhance the provision of such services, taking into account the cost of operation of networks and providing services. The financial consequences of such actions on accounting and settlement in relation to international telecommunications/ICT between service providers should be addressed by Study Group 3.

All study groups shall notify Study Group 3 at the earliest opportunity of any development that may have an impact on tariff and accounting principles and international telecommunication/ICT economic and policy issues.

ITU-T Study Group 5

ITU-T Study Group 5 will develop Recommendations, supplements and other publications related to:

- protection of ICT networks and equipment from interference, lightning and power faults;
- electromagnetic compatibility (EMC);
- the assessment of human exposure to electromagnetic fields (EMF) produced by ICT installations and devices;
- safety and implementation aspects related to ICT powering and to powering through networks and sites;
- components and application references for protection of ICT equipment and the telecommunication network;
- ICTs, circular economy, energy efficiency and climate change to achieve the Sustainable Development Goals (including the Paris Agreement, Connect 2020 Agenda, SDGs, etc.);
- study lifecycle and rare-metal recycling approaches for ICT equipment to minimize the environmental and health impact of e-waste;
- study of methodologies for assessing the environmental impact of ICT, both in terms of its own emissions, power usage and the savings created through ICT applications in other industry sectors;
- study of power-feeding methodologies that effectively reduce power consumption and resource usage, increase safety and increase global standardization for economic gains;

- study of methodologies, such as recycling, that reduce environmental effects of ICT facilities and equipment;
- setting up a low-cost sustainable ICT infrastructure to connect the unconnected;
- studies on how to use ICTs to help countries and the ICT sector to adapt and build resilience to the effects of environmental challenges, including climate change;
- environmentally sound management of e-waste and ICT eco-friendly design, including dealing with counterfeit devices;
- assessment of the sustainability impact of ICT to promote the Sustainable Development Goals.

Study Group 5 will also take care of aspects related to the deployment of new services on existing copper networks, such as the coexistence of different services from different providers in the same cable or same cable bundle and the positioning of components (e.g. surge protection components) inside the central office main distribution frame, including also the need to provide performance requirements of new copper-pair cables designed to support a higher bandwidth.

This activity is related to the continuation of studies on local loop unbundling (LLU), the continuing integration of fibre with copper, with the scope to provide all the correct technical solutions needed to assure network integrity and interoperability, the easy use of equipment and access security, in a context where operators can interact without negatively affecting the quality of service defined by regulatory and administrative issues.

The meetings of Study Group 5 and its working parties/Questions should as far as practicable be collocated with other study groups/working parties/Questions involved in the study of environment, circular economy, energy efficiency and climate change to address the Sustainable Development Goals.

ITU-T Study Group 9

Within its general area of responsibility, ITU-T Study Group 9 will develop and maintain Recommendations on:

- the use of IP or other appropriate protocols and middleware to provide time-critical services, services on demand or interactive services over cable or hybrid networks, in cooperation with other study groups where necessary;
- procedures for the operation of television and sound-programme networks;
- television and sound-programme systems for contribution and distribution networks;
- transmission systems for television, sound programmes and interactive services, including Internet applications on networks intended primarily for television;
- devices that terminate cable-TV access networks and that interface to home networks.

Study Group 9 is responsible for coordination with the ITU Radiocommunication Sector (ITU-R) on broadcasting matters.

Intersector rapporteur group activities of different Sectors and/or joint rapporteur group activities of different study groups (under a global standards initiative (GSI) or other arrangements) shall be seen as complying with the WTSA expectations for collaboration and coordination.

ITU-T Study Group 11

ITU-T Study Group 11 will develop Recommendations on the following subjects:

- network signalling and control architectures in emerging telecommunication environments (e.g. SDN, NFV, FN, cloud computing, VoLTE/ViLTE, IMT-2020 technologies, etc.);
- services and application control and signalling requirements and protocols;
- session control and signalling requirements and protocols;
- resource control and signalling requirements and protocols;
- signalling and control requirements and protocols to support attachment in emerging telecommunication environments;
- signalling and control requirements and protocols to support broadband network gateways;
- signalling and control requirements and protocols to support emerging multimedia services;
- signalling and control requirements and protocols to support emergency telecommunication services (ETS);
- signalling requirements for establishing the interconnection of packet-based networks, including VoLTE/ViLTE-based networks, IMT-2020 and beyond;
- test methodologies and test suites as well as monitoring of parameters set for emerging network technologies and their applications, including cloud computing, SDN, NFV, IoT, VoLTE/ViLTE, IMT-2020 technologies, etc., to enhance interoperability;
- conformance, interoperability testing and network/system/service testing, including benchmark testing, a testing methodology and testing specification of standardized network parameters in relation to the framework for Internet-related performance measurement, etc.;
- combating counterfeiting of ICT devices.

Study Group 11 is to lend assistance to developing countries in the preparation of technical reports and guidelines on the deployment of packet-based networks as well as emerging networks.

The development of signalling requirements, protocols and test specifications will be as follows:

- Study and develop signalling requirements;
- Develop protocols to meet the signalling requirements;
- Develop protocols to meet the signalling requirements of new services and technologies;
- Develop protocol profiles for the existing protocols;
- Study existing protocols to determine if they meet the requirements, and work with the relevant standards development organizations (SDOs) to avoid duplication and for necessary enhancements or extensions;
- Study existing open-source codes from open-source communities (OSCs) to support the implementation of ITU-T Recommendations;
- Develop signalling requirements and relevant test suites for interworking between new signalling protocols and existing ones;
- Develop signalling requirements and relevant test suites for interconnection between packet-based networks (e.g. VoLTE/ViLTE-based networks, IMT-2020 and beyond);
- Develop test methodologies and test suites for the relevant signalling protocols.

Study Group 11 is to work on enhancements to existing Recommendations on signalling protocols of legacy networks and systems, e.g. Signalling System Number 7 (SS7), digital subscriber signalling 1 and 2 (DSS1 and DSS2), etc. The objective is to satisfy business needs of member organizations that wish to offer new features and services using networks based on existing Recommendations.

Study Group 11 is to continue coordination of the ITU-T/IEC certification scheme intended to develop procedures for applying the ITU Testing Laboratories recognition procedure and establishing collaboration with existing conformance assessment programmes.

Study Group 11 is to continue its work on any test specifications for use in benchmarks testing and testing specification for standardized network parameters in relation to the framework for Internet-related measurements.

Study Group 11 is to continue its work with relevant standards organizations and forums on subject areas established by the cooperation agreement

When meeting in Geneva, Study Group 11 will hold collocated meetings with Study Group 13.

ITU-T Study Group 12

A particular focus of ITU-T Study Group 12 is on the end-to-end quality (as perceived by the customer) delivered using a path that, with increasing frequency, involves complex interactions between terminals and network technologies (e.g. mobile terminals, multiplexers, gateway and network signal processing equipment, and IP-based networks).

As the lead study group for quality of service (QoS) and quality of experience (QoE), Study Group 12 coordinates QoS and QoE activities not only within ITU-T, but also with other standards development organizations (SDOs) and forums, and develops frameworks to improve collaboration.

Study Group 12 is the parent group for the Quality of Service Development Group (QSDG); and the Regional Group of Study Group 12 on QoS for the Africa region (SG12 RG-AFR).

Examples of the work Study Group 12 plans to undertake:

- end-to-end QoS planning, focusing on all-packet networks, but also considering hybrid IP/digital circuit-based paths;
- QoS operational aspects and related interworking guidance and resource management to support QoS;
- technology-specific (e.g. IP, Ethernet, MPLS) performance guidance;
- application-specific (e.g. smart grid, IoT, M2M, HN) performance guidance;
- definition of QoE requirements and performance targets, and associated evaluation methodologies, for multimedia services;
- subjective quality assessment methodologies for new technologies (e.g. telepresence);
- quality modelling (psychophysical models, parametric models, intrusive and non-intrusive methods, opinion models) for multimedia and speech (including wideband, superwideband and fullband);
- speech quality in motor vehicle environments, and aspects of driver distraction;
- speech terminal characteristics and electro-acoustic measurement methods (including wideband, superwideband and fullband).

ITU-T Study Group 13

The key areas of competence of ITU-T Study Group 13 include:

- IMT-2020 network aspects: Studies on the requirements and capabilities for IMT-2020 networks based on the service scenarios of IMT-2020. This includes development of Recommendations on the framework and architecture design of IMT-2020 based on, but not limited to, the above-identified requirements and capabilities and the gap analysis identified by the Focus Group on IMT-2020, including also IMT-2020 network-related aspects of reliability, quality of service (QoS) and security. Furthermore, it includes interworking with current networks including IMT-Advanced, etc.
- Software-defined networking (SDN), network slicing and orchestration aspects: Studies on SDN and data plane programmability to support functions such as network virtualization and network slicing necessary for exploding and diversifying services taking into account scalability, security and distribution of functions. Development of Recommendations on the orchestration and related management-control continuum capabilities/policies of network function components, softwarized network and network slices, including enhancement and support of distributed networking capabilities.
- Open-source aspects: Study of potential utilization and guide of open-source software activities related to the scope of Study Group 13.
- Next-generation network (NGN) evolution aspects: Based on emerging advanced communication and information technologies (e.g. SDN, NFV and CDN) and related use cases, study of enhancements to NGN in terms of requirements for supporting capabilities, functional architecture and deployment models.
- Information-centric networking (ICN) and public packet telecom data network aspects: Studies related to analysis of ICN applicability to IMT-2020 and future network. Development of new Recommendations on ICN general requirements, functional architecture and mechanisms of ICN networking and use-case specific mechanisms and architectures, including identifiers. Development of Recommendations on packet data network based on the study of requirements, frameworks and candidate mechanisms. Development of Recommendations on architecture, network virtualization, resource control and other technical issues of future packet-based network (FPBN), including migration from the conventional IP-based network to FPBN.
- Fixed-mobile convergence (FMC) aspects: Studies related to access-agnostic core, which integrates fixed and mobile core. This includes the development of Recommendations on network architecture enhancements to support FMC and mobility management between fixed and mobile access.
- Knowledge-centric trustworthy networking and services aspects: Studies related to requirements and functions to support the building of trusted ICT infrastructures. Development of Recommendations regarding environmental and socio-economic awareness in order to minimize the environmental impact of future networks, including IMT-2020, as well as to reduce the barriers to entry for various actors involved in the network ecosystem.
- Cloud computing and big data aspects: Studies of the requirements, functional architectures and their capabilities, mechanisms and deployment models of cloud computing, covering inter- and intra-cloud computing as well as distributed cloud aspects. This study includes the development of technologies supporting "X as a service" (XaaS)," such as virtualization, resource and service management, reliability and security. Developing Recommendations for high-level big data requirements and general capabilities, including cloud computing based big data, big data exchange framework.

Study Group 13 activities will also cover regulatory implications, including deep packet inspection, telecommunications for disaster relief, emergency communications and lower energy consumption networks. Furthermore, it includes activities related to innovative service scenarios, deployment models and migration issues based on future networks, including IMT-2020 and trusted network.

In order to assist countries with economies in transition, developing countries and especially the least developed countries in the application of networks of the future, including IMT-2020 and other innovative technologies, Study Group 13 maintains a dedicated Question on this topic and its regional group for Africa. Consultations should thereby be enabled with representatives of the ITU Telecommunication Development Sector (ITU-D) with a view to identifying how this assistance might best be done through an appropriate activity conducted in conjunction with ITU-D.

Study Group 13 shall maintain strong cooperative relations with external standards development organizations (SDOs) and develop a complementary programme. This shall also explicitly include open-source communities. It shall proactively promote communications with external organizations to allow for normative referencing in ITU-T Recommendations of specifications developed by those organizations.

When meeting in Geneva, Study Group 13 will hold colocated meetings with Study Group 11.

Joint rapporteur group activities of different study groups (under a global standards initiative (GSI) or other arrangements) shall be seen as complying with the WTSA expectations for collocation.

ITU-T Study Group 15

ITU-T Study Group 15 is the focal point in ITU-T for the development of standards on networks, technologies and infrastructures for transport, access and home. This encompasses the development of related standards for the customer premises, access, metropolitan and long-haul sections of communication networks.

Within this framework, the study group will handle the entire range of fibre and cable performance, field deployment and installation, taking into account the need for additional specifications driven by new optical fibre technologies and new applications. The activity on field deployment and installation will address reliability, security aspects and social issues, such as the reduction of excavation, the problems caused to traffic and the generation of construction noise, and will include the investigation and standardization of new techniques allowing faster, cost-effective and safer cable installation. Planning, maintenance and management of the physical infrastructure will take into account the advantages of emerging technologies. Solutions for improving network resilience and recovery against disasters will be studied.

Particular emphasis is given to providing global standards for a high-capacity (terabit) optical transport network (OTN) infrastructure, and for high-speed (multi-Mbit/s and Gbit/s) network access and home networking. This includes the related work on modelling for network, system and equipment management, transport network architectures and layer interworking. Special consideration is being given to the changing telecommunication environment towards packet networks as part of the evolving next-generation (NGN) and future (FN) networks, including networks supporting the evolving needs of mobile communications.

Access network technologies addressed by the study group include passive optical network (PON), point-to-point optical, and copper-based digital subscriber line technologies, including ADSL, VDSL, HDSL, SHDSL and G.fast. These access technologies find application in their traditional uses as well as in backhaul and fronthaul networks for emerging services such as broadband wireless and data centre interconnect. Home networking technologies include wired broadband, wired narrowband and wireless narrowband. Both access and home networking for smart-grid applications are supported.

Network, system and equipment features covered include routing, switching, interfaces, multiplexers, cross-connect, add/drop multiplexers, amplifiers, transceivers, repeaters, regenerators, multilayer network protection switching and restoration, operations, administration and maintenance (OAM), network synchronization for both frequency and precision time, transport resource management and control capabilities to enable increased transport network agility, resource optimization, and scalability (e.g. the application of software-defined networking (SDN) to transport networks). Many of these topics are addressed for various transport media and technologies, such as metallic and terrestrial/submarine optical fibre cables, dense and coarse wavelength division multiplexing (DWDM and CWDM) optical systems, optical transport network (OTN), including the evolution of OTN beyond 100 Gbit/s rates, Ethernet and other packet-based data services.

In its work, Study Group 15 will take into account related activities in other ITU study groups, standards development organizations (SDOs), forums and consortia, and collaborate with them to avoid duplication of effort and identify any gaps in the development of global standards.

ITU-T Study Group 16

ITU-T Study Group 16 will work on the following items:

- development of a framework and roadmaps for the harmonized and coordinated development of multimedia telecommunication standardization over wired and wireless networks to provide guidance across all ITU-T and ITU Radiocommunication Sector (ITU-R) study groups (in particular ITU-T Study Group 9 and ITU-R Study Group 6), and in close cooperation with other regional and international standards development organizations (SDOs) and industry forums; these studies will include mobility, IP and interactive broadcasting aspects; close cooperation between ITU-T and ITU-R is encouraged at all levels;
- development and maintenance of a database of existing and planned multimedia standards;
- development of multimedia end-to-end architectures, including home network environments (HNE) and vehicle gateway for intelligent transport system (ITS);
- operation of multimedia systems and applications, including interoperability, scalability and interworking over different networks;
- high-layer protocols and middleware for multimedia systems and applications, including Internet protocol television (IPTV), digital signage, ubiquitous multimedia applications and services for future networks;
- media coding and signal processing;
- multimedia and multimode terminals;
- signal processing network equipment and terminals, gateway implementations, and characteristics;
- quality of service (QoS), quality of experience (QoE) and end-to-end performance in multimedia systems;
- terminology for various multimedia services;
- security of multimedia systems and services;
- accessibility to multimedia systems and services for persons with disabilities;
- ubiquitous multimedia applications;
- multimedia aspects of e-services,
- studies on appropriate character sets, especially for non-Latin scripts and languages.

ITU-T Study Group 17

ITU-T Study Group 17 is responsible for building confidence and security in the use of information and communication technologies (ICT). This includes studies relating to security, including cybersecurity, countering spam and identity management. It also includes security architecture and framework, security management, protection of personally identifiable information (PII), and security of applications and services for the Internet of things (IoT), smart grid, smartphone, software-defined networking (SDN), Internet protocol television (IPTV), web services, social network, cloud computing, mobile financial system and telebiometrics. Study Group 17 is also responsible for the application of open system communications, including directory and object identifiers, and for technical languages, the method for their usage and other issues related to the software aspects of telecommunication systems, and for conformance testing to improve quality of Recommendations.

In the area of security, Study Group 17 is responsible for developing the core Recommendations on ICT security, such as security architecture and frameworks; the fundamentals related to cybersecurity, including threats, vulnerabilities and risks, incident handling/response and digital forensics; security management, including management of PII; and countering spam by technical means. Furthermore, Study Group 17 provides overall coordination of security work in ITU-T.

In addition, Study Group 17 is responsible for developing the core Recommendations on security aspects of applications and services in the areas of IPTV, smart grid, IoT, SDN, social network, cloud computing, big data analytics, smartphone, mobile financial system and telebiometrics.

Study Group 17 is also responsible for developing the core Recommendations on a generic identity management model that is independent of network technologies and supports the secure exchange of identity information between entities. This work also includes studying the process for discovery of authoritative sources of identity information; generic mechanisms for the bridging/interoperability of a diverse set of identity information formats; identity management threats; the mechanisms to counter these threats; the protection of personally identifiable information (PII); and the development of mechanisms to ensure that access to PII is only authorized when appropriate.

In the area of open system communication, Study Group 17 is responsible for Recommendations in the following areas:

- directory services and systems, including public key infrastructure (PKI) (ITU-T F.500- and ITU-T X.500-series);
- object identifiers (OIDs) and associated registration authorities (ITU-T X.660/ITU-T X.670-series);
- open systems interconnection (OSI), including Abstract Syntax Notation One (ASN.1) (ITU-T F.400-, ITU-T X.200-, ITU-T X.400-, ITU-T X.600-, ITU-T X.800-series); and
- open distributed processing (ODP) (ITU-T X.900-series).

In the area of languages, Study Group 17 is responsible for studies on modelling, specification and description techniques, which includes languages such as ASN.1, SDL, MSC, URN and TTCN-3.

This work will be developed in line with the requirements of and in cooperation with the relevant study groups such as Study Group 2, Study Group 9, Study Group 11, Study Group 13, Study Group 15, Study Group 16, and Study Group 20 (for IoT and SC&C security issues).

Study Group 17 will work on relevant identity management aspects in collaboration with Study Group 20 for IoT and Study Group 2, as per the mandate of each study group.

ITU-T Study Group 20

ITU-T Study Group 20 will work on the following items:

- framework and roadmaps for the harmonized and coordinated development of Internet of things (IoT), including machine-to-machine (M2M) communications, ubiquitous sensor networks and smart sustainable cities, in ITU-T and in close cooperation with the ITU Radiocommunication Sector (ITU-R) and ITU Telecommunication Development (ITU-D) study groups and other regional and international standards organizations and industry forums;
- requirements and capabilities of IoT and its applications including smart cities and communities (SC&C);
- definitions and terminology for IoT;
- IoT and SC&C infrastructure and services, including architecture framework and requirements of IoT for SC&C;
- efficient service analysis and infrastructure of IoT use in SC&C to assess how the use of IoT has an impact on the smartness of cities;
- guidelines, methodologies and best practices related to standards to help cities (including rural areas and villages) deliver services using IoT, with an initial view to address city challenges;
- IoT end-to-end architectures;
- identification of aspects of IoT in collaboration with Study Group 2 and Study Group 17, as per the mandate of each study group;
- data sets that will enable data interoperability for various verticals, including smart cities, e-agriculture, etc.;
- high-layer protocols and middleware for IoT systems and applications including SC&C;
- middleware for interoperability between IoT applications for different IoT verticals;
- quality of service (QoS) and end-to-end performance for IoT and its applications including SC&C;
- security, privacy⁴ and trust⁴ of IoT and SC&C systems, services and applications;
- database maintenance of existing and planned IoT standards;
- big data aspects of IoT and SC&C;
- e-services and smart services for SC&C;
- IoT and SC&C data analytics and intelligent control.

⁴ Some relevant aspects of this term may be considered differently from one Member State to another. The use of this term is framed in terms of international telecommunication standardization.

ANNEX C
(to Resolution 2 (Rev. Hammamet, 2016))

**List of Recommendations under the responsibility of the respective
ITU-T study groups and TSAG in the 2017-2020 study period**

ITU-T Study Group 2

ITU-T E-series, except those in conjunction with Study Group 17 or under the responsibility of Study Groups 12 and 16

ITU-T F-series, except those under the responsibility of Study Groups 13, 16 and 17

Recommendations of the ITU-T I.220-, ITU-T I.230-, ITU-T I.240-, ITU-T I.250-series and ITU-T I.750-series

ITU-T G.850-series

ITU-T M-series

ITU-T O.220-series

ITU-T Q.513, ITU-T Q.800 – ITU-T Q.849, ITU-T Q.940-series

Maintenance of the ITU-T S-series

ITU-T V.51/M.729

ITU-T X.160-, ITU-T X.170-, ITU-T X.700-series

ITU-T Z.300-series

ITU-T Study Group 3

ITU-T D-series

ITU-T Study Group 5

ITU-T K-series

ITU-T L.1 – ITU-T L.9, ITU-T L.18 – ITU-T L.24, ITU-T L.32, ITU-T L.33, ITU-T L.71, ITU-T L.75, ITU-T L.76, ITU-T L.1000-series

ITU-T Study Group 9

ITU-T J-series, except those under the responsibility of Study Groups 12 and 15

ITU-T N-series

ITU-T Study Group 11

ITU-T Q-series, except those under the responsibility of Study Groups 2, 13, 15, 16 and 20

Maintenance of the ITU-T U-series

ITU-T X.290-series (except ITU-T X.292) and ITU-T X.600 – ITU-T X.609

ITU-T Z.500-series

ITU-T Study Group 12

ITU-T E.420 – ITU-T E.479, ITU-T E.800 – ITU-T E.859

ITU-T G.100-series, except ITU-T G.160- and ITU-T G.180-series

ITU-T G.1000-series

ITU-T I.350-series (including ITU-T G.820/I.351/Y.1501), ITU-T I.371, ITU-T I.378, ITU-T I.381

ITU-T J.140-, ITU-T J.240- and ITU-T J.340-series

ITU-T P-series

ITU-T Y.1220-, ITU-T Y.1530-, ITU-T Y.1540-, ITU-T Y.1560-series

ITU-T Study Group 13

ITU-T F.600-series

ITU-T G.801, ITU-T G.802, ITU-T G.860-series

ITU-T I-series, except those under the responsibility of Study Groups 2, 12 and 15, and those having double/triple numbering in other series

ITU-T Q.933, ITU-T Q.933*bis*, ITU-T Q.10xx-series and ITU-T Q.1700-series

ITU-T X.1 – ITU-T X.25, ITU-T X.28 – ITU-T X.49, ITU-T X.60 – ITU-T X.84, ITU-T X.90 – ITU-T X.159, ITU-T X.180 – ITU-T X.199, ITU-T X.272, ITU-T X.300-series

ITU-T Y-series, except those under the responsibility of Study Groups 12, 15, 16 and 20

ITU-T Study Group 15

ITU-T G-series, except those under the responsibility of Study Groups 2, 12, 13 and 16

ITU-T I.326, ITU-T I.414, ITU-T I.430-series, ITU-T I.600-series and ITU-T I.700-series, except ITU-T I.750-series

ITU-T J.190 and ITU-T J.192

ITU-T L-series, except those under the responsibility of Study Group 5

ITU-T O-series (including ITU-T O.41/ITU-T P.53), except those under the responsibility of Study Group 2

ITU-T Q.49/O.22 and ITU-T Q.500-series, except ITU-T Q.513

Maintenance of the ITU-T R-series

ITU-T X.50-series, ITU-T X.85/ Y.1321, ITU-T X.86/ Y.1323, ITU-T X.87/Y.1324

ITU-T V.38, ITU-T V.55/ O.71, ITU-T V.300

ITU-T Y.1300 – ITU-T Y.1309, ITU-T Y.1320 – ITU-T Y.1399, ITU-T Y.1501 and ITU-T Y.1700-series

ITU-T Study Group 16

ITU-T E.120 – ITU-T E.139 (except ITU-T E.129), ITU-T E.161, ITU-T E.180-series, ITU-T E.330-series, ITU-T E.340-series

ITU-T F.700-series, except those under the responsibility of Study Group 20, and ITU-T F.900-series

ITU-T G.160-series, ITU-T G.710 – ITU-T G.729 (except ITU-T G.712), ITU-T G.760-series (including ITU-T G.769/Y.1242), ITU-T G.776.1, ITU-T G.799.1/ Y.1451.1, ITU-T G.799.2, ITU-T G.799.3

ITU-T H-series, except those under the responsibility of Study Group 20

ITU-T T-series

ITU-T Q.50-series, ITU-T Q.115-series

ITU-T V-series, except those under the responsibility of Study Groups 2 and 15

ITU-T X.26/V.10 and ITU-T X.27/V.11

ITU-T Study Group 17

ITU-T E.104, ITU-T E.115, ITU-T E.409 (in conjunction with Study Group 2)

ITU-T F.400-series; ITU-T F.500 – ITU-T F.549

ITU-T X-series, except those under the responsibility of Study Groups 2, 11, 13, 15 and 16

ITU-T Z-series, except ITU-T Z.300-series and ITU-T Z.500-series

ITU-T Study Group 20

ITU-T F.744, ITU-T F.747.1 – ITU-T F.747.8, ITU-T F.748.0 – ITU-T F.748.5 and ITU-T F.771

ITU-T H.621, ITU-T H.623, ITU-T H.641, ITU-T H.642.1, ITU-T H.642.2 and ITU-T H.642.3

ITU-T Q.3052

ITU-T Y.4000-series, ITU-T Y.2016, ITU-T Y.2026, ITU-T Y.2060 – ITU-T Y.2070, ITU-T Y.2074 – ITU-T Y.2078, ITU-T Y.2213, ITU-T Y.2221, ITU-T Y.2238, ITU-T Y.2281 and ITU-T Y.2291

NOTE – Recommendations transferred from other study groups have double numbers in the Y.4000-series.

TSAG

ITU-T A-series Recommendations

RESOLUTION 7 (Rev. Hammamet, 2016)

Collaboration with the International Organization for Standardization and the International Electrotechnical Commission

(Malaga-Torremolinos, 1984; Helsinki, 1993; Geneva, 1996; Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* the purposes of the Union set forth in Article 1 of the ITU Constitution relating to the harmonization of telecommunication facilities;
- b)* the duties of the ITU Telecommunication Standardization Sector (ITU-T) as set forth in Chapter III of the Constitution;
- c)* the interest of both the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) in certain aspects of telecommunications;
- d)* the common interest of ISO and IEC on the one hand and ITU-T on the other in the development of standards in telecommunication and information technologies which take full account of the needs of all interested stakeholders, including manufacturers, users and those responsible for communication systems;
- e)* the need for mutual agreements on other areas of standardization activity of common interest, along the lines of cooperation in the field of telecommunication security between ITU-T Study Group 17 and its counterparts in ISO and IEC;
- f)* the relevance of the ITU conformance and interoperability (C&I) programme and its four pillars, and the action plan for the C&I programme reviewed by the Council at its 2014 session,

noting

- a)* that the working methods and standards-development time-frames of the organizations concerned are not the same;
- b)* the increasing financial burdens on the professional experts who participate in the development of standards in these three organizations;
- c)* the coordination meeting established between the three organizations through their top management;
- d)* the progress made on the basis of existing procedures in the alignment of technical Recommendations with ISO, IEC and ISO/IEC Joint Technical Committee 1 (JTC 1) in areas of joint interest, thanks to the spirit of cooperation which has prevailed;
- e)* the principles of collaboration established between ISO and IEC and particularly with ISO/IEC JTC 1 on information technology as contained in Recommendation ITU-T A.23 and in the ISO/IEC JTC 1 Directives;
- f)* that other standardization activities of a collaborative nature may require coordination;
- g)* the increasing cost of developing international standards and Recommendations;

- h) the role of the Common Patent Policy for ITU-R/ITU-T/ISO/IEC in furthering common approaches between ITU-T, ISO and IEC on certain standards-related intellectual property rights issues;
- i) the value of identifying and setting priorities for cooperation between ITU-T, ISO and IEC,

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.

RESOLUTION 11 (Rev. Hammamet, 2016)

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

*(Malaga-Torremolinos, 1984; Helsinki, 1993; Geneva, 1996; Montreal, 2000;
Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)*

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that within the United Nations system, both the International Telecommunication Union (ITU) and the Universal Postal Union (UPU), as organizations specialized in communications, have been collaborating to identify synergies with a view to achieving the objectives of the World Summit on the Information Society (WSIS), each within its specific sphere of competence;
- b)* that postal and telecommunication administrations, the relevant operating agencies authorized by Member States and service providers need to keep themselves informed of technical progress liable to improve or harmonize existing services in both the postal and telecommunication sectors;
- c)* the usefulness of examining jointly the implications of any new Recommendations or modifications to current Recommendations made in this connection,

recognizing

- a)* the cooperation that has existed between the two organizations in regard, *inter alia*, to the use of new technologies by the postal sector and the fostering of its role in projects on the introduction and sustainable use of high-speed traffic, cybersecurity and currency transfer by mobile telephony;
- b)* that the changes in postal and telecommunication services in recent years have increased the synergies between the two sectors and consequently the need for greater coordination and joint work between both organizations,

recalling

that, under No. 9 of the ITU Constitution, one of the purposes of the Union is "to promote, at the international level, the adoption of a broader approach to the issues of telecommunications in the global information economy and society, by cooperating with other world and regional intergovernmental organizations and those non-governmental organizations concerned with telecommunications",

observing

that it is necessary to update the topics of interest with a view to developing common activities between both organizations and the efficient use of their resources,

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.

RESOLUTION 18 (Rev. Hammamet, 2016)¹

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

(Helsinki, 1993; Geneva, 1996; Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 191 (Busan, 2014) of the Plenipotentiary Conference, on strategy for the coordination of efforts among the three Sectors of the Union;
- b)* Resolution ITU-R 6 of the Radiocommunication Assembly (RA) (Rev. Geneva, 2015), on liaison and collaboration with the ITU Telecommunication Standardization Sector (ITU-T), and RA Resolution ITU-R 7 (Rev. Geneva, 2015), on telecommunication development including liaison and collaboration with the ITU Telecommunication Development Sector (ITU-D);
- c)* Resolution 59 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest;
- d)* Resolutions 44 and 45 (Rev. Hammamet, 2016) of this assembly, on mutual cooperation and integration of activities between ITU-T and ITU-D,

considering

- a)* that a basic principle for cooperation and collaboration among the ITU Radiocommunication Sector (ITU-R), ITU-T and ITU-D is the need to avoid duplication of activities of the Sectors, and to ensure that work is undertaken efficiently and effectively;
- b)* that there are a growing number of issues of mutual interest and concern to all Sectors, including the following: electromagnetic compatibility (EMC); international mobile telecommunications (IMT); middleware; audiovisual delivery; accessibility for persons with disabilities; emergency communications; information and communication technologies (ICT) and climate change; and security in the use of ICT;
- c)* the responsibilities of ITU-R, ITU-T and ITU-D according to the principles laid down in the ITU Constitution and Convention, i.e.:

¹ This resolution should also be brought to the attention of the ITU Radiocommunication and Telecommunication Development Sectors.

- that the ITU-R study groups shall focus (Nos. 151 to 154 of the Convention) on the following in the study of Questions assigned to them:
 - i) use of the radio-frequency spectrum in terrestrial and space radiocommunication and of the geostationary-satellite and other satellite orbits;
 - ii) characteristics and performance of radio systems;
 - iii) operation of radio stations;
 - iv) radiocommunication aspects of distress and safety matters;
 - that the ITU-T study groups shall study (No. 193 of the Convention) technical, operating and tariff questions and prepare Recommendations on them with a view to standardizing telecommunications on a worldwide basis, including Recommendations on interconnection of radio systems in public telecommunication networks and on the performance required for these interconnections;
 - that, as indicated in No. 214 of the Convention, the ITU-D study groups shall deal with specific telecommunication questions of general interest to developing countries, including the matters enumerated in No. 211 of the Convention, and such study groups shall be limited in number and created for a limited period of time, subject to the availability of resources, shall have specific terms of reference on questions and matters of priority to developing countries and shall be task-oriented;
- d)* that joint meetings of the Radiocommunication Advisory Group (RAG), the Telecommunication Standardization Advisory Group (TSAG) and the Telecommunication Development Advisory Group (TDAG) shall review the distribution of new and existing work among the Sectors, subject to confirmation by the applicable procedures of each Sector, the objective being to:
- minimize the duplication of activities of the Sectors;
 - group the standardization activities in order to foster cooperation and coordination of the work of ITU-T with regional standardization bodies,

recognizing

- a)* that there is a need to improve the participation of developing countries in the work of ITU, as outlined in Resolution 5 (Rev. Dubai, 2014) of WTDC;
- b)* that one such mechanism – the Inter-Sectoral Emergency Communications Team – has been established to ensure close collaboration within the Union as a whole, as well as with interested entities and organizations outside ITU, on this key priority issue for the Union;
- c)* that all the advisory groups are collaborating in the implementation of Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference, on bridging the standardization gap between developing and developed countries,

taking into account

- a)* that mechanisms for cooperation, beyond those already established, need to be identified to address a growing number of subjects of mutual interest and concern in ITU-R, ITU-T and ITU-D;
- b)* the ongoing consultation among representatives of the three advisory groups in the discussion of modalities for enhancing cooperation among the advisory groups;

c) that, according to No. 119 of the Constitution, the activities of ITU-R, ITU-T and ITU-D shall be the subject of close cooperation with regard to matters relating to development, in accordance with the relevant provisions of the Constitution;

d) that, according to No. 215 of the Convention, ITU-R, ITU-T and ITU-D shall keep the matters under study under continuing review with a view to reaching agreement on the distribution of work, avoiding duplication of effort and improving coordination, and the Sectors shall adopt procedures to conduct such reviews and reach such agreement in a timely and effective manner;

e) that an Intersector Coordination Task Force (ISC-TF) in the secretariat, headed by the Deputy Secretary-General, an Intersector Coordination Group on Matters of Mutual Interest, and a TSAG subgroup on intra-ITU collaboration and coordination have been established,

noting

that Resolution ITU-R 6 provides mechanisms for ongoing review of the allocation of work and cooperation between ITU-R and ITU-T,

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 or 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.

ANNEX A
(to Resolution 18 (Rev. Hammamet, 2016))

Procedural method of cooperation

With respect to *resolves* 2 i), the following procedure should be applied:

- a) The joint meeting of the advisory groups referred to in *resolves* 1 will nominate the Sector which will lead the work and will finally approve the deliverable.
- b) The lead Sector will request the other Sectors to indicate those requirements which it considers essential for integration in the deliverable.
- c) The lead Sector will base its work on these essential requirements and integrate them in its draft deliverable.
- d) During the process of development of the required deliverable the lead Sector shall consult with the other Sectors in case it has difficulties with these essential requirements. In case of agreement on revised essential requirements the revised requirements shall be the basis for further work.
- e) When the deliverable concerned comes to maturity, the lead Sector shall seek once more the views of the other Sectors.

In the determination of the work responsibility, it may be appropriate to progress the work by drawing jointly on the skills of the Sectors involved.

ANNEX B
(to Resolution 18 (Rev. Hammamet, 2016))

Coordination of radiocommunication, standardization and development activities through intersector coordination groups

With respect to *resolves* 2 ii), the following procedure shall be applied:

- a) The joint meeting of the advisory groups referred to in *resolves* 1 may, in exceptional cases, establish an intersector coordination group (ICG) to coordinate the work of the Sectors involved and to assist the advisory groups in coordinating the related activity of their respective study groups.
- b) The joint meeting shall, at the same time, nominate the Sector which will lead the work.
- c) The mandate of each ICG shall be clearly defined by the joint meeting, based on the particular circumstances and issues at the time the group is established; the joint meeting shall also establish a target date for termination of the ICG.
- d) The ICG shall designate a chairman and a vice-chairman, one representing each Sector.
- e) The ICG shall be open to members of the participating Sectors in accordance with Nos. 86-88, 110-112 and 134-136 of the Constitution.
- f) The ICG shall not develop Recommendations.
- g) The ICG shall prepare reports on its coordinating activities to be presented to each Sector's advisory group; these reports shall be submitted by the Directors to the participating Sectors.

- h) An ICG may also be established by WTSA or by RA or by WTDC following a recommendation by the advisory group(s) of the other Sector(s).
- i) The cost of an ICG shall be supported by the participating Sectors on an equal basis and each Director shall include budgetary provisions for such meetings in the budget of his or her Sector.

ANNEX C

(to Resolution 18 (Rev. Hammamet, 2016))

Coordination of radiocommunication, telecommunication standardization and development activities through intersector rapporteur groups

With respect to *resolves* 2 ii), the following procedure shall be applied when work on a specific subject could be best performed by bringing together technology experts from the study groups or working parties concerned of either two or three Sectors to cooperate on a peer-to-peer basis in a technical group:

- a) The study groups or working parties concerned in each Sector may, in special cases, agree by mutual consultation to establish an intersector rapporteur group (IRG) to coordinate their work on a specific technical subject, informing RAG, TSAG and TDAG of this action through a liaison statement.
- b) The study groups or working parties concerned in each Sector shall, at the same time, agree on clearly defined terms of reference for the IRG, and establish a target date for completion of the work and termination of the IRG.
- c) The study groups or working parties concerned in each Sector shall also designate the chairman (or co-chairmen) of the IRG, taking into account the requested specific expertise and ensuring equitable representation of each Sector.
- d) Being a rapporteur group, the IRG shall be regulated by the provisions applicable to rapporteur groups, given in the most recent versions of Resolution ITU-R 1, Recommendation ITU-T A.1 and WTDC Resolution 1; participation is limited to members of the Sectors involved.
- e) In fulfilling its mandate, an IRG may develop draft new Recommendations or draft revisions to Recommendations, as well as draft technical reports or draft revisions of technical reports, to be submitted to its parent study groups or working parties for further processing as appropriate.
- f) The results of the IRG's work should represent the agreed consensus of the IRG or reflect the diversity of views of the participants in the IRG.
- g) An IRG shall also prepare reports on its activities, to be submitted to each meeting of its parent study groups or working parties.
- h) An IRG shall normally work by correspondence and/or by teleconference; however, it may occasionally take the opportunity of a meeting of its parent study groups or working parties to hold short face-to-face concurrent meetings, if this is feasible without support by the Sectors.

RESOLUTION 20 (Rev. Hammamet, 2016)

Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources

*(Helsinki, 1993; Geneva, 1996; Montreal, 2000; Florianópolis, 2004;
Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)*

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a) the relevant rules of the International Telecommunication Regulations regarding the integrity and use of numbering resources and calling line identification;
- b) the instructions in the resolutions adopted by plenipotentiary conferences relevant for the stability of numbering and identification plans, especially the ITU-T E.164 and ITU-T E.212 plans, and in particular in Resolution 133 (Rev. Busan, 2014) of the Plenipotentiary Conference, where it resolves to instruct the Secretary-General and the Directors of the Bureaux: "to take any necessary action to ensure the sovereignty of ITU Member States with regard to Recommendation ITU-T E.164 numbering plans whatever the application in which they are used";
- c) Resolution 49 (Rev. Hammamet, 2016) of this assembly, on ENUM,

noting

- a) that the procedures governing the allocation and management of international telecommunication numbering, naming, addressing and identification (NNAI) resources and related codes (e.g. new telephone country codes, telex destination codes, signalling area/network codes, data country codes, mobile country codes, identification), including ENUM, are laid down in the relevant Recommendations in the ITU-T E-, ITU-T F-, ITU-T Q- and ITU-T X-series;
- b) that the principles concerning future NNAI plans to deal with emerging services or applications and relevant NNAI resource allocation procedures to meet international telecommunication needs will be studied in accordance with this resolution and the work programme approved by this assembly for study groups of the ITU Telecommunication Standardization Sector (ITU-T);
- c) the ongoing deployment of next-generation networks (NGN), future networks (FN) and Internet protocol (IP)-based networks;
- d) that several international telecommunication NNAI resources are developed and maintained by ITU-T study groups and are in widespread use;
- e) that the national authorities responsible for allocation of NNAI resources, including signalling area/network codes (Recommendation ITU-T Q.708) and data country codes (Recommendation ITU-T X.121), normally participate in ITU-T Study Group 2;
- f) that it is in the common interest of ITU-T Member States and Sector Members that the Recommendations and guidelines for international telecommunication NNAI resources should:
 - i) be known, recognized and applied by all;
 - ii) be used to build and maintain confidence of all in the related services;
 - iii) address deterrence of misuse of such resources;
- g) Articles 14 and 15 of the ITU Convention concerning the activities of ITU-T study groups and the responsibilities of the Director of the Telecommunication Standardization Bureau (TSB), respectively,

considering

- a) that the assignment of international telecommunication NNAI resources is a responsibility of the Director of TSB and the relevant administrations;
- b) the global growth of mobile and Internet subscribers and the convergence of telecommunication services,

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 with 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.

RESOLUTION 22 (Rev. Hammamet, 2016)

Authorization for the Telecommunication Standardization Advisory Group to act between world telecommunication standardization assemblies

*(Geneva, 1996; Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008;
Dubai, 2012; Hammamet, 2016)*

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that, under the provisions of Article 14A of the ITU Convention, the Telecommunication Standardization Advisory Group (TSAG) is to provide guidelines for the work of study groups and recommend measures to foster coordination and cooperation with other standards bodies;
- b)* that the rapid pace of change in the telecommunication environment and in industry groups dealing with telecommunications demands that the ITU Telecommunication Standardization Sector (ITU-T) make decisions on matters such as work priorities, study group structure and meeting schedules in shorter periods of time, between world telecommunication standardization assemblies (WTSA), in order to maintain its relevance and responsiveness in accordance with No. 197C of the Convention;
- c)* that Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference resolves that WTSA shall continue, in accordance with its responsibilities, and subject to available financial resources, to promote the continued evolution of the standardization sector and adequately address strategic issues in standardization by means such as, but not limited to, the strengthening of TSAG;
- d)* that Resolution 122 (Rev. Guadalajara, 2010) instructs the Director of the Telecommunication Standardization Bureau (TSB) to continue, in consultation with relevant bodies, and the ITU membership, and in coordination with the ITU Radiocommunication Sector (ITU-R) and the ITU Telecommunication Development Sector (ITU-D), as appropriate, to organize a Global Standards Symposium (GSS);
- e)* that GSS was held in conjunction with this assembly to consider bridging the standardization gap and examining global ICT standards challenges;
- f)* that TSAG continues to make proposals for enhancing the operational efficiency of ITU-T, for improving the quality of ITU-T Recommendations and for methods of coordination and cooperation;
- g)* that TSAG can help improve coordination of the study process and provide improved decision-making processes for the important areas of ITU-T activities;
- h)* that flexible administrative procedures, including those related to budgetary considerations, are needed in order to adapt to rapid changes in the telecommunication environment;
- i)* that it is desirable for TSAG to act in the four years between WTSAs in order to meet the needs of the marketplace in a timely manner;
- j)* that it is desirable for TSAG to consider the implications of new technologies for the standardization activities of ITU-T and how such technologies can be included within the ITU-T work programme;

- k) that TSAG can play an important role in ensuring coordination between study groups, as appropriate, on standardization issues including, as required, avoiding duplication of work, and identifying linkages and dependencies between related work items;
- l) that TSAG, in providing advice to study groups, may take account of the advice of other groups;
- m) that there is a need to continue improving coordination and collaboration with other relevant bodies, within ITU-T, with ITU-R and ITU-D and the General Secretariat, and with other standardization organizations, forums and consortia outside of ITU, and relevant entities;
- n) that WTSA-12 established the Review Committee, which conducted a strategic and structural review of ITU-T from 2013 to 2016 and submitted its final report to this assembly,

noting

- a) that Article 13 of the Convention states that a WTSA may assign specific matters within its competence to TSAG indicating the action required on those matters;
- b) that the duties of WTSA are specified in the Convention;
- c) that the current four-year cycle for WSAs effectively precludes the possibility of addressing unforeseen issues requiring urgent action in the interim period between assemblies;
- d) that TSAG meets at least on a yearly basis;
- e) that TSAG has already exhibited the capability to act effectively on matters assigned to it by WTSA;
- f) that Resolution 68 (Rev. Hammamet, 2016) of this assembly instructs the Director of TSB to organize meetings for high-level industry executives, e.g. chief technology officer meetings, in order to assist in identifying and coordinating standardization priorities and subjects and minimize the number of forums and consortia,

recognizing

that the Plenipotentiary Conference (Marrakesh, 2002) adopted Nos. 191A and 191B of the Convention that allow WTSA to establish and terminate other groups,

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 WTSA's, using the approval procedure contained in Resolution 1 (Rev. Hammamet) 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.

RESOLUTION 29 (Rev. Hammamet, 2016)

Alternative calling procedures on international telecommunication networks

*(Geneva, 1996; Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008;
Dubai, 2012; Hammamet, 2016)*

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 1099, adopted by the Council at its 1996 session, concerning alternative calling procedures on international telecommunication networks, which urged the ITU Telecommunication Standardization Sector (ITU-T) to develop, as soon as possible, the appropriate Recommendations concerning alternative calling procedures;
- b)* Resolution 22 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, on alternative calling procedures on international telecommunication networks, identification of origin and apportionment of revenues in providing international telecommunication services;
- c)* Resolution 21 (Rev. Busan, 2014) of the Plenipotentiary Conference, on measures concerning alternative calling procedures on international telecommunication networks,

recognizing

- a)* that alternative calling procedures, which may be potentially harmful, are not permitted in many countries and permitted in some others;
- b)* that although alternative calling procedures may be potentially harmful, they may be attractive for users;
- c)* that alternative calling procedures, which may be potentially harmful and may impact the revenue of international telecommunication operators or operating agencies authorized by Member States, may seriously hamper, in particular, the efforts of developing countries¹ for the sound development of their telecommunication networks and services;
- d)* that distortions in traffic patterns resulting from some forms of alternative calling procedures, which may be potentially harmful, may impact traffic management and network planning;
- e)* that some forms of alternative calling procedures seriously degrade the performance and quality of telecommunication networks;
- f)* that the proliferation of Internet Protocol (IP)-based networks, including the Internet, in the provision of telecommunication services has impacted the ways and means of alternative calling procedures, and that it is becoming necessary to identify and redefine these procedures,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

considering

- a) the results of the ITU workshop on alternative calling procedures and origin identification;
- b) the results of the ITU workshop on caller ID spoofing held by Study Group 2 of the ITU Telecommunication Standardization Sector (ITU-T) in Geneva on 2 June 2014;
- c) that any calling procedure should aim to maintain acceptable levels of quality of service (QoS) and quality of experience (QoE), as well as to enable calling line identification (CLI) and/or origin identification (OI) information,

reaffirming

- a) that it is the sovereign right of each country to regulate its telecommunications;
- b) that the ITU Constitution, in its Preamble, gave regard to "the growing importance of telecommunication for the preservation of peace and the economic and social development of all States", and that Member States agreed in the Constitution with "the object of facilitating peaceful relations, international cooperation among peoples and economic and social development by means of efficient telecommunication services",

noting

that, in order to minimize the effect of alternative calling procedures:

- i) international telecommunication operators or operating agencies authorized by Member States should, within their national law, make every effort to establish the level of collection charges on a cost-oriented basis, taking into account Article 6.1.1 of the International Telecommunication Regulations and Recommendation ITU-T D.5;
- ii) administrations and international telecommunication operators or operating agencies authorized by Member States should follow the guidelines developed by Member States on the measures to be applied to deter the impact of alternative calling procedures on other Member States,

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 efforts of developing countries for sound development of their local telecommunication networks and services, and to develop 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.

ATTACHMENT (to Resolution 29 (Rev. Hammamet, 2016))

Suggested guidelines for administrations and international telecommunication operators or operating agencies authorized by Member States for consultation on alternative calling procedures

In the interest of global development of international telecommunications, it is desirable for administrations and international telecommunication operators or operating agencies authorized by Member States to cooperate with others and to take a collaborative approach. Any cooperation and any subsequent actions would have to take account of the constraints of national laws. The following guidelines regarding alternative calling procedures (ACP) are recommended to be applied in country X (the location of the ACP user) and country Y (the location of the ACP provider). When ACP traffic is destined to a country other than countries X or Y, the sovereignty and the regulatory status of the destination country should be respected.

Country X (location of ACP user)	Country Y (location of ACP provider)
A generally collaborative and reasonable approach is desirable	A generally collaborative and reasonable approach is desirable
Administration X, wishing to restrict or prohibit ACP, should establish a clear policy position	
Administration X should make known its national position	Administration Y should bring this information to the attention of international telecommunication operators or operating agencies authorized by Member States and ACP providers in its territory using whatever official means are available
Administration X should instruct operating agencies authorized by Member States operating in its territory as to the policy position, and those operating agencies authorized by Member States should take steps to ensure that their international operating agreements comply with that position	Operating agencies authorized by Member States in Y should cooperate in considering any necessary modifications to international operating agreements
	Administration Y and/or operating agencies authorized by Member States in Y should seek to ensure that ACP providers establishing an operation in their territory are aware that: <ul style="list-style-type: none"> a) ACP should not be provided in a country where it is expressly prohibited, and b) the ACP configuration must be of a type which will not degrade the quality and performance of the international PSTN
Administration X should take all reasonable steps within its jurisdiction and responsibility to stop the offering and/or usage of ACP in its territory which is: <ul style="list-style-type: none"> a) prohibited; and/or b) harmful to the network. Operating agencies authorized by Member States in country X will cooperate in the implementation of such steps.	Administration Y and operating agencies authorized by Member States in Y should take all reasonable measures to stop ACP providers in its territory offering ACP: <ul style="list-style-type: none"> a) in other countries where it is prohibited; and/or b) which is harmful to the networks involved.

NOTE 1 – For relations between countries which regard ACP as an "international telecommunication service" as defined in the International Telecommunication Regulations, bilateral operating agreements should be required between the operating agencies authorized by Member States concerned as to the conditions under which ACP will be operated.

NOTE 2 – All forms of ACP should be defined by ITU-T Study Group 2 and documented in the appropriate ITU-T Recommendation (e.g. call-back, over-the-top, refiling, etc.).

RESOLUTION 31 (Rev. Dubai, 2012)

Admission of entities or organizations to participate as Associates in the work of the ITU Telecommunication Standardization Sector

(Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

- a) that the rapid pace of change in the telecommunication environment and in industry groups dealing with telecommunications demand the increased participation of interested entities and organizations in the standard-making process of ITU;
- b) that entities or organizations with highly focused areas of activity may be interested only in a small part of the standardization work of the ITU Telecommunication Standardization Sector (ITU-T) and, therefore, do not intend to apply for membership in the Sector, but would be willing to join if simpler conditions existed;
- c) that No. 241A of the ITU Convention enables the Sectors to admit participation of entities or organizations in the work of a given study group as an Associate;
- d) that Nos. 241A, 248B and 483A of the Convention describe the principles for the participation of Associates,

recognizing

that organizations and entities from developing countries¹ have found great difficulty in playing an active role in ITU-T activities and, as a consequence, in meeting the goals of Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference,

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;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 32 (Rev. Hammamet, 2016)

Strengthening electronic working methods for the work of the ITU Telecommunication Standardization Sector

(Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a) the rapid pace of technology change and the consequent need for improved and more rapid standards development;
- b) that electronic working methods (EWM) enable open, rapid and easy collaboration between participants in the activities of the ITU Telecommunication Standardization Sector (ITU-T);
- c) that the implementation of EWM capabilities and associated arrangements will have significant benefits for the ITU-T membership, including resource-limited individuals, organizations and states, by allowing them timely and effective access to standards information and the standards-making and approval process;
- d) that EWM will be advantageous in improving communication among members of ITU-T and between other relevant standardization organizations and ITU, towards globally harmonized standards;
- e) the key role of the Telecommunication Standardization Bureau (TSB) in providing support to EWM capabilities;
- f) the decisions contained in Resolution 66 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- g) the budgetary difficulty developing countries¹ have in participating actively in face-to-face ITU-T meetings;
- h) Resolution 167 (Rev. Busan, 2014) of the Plenipotentiary Conference, which resolves that ITU should further develop its facilities and capabilities for remote participation by electronic means in appropriate meetings of the Union, including working groups created by the Council,

noting

- a) the desire of members to receive documents in electronic format in a timely manner and the need to reduce the increasing amount of hard copy documentation generated during meetings and dispatched by mail;
- b) that many forms of EWM have already been implemented by ITU-T, such as electronic document submission and the electronic forum service;
- c) that there are still some difficulties in conducting e-meetings, due to persistent or intermittent deterioration in quality of service, in particular in meetings with live interpretation;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- d) the desire of ITU-T members to conduct electronic meetings;
- e) the increasing use of mobile devices by members in meetings and elsewhere;
- f) the advantage to the membership of facilitating greater electronic participation in the development and approval of Recommendations, in particular by members unable to participate in study group meetings in Geneva and elsewhere;
- g) the difficulties in terms of bandwidth availability and other constraints, particularly in developing countries;
- h) the difficulties in searching for documents and/or information relevant to a specific subject, topic or issue, and the need for a smart solution for classification and easy mining of such documents and/or information;
- i) the economies possible from enhancing ITU-T EWM capabilities (e.g. reduced costs for distribution of paper documentation, travel costs, ITU-T logistics costs, etc.);
- j) the encouragement by other telecommunication standardization organizations of collaboration using EWM;
- k) that the alternative approval process (AAP) (Recommendation ITU-T A.8) is conducted primarily by electronic means,

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, webconference/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;
- 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.

RESOLUTION 34 (Rev. Dubai, 2012)

Voluntary contributions

(Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

- a)* Resolution 71 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, on the strategic plan for the Union 2012-2015, targeting ambitious strategic objectives in the activities of the ITU Telecommunication Standardization Sector (ITU-T);
- b)* Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, which invites Member States and Sector Members to make voluntary contributions to the fund for bridging the standardization gap;
- c)* Decision 5 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference and the annexes thereto, limiting expenditure of the Union for the period 2012 to 2015;
- d)* Resolution 44 (Rev. Dubai, 2012) of this assembly, on bridging the standardization gap between developed and developing countries¹, which describes the sources from which funds will be raised for the purpose of bridging the standardization gap,

recalling

- a)* that the ITU Constitution, Convention and Financial Regulations stipulate that the Secretary-General may accept voluntary financial contributions in cash or in kind, in addition to the regular contributions from the Member States, Sector Members and Associates;
- b)* that expenditures under voluntary contributions are outside the limits of expenditure set by ITU plenipotentiary conferences;
- c)* that important voluntary contributions made to ITU-T in the past permitted ITU-T to make significant progress in its work,

considering further

that voluntary contributions are valuable, rapid and efficient instruments in the financing of extra activities for the Sector,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 35 (Rev. Hammamet, 2016)

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

(Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that No. 189 of the ITU Convention provides for the establishment of study groups of the ITU Telecommunication Standardization Sector (ITU-T);
- b)* that Article 20 of the Convention provides that, in appointing chairmen and vice-chairmen, personal competence and equitable geographical distribution should be especially kept in mind, as well as the need to promote more effective participation by developing countries¹;
- c)* that No. 192 of the Convention and other related provisions indicate the nature of the work of the study groups;
- d)* that provisions for the Telecommunication Standardization Advisory Group (TSAG) have been incorporated in Article 14A of the Convention;
- e)* that No. 242 of the Convention requires the World Telecommunication Standardization Assembly (WTSA) to appoint chairmen and vice-chairmen of study groups, taking account of competence and equitable geographical distribution, and the need to promote more efficient participation by the developing countries;
- f)* that 1.10 of Section 1 of Resolution 1 (Rev. Hammamet, 2016) of this assembly indicates that WTSA shall appoint the chairmen and vice-chairmen of study groups and of TSAG;
- g)* that Section 3 of Resolution 1 (Rev. Hammamet, 2016) of this assembly contains guidelines regarding the appointment of study group chairmen and vice-chairmen at WTSAs;
- h)* that procedures and qualifications for the chairman and vice-chairmen of TSAG should generally follow those for the appointment of study group chairman and vice-chairmen;
- i)* that experience of ITU in general, and of ITU-T in particular, would be of particular value for the chairman and vice-chairmen of TSAG;
- j)* that No. 244 of the Convention describes the procedure for replacing a study group chairman or vice-chairman who is unable to carry out his or her duties at some time in the interval between two WTSAs;
- k)* that No. 197G of the Convention states that TSAG shall "adopt its own working procedures compatible with those adopted by the world telecommunication standardization assembly";
- l)* that a specific time-limit on the term of office would permit the introduction of new ideas on a periodic basis, while at the same time give an opportunity for study group chairmen and vice-chairmen and the chairman and vice-chairmen of TSAG to be appointed from different Member States and Sector Members,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

pursuant to

- a) Resolution 166 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the number of vice-chairmen of Sector advisory groups, study groups and other groups;
- b) Resolution 70 (Rev. Busan, 2014) of the Plenipotentiary Conference, on mainstreaming a gender perspective in ITU and promotion of gender equality and the empowerment of women through information and communication technologies,

noting

- a) Article 19 of the Convention, on the participation of entities and organizations in the Union's activities;
- b) Resolution 58 (Rev. Busan, 2014) of the Plenipotentiary Conference, on strengthening of relations between ITU and regional telecommunication organizations and regional preparations for the Plenipotentiary Conference, in particular *resolves* 2 thereof;
- c) Resolution 43 (Rev. Dubai, 2012) of WTSA, on regional preparations for WTSAs,

taking into account

- a) that a maximum time in office of two terms for study group and TSAG chairmen and vice-chairmen provides for a reasonable amount of stability while providing the opportunity for different individuals to serve in these capacities;
- b) that the management team of TSAG and a study group should include at least the chairman, vice-chairmen and subordinate group chairmen;
- c) the convenience of nominating by consensus up to two candidates per region as vice-chairmen of the advisory group;
- d) the value of prior experience of the nominee at least as rapporteur, associate rapporteur or editor in the respective study groups,

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 the posts 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.

ANNEX A (to Resolution 35 (Rev. Hammamet, 2016))

Procedure for the appointment of chairmen and vice-chairmen of the ITU-T study groups and of TSAG

- 1 Typically, the positions of chairmen and vice-chairmen to be filled are known in advance of WTSA.
- a) In order to help WTSA appoint chairmen/vice-chairmen, Member States and ITU-T Sector Members are encouraged to indicate to the Director of TSB suitable candidates, preferably three months, but no later than two weeks, before the opening of WTSA.
- b) In nominating suitable candidates, ITU-T Sector Members should carry out prior consultations with the administration/Member State concerned, in order to avoid any possible disagreement in regard to such nomination.
- c) On the basis of received proposals, the Director of TSB will circulate to Member States and Sector Members the list of candidates. The list of candidates should be accompanied by an indication of the qualifications of each candidate as given in Annex B to this resolution.
- d) On the basis of this document and any relevant received comments, the heads of delegation, at a suitable time during WTSA, should be invited to prepare, in consultation with the Director of TSB, a consolidated list of designated study group chairmen and vice-chairmen to be submitted in a document to WTSA for final approval.
- e) In drafting the consolidated list, the following should be taken into account: In cases where there are two or more candidates with equal competence for the same chairman position, preference should be given to candidates from Member States and Sector Members having the lowest number of designated study group and TSAG chairmen.

2 Situations which cannot be considered within the above will be dealt with on a case-by-case basis at WTSA.

For example, if a merger of two existing study groups is envisaged, the proposals pertaining to the relevant study groups can be considered. Therefore the procedure outlined in § 1 can still be applied.

However, if WTSA decides to set up a completely new study group, discussions will have to be held at WTSA and appointments made.

3 These procedures should be applied for appointments made by TSAG under delegated authority (see Resolution 22 (Rev. Hammamet, 2016) of this assembly).

4 Vacant positions of chairmen and vice-chairmen that occur in mid-term between WTSA's are filled in accordance with No. 244 of the Convention.

ANNEX B (to Resolution 35 (Rev. Hammamet, 2016))

Qualifications of chairmen and vice-chairmen

No. 242 of the Convention states that:

"... In appointing chairmen and vice-chairmen, particular consideration shall be given to the requirements of competence and equitable geographical distribution and to the need to promote more efficient participation by the developing countries."

Whilst giving primary consideration to the qualifications below, there should be an appropriate representation of chairmen and vice-chairmen from developing countries, including the least developed countries, small island developing states and countries with economies in transition.

As regards competence, the following qualifications, *inter alia*, appear to be of paramount importance when appointing chairmen and vice-chairmen:

- relevant professional knowledge and experience;
- continuity in participation in the relevant study group or, for chairmen and vice-chairmen of TSAG, in ITU-T;
- managerial skills;
- availability²;
- knowledge for standardization related activities.

Particular reference to the above qualifications should be included in the biographical profile to be circulated by the Director of TSB.

² A further factor to be considered when appointing chairmen and vice-chairmen to both study groups and TSAG is candidates' availability for the period up to the next WTSA.

ANNEX C
(to Resolution 35 (Rev. Hammamet, 2016))

**Guidelines for appointment of the optimum numbers of vice-chairmen
for ITU-T study groups and for TSAG**

1 Pursuant to Resolution 166 (Rev. Busan, 2014) and No. 242 of the Convention, the requirements of competence, equitable geographical distribution and the need to promote more effective participation by the developing countries should be taken into account³ to the extent practicable.

2 To the extent possible, and taking into account the need for demonstrated competence, appointment or selection to the management team should utilize the resources of as broad a range of Member States and Sector Members as possible, at the same time recognizing the need to appoint only the number of vice-chairmen necessary for the efficient and effective management and functioning of the study groups, consistent with the projected structure and work programme.

3 The workload should be a factor in determining the appropriate number of vice-chairmen to ensure that every aspect within the purview of TSAG and the study groups is fully managed. The distribution of tasks among the vice-chairmen shall be made in the framework of each study group and TSAG, and may be modified according to the needs of the work.

4 The total number of vice-chairmen proposed by any administration should be fairly reasonable, so as to observe the principle of equitable distribution of posts among the Member States concerned.

5 Regional representation⁴ in the advisory group, study groups and other groups of all three Sectors should be taken into account, such that no single individual may hold more than one vice-chairmanship position in these groups in any one Sector, and only in exceptional cases hold such a position in more than one Sector⁵.

6 Where the re-election of vice-chairmen is concerned, the nomination of candidates who have failed to participate in at least half of all meetings during the previous study period should normally be avoided, taking into account prevailing circumstances.

³ For those regions consisting of numerous administrations and with diverse economic and technological developments within the region, to the extent possible the number of representatives of those regions may be increased, as appropriate.

⁴ Taking into account Resolution 58 (Rev. Busan, 2014) of the Plenipotentiary Conference in regard to the six regional telecommunication organizations, namely: the Asia-Pacific Telecommunity (APT), the European Conference of Postal and Telecommunications Administrations (CEPT), the Inter-American Telecommunications Commission (CITEL), the African Telecommunications Union (ATU), the Council of Arab Ministers of Telecommunication and Information represented by the Secretariat-General of the League of Arab States (LAS), and the Regional Commonwealth in the field of Communications (RCC).

⁵ The criterion mentioned in this paragraph should not prevent a vice-chairman of a given advisory group or a vice-chairman of a given study group from holding positions of chairman or vice-chairman of a given working party or as rapporteur or associate rapporteur for any group under the mandate of that Sector group.

RESOLUTION 40 (Rev. Hammamet, 2016)

Regulatory aspects of the work of the ITU Telecommunication Standardization Sector

(Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a) the provisions of Nos. 246D to 246H of the ITU Convention;
- b) Resolution 20 (Rev. Hammamet, 2016) of this assembly, on the procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources,

considering

- a) that the tasks undertaken in the ITU Telecommunication Standardization Sector (ITU-T) cover both technical matters and matters having policy or regulatory implications;
- b) that rules pertaining to certain aspects of the Sector's work are being framed in terms that will rely upon clear and certain identification of the boundary between technical matters and matters having policy or regulatory implications;
- c) that administrations are encouraging a larger role for Sector Members in the work of ITU-T, particularly on technical matters;
- d) that many matters having policy or regulatory implications may involve technical implementation and therefore need to be considered in appropriate technical study groups,

noting

- a) that the ITU Member States have identified significant policy responsibilities in Chapter VI of the ITU Constitution (Articles 33-43) and in Chapter V of the Convention (Articles 36-40), and in relevant resolutions of plenipotentiary conferences;
- b) that the International Telecommunication Regulations further describe policy and regulatory obligations incumbent upon Member States;
- c) that No. 191C of the Convention empowers the World Telecommunication Standardization Assembly (WTSA) to assign matters within its competence to the Telecommunication Standardization Advisory Group (TSAG), indicating the action required on those matters,

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.

RESOLUTION 43 (Rev. Dubai, 2012)

Regional preparations for world telecommunication standardization assemblies

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

- a) that many regional telecommunication organizations have coordinated their preparations for this and preceding assemblies;
- b) that many common proposals have been submitted to this and preceding assemblies from administrations participating in the preparatory work of regional telecommunication organizations;
- c) that this consolidation of views at regional level, together with the opportunity for interregional discussions prior to the assembly, has eased the task of reaching a consensus during the assembly;
- d) that the burden of preparation for future assemblies is likely to increase;
- e) that the coordination of preparations at regional level is consequently of great benefit to the Member States;
- f) that greater efficiency of regional coordination and interaction at interregional level prior to future assemblies will help ensure their success;
- g) that some regional organizations lack the necessary resources to organize adequately and participate in such preparations;
- h) that there is a need for overall coordination of the interregional consultations,

recognizing

- a) the benefits of regional coordination as already experienced in the preparation of plenipotentiary conferences, world radiocommunication conferences and world telecommunication development conferences;
- b) that regional preparatory meetings for the World Telecommunication Standardization Assembly (WTSA) have helped in identifying and coordinating regional views on issues considered to be of particular relevance to each region, and in developing common regional proposals for submission to WSAs,

taking into account

the efficiency benefits that WSAs have gained from an increased amount and level of prior preparation by the Member States,

noting

- a) that many regional telecommunication organizations have expressed the need for the Union to cooperate more closely with them;

b) that, consequently, the Plenipotentiary Conference (Minneapolis, 1998) resolved that the Union should develop stronger relations with regional telecommunication organizations, as emphasized in the first objective of the ITU strategic plan for 2008-2011,

noting further

that the relationship between ITU regional offices and regional telecommunication organizations has proved to be of great benefit,

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 countries¹;

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.

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

RESOLUTION 44 (Rev. Hammamet, 2016)

Bridging the standardization gap between developing¹ and developed countries

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference, on bridging the standardization gap between developing and developed countries, instructs the Secretary-General and the Directors of the three Bureaux to work closely with each other on the follow-up and implementation of this resolution and related resolutions, and in pursuing initiatives intended to enhance efforts to bridge the standardization gap between developing and developed countries as well as on follow-up and implementation of the operative paragraphs of Resolution 123 (Rev. Busan, 2014), supporting coordination in this respect at the regional level through regional offices and organizations;
- b)* that Resolution 139 (Rev. Busan, 2014) of the Plenipotentiary Conference resolves that implementation of Resolution 37 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on the use of telecommunications/information and communication technologies (ICT) to bridge the digital divide and build an inclusive information society, should continue;
- c)* that Resolution 154 (Rev. Busan, 2014) of the Plenipotentiary Conference resolves to continue to take all necessary measures to ensure use of the six official languages of the Union on an equal footing;
- d)* that Resolution 166 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the number of vice-chairmen of Sector advisory groups, study groups and other groups, specifies that equitable geographical distribution among ITU regions and the need to promote effective participation of developing countries should be taken into account so as to ensure that every region be represented;
- e)* that Resolution 169 (Rev. Busan, 2014) of the Plenipotentiary Conference resolves to continue to admit academia from developing countries to participate in the work of the three Sectors of the Union for 1/32 of the value of the Sector Member contributory unit;
- f)* that Resolution 191 (Busan, 2014) of the Plenipotentiary Conference instructs the Directors of the three Bureaux to ensure coordination among the Sectors;
- g)* that Resolution 195 (Busan, 2014) of the Plenipotentiary Conference resolves to instruct the Director of the Telecommunication Development Bureau (BDT), in coordination with the Directors of the other Bureaux, to provide technical expertise to carry out feasibility studies, project management and support for the implementation of the Smart Africa Manifesto;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

h) that Resolution 197 (Busan, 2014) of the Plenipotentiary Conference instructs the Secretary-General, in consultation and collaboration with the Directors of the three Bureaux, to facilitate the exchange of experiences and information with all relevant organizations and entities involved in the Internet of things (IoT) and IoT services, with the aim of creating opportunities for cooperative efforts to support the deployment of IoT,

recognizing

a) that the tasks undertaken in the ITU Telecommunication Standardization Sector (ITU-T) cover Recommendations, conformity assessment and matters having policy or regulatory implications;

b) that the harmonious and balanced development of the worldwide telecommunication facilities and services is of mutual advantage to the developing as well as the developed countries;

c) that there is a need to reduce the cost of equipment and of rolling out networks and facilities taking into account the needs and requirements of developing countries;

d) that the disparity between developing and developed countries in standardization has five components: disparity of voluntary standardization, disparity of mandatory technical regulations, disparity of conformity assessment, disparity in human resources skilled in standardization and disparity in effective participation in ITU-T activities;

e) that it is of high importance for developing countries to increase their participation in the establishment and widespread use of telecommunication standards, and to enhance their contribution in ITU-T study groups;

f) that coordination at national level in many developing countries needs to be developed to handle ICT standardization activities in order to contribute to work in ITU-T;

g) that the development of guidelines and the establishment of national standardization secretariats could enhance standardization activities at national level and the participation and contribution of developing countries in ITU-T study groups;

h) that Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the strategic plan for the Union for 2016-2019, lists enablers of the strategic goals and objectives of the Union, one of these enablers being to ensure efficient and accessible conferences, meetings, documentation, publications and information infrastructures, and one of the support processes to that enabler being the organization of conferences, assemblies, seminars and workshops (including translation and interpretation),

recognizing also

a) that Decision 12 (Rev. Busan, 2014) of the Plenipotentiary Conference confirmed free-of-charge online access for the general public to ITU-T Recommendations, Recommendations of the ITU Radiocommunication Sector (ITU-R), ITU-R reports, the basic texts of the Union (Constitution, Convention and General Rules of conferences, assemblies and meetings of the Union), and the final acts of plenipotentiary conferences;

b) that annual reports presented at the ITU Council regarding policies of free on-line access to ITU publications indicate that said policies have been able to raise the level of awareness regarding standardization activities carried out at ITU and to promote greater participation of developing countries in these activities;

- c) that, under the strategic plan for the Union for 2016-2019, one of the objectives of ITU-T is to work to "promote the active participation of the membership, in particular developing countries, in the definition and adoption of international non-discriminatory/ICT standards (ITU-T Recommendations) with a view to bridging the standardization gap";
- d) that interpretation service needs to be provided in some ITU-T meetings so as to contribute to bridging the standardization gap and ensure maximum involvement of all delegates, in particular those from developing countries;
- e) that interpretation is essential to help all delegates, especially those from developing countries, to be fully aware of and engaged in standardization decisions that are taken in ITU-T meetings;
- f) that the Telecommunication Standardization Advisory Group (TSAG) plays a vital role and takes decisions that have an impact on the work of all study groups,

taking into account

- a) that while ITU has made significant progress in defining and bridging the standardization gap, developing countries are still encountering multifarious difficulties in ensuring their efficient participation in the work of ITU-T, in particular engaging in and following up the work of the ITU-T study groups, especially given budgetary limitations;
- b) that the actual participation by developing countries, where it exists, is usually limited to the final approval and implementation stages, rather than in the preparation of proposals elaborated in the various working groups;
- c) that coordination at national level in many developing countries needs to be improved to handle ICT standardization activities in order to contribute to work in ITU-T;
- d) that the biennial budget structure now includes a separate expenditure line item for bridging the standardization gap activities, while at the same time voluntary contributions are being encouraged, and a management mechanism for this line item has been implemented by the Telecommunication Standardization Bureau (TSB) in close coordination with BDT;
- e) that ITU's programmes for fostering partnerships, under the patronage of ITU-T, continue to strengthen and expand the assistance ITU provides to its members, particularly developing countries;
- f) the importance of having appropriate consultative frameworks for developing countries for the formulation and study of Questions, the preparation of contributions and capacity building;
- g) that the structure and working methods of ITU-T study groups could serve to improve the level of developing-country participation in standardization activities;
- h) that joint meetings of regional groups of different ITU-T study groups, in particular if concatenated with a regional workshop and/or a meeting of a regional standardization body, will encourage the participation of developing countries in these meetings and increase the effectiveness of such meetings;
- i) that ITU can further improve the active participation of developing countries in the standardization work of ITU-T in terms of both quality and quantity, through the role of TSAG and ITU-T study group vice-chairmen and chairmen who are appointed on the basis of regional representation and can be charged with specific responsibilities;

j) that TSAG agreed to create a mentor role in ITU-T study groups for coordination with representatives from developed and developing countries with the objective of sharing information and best practices with regard to the application of ITU-T Recommendations in order to enhance standardization activities in developing countries and in the regional groups,

recalling

a) that Resolution 1353 of the Council recognizes that telecommunications and ICT are essential components for developed and developing countries for achieving sustainable development, and instructs the Secretary-General, in collaboration with the Directors of the Bureaux, to identify new activities to be undertaken by ITU to support the developing countries to achieve sustainable development through telecommunications and ICT;

b) the relevant conclusions of the Global Standards Symposium,

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,

resolves further 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

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 all necessary support and take 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.

ANNEX (to Resolution 44 (Rev. Hammamet, 2016))

Action plan for the implementation of Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference

I Programme 1: Strengthening standards-making capabilities

- 1) Objective
 - To improve the standards-making capabilities of developing countries.
- 2) Activities
 - Developing guidelines to assist developing countries in their involvement in ITU-T activities, covering, but not limited to, ITU-T working methods, formulating draft Questions and making proposals.

- Creating methods to increase the access of developing countries to essential technical information in order to enhance their knowledge and capacity (i) to implement global standards, (ii) to effectively contribute to the work of ITU-T, (iii) to include their own specificities and necessities in the global standards-making process, and (iv) to influence global standards-making discussions by having active roles in ITU-T study groups.
- Improving procedures and tools for remote participation via electronic means so as to enable experts in developing countries to participate actively in ITU-T meetings (including TSAG, study groups, joint coordination activities, global standardization initiatives, among others), workshops and training, from their own countries.
- Conducting consultancy projects designed to support developing countries in the development of standardization plans, strategies, policies, etc. The outputs should be further transformed into best practices.
- Developing methods, tools and indicators for accurate measurement of the results and the level of effectiveness of the efforts and activities applied in bridging the standardization gap.
- Working with Sector Members, and in particular manufacturers, academia and research and development organizations, on exchanging information on new technologies and requirements of developing countries, and on providing technical assistance to encourage the establishment of standardization programmes in academia and research and development organizations in the field of ICT.

II Programme 2: Assisting developing countries with respect to the application of standards

1) Objective

- To assist developing countries in:
 - Having a clear understanding of ITU-T Recommendations;
 - Enhancing the application of ITU-T Recommendations in developing countries.

2) Activities

- Assisting developing countries in:
 - Establishing a standardization secretariat to coordinate standardization activities and participation in ITU-T study groups;
 - Determining whether their existing national standards are consistent and in accordance with the current ITU-T Recommendations.
- Actions to be performed by TSB with BDT cooperation:
 - Developing guidelines on the application of ITU-T Recommendations, in particular on manufactured products and interconnection, with emphasis on Recommendations having regulatory and policy implications.
 - Providing advice and assistance for better utilization and adoption of ITU-T Recommendations in national standards.
 - Compiling and maintaining an up-to-date database with information on new standardized technologies, as well as products that are compliant with ITU-T Recommendations.

- Organizing capacity-building events that enable better application of specific Recommendations and on methods of examining compliance of manufactured products with these Recommendations.
- Promoting the use of a standardization forum for "questions and answers on standards" where developing countries can raise questions concerning the understanding and application of Recommendations and seek advice from study group experts.
- Providing assistance to developing countries on developing strategies in establishing national/international test laboratories for emerging technologies.

III Programme 3: Human resources capacity building

1) Objective

- To increase the human resources capacity of developing countries in ITU-T and national standardization activities.

2) Activities

- Promoting the organization of events, seminars, workshops and study group meetings at the regional and global levels in order to promote standardization capacity building and the development of telecommunications/ICT in developing countries.
- In close collaboration with BDT and BR, providing training courses on standardization to developing countries.
- Providing more internship, secondment and short-term employment, etc., opportunities for developing countries at ITU.
- Encouraging the election of more candidates from developing countries to ITU-T study group chairmanship and vice-chairmanship positions.
- Encouraging secondment and short-term employment opportunities for experts from developing countries in test laboratories of international standards development organizations (SDOs) and manufacturers, in particular in the area of conformance and interoperability testing.
- Organizing in-depth tutorials on understanding and implementation of ITU-T Recommendations.
- Providing guidance and support material to developing countries to assist them in developing and providing undergraduate and postgraduate courses on standardization in their universities.
- Offering, to the extent possible, through TSB, a greater number of fellowships to eligible developing countries to attend relevant ITU-T meetings.

IV Programme 4: Fundraising for bridging the standardization gap

a) Contributions to the action plan through the following forms of partnerships and other means:

- Partnership contributions
- Additional budget allocated by ITU
- Voluntary contributions by developed countries
- Voluntary contributions by the private sector
- Voluntary contributions by others.

b) Management of funds by TSB:

- The Director of TSB, in close coordination with the Director of BDT, shall be responsible for the management of funds raised as above, which shall be used principally for achieving the objectives of these programmes.

c) Principles for the use of funds:

- Funds are to be used for ITU-related activities including, but not limited to, assistance and consultation, training of representatives of developing countries in ITU-T activities, as well as studying compliance examination, interconnection and interoperability programmes for developing countries.

RESOLUTION 45 (Rev. Hammamet, 2016)

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

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

noting

- a) that the ITU Telecommunication Standardization Sector (ITU-T) is the pre-eminent global standardization body, comprising administrations, equipment vendors, operators and regulators;
- b) that, under Article 17 of the ITU Constitution, ITU-T, bearing in mind the particular concerns of the developing countries¹, shall fulfil the purposes of the Union by studying technical, operating and tariff questions and adopting Recommendations on them with a view to standardizing telecommunications on a worldwide basis;
- c) that, under Article 13 of the ITU Convention, the World Telecommunication Standardization Assembly (WTSA) is required, *inter alia*, to approve the programme of work for ITU-T for each study period and to determine the priority, urgency, estimated financial implications and time-scale for the completion of studies,

considering

- a) Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, which resolves that WTSA shall adequately address strategic issues in standardization, and encourages Member States, ITU-T Sector Members and study group chairmen and vice-chairmen to concentrate, *inter alia*, on the identification and analysis of strategic issues in standardization in their preparations for WTSA so as to facilitate the work of the assembly;
- b) that the interests of developing countries are promoted by ensuring a coordinated approach to standardization where strategic standardization issues are concerned;
- c) that WTSA has agreed to a new ITU-T study group structure and improvements to ITU-T's working methods that will assist ITU-T in meeting the standardization challenges of the 2013-2016 study period,

recognizing

- a) that effective coordination between study groups is critical to ITU-T's ability to meet emerging standardization challenges and the needs of its membership;
- b) that ITU-T study groups are responsible for developing Recommendations on technical, operating and tariff questions on the basis of contributions submitted by the membership;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

c) that the effective coordination of standardization activities would assist in meeting the objectives of Resolution 122 (Rev. Guadalajara, 2010) and Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference;

d) that operational coordination can be effected by means of joint coordination activities (JCA), joint rapporteur group meetings, liaison statements between study groups and the study group chairmen's meetings organized by the Director of the Telecommunication Standardization Bureau;

e) that effective coordination is facilitated by taking a top-down approach to the coordination of work between study groups, including the identification of linkages between related work items;

f) that the Telecommunication Standardization Advisory Group (TSAG) can play an important role in ensuring cross-study group coordination on standardization issues, including the measurement of standardization progress against agreed milestones;

g) that it is appropriate for WTSA, as the highest body in ITU-T, to identify strategic standardization issues for each study period,

bearing in mind

that the coordination of standardization activities is particularly important for high-priority standardization issues, including, for example:

- a) next-generation networks (NGN) evolution and future networks (FN);
- b) security (including cybersecurity);
- c) telecommunications for disaster relief systems, including network resilience and recovery;
- d) smart grid and home networking;
- e) intelligent transport systems (ITS);
- f) Internet of things (IoT)/machine-to-machine (M2M) communication;
- g) cloud computing;
- h) Internet-related issues;
- i) conformance and interoperability (C&I) testing,

emphasizing

that coordination should serve to improve the effectiveness of ITU-T activities and should not limit the authority of each study group to develop Recommendations based on contributions from the membership,

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.

RESOLUTION 47 (Rev. Dubai, 2012)

Country code top-level domain names

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recognizing

- a) relevant parts of Resolution 102 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- b) Resolution 133 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- c) relevant outcomes of the two phases of the World Summit on the Information Society;
- d) the evolving role of the World Telecommunication Standardization Assembly, in accordance with Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference,

considering

- a) that issues persist in some cases with respect to the delegation of country code top-level domain names (ccTLD) to entities designated by national authorities;
- b) that Member States represent the interests of the population of the country or territory for which a ccTLD has been delegated, as noted in *recognizing g)* of Resolution 102 (Rev. Guadalajara, 2010);
- c) that countries should not be involved in decisions regarding another country's ccTLD, as noted in *recognizing i)* of Resolution 102 (Rev. Guadalajara, 2010);
- d) that intergovernmental organizations have had, and should continue to have, a facilitating role in the coordination of Internet-related public policy issues;
- e) that international organizations have also had, and should continue to have, an important role in the development of Internet-related technical standards and relevant policies;
- f) that ITU has a record of successfully handling similar issues,

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.

RESOLUTION 48 (Rev. Dubai, 2012)

Internationalized (multilingual) domain names

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recognizing

- a)* relevant parts of Resolution 102 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- b)* Resolution 133 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- c)* relevant outcomes of the two phases of the World Summit on the Information Society (WSIS);
- d)* the evolving role of the World Telecommunication Standardization Assembly, in accordance with Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- e)* the ITU strategic plan for the period 2008-2011 reflecting the important role of multilingualism in enabling the full participation of all countries in the work of ITU, in building a global information society that is open to all, and in achieving the goals and objectives of WSIS,

considering

- a)* that there needs to be further in-depth discussion of the political, economic and technical issues related to internationalized (multilingual) domain names arising out of the interaction between national sovereignty and the need for international coordination and harmonization;
- b)* that intergovernmental organizations have had, and should continue to have, a facilitating role in the coordination of Internet-related public policy issues;
- c)* that international organizations have also had, and should continue to have, an important role in the development of Internet-related technical standards and relevant policies;
- d)* that the ITU Telecommunication Standardization Sector (ITU-T) has a record of successfully handling similar issues in a timely manner, especially as to the use of non-Latin character sets;
- e)* the ongoing activities of other relevant organizations,

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.

RESOLUTION 49 (Rev. Hammamet, 2016)

ENUM

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a)* Resolution 133 (Rev. Busan, 2014) of the Plenipotentiary Conference, in particular:
 - i)* the continuing progress towards integration of telecommunications and the Internet;
 - ii)* the existing role and sovereignty of ITU Member States with respect to allocation and management of their country code numbering resources as enshrined in Recommendation ITU-T E.164;
 - iii)* the operative paragraph instructing the Secretary-General and the Directors of the Bureaux to take any necessary action to ensure the sovereignty of ITU Member States with regard to Recommendation ITU-T E.164 numbering plans whatever the application in which they are used;
- b)* the evolving role of the World Telecommunication Standardization Assembly, as reflected in Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference,

noting

- a)* the work of Study Group 2 of the ITU Telecommunication Standardization Sector (ITU-T) concerning ENUM;
- b)* the current unresolved issues concerning administrative control of the highest level Internet domain which will be used for ENUM,

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.

RESOLUTION 50 (Rev. Hammamet, 2016)

Cybersecurity

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a) Resolution 130 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the role of ITU in building confidence and security in the use of information and communication technologies (ICT);
- b) Resolution 174 (Rev. Busan, 2014) of the Plenipotentiary Conference, on ITU's role with regard to international public policy issues relating to the risk of illicit use of ICT;
- c) Resolution 179 (Rev. Busan, 2014) of the Plenipotentiary Conference, on ITU's role in child online protection;
- d) Resolution 181 (Guadalajara, 2010) of the Plenipotentiary Conference, on definitions and terminology relating to building confidence and security in the use of ICT;
- e) Resolutions 55/63 and 56/121 of the United Nations General Assembly (UNGA), which established the legal framework on countering the criminal misuse of information technologies;
- f) UNGA Resolution 57/239, on the creation of a global culture of cybersecurity;
- g) UNGA Resolution 58/199, on the creation of a global culture of cybersecurity and the protection of essential information infrastructures;
- h) UNGA Resolution 41/65, on principles relating to remote sensing of the Earth from outer space;
- i) UNGA Resolution 70/125, on the outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society (WSIS);
- j) Resolution 45 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on mechanisms for enhancing cooperation on cybersecurity, including countering and combating spam;
- k) Resolution 52 (Rev. Hammamet, 2016) of this assembly, on countering and combating spam;
- l) Resolution 58 (Rev. Dubai, 2012) of the World Telecommunication Standardization Assembly, on encouraging the creation of national computer incident response teams, particularly in developing countries¹;
- m) that ITU is the lead facilitator for WSIS Action Line C5 in the Tunis Agenda for the Information Society (Building confidence and security in the use of ICTs);
- n) the cybersecurity-related provisions of the WSIS outcomes,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

considering

- a) the crucial importance of telecommunication/ICT infrastructure and their applications to practically all forms of social and economic activity;
- b) that the legacy public switched telephone network (PSTN) has a level of inherent security properties because of its hierarchical structure and built-in management systems;
- c) that IP networks provide reduced separation between user components and network components if adequate care is not taken in the security design and management;
- d) that the converged legacy networks and IP networks are therefore potentially more vulnerable to intrusion if adequate care is not taken in the security design and management of such networks;
- e) that cybersecurity is a cross-cutting issue, and the cybersecurity landscape is complex and dispersed, with many different stakeholders at the national, regional and global levels with responsibility for identifying, examining and responding to issues related to building confidence and security in the use of ICTs;
- f) that the considerable and increasing losses which users of telecommunication/ICT systems have incurred from the growing problem of cybersecurity alarm all developed and developing nations of the world without exception;
- g) that the fact, *inter alia*, that critical telecommunication/ICT infrastructures are interconnected at the global level means that inadequate infrastructure security in one country could result in greater vulnerability and risks in others and, therefore, cooperation is important;
- h) that the number and methods of cyberthreats and cyberattacks are growing, as is dependence on the Internet and other networks that are essential for accessing services and information;
- i) that standards can support the security aspects of Internet of things (IoT) and smart cities and communities (SC&C);
- j) that in order to protect global telecommunication/ICT infrastructures from the threats and challenges of the evolving cybersecurity landscape, coordinated national, regional and international action is required for prevention, preparation, response, and recovery in respect of cybersecurity incidents;
- k) the work undertaken and ongoing in the ITU, including ITU Telecommunication Standardization Sector (ITU-T) Study Group 17, ITU Telecommunication Development Sector (ITU-D) Study Group 2, including the final report of ITU-D Study Group 1 Question 22/1-1, and under the Dubai Action Plan adopted by WTDC (Dubai, 2014);
- l) that ITU-T has a role to play, within its mandate and competencies, in regard to *considering j)*,

considering further

- a) that Recommendation ITU-T X.1205 provides a definition, a description of technologies, and network protection principles;
- b) that Recommendation ITU-T X.805 provides a systematic framework for identifying security vulnerabilities, and Recommendation ITU-T X.1500 provides the cybersecurity information exchange (CYBEX) model and discusses techniques that could be used to facilitate the exchange of cybersecurity information;

c) that ITU-T and the Joint Technical Committee for Information Technology (JTC 1) of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), as well as several consortia and standards entities such as the World Wide Web consortium (W3C), the Organization for Advancement of Structured Information Standards (OASIS), the Internet Engineering Task Force (IETF), and the Institute of Electrical and Electronics Engineers (IEEE), among others, already have a significant body of published materials and ongoing work that is directly relevant to this topic, which needs to be considered;

d) the importance of ongoing work on security reference architecture for lifecycle management of e-commerce business data,

recognizing

a) the operative paragraph of Resolution 130 (Rev. Busan, 2014) instructing the Director of the Telecommunication Standardization Bureau (TSB) to intensify work within existing ITU-T study groups;

b) that WTDC-14 approved the contribution to the strategic plan of the Union for 2016-2019, endorsing five Objectives, among them Objective 3 – *Enhance confidence and security in the use of telecommunications/ICTs, and roll-out of relevant ICT applications and services*, and the associated Output 3.1 – *Building confidence and security in the use of ICTs*, within whose framework of execution is the Cybersecurity Programme and ITU-D Question 3/2;

c) that the ITU Global Cybersecurity Agenda (GCA) promotes international cooperation aimed at proposing strategies for solutions to enhance confidence and security in the use of ICTs, considering security aspects throughout the whole lifecycle of the standards-development process;

d) the challenges that States, particularly in developing nations, face in building confidence and security in the use of ICTs,

recognizing further

a) that cyberattacks such as phishing, pharming, scan/intrusion, distributed denials of service, web-defacements, unauthorized access, etc., are emerging and having serious impacts;

b) that botnets are used to distribute bot-malware and carry out cyberattacks;

c) that sources of attacks are sometimes difficult to identify;

d) that critical cybersecurity threats in software and hardware may require timely vulnerability management and timely hardware and software updates;

e) that securing data is a key component of cybersecurity as data are often the target in cyberattacks;

f) that cybersecurity is one of the elements for building confidence and security in the use of telecommunications/ICTs,

noting

- a) the vigorous activity and interest in the development of telecommunication/ICT security standards and Recommendations in Study Group 17, the lead ITU-T study group on security and identity management, and in other standardization bodies, including the Global Standards Collaboration (GSC) group;
- b) that there is a need for national, regional and international strategies and initiatives to be harmonized to the extent possible, in order to avoid duplication and to optimize the use of resources;
- c) the significant and collaborative efforts by and among governments, the private sector, civil society, the technical community and academia, within their respective roles and responsibilities, to build confidence and security in the use of ICTs,

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 new Recommendations, with respect to their robustness of design and potential for exploitation by malicious parties, and take into account new services and emerging 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 networks: 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 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.

RESOLUTION 52 (Rev. Hammamet, 2016)

Countering and combating spam

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a) relevant provisions of the basic instruments of ITU;
- b) that the Declaration of Principles of the World Summit on the Information Society (WSIS) states in § 37 that "Spam is a significant and growing problem for users, networks and the Internet as a whole. Spam and cybersecurity should be dealt with at appropriate national and international levels";
- c) that the WSIS Plan of Action states in § 12 that "Confidence and security are among the main pillars of the information society", and calls for "appropriate action on spam at national and international levels",

recognizing further

- a) the relevant parts of Resolutions 130 (Rev. Busan, 2014) and 174 (Rev. Busan, 2014) of the Plenipotentiary Conference;
- b) the report of the chairman of the two ITU WSIS thematic meetings on countering and combating spam, which advocated a comprehensive approach to combating spam, namely:
 - i) strong legislation
 - ii) the development of technical measures
 - iii) the establishment of industry partnerships to accelerate the studies
 - iv) education
 - v) international cooperation;
- c) the relevant parts of Resolution 45 (Rev. Dubai, 2014) of the World Telecommunication Development Conference,

considering

- a) that exchanging e-mails and other telecommunications over the Internet has become one of the main means of communication between people around the world;
- b) that there are currently a variety of definitions for the term "spam";
- c) that spam has become a widespread problem causing potential loss of revenue to Internet service providers, telecommunication operators, mobile telecommunication operators and business users;
- d) that countering spam by technical means burdens affected entities, including network operators and service providers, as well as users who unwillingly receive such spam, with significant investments in networks, facilities, terminal equipment and applications;

- e) that spam creates problems of information and telecommunication network security, and is increasingly being used as a vehicle for phishing and spreading viruses, worms, spyware and other forms of malware, etc.;
- f) that spamming is used for criminal, fraudulent or deceptive activities;
- g) that spam is a global problem, with different characteristics in different regions, which affects many stakeholders and, therefore, requires collaborative work and international cooperation to address it and find solutions;
- h) that addressing the issue of spam is a matter of urgency;
- i) that many countries, in particular developing countries¹, need help when it comes to countering spam;
- j) that relevant Recommendations of the ITU Telecommunication Standardization Sector (ITU-T) and relevant information from other international bodies are available which could provide guidance for future development in this area, particularly with regard to lessons learned;
- k) that technical measures to counter spam represent one of the elements of the approach mentioned in *recognizing further b)* above,

noting

the important technical work carried out to date in ITU-T Study Group 17, and in particular Recommendation ITU-T X.1231 and the ITU-T X.1240 series Recommendations,

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,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 54 (Rev. Hammamet, 2016)

Creation of, and assistance to, regional groups

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that Article 14 of the ITU Convention authorizes the creation of study groups with a view to standardizing telecommunications on a worldwide basis;
- b)* that Article 17 of the ITU Constitution states that "the functions of the Telecommunication Standardization Sector shall be, bearing in mind the particular concerns of the developing countries, to fulfil the purposes of the Union relating to telecommunication standardization ...";
- c)* that Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference instructs the Secretary-General and the Directors of the three Bureaux to work closely with each other in pursuing initiatives that assist in bridging the standardization gap between developing¹ and developed countries, and to further collaborate with relevant regional organizations and support their work in this area;
- d)* that Resolution 191 (Busan, 2014) of the Plenipotentiary Conference recognizes that the basic principle of cooperation and collaboration among the Sectors is to avoid duplication of the Sectors' activities and to ensure that work is carried out efficiently and effectively;
- e)* the following outcome for the ITU Telecommunication Standardization Sector (ITU-T) in the strategic plan for the Union for 2016-2019, adopted in Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, focused on the promotion of participation of membership, in particular developing countries, in the definition and adoption of non-discriminatory international standards with a view to bridging the standardization gap:
 - increased participation in the ITU-T standardization process, including attendance of meetings, submission of contributions, taking leadership positions and hosting of meetings/workshops, especially from developing countries;
- f)* that the work of certain study groups, particularly in relation to, among other things, tariff and accounting principles, international telecommunication/information and communication technology (ICT) economic and policy issues, next-generation networks (NGN), the Internet of things (IoT) and future networks (FN), security, quality, mobility and multimedia, continues to be of considerable strategic significance for developing countries,

recognizing

- a)* that Article 43 of the Constitution (No. 194) states that "Member States reserve the right to convene regional conferences, to make regional arrangements and to form regional organizations, for the purpose of settling telecommunication questions which are susceptible of being treated on a regional basis ...";
- b)* the growing level of participation and involvement of developing countries in all the ITU-T study groups;
- c)* that regional groups have been established within ITU-T Study Groups 2, 3, 5, 11, 12, 13 and 17;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- d) that meetings of the above-mentioned regional groups of ITU-T study groups are held by ITU and can be supported by regional organizations and/or regional standardization bodies;
- e) the satisfactory results obtained by the regional approach within the framework of the activities of the parent study groups;
- f) that the activities of most of these regional groups have become increasingly important, and encompass a growing number of issues;
- g) the successful establishment of regional groups under Study Group 3, which leads studies relating to policy, tariff and accounting matters (including costing methodologies) for international telecommunication services and study of related telecommunication economic, accounting and policy issues;
- h) the sustainability of the regional groups of Study Group 3, and the encouraging start of regional groups² established in accordance with this resolution,

noting

- a) the need to increase the participation of developing countries in the work of study groups, with a view to ensuring that their specific needs and concerns, within the mandate of ITU-T and its study groups, are better taken into account;
- b) the need to improve and strengthen the organization and working methods of the ITU-T study groups in the interests of enhancing the participation of developing countries, to increase the efficiency and effectiveness of international standardization work and to improve synergies with other ITU Sectors;
- c) the importance of having appropriate consultative frameworks for the formulation and study of Questions, the preparation of contributions and capacity building;
- d) the need for developing countries to be more present and more active within ITU-T's standardization forums;
- e) the need to encourage more inclusive participation in the work of ITU-T, e.g. by academia and experts working in the field of standardization of telecommunications/ICT, particularly from developing countries;
- f) the budgetary limitations, especially in developing-country institutions, for attendance at ITU-T events of specific interest to them,

bearing in mind

that the application of the organizational set-up and working methods of the regional groups of Study Group 3 to their successors, consistent with the ITU-T rules of procedure in Resolution 1, could serve to expand and improve the level of developing-country participation in standardization activities and contribute to achieving the objectives of Resolution 123 (Rev. Busan, 2014),

² Regional groups are open, without exclusion, to the participation of all members belonging to the specific region where the regional group is created.

taking into consideration

- a) the experiences and lessons learned by the regional groups, regarding the operational as well as organizational set-up and working methods;
- b) the specific process for approving Recommendations foreseen for the regional groups of Study Group 3 in clause 9.2.1 of Resolution 1 (Rev. Hammamet, 2016) of this assembly,

recognizing further

- a) that a common and coordinated approach in regard to standardization could serve to foster the promotion of standardization activities in developing countries;
- b) that joint meetings of regional groups of different ITU-T study groups, in particular if concatenated with a regional workshop and/or a meeting of a regional organization and/or regional standardization body, could encourage the participation of developing countries in these meetings and increase the effectiveness of such joint meetings;
- c) that, in developing countries, a few standardization experts are usually responsible for handling numerous standardization areas within their administrations, including issues that concern Questions under study simultaneously by a number of ITU-T study groups,

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.

RESOLUTION 55 (Rev. Hammamet, 2016)

Promoting gender equality in ITU Telecommunication Standardization Sector activities

(Florianópolis, 2004; Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that while standardization plays an important role in globalization and the effective development of information and communication technologies (ICT), statistically very few women participate in international standardization processes;
- b)* that the standardization work of ITU Telecommunication Standardization Sector (ITU-T) can be advanced most effectively through the active inclusion of women;
- c)* that there is a need to ensure that women participate actively and meaningfully in all ITU-T activities;
- d)* that the Telecommunication Standardization Bureau (TSB) has established the ITU Women in Standardization Expert Group (WISE), launched at the meeting of the Telecommunication Standardization Advisory Group (TSAG) in February 2016, dedicated to promoting women in standardization, telecommunications/ICTs and related fields and to recognize the men and women who have made a remarkable contribution in promoting the work of women in these fields,

noting

- a)* that ITU has adopted a Gender Equality and Mainstreaming (GEM) Policy, with the aim of becoming a model organization for gender equality that leverages the power of telecommunications/ICTs to empower both women and men;
- b)* the progress made by ITU in raising awareness on gender issues, specifically over the last decade, in increasing women's participation in and contribution to international forums, in studies, projects and training, and in the establishment of an internal Gender Task Force, as well as the successful establishment by ITU of an international "Girls in ICT" day to be held every year on the fourth Thursday of April;
- c)* Resolution 70 (Rev. Busan, 2014) of the Plenipotentiary Conference, on gender mainstreaming in ITU and promotion of gender equality and the empowerment of women through ICTs;
- d)* Resolution 55 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, on mainstreaming a gender perspective for an inclusive and egalitarian information society;
- e)* Resolution 1187, adopted by the ITU Council at its 2001 session, on a gender perspective in ITU human resources management, policy and practice, which requests the Secretary-General to allocate appropriate resources, within existing budgetary limits, to establish a gender unit with full-time dedicated staff;
- f)* Resolution 1327, adopted by the Council at its 2011 session, on ITU's role in ICTs and the empowerment of women and girls;

- g) that the Secretary-General has issued an updated ITU English Language Style Guide, which addresses the use of non-discriminatory language;
- h) that ITU, in its strategic plan, includes gender issues with a view to debating and exchanging ideas to define, throughout the organization, a concrete action plan with deadlines and goals;
- i) the ITU-UN Women Gender Equality and Mainstreaming – Technology (GEM-TECH) awards, which celebrate exceptional personal or institutional achievement and innovative strategies that harness ICTs for women's empowerment;
- j) the recommendation in the 2016 United Nations Joint Inspection Unit report that the "Secretary-General present to the Council for endorsement at its 2017 session an action plan to complement the Gender Equality and Mainstreaming Policy, with specific targets, indicative timelines and monitoring measures to improve gender balance, especially at senior management levels, within each component of the Union, and report annually to the Council on its implementation",

recalling

- a) that a fundamental principle of the United Nations Charter adopted by world leaders in 1945 is "equal rights of men and women";
- b) United Nations Economic and Social Council (ECOSOC) Resolution E/2012/L.8, on mainstreaming a gender perspective into all policies and programmes in the United Nations system, which welcomed the development of the UN System-Wide Action Plan on Gender Equality and the Empowerment of Women (UNSWAP), and the 60th session of the UN Commission on the Status of Women (March, 2016), which stressed the need to ensure women's full, equal and effective participation in all fields, and leadership at all levels of decision-making in the public and private sectors, and public, social, economic and political life;
- c) the United Nations HeForShe initiative (2014) to involve men and boys in the promotion of gender equality,

recognizing

- a) that society as a whole, particularly in the context of the information and knowledge society, will benefit from equal participation of women and men in policy-making and decision-making and from equal access to communication services for both women and men;
- b) that the outcome document of the overall review of the World Summit on the Information Society (WSIS) acknowledged that a gender digital divide exists, called for immediate measures to achieve gender equality in Internet users by 2020, especially by significantly enhancing women's and girls' education and participation in ICTs, as users, content creators, employees, entrepreneurs, innovators and leaders, and reaffirmed a commitment to ensure women's full participation in decision-making processes related to ICTs;
- c) that enhancing women's and girls' education and their participation in ICTs also contributes to the achievement of Sustainable Development Goal 5: Achieve gender equity and empower all women and girls;
- d) the 2013 report of the Working Group on Broadband and Gender of the Broadband Commission for Sustainable Development: Doubling Digital Opportunities – Enhancing the inclusion of women and girls in the information society,

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 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 UN Women 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.

RESOLUTION 58 (Rev. Dubai, 2012)

Encouraging the creation of national computer incident response teams, particularly for developing countries¹

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

that Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference instructs the Secretary-General and the Directors of the three Bureaux to work closely with each other in pursuing initiatives that assist in bridging the standardization gap between developing and developed countries,

recognizing

- a)* the highly satisfactory results obtained by the regional approach within the framework of Resolution 54 (Rev. Dubai, 2012) of this assembly;
- b)* the increasing level of computer use and computer dependency in information and communication technologies (ICT) within developing countries;
- c)* the increasing attacks and threat on ICT networks through computers;
- d)* the work carried out by the ITU Telecommunication Development Sector (ITU-D) under Question 22/1 of ITU-D Study Group 1 on this subject,

noting

- a)* that there is still a low level of computer emergency preparedness within many countries, particularly developing countries;
- b)* that the high level of interconnectivity of ICT networks could be affected by the launch of an attack from networks of the less-prepared nations, which are mostly the developing countries;
- c)* the importance of having an appropriate level of computer emergency preparedness in all countries;
- d)* the need for establishment of computer incident response teams (CIRTs) on a national basis and the importance of coordination within and among the regions,
- e)* the work of Study Group 17 of the ITU Telecommunication Standardization Sector (ITU-T) in the area of national CIRTs, particularly for developing countries, and cooperation between them, as contained in the outputs of the study group,

bearing in mind

that well-functioning CIRTs in developing countries will serve to improve the level of developing countries' participation in world computer emergency response activities and contribute to achieving an effective global ICT infrastructure,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 59 (Rev. Dubai, 2012)

Enhancing participation of telecommunication operators from developing countries¹

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recognizing

- a)* that the participation by operators from developing countries in standardization activities is weak;
- b)* that the majority of these operators are subsidiaries of developed countries' telecommunication companies which are Sector Members;
- c)* that the strategic objectives of Sector Members from developed countries participating in activities of the ITU Telecommunication Standardization Sector (ITU-T) do not necessarily include the participation of their subsidiary entities;
- d)* that those developing countries' telecommunication operators are placing particular emphasis on information and communication technology (ICT) operation and infrastructure deployment, to the disadvantage of standardization activities;
- e)* that the Plenipotentiary Conference adopted Resolution 170 (Guadalajara, 2010), on the impact of ITU Recommendations on the activities of Sector Members,

taking into account

the strategic plan of the Union adopted in both Resolution 71 (Rev. Guadalajara, 2010) and Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference,

considering

- a)* that developing countries would benefit from effective participation by their operators in ITU-T activities;
- b)* that this participation by the operators would contribute to enhancing capacity building in the developing countries, increase their competitiveness, and support innovation in the markets of developing countries,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 60 (Rev. Dubai, 2012)

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

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recognizing

- a)* Resolution 133 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, with regard to the continuing progress towards integration of telecommunications and the Internet;
- b)* Resolutions 101 and 102 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference;
- c)* the evolving role of the World Telecommunication Standardization Assembly, as reflected in Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference,

noting

- a)* the work in Study Group 2 of the ITU Telecommunication Standardization Sector (ITU-T), on investigating the evolutionary aspect of the numbering system, including the "future of numbering", considering next-generation networks (NGN) and future networks (FN) as the working environment of the numbering system in the future;
- b)* that the transition from traditional networks to IP-based networks is taking place at a fast pace, whilst there is a transition to NGN and FN;
- c)* the emerging issues concerning administrative control for international telecommunication service-based numbers;
- d)* the forthcoming issues concerning the convergence of numbering, naming, addressing and identification systems along with the development of NGN and FNs, and associated issues concerning security, signalling, portability and migration;
- e)* the growing demand for numbering/identification resources for communications referred to as machine-to-machine (M2M);
- f)* the need for principles and a roadmap for the evolution of international telecommunication resources, which would be expected to help the timely, predictable deployment of advanced identification technologies,

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.

RESOLUTION 61 (Rev. Dubai, 2012)

Countering and combating misappropriation and misuse of international telecommunication numbering resources

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recalling

- a)* Resolution 29 (Rev. Dubai, 2012) of this assembly, on alternative calling procedures on international telecommunication networks, which (citing ITU Council Resolution 1099) urged the ITU Telecommunication Standardization Sector (ITU-T) to develop, as soon as possible, the appropriate Recommendations concerning alternative calling procedures;
- b)* Recommendation ITU-T E.156, which sets out guidelines for ITU-T action on reported misuse of ITU-T E.164 numbering resources, and Recommendation ITU-T E.156 Supplement 1, which provides a best-practice guide on countering misuse of ITU-T E.164 numbering resources;
- c)* the purposes of the Union to foster collaboration among the membership for the harmonious development of telecommunications and to enable the offering of services at lowest cost,

noting

the significant number of cases reported to the Director of the Telecommunication Standardization Bureau (TSB) regarding misappropriation and misuse of ITU-T E.164 numbers,

recognizing

- a)* that the fraudulent misappropriation and misuse of national telephone numbers and country codes is harmful;
- b)* that the blocking of calls by barring the country code to a country in order to avoid fraud is harmful;
- c)* that inappropriate activities causing loss of revenue are an important issue to be studied;
- d)* relevant provisions of the ITU Constitution and Convention,

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.

ATTACHMENT
(to Resolution 61)

Suggested guidelines for regulators, administrations and operating agencies authorized by Member States for dealing with number misappropriation

In the interest of global development of international telecommunications, it is desirable for regulators, administrations and operating agencies authorized by Member States to cooperate with others and to take a collaborative and reasonable approach to avoid the blocking of country codes. Cooperation and subsequent actions would have to take account of the constraints of national regulatory frameworks and laws. It is recommended that the following guidelines be applied in country X (the location of the calling party), country Y (the country through which the call is routed) and country Z (the country to which the call was originally destined) regarding number misappropriation.

Country X (location of call origination)	Country Y (country through which the call is routed)	Country Z (country to which the call was originally destined)
		On receipt of a complaint, the national regulator finds the information: name of the carrier from which the call originated, time of the call and called number, and passes this information to the national regulator in country X.
When a complaint is received, the first information that is required is the name of the carrier from which the call originated, the time of the call and the called number.		
Once the call details are known, the national regulator requests relevant information from the carrier from which the call originated, to determine the next carrier through which the call was routed.		
Once the relevant information has been found, the national regulator is to advise the national regulator of the next country of the call details (including the call detail record) and request the national regulator to request further information.	The national regulator asks the other carriers for relevant information. This process continues until the information on where the call was misappropriated is found.	
Cooperation from national regulators, as appropriate, to manage these issues.	Cooperation is required from entities involved, to attempt to bring a criminal case against the perpetrators.	Cooperation is encouraged between and among national regulators involved, to resolve these issues.

RESOLUTION 62 (Rev. Dubai, 2012)

Dispute settlement

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

- a) that Internet penetration rates remain low in developing countries¹, in particular in comparison with the penetration rates of mobile telephony, and that the growth rates of Internet penetration in developing countries are also very low when compared with the growth rates of mobile telephony;
- b) the increasing imbalance under the current circumstances between developed and developing countries, in terms of economic growth and technological progress;
- c) that numerous explanations have been put forward to explain the phenomena mentioned above,

recognizing

- a) that the continuing social and economic underdevelopment of a large part of the world is one of the most serious problems affecting not only the countries concerned, but also the international community as a whole;
- b) that the development of telecommunication/information and communication technologies infrastructure and services is a precondition for social and economic development;
- c) that the uneven access to telecommunication facilities globally results in a widening of the gap between the developed and the developing world in terms of economic growth and technological progress;
- d) that many countries have agreed to the dispute settlement clause for interconnection in the World Trade Organization reference paper on the principles and definitions on the regulatory framework for the basic telecommunication services,

noting

the contribution from Study Group 3 of the ITU Telecommunication Standardization Sector (ITU-T) to the second meeting of the Internet Governance Forum;

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,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 64 (Rev. Hammamet, 2016)

Internet protocol address allocation and facilitating the transition to and deployment of IPv6

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a) Resolutions 101 (Rev. Busan, 2014), 102 (Rev. Busan, 2014) and 180 (Rev. Busan, 2014) of the Plenipotentiary Conference, and Resolution 63 (Rev. Dubai, 2014) of the World Telecommunication Development Conference;
- b) that the exhaustion of IPv4 addresses calls for acceleration of IPv4 to IPv6 migration, which becomes an important issue for Member States and Sector Members;
- c) the result of the ITU IPv6 Group, which has carried out the work that was assigned to it;
- d) that future work on IPv6 human capacity building is to be continued and led by the Telecommunication Development Bureau (BDT), in collaboration with other relevant organizations, if required,

noting

- a) that Internet protocol (IP) addresses are fundamental resources that are essential for the future development of IP-based telecommunication/information and communication technology (ICT) networks and for the world economy;
- b) that many countries believe that there are historical imbalances related to IPv4 allocation;
- c) that large contiguous blocks of IPv4 addresses are becoming scarce and that it is urgent to promote migration to IPv6;
- d) the ongoing collaboration and coordination between ITU and relevant organizations on IPv6 capacity building in order to respond to the needs of Member States and Sector Members;
- e) the progress towards adoption of IPv6 that has been made over the last few years,

considering

- a) that, among the relevant stakeholders in the Internet community, there is a need to continue discussions related to IPv6 deployment and disseminate information in this regard;
- b) that IPv6 deployment and migration is an important issue for Member States and Sector Members;
- c) that many developing countries¹ are still facing challenges in the IPv4 to IPv6 transition process, including due to the limited technical skills in this area;
- d) that there are Member States with sufficient technical skills in IPv6 that are nevertheless encountering a delay in the IPv4 to IPv6 transition due to various reasons;
- e) that Member States have an important role to play in promoting the deployment of IPv6;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- f) that prompt deployment of IPv6 is increasingly urgent on account of the rapid rate of depletion of IPv4 addresses;
- g) that many developing countries want the Telecommunication Standardization Sector (ITU-T) to become a registry of IP addresses in order to give the developing countries the option of obtaining IP addresses directly from ITU, while other countries prefer to use the current system;
- h) that deployment of IPv6 facilitates Internet of things (IoT) solutions, which require a huge amount of IP addresses;
- i) that new communication infrastructure such as 4G/LTE and 5G networks will require IPv6 support for better communication,

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 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 network equipment, computer equipment and software have 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.

RESOLUTION 65 (Rev. Hammamet, 2016)

Calling party number delivery, calling line identification and origin identification information

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

concerned

- a)* that there appears to be a trend to suppress the transmission across international boundaries of calling party number (CPN), calling line identification (CLI) and origin identification (OI) information, in particular the country code and the national destination code;
- b)* that such practices have an unfavourable effect on security and economic issues, in particular for developing countries¹;
- c)* about the significant number of cases reported to the Director of the Telecommunication Standardization Bureau (TSB) on ITU-T E.164 numbering misappropriation and misuse related to CPN non-delivery or spoofing;
- d)* that work on this topic in Study Group 2 of the ITU Telecommunication Standardization Sector (ITU-T) needs to be expedited and expanded to cater for the changing environment of service delivery and network infrastructures, including next-generation networks (NGN) and future networks (FN),

noting

- a)* relevant ITU-T Recommendations, in particular:
 - i)* ITU-T E.156: Guidelines for ITU-T action on reported misuse of ITU-T E.164 number resources;
 - ii)* ITU-T E.157: International calling party number delivery;
 - iii)* ITU-T E.164: The international public telecommunication numbering plan;
 - iv)* ITU-T I.251.3: Number identification supplementary services: Calling Line Identification Presentation;
 - v)* ITU-T I.251.4: Number identification supplementary services: Calling Line Identification Restriction;
 - vi)* ITU-T I.251.7: Number identification supplementary services: Malicious call identification;
 - vii)* ITU-T Q.731.x-series, concerning stage 3 descriptions for number identification supplementary services using Signalling System No. 7;
 - viii)* ITU-T Q.731.7: Stage 3 description for number identification supplementary services using Signalling System No. 7: Malicious call identification (MCID);
 - ix)* ITU-T Q.764: Signalling System No. 7 – ISDN User Part signalling procedures;
 - x)* ITU-T Q.1912.5: Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control protocol or ISDN User Part;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- b) relevant resolutions:
- i) Resolution 61 (Rev. Dubai, 2012) of the World Telecommunication Standardization Assembly, on misappropriation and misuse of international telecommunication numbering resources;
 - ii) Resolution 21 (Rev. Busan, 2014) of the Plenipotentiary Conference, on measures concerning alternative calling procedures on international telecommunication networks;
 - iii) Resolution 29 (Rev. Hammamet, 2016) of this assembly, on alternative calling procedures on international telecommunication networks;
- c) No. 31B (Article 3.6) of the International Telecommunication Regulations (Dubai, 2012) (ITR) regarding the provision of international CLI by the signatory Member States to the ITR,

noting further

that some countries and regions have adopted national laws, directives and recommendations regarding CPN non-delivery and spoofing, and/or on ensuring confidence in OI, and that some countries have national data-protection and data-privacy laws, directives and recommendations,

reaffirming

that it is the sovereign right of each country to regulate its telecommunications and, as such, regulate the provision of CLI, CPN delivery and OI information, taking into account the Preamble to the ITU Constitution and the relevant provisions of the ITR related to identification information provision of CLI,

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.

RESOLUTION 66 (Rev. Dubai, 2012)

Technology Watch in the Telecommunication Standardization Bureau

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

- a) that it is desirable for the Telecommunication Standardization Bureau (TSB) to survey new technologies for possible new standardization activities in ITU and to identify how such new technologies can be included within the ITU-T Telecommunication Standardization Sector (ITU-T) work programme;
- b) that Technology Watch identifies emerging technologies, as well as their likely impact on future standardization work for both developed and developing countries¹, with a view to identifying work items for possible new ITU-T Recommendations;
- c) that the rapid change of the telecommunication/information and communication technology (ICT) environment requires related technology watch and immediate reaction, in order to propose possible ITU-T standardization activities as early as possible;
- d) that telecommunications/ICTs are enabling applications and services in other economic sectors;
- e) that these developments and how they relate to the ITU-T work programme need to be surveyed and assessed;
- f) that Technology Watch collaborates with the ITU-T membership, standards development organizations recognized by ITU, universities, academia and other related institutions,

recognizing

the encouraging results of Technology Watch in the last cycles,

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.

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

RESOLUTION 67 (Rev. Hammamet, 2016)

Use in the ITU Telecommunication Standardization Sector of the languages of the Union on an equal footing

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a)* the adoption by the Plenipotentiary Conference of Resolution 154 (Rev. Busan, 2014), on the use of the six official languages of the Union on an equal footing, which instructs the ITU Council and the General Secretariat on how to achieve equal treatment of the six languages;
- b)* Resolution 1372 of the Council, as revised at its 2016 session, which notes the work accomplished by the ITU Radiocommunication Sector (ITU-R) Coordination Committee for Vocabulary (CCV) and the ITU Telecommunication Standardization Sector (ITU-T) Standardization Committee for Vocabulary (SCV) on the adoption and agreement of terms and definitions in the field of telecommunications/information and communication technologies (ICT) in all six official languages of the Union;
- c)* the decisions of the Council centralizing the editing functions for languages in the General Secretariat (Conferences and Publications Department), calling upon the Sectors to provide the final texts in English only (this applies also to terms and definitions),

considering

- a)* that under Resolution 154 (Rev. Busan, 2014), the Council is instructed to continue the work of the Council Working Group on Languages (CWG-LANG), in order to monitor progress and report to the Council on the implementation of that resolution;
- b)* the importance of providing information in all the official languages of the Union on an equal footing on ITU-T webpages,

noting

that SCV was established in accordance with Resolution 67 (Johannesburg, 2008) of the World Telecommunication Standardization Assembly (WTSA), on the initiation of SCV,

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 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.

ANNEX
(to Resolution 67 (Rev. Hammamet, 2016))

Terms of reference for the Standardization Committee for Vocabulary

- 1** To provide consultation on terms and definitions for vocabulary work for ITU-T in the six languages, in close collaboration with the General Secretariat (Conferences and Publications Department), the TSB editor for the English language as well as the relevant study group rapporteurs for vocabulary, and to seek harmonization among all ITU-T study groups concerned regarding terms and definitions.
- 2** To liaise with CCV and other organizations dealing with vocabulary work in the telecommunication field, for example the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) as well as the ISO/IEC Joint Technical Committee for Information Technology (JTC 1), in order to eliminate duplication of terms and definitions.
- 3** To inform TSAG at least once per year of its activities and to report its results to the next WTSA.

RESOLUTION 68 (Rev. Hammamet, 2016)

Evolving role of industry in the ITU Telecommunication Standardization Sector

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a)* that Resolution 122 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, on the evolving role of the World Telecommunication Standardization Assembly (WTSA), called also for the organization of the Global Standards Symposium (GSS);
- b)* the objective of Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference, on bridging the standardization gap between developed and developing countries¹;
- c)* that the ITU Telecommunication Standardization Sector (ITU-T) is a unique international standardization organization comprising 193 Member States, and over 520 Sector Members, Associates and academia from all over the world;
- d)* the important conclusions of GSS (Dubai, 2012), covering the two above-mentioned resolutions, in particular:
 - to facilitate an exchange of views with high-level industry representatives on the standardization scenario and consider in ITU's work the evolution of the industry and user needs; and
 - to carry out this work without affecting either the unique status of ITU as an intergovernmental United Nations agency that also incorporates other entities representing the private sector, the industry and the users, among others, or the traditional contribution-driven working procedures of ITU-T;
- e)* that since 2009 the Director of the Telecommunication Standardization Bureau (TSB) has organized six meetings of high-level, private-sector executives to discuss the standardization landscape, identifying and coordinating standards priorities and ways to best address the needs of the private sector;
- f)* that conclusions of chief technology officer (CTO) meetings have been reflected in official ITU-T communiqués and, when relevant, have been taken into account by the Telecommunication Standardization Advisory group (TSAG),

considering

- a)* that developing countries participate in the standardization activities almost only of ITU-T, and may not be able to participate in the increasingly fragmented global and/or regional standards development organizations (SDOs), as well as industry forums and consortia, or attend their meetings;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

b) that ITU-T should continue to strengthen its role and evolve, as required by Resolution 122 (Rev. Guadalajara, 2010), and should repeat the gathering of private-sector executives, along the lines of GSS, but limited to the private sector, with the objective of strengthening the role of ITU-T by taking appropriate measures to respond to the needs of such executives in terms of their identified requirements and priorities for standardization activities within ITU-T, also taking into consideration the needs and concerns of developing countries;

c) that ITU-T should also encourage cooperation with other relevant SDOs,

noting

a) that, in order to encourage industry participation in ITU-T, standards-making in ITU-T should respond appropriately to the needs of the information and communication technology industry in a coordinated way;

b) that an essential part of the work in the development of technical standards (ITU-T Recommendations) is done by representatives of the information and communication technology industry;

c) that Recommendations proposed in response to those coordinated needs will increase ITU's credibility and will respond to the needs of countries by deploying optimized technical solutions and reducing the proliferation of such solutions, which will also have economic advantages for developing countries;

d) that TSAG has recognized the need for a strategy function in ITU-T and that the input of industry into that strategy is highly desired;

e) that TSB also organizes CxO meetings (executive meetings),

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.

RESOLUTION 69 (Rev. Hammamet, 2016)

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

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

that one of the purposes of ITU laid down in Article 1 of the ITU Constitution is "to maintain and extend international cooperation among all its Member States for the improvement and rational use of telecommunications of all kinds",

considering further

- a)* the outcome documents of the World Summit on the Information Society (WSIS), Geneva 2003 and Tunis 2005, including the WSIS Declaration of Principles, especially §§ 11, 19, 20, 21 and 49 thereof;
- b)* the United Nations Human Rights Council resolution on the promotion, protection and enjoyment of human rights on the Internet (A/HRC/20/L.13);
- c)* Resolution 20 (Rev. Hyderabad, 2010) of the World Telecommunication Development Conference;
- d)* Resolution 102 (Rev. Busan, 2014) of the Plenipotentiary Conference;
- e)* Resolution 64 (Rev. Busan, 2014) of the Plenipotentiary Conference;
- f)* United Nations General Assembly (UNGA) Resolution 70/125, on the outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the WSIS outcomes;
- g)* the WSIS+10 High-Level Event outcomes (Geneva, 2014), which were submitted as an input into the overall review of WSIS by UNGA, especially those related to transfer of know-how and technology and to non-discriminatory access, within the framework of the required activities in this regard,

noting

that § 48 of the WSIS Declaration of Principles recognized that: "The Internet has evolved into a global facility available to the public and its governance should constitute a core issue of the information society agenda. The international management of the Internet should be multilateral, transparent and democratic, with the full involvement of governments, the private sector, civil society and international organizations. It should ensure an equitable distribution of resources, facilitate access for all and ensure a stable and secure functioning of the Internet, taking into account multilingualism",

recognizing

- a)* that the second phase of WSIS (Tunis, November 2005) identified ITU as the possible moderator/facilitator for the following WSIS action lines from the Plan of Action: C2 (Information and communication infrastructure) and C5 (Building confidence and security in use of ICTs);
- b)* that the Plenipotentiary Conference (Busan, 2014) entrusted the ITU Telecommunication Standardization Sector (ITU-T) with a range of activities aimed at implementing the WSIS (Tunis, 2005) outcomes, a number of those activities having to do with Internet-related issues;

- c) Resolution 102 (Rev. Busan, 2014), on 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;
- d) that management of the registration and allocation of Internet domain names and addresses must fully reflect the geographical nature of the Internet, taking into account an equitable balance of interests of all stakeholders;
- e) Resolution 64 (Rev. Busan, 2014), on non-discriminatory access to modern telecommunication/information and communication technology (ICT) facilities, services and applications, including applied research and transfer of technology, on mutually agreed terms;
- f) Resolution 20 (Rev. Hyderabad, 2010), on non-discriminatory access to telecommunication/ICT facilities, services and related applications;
- g) Opinion 1 of the fourth World Telecommunication/ICT Policy Forum, on Internet-related public policy matters, and the Lisbon Consensus 2009 on the same matters,

taking into account

- a) that ITU-T is dealing with technical and policy issues related to Internet protocol (IP)-based networks, including the Internet and next-generation networks;
- b) that a number of the resolutions of this assembly deal with Internet-related issues;
- c) the global and open nature of the Internet as a driving force in accelerating progress towards development in its various forms;
- d) that discrimination in accessing the Internet could greatly affect the developing countries¹;
- e) that ITU-T is playing a key role in bridging standardization gap between developed and developing countries,

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,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 70 (Rev. Hammamet, 2016)

Telecommunication/information and communication technology accessibility for persons with disabilities and persons with specific needs

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a)* Resolution 175 (Rev. Busan, 2014) of the Plenipotentiary Conference, on telecommunication/information and communication technology (ICT) accessibility for persons with disabilities, including age-related disabilities and persons with specific needs;
- b)* Resolution 58 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on telecommunication/ICT accessibility for persons with disabilities, including persons with age-related disabilities, and WTDC Resolution 17 (Rev. Dubai, 2014), on implementation of regionally approved initiatives at the national, regional, interregional and global levels;
- c)* the mandate of and work carried by the Joint Coordination Activity on Accessibility and Human Factors (JCA-AHF), and in particular ITU Telecommunication Standardization Sector (ITU-T) actions to increase cooperation with other United Nations organizations and activities, as well as all United Nations specialized agencies, in order to raise awareness about ICT accessibility in the framework of standardization, and ITU-T actions aimed at upholding JCA-AHF;
- d)* studies under ITU-T Question 24/16, on human factors-related issues for improvement of quality of life through international telecommunications, recognizing the need to inclusion of human factors in Recommendations and technical papers;
- e)* studies under ITU-T Question 26/16, on accessibility to multimedia systems and services, including the recent Recommendation ITU-T F.790 on telecommunication accessibility guidelines for older persons and persons with disabilities;
- f)* studies under Question 7/1 of the ITU Telecommunication Development Sector (ITU-D), on access to telecommunication/ICT services by persons with disabilities and with specific needs;
- g)* ongoing work in the ITU Radiocommunication Sector (ITU-R) in accordance with Resolution ITU-R 67 (Geneva, 2015) of the Radiocommunication Assembly (RA), on telecommunication/ICT accessibility for persons with disabilities and persons with specific needs;
- h)* the publication by the Telecommunication Standardization Advisory Group (TSAG) of the guide for ITU study groups: Considering end-user needs in developing Recommendations;
- i)* the mandate of JCA-AHF for the purposes of awareness-raising, advice, assistance, collaboration, coordination and networking;

j) the activity carried out by the Internet Governance Forum (IGF) Dynamic Coalition on Accessibility and Disability (DCAD) sponsored by the Director of the Telecommunication Standardization Bureau (TSB), and the partnership between ITU-T and DCAD for the purposes of maximizing the benefits for all sectors of the global community of electronic communications and online information through the Internet;

k) the activity carried out by the Council Working Group on international Internet-related public policy issues (CWG-Internet) on issues related to access to the Internet for persons with disabilities and specific needs,

considering

a) that the World Health Organization estimates that more than one billion of the world's population live with some form of disability, of whom almost 200 million experience considerable difficulty in their daily lives, and it is to be expected that, in the future, disabilities will rise because of the increasing population of older persons and the risk that disability is greater among older persons;

b) that the United Nations has moved from a health and welfare perspective to an approach based on human rights, which recognizes that persons with disabilities are people first, and that society places barriers upon them as opposed to their disabilities, and which includes the goal of full participation in society by persons with disabilities (Resolution 175 (Rev. Busan, 2014));

c) that maximizing the accessibility and usability of telecommunication/ICT services, products and terminals through universal design will increase their uptake by all persons, including persons with disabilities and older persons, and thereby increase revenues;

d) that United Nations General Assembly (UNGA) Resolution 61/106 adopting the Convention on the rights of persons with disabilities requests the Secretary-General (§ 5) "... to implement progressively standards and guidelines for the accessibility of facilities and services of the United Nations system, taking into account relevant provisions of the Convention, in particular when undertaking renovations";

e) the importance of cooperation between governments, the private sector and relevant organizations to promote affordable access possibilities;

f) the RA resolution on telecommunication/ICT accessibility for persons with disabilities and persons with specific needs,

recalling

a) § 18 of the Tunis Commitment, made at the second phase of the World Summit on the Information Society (Tunis, 2005): "We shall strive unremittingly, therefore, to promote universal, ubiquitous, equitable and affordable access to ICTs, including universal design and assistive technologies, for all people, especially those with disabilities, everywhere, to ensure that the benefits are more evenly distributed between and within societies, ..."¹;

b) the Phuket Declaration on Tsunami Preparedness for Persons with Disabilities (Phuket, 2007), which emphasizes the need for inclusive emergency warning and disaster management systems using telecommunication/ICT facilities based on open, non-proprietary, global standards;

c) Article 12 of the International Telecommunication Regulations,

¹ Geneva Declaration of Principles §§ 13 and 30; Geneva Plan of Action §§ 9 (e) and (f), 12 and 23; Tunis Commitment §§ 18 and 20; Tunis Agenda for the Information Society §§ 90 (c) and (e).

taking into account

- a) Resolution 44 (Rev. Hammamet, 2016) of this assembly, on bridging the standardization gap between developing and developed countries, and Resolution 18 (Rev. Hammamet, 2016) of this assembly, on strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest;
- b) Resolution GSC-17/26 (revised), on user needs, considerations and involvement, agreed upon at the 17th Global Standards Collaboration meeting (Jeju, Republic of Korea, 2013);
- c) publications of the Special Working Group on Accessibility (ISO/IEC JTC 1 SWG – Accessibility) of the Joint Technical Committee on Information Technology (JTC 1) of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), as well as the Mandate 376 project teams, identifying user needs and developing a comprehensive inventory of existing standards as part of the ongoing effort to identify areas where research or new standards work is needed;
- d) the activities of ITU-T Study Group 16 (Multimedia coding, systems and applications), which is the lead study group on telecommunication/ICT accessibility for persons with disabilities, and ITU-T Study Group 2 (Operational aspects of service provision and telecommunication management) for the part relating to human factors;
- e) activities relating to the development of new standards (e.g. ISO TC 159, JTC 1 SC35, IEC TC100, ETSI TC HF, and W3C WAI), and the implementation and maintenance of existing standards (e.g. ISO 9241-171);
- f) the joint efforts of ITU and the Global Initiative for Inclusive ICTs (G3ICT), including the development of the Model ICT accessibility policy;
- g) the Model ICT accessibility policy report (November, 2014), the release of the report "Making TV accessible", on the occasion of the International Day of Persons with Disabilities (3 December 2011), the report on "Making Mobile Phones and Services Accessible to Persons with Disabilities" (August, 2012), and the e-Accessibility Policy Toolkit for Persons with Disabilities (February, 2010);
- h) various international, regional and national efforts to develop or revise guidelines and standards for telecommunication/ICT accessibility, compatibility and usability by persons with disabilities,

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-T 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,

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;
- 8 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 the guide on a regular basis, based on contributions from Member States and Sector Members as well as the ITU-T study groups, as appropriate,

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 services², 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-R, ITU-T 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.

² Telecommunication relay services enable users of different modes of communication (e.g. text, sign, speech) to interact by providing convergence between the modes of communication, usually through human operators.

RESOLUTION 72 (Rev. Hammamet, 2016)

Measurement and assessment concerns related to human exposure to electromagnetic fields

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* the importance of telecommunications and information and communication technologies (ICT) for political, economic, social and cultural progress;
- b)* that, in the framework of telecommunications/ICTs to help bridge the digital divide between developed and developing countries¹, a significant part of the infrastructure needed involves various wireless technologies and the installation of base stations in the appropriate measure to ensure quality of service;
- c)* that there is a need to inform the public of levels of electromagnetic fields (EMF) and safety limits as well as the potential effects of EMF exposure;
- d)* that an enormous amount of research has been carried out regarding wireless systems and health, and many independent expert committees have reviewed this research;
- e)* that the International Commission on Non-Ionizing Radiation Protection (ICNIRP), the International Electrotechnical Commission (IEC) and the Institute of Electrical and Electronics Engineers (IEEE) are three among a number of pre-eminent international bodies in establishing measurement methodologies for assessing human exposure to EMF, and they already cooperate with many standards bodies and industry forums;
- f)* that the World Health Organization (WHO) has issued fact sheets regarding EMF issues, including mobile terminals, base stations and wireless networks, referencing ICNIRP standards;
- g)* Resolution 176 (Rev. Busan, 2014) of the Plenipotentiary Conference, on human exposure to and measurement of EMF;
- h)* Resolution 62 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, on measurement concerns related to human exposure to EMF,

recognizing

- a)* the work done within ITU Radiocommunication Sector (ITU-R) study groups on radiowave propagation, electromagnetic compatibility (EMC) and related aspects, including measurement methods;
- b)* the work done within Study Group 5 of the ITU Telecommunication Standardization Sector (ITU-T) on techniques for taking radio-frequency (RF) measurements and assessment;
- c)* that Study Group 5, in establishing methodologies for assessing human exposure to RF energy, cooperates with many participating standards organizations (PSOs);

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- d) that the ITU EMF Guide, in its digital version, also available in a mobile-phone application, is updated as ITU and/or WHO receive information and/or results of research;
- e) that the Focus Group on smart sustainable cities, established within ITU-T Study Group 5, has published a technical report on EMF considerations in smart sustainable cities,

recognizing further

- a) that some publications about EMF effects on health create doubt among the population, increasing the perception of the risk they involve;
- b) that, in the absence of regulation and accurate, complete information, people become concerned about long-term exposure to EMF, due to their perception of risk, and are likely to oppose the deployment of radio installations in their neighbourhoods, demanding the enactment of restrictive municipal rules that affect the deployment of wireless networks;
- c) that Study Group 5, in particular, has elaborated Recommendations on the technical measurement of EMF that help to diminish risk perception within the population;
- d) that the development of these Recommendations has made it possible to significantly decrease the cost of measurement equipment and to leverage the results through social communication;
- e) that the cost of the advanced equipment used for assessing human exposure to RF energy is high, and that it may only be affordable in developed countries;
- f) that implementing such measurement and assessment is essential for many regulatory authorities, in particular in developing countries, in order to monitor the limits for human exposure to RF energy, and that they are called upon to ensure those limits are met in order to license different services;
- g) the importance of EMF emission assessment when implementing policies in some countries,

noting

- a) the similar activities carried out by other national, regional and international standards development organizations (SDOs);
- b) the urgent need for regulatory bodies in many developing countries to obtain information on EMF measurement and assessment methodologies in regard to human exposure to RF energy, in order to establish or reinforce national regulations to protect their citizens,

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 of Study Group 5 by providing relevant and timely information, in order to assist developing countries in providing information and addressing measurement and assessment concerns related to human 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.

RESOLUTION 73 (Rev. Hammamet, 2016)

Information and communication technologies, environment and climate change

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 66 (Rev. Dubai 2014) of the World Telecommunication Development Conference, on information and communication technologies (ICT) and climate change;
- b)* Resolution 70/1 of the United Nations General Assembly, on transforming our world: the 2030 Agenda for Sustainable Development;
- c)* Resolution 1307 (Geneva, 2009) of the ITU Council, on ICTs and climate change;
- d)* Resolution 182 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the role of telecommunications/ICTs in regard to climate change and the protection of the environment;
- e)* Resolution 1353 (Geneva, 2012) of the Council, which recognizes that telecommunications and ICTs are essential components for developed and developing countries¹ in achieving sustainable development, and instructs the Secretary-General, in collaboration with the Directors of the Bureaux, to identify new activities to be undertaken by ITU to support developing countries in achieving sustainable development through telecommunications and ICTs,

considering

- a)* that the issue of the environment, including climate change, is rapidly emerging as a global concern and requires global collaboration;
- b)* that the United Nations Intergovernmental Panel on Climate Change (IPCC) estimated that global greenhouse gas (GHG) emissions had risen by more than 70 per cent since 1970, having an effect on global warming, changing weather patterns, rising sea levels, desertification, shrinking ice cover and other long-term effects;
- c)* that ITU, at the United Nations Conference on Climate Change in Bali, Indonesia, on 3-14 December 2007, highlighted the role of ICTs as both a contributor to climate change, and an important element in tackling the challenge;
- d)* the work being undertaken following agreements in respect of the Bali Roadmap, Cancun Agreements and Durban Platform, and the importance of reaching international agreement on an effective post-2012 outcome;
- e)* the role that ICTs and ITU can play in contributing to the implementation of such agreements;
- f)* the importance of promoting sustainable development and the ways in which ICTs can enable clean development;
- g)* the initiatives taken in some regions;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

h) that the e-waste Africa programme under the Basel Convention (Annexes VIII and IX) is a comprehensive programme initiative aiming to enhance the environmental governance of e-waste and to create favourable social and economic conditions for partnerships and small businesses in the recycling sector in Africa,

considering also

a) ITU Telecommunication Standardization Sector (ITU-T) Technology Watch Briefing Report No. 3 (2007), which highlighted the issue of climate change and the role of ICTs;

b) in addition to the work in ITU-T, the ITU Radiocommunication Sector (ITU-R) and ITU Telecommunication Development Sector (ITU-D) initiatives in considering climate change and the role of ICTs;

c) that ITU Recommendations focusing on energy-saving systems and applications can play a critical role in the development of ICTs;

d) the leadership of ITU-R, in collaboration with the ITU membership, in identifying the necessary radio-frequency spectrum for climate monitoring and disaster prediction, detection and relief, including the establishment of cooperative arrangements with the World Meteorological Organization (WMO) in the field of remote-sensing applications;

e) the report entitled "Strategy for a climate-neutral United Nations", prepared by the Environment Management Group, and the endorsement by the Chief Executives Board (CEB) in October 2007 of the strategy committing the United Nations system to attain climate neutrality;

f) the standards development activities on ICTs and climate change by, for example, relevant ITU-T study groups in work related to ubiquitous sensor networks (USN), which allow the detection, storage, processing and integration of situational and environmental information gathered from sensor devices connected to telecommunication networks;

g) the outcomes of the symposia on ICTs and climate change;

h) the activities and outcomes of the Focus Group on ICTs and climate change from July 2008 to April 2009;

i) that ITU-T Study Group 5 has led development of relevant standards to facilitate low-carbon ICTs and promote the adoption of low-carbon ICTs in other industries;

j) the responsibilities of Study Group 5, as the lead study group for study of the ICT environmental aspects of electromagnetic phenomena and climate change, including design methodologies to reduce environmental effects, such as recycling related to ICT facilities, equipment, etc.;

k) the work in the Joint Coordination Activity on ICT and Climate Change (JCA-ICT&CC) under ITU-T Study Group 5,

considering further

a) the outcome document adopted by Rio+20, entitled "The Future We Want", reflecting the renewed commitment to advancing sustainable development and achieving environmental sustainability;

b) that the outcome document recognizes that ICTs are facilitating the flow of information between governments and the public, highlighting the need to continue working towards improved access to ICT, especially broadband networks and services, and to bridge the digital divide, recognizing the contribution of international cooperation in this regard;

c) that the Rio+20 conference has called for further mainstreaming of the three dimensions of sustainable development throughout the United Nations system, inviting UN specialized agencies to consider appropriate measures for integrating the social, economic and environmental dimensions across the UN system's operational activities and to support developing countries upon request to achieve sustainable development;

d) that this century will see a substantial majority of the world's population living in urban centres, as stated in the New Urban Agenda adopted by the United Nations Conference on Housing and Sustainable Urban Development in Quito in October 2016,

noting

a) that, in the report of the conclusions from the 2008 Global Standards Symposium (GSS), it was recognized that the ICT industry and its members can set an example by committing to specific programmes, with objectives, that reduce overall GHG emissions (e.g. the power consumption of ICT devices) and to ensuring that the expansion of the global communications network is done in an environmentally-friendly manner;

b) the outcomes of the conferences of the United Nations Framework Convention on Climate Change (UNFCCC);

c) the Dynamic Coalition on Internet and Climate Change;

d) that there are other international forums that are working on climate-change issues with which ITU should cooperate;

e) the outcomes of the Green Standards Weeks organized since 2011,

recognizing

a) that ICTs can make a substantial contribution to mitigating and adapting to the effects of climate change;

b) that ICTs play a vital role in tackling environmental challenges such as climate change, e-waste, deforestation, lack of access to energy, energy consumption and biodiversity, by supporting basic scientific research, which has helped to bring the issue of climate change into the public domain and to raise awareness of future challenges;

c) that a future high-bandwidth, lower-carbon information society offers a platform for economic, social and cultural development that is sustainable;

d) that the adverse effects of climate change may be uneven in their impact and may fall disproportionately on the most vulnerable countries, mainly the developing countries, given their limited capacity to adapt;

- e) that ICTs contribute approximately 2 to 2.5 per cent of GHG emissions, which may grow as ICTs become more widely available;
- f) that ICTs can, however, be a major mitigating factor in efforts to moderate climate change and to limit and ultimately reduce GHG emissions and energy consumption through, for example, the development and introduction of energy-efficient devices, applications and networks;
- g) that the use of ICTs as a key component of energy-efficient work methods could include the reduction of emissions through, for example, paperless meetings, virtual conferencing, teleworking, etc., which in turn would be beneficial in terms of reducing the need to travel;
- h) that, as an actual case study, the Virtual International Symposium on ICTs and Climate Change was co-organized by ITU and Korea Communications Commission (KCC);
- i) that ICTs are essential for climate monitoring, data gathering and rapid information transfer relating to risks of climate change, and that adequate telecommunication networks are essential in ensuring that communications reach people and the appropriate relief organizations;
- j) that ICTs, through the development of smart grids, can enable wider access to electricity, better management of energy distribution, in particular in developing countries, and full exploitation of renewable sources;
- k) that, since the energy consumption of the Internet, data centres and always-on connected devices will continue to grow, cloud computing is a critical enabling technology that can lead to energy efficiencies and accelerate the transition for countries and companies to a low-carbon economy;
- l) that climate change endangers the quality and availability of water and food, by causing severe storms, heatwaves, droughts and floods, while worsening the quality of air;
- m) that better water management using ICTs improves the overall efficiency of water use, leading to significant savings and more sustainable use of water resources;
- n) that the widespread use of electrical and electronic equipment (EEE) has raised public awareness of its positive effects, such as reduction of the digital divide, but also of the negative environmental and health effects associated with inefficient waste management of end-of-life electrical and electronic equipment (WEEE or e-waste),

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 world², 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;

² Kyoto, Japan, 15-16 April 2008; London, United Kingdom, 17-18 June 2008; Quito, Ecuador, 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; 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.

- 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-efficient³ 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;
- 3 to identify and promote best practices towards implementing environmentally-friendly policies and practices, and to share use cases and key success factors;

³ With respect to efficiency, promotion of efficient use of materials used in ICT devices and network elements should also be a consideration.

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.

RESOLUTION 74 (Rev. Dubai, 2012)

Admission of Sector Members¹ from developing countries in the work of the ITU Telecommunication Standardization Sector

(Johannesburg, 2008; Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recognizing

- a)* that Article 1 of ITU Constitution establishes that the Union will facilitate the worldwide telecommunication standardization process with a satisfactory quality of service, and will promote and enhance participation of entities and organizations in the activities of the Union and foster a fruitful cooperation and partnership between them and Member States for the fulfilment of the overall objectives as embodied in the purposes of the Union;
- b)* Resolution 71 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, on the strategic plan for the Union for 2012-2015;
- c)* the spirit of Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference, on bridging the standardization gap between developing and developed countries;
- d)* the objectives of Resolutions 44 and 54 (Rev. Dubai, 2012) of this assembly,

considering

- a)* that relevant entities or organizations from developing countries are interested in the standardization work of the ITU Telecommunication Standardization Sector (ITU-T), and would be willing to join if more favourable financial conditions existed for their participation in the work of ITU-T;
- b)* that the aforementioned entities or organizations could have a relevant role in research and development of new technologies, and that the participation of entities from developing countries in the work of ITU-T helps to bridge the standardization gap,

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).

¹ 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.

RESOLUTION 75 (Rev. Hammamet, 2016)

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

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* the relevant outcomes of both phases of the World Summit on the Information Society (WSIS);
- b)* United Nations General Assembly (UNGA) Resolution 70/1, on transforming our world: the 2030 Agenda for Sustainable Development;
- c)* UNGA Resolution 70/125, on the outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of WSIS outcomes;
- d)* the WSIS+10 Statement on the implementation of WSIS outcomes and WSIS+10 Vision for WSIS beyond 2015, adopted at the ITU-coordinated WSIS+10 High-Level Event (Geneva, 2014) and endorsed by the Plenipotentiary Conference (Busan, 2014), which was submitted as an input into the overall review of WSIS by UNGA;
- e)* the relevant resolutions and decisions related to the implementation of relevant outcomes of both phases of WSIS and to international Internet-related public policy issues adopted at the Plenipotentiary Conference (Busan, 2014) and the 2016 session of the ITU Council:
 - i)* Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the strategic plan for the Union for 2016-2019;
 - ii)* Resolution 101 (Rev. Busan, 2014) of the Plenipotentiary Conference, on Internet protocol (IP)-based networks;
 - iii)* Resolution 102 (Rev. Busan, 2014) of the Plenipotentiary Conference, on 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;
 - iv)* Resolution 130 (Rev. Busan, 2014) of the Plenipotentiary Conference, on strengthening the role of ITU in building confidence and security in the use of information and communication technologies (ICT);
 - v)* Resolution 131 (Rev. Busan, 2014) of the Plenipotentiary Conference, on measuring ICTs to build an integrating and inclusive information society;
 - vi)* Resolution 133 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the role of administrations of Member States in the management of internationalized (multilingual) domain names;
 - vii)* Resolution 139 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the use of telecommunications/ICT to bridge the digital divide and build an inclusive information society;
 - viii)* Resolution 140 (Rev. Busan, 2014) of the Plenipotentiary Conference, on ITU's role in implementing the outcomes of WSIS and in the overall review by UNGA of their implementation;

- ix) Resolution 178 (Guadalajara, 2010) of the Plenipotentiary Conference, on ITU's role in organizing the work on technical aspects of telecommunication networks to support the Internet;
 - x) Resolution 200 (Busan, 2014) of the Plenipotentiary Conference, on the Connect 2020 Agenda for global telecommunication/ICT development;
 - xi) the opinions of the World Telecommunication/ICT Policy Forum (Geneva, 2013),
- f)* the role of the ITU Telecommunication Standardization Sector (ITU-T) in ITU implementation of relevant WSIS outcomes, adaptation of ITU's role and development of telecommunication standards in building the information society, including ITU's lead facilitation role in the WSIS implementation process, as a moderator/facilitator for implementing Action Lines C2, C5 and C6 and participating with other stakeholders, as appropriate, in the implementation of Action Lines C1, C3, C4, C7, C8, C9 and C11 and all other relevant action lines and other WSIS outcomes, within the financial limits set by the Plenipotentiary Conference;
- g)* that, despite the previous decade's achievements in ICT connectivity, many forms of digital divide remain, both between and within countries, and between women and men, that need to be addressed through, among other actions, strengthened enabling policy environments and international cooperation to improve affordability, access, education, capacity building, multilingualism, cultural preservation, investment and appropriate financing, as well as measures to improve digital literacy and skills and to promote cultural diversity;
- h)* that the management of the Internet encompasses both technical and public policy issues and should involve all stakeholders and relevant intergovernmental and international organizations in accordance with §§ 35 *a)-e)* of the Tunis Agenda for the Information Society, as well as § 57 of the outcome document of the 2015 high-level meeting of the General Assembly on the overall review of the implementation of the WSIS outcomes,

considering further

- a)* that ITU has a pivotal role in providing a global perspective in regard to the information society;
- b)* that the Council Working Group on WSIS (WG-WSIS), in accordance with Resolution 140 (Rev. Busan, 2014) and Resolution 1332 adopted by the Council at its 2016 session, open to all the ITU membership, constitutes an effective mechanism for facilitating Member State inputs on ITU implementation of relevant WSIS outcomes and the 2030 Agenda for Sustainable Development;
- c)* that the Council Working Group on international Internet-related public policy issues (CWG-Internet), in accordance with Council Resolution 1336, open to Member States only, with open consultation of all stakeholders, was created in order to promote enhanced cooperation and to foster the participation of governments in addressing international Internet public policy issues;
- d)* that there is a perceived need to improve coordination, dissemination and interaction: (i) by avoiding duplication of efforts through focused coordination between ITU's relevant study groups that deal with international Internet public policy issues and technical aspects of telecommunication networks to support the Internet; (ii) by disseminating relevant international Internet public policy information to the ITU membership, the General Secretariat and the Bureaux; (iii) by promoting enhanced cooperation and technical-oriented interaction between ITU and other relevant international organizations and entities,

recognizing

- a) the commitment of ITU to implementing relevant WSIS outcomes and the WSIS Vision beyond 2015, as one of the most important goals for the Union;
- b) that the 2030 Agenda for Sustainable Development has substantial implications for the activities of ITU,

recognizing further

- a) that all governments should have an equal role and responsibility for international Internet governance and for ensuring the stability, security and continuity of the Internet, while also recognizing the need for development of public policy by governments in consultation with all stakeholders, as expressed in § 68 of the Tunis Agenda;
- b) that increased connectivity, innovation and access played a critical role in enabling progress on the Millennium Development Goals;
- c) the potential of ICTs to achieve the 2030 Agenda for Sustainable Development and other internationally agreed development goals;
- d) the need to promote greater participation and engagement in Internet governance discussions of governments, the private sector, civil society, international organizations, the technical and academic communities and all other relevant stakeholders from developing countries;
- e) the need for enhanced cooperation in the future, to enable governments, on an equal footing, to carry out their roles and responsibilities in international public policy issues pertaining to the Internet, but not in the day-to-day technical and operational matters that do not impact on international public policy issues, as expressed in § 69 of the Tunis Agenda;
- f) that, using relevant international organizations, such cooperation should include the development of globally applicable principles on public policy issues associated with the coordination and management of critical Internet resources, in which regard the organizations responsible for essential tasks associated with the Internet are called upon to contribute to creating an environment that facilitates this development of public policy principles, as expressed in § 70 of the Tunis Agenda;
- g) that the process towards enhanced cooperation, to be started by the United Nations Secretary-General, involving all relevant organizations by the end of the first quarter of 2006, will involve all stakeholders in their respective roles, will proceed as quickly as possible consistent with legal process and will be responsive to innovation; that relevant organizations should commence a process towards enhanced cooperation involving all stakeholders, proceeding as quickly as possible and responsive to innovation; and that the same relevant organizations shall be requested to provide annual performance reports, as expressed in §§ 69-71 of the Tunis Agenda;
- h) that various initiatives have been implemented and some progress has been made in relation to the process towards enhanced cooperation detailed in §§ 69 to 71 of the Tunis Agenda and that UNGA, in Resolution 70/125, called for continued dialogue and work on the implementation of enhanced cooperation, which is already under way in accordance with § 65 of that resolution,

taking into account

- a) Resolution 30 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on the role of the ITU Telecommunication Development Sector in implementing the WSIS outcomes;
- b) Resolution ITU-R 61 (Rev. Geneva, 2015) of the Radiocommunication Assembly, on ITU-R's contribution in implementing the WSIS outcomes;
- c) the programmes, activities and regional initiatives being carried out in accordance with the decisions of WTDC-14 for bridging the digital divide;
- d) the relevant work already accomplished and/or to be carried out by ITU under the guidance of WG-WSIS and CWG-Internet,

noting

- a) Council 2016 Resolution 1332, on ITU's role in the implementation of the WSIS outcomes, taking into account the 2030 Agenda for Sustainable Development;
- b) Council 2015 Resolution 1334, on ITU's role in the overall review of the implementation of the WSIS outcomes;
- c) Council 2015 Resolution 1344, on the modality of open consultation for CWG-Internet;
- d) Council 2016 Resolution 1336, on CWG-Internet,

noting further

that the ITU Secretary-General created the ITU WSIS Task Force, whose role is to formulate strategies and coordinate ITU's policies and activities in relation to WSIS, and that this Task Force is chaired by the Deputy Secretary-General, as noted by Council 2016 Resolution 1332,

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;
- 4 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 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.

RESOLUTION 76 (Rev. Hammamet, 2016)

Studies related to conformance and interoperability testing, assistance to developing countries¹, and a possible future ITU Mark programme

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* that Resolution 123 (Rev. Busan, 2014) of the Plenipotentiary Conference instructs the Secretary-General and the Directors of the three Bureaux to work closely with each other in order to step up actions intended to reduce the standardization gap between developing and developed countries;
- b)* that Resolution 200 (Busan, 2014) of the Plenipotentiary Conference endorses a shared global vision for the development of the telecommunication/information and communication technology (ICT) sector, under the agenda "Connect 2020", envisaging "*an information society, empowered by the interconnected world, where telecommunications/ICTs enable and accelerate social, economic and environmentally sustainable growth and development for everyone*";
- c)* that the progress towards achievement of the objectives and outcomes of the work of each Sector is reported, as elaborated within the strategic plan for the Union for 2016-2019 in Annex 2 to Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, contributing to the implementation of the 2030 Agenda for Sustainable Development;
- d)* that Article 17 of the ITU Constitution, while providing that the functions of the ITU Telecommunication Standardization Sector (ITU-T) shall fulfil the purposes of the Union relating to telecommunication standardization, stipulates that such functions are to be performed "bearing in mind the particular concerns of the developing countries";
- e)* the results achieved by ITU in implementing the Global Mobile Personal Communications by Satellite (GMPCS) Mark;
- f)* the efforts and outputs of the ITU-T Conformity Assessment Steering Committee (CASC) under the leadership of ITU-T Study Group 11;
- g)* Resolution 177 (Rev. Busan, 2014) of the Plenipotentiary Conference, on conformance and interoperability (C&I);
- h)* Resolution 197 (Busan, 2014) of the Plenipotentiary Conference, on facilitating the Internet of things (IoT) to prepare for a globally connected world;
- i)* Resolution 47 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on enhancement of knowledge and effective application of ITU Recommendations in developing countries, including C&I testing of systems manufactured on the basis of ITU Recommendations;
- j)* Resolution ITU-R 62 (Rev. Geneva, 2015) of the Radiocommunication Assembly, on studies related to testing for conformance with Recommendations of the ITU Radiocommunication Sector (ITU-R) and interoperability of radiocommunication equipment and systems,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

recognizing

- a) that interoperability of international telecommunication networks was the main reason for creating the International Telegraph Union in 1865, and that this remains one of the main goals in the ITU strategic plan;
- b) that emerging technologies have increasing requirements for C&I testing;
- c) that conformity assessment is the accepted way of demonstrating that a product adheres to an international standard, and continues to be important in the context of World Trade Organization members' international standardization commitments under the Agreement on Technical Barriers to Trade;
- d) that Recommendations ITU-T X.290 to ITU-T X.296 specify a general methodology for conformance testing of equipment to ITU-T Recommendations;
- e) that conformance testing does not guarantee interoperability but would increase the chance of interoperability of equipment conforming to ITU-T Recommendations;
- f) that very few of the current ITU-T Recommendations identify interoperability or conformance testing requirements, including both test procedures and performance criteria;
- g) that assessment of conformity with certain ITU-T Recommendations may imply defining key performance indicators as part of testing specifications;
- h) that interoperability testing of ICT equipment is an important type of testing from the consumer's perspective;
- i) that technical training and institutional capacity development for testing and certification are essential issues for countries to improve their conformity assessment processes, to promote the deployment of advanced telecommunication networks and to increase global connectivity;
- j) that it is not appropriate for ITU itself to enter into certification and testing of equipment and services that many regional and national standards bodies also provide for conformance testing;
- k) that CASC has been set up for the purpose of developing a procedure for the recognition of ITU experts and elaborating detailed procedures for the implementation of a test laboratory recognition procedure in ITU-T;
- l) that CASC, in collaboration with the International Electrotechnical Commission (IEC), is working on the establishment of a joint IEC/ITU certification scheme for assessing ICT equipment for conformity with ITU-T Recommendations;
- m) that ITU-T has launched a Product Conformity Database and is progressively populating it with details of ICT equipment having undergone testing for conformity with ITU-T Recommendations;
- n) that an ITU C&I Portal website has been established, which is being continuously updated;
- o) that, at its 2013 session, the ITU Council updated the action plan for the C&I programme initially established in 2012, the pillars of which are: 1) conformity assessment, 2) interoperability events, 3) human resource capacity building, and 4) assistance in the establishment of test centres and C&I programmes in developing countries;
- p) the progress reports submitted by the Director of the Telecommunication Standardization Bureau to the Council at its 2009-2016 sessions and to the Plenipotentiary Conference (Busan, 2014),

further recognizing

- a) that providing for interoperability should be an important consideration when developing future ITU-T Recommendations;
- b) that testing for conformity with ITU-T Recommendations should help in efforts to combat counterfeit ICT products;
- c) that enhancing Member States' capabilities for conformance assessment and testing and the availability of national and regional conformance assessment testing facilities may help combat counterfeit telecommunication/ICT devices and equipment;
- d) that C&I testing can facilitate the interoperability of certain emerging technologies such as IoT, IMT-2020, etc.,

considering

- a) that there is an increasing number of complaints that equipment is often not fully interoperable with other equipment;
- b) that some countries, especially the developing countries, have not yet acquired the capacity to test equipment and provide assurance to consumers in their countries;
- c) that increased confidence in the conformance of ICT equipment with ITU-T Recommendations would increase the chances of end-to-end interoperability of equipment from different manufacturers, and would assist developing countries in the choice of solutions;
- d) the importance, especially to developing countries, that ITU takes up a leading role in implementation of the ITU C&I programme, with ITU-T taking lead responsibility for Pillars 1 and 2, and the ITU Telecommunication Development Sector (ITU-D) for Pillars 3 and 4;
- e) that the remote testing of equipment and services using virtual laboratories will enable all countries, especially those with economies in transition and developing countries, to conduct C&I testing, while at the same time facilitating the exchange of experience among technical experts taking into account the positive results achieved in implementing the ITU pilot project for the creation of such laboratories;
- f) that, along with ITU-T Recommendations, there are a number of specifications for C&I testing developed by other standards development organizations (SDOs), forums and consortia,

considering further

the decision of the Council at its 2012 session concerning postponement of the implementation of the ITU Mark until such time as Pillar 1 (conformity assessment) of the action plan has reached a more mature stage of development,

noting

- a) that C&I requirements to support testing are essential components for developing interoperable equipment that is based on ITU-T Recommendations;
- b) that considerable practical experience exists within the ITU-T membership regarding the production of relevant testing standards and the testing procedures on which the actions proposed in this resolution are based;

- c) the need to assist developing countries in facilitating interoperable solutions which can help in reducing the cost of systems and equipment procurement by operators, particularly in the developing countries, whilst improving product quality and safety;
- d) that when interoperability experiments or testing have not been performed, users may have suffered from the lack of interconnection performance between equipment from different manufacturers;
- e) that availability of equipment tested as per ITU-T Recommendations for C&I may provide the basis for achieving a greater choice of solutions, greater competitiveness and more economies of scale,

taking into account

- a) that ITU-T regularly carries out testing activities, including ITU-T study group pilot projects, to assess C&I;
- b) that ITU standardization resources are limited, and C&I testing requires specific technical infrastructure;
- c) that different expertise is required for developing test suites, interoperability testing standardization, product development and product testing;
- d) that it is of advantage if interoperability testing is done by users of the standard who were not involved in the standardization process itself, rather than the standardization experts who have written the specifications;
- e) that collaboration with a range of external conformity assessment (including accreditation and certification) bodies is therefore necessary;
- f) that some forums, consortia and other organizations have already established certification programmes,

resolves

- 1 to invite ITU-T study groups 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;
- 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, 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;

5 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 market demand, as appropriate;

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

7 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*),

invites Member States and Sector Members of the ITU Telecommunication Development Sector

to evaluate and assess the risks and various costs resulting from the lack of C&I tests, particularly in developing countries, and share necessary information and recommendations to avoid losses, based on best practices,

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 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 *instructs 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.

RESOLUTION 77 (Rev. Hammamet, 2016)

Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking

(Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that, with the development and trend towards maturity of software-defined networking (SDN) technology, many organizations are involved in SDN standardization, including those developing open-source solutions;
- b)* that many SDN-related standards activities are still ongoing in various ITU Telecommunication Standardization Sector (ITU-T) study groups;
- c)* the fact that SDN will profoundly change the telecommunication and information and communication technology (ICT) industry's landscape in the decades to come, and may bring multiple benefits to the telecommunication/ICT industry;
- d)* the rapidly growing interest of a significant number of ITU members in the application of SDN in the telecommunication/ICT industry;
- e)* that the Joint Coordination Activity on SDN (JCA-SDN) under the ITU-T Telecommunication Standardization Advisory Group (TSAG) was established in June 2013, and that JCA-SDN is coordinating standardization work on SDN and related technical topics within ITU-T, as well as communication between ITU-T study groups and outside organizations;
- f)* that new technologies such as network function virtualization (NFV) have been emerging, which may support SDN by providing the virtualized infrastructure upon which the SDN software can operate;
- g)* that the SDN orchestrator will provide the important bond between a wide range of technologies that enable cloud-based network and telecommunication services, at the same time recognizing the work of other organizations such as the European Telecommunications Standards Institute (ETSI) Network Functions Virtualisation Industry Specification Group (NFV ISG), the Open Orchestrator project (OPEN-O) and the ETSI Open-Source NFV Management and Orchestration (MANO) project (OSM);
- h)* Resolution 139 (Rev. Busan, 2014) of the Plenipotentiary Conference, on telecommunications/ICT to bridge the digital divide and build an inclusive information society;
- i)* Resolution 199 (Busan, 2014) of the Plenipotentiary Conference, on promoting efforts for capacity building on SDN in developing countries,

noting

- a) that ITU-T should play a prominent role in the development of the above-mentioned system of deployable SDN standards;
- b) that a standards ecosystem should be created, with ITU-T at its centre,

recognizing

- a) that ITU-T has unmatched advantages when it comes to requirements and architecture standards;
- b) that a solid foundation is required to continue developing and enhancing SDN requirements and architecture standards, so that the whole set of standards may be built through an industry-wide synergy,

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.

RESOLUTION 78 (Rev. Hammamet, 2016)

Information and communication technology applications and standards for improved access to e-health services

(Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 183 (Rev. Busan, 2014) of the Plenipotentiary Conference, on telecommunication/information and communication technology (ICT) applications for e-health;
- b)* Resolution 65 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, on improving access to healthcare services by using ICTs;
- c)* United Nations General Assembly Resolution 70/1, on transforming our world: the 2030 Agenda for Sustainable Development,

recognizing

- a)* Goal 3 of the Sustainable Development Goals: To ensure healthy lives and promote well-being for all, at all ages;
- b)* that innovative approaches, using advances in ICTs, can also greatly facilitate the implementation of Goal 3, particularly in developing countries¹;
- c)* that ICTs are transforming the delivery of healthcare through low-cost e-health applications that provide healthcare access for the poor;
- d)* the importance of safeguarding patients' rights and privacy;
- e)* that there are national legislative and regulatory discussions relating to e-health and e-health applications and that this is an area of rapid evolution,

considering

- a)* that the World Summit on the Information Society, which was held in two phases (Geneva, 2003 and Tunis, 2005), included e-health in the Geneva Plan of Action as one of the important ICT applications, and stated the following: "Promote collaborative efforts of governments, planners, health professionals, and other agencies along with the participation of international organizations for creating a reliable, timely, high-quality and affordable healthcare and health information systems and for promoting continuous medical training, education, and research through the use of ICTs, while respecting and protecting citizens' right to privacy. ... Encourage the adoption of ICTs to improve and extend healthcare and health information systems to remote and underserved areas and vulnerable populations, recognizing women's roles as health providers in their families and communities";

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- b) that the World Health Organization (WHO) approved in May 2005 Resolution WHA58.28 on e-health, stressing: "... that e-health is the cost-effective and secure use of information and communication technologies in support of health and health-related fields, including healthcare services, health surveillance, health literature, and health education, knowledge and research";
- c) that WHO and ITU have a key role in strengthening coordination between interested parties in all technical areas for the standardization of e-health applications and uses of e-health protocols;
- d) the pressing need for the provision of safe, prompt, efficient and effective healthcare to the sick through the use of ICT in e-health;
- e) that e-health applications and the ICT applications supporting them are already extensive, but far from fully optimized and integrated;
- f) the importance of maintaining momentum so that the potential advantages of telecommunication/ICT technologies in the healthcare sector are supported by appropriate and secure regulatory, legal and policy frameworks in both the telecommunication and the health sectors,

noting

- a) ongoing work and studies in Study Group 2 of the ITU Telecommunication Development Sector (ITU-D) under Question 2/2, on information and telecommunications/ICT for e-health;
- b) ongoing work and studies in Study Group 16 of the ITU Telecommunication Standardization Sector (ITU-T) under Question 28/16, on multimedia framework for e-health applications;
- c) that ICT standards for healthcare were deemed to be an issue of major importance at the 13th session of the Global Standards Collaboration (GSC-13);
- d) that ICT standards relating to healthcare have to be adapted as needed to suit the conditions in each Member State, and this will require strengthening of capacity building and increased support;
- e) ongoing work in ITU-D to reduce the digital divide in the area of e-health;
- f) ongoing work and studies in ITU-T Study Group 20, related to e-health;
- g) ongoing work in relevant standards development organizations, including ISO TC 215, in the area of e-health,

recognizing further

- a) the importance of interoperability between healthcare information systems to realize the full potential of ICTs in strengthening health systems;
- b) that, for healthcare providers, system interoperability between information systems is critical and fundamental, in particular in developing countries, for delivering quality healthcare and reducing its costs,

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, each according to its mandate, 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, Associates and academia

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

RESOLUTION 79 (Dubai, 2012)

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

(Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

recalling

- a)* Resolution 182 (Guadalajara, 2010) of the Plenipotentiary Conference, on the role of telecommunications/information and communication technologies (ICT) in regard to climate change and the protection of the environment;
- b)* Resolution 66 (Hyderabad, 2010) of the World Telecommunication Development Conference, on information and communication technology and climate change;
- c)* § 19 of the Hyderabad Declaration (2010), stating that the formulation and implementation of policies for proper disposal of e-waste are of great importance;
- d)* the Basel Convention (March, 1989) on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which characterizes certain wastes resulting from electrical and electronic assemblies as hazardous;
- e)* § 20 of Action Line C7 (E-environment) of the Geneva Plan of Action of the World Summit on the Information Society (Geneva, 2003), calling for governments, civil society and the private sector to be encouraged to initiate actions and implement projects and programmes for sustainable production and consumption and the environmentally safe disposal and recycling of discarded hardware and components used in ICT;
- f)* the Nairobi Declaration on the Environmentally Sound Management of Electrical and Electronic Waste, and the adoption by the ninth Conference of the Parties to the Basel Convention of the Work Plan for the Environmentally Sound Management of E-waste, focusing on the needs of developing countries¹,

considering

- a)* that, owing to the progress in telecommunications and information technology, consumption of and demand for electrical and electronic equipment (EEE) has been continuously increasing and this in turn has led to a marked increase in the amount of e-waste, which has had a negative impact on the environment and health, particularly in the developing countries;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

b) that ITU and relevant stakeholders (such as the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP) for the Basel Convention) have a key role in strengthening coordination between interested parties to study the effects of e-waste;

c) Recommendation ITU-T L.1000 of the ITU Telecommunication Standardization Sector (ITU-T), on the universal power adapter and charger solution for mobile terminals and other handheld ICT devices, and Recommendation ITU-T L.1100, on the procedure for recycling rare metals in ICT goods,

recognizing

a) that governments have an important role to play in limiting e-waste by formulating appropriate strategies, policies and legislation;

b) that telecommunications/ICT can make a major contribution to alleviating the impact of e-waste;

c) ongoing work and studies in ITU-T Study Group 5 under Question 13/5, on environmental protection and recycling of ICT equipment/facilities;

d) ongoing work and studies in Study Group 1 of the Telecommunication Development Sector (ITU-D) under Question 24/1, on strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material,

recognizing further

a) that large quantities of used, old, obsolete and unserviceable telecommunication/ICT hardware and equipment are exported to developing countries for supposed reuse;

b) that many developing countries are suffering from severe environmental hazards, such as water pollution and health risks, due to e-waste, for which they may not be responsible,

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.

RESOLUTION 80 (Rev. Hammamet, 2016)

Acknowledging the active involvement of the membership in the development of ITU Telecommunication Standardization Sector deliverables

(Dubai, 2012; Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a)* that the Plenipotentiary Conference adopted Resolution 66 (Rev. Busan, 2014), which recognizes that the copyright held by the Union on its publications cannot be breached;
- b)* that the World Telecommunication Standardization Assembly adopted Resolution 71 (Rev. Dubai, 2012),

considering

- a)* that the ITU Telecommunication Standardization Sector (ITU-T) has been encouraging and facilitating the involvement of academia, universities and associated research establishments, seeking to set up a broader forum for discussions on established and innovative technologies;
- b)* that the productivity of professionals from academia, universities and associated research establishments is constantly evaluated;
- c)* that, in general, the evaluation of professionals, in particular from academia, universities and associated research establishments, takes the form of evaluating items such as books, papers published, research projects accomplished, approval of their project proposals by funding agencies and their career-development programmes;
- d)* that neither the authorship of contributions to study group deliverables nor the editorship of Recommendations and other study group deliverables are currently considered in the evaluation of the productivity of professionals, in particular from academia, universities and associated research establishments;
- e)* that the acknowledgement of contributors will promote greater participation and membership;
- f)* the General Patent Statement and Licensing Declaration established by Recommendation ITU-T A.1,

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.

RESOLUTION 83 (Hammamet, 2016)

Evaluation of the implementation of resolutions of the World Telecommunication Standardization Assembly

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a) that the resolutions adopted by this assembly contain many instructions to the Telecommunication Standardization Advisory Group (TSAG) and the Telecommunication Standardization Bureau, and invitations to Member States, Sector Members, Associates and academia;
- b) the sovereignty of Member States in the implementation of resolutions,

noting

- a) that it is in the common interest of the ITU Telecommunication Standardization Sector (ITU-T) membership that resolutions of the World Telecommunication Standardization Assembly (WTSA):
 - i) be known, recognized and applied by all;
 - ii) be implemented to promote the development of telecommunications and for bridging the digital divide, taking into consideration the concerns of developing countries¹;
- b) that Article 13 of the ITU Convention provides that WTSA may assign specific matters within its competence to TSAG,

considering

that TSAG shall submit proposals to improve the efficiency of operation of ITU-T,

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.

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

RESOLUTION 84 (Hammamet, 2016)

Studies concerning the protection of users of telecommunication/information and communication technology services

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 196 (Busan 2014) of the Plenipotentiary Conference, on protecting telecommunication service users/consumers;
- b)* Resolution 188 (Busan, 2014) of the Plenipotentiary Conference, on combating counterfeit telecommunication/information and communication technology (ICT) devices;
- c)* Resolution 189 (Busan, 2014) of the Plenipotentiary Conference, on assisting Member States to combat and deter mobile device theft;
- d)* Resolution 64 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, on protecting and supporting users/consumers of telecommunication/ICT services;
- e)* the International Telecommunication Regulations,

recognizing

- a)* the United Nations Guidelines for Consumer Protection;
- b)* that, in order to achieve its own objectives, the Union must, among other things, promote standardization of telecommunications worldwide, ensuring a satisfactory quality of service;
- c)* § 13 *e)* of the Geneva Plan of Action of the World Summit on the Information Society, which states that governments should continue to update their domestic consumer protection laws to respond to the new requirements of the information society,

considering

- a)* that counterfeit telecommunication/ICT devices may negatively impact on security and quality of service for users;
- b)* that consumer-related laws, policies and practices limit fraudulent, deceitful and unfair business conducts, and such protections are indispensable for building consumer trust and establishing a more equitable relationship between telecommunication/ICT entrepreneurs and consumers;
- c)* that the Internet permits the introduction of new applications in telecommunication/ICT services based on its highly advanced technology, such as cloud computing, e-mail and text messaging, voice over IP, video and real-time TV (IPTV) over the Internet, which continue to record high levels of use, even though there are challenges regarding quality of service (QoS) and uncertainty of origin;

- d) that the QoS of networks should be consistent with ITU Telecommunication Standardization Sector (ITU-T) Recommendations and other recognized international standards;
- e) that telecommunications/ICTs can offer new and substantial benefits to consumers, including convenience and access to a broad range of goods and/or services, and the ability to collect and compare information about these goods and/or services;
- f) that consumer trust in telecommunications/ICTs is bolstered by the continuous development of transparent, effective consumer-protection mechanisms that limit the presence of fraudulent, deceitful or unfair business practices;
- g) that education and dissemination of information on the consumption and use of telecommunication/ICT products and services must be encouraged;
- h) that access to telecommunications/ICT must be open and affordable;
- i) that a number of countries are introducing conformity-assessment regimes and procedures based on applicable ITU-T Recommendations, leading to better QoS/quality of experience, and to higher probability of interoperability of equipment, services and systems;
- j) that the migration of legacy networks to next-generation networks will affect point of interconnection, QoS and other operational aspects, which will also have an effect on costs to the end user,

noting

- a) the importance of keeping users and consumers informed about the basic characteristics, quality, security and rates of the different services offered by operators, and of other protection mechanisms promoting consumer and user rights;
- b) that landlocked countries pay higher overall costs for access than neighbouring countries on coastal areas;
- c) that the issue of accessibility of telecommunication/ICT services and the establishment of fair costs depend on different factors,

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.

RESOLUTION 85 (Hammamet, 2016)

Strengthening and diversifying the resources of the ITU Telecommunication Standardization Sector

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* Article 28 of the ITU Constitution and Article 33 of the ITU Convention, pertaining to the finances of the Union;
- b)* Resolution 158 (Rev. Busan, 2014) of the Plenipotentiary Conference, instructing the Secretary-General to study possible new measures to generate additional revenue for the Union;
- c)* Resolution 34 (Rev. Dubai, 2012) of the World Telecommunication Standardization Assembly, on voluntary contributions;
- d)* Resolution 44 (Rev. Hammamet, 2016) of this assembly, on bridging the standardization gap between developed and developing countries¹, which describes the sources from which funds will be raised for the purpose of bridging the standardization gap,

noting

- a)* the deliberations of the 2016 session of the ITU Council, on international numbering resources (INRs) and the identification of other possible sources of revenue for the ITU Telecommunication Standardization Sector (ITU-T), in the course of which the secretariat indicated that it would be difficult to present a balanced budget for 2018-2019 unless new sources of revenue are identified;
- b)* the recommendation of the 2016 session of the Council that a study be presented to its 2017 session, identifying all possible sources of revenue for the Union without restriction to INR,

observing

- a)* that, while the work and activities of ITU-T are continually increasing, the resources allocated to the Sector may be insufficient to cover fully all the work, activities and studies it carries out;
- b)* that Union revenues, which rely upon the contributions of Member States and Sector Members, have been in continuous decline;
- c)* that ITU-T revenues must be increased by increasing and diversifying revenue sources,

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 INR and conformance and interoperability testing.

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

RESOLUTION 86 (Hammamet, 2016)

Facilitating the implementation of the Smart Africa Manifesto

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a) Resolution 195 (Busan, 2014) of the Plenipotentiary Conference, on implementation of the Smart Africa Manifesto;
- b) Resolution 197 (Busan, 2014) of the Plenipotentiary Conference, on facilitating the Internet of things to prepare for a globally connected world;
- c) that it is of high importance that developing countries¹ actively participate in and contribute to the development of telecommunication/information and communication technology (ICT) standards,

considering

- a) Resolution 30 (Rev. Busan, 2014) of the Plenipotentiary Conference, on special measures for the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition;
- b) that, under the strategic plan for the Union for 2016-2019, the ITU Telecommunication Standardization Sector (ITU-T) is to work to "provide support and assistance to developing countries in bridging the standardization gap in relation with standardization matters, information and communication network infrastructure and applications, and relevant training materials for capacity building, taking into account the characteristics of the telecommunication environment of the developing countries";
- c) that various industrial sectors, such as energy, transportation, health, agriculture, disaster management, public safety and home networking, rely on emerging communications networks and technologies;
- d) that Resolution 1353 of the ITU Council recognizes that telecommunications/ICTs are essential components for developed and developing countries for achieving sustainable development, and instructs the Secretary-General, in collaboration with the Directors of the Bureaux, to identify new activities to be undertaken by ITU to support the developing countries in achieving sustainable development through telecommunications and ICT,

taking into account

the mandate of the Smart Africa secretariat, which is in line with the Union's objectives for developing countries,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

recognizing

- a) that Smart Africa member states, partner organizations and industries working on various projects need standards;
- b) that ITU-T is responsible for the standardization work relating emerging technologies,

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.

RESOLUTION 87 (Hammamet, 2016)

Participation of the ITU Telecommunication Standardization Sector in the periodic review and revision of the International Telecommunication Regulations

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Article 25 of the ITU Constitution, on world conferences on international telecommunications (WCIT);
- b)* No. 48 in Article 3 of the ITU Convention, on other conferences and assemblies;
- c)* Resolution 4 (Dubai, 2012) of WCIT, on periodic review of the International Telecommunication Regulations (ITR);
- d)* Resolution 146 (Rev. Busan, 2014) of the Plenipotentiary Conference, on periodic review and revision of the ITR;
- e)* Resolution 1379 of the ITU Council, on the Expert Group on the International Telecommunication Regulations (EG-ITR),

recognizing

- a)* that, as stated in Resolution 146 (Rev. Busan, 2014), the ITU Telecommunication Standardization Sector (ITU-T) has most of the work relevant to the ITR,
- b)* the importance of ITU-T study groups' input to the ITU-T contributory process to EG-ITR, as appropriate and where necessary,

considering

- a)* that ITU-T is playing an important role in resolving new and emerging issues arising from the changing global international telecommunication/information communication technology environment;
- b)* that all Member States as well as ITU-T Sector Members should have the opportunity to contribute to further work on the ITR,

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.

RESOLUTION 88 (Hammamet, 2016)

International mobile roaming

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* the results of the ITU High-Level Workshop on international mobile roaming (IMR), held in Geneva on 23-24 September 2013;
- b)* the results of the ITU Global Dialogue on IMR, held in Geneva on 18 September 2015;
- c)* that the tasks undertaken in the ITU Telecommunication Standardization Sector (ITU-T) cover Recommendations, conformity assessment and matters having policy or regulatory implications;
- d)* that the economy is increasingly dependent on reliable, cost-effective, competitive and affordable mobile communications technology on a global scale;
- e)* that wholesale IMR tariffs are decoupled from underlying costs, which may have an effect on retail rates, including inconsistent and arbitrary charges;
- f)* that a competitive international telecommunication market may not exist if significant differences persist between national prices and IMR prices;
- g)* that there are differences in costs between countries and regions,

noting

- a)* that Recommendation ITU-T D.98 is an agreement concluded between Member States and Sector Members in 2012;
- b)* that Recommendation ITU-T D.97 contains possible approaches to the reduction of excessive roaming rates, highlighting the need to encourage competition in the roaming market, educate consumers and consider appropriate regulatory actions such as the introduction of caps on roaming rates,

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.

RESOLUTION 89 (Hammamet, 2016)

Promoting the use of information and communication technologies to bridge the financial inclusion gap

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* that financial inclusion is a key enabler for reducing poverty and boosting prosperity: around two billion people globally do not have access to formal financial services and more than 50 per cent of adults in the poorest households are unbanked;
- b)* that, according to the Global Findex Study of the World Bank, more than half of adults in the poorest 40 per cent of households in developing countries¹ were still without accounts in 2014 and, moreover, the gender gap in bank-account ownership is not significantly narrowing: in 2011, 47 per cent of women and 54 per cent of men had an account; in 2014, 58 per cent of women had an account, compared to 65 per cent of men, while at the regional level the gender gap is largest in South Asia, where 37 per cent of women have an account compared to 55 per cent of men;
- c)* that one way to bridge this financial inclusion gap is through information communication technology (ICT), particularly mobile phone technologies: currently, Sub-Saharan Africa is the only region where on average more than 10 per cent of adults report having a mobile money account;
- d)* Resolution 55 (Rev. Hammamet 2016) of this assembly, on promoting gender equality in ITU Telecommunication Standardization Sector (ITU-T) activities;
- e)* that the purposes of the Union include to foster collaboration among the membership for the harmonious development of telecommunications, sharing of best practices and enabling services to be offered at lowest possible cost;
- f)* Resolution 1353 (Geneva, 2012) of the ITU Council, which recognizes that telecommunications and ICTs are essential components for developed and developing countries in achieving sustainable development, and instructs the Secretary-General, in collaboration with the Directors of the Bureaux, to identify new activities to be undertaken by ITU to support developing countries in achieving sustainable development through telecommunications and ICTs,

recognizing

- a)* that ITU-T Study Group 3 has been involved in the study of mobile financial services through its Rapporteur Group on mobile financial services in collaboration with relevant standards development organizations (SDOs);

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

b) the establishment of the ITU-T Focus Group on digital financial services (FG DFS) by the Telecommunication Standardization Advisory Group (TSAG) at its meeting in Geneva, 17-20 June 2014, whose mandate focuses on innovations in payments and delivery of financial services via mobile technologies occurring in both developed and developing countries;

c) the work done by ITU-T Study Group 2 on telecommunication finance during the last study period,

considering

a) that the issue of access to financial services is one of global concern and requires global collaboration;

b) United Nations General Assembly Resolution 70/1 of 25 September 2015, on transforming our world: the 2030 Agenda for Sustainable Development, recognizing that it builds on the Millennium Development Goals and seeks to complete their unfinished business, and stressing the importance of the implementation of this new ambitious agenda, which has poverty eradication at its core and aims at promoting the economic, social and environmental dimensions of sustainable development;

c) that this new agenda, *inter alia*, undertakes the adoption and implementation of policies to increase financial inclusion and therefore integrates financial inclusion into several targets associated with the Sustainable Development Goals and their means of implementation;

d) the need for regulators from the telecommunication and financial services sectors to collaborate with one another and with, *inter alia*, their finance ministries and other stakeholders, and to share best practices, since digital financial services encompass areas which fall under the purview of all parties,

noting

a) the target of universal financial access by 2020 set by the World Bank, and that this goal will be achieved globally by providing access to a transaction account or electronic instrument to store money and send and receive payments, as the basic building block for people to manage their financial lives;

b) that the World Bank group has committed to enabling one billion people to gain access to a transaction account through targeted interventions;

c) that interoperability is, *inter alia*, an important element to enable electronic payments in a convenient, affordable, fast, seamless and secure way through a transaction account; indeed the need for interoperability was also one of the findings of the Committee on Payments and Market Infrastructures (CPMI) - World Bank group Task Force on payment aspects of financial inclusion (PAFI), which identified required improvements to existing payment systems and services in order to increase further financial inclusion, recognizing that implementation of existing standards and best practices should be a priority;

d) that, despite the huge success of mobile-money services in countries such as Kenya, Tanzania, Paraguay and Uganda, digital financial services have not had the same success and scale of usage in many other emerging economies, and efforts to roll out standards and systems to support digital financial services will thus need to be continued and accelerated;

e) the importance of affordability of digital financial services, especially for people in low-income households, for achieving financial inclusion;

- f) the work of FG DFS to be delivered to TSAG in 2017;
- g) the increased interest in using mobile financial services in developing countries,

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.

RESOLUTION 90 (Hammamet, 2016)

Open source in the ITU Telecommunication Standardization Sector

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* § 10e) and § 23o) of the Geneva Plan of Action of the World Summit on the Information Society (WSIS);
- b)* § 29) of the Tunis Commitment of WSIS;
- c)* § 49) of the Tunis Agenda for the Information Society of WSIS;
- d)* Resolution 44 (Rev. Hammamet, 2016) of this assembly, on bridging the standardization gap between developing¹ and developed countries;
- e)* Resolution 58 (Rev. Dubai, 2014) of World Telecommunication Development Conference, which resolves to invite Member States to promote and undertake research and development of ICT-accessible equipment, services and software, with emphasis on free and open-source software and affordable equipment and services,

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,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 91 (Hammamet, 2016)

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

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that electronic access to information on certain numbering plans has been implemented by the Telecommunication Standardization Bureau (TSB);
- b)* that enhancing electronic access would be advantageous for Member States and international telecommunication operators or operating agencies, to help improve the reliability of telecommunication networks and services they carry and help improve revenue assurance for operators, and may assist in countering misuse of international telecommunication numbering resources,

noting

- a)* that the ITU Telecommunication Standardization Sector (ITU-T) must play a lead role in the development and maintenance of the electronic repository referred to in this resolution;
- b)* that requirements have to be studied and established for populating such an electronic repository;
- c)* that Recommendation ITU-T E.129 invites all national regulatory bodies to inform ITU of their national numbering plans (that is, allotted and allocated resources);
- d)* the high demand for numbering, naming, addressing and identification (NNAI) resources due to the advent of new and emerging technologies and applications (e.g. Internet of things (IoT), machine-to-machine (M2M) communication and innovative global networks and services);
- e)* that reliable information about reserved, assigned and allocated NNAI resources for each country is an important issue for ensuring global telecommunication interconnectivity,

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.

RESOLUTION 92 (Hammamet, 2016)

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

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that International Mobile Telecommunications (IMT) is the root name that encompasses IMT-2000, IMT-Advanced and IMT-2020, collectively (see Resolution ITU-R 56 (Rev. Geneva, 2015) of the Radiocommunication Assembly);
- b)* that IMT systems have contributed to global economic and social development, and are intended to provide telecommunication services on a worldwide scale, regardless of location, network or terminal used;
- c)* that IMT-2020 will be utilized widely in the near future to build a user-centred information ecosystem, and it will make a positive and important contribution to the United Nations Sustainable Development Goals;
- d)* that the ITU Telecommunication Standardization Sector (ITU-T) is actively continuing its studies on mobility and overall network aspects of IMT, and in 2015 initiated the study of non-radio aspects of standardization for IMT for 2020 and beyond;
- e)* that the ITU-T study groups and ITU Radiocommunication Sector (ITU-R) Study Group 5 have had, and continue to have, effective informal coordination via liaison activity with respect to the development of Recommendations relating to IMT for both Sectors;
- f)* that Recommendation 207 (Rev. WRC-15) of the World Radiocommunication Conference, on the future development of IMT for 2020 and beyond, is foreseen to address the need for higher data rates, corresponding to user needs, as appropriate, than those of currently deployed IMT systems;
- g)* that the development of a roadmap for all standards activities relating to IMT in ITU-R and ITU-T, to independently manage and advance their work on IMT and to coordinate it so as to ensure full alignment and harmonization of the work programmes within a complementary framework, is an efficient means of achieving progress in both Sectors, and that such a roadmap concept facilitates the communication of issues relating to IMT with organizations external to ITU;
- h)* that Resolution 43 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC) acknowledged the continuous need to promote IMT throughout the world, and in particular in developing countries¹;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- i) that the ITU-R Handbook on Global Trends in International Mobile Telecommunications defines IMT and provides general guidance to relevant parties on issues related to the deployment of IMT systems and for the introduction of their IMT-2000 and IMT-Advanced networks;
- j) that Study Group 1 of the ITU Telecommunication Development Sector (ITU-D) is currently involved in activities closely coordinated with ITU-T Study Group 13 and ITU-R Study Group 5 in order to identify the factors influencing the effective development of broadband, including IMT, for developing countries;
- k) that IMT systems are now being evolved to provide diverse usage scenarios and applications such as enhanced mobile broadband, massive machine-type communications and ultra-reliable and low-latency communications, and a substantial number of countries have started implementing these;
- l) that ITU-T Study Group 13 initiated the study of non-radio aspects of IMT-2020 through the establishment of the Focus Group on IMT-2020 (FG IMT-2020) which is mandated (1) to explore demonstrations or prototyping with other groups, notably the open-source community, (2) to enhance aspects of network softwarization and information-centric networking (ICN), (3) to refine and develop the IMT-2020 network architecture, (4) to study fixed-mobile convergence, (5) to study network slicing for the fronthaul/backhaul network, and (6) to define new traffic models and associated aspects of quality of service (QoS) and operations, administration and management applicable to IMT-2020 networks,

noting

- a) Resolution 18 (Rev. Hammamet, 2016) of this assembly, on principles and procedures for the allocation of work to, and coordination between, ITU-R and ITU-T;
- b) Resolution 59 (Rev. Dubai, 2014) of WTDC, on strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest;
- c) Recommendation ITU-T A.4, on the communication process between ITU-T and forums and consortia;
- d) Recommendation ITU-T A.5, on generic procedures for including references to documents of other organizations in ITU-T Recommendations;
- e) Recommendation ITU-T A.6, on cooperation and exchange of information between ITU-T and national and regional standards development organizations;
- f) Recommendation ITU-T A.7, on the establishment and working procedures of focus groups, and Amendment 1: Appendix I Guidelines for the efficient transfer of focus group deliverables to its parent group,

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 11

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

instructs ITU-T 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 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 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 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.

RESOLUTION 93 (Hammamet, 2016)

Interconnection of 4G, IMT-2020 networks and beyond

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recognizing

- a)* that, currently, most of the telecommunication operators in the world are migrating from circuit-switched networks to packet-switched networks, and most of them have already established Internet protocol (IP)-based networks for delivering most of their services using a new concept "all over IP";
- b)* that, currently, long-term evolution (LTE) is used on the access stratum of operators' networks as one of the technologies for delivering voice-over-IP services (VoLTE);
- c)* that network architectures, roaming principles, numbering issues and charging and security mechanisms that are being used in circuit-switched networks are in most cases not suitable for interconnection of IP-based networks (e.g. 4G, IMT-2020 and beyond) to be used for providing voice and video services;
- d)* that the interconnection of IP-based networks needs to be agreed among all Member States in order to prevent the appearance of new issues related to numbering, roaming, charging and security, to name a few;
- e)* that VoLTE interconnection as well as other types of interconnection of packet-based networks will require translation from ITU-T E.164 number format to the Universal Resource Identifier (URI), which may be considered as a common identifier of IP-based networks to be used for voice and video communications;
- f)* that ENUM is one of the possible solutions to be used for E.164/URI translation for such interconnections;
- g)* that Resolution 49 (Rev. Hammamet, 2016) of this assembly instructs Study Group 2 of the ITU Telecommunication Standardization Sector (ITU-T) 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;
- h)* that Resolution 133 (Rev. Busan, 2014) of the Plenipotentiary Conference instructs the Secretary-General and the Directors of the Bureaux to take any necessary action to ensure the sovereignty of ITU Member States with regard to Recommendation ITU-T E.164 numbering plans, whatever the application in which they are used;
- i)* that Resolution 76 (Rev. Hammamet, 2016) of this assembly instructs the Director of the Telecommunication Standardization Bureau to continue to conduct as necessary exploratory activities in each region in order to identify and prioritize the problems faced by developing countries¹ related to achieving interoperability of telecommunication/information and communication technology (ICT) equipment and services,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

considering

- a) that ENUM is not commonly used around the globe for E.164/URI transfer, and some operators have their private solutions;
- b) that some alliances of operators are developing guidelines for interconnection of VoLTE-based networks but there is still no agreed option to be used for such interconnection;
- c) that the development of interconnection procedures for IP-based networks to be used for providing voice and video services needs to be carried out on an international basis;
- d) that development of the conformance and interoperability requirements to support testing of protocols and technologies used for such interconnection is an essential component for developing interoperable equipment that is based on ITU-T Recommendations,

taking into account

- a) that, according to the communiqué of the chief technology officers (CTO) meeting which ITU-T conducted in Budapest (October 2015), *"CTOs encouraged ITU-T to initiate studies – including studies on accessibility, data formats, and control and management aspects – with the goal of enabling the global interoperability of such high-quality services, inviting contributions to these studies from operators and related industry experts as well as relevant SDOs"*;
- b) that, according to the summary report of the ITU Workshop on voice and video services interoperability over fixed-mobile hybrid environments, including IMT-Advanced (LTE) (December 2015, Geneva), *"further ITU standardization activities should focus on the deployment of signalling protocols for VoLTE interconnection, emergency calls on VoLTE-based networks and numbering issues"*;
- c) the work of ITU-T Study Group 11 on a framework for interconnection of VoLTE/ViLTE-based networks, which aims to specify common requirements regarding the interconnection of VoLTE/ViLTE-based networks;
- d) that the development of standards relating to a framework for interconnection of VoLTE/ViLTE-based networks is one of the subjects of the established collaboration agreement between ITU-T Study Group 11 and ETSI TC INT;
- e) the successful work of the ITU-T Focus Group on IMT-2020,

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 action,

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.

RESOLUTION 94 (Hammamet, 2016)

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

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016)

recalling

the relevant provisions of Article 1 of the ITU Constitution, in particular No. 17, which stipulates that the Union is to promote the adoption of measures for ensuring the safety of life through the cooperation of telecommunication services,

considering

- a)* the importance of cockpit voice recorder (CVR)/flight data recorder (FDR) as tools for increasing aviation safety;
- b)* the growing interest in event data recorders (EDR) to improve the safety and quality of life in all industries, e.g. EDR for transportation (automated driving), digital fault recorder (DFR) for utilities (smart grid, smart water management), and cardiac event recorder (CER) for healthcare (connected medical devices/implants);
- c)* the important role of cloud computing as an enabler of network access to a scalable and elastic pool of shareable physical or virtual resources with self-service provisioning and administration on demand;
- d)* the need for ensuring information security in cloud computing and the Internet of things (IoT),

noting

- a)* that the ITU Telecommunication Standardization Sector (ITU-T) should play a leading role in the development of standards for EDR application in cloud computing and IoT;
- b)* that a standards ecosystem should be created, with ITU-T at its centre,

recognizing

- a)* the successful conclusion of the ITU-T Focus Group on aviation applications of cloud computing for flight data monitoring (FG AC), studying the feasibility of using cloud computing in an aviation context and of streaming flight data;

- b) the relevant achievements of ITU-T Study Groups 13 (cloud computing, big data analytics), 16 (intelligent transport systems (ITS), connected healthcare/e-health), 17 (cloud-computing security) and 20 (IoT and its applications, with an initial focus on smart cities and communities);
- c) that ITU-T has unmatched advantages when it comes to requirements and architecture standards;
- d) that foundation work on EDR requirements and architecture standards be initiated so that a set of standards may be developed through industry-wide synergy,

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.

RESOLUTION 95 (Hammamet, 2016)

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

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

considering

- a)* that, in accordance with No. 13 in Article 1 of the ITU Constitution, the Union shall in particular "facilitate the worldwide standardization of telecommunications, with a satisfactory quality of service";
- b)* that the strategic plan for the Union for 2016-2019, approved in Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, defines, as one of the ITU's strategic objectives, providing for worldwide connectivity and interoperability, improved performance, quality, affordability and timeliness of service and overall system economy in radiocommunications, including through the development of international standards;
- c)* that the aforementioned strategic plan further defines, as one of the ITU's values, the commitment to deliver high-quality services and maximize satisfaction of beneficiaries and stakeholders,

recalling

- a)* that Resolution 200 (Busan, 2014) of the Plenipotentiary Conference defines, among the Connect 2020 global telecommunication/information and communication technology (ICT) goals and targets, Goal 2: Inclusiveness – Bridge the digital divide and provide broadband for all;
- b)* that Resolution 196 (Busan, 2014) of the Plenipotentiary Conference instructs the Director of the Telecommunication Development Bureau to bring to the attention of decision-makers and national regulatory authorities the importance of keeping users and consumers informed about the quality of the different services offered by operators, and of other protection mechanisms promoting consumer and user rights;
- c)* that Resolution 196 (Busan, 2014) invites Member States, Sector Members and Associates to make contributions that allow the dissemination of best practices and policies related to service quality;
- d)* that Resolution 196 (Busan, 2014) invites the Member States to promote policies that foster the provision of telecommunication services in a manner that delivers suitable quality to the users;
- e)* that Resolution 131 (Rev. Busan, 2014) of the Plenipotentiary Conference resolves that ITU should strengthen its coordination with other relevant international organizations involved in the collection of ICT data, and establish a standardized set of indicators through the Partnership for Measuring ICT for Development, improving the availability and quality of ICT data and indicators and fostering the development of strategies and national, regional and international public policy,

recognizing

- a) that the transparent and collaborative collection and dissemination of quality indicators and statistics that measure and provide comparative analyses of advancements in the use and adoption of ICTs continue to be a major factor for supporting socio-economic growth;
- b) that quality indicators and their analysis provide governments and stakeholders with a mechanism to better understand key drivers of telecommunication/ICT adoption and assist in ongoing national policy formulation,

taking into account

- a) Resolution 101 (Rev. Busan, 2014) of the Plenipotentiary Conference, on Internet protocol (IP)-based networks;
- b) the Dubai Declaration under the theme "Broadband for sustainable development", adopted by the World Telecommunication Development Conference in 2014;
- c) Resolution 140 (Rev. Busan, 2014) of the Plenipotentiary Conference, on ITU's role in implementing the outcomes of the World Summit on the Information Society and in the overall review by United Nations General Assembly of their implementation,

noting

- a) that Study Group 12 of the ITU Telecommunication Standardization Sector (ITU-T) is the lead study group on quality of service (QoS) and quality of experience (QoE), assigned with the task of coordinating QoS and QoE activities within ITU-T and with other standards development organizations (SDOs) and forums, and developing frameworks to improve collaboration;
- b) that Study Group 12 is the parent group for the QoS Development Group (QSDG),

acknowledging

the relevant work being conducted by QSDG on operational and regulatory discussions on QoS and QoE, and its important role in fostering collaboration between operators, technical solutions suppliers and regulators in an open debate on new strategies to deliver better quality of services to users,

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 developing¹ 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,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 96 (Hammamet, 2016)

ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information and communication technology devices

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 188 (Busan, 2014) of the Plenipotentiary Conference, on combating counterfeit telecommunication/information and communication technology (ICT) devices;
- b)* Resolution 177 (Rev. Busan, 2014) of the Plenipotentiary Conference, on conformance and interoperability (C&I);
- c)* Resolution 176 (Rev. Busan, 2014) of the Plenipotentiary Conference, on human exposure to and measurement of electromagnetic fields (EMF);
- d)* Resolution 79 (Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on the role of telecommunications/ICT in combating and dealing with counterfeit telecommunication/ICT devices;
- e)* Resolution 47 (Rev. Dubai, 2014) of WTDC, on enhancement of knowledge and effective application of ITU Recommendations in developing countries¹, including C&I testing of systems manufactured on the basis of ITU Recommendations;
- f)* Resolution 72 (Rev. Hammamet, 2016) of this assembly, on measurement concerns related to human exposure to EMF;
- g)* Resolution 62 (Rev. Dubai, 2014) of WTDC, on measurement concerns related to human exposure to EMF;
- h)* Resolution 182 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the role of telecommunications/ICT in regard to climate change and the protection of the environment;
- i)* that this assembly has adopted Resolution 76 (Rev. Hammamet, 2016), on studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme;
- j)* Resolution 79 (Dubai, 2012) of the World Telecommunication Standardization Assembly, on 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,

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

recognizing

- a) the noticeably growing sales and circulation of counterfeit and tampered telecommunication/ICT devices in the markets, which have an adverse impact on governments, manufacturers, vendors, operators and consumers through: loss of revenues, erosion of brand value/intellectual property rights and reputation, network disruptions, poor quality of service (QoS) and potential hazard to public health and safety as well as the environmental e-waste;
- b) that counterfeit and tampered telecommunication/ICT devices may negatively impact on security and privacy for users;
- c) that counterfeit and tampered telecommunication/ICT devices often contain illegal and unacceptable levels of hazardous substances, threatening consumers and the environment;
- d) that some countries have conducted awareness campaigns on counterfeit and tampered device issues and deployed successful solutions including regulations in their markets to deter the spread of counterfeit and tampered telecommunication/ICT devices, which could be taken by other countries as useful experiences and case studies;
- e) that countries face significant challenges in finding effective solutions to combat counterfeit and tampered telecommunication/ICT devices, given the innovative and creative ways used by persons engaged in this illicit activity to evade enforcement/legal measures;
- f) that ITU's Conformity and Interoperability and Bridging Standardization Gap programmes are intended to add value, by bringing clarity to standardization processes and product conformity with international standards;
- g) that providing interoperability, safety and reliability should be a key objective of ITU Recommendations;
- h) the ongoing work of ITU Telecommunication Standardization Sector (ITU-T) Study Group 11 as the leading expert in the study of combating counterfeit and tampered telecommunication/ICT devices at ITU;
- i) that industry initiatives have been created to coordinate activity between operators, manufacturers and consumers,

recognizing further

- a) that some countries, with the growing market for mobile devices, rely on unique device identifiers, such as International Mobile Equipment Identity (IMEI) in the Equipment Identity Register (EIR), to limit and deter the proliferation of counterfeit and tampered mobile devices;
- b) that, as stated in Resolution 188 (Busan, 2014), Recommendation ITU-T X.1255, which is based on the digital object architecture, provides a framework for discovery of identity management information,

noting

- a) that individuals or entities engaged in manufacturing and trading of counterfeit and tampered telecommunication/ICT devices are continually developing and enhancing their capabilities and means of illegal activities to circumvent Member States' and other affected parties' legal and technical efforts to combat counterfeit and tampered products and telecommunication/ICT devices;
- b) that supply and demand economics for counterfeit and tampered telecommunication/ICT products complicate attempts to tackle the global black/grey market, and that no single solution is easily envisaged,

aware

- a) of the current work and studies of ITU-T Study Group 11, which is conducting study of methodologies, guidelines and best practices, including the use of unique telecommunication/ICT device identifiers, for combating counterfeit and tampered telecommunication/ICT products;
- b) of the current work and studies in ITU-T Study Group 20, on Internet of things (IoT), IoT identity management and the increasing importance of IoT devices to the society;
- c) of the ongoing work under *instructs ITU-D Study Group 2, in collaboration with the relevant ITU study groups* of Resolution 79 (Dubai, 2014);
- d) that there is ongoing cooperation with standards development organizations (SDOs), the World Trade Organization (WTO), the World Intellectual Property Organization (WIPO), the World Health Organization (WHO) and the World Customs Organization (WCO) on matters related to counterfeit and tampered products;
- e) that governments play an important role in combating the manufacture and international trade of counterfeit and tampered products including telecommunication/ICT devices, by formulating appropriate strategies, policies and legislation;
- f) that tampering with unique telecommunication/ICT device identifiers diminishes the effectiveness of solutions adopted by countries,

considering

- a) the conclusions of the ITU Events on combating counterfeit and tampered telecommunication/ICT devices (Geneva, 17-18 November 2014 and 28 June 2016);
- b) the conclusions of the Technical Report on Counterfeit ICT Equipment adopted by Study Group 11 at its meeting in Geneva on 11 December 2015;
- c) that, in general, telecommunication/ICT devices that do not comply with a country's applicable national conformity processes and regulatory requirements or other applicable legal requirements should be considered unauthorized for sale and/or activation on telecommunication networks of that country;
- d) that a counterfeit telecommunication/ICT device is a product that explicitly infringes the trademark, copies hardware or software designs, or infringes brand or packaging rights of an original or authentic product and, in general, infringes applicable national and/or international technical standards, regulatory requirements or conformity processes, manufacturing licensing agreements, or other applicable legal requirements;
- e) that a reliable unique identifier shall be unique for each equipment it aims to identify, can only be assigned by a responsible management entity and should not be changed by unauthorized parties;

- f) that tampered telecommunication/ICT devices are devices that have components, software, a unique identifier, an item protected by intellectual property rights or a trademark tentatively or effectively altered without the explicit consent of the manufacturer or its legal representative;
- g) that some countries have started implementing measures that aim to deter counterfeit and tampered telecommunication/ICT devices based on an identification mechanism, which can also be effective for the control of tampered telecommunication/ICT devices;
- h) that tampering telecommunication/ICT devices, especially the ones that clone a legitimate identifier, may diminish the effectiveness of solutions adopted by the countries when addressing counterfeiting ;
- i) that a framework for discovery and management of identity information can assist in combating counterfeiting and tampering of telecommunication/ICT devices;
- j) that ITU and other relevant stakeholders have key roles to play in fostering coordination between the parties concerned in order to study the impact of counterfeit and tampered telecommunication/ICT devices and the mechanism for limiting their use, and to identify ways of dealing with them both internationally and regionally;
- k) the importance of maintaining user connectivity,

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, QoS 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/ICT 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.

RESOLUTION 97 (Hammamet, 2016)

Combating mobile telecommunication device theft

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 189 (Busan, 2014) of the Plenipotentiary Conference, on assisting Member States to combat and deter mobile device theft;
- b)* Resolution 188 (Busan, 2014) of the Plenipotentiary Conference, on combating counterfeit telecommunication/information and communication technology (ICT) devices;
- c)* Resolution 174 (Rev. Busan, 2014) of the Plenipotentiary Conference, on ITU's role with regard to international public policy issues relating to the risk of illicit use of ICTs;
- d)* Resolution 79 (Dubai, 2014) of the World Telecommunication Development Conference (WTDC), on the role of telecommunications/ICTs in combating and dealing with counterfeit telecommunication/ICT devices;
- e)* Resolution 64 (Rev. Dubai, 2014) of WTDC, on protecting and supporting users/consumers of telecommunication/ICT services,

recognizing

- a)* that governments and industry have implemented actions to prevent and combat mobile device theft;
- b)* that manufacturers, operators and industry associations have been developing a range of technological solutions and governments have been developing policies to address the mobile device theft problem;
- c)* that the theft of user-owned mobile devices may lead to the criminal use of telecommunication/ICT services and applications, resulting in economic losses for the lawful owner and user;
- d)* that measures to combat mobile device theft adopted by some countries rely on unique device identifiers, such as International Mobile Equipment Identity, and therefore tampering with (changing without authorization) unique identifiers can diminish the effectiveness of these solutions;
- e)* that some solutions to combat counterfeit telecommunication/ICT devices can also be used to combat the use of stolen telecommunication/ICT devices, in particular those devices whose unique identifiers have been tampered with for the purpose of re-introducing them to the market;
- f)* that studies on combating counterfeiting, including of telecommunication/ICT devices, and the systems adopted on the basis on those studies, can facilitate the detection and blocking of devices and prevention of their further use,

considering

- a) that technological innovation driven by ICTs has significantly modified the ways in which people access telecommunications;
- b) that the positive impact of mobile telecommunications and the development generated by all related services have increased the penetration of mobile telecommunication/ICT devices;
- c) that the widespread use of mobile telecommunications in the world has also been accompanied by a rise in the problem of mobile device theft in developing countries¹;
- d) that the act of mobile device theft can sometimes have a negative impact on the health and safety of citizens and on their sense of security;
- e) that problems that occur around the crimes related to mobile device theft have become a worldwide issue, since these stolen devices are often very easily resold on the international markets;
- f) that the illicit trading of stolen mobile devices constitutes a risk to consumers and causes loss of revenue for the industry;
- g) that some governments have implemented regulations, law-enforcement actions, policies and technological mechanisms to prevent and combat mobile device theft;
- h) that some manufacturers of mobile devices, as well as operators, offer solutions for consumers, such as free anti-theft applications, with the aim of reducing the rate of mobile device theft,

aware

- a) of the related ongoing work in ITU Telecommunication Standardization Sector (ITU-T) Study Group 11 on combating counterfeit and mobile device theft;
- b) of the related work ongoing in ITU-T Study Group 17 on security,

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

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

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.

RESOLUTION 98 (Hammamet, 2016)

Enhancing the standardization of Internet of things and smart cities and communities for global development

(Hammamet, 2016)

The World Telecommunication Standardization Assembly (Hammamet, 2016),

recalling

- a)* Resolution 197 (Busan, 2014) of the Plenipotentiary Conference, on facilitating the Internet of things (IoT) to prepare for a globally connected world;
- b)* Resolution 66 (Geneva, 2015) of the Radiocommunication Assembly, on studies related to wireless systems and applications for the development of IoT;
- c)* Resolution 58 (Rev. Dubai, 2014) of the World Telecommunication Development Conference (WTDC), which invites Member States to promote and undertake research and development of ICT-accessible equipment, services and software;
- d)* the objectives of the ITU Telecommunication Standardization Sector (ITU-T) in Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, and in particular Objective T.5, which mandates ITU-T to extend and facilitate cooperation with international, regional and national standardization bodies;
- e)* Recommendation ITU-T Y.4000/Y.2060, on overview of IoT, which defines IoT as "a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies";
- f)* Recommendation ITU-T Y.4702, on common requirements and capabilities of device management in IoT, which establishes common requirements and capabilities of device management in IoT for different application scenarios,

considering

- a)* that it is expected that the development of IoT technologies will make it possible to connect billions of devices to the network by the year 2020, with consequences for almost all aspects of daily life;
- b)* the importance of IoT in contributing to achievement of the 2030 Agenda for Sustainable Development;
- c)* that various industrial sectors, such as energy, transportation, health and agriculture, are collaborating for the development of IoT and smart cities and communities (SC&C) applications and services across verticals;
- d)* that IoT can be a key enabler for the information society and offers the opportunity to transform the urban infrastructure, taking advantage, among other things, of the efficiencies of smart buildings and transport systems, and smart water management, working together with services for the benefit of users;

- e) that research and development in IoT can help to improve global development, delivery of basic services and monitoring and evaluation programmes in different sectors;
- f) that IoT involves various stakeholders and areas, which may require coordination and cooperation;
- g) that IoT has evolved into a wide variety of applications with different aims and requirements, as a result of which it is necessary to work in coordination with other international standardization bodies and other related organizations in order to integrate better standardization frameworks;
- h) that technical standards as well as public-private partnerships should reduce the time and cost for implementing IoT with benefits in terms of economies of scale;
- i) that ITU-T should play a leading role in the development of IoT-related and SC&C-related standards;
- j) the importance of collaboratively assessing and standardizing IoT data interoperability;
- k) that IoT may have an impact in many areas, which may require further cooperation between national, regional and international entities concerned on relevant aspects in order to maximize the benefits of IoT,

recognizing

- a) that industry forums and standards development organizations (SDO) partnership projects are developing technical specifications for IoT;
- b) the work by the Internet of things Global Standards Initiative, which concluded its activities in July 2015;
- c) that the purpose of the Joint Coordination Activity on Internet of things and smart cities and communities (JCA-IoT and SC&C), under the leadership of ITU-T Study Group 20, is to coordinate the work on IoT and SC&C within ITU, and to seek cooperation from external bodies working in the field of IoT and SC&C;
- d) that much progress has been made in efforts to develop collaboration between ITU-T and other organizations;
- e) that Study Group 20 is responsible for studies and standardization work relating to IoT and its applications, including SC&C;
- f) that Study Group 20 is also a platform where the ITU-T membership, including administrations, Sector Members and Associates, can come together to exert an impact on the drafting of international standards for IoT and their implementation,

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,

invites the ITU Telecommunication Standardization Sector membership

- 1 to submit contributions and continue participating actively in the work of Study Group 20 and in the studies on IoT and SC&C being conducted by ITU-T;
- 2 to develop master plans and exchange use cases and best practices in order to promote smart and sustainable cities and communities and to promote social development and economic growth;
- 3 to cooperate and exchange experiences and knowledge related to this topic;
- 4 to support and organize forums, seminars and workshops on IoT in order to promote innovation, development and growth in IoT technologies and solutions;
- 5 to take necessary measures to facilitate the growth of IoT in relation to areas such as the establishment of standards.

OPINION 1 (Dubai, 2012)

Practical application of network externality premium

(Dubai, 2012)

The World Telecommunication Standardization Assembly (Dubai, 2012),

considering

- a)* the Tunis Agenda for the Information Society (Tunis, 2005);
- b)* Resolution 22 (Rev. Antalya, 2006) of the Plenipotentiary Conference, on the distribution of revenues in the provision of international telecommunications services;
- c)* the approval by the World Telecommunication Standardization Assembly (Johannesburg, 2008) (WTSA-08) of Recommendation ITU-T D.156, on network externalities,

noting

that some Member States have expressed reservations on this Recommendation and requested that clarification be made on some issues and a practical model be developed to calculate the value of the network externality premium,

considering further

- a)* the approval by Study Group 3 of the ITU Telecommunication Standardization Sector (ITU-T) in May 2010 of Annex A to Recommendation ITU-T D.156, on the practical implementation of Recommendation ITU-T D.156, which provides answers to questions that had been raised;
- b)* the approval by Study Group 3 in September 2012 of Annex B to Recommendation ITU-T D.156, on determination of the value of the network externality premium, which offers a practical method of calculating this premium,

is of the opinion that

in view of the progress achieved so far within Study Group 3, the Member States concerned may wish to review the respective positions adopted at WTSA-08 and possibly withdraw the reservations regarding 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

at its 2013 session, to report on this subject to the 2014 plenipotentiary conference, in accordance with Resolution 22 (Rev. Antalya, 2006).

PART II

ITU-T A-series Recommendations: Organization of the work of the ITU Telecommunication Standardization Sector*

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* This publication includes all A-series Recommendations that were in force at the end of WTSA-16. It is noted that TSAG may modify, delete or approve A-series Recommendations, and that the latest in-force versions may be found at <http://www.itu.int/rec/T-REC-A>

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Recommendation ITU-T A.1

Working methods for study groups of the ITU Telecommunication Standardization Sector

1 Study groups and their relevant groups

1.1 Frequency of meetings

1.1.1 Study groups meet to facilitate the approval of Recommendations. Such meetings shall only be held with the approval of the Director of the Telecommunication Standardization Bureau (TSB), and with due consideration of the physical and budgetary capabilities of the ITU Telecommunication Standardization Sector (ITU-T). To minimize the number of meetings required, every effort should be made to resolve questions by correspondence (No. 245 of the ITU Convention).

1.1.2 In the establishment of the work programme, the timetable of meetings must take into account the time required for participating bodies (administrations of Member States and other duly authorized entities) to react and prepare contributions. Meetings should not be held more frequently than is necessary to make effective progress and should take into account TSB's capabilities to provide the necessary documentation. A meeting scheduled so that its separation from a preceding meeting, upon which it depends, is less than six months may incur the possibility of full documentation from the previous meeting not being available.

1.1.3 Meetings of study groups having common interests or dealing with problems possessing affinities should, if possible, be arranged so as to enable participating bodies to send one delegate or representative to cover several meetings. As far as possible, the arrangement chosen should enable the study groups meeting during the period to exchange any information they may require without delay. Furthermore, it should enable specialists from all over the world in the same or related subjects to have direct contacts with each other of benefit to their organizations. It should likewise enable the specialists concerned to avoid leaving their home countries too often.

1.1.4 The timetable of meetings shall be prepared and communicated to participating bodies well in advance (one year), to give them time to study problems and submit contributions within the prescribed time-limits and to give TSB time to distribute the contributions. In this way, study group chairmen and delegates will be given the opportunity to consider the contributions in advance, thus helping to make meetings more efficient and reduce their length. A study group chairman, in conjunction with the Director, may schedule short additional study group or working party meetings for the purpose of making the consent, determination or decision, as appropriate, on a draft new or revised Recommendation.

1.1.5 Subject to physical and budgetary limitations and in consultation with the Director, the work of the study groups should be on a continuous basis and dissociated from the interval between world telecommunication standardization assemblies (WTSA).

1.2 Coordination of work

1.2.1 A joint coordination activity (JCA) may be formed to coordinate work relating to more than one study group. Its primary role is to harmonize planned work effort in terms of subject matter, time-frames for meetings and publication goals (see clause 2.2).

1.3 Preparation of studies and meetings

1.3.1 At the beginning of each study period, an organization proposal and an action plan for the study period shall be prepared by each study group chairman with the help of TSB. The plan should take into account any priorities and coordination arrangements recommended by the Telecommunication Standardization Advisory Group (TSAG) or decided by WTSA.

How the proposed action plan is implemented will depend upon the contributions received from the members of ITU-T and the views expressed by participants in the meetings.

1.3.2 A collective letter with an agenda of the meeting, a draft work plan and a listing of the Questions or proposals under the general areas of responsibility to be examined shall be prepared by TSB with the help of the chairman.

The work plan should state which items are to be studied on each day, but it must be regarded as subject to change in the light of the rate at which work proceeds. Chairmen should try to follow it as far as possible.

This collective letter should be received by bodies participating in the activities of particular ITU-T study groups, as far as practicable, two months before the beginning of the meeting. The collective letter shall include registration information for these bodies to indicate participation in the meeting. Each Member State administration, Sector Member, Associate and regional or international organization should send to TSB a list of its participants at least one month before the start of the meeting. In the event that names cannot be provided, the expected number of participants should be indicated. Such information will facilitate the registration process and the timely preparation of registration materials. Individuals who attend the meeting without pre-registration may experience a delay in receiving their documents.

If the meeting in question has not been previously planned and scheduled, a collective letter should be received at least three months before the meeting.

1.3.3 If an insufficient number of contributions or notification of contributions has been submitted, no meeting should be held. The decision whether to cancel a meeting or not shall be taken by the Director, in agreement with the chairman of the study group or working party concerned.

1.4 Conduct of meetings

1.4.1 The chairman shall direct the debates during the meeting, with the assistance of TSB.

1.4.2 The chairman is authorized to decide that there shall be no discussion on Questions on which insufficient contributions have been received.

1.4.3 Questions which have not elicited any contributions should not be placed on the final agenda of the meeting, and according to provisions of 7.4.1 of WTSA Resolution 1, may be deleted if no contributions have been received for the previous two study group meetings.

1.4.4 Study groups and working parties may set up working teams (which should be as small as possible and are subject to the normal rules of the study group or working party) during their meetings, to study Questions allocated to those study groups and working parties.

1.4.5 For projects involving more than one study group, baseline documents may be prepared in order to provide the basis for coordinated study among the various study groups. The term "baseline document" refers to a document which contains the elements of common agreement at a given point in time.

1.4.6 Chairmen will ask, during each meeting, whether anyone has knowledge of patents or software copyrights, the use of which may be required to implement the Recommendation being considered. The fact that the question was asked shall be recorded in the working party or study group meeting report, along with any affirmative responses.

1.4.7 Study groups shall establish and maintain a work programme, which includes target dates for consenting or determining each draft Recommendation. The work programme is available in a database which is searchable from the study group website. For each work item under development, the database contains the Recommendation number (or provisional mnemonic designation), the title, scope, editor, timing, priority, identification of any liaison relationships, any editor assigned, the location of the most recent text, the approval process, and the status for documents in the approval process. The database is updated to reflect progress or completion of work, re-planning of in-progress items, or addition of new work items.

The decision to add a new work item to the work programme should be documented in the report of the meeting using the template in Annex A. Note that this may not be necessary to document the continuation of existing work (e.g., an amendment or revision of an existing Recommendation).

A work item may be considered for discontinuation from the work programme if it has not given rise to any contribution in the time interval of the previous two study group meetings.

1.5 Liaison statements

1.5.1 The following information shall be included in liaison statements prepared at study group, working party or rapporteur group meetings. When necessary, between scheduled meetings, the liaison statement may be prepared by an appropriate correspondence process and approved by the study group chairman in consultation with the study group management team.

- List the appropriate Question numbers of the originating and destination study groups.
- Identify the study group, working party or rapporteur group meeting at which the liaison statement was prepared.

- Include a concise title appropriate to the subject matter. If this is in reply to a liaison statement, make this clear, e.g., "Reply to liaison statement from (*source and date*) concerning ...".
- Identify the study group(s) and working party(ies) (*if known*) or other standards organizations to which it has been sent. (*A liaison statement can be sent to more than one organization.*)
- Indicate the level of approval, e.g., study group or working party, or state that the liaison statement has been agreed at a rapporteur group meeting.
- Indicate if the liaison statement is sent for action *or* comment *or* information. (*If sent to more than one organization, indicate this for each one.*)
- If action is requested, indicate the date by which a reply is required.
- Include the name and address of the contact person.

The text of the liaison statement should be concise and clear, using a minimum of jargon.

An example of the information required in a liaison statement is shown in Figure 1-1.

QUESTIONS:	45/15, 3/4, 8/ITU-R SG11		
SOURCE:	ITU-T SG15, Rapporteur group for Q45/15 (London, 2-6 October 1997)		
TITLE:	Object Identifier Registration – Reply to liaison statement from WP 5/4 (Geneva, 5-9 February 1997)		
LIAISON STATEMENT			
FOR ACTION TO:	ITU-T SG4 – WP 5/		
FOR COMMENT TO:			
FOR INFORMATION TO:	ITU-R SG11, ISO/IEC JTC 1/SC 6		
APPROVAL:	Agreed to at the rapporteur group meeting		
DEADLINE:	Deadline for reply – 22 January 1998		
CONTACT:	John Jones, rapporteur for Q45/15	Tel:	+1 576 980 9987
	ABC Company	Fax:	+1 576 980 9956
	Anytown, CA USA	e-mail:	jj@abcco.com

Figure 1-1 – Example of the information required in a liaison statement

1.5.2 Liaison statements should be forwarded to the appropriate destinations as soon after the meeting as possible. Copies of all liaison statements should also be sent to the chairmen of the study groups and working parties involved for information and to TSB for processing.

1.6 Correspondence activities

Correspondence activities may be authorized to be conducted via e-mail between meetings. Each correspondence activity should have specified terms of reference. A convener is appointed to moderate the e-mail discussion and prepare a report to a subsequent meeting. A correspondence activity should normally conclude no later than the contribution deadline of the meeting to which it is expected to report.

1.7 Preparation of reports of study groups, working parties or joint working parties, Recommendations and new Questions

1.7.1 A report on the work done during a meeting of a study group, working party or joint working party shall be prepared by TSB. Reports of meetings not attended by TSB should be prepared under the responsibility of the chairman of the meeting. This report should set out the results of the meeting and the agreements reached in a condensed form and should identify the points left to the next meeting for further study. The number of annexes to the report should be kept to a strict minimum by means of cross-references to contributions, reports, etc., and references to material in the documentation of a study group or working party. It would be desirable to have a concise summary of contributions (or equivalent) considered by the meeting.

The report should concisely present the following: organization of work; references to and possible summary of contributions and/or documents issued during a meeting; main results, including status of new and/or revised Recommendations consented, determined or under development; directive for future work; planned meetings of working parties, sub-working parties and rapporteur groups; and condensed liaison statements endorsed at the study group or working party level. The table showing the status of Recommendations from the report is used to update the work programme database (see clause 1.4.7).

1.7.2 To assist TSB in this task, the study group or working party may arrange for delegates to draft some parts of the report. TSB should coordinate this drafting work. If necessary, the meeting will set up an editorial group to improve the texts of draft Recommendations in the official languages of the Union.

1.7.3 If possible, the report shall be submitted for approval before the end of the meeting; otherwise, it shall be submitted to the chairman of the meeting for approval.

1.7.4 When existing and already translated ITU-T texts have been used for some parts of the report, a copy of the report annotated with references to the original sources should also be sent to TSB. If the report contains ITU-T figures, the ITU-T reference number should not be deleted even if the figure has been modified.

1.7.5 Individual reports of meetings should be accessible online to appropriate users as soon as electronic versions of these documents are available to TSB.

1.7.6 ITU-T participating bodies are authorized to transmit study group or working party reports and documents to any experts they consider it expedient to consult, except where the study group or working party concerned has specifically decided that its report, or a document, is to be treated as confidential.

1.7.7 The report of a study group's first meeting in the study period shall include a list of all the rapporteurs appointed. This list shall be updated, as required, in subsequent reports.

1.8 Definitions

This Recommendation defines the following terms:

1.8.1 Terms defined elsewhere

1.8.1.1 Question (WTSA Resolution 1 (Rev. Hammamet, 2016)): Description of an area of work to be studied, normally leading to the production of one or more new or revised Recommendations.

1.8.2 Terms defined in this Recommendation

1.8.2.1 amendment: An amendment to a Recommendation contains changes or additions to an already published ITU-T Recommendation.

NOTE – An amendment is published by ITU-T as a separate document that contains primarily changes or additions. If it forms an integral part of the Recommendation, approval of an amendment follows the same approval procedures as for Recommendations; otherwise, it is agreed by the study group.

1.8.2.2 annex: An annex to a Recommendation contains material (e.g., technical detail or explanation) that is necessary to its overall completeness and comprehensibility and is therefore considered an integral part of the Recommendation.

NOTE 1 – As an annex is an integral part of the Recommendation, approval of an annex follows the same approval procedures as Recommendations.

NOTE 2 – In common ITU-T | ISO/IEC texts, this element is called an "integral annex".

1.8.2.3 appendix: An appendix to a Recommendation contains material that is supplementary to and associated with the subject matter of the Recommendation but is not essential to its completeness or comprehensibility.

NOTE 1 – An appendix is not considered to be an integral part of the Recommendation and thus it does not require the same approval procedures as Recommendations; agreement by the study group is sufficient.

NOTE 2 – In common ITU-T | ISO/IEC texts, this element is called a "non-integral annex".

1.8.2.4 clause: The word clause shall be used to denote single-digit or multiple-digit numbered text passages.

1.8.2.5 corrigendum: A corrigendum to a Recommendation contains corrections to an already published ITU-T Recommendation. A corrigendum is published by ITU-T as a separate document that contains only corrections. TSB may correct obvious errors by issuing a corrigendum with the concurrence of the study group chairman; otherwise, approval of a corrigendum follows the same approval procedures as Recommendations.

NOTE – In common ITU-T | ISO/IEC texts, this element is called a "technical corrigendum".

1.8.2.6 implementers' guide: An implementers' guide is a document which records all identified defects (e.g., typographical errors, editorial errors, ambiguities, omissions or inconsistencies, and technical errors) associated with a Recommendation or a set of Recommendations and their status of correction, from their identification to final resolution.

NOTE – An implementers' guide is issued by ITU-T following agreement by a study group, or following agreement by a working party with the concurrence of the study group chairman. Typically, defect corrections are first collected in an implementers' guide and, at a time deemed appropriate by the study group, they are used to produce a corrigendum or are included as revisions to a Recommendation.

1.8.2.7 normative reference: Another document that contains provisions which, through reference to it, constitute provisions to the referring document.

1.8.2.8 supplement: A document which contains material which is supplementary to and associated with the subject matter of one or more Recommendations but which is not essential to their completeness or understanding and implementation.

NOTE – Recommendation ITU-T A.13 deals with the subject of supplements to ITU-T Recommendations.

1.8.2.9 text: The "text" of Recommendations is understood in a broad sense. It may contain printed or coded text and/or data (such as test images, graphics, software, etc.).

1.8.2.10 work item: An assigned piece of work, which is identifiable with a Question and which has specific or general objectives, which will result in a product, usually a Recommendation, for publication by ITU-T.

1.8.2.11 work programme: A list of work items that are owned by a study group.

2 Study group management

2.1 Study group structure and distribution of work

2.1.1 Study group chairmen shall be responsible for the establishment of an appropriate structure for the distribution of work and the selection of an appropriate team of working party chairmen and shall take into account the advice provided by the members of the study group as well as the proven competence, both technical and managerial, of the candidates.

2.1.2 A study group may entrust a Question, a group of Questions or the maintenance of some existing Recommendations within its general area of responsibility to a working party.

2.1.3 Where the scope of the work is considerable, a study group may decide to further divide the tasks assigned to a working party to sub-working parties.

2.1.4 Working parties and sub-working parties should be set up only after thorough consideration of the Questions. Proliferation of working parties, sub-working parties or any other subgroups should be avoided.

2.1.5 A study group may exceptionally, by agreement with other relevant study group(s) and taking account of any advice from TSAG and the Director of TSB, entrust a joint working party with Questions or parts of Questions of common interest to the study groups concerned. This study group shall act as the lead study group for the joint working party and shall coordinate and have responsibility for the work concerned. The contributions used as a basis for discussion in the joint working party shall be sent exclusively to those registered in the joint working party. Only the reports shall be sent to all participating bodies of the study groups concerned.

2.1.6 As the promotion of study group activities is an essential element in any ITU-T marketing plan, each study group chairman, supported by other study group leaders and subject matter experts, is encouraged to establish, maintain and participate in a promotion plan, coordinated with TSB, whose emphasis is the dissemination of study group information to the telecommunication community. Such study group information dissemination should cover, but is not limited to, new work initiatives and significant accomplishments regarding technologies and technical solutions.

2.2 Joint coordination activities

2.2.1 A joint coordination activity (JCA) is a tool for management of the work programme of ITU-T when there is a need to address a broad subject covering the area of competence of more than one study group. A JCA may help to coordinate the planned work effort in terms of subject matter, time-frames for meetings, collocated meetings where necessary and publication goals including, where appropriate, release planning of the resulting Recommendations.

The establishment of a JCA aims mainly at improving coordination and planning. The work itself will continue to be conducted by the relevant study groups and the results are subject to the normal approval processes within each study group. A JCA may identify technical and strategic issues within the scope of its coordination role, but will not perform technical studies nor write Recommendations. A JCA may also address coordination of activities with recognized standards development organizations (SDOs) and forums, including periodic discussion of work plans and schedules of deliverables. The study groups take JCA suggestions into consideration as they carry out their work.

2.2.2 Any group (study group or TSAG) may propose that a JCA be established. The proposal to establish a JCA should first be discussed within the proposing group's management team, then among the relevant study group chairmen and the TSAG chairman. Discussions may be held with external SDOs and forum leaders.

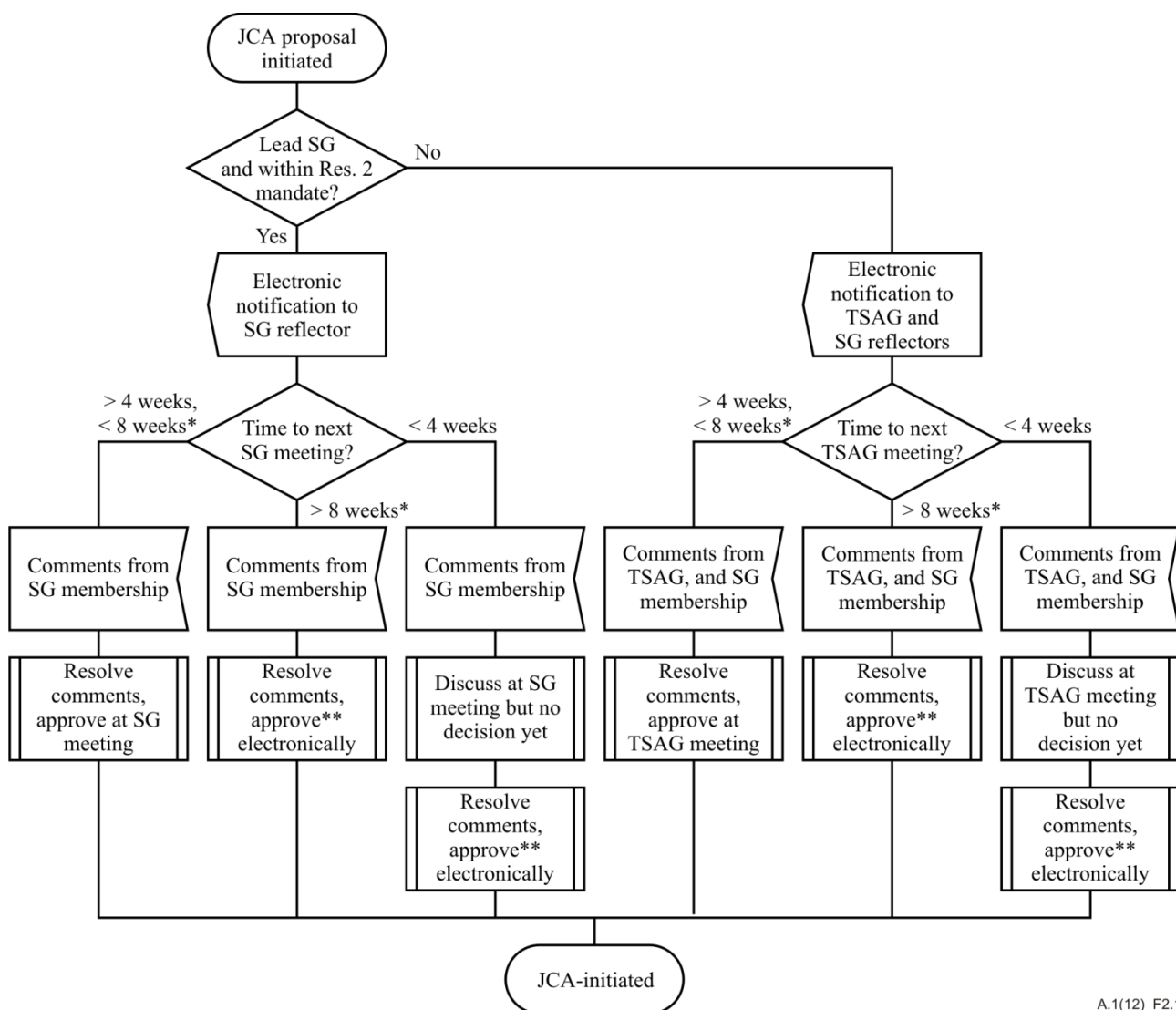
If the study group proposing the establishment of the JCA has been designated as the lead study group by WTSA or TSAG according to Section 2 of WTSA Resolution 1, and if the subject is under their responsibility and mandate as described in WTSA Resolution 2, then a study group may establish a JCA on its own authority. If a study group meeting is pending within the next two months, then an electronic notification¹ proposing the JCA, including the terms of reference (including scope, objectives and anticipated lifetime) and the chairman, is published four weeks prior to the study group meeting, giving opportunity for the membership to give their position at the meeting. If this is done at least four weeks prior to the study group meeting, following the resolution of any comments, the JCA may be established by the study group by consensus at its meeting. If a study group meeting is not pending within the next two months, then an electronic notification as above is sent for the membership to give their position by electronic response. If the notification is sent less than four weeks before the study group meeting, no decision is taken at the study group meeting; the decision may be taken four weeks after the notification, excluding the meeting time. If necessary, the proposal is adjusted taking into consideration comments received and made available to the study group electronically for decision with a further four-week interval. If there are no substantive comments, the JCA is considered approved. TSAG will be informed for review, possible comment, and endorsement. TSAG may consider the terms of reference of the JCA in the context of the overall work programme of ITU-T and may provide comments to modify the terms of reference.

¹ This electronic notification should be sent to the general e-mail reflector for the proposing study group and should also be a TD to the next meeting of the study group.

Where the lead study group for the subject has not yet been designated by WTSA or TSAG, or where the subject for the JCA is a broad subject potentially falling under the responsibility and mandate of a number of study groups as described in WTSA Resolution 2, then the proposal has to be made available to the membership for consideration. If a TSAG meeting is pending within the next two months, then an electronic notification² proposing the JCA, including the terms of reference (including scope, objectives and anticipated lifetime) and the chairman, is published four weeks prior to the TSAG meeting, giving opportunity for the membership to give their position at the meeting. If this is done at least four weeks prior to the TSAG meeting, following the resolution of any comments, the JCA may be established by TSAG by consensus at its meeting. If a TSAG meeting is not pending within the next two months, then an electronic notification as above is sent for the membership to give their position by electronic response. If the notification is sent less than four weeks before the TSAG meeting, no decision is taken at the TSAG meeting; the decision may be taken four weeks after the notification, excluding the meeting time. If necessary, the proposal is adjusted taking into consideration comments received and made available to the membership electronically for decision with a further four-week interval. If there are no substantive comments, the JCA is considered approved. The decision includes the designation of the group responsible (a study group or TSAG), the terms of reference (including scope, objectives and anticipated lifetime) and the chairman.

Figure 2-1 provides a schematic of the alternatives in proposing and approving the creation of a JCA.

² This electronic notification should be sent to the general e-mail reflector for the potentially involved study groups and TSAG and should also be a TD to the next meeting of TSAG.



A.1(12)_F2.1

* Nominal time period.

** If there are no substantive comments, the JCA is considered approved. If the JCA proposal is modified per comments received, it is again circulated for a four-week review. If there are no substantive comments, the JCA is considered approved.

Figure 2-1 – Alternatives in proposing and approving the creation of a JCA

2.2.3 JCAs are open, but (to restrict their size) should primarily be limited to official representatives from the relevant study groups that are responsible for work covered by the scope of the JCA. A JCA may also include invited experts and invited representatives of other SDOs and forums, as appropriate. All participants should confine inputs to a JCA to the purpose of the JCA.

2.2.4 The establishment of a JCA is to be announced in a TSB circular, which should include the terms of reference of the JCA, the chairman of the JCA, and the study group responsible for the JCA.

2.2.5 JCAs should work primarily by correspondence and electronic meetings. Any physical meeting considered necessary should be convened by the chairman of the JCA. Physical meetings should be supported by conferencing capabilities where possible, and both physical and electronic meetings should be scheduled as far as practicable at times that will provide maximum opportunity for broad participation. It is anticipated that physical meetings will be in conjunction with the meetings of the study group involved (in which case it is reflected in the collective letter for that study group) as far as practicable, but if a separate meeting is to be held, it is to be announced at least four weeks in advance by an (electronic) collective invitation letter.

2.2.6 Inputs to the work of a JCA should be sent to the JCA chairman and to the TSB counsellor concerned, and the latter will make these available to the members of the JCA.

2.2.7 JCAs may submit proposals to the relevant study groups to achieve alignment in the development of related Recommendations and other deliverables by the respective study groups. A JCA may also issue liaison statements.

2.2.8 JCA input and output documents and reports are made available to the ITU-T membership. Reports are issued after each JCA meeting. TSAG may monitor JCA activities through these reports.

2.2.9 TSB will provide support for a JCA, within available resource limits.

2.2.10 A JCA may be terminated at any time if the study groups involved agree that the JCA is no longer required. A proposal to do so, including justification, may be submitted by any study group involved or by TSAG, and examined for decision by the study group responsible for the JCA, after consulting the study groups involved and TSAG (via electronic means, if a TSAG meeting is not pending in the near future). A JCA may continue across a WTSA but will automatically be reviewed at the first TSAG meeting following the WTSA. A specific decision must be taken on the continuation of the JCA, potentially with adjusted terms of reference.

2.3 The roles of rapporteurs

2.3.1 The chairmen of study groups and working parties (including joint working parties) are encouraged to make most effective use of the limited resources available by delegating responsibility to rapporteurs for the detailed study of individual Questions or small groups of related Questions, parts of Questions, terminology, or amendment of existing Recommendations. Responsibility for review and approval of the results resides with the study group or working party.

2.3.2 Liaison between ITU-T study groups or with other organizations can be facilitated by rapporteurs or by the appointment of liaison rapporteurs.

2.3.3 The following guidelines should be used as a basis within each study group or working party to define the roles of rapporteurs, associate rapporteurs and liaison rapporteurs; however, they may be adjusted following careful deliberation of the need for change and with the approval of the relevant study group or working party.

2.3.3.1 Specific persons should be appointed as rapporteurs to be responsible for progressing the study of those Questions, or specific study topics, that are felt to be likely to benefit from such appointments. The same person may be appointed as rapporteur for more than one Question, or topic, particularly if the Questions, parts of Questions, terminology, or amendment of existing Recommendations concerned are closely related.

2.3.3.2 Rapporteurs may be appointed (and their appointments may be terminated) at any time with the agreement of the competent working party, or of the study group, where the Question(s) are not allocated to a working party. The term of the appointment relates to the work that needs to be done rather than to the interval between WTSA. If the related Question is modified by WTSA, for continuity purposes, the rapporteur may, at the discretion of the new study group chairman, continue to progress the relevant work until the next meeting of the study group.

2.3.3.3 Where the work so requires, a rapporteur may propose the appointment of one or more associate rapporteurs, liaison rapporteurs or editors, whose appointments should then be endorsed by the relevant working party (or study group). Again these appointments may be made or terminated at any time in accordance with the work requirements. An associate rapporteur assists the rapporteur, either in general or to deal with a particular point or area of study in a Question. A liaison rapporteur assists the rapporteur by ensuring there is effective liaison with other groups, by attending meetings of other designated groups to advise and assist in an official capacity, by correspondence with such groups or by any other means considered appropriate by the rapporteur. In the event that a liaison rapporteur is not appointed, the responsibility to ensure effective liaison resides with the rapporteur. The editor assists the rapporteur in the preparation of the text of draft Recommendations or other publications.

2.3.3.4 Rapporteurs, and their associate and liaison rapporteurs as well as the editors, play an indispensable role in coordinating increasingly detailed and often highly technical study. Consequently, their appointment should be primarily based on their expertise in the subject to be studied.

2.3.3.5 As a general principle, work by correspondence (including electronic messaging and telephone communications) is preferred and the number of meetings should be kept to a strict minimum, consistent with the scale and milestones agreed by the parent group. Where possible, meetings in related areas of study or within a work area covered by a JCA should be coordinated. In any case, this work should proceed in a continuous fashion between meetings of the parent group.

2.3.3.6 The rapporteur's responsibilities are:

- to coordinate the detailed study in accordance with guidelines established at working party (or study group) level;
- to the extent authorized by the study group, to act as a contact point and source of expertise for the allocated study topic with other ITU-T, ITU Radiocommunication Sector (ITU-R) and ITU Telecommunication Development Sector (ITU-D) study groups, other rapporteurs, other international organizations and other standards organizations (where appropriate) and TSB;
- to adopt methods of work (correspondence, including the use of the TSB EDH system, meetings of experts, etc.) as considered appropriate for the task;
- in consultation with the collaborators for the study topic, to review and update the work programme, which should be approved and reviewed periodically by the parent group (see clause 1.4.7);
- to ensure that the parent working party (or study group) is kept well informed of the progress of the study, particularly of work proceeding by correspondence or otherwise outside of the normal study group and working party meetings;
- in particular, to submit a progress report (e.g., of a rapporteur's meeting or editor's work) to each of the parent group's meetings (see suggested format in Appendix II), in the form of a TD to be submitted as soon as possible and not later than the first day of the meeting; when such a TD contains draft new or revised Recommendations, then it is encouraged, where possible, that it be submitted at least six weeks prior to the parent group's meeting;
- to give the parent working party or study group and TSB adequate advance notice of the intention to hold any meetings of experts (see clause 2.3.3.10 below), particularly where such meetings are not included in the original programme of work;

- to establish a group of active "collaborators" from the working party (or study group) where appropriate, with an updated list of those collaborators being given to TSB at each working party meeting;
- to delegate the relevant functions from the list above to associate rapporteurs and/or liaison rapporteurs, as necessary.

2.3.3.7 The basic goal of each rapporteur is to assist the study group or working party in developing new and revised Recommendations to meet changing requirements in telecommunication techniques and services. However, it must be clearly understood that rapporteurs should not feel under any obligation to produce such texts unless a thorough study of the Question reveals a clear need for them. If it turns out that this is not the case, the work should be concluded with a simple report to the parent group establishing that fact.

2.3.3.8 Rapporteurs are responsible for the quality of their texts, submitted by the study group for publication. They shall be involved in the final review of that text prior to it being submitted to the publication process. This responsibility extends only to text in the original language and should take into account applicable time constraints. (See Recommendation ITU-T A.11 on the publication of ITU-T Recommendations.)

2.3.3.9 Rapporteurs should normally base any draft new or substantially revised Recommendations on written contribution(s) from ITU-T members.

2.3.3.10 In conjunction with their work planning, rapporteurs must give advance notice of any meetings they arrange, not only to the collaborators on their Question or project, but also to the study group (see clause 2.3.3.11) and to TSB. TSB is not required to circulate convening collective letters for meetings below working party level. TSB will post a convening letter for rapporteur meetings (using a TSB-defined template), normally at least two months prior to the meeting, on the study group webpage, as provided by the study group.

2.3.3.11 The intention to hold rapporteur meetings, along with details of the issues to be studied, should be agreed in principle and publicized with as much notice as possible (normally at least two months) at study group or working party meetings (for inclusion in their reports) and via the study group webpage, for example. Not only should confirmation of the date and place of any meeting normally be provided to the collaborators (and any other ITU-T members who have indicated an interest in attending or submitting a contribution to the meeting), to the relevant working party chairman and to TSB at least two months prior to the meeting, but also visa support should be provided by the meeting host.

2.3.3.12 Rapporteurs should prepare a meeting report for each rapporteur meeting held and submit it as a TD to the next study group or working party meeting. See clause 3.3 for submission and processing of TDs.

This report should include the date, venue and chairman, an attendance list with affiliations, the agenda of the meeting, a summary of technical inputs, a summary of results and the liaison statements sent to other organizations.

Rapporteurs will ask, during each meeting, whether anyone has knowledge of patents or software copyrights, the use of which may be required to implement the Recommendation being considered. The fact that the question was asked shall be recorded in the meeting report, along with any affirmative responses.

2.3.3.13 Rapporteur meetings, as such, should not be held during working party or study group meetings. However, rapporteurs may be called upon to chair those portions of working party or study group meetings that deal with their particular area of expertise. In these cases, rapporteurs must recognize that the rules of the working party and study group meetings then apply and the more relaxed rules described above, particularly those that relate to document approvals and submission deadlines, would not apply.

2.3.3.14 The parent working party (or study group) must define clear terms of reference for each rapporteur. The general direction to be followed in the study should be discussed, reviewed as necessary and agreed periodically by the parent group.

2.3.3.15 When meetings are arranged to be held outside ITU premises, participants should not be charged for meeting facilities, unless agreed in advance by the study group. Meeting charges should be an exceptional case and only done if, for example, the study group is of the opinion that a meeting charge is necessary for the work to proceed properly. However, no participant should be excluded from participation if he or she is unwilling to pay the charge. Additional services offered by the host shall be voluntary, and there shall be no obligation on any of the participants resulting from these additional services.

3 Submission and processing of contributions

3.1 Submission of contributions

3.1.1 Member States and other duly authorized entities registered with a study group or its relevant group should submit their contributions to current studies via electronic means, in accordance with guidance from the Director of TSB (see Recommendation ITU-T A.2, clause 2).

3.1.2 Chairmen and vice-chairmen of study groups and working parties may at any time submit inputs as TDs, including, in particular, proposals likely to accelerate the debates; see clause 3.3 for submission and processing of TDs.

3.1.3 These contributions shall contain comments or results of experiments and proposals designed to further the studies to which they relate.

3.1.4 Contributors are reminded, when submitting contributions, that early disclosure of patent information is desired, as contained in the statement on Common Patent Policy for ITU-T/ITU-R/ISO/IEC (available at the ITU-T website). Patent declarations are to be made using the "Patent Statement and Licensing Declaration Form for ITU-T/ITU-R Recommendation | ISO/IEC Deliverable" available at the ITU-T website. See also clause 3.1.5 below.

3.1.5 General Patent Statement and Licensing Declaration: Any ITU Member State or ITU-T Sector Member or Associate may submit a general patent statement and licensing declaration using the form available at the ITU-T website. The purpose of this form is to give patent holders the voluntary option of making a general licensing declaration relative to patented material contained in any of their contributions. Specifically, the submitter of the licensing declaration declares its willingness to license, in case part(s) or all of any proposals contained in contributions submitted by the organization are included in ITU-T Recommendation(s) and the included part(s) contain items that have been patented or for which patent applications have been filed and whose use would be required to implement ITU-T Recommendation(s).

The general patent statement and licensing declaration is not a replacement for the individual (per Recommendation) patent statement and licensing declaration but is expected to improve responsiveness and early disclosure of the patent holder's compliance with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC.

3.1.6 Material such as text, diagrams, etc., submitted as a contribution to the work of ITU-T is presumed by ITU to have no restrictions in order to permit the normal distribution of this material for discussions within the appropriate groups and possible use, in whole or in part, in any resulting ITU-T Recommendations that are published. By submitting a contribution to ITU-T, authors acknowledge this condition of submission. In addition, authors may state any specific conditions on other uses of their contribution.

3.1.7 A contributor submitting software for incorporation in the draft Recommendation is required to submit a software copyright statement and licensing declaration form available at the ITU-T website. The form must be provided to TSB at the same time that the contributor submits the software.

3.1.8 Contributions that are to be considered at a study group or working party meeting shall reach TSB at least 12 calendar days before the meeting.

3.2 Processing of contributions

3.2.1 Contributions received at least two months before a meeting may be translated (see clause 3.2.2 below) and will be posted in the original and, if applicable, in translated languages, on the web as soon as practicable after they are received. They will be printed and distributed at the beginning of the meeting only to the participants present who request paper copies.

3.2.2 If a chairman, in agreement with the participants of his or her study group (or working party), states that the study group (or working party) is willing to use documents in the original language, no translations will be made.

3.2.3 Contributions received by the Director less than two months but not less than 12 calendar days before the date set for the opening of a meeting cannot be translated.

3.2.4 Contributions should be posted on the web no more than three working days after they are received by the secretariat.

3.2.5 Contributions received by the Director less than 12 calendar days before the meeting will not appear on the agenda of the meeting, will not be distributed and will be held for the next meeting. Contributions judged to be of extreme importance may be admitted by the Director at shorter notice. The final decision as to their consideration by the meeting shall be taken by the study group (or working party).

3.2.6 The Director should insist that contributors follow the rules established for the presentation and form of documents set out in Recommendation ITU-T A.2, and the timing given in clause 3.1.7. A reminder should be sent out by the Director whenever appropriate.

3.2.7 The Director, with the agreement of the study group chairman, may return to the contributor any document that does not comply with the general directives set out in Recommendation ITU-T A.2, so that it may be brought into line with those directives.

3.2.8 Contributions shall not be included in reports as annexes, but should be referenced as needed.

3.2.9 Contributions should, as far as possible, be submitted to a single study group. If, however, a participating body submits a contribution that it believes is of interest to several study groups, it should identify the study group primarily concerned; a single sheet giving the title of the contribution, its source and a summary of its contents will be issued to the other study groups. This single sheet will be numbered in the series of contributions of each study group to which it is issued.

3.3 TDs

3.3.1 TDs should be provided to TSB in electronic format. TSB shall post electronically those TDs submitted as electronic files as soon as they become available; those submitted as paper copies will be posted as soon as practicable.

3.3.2 Extracts from reports of other study group meetings or from reports of chairmen, rapporteurs or drafting groups shall be published as TDs. They will be printed and distributed during the meeting only to the participants present who request paper copies.

3.3.3 TDs input before the start of the study group or working party meeting, including documents from the ITU secretariat, should be posted on the relevant page of the website not later than three working days from the date on which they are received by the secretariat, to ensure their availability not later than seven calendar days before the start of the meeting. This deadline shall not extend to administrative documents or reports on events that have taken place less than 21 calendar days before the start of the meeting, nor to proposals from chairmen and convenors of ad hoc groups, compilations of proposals prepared by chairmen or the secretariat, or documents specifically requested by the meeting. Reports on events that have taken place less than 21 calendar days before the start of the meeting should normally be posted on the relevant page of the website not later than two calendar days before the beginning of the discussion of the item in question at the meeting, unless otherwise agreed by the meeting.

3.3.4 TDs containing extracts from reports of other study group or working party meetings shall not be reissued by TSB as contributions, since they have usually served their purpose at the meeting and some relevant parts may already have been included in the report of the meeting.

3.3.5 TDs can be produced during the meeting.

3.3.6 TDs will be printed and distributed at the beginning of the meeting (and during the meeting) only to the participants present who request paper copies.

3.4 Electronic access

3.4.1 TSB will post electronically all documents (e.g., contributions, TDs (including liaison statements)) as soon as electronic versions of these documents are available. Appropriate search facilities for posted documents should be provided.

Annex A

Template to describe a proposed new Recommendation in the work programme

(This annex forms an integral part of this Recommendation.)

Question:	/	Proposed new ITU-T Recommendation	<Meeting date>
Reference and title:	Recommendation ITU-T <X.xxx> "Title"		
Base text:	<C nnn> or <TD nnnn>		Timing: <Month-Year>
Editor(s):	<Name, membership, e-mail address>		Approval process: <AAP or TAP>
Scope (defines the intent or object of the Recommendation and the aspects covered, thereby indicating the limits of its applicability):			
Summary (provides a brief overview of the purpose and contents of the Recommendation, thus permitting readers to judge its usefulness for their work):			
Relations to ITU-T Recommendations or to other standards (approved or under development):			
Liaisons with other study groups or with other standards bodies:			
Supporting members that are committing to contributing actively to the work item: <Member States, Sector Members, Associates, Academia>			

Appendix I

Rapporteur progress report format

(This appendix does not form an integral part of this Recommendation.)

The following format is recommended for the progress reports of rapporteurs to enable a maximum transfer of information to all concerned:

- a)* brief summary of contents of report;
- b)* conclusions or Recommendations sought to be endorsed;
- c)* status of work with reference to work plan, including baseline document if available;
- d)* draft new or draft revised Recommendations;
- e)* draft liaison in response to or requesting action by other study groups or organizations;
- f)* reference to contributions considered part of assigned study and summary of contributions considered at rapporteur group meetings (see Note);
- g)* reference to submissions attributed to collaborators of other organizations;
- h)* major issues remaining for resolution and draft agenda of future approved meeting, if any;
- i)* response to question on knowledge of patents;
- j)* list of attendees at all meetings held since last progress report.

A meeting report shall clearly indicate in its title the Question number, meeting venue and meeting date. In general, the title shall be of the form "Rapporteur Report Qx/x".

Any draft Recommendations produced shall be presented as separate TDs (one document per Recommendation). The title of the TD shall be of the form "Draft new Recommendation ITU-T X.x: abc", where "abc" stands for the title of the draft Recommendation, or "Draft revised Recommendation ITU-T X.x: abc", or "Draft Amendment 1 to Recommendation ITU-T X.x: abc", etc.

A progress report shall not be used as a vehicle to violate the rules concerning the submission of contributions that are inappropriate to the assigned study task.

NOTE – The progress report may make reference to the meeting reports (see clause 2.3.3.12) in order to avoid duplication of information.

Recommendation ITU-T A.2

Presentation of contributions to the ITU Telecommunication Standardization Sector

(1984; 1988; 1993; 1996; 2000; 2004; 2008; 2012)

1 With regard to the presentation of contributions to the study of Questions assigned to the ITU Telecommunication Standardization Sector (ITU-T), the following general directives should be applied:

- a) Contributions should be concisely drafted, avoiding unnecessary details, tables or statistics that make no direct contribution to the study of a Question. They should be clearly written with a view to being universally understood, i.e. they should be as codified as possible, use international terminology and avoid the technical jargon peculiar to the author's country. Contributors should use the units, letter symbols and graphical symbols of the international system of units (SI) as supported by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). In addition, Coordinated Universal Time (UTC) should be used to designate time.
- b) A contribution should not, as a rule, exceed about 2500 words (requiring no more than five printed pages to be distributed), nor should it include more than three pages of figures (making eight pages in all). It should be accompanied by an abstract that is no more than 150-200 words, and which summarizes the aim of the contribution and its technical content. Whenever possible, a section with the heading Rationale (or Discussion) should be used for the main text, which sets forth the essential information required for justifying the proposals or conclusions of the contribution. The contribution should end with a Proposal or, if not feasible, a Conclusion (both if required). For self-explanatory proposals, the rationale section may be omitted. These directives do not apply to draft Recommendations.
- c) Documents of purely theoretical interest that are not directly related to the Questions under study should not be submitted.
- d) Articles that have been or are to be published in the technical press should not be submitted to ITU-T, unless they relate directly to Questions under study.
- e) Passages of an unduly commercial nature included in a contribution may be deleted by the Director of the Telecommunication Standardization Bureau (TSB) in agreement with the chairman; the author of the contribution shall be advised of any such deletions.

Detailed guidelines recommended for the preparation of contributions are provided in Appendix I. Details on the presentation of ITU-T texts can be found in the "Author's Guide for drafting ITU-T Recommendations" (referred to as "Guide" in the following).

2 With regard to the submission of contributions and TDs (including liaison statements), all documents to ITU-T should, as far as possible, be sent using electronic means; if no such facilities are available to the contributor, submission of paper only copies is acceptable.

Electronic submission facilities include e-mail and the ITU web-based interface. Detailed information and instructions for these methods are maintained by TSB on the ITU-T website and disseminated periodically via TSB circular.

If contributions are submitted as paper documents, they shall be addressed to TSB and copied to the study group chairmen and vice-chairmen, working party chairmen and concerned rapporteur(s).

3 Contributions should be printable in A4 format, as far as possible. The first page must have the standard layout of ITU-T contributions. Drafts must be in one or more of the official and working languages of the Union. When existing ITU-T texts already translated have been used in some parts of a contribution, a copy of the contribution with a precise reference to the original sources also should be sent to TSB. If ITU-T figures are used in the contributions, the ITU-T number must not be deleted, but if the figure has been modified, the abbreviation "mod" should be added after the number. If not required by further development of the text, use of colours in the text of contributions or other submitted documents should be avoided.

4 If a contribution contains electronic material (software, test data, etc., referred to herein as "software"), it should be attached to the text sent to TSB.

Contributors are encouraged to submit formal language descriptions as electronic attachments.

Appendix I

Detailed guidelines for the preparation of contributions relative to the study of ITU-T Questions

(This appendix does not form an integral part of this Recommendation.)

NOTE – These guidelines will be updated by TSB as necessary. The updated version will be maintained on the ITU-T website and issued in a TSB circular.

The guidelines in this appendix supplement the general directives set out in Recommendation ITU-T A.2. For ease of reference, they are organized under relevant headings in two categories: one deals with the contents of the contribution and the other with the mechanics of its presentation.

I.1 Contents of contribution

A contribution should be clear, concise and comprehensive in itself. It should start with the Heading and the Abstract, which are independent sections. The main text of the contribution should contain two sections: Rationale (or Discussion) and Proposal (or Conclusion). Supplementary sections such as annexes, if necessary, should follow the main text. The guidelines for the structure of the main text do not apply to draft Recommendations or to submission by rapporteurs.

I.1.1 *Heading* – The heading of a contribution submitted to TSB should provide:

- study group Question number(s) that the contribution is addressing;
- place and date of the meeting to which the contribution is directed;
- study group and working party to which the contribution should be submitted;
- source of the contribution: originating country and/or organization;
- title of the contribution;
- contact information for the contribution originator and/or representative: name, organization, country, telephone, fax and e-mail address.

A template that defines the recommended heading format is available (under "Guides, Tools, and Templates") on the ITU-T study group and TSAG websites.

I.1.2 *Abstract* – The abstract should outline clearly and concisely the aim (for example, proposal for a new Recommendation) and the content (proposals and/or conclusions of the contribution). In addition, it should enable prospective readers to determine quickly whether the contribution contains information in their area of interest and, often, which working party(ies) should review the contribution. This is a very important part of the document and would normally be prepared after the other sections are written. An abstract should not exceed 150-200 words. It should be understandable by other study groups and not just the intended readers of the contribution.

I.1.3 *Rationale (Discussion)* – This section should provide discussion, reasons and justification for the proposals or conclusions. It develops the theme, describing the methods used and the observations or findings, and comments on their significance.

I.1.4 *Proposal (Conclusion)* – The main text should end with a conclusion that, whenever possible, should be in the form of a concrete proposal indicating the intended disposition of the contribution. It would be useful to make the following distinction between Proposal and Conclusion, so that a standard approach to their application may be adopted. The heading Proposal should be used when the section offers suggestions for acceptance (such as solutions, plans and changes the contributor expects to be implemented) and when decisions or actions are requested. The heading Conclusion should be used when it is merely informational, such as summarizing observations and no decision about a course of action is expected. If both appear in a contribution, the proposals should follow the conclusions.

I.1.5 *Supplementary Sections* – Supporting or more detailed information that might interrupt the flow of ideas in the main text should be placed in the sections containing annexes, appendices, references and attachments. A solid line can be used to separate such sections from the main text. "The Guide" describes the distinction between the uses of Annex and Appendix.

I.2 Mechanics and presentation

I.2.1 *Clause numbering* – The contribution should be structured logically and, whenever clarity and flow demand, hierarchically, with discrete clauses and subclauses for presenting different levels of detail. Different clauses and subclauses in the main text should be designated with decimal numbers, adhering as much as possible to the hierarchical numbering system recommended for ITU-T texts (see "Guide"); for example, 1.1, 1.2.3. Examples for numbering the supplementary sections are A.1.1 of Annex A and VI.3.4 of Appendix VI.

I.2.2 *Page numbering* – The title page should be left unnumbered. All the following pages should be numbered consecutively from page 2, including tables, annexes, appendices or attachments. Page numbers should normally be centred at the top of the page. Each page should include the document number (if available) immediately below the page number. It is useful to show the total number of pages with the page number, e.g. 2 of 10.

I.2.3 *Figures and diagrams* – Figures and diagrams must be clear and legible when printed in A4 format.

I.2.4 *Formulae* – Mathematical formulae should only be presented for explaining texts. Details of how they are derived should be avoided.

I.2.5 *Quotations* – Simple reference to the document number or paragraph number of an existing text or key phrase should be used instead of lengthy quotes. Material available elsewhere in ITU-T should not be reproduced or quoted at length. Excerpts or brief summaries may be included in the contribution when it is known that the members of the ITU-T study group do not have ready access to such material.

I.2.6 *References* – Reference to other ITU-T contributions or Recommendations should be made by using the official document number, e.g. COM 14-10. If the referenced contribution belongs to a previous study period, this fact should be noted as well.

References to standards other than ITU or ISO/IEC publications or standards should conform to the requirements of Recommendation ITU-T A.5. Other publications not covered by Recommendation ITU-T A.5 may be referenced in a Bibliography.

(See "Guide" for more information on references and bibliographies.)

I.2.7 *Revision to existing text* – If a contribution proposes modifications to an existing text, e.g. draft Recommendation, the portions of the text to be modified should be clearly shown with revision marks. Adequate indications shall also be given to identify any changes proposed with regard to the previous version of the same text.

Such change indications could be made, for example, by strikethrough, underlining and by vertical revision bars (|) appearing at the margin of the page.

Recommendation ITU-T A.4

Communication process between the ITU Telecommunication Standardization Sector and forums and consortia

(1996; 2000; 2002; 2006; 2007; 2012)

1 Introduction

The purposes of the International Telecommunication Union are contained in Article 1 of the Constitution. These include the aim "to promote, at the international level, the adoption of a broader approach to the issues of telecommunications in the global information economy and society, by cooperating with other world and regional intergovernmental organizations, and those non-governmental organizations concerned with telecommunications".

Also noted are the challenges faced by the Union in achieving its purposes in the changing telecommunication environment, both in the period covered by the Strategic Plan for the Union for 1995-1999 and in the following period, as stated in Resolution 1 (Plenipotentiary Conference, Kyoto, 1994). The Annex to Resolution 1 elaborates the Strategic Plan. For the Standardization Sector, its strategy includes recognition of the growing influence of industry forums, and a specific goal to develop appropriate agreements and cooperative relationships with other organizations, including forums. Among the priorities identified for the Sector is the objective "to continue to cooperate with other global and regional standardization organizations and industry forums to harmonize the development and implementation of global telecommunication standards".

In order to facilitate the development of cooperative relationships with forums, and to encourage information exchange, it is deemed necessary to provide guidance on the means of communication. In particular, it is of benefit to establish procedures for use when structuring the communications process between ITU-T and forums and consortia.

WTSA decides that the following procedures be applied.

2 Procedures

Study group chairmen are encouraged to engage in two-way communication, where appropriate, with representatives of forums/consortia, and to invite presentation to their study groups of the work of the forums/consortia, as identified by the study group.

In addition, procedures have been introduced for a formal communication process between ITU-T (or one or more of the study groups) and forums/consortia that qualify according to the criteria in Annex A. The communication process permits document exchange between ITU-T and qualified forums/consortia. Establishing a communication process provides a framework for ongoing communications, in order to:

- prevent inadvertent duplication of effort, while allowing each organization to pursue its own mandate;
- provide authoritative information regarding one organization's dependencies on the other's work;
- exchange information on topics of mutual interest.

2.1 Establishment of the communication process

Establishment of a communication process with a forum/consortium should be considered on a case-by-case basis, and should be evaluated with due care and diligence using the set of criteria in Annex A. Normally, the process is established at the study group level. In the case of groups associated with one or more study groups, the evaluation and decision to proceed should be carried out by the lead study group. To avoid multiple requests to a forum/consortium for information pertaining to the criteria in Annex A, and to facilitate evaluation by study groups, the Director of TSB should make the request to the forum/consortium and subsequently make a preliminary analysis of the response. A schematic diagram of the communication process is provided in Appendix I.

2.1.1 Communication process initiated by an ITU-T study group

If a study group considers that it is beneficial to establish a communication process with a forum/consortium, the study group should first check the ITU-T A.4-qualified organizations list (see 2.3) and obtain the Director's analysis. The study group shall review the analysis and make a decision whether or not to communicate with the forum/consortium. If the forum/consortium in question is not on the list, the study group chairman asks the Director to request the forum/consortium to provide the information and fill in the questionnaire relating to the qualifying criteria set forth in Annex A. The Director performs a preliminary analysis of the forum/consortium and transmits it to the affected study group(s), which shall review the analysis and make a decision whether or not to communicate. Any areas of concern should be immediately shared with other interested study group chairmen and the Director. If the study group decides to approve, the study group chairman shall establish the communication process. The study group chairman should facilitate the process as described in 2.2.

2.1.2 Communication process initiated by a forum/consortium

If a forum/consortium wishes to establish a communication process with a study group, that study group should first check the ITU-T A.4-qualified organizations list (see 2.3) and obtain the Director's analysis. The study group shall review the analysis and make a decision whether or not to communicate with the forum/consortium. If the forum/consortium is not on the list, the procedure described for this case in 2.1.1 is applied. Any areas of concern should immediately be shared with other interested study group chairmen and the Director. If the study group decides to approve, the communication process can be established. The study group chairman should facilitate the process as described in 2.2.

If a forum/consortium contacts the Director of TSB to establish a communication process with ITU-T, the Director should first determine whether it is appropriate for:

- a)* ITU-T (for related policy issues); or
- b)* one or more study groups (for topics relating to their work).

In case *a*), the Director evaluates the forum/consortium according to the criteria in Annex A. If the Director decides to approve, he shall establish the communication process and inform TSAG and all study groups.

In case *b*), the Director performs a preliminary analysis and transmits it to the affected study group(s), which shall proceed as outlined in the first paragraph of 2.1.2. If multiple study groups are involved, the decision of each study group should be communicated to the others, to TSAG and to the Director of TSB.

2.2 Communication process once established

2.2.1 Documents sent to ITU-T A.4-qualified forums/consortia

A proposal to send a liaison statement to an ITU-T A.4-qualified forum/consortium can arise from work by a rapporteur group, working party or study group. The decision to send such information is made by the study group chairman in consultation with the relevant working party chairman, and, if arising from a study group meeting, with the agreement of the study group. The documentation is sent to the forum/consortium by TSB on behalf of the study group.

When necessary, between scheduled meetings, the liaison statement may be prepared by an appropriate correspondence process and approved by the study group chairman in consultation with the study group management.

2.2.2 Documents received from ITU-T A.4-qualified forums/consortia

Documents submitted to ITU-T by qualified forums/consortia should conform to criterion 8 in Annex A. These documents are not issued as Contributions. As soon as they arrive they are made available, with the agreement of the study group chairman for advance consideration by the relevant group. Moreover, they are issued as a document to the relevant group with a reference to the originating forum/consortium, i.e. as a Temporary Document at a study group or working party meeting, or as a document at a rapporteur meeting. In the latter case, the receipt and disposition of the document received should be recorded in the report of the rapporteur meeting.

2.3 ITU-T A.4-qualified organizations list

The Director of TSB is requested to maintain an up-to-date ITU-T A.4-qualified list of the forums/consortia that are under evaluation and/or have been approved for the communication process, including identification of the study groups concerned, and make it available online.

2.4 Copyright arrangements

The subject of modifications to texts and arrangements for royalty-free copyright licenses, including the right to sub-license, for texts accepted by either ITU-T or by forums/consortia and their publishers and others, is a matter to be agreed upon between TSB and the particular forums/consortia. However, the originating organization retains the copyright for its texts.

Annex A

Qualifying criteria for forums/consortia communication process

(This annex forms an integral part of this Recommendation.)

NOTE – An administration may require that "communications" to ITU-T or its study groups, from a forum/consortium within that administration's jurisdiction, follow its established national procedures.

Forum/consortium attributes	Desired characteristics
1) Objectives/relationship of work to ITU-T work	Objectives should refer to use of International Standards/Recommendations, or to the provision of input into international standards organizations, especially ITU-T.
2) Organization: <ul style="list-style-type: none"> – legal status; – geographic scope; – secretariat; – nominated representative. 	<ul style="list-style-type: none"> – should indicate in which country/countries it has legal status; – should be global (i.e., should involve more than one region of the world); – permanent secretariat should exist; – should be willing to nominate a representative.
3) Membership (openness)	<ul style="list-style-type: none"> – forums/consortia membership criteria should not preclude any party with material interest, especially ITU Member States and Sector Members; – membership should comprise a significant representation of telecommunication interests.
4) Technical subject areas	Should be relevant to a particular study group(s) or ITU-T as a whole.
5) IPR Policy and Guidelines on: <ul style="list-style-type: none"> a) patent; b) software copyright (if applicable); c) marks (if applicable); and d) copyright. 	<ul style="list-style-type: none"> a) should be consistent with "Common Patent Policy for ITU-T/ITU-R/ISO/IEC" and "Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC"*; b) should be consistent with "ITU-T Software Copyright Guidelines"*; c) should be consistent with "ITU-T Guidelines related to the inclusion of Marks in ITU-T Recommendations"; d) ITU and ITU Member States and Sector Members should have the right to copy for standardization-related purposes (see also Rec. ITU-T A.1 with regard to copying and distribution).
6) Working methods/processes	<ul style="list-style-type: none"> – should be well-documented; – should be open and fair; – should support competition; – should explicitly consider anti-trust issues.
7) Outputs	<ul style="list-style-type: none"> – outputs available to ITU-T should be identified; – process for ITU-T to obtain outputs should be identified.
8) Documents submitted to ITU-T	<ul style="list-style-type: none"> – should contain no proprietary information (no distribution restriction); – should indicate source within the forum/consortium (e.g., committee, subcommittee, etc.); – should indicate degree of stability of the document (e.g., preliminary, mature, stable, proposed date of adoption, etc.); – should indicate degree of approval of document (i.e., per cent of total forum membership involved and per cent of total forum membership that approved the document).
*) Particularly, licences must be offered on a non-discriminatory basis on reasonable terms and conditions (whether free of charge or with monetary compensation) to both members and non-members.	

Appendix I

Establishment of a process for cooperation and exchange of information under Rec. ITU-T A.4

(This appendix does not form an integral part of this Recommendation.)

	1 Initiation (includes questionnaire in Annex A)	2 Evaluation according to the criteria	3 Decision	4 Process once established = implementation
2.1.1	Initiation of the request by an SG	The SG checks the ITU-T A.4-qualified list and reviews the analysis; if not on the list, see 2.1.2 b)	The SG decides to communicate	Communication process put into practice by the SG
2.1.2	Initiation of the request by a forum to an SG	The SG checks the ITU-T A.4-qualified list and reviews the analysis; if not in the list, see 2.1.2 b)	The SG makes a decision to approve communication	Communication process put into practice by the SG
2.1.2 a)	Initiation of the request by a forum to the Director for related policy issues	Evaluation by the Director	The Director decides to approve and informs TSAG + SGs	Communication process put into practice by the Director
2.1.2 b)	Initiation of the request by a forum to the Director for SG issues	The Director performs a preliminary analysis, the SG reviews the analysis	The SG decides to communicate, the SG informs other SGs, TSAG and the Director	Communication process put into practice by the SG
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;">Director adds forum under evaluation to the list</div> <div style="border: 1px solid black; padding: 5px; width: 30%;">Director indicates on the list that forum is ITU-T A.4-qualified</div> </div>				

Recommendation ITU-T A.5

Generic procedures for including references to documents of other organizations in ITU-T Recommendations

1 Scope

This Recommendation provides generic procedures for normatively referencing the documents of other organizations in ITU-T Recommendations. Annex B provides the criteria to qualify a referenced organization. Clauses 6 and 7 describe the procedures in detail. Annex A provides the format for documenting a study group or working party decision with respect to making the reference. Specific information regarding qualified organizations can be found on the ITU-T website.

NOTE – These generic procedures do not apply to references to standards produced by ISO and IEC. The long-standing ability to make such references continues unchanged.

The case of ITU-T accepting texts, in part or in whole, from another organization is addressed in [b-ITU-T A.25].

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

None.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 normative reference [b-ITU-T A.1]: Another document that contains provisions which, through reference to it, constitute provisions to the referring document.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 approved document: An official output (such as a standard, a specification, an implementation agreement, etc.) which has been formally approved by an organization.

3.2.2 non-normative reference: The whole or parts of a document where the referenced document has been used as supplementary information in the preparation of the Recommendation or to assist the understanding or use of the Recommendation, and to which conformance is not necessary.

3.2.3 referenced organization: An organization for which an ITU-T study group identifies the need to make a specific reference (either normative or non-normative) to one of its document.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

None.

5 Conventions

None.

6 Generic procedures for including references to documents of other organizations in ITU-T Recommendations

6.1 An ITU-T study group or a member of a study group may identify the need to make a specific reference (either normative or non-normative) to a document from another organization within a specific draft Recommendation. It is preferred that, rather than making reference to an entire document from an outside organization, reference be made to only the specific section(s) concerned.

The requirements of clauses 6.2 and 6.3 do not apply for non-normative references, since such referenced documents are not considered to be an integral part of an ITU-T Recommendation. They are documents that add to the reader's understanding but are not essential to the implementation of, or compliance with, the Recommendation.

6.2 For normative references, a member submits a contribution, or the Rapporteur or Editor submits a TD, to the study group or working party providing information, as outlined in clauses 6.2.1 to 6.2.10.

The study group or working party evaluates this information and decides whether to make the reference. The format for documenting the study group or working party decision is given in Annex A.

Specific criteria for the qualification of the considered organization are provided in Annex B. The list of those qualified organizations is on the Databases page of the ITU-T website².

6.2.1 A clear description of the document considered for reference (type of document, title, number, version, date, etc.).

² The current website is: <http://www.itu.int/en/ITU-T/extcoop/Pages/sdo.aspx>

6.2.2 Status of approval. Referencing a document that has not yet been approved by the referenced organization can lead to confusion; thus, normative referencing is usually limited to approved documents. If absolutely necessary, such a reference can be made where cooperative work requiring cross-references is being approved by ITU-T and another organization in approximately the same time-frame.

6.2.3 Justification for the specific reference.

6.2.4 Current information, if any, about intellectual property rights (IPR) issues (patents, copyrights, trademarks).

6.2.5 Other information that might be useful in describing the "quality" of the document (e.g., whether products have been implemented using it, whether conformance requirements are clear, whether the specification is readily and widely available).

6.2.6 The degree of stability or maturity of the document (e.g., length of time it has existed).

6.2.7 Relationship with other existing or emerging documents.

6.2.8 When a document is to be referenced in an ITU-T Recommendation, all explicit references within the referenced document should also be listed.

6.2.9 Qualification of referenced organization (per clause 7). This need only be done the first time a document from the referenced organization is being considered for referencing and only if such qualification information has not been documented already.

6.2.10 A full copy of the existing document. No reformatting is necessary. The objective is to have referenced documents available via the web at no cost, so that the study group or working party may proceed with its evaluation. Accordingly, if a document to be referenced is available in this manner, it is sufficient for the contributing member to provide its exact location on the web. On the other hand, if the document is not available in this manner, a full copy must be provided (in electronic format if permissible by the referenced organization, otherwise in paper format).

6.3 For normative references only, the study group or working party evaluates the above information and comes to its conclusions based on the usual consensus process. The decision of the study group or working party shall be documented using the format in Annex A. This requirement must be completed, at the latest, at the time the Recommendation is determined under the traditional approval process (TAP) or consented under the alternative approval process (AAP).

The study group or working party report may simply note that the procedures of Recommendation ITU-T A.5 have been satisfied and provide a pointer to the document where the full details reside.

6.4 If the study group or working party decides to make the normative reference, it should be introduced with the standard text provided in clause 2 of the "Author's guide for drafting ITU-T Recommendations".

NOTE – In the case of texts produced jointly by ITU-T and ISO/IEC JTC 1, it is recognized that clause 6.6 of the [Rules for presentation of ITU-T | ISO/IEC common texts](#)³ apply.

³ The current website is: <http://itu.int/en/ITU-T/about/groups/Documents/Rules-for-presentation-ITU-T-ISO-IEC.pdf>

7 Qualification of referenced organizations

7.1 To ensure the continued quality of the ITU-T Recommendations, not only is it necessary to evaluate the document being proposed for normative reference, but it is also necessary for the study group or working party to consider the referenced organization according to the criteria set out in clauses 7.1.1, 7.1.2 and 7.1.3.

7.1.1 Qualification of the referenced organization according to Annex B should be conducted before considering a normative reference from that organization. If the referenced organization has already been qualified according to the criteria in Annex B (or previously to Recommendation ITU-T A.4 or Recommendation ITU-T A.6), the evaluation may not need to be repeated, and only a note of the result is required.

7.1.2 In addition, the referenced organization should have a process by which its output documents are published and regularly maintained (i.e. reaffirmed, revised, withdrawn, etc.).

7.1.3 The referenced organization should also have a document change control process, including a clear, unambiguous document numbering scheme. In particular, a feature to look for is that updated versions of a given document be distinguishable from the earlier versions.

7.2 Qualification of an organization according to the criteria in Annex B is reviewed on a regular basis by study groups that need to make normative references to documents of that organization. In particular, if the patent policy of that organization has changed, it is important to check that the new patent policy is consistent with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the Guidelines for the Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC⁴.

⁴ See <http://www.itu.int/en/ITU-T/ipr>

Annex A

Format for documenting a study group or working party decision

(This annex forms an integral part of this Recommendation.)

The decision of the study group or working party with respect to making the normative reference must be documented in the meeting record using the following format:

- 1** Clear description of the document.

(type of document, title, number, version, date, etc.).
- 2** Status of approval:

(only approved documents should be considered)
- 3** Justification for the specific reference.
- 4** Current information, if any, about IPR issues:

(including patents, copyrights, trademarks).
- 5** Other useful information describing the "quality" of the document:

(e.g. length of time it has existed, whether products have been implemented using it, whether conformance requirements are clear, whether the specification is readily and widely available).
- 6** The degree of stability or maturity of the document.
- 7** Relationship with other existing or emerging documents.
- 8** When a document is referenced in an ITU-T Recommendation, all normative references within that referenced document should also be listed.

NOTE – A separate review is not required for all of these normative references. However, the referenced organization, if different from ISO or IEC, needs to be qualified under Annex B (and previously under Recommendation ITU-T A.4 or Recommendation ITU-T A.6). If the referenced organization for a normative reference is not qualified, a qualification under Annex B should be performed first. In addition, if the ITU-T Recommendation is planned for approval under the traditional approval process (TAP) found in Resolution 1 of the World Telecommunication Standardization Assembly (WTSA), all normative references in the referenced document should be reviewed.

9 Qualification of referenced organization:

(This needs to be done only the first time that a document from the referenced organization is being considered for referencing, and only if such qualification information has not already been documented or if it has changed).

9.1 Qualification under Annex B.

9.2 Document publication and maintenance process.

9.3 Document change control process.

10 Location of a full copy of the document.

11 Other (for any supplementary information).

Annex B

Criteria for qualifying organizations

(This annex forms an integral part of this Recommendation.)

Organization attributes	Desired characteristics
1) Objectives/relationship of work to ITU-T work	Should refer to development, adoption, implementation and use of national, regional or international standards, or to the provision of input into international standards organizations, especially ITU-T.
2) Organization: <ul style="list-style-type: none"> – legal status; – geographic scope; – accreditation; – secretariat; – nominated representative. 	<ul style="list-style-type: none"> – should indicate in which country/countries it has legal status; – should indicate the scope of the standards of the organization; – should indicate the accrediting entity; – should identify the permanent secretariat; – should nominate a representative.
3) Membership/participation (openness)	<ul style="list-style-type: none"> – should describe the membership/participation model; – membership/participation criteria should not preclude any party with material interest, especially ITU Member States and Sector Members; – membership/participation should comprise a significant representation of telecommunication interests.
4) Technical subject areas	Should be relevant to a particular study group(s) or ITU-T as a whole.
5) IPR Policy and Guidelines on: <ul style="list-style-type: none"> a) patents; b) software copyright (if applicable); c) marks (if applicable); and d) copyright 	<ul style="list-style-type: none"> a) should be consistent with the "Common Patent Policy for ITU-T/ITU-R/ISO/IEC" and the "Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC"*; b) should be consistent with the "ITU-T Software Copyright Guidelines"*; c) should be consistent with the "ITU-T Guidelines related to the inclusion of Marks in ITU-T Recommendations"; d) ITU and ITU Member States and Sector Members should have the right to copy for standardization-related purposes (see also [b-ITU-T A.1] with regard to copying and distribution).
6) Working methods/processes	<ul style="list-style-type: none"> – should be documented; – should be open, fair and transparent; – should document anti-trust policy.
7) Outputs	<ul style="list-style-type: none"> – should identify outputs available to ITU-T; – should identify the process for ITU-T to obtain outputs.

*) particularly, licences must be offered on a non-discriminatory basis and on reasonable terms and conditions (whether free of charge or with monetary compensation) to both members and non-members.

Bibliography

- [b-ITU-T A.1] Recommendation ITU-T A.1 (2012), *Working methods for study groups of the ITU Telecommunication Standardization Sector (ITU-T)*.
- [b-ITU-T A.25] Recommendation ITU-T A.25 (2016), *Generic procedures for incorporating text between ITU-T and other organizations*.

Recommendation ITU-T A.6

Cooperation and exchange of information between the ITU Telecommunication Standardization Sector and national and regional standards development organizations

(1998; 2000; 2002; 2006; 2007; 2012)

1 Scope

In order to facilitate the development of cooperative relationships with national and regional standards development organizations, and to encourage cooperation and information exchange, procedures are provided, founded on the basis of reciprocity, for use when structuring the cooperation and information exchange process.

"National and regional standards development organizations", referred to as "standards development organizations" (SDOs) in the text that follows, are those organizations that develop standards recognized and implemented at the national and/or regional level. In this Recommendation, the term "approved document" refers to an official output of a standards development organization that has been formally approved. The term "draft document" refers to an output, which is still in draft form.

2 Procedures

Study groups are encouraged to make use of documents, both approved and in draft form, provided by standards development organizations, as appropriate. Similarly, standards development organizations are encouraged to make use of draft or approved ITU-T Recommendations. This Recommendation contains procedures for formal cooperation and exchange of information between ITU-T study groups and standards development organizations that qualify, according to the criteria in Annex A. In particular, this Recommendation addresses the case of an organization accepting texts, in part or in whole, from another organization. The case of normative referencing is addressed in Recommendation ITU-T A.5. Establishing a communication process provides a framework for ongoing communications to:

- prevent inadvertent duplication of effort, while allowing each organization to pursue its own mandate;
- provide authoritative information regarding one organization's dependencies on the other's work;
- exchange information on topics of mutual interest.

2.1 Establishment of the process for cooperation and exchange of information

Establishment of a process for cooperation and exchange of information between ITU-T study groups and standards development organizations should be considered on a case-by-case basis, and should be evaluated with due care and diligence using the set of criteria in Annex A. For ITU-T, the process is established at the study group level; for standards development organizations, the process is established at the appropriate level. To avoid multiple requests to a standards development organization for information pertaining to the criteria in Annex A, and to facilitate evaluation by study groups, the Director of TSB makes such requests, and subsequently makes an analysis of the responses to verify that the organizations meet the relevant criteria. A schematic diagram of the process is provided in Appendix I.

2.1.1 Exchange of information initiated by an ITU-T study group

If a study group considers that it is beneficial to establish an exchange of information or documents with a standards development organization, the study group should first consult the ITU-T A.6-qualified organizations list (see 2.3) and obtain an analysis of that standards development organization from the Director. The study group reviews the analysis and decides whether or not to communicate with the standards development organization. If the standards development organization in question is not on the list, the study group chairman asks the Director to request the standards development organization to provide the information and fill in the questionnaire relating to the qualifying criteria set forth in Annex A. The Director performs a preliminary analysis of the standards development organization and transmits it to the affected study group(s), which shall review the analysis and make a decision whether or not to communicate. Any areas of concern should be immediately shared with other interested study group chairmen and the Director. If the study group decides to approve, the study group chairman establishes the cooperation document acceptance and exchange processes in accordance with 2.2.

2.1.2 Exchange of information initiated by a national or regional standards development organization

If a standards development organization contacts the Director of TSB to establish an exchange of information or documents with ITU-T, the Director should first determine whether the exchange of information or documents is relevant to:

- a)* the ITU-T Sector (for related policy issues); or
- b)* one or more study groups (for topics relating to their work).

In case *a)*, the Director evaluates the standards development organization according to the criteria in Annex A. If the Director decides to approve, he establishes the exchange and informs TSAG and all ITU-T study groups.

In case *b)*, the Director performs an analysis and transmits it to the affected study group(s), which shall review the analysis and make a decision whether or not to communicate. If multiple study groups are involved, the decision of each study group should be communicated to the others, to the TSAG and to the Director of TSB.

2.2 Process for cooperation and exchange of information once the process is established

2.2.1 Documents sent to ITU-T A.6-qualified national and regional standards development organizations

A standards development organization may accept, in whole or in part, the text of a draft or approved ITU-T Recommendation, as all or part of the text of its draft document, with or without modification to the ITU-T text.

When a standards development organization decides to accept ITU-T texts, it notifies TSB about the actions taken concerning those texts. The use, acceptance or reproduction of such texts by the standards development organization is subject to the copyright arrangements set out in 2.4.

A proposal to send a liaison statement to an ITU-T A.6-qualified standards development organization can arise from work by a rapporteur group, working party or study group. The decision to send such information is made by the study group chairman in consultation with the relevant working party chairman, and, if arising from a study group meeting, with the agreement of the study group. The text is sent to the standards development organization by TSB on behalf of the study group.

When necessary, between scheduled meetings, the liaison statement may be prepared by an appropriate correspondence process and approved by the study group chairman in consultation with the study group management.

2.2.2 Documents received from ITU-T A.6-qualified national and regional standards development organizations

An ITU-T study group may accept from an ITU-T A.6-qualified standards development organization, in whole or in part, the text of a draft document, or an approved document, as all or part of the text of a draft ITU-T Recommendation, with or without modification to the text.

When an ITU-T study group decides to accept texts from an ITU-T A.6-qualified standards development organization, it notifies the organization about the actions taken concerning those texts. The use, acceptance or reproduction of such texts by the ITU-T study group is subject to the copyright arrangements set out in 2.4.

Documents submitted to the ITU-T study groups by ITU-T A.6-qualified standards development organizations should conform to criterion 8) in Annex A.

These documents are not issued as Contributions. As soon as they arrive they are made available, with the agreement of the study group chairman, for advance consideration by the relevant group. Moreover, they are issued as a document to the relevant group with a reference to the originating standards development organization, i.e. as a Temporary Document at a study group or working party meeting, or as a document at a rapporteur meeting. In the latter case, the receipt and disposition of the document received should be recorded in the report of the rapporteur meeting.

2.3 ITU-T A.6-qualified organizations list

The Director of TSB is requested to maintain an up-to-date ITU-T A.6-qualified organizations list and associated analyses of the national and regional standards development organizations that are under evaluation and/or have been approved for cooperation and exchange of information, including identification of the study groups concerned, and make it available online.

2.4 Copyright arrangements

The subject of modifications to texts and arrangements for royalty-free copyright licenses, including the right to sub-license, for texts accepted by either ITU-T or by ITU-T A.6-qualified standards development organizations and their publishers and others, is a matter to be agreed upon between TSB and the particular standards development organization. However, the originating organization retains the copyright for its texts.

2.5 Electronic document exchange

Where possible, the exchange of documents will be in electronic format. Questions of electronic links to enable document exchange is to be agreed upon by the Secretariats of the organizations concerned.

Annex A

Qualifying criteria for cooperation and exchange of information process with national and regional standards development organizations

(This annex forms an integral part of this Recommendation.)

NOTE – An administration may require that cooperation and exchange of information with ITU-T or its study groups, by a national or regional standards development organization within that administration's jurisdiction, follow its established national procedures.

National or regional standards development organization attributes	Desired characteristics
1) Objectives/relationship of work to ITU-T work	Objectives should be the development, adoption and implementation of standards and the provision of input into international standards organizations, especially ITU-T.
2) Organization: <ul style="list-style-type: none"> – legal status; – accreditation; – secretariat; – nominated representative. 	<ul style="list-style-type: none"> – should indicate in which country/countries it has legal status; – should indicate the accrediting entity; – should identify the permanent secretariat; – should identify a representative.
3) Membership (openness)	<ul style="list-style-type: none"> – national or regional standards development organization membership criteria should not preclude any party with material interest; – membership should comprise a significant representation of telecommunications interests.
4) Technical subject areas	Should be relevant to a particular study group(s) or ITU-T as a whole.
5) IPR Policy and Guidelines on: <ul style="list-style-type: none"> a) patents; b) software copyright (if applicable); c) marks (if applicable); and d) copyright; 	<ul style="list-style-type: none"> a) should be consistent with "Common Patent Policy for ITU-T/ ITU-R/ISO/IEC" and "Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC"*); b) should be consistent with "ITU-T Software Copyright Guidelines"*); c) should be consistent with "ITU-T Guidelines related to the inclusion of Marks in ITU-T Recommendations"; d) ITU and ITU Member States and Sector Members should have the right to copy for standardization-related purposes (see also Rec. ITU-T A.1 with regard to copying and distribution).
6) Working methods/processes	<ul style="list-style-type: none"> – should be well-documented; – should be open and fair; – should support competition; – should explicitly consider anti-trust issues.
National or regional standards development organization attributes	Desired characteristics
7) Outputs	<ul style="list-style-type: none"> – outputs available to ITU-T should be identified; – process for ITU-T to obtain outputs should be identified.
8) Documents submitted to ITU-T	<ul style="list-style-type: none"> – should indicate source within the national or regional standards development organization (e.g. committee, subcommittee, etc.); – should indicate degree of stability of the document (e.g. preliminary, mature, stable, proposed date of adoption, etc.); – should indicate status of document (i.e. working document, draft, interim or approved standard).
* Particularly, licences must be offered on a non-discriminatory basis on reasonable terms and conditions (whether free of charge or with monetary compensation) to both members and non-members.	

Appendix I

Establishment of a process for cooperation and exchange of information under Rec. ITU-T A.6

(This appendix does not form an integral part of this Recommendation.)

	1 Initiation (includes questionnaire in Annex A)	2 Evaluation according to the criteria	3 Decision	4 Process once established = implementation
2.1.1	Initiation of the request by an SG	The SG checks the ITU-T A.6-qualified list and reviews the analysis (if not on the list, see 2.1.2 b)	The SG decides to communicate	Communication process put into practice by the SG
2.1.2 a)	Initiation of the request by an SDO to the Director for related policy issues	Evaluation by the Director	The Director decides to approve and informs TSAG + SGs	Communication process put into practice by the Director
2.1.2 b)	Initiation of the request by an SDO to the Director for SG issues	The Director performs a preliminary analysis, the SG reviews the analysis	The SG decides to communicate, the SG informs other SGs TSAG and the Director	Communication process put into practice by the SG
		Director adds the SDO under evaluation to the list	Director indicates on the list that the SDO is ITU-T A.6-qualified	

Recommendation ITU-T A.7

Focus groups: Establishment and working procedures

(2000; 2002; 2004; 2006; 2008; 2012, 2016)

1 Scope

The objective of focus groups is to help advance the work of the ITU Telecommunication Standardization Sector (ITU-T) study groups and to encourage the participation of members of other standards organizations, including experts and individuals who may not be members of ITU. Focus group activities may include an analysis of gaps between current Recommendations and expected Recommendations, and provide material for consideration in the development of Recommendations.

Procedures and working methods are established to facilitate the financing of focus groups, the completion of work on a well-defined topic and the documentation of the results.

The process of establishment is described in order to help identify, in a timely and collaborative manner, all study groups concerned by the scope of a potential focus group, and to agree on a study group or the Telecommunication Standardization Advisory Group (TSAG) as the parent group.

The management of a focus group is placed under the responsibility of a parent group (study group or TSAG), in association with other involved study groups in the case where the work area of the focus group overlaps with the responsibility and the mandate of those study groups (see clause 2.2).

2 Establishment, terms of reference and leadership

Within the ITU-T standardization working structure, the establishment procedures of a focus group should be progressed in a transparent manner.

For each step of the establishment process, the compliance of the focus group proposal with all clauses of this Recommendation should be ensured, and all decisions are to be made by consensus.

2.1 Establishment

A focus group is established to help advance the work of ITU-T study groups.

To justify the establishment of a focus group, the following basic criteria shall be fulfilled to their full extent:

- There is a significant interest in the subject and a need to help advance the work of the ITU-T study groups
- The subject is not already addressed by work underway in ITU-T study groups, or cannot currently be handled by a study group
- There should normally be at least four members (i.e., Member States, or Sector Members from different Member States) who commit to actively support the new focus group.

Attention should be paid to distinguishing between the following two situations:

a) Topic is within the mandate of one study group

When the terms of reference of the focus group fall within the mandate of a single study group, that study group has the necessary authority to approve the formation of a focus group and become its parent group (see clause 2.1.1), provided that the chairman of this study group consults with the chairmen of all possibly impacted study groups. If there is any doubt that all the topics fall under the responsibility and mandate of only this study group, the decision of such an establishment should be referred to TSAG.

b) Topic is within the mandate of multiple study groups

When the terms of reference of the focus group fall within the mandate of multiple study groups, TSAG has the necessary authority to approve the formation of a focus group (see clause 2.1.2) and to become its parent group or appoint a study group as the parent group.

The study group or TSAG, when receiving the written contribution, should check to see which study group could best address the proposed activity for the focus group. The study group dealing with the proposal for a focus group that contains topics felt as potentially falling under the responsibility and mandate of one or more other study groups remains responsible for the consultation with the other relevant study group chairmen and for informing TSAG and the Director of TSB. The whole procedure for consultation should be kept responsive and fast by using, as often as possible, consultation of relevant parties by e-mail and teleconferencing tools, rather than physical meetings.

In all cases, the Director of TSB and the chairman of TSAG are to be kept duly advised during the establishment procedure.

The establishment of a focus group and its first meeting will be announced according to clause 12 by the Director of TSB in cooperation with the parent group.

2.1.1 Establishment by a study group

2.1.1.1 Establishment at a study group meeting

For establishment at a study group meeting, the submission of a proposal to set up a focus group on a specific topic, including terms of reference, should take the form of a written contribution submitted at least twelve calendar days before that study group meeting.

In the case that all topics fall without doubt, within the work area of this study group, the establishment will be discussed during this meeting, and may be decided at the same meeting.

If views are expressed that the proposed topic overlaps with the mandate of another study group, the chairman of the study group to which the proposal is addressed will send the proposal to the chairman of TSAG. The chairman of TSAG will then proceed as described in clauses 2.1.2.1 or 2.1.2.2 below.

2.1.1.2 Establishment between study group meetings

Exceptionally, in response to urgent marketplace needs, a focus group may be established between study group meetings for the purpose of studying technical issues (i.e., those that have no regulatory or policy implications).

The proposal, including terms of reference, to set up a focus group on a specific technical topic (within the mandate of the parent group) may be sent by any member to the chairman of an appropriate study group selected by the initiators according to the foreseen work content. The chairman coordinates the first review of the proposal with the vice-chairmen and the chairmen of working parties of the study group. If the proposal to establish the focus group is agreed, the proposal, with completed terms of reference, will be posted on the ITU website and distributed to the study group e-mail distribution list, allowing four weeks for comments.

In the absence of unresolved comments, the study group chairman may decide the immediate establishment of the focus group. As far as possible, the chairman should seek to resolve comments by correspondence; however, if this is not possible, the decision to approve the establishment of the focus group is to be deferred to the next meeting of the study group.

If views are expressed that the proposed focus group overlaps with the mandate of another study group, the chairman of the study group to which the proposal is addressed will send the proposal to the chairman of TSAG. The chairman of TSAG will then proceed as described in clauses 2.1.2.1 or 2.1.2.2.

2.1.2 Establishment by TSAG

2.1.2.1 Establishment at a TSAG meeting

For establishment at a TSAG meeting, the submission of a proposal to set up a focus group on a specific topic, including terms of reference, should take the form of a written contribution submitted at least twelve calendar days before that TSAG meeting.

The TSAG plenary can decide to establish the focus group and designate the parent group or be its parent group.

This way of proceeding can also be adopted to decide on cases transmitted according to clause 2.1.1.2 above, when the schedule of the TSAG meeting is compatible with a timely response, whereby the proposal must be available for the members at least twelve calendar days before the meeting.

2.1.2.2 Establishment between TSAG meetings

Exceptionally, in response to urgent marketplace needs, a focus group may be established between TSAG meetings for the purpose of studying technical issues (i.e., those that have no regulatory or policy implications).

A proposal to set up a focus group on a specific technical topic, including draft terms of reference, may be submitted by any member to the chairman of TSAG.

The chairman of TSAG coordinates the first review of the proposal with the vice-chairmen and working party chairmen of TSAG and chairmen of all study groups. If the proposal to set up a focus group is agreed, the proposal, with completed terms of reference and the nomination of the parent group, will be posted on the ITU-T website and distributed to the TSAG e-mail distribution list, allowing four weeks for comments.

In the absence of unresolved comments, the chairman of TSAG may decide the immediate establishment of the focus group. As far as possible, the chairman of TSAG should seek to resolve comments by correspondence; however, if this is not possible, the decision to approve establishment of the focus group is deferred to the next meeting of TSAG.

This way of proceeding can also be adopted to decide on cases transmitted according to clause 2.1.1.2 above, when the schedule of the TSAG meetings is not deemed to be compatible with a timely response.

2.2 Terms of reference

The topic for a particular focus group is to be well defined (prior to approval), and the terms of reference must include the scope of actions, a plan of action, the expected deliverables and the time schedules for completion.

The relationship of this work to that of the parent group must be indicated, in addition to relationships with other ITU study groups, standards organizations, forums and consortia, etc., and the degree of urgency of the specific topic. The justification that the intended activity cannot be handled as efficiently by study groups should be given.

It is expected that a focus group will complete its work in a short period of time, typically 9-12 months, following approval of its formation. In appropriate circumstances, and subject to review and approval by the parent group, the term and scope of a focus group may be extended.

During the life of the focus group, its terms of reference cannot be modified by the focus group itself. Any proposal to modify the terms of reference is to be submitted as a written contribution to the parent group for its consideration and approval.

If more than one study group is involved (i.e., the topic falls under the responsibility and mandate of one or more other study groups), a possible modification of the terms of reference (including scope) should be discussed with the other involved study groups before a decision is taken.

Extension of the lifetime requires a decision of the parent group (with no reservations by the other involved study groups in the case where a topic falls under the responsibility and mandate of one or more other study groups). The focus group will automatically stop if the parent group does not agree to extend the lifetime of the focus group.

2.3 Leadership

A chairman and vice-chairman are initially appointed by the parent group. If needed, after the initial establishment of the focus group, subsequent management appointments will be made by the focus group, and the parent group informed accordingly. Appointment of chairman and vice-chairman shall be primarily based upon demonstrated competence both in technical content of the parent group and in the management skills required.

Member States and ITU-T Sector Members will provide the chairmanship, but vice-chairmanships can be open to ITU-T Associates and academia, as well as to external experts.

A focus group chairman who is unable to carry out his or her duties is replaced by one of the vice-chairmen, who is chosen and appointed by the parent group at its next meeting. If none of the vice-chairmen is an ITU member, the parent group calls for candidates and the chairman is appointed at the next meeting of the parent group.

3 Focus group working procedures

3.1 Participation

Any individual from a country that is a member of ITU and who is willing to contribute actively to the work may participate in a focus group. This includes individuals who are also members of international, regional and national organizations.

Participation in focus groups shall not be used as an alternative to ITU membership.

A list of participants is to be maintained by the focus group for reference purposes. This list will include information for persons with disabilities on how their participation shall be facilitated.

Participation in focus groups that have impacts on strategic, structural and/or operational aspects of ITU-T is limited to ITU-T members.

4 Financing of focus groups and their meetings

Financing of meetings and their preparation is accomplished by volunteer hosting in a similar manner to rapporteur groups, or on the basis of financial arrangements determined by the focus group, provided there is no incremental increase in expenditure and no adverse impact on the normal work of the study groups and TSAG, except for encouraging the participation of persons with disabilities in accordance with *resolves* 3 and 4 of Resolution 175 (Guadalajara, 2010) of the Plenipotentiary Conference, and for supporting the participation of representatives of developing countries¹ in accordance with *resolves* 3 of Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference.

5 Administrative support

Focus groups can establish their own method of providing and financing administrative support between meetings.

Where administrative services are requested from TSB, there shall be no incremental increase in expenditure and no adverse impact on the normal work of the study groups and TSAG, except for encouraging the participation of persons with disabilities in accordance with *resolves* 3 and 4 of Resolution 175 (Guadalajara, 2010) of the Plenipotentiary Conference, and for supporting the participation of representatives of developing countries in accordance with *resolves* 3 of Resolution 123 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference.

6 Meeting logistics

The frequency and location of meetings is decided by each focus group. Electronic document handling methods should be used as much as possible to advance the work rapidly (e.g., by using electronic conferences and the World Wide Web). Participation of persons with disabilities, including the provision of electronic documents in accessible formats, shall be encouraged in accordance with Resolution 175 (Guadalajara, 2010) of the Plenipotentiary Conference.

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

7 Working language

The language to be used will be mutually agreed by the focus group participants. However, any communication with the parent group shall preferably be in English or one of the other ITU official languages.

8 Technical contributions

Any participant may submit a technical contribution directly to the focus group, in accordance with the time schedule adopted. A template for contributions can be found on the ITU-T website. Electronic document transfer methods should be used whenever possible.

9 Intellectual property rights

The Common Patent Policy for ITU-T/ITU-R/ISO/IEC is to be used.

The chairman of a focus group should announce this during every meeting and record all responses in the meeting report.

The copyright provisions in Recommendation ITU-T A.1 are to be followed.

10 Deliverables – approval and distribution

Deliverables can be in the form of technical specifications, reports on standards gap analysis results, base material for the development of draft Recommendations, etc., and are expected to form input to the advanced work of the parent group. The focus group will send all of its deliverables to the parent group for further consideration (see also clause 7). The deliverables shall be published as TDs of the parent group in accordance with clause 3.3.3 of Recommendation ITU-T A.1, but no later than four calendar weeks before the meeting of the parent group.

For the sake of clarity, all the output/deliverables of a focus group should be posted on the parent group's website, whether or not one or more study groups are involved.

10.1 Approval of deliverables

Approval shall be obtained by consensus.

10.2 Printing and distribution of deliverables

Focus groups may select the method of printing and distribution of deliverables, including the target audience. Deliverables to the parent group, including progress reports, will be processed as TDs by the parent group.

NOTE – A focus group may, at its discretion, share working documents via liaison statements.

All costs must be covered by the focus group. ITU-T will not be expected to offer any printing and distribution services free of charge, except for progress reports submitted according to clause 11 below, and deliverables to study groups.

11 Progress reports

Focus group progress reports are to be provided at each meeting of the parent group meeting at least twelve calendar days before the meeting and transmitted in copy to all involved study groups. They will be posted in the form of TDs.

These progress reports to the parent group should include the following information:

- an updated work plan, including a schedule of planned meetings;
- status of work with reference to the work plan, including a list of outputs and the study groups for which they are intended;
- summary of contributions considered by the focus group;
- list of attendees at all meetings held since the last progress report.

The parent group chairman should keep TSAG advised of the progress of the focus group.

12 Meeting announcements

The establishment of a focus group will be announced in cooperation with the parent group via ITU publications and other means, including communication with other organizations and/or experts, technical journals and the World Wide Web.

The first meeting of a focus group will be arranged by the parent group and the initially appointed chairman.

The schedule of subsequent meetings of a focus group will be decided by the focus group. The process of announcing meetings can be decided by the focus group and will be published at least six weeks in advance on the ITU website.

13 Working guidelines

Focus groups may develop additional, internal working guidelines, as required.

Appendix I

Guidelines for the efficient transfer of focus group deliverables to its parent group

(This appendix does not form an integral part of this Recommendation.)

I.1 Scope

The guidelines in this appendix are intended to facilitate the efficient transfer of deliverables from focus groups (FGs) aimed at being base material for the development of draft ITU-T Recommendations or Supplements.

Focus groups are a flexible tool for progressing new work. According to the core text of this Recommendation, focus group deliverables can be in the form of technical specifications, reports on standards gap analysis results or base material for the development of draft Recommendations.

Such flexibility may allow focus groups to develop a wide range of deliverables with the involvement of external stakeholders. However, this flexibility can sometimes be a shortcoming, as their deliverables may not be structured or contain material ready to be used as specifications, or their development is not sufficiently coordinated with the parent group to ensure a speedy handling at study groups, after completion of the deliverables by focus groups.

I.2 Streamlining the transfer of deliverables by focus groups and their approval by study groups

The following streamlining guidance is provided:

NOTE 1 – It should be noted that not all focus groups aim at producing base material for the development of draft Recommendations or Supplements. In many cases, it is acceptable that a focus group will produce other types of deliverables – such as ex ante standardization studies, roadmaps and gap analyses.

- 1) ITU-T focus groups should be created with terms of reference and working guidelines that clearly indicate the expected deliverables to be developed, including, but not limited to, formatted base material for the Study Group's development and approval of a draft ITU-T Recommendation or Supplement.
- 2) Where appropriate, deliverables of a focus group should be prepared and formatted in a manner that facilitates their development and adoption by the parent group into draft Recommendations or Supplements (e.g., base material formatted in the structure of an ITU-T Recommendation).
- 3) Where appropriate and necessary, the parent group of the focus group should provide coordination for the timely transfer of focus group deliverable(s) to the appropriate study group(s). This is expected to be required especially in instances where the deliverable(s) of a focus group has an unclear destination study group or multiple destination study groups.
- 4) Experts leading the work within a focus group should have experience in developing ITU-T Recommendations or Supplements. Additionally, training should be provided to the focus group management and participants on the ITU-T working methods.

- 5) Focus group deliverables aimed as future ITU-T Recommendations or Supplements should follow the *Author's Guide for drafting ITU-T Recommendations* and their content must have content that is expected for ITU-T Recommendations or Supplements.

NOTE 2 – The *Author's Guide for drafting ITU-T Recommendations* can be found in the ITU website at <http://itu.int/go/trecauthguide>.

- 6) Drafts of focus group deliverables aimed as future ITU-T Recommendations or Supplements should be shared with the parent group on a regular basis. When focus group deliverables aimed as future ITU-T Recommendations or Supplements would fall under the responsibility of different study groups, the focus group should share their deliverables with the relevant groups as soon as possible.
- 7) Once mature, focus group deliverables aimed as future ITU-T Recommendations or Supplements are approved by the focus group for transmission to the parent group for action.

Recommendation ITU-T A.8

Alternative approval process for new and revised ITU-T Recommendations

(2000; 2004; 2006; 2008)

1 General

1.1 Recommendations of the ITU Telecommunication Standardization Sector (ITU-T) will be approved using this alternative approval process (AAP), except Recommendations that have policy or regulatory implications, which will be approved using the traditional approval process (TAP) found in Resolution 1 of the World Telecommunication Standardization Assembly (WTSA).

The competent study group may also seek approval at a WTSA.

1.2 In accordance with the ITU Convention, the status of Recommendations approved is the same for both AAP and TAP methods of approval.

2 Process

2.1 Study groups should apply the AAP described below for seeking the approval of draft new and revised Recommendations as soon as they have been developed to a sufficiently mature state. See Figure 1 for the sequence of events.

3 Prerequisites

3.1 Upon request of the study group chairman, the Director of the Telecommunication Standardization Bureau (TSB) shall announce the intention to apply AAP and to initiate the last call set out in this Recommendation (see clause 4 below). Such action shall be based upon consent at a study group or working party meeting or, exceptionally, at a WTSA, that a draft Recommendation is sufficiently mature for such action. At this stage, the draft Recommendation is considered to have "CONSENT". The Director shall include a summary of the draft Recommendation in the announcement. Reference shall be provided to the documentation where the text of the draft new or revised Recommendation to be considered may be found. This information shall be made available to all Member States and Sector Members.

3.2 The text of the draft new or revised Recommendation must be available to TSB in a final edited form at the time that the Director makes the announcement of the intended application of the AAP set out in this Recommendation. Any associated electronic material included in the Recommendation (e.g., software, test vectors, etc.) must also be made available to TSB at the same time. A summary that reflects the final edited text of the draft Recommendation must also be provided to TSB, in accordance with clause 3.3 below.

3.3 Such a summary should be prepared in accordance with the Author's Guide for drafting ITU-T Recommendations. This summary is a brief outline of the purpose and content of the new or revised draft Recommendation and, where appropriate, the intent of the revisions. No Recommendation shall be considered as complete and ready for approval without this summary statement.

3.4 Approval may only be sought for a draft new or revised Recommendation within the study group's mandate as defined by the Questions allocated to it, in accordance with No. 192 of the Convention. Alternatively, or additionally, approval may be sought for amendment of an existing Recommendation within the study group's responsibility and mandate.

3.5 Where a draft new or revised Recommendation falls within the mandate of more than one study group, the chairman of the study group proposing the approval should consult and take into account the views of any other study group chairmen concerned before proceeding with the application of this approval procedure.

3.6 Recommendations are to be elaborated in accordance with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC available at <http://www.itu.int/ITU-T/ipr/>. For example:

3.6.1 Any party participating in the work of ITU-T should, from the outset, draw the attention of the Director of TSB to any known patent or to any known pending patent application, either of their own or of other organizations. The "Patent Statement and Licensing Declaration" form from the ITU-T website is to be used.

3.6.2 ITU-T non-member organizations that hold patent(s) or pending patent application(s), the use of which may be required in order to implement an ITU-T Recommendation, can submit a "Patent Statement and Licensing Declaration" to TSB using the form available at the ITU-T website.

3.7 In the interests of stability, once a new or revised Recommendation has been approved, approval should not normally be sought within a reasonable period of time for any further amendment of that new text or that revised portion, respectively, unless the proposed amendment complements rather than changes the agreement reached in the previous approval process, or a significant error or omission is discovered. As a guideline, in this context "a reasonable period of time" would be at least two years, in most cases.

Amendments that correct defects may be approved, in accordance with clause 7.1.

4 Last call and additional review

4.1 The last call encompasses the four-week time period and procedures beginning with the Director's announcement of the intention to apply the alternative approval process (clause 3.1).

4.2 If TSB has received a statement(s) indicating that the use of intellectual property, protected by one or more copyright(s) or patent(s), issued or pending, may be required in order to implement a draft Recommendation, the Director shall post this information on the ITU-T website.

4.3 The Director of TSB shall advise the Directors of the other two Bureaux that Member States and Sector Members are being asked to comment on the approval of a proposed new or revised Recommendation.

4.4 During the last call, should any Member State or Sector Member be of the opinion that the draft new or revised Recommendation should not be approved, they should advise their reasons for disapproving and indicate the possible changes that would facilitate further consideration and approval of the draft new or revised Recommendation. TSB will make the comments available to the membership of ITU-T.

4.4.1 If no comments, other than comments indicating typographical error(s) (misspelling, syntactical and punctuation mistakes, etc.), are received by the end of the last call, the draft new or revised Recommendation is considered as approved, and the typographical errors are corrected.

4.4.2 If comments, other than those indicating typographical errors, are received by the end of the last call, the study group chairman, in consultation with TSB, makes the judgement whether:

- 1) a planned study group meeting is sufficiently close to consider the draft Recommendation for approval, in which case the procedures in clause 4.6 regarding approval at a study group meeting are applied; or
- 2) to save time and/or because of the nature and maturity of the work, comment resolution should be initiated under the direction of the study group chairman. This will be accomplished by appropriate study group experts, via electronic correspondence or at meetings. Revised, edited draft text is prepared, as appropriate, and the procedures beginning in clause 4.4.3 are applied.

4.4.3 After comment resolution is completed, and the revised and edited draft text is made available, the study group chairman, in consultation with TSB, makes the judgement whether:

- a) a planned study group meeting is sufficiently close to consider the draft Recommendation for approval, in which case the procedures in clause 4.6 are applied; or
- b) to save time and/or because of the nature and maturity of the work, an additional review should be initiated, in which case the procedures in clause 4.5 are applied.

4.5 The additional review encompasses a three-week time period and will be announced by the Director. The text (including any revisions as a result of comment resolution) of the draft Recommendation in a final edited form and comments from the last call must be made available to TSB at the time that the Director makes the announcement of the additional review. Reference shall be provided to the documentation where the text of the draft Recommendation and last call comments to be considered may be found.

4.5.1 If no comments, other than comments indicating typographical error(s) (misspelling, syntactical and punctuation mistakes, etc.), are received by the end of the additional review, the Recommendation is considered as approved, and the typographical errors are corrected by TSB.

4.5.2 If comments, other than comments indicating typographical errors(s), are received by the end of the additional review, then the procedures in clause 4.6 regarding approval at a study group meeting are applied.

4.6 The Director shall explicitly announce the intention to approve the draft Recommendation at least three weeks prior to the study group meeting. The Director shall include the specific intent of the proposal in summarized form. Reference shall be provided to the documentation where the draft text and comments from the last call (and additional review, if relevant) may be found. The edited text of the draft Recommendation from the additional review (or last call if there is no additional review) is submitted for approval by the study group meeting in accordance with clause 5 below.

5 Procedure at study group meetings

5.1 The study group should review the text of the draft new or revised Recommendation and the associated comments referred to in clause 4.6 above. The meeting may then accept any corrections or amendments to the draft new or revised Recommendation. The study group should reassess the summary statement in terms of its completeness.

5.2 Changes may only be made during the meeting as a consequence of written comments as a result of the last call, additional review, contributions, or temporary documents including liaison statements. Where proposals for such revisions are found to be justified but to have a major impact on the intent of the Recommendation or to depart from points of principle agreed at the previous study group or working party meeting, consideration of this approval procedure should not be applied at this meeting. However, in justified circumstances, the approval procedure may still be applied if the chairman of the study group, in consultation with TSB, considers:

- that the proposed changes are reasonable (in the context of the documentation described in this clause) for those Member States and Sector Members not represented at the meeting, or not represented adequately under the changed circumstances; and
- that the proposed text is stable.

However, if a Member State present declares that this text has policy or regulatory implications or there is a doubt, the approval procedure shall proceed according to Resolution 1, clause 9.3 or clause 5.8 below.

5.3 After debate at the study group meeting, the decision of the meeting to approve the Recommendation under this approval procedure must be unopposed (but see clauses 5.5, 5.7 and 5.8). Every effort should be made to reach unopposed agreement.

5.4 If, despite these attempts, unopposed agreement has not been reached, the Recommendation is considered as approved if, following consultation with their Sector Members present, no more than one Member State present in the meeting opposes the decision to approve the Recommendation (but see clauses 5.5, 5.6 and 5.8). Otherwise, the study group may authorize additional work to address the remaining issues.

5.5 In cases where a Member State or Sector Member does not elect to oppose approval of a text, but would like to register a degree of concern on one or more aspects, this shall be noted in the report of the meeting. Such concerns shall be mentioned in a concise note appended to the text of the Recommendation concerned.

5.6 A decision must be reached during the meeting on the basis of a text available in its final form to all participants at the meeting. Exceptionally, but only during the meeting, a Member State may request more time to consider its position for clause 5.4 above. Unless the Director of TSB is advised of their opposition within a period of four weeks from the end of the meeting, the Recommendation is approved and the Director shall proceed in accordance with clause 6.1.

5.6.1 A Member State that requested more time to consider its position and that then indicates disapproval within the four-week interval specified in clause 5.6 above is requested to include its reasons and to indicate the possible changes that would facilitate further consideration, if required, for future approval of the draft new or revised Recommendation.

5.7 A Member State or Sector Member may advise at the meeting that it is abstaining from the application of the procedure. Their presence shall then be ignored for the purposes of clause 5.3 above. Such an abstention may subsequently be revoked, but only during the course of the meeting.

5.8 If the draft new or revised Recommendation is not approved, the study group chairman, after consultation with the parties concerned, may proceed according to clause 3.1 above, without further CONSENT at a subsequent working party or study group meeting.

6 Notification

6.1 The Director of TSB shall promptly notify the membership of the results (indicating approval or non-approval) of the last call and additional review.

6.2 Within two weeks of the closing date of the study group meeting described in clauses 5.3 to 5.5 above or, exceptionally, two weeks after the period described in clause 5.6, the Director shall notify whether the text is approved or not by a circular. The Director shall arrange for this information to also be included in the next available ITU Operational Bulletin. Within this same time period, the Director shall also ensure that any Recommendation approved is available online, with an indication that the Recommendation may not be in its final publication form.

6.3 Should minor, purely editorial amendments or correction of evident oversights or inconsistencies in the text as presented for approval be necessary, TSB may correct these with the approval of the chairman of the study group.

6.4 The Secretary-General shall publish the approved new or revised Recommendations as soon as practicable, indicating, as necessary, a date of entry into effect. However, in accordance with Recommendation ITU-T A.11, minor amendments may be covered by corrigenda rather than a complete reissue. Also, where appropriate, texts may be grouped to suit market needs.

6.5 Text shall be added to the cover sheets of all new and revised Recommendations urging users to consult the ITU-T patent database and the ITU-T software copyright database. Suggested wording is:

"ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed intellectual property right. ITU takes no position concerning the evidence, validity or applicability of claimed intellectual property rights, whether asserted by ITU Member States and Sector Members or by others outside of the Recommendation development process."

"As of the date of approval of this Recommendation, ITU had/had not received notice of intellectual property, protected by patents/software copyrights, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the appropriate ITU-T databases available at the ITU-T website."

6.6 See Recommendation ITU-T A.11 concerning the publication of new and revised Recommendations.

7 Correction of defects

7.1 When a study group identifies the need for implementers to be made aware of defects (e.g., typographical errors, editorial errors, ambiguities, omissions or inconsistencies and technical errors) in a Recommendation, one mechanism that may be employed is an implementers' guide. This guide is a historical document recording all identified defects and their status of correction, from their identification to final resolution. Implementers' guides shall be agreed by the study group, or agreed by one of its working parties with the concurrence of the study group chairman. Implementers' guides shall be made available by posting on the ITU-T website with open access.

8 Deletion of Recommendations

Study groups may decide in each individual case which of the following alternatives is the most appropriate one.

8.1 Deletion of Recommendations by WTSA

Upon the decision of the study group, the chairman shall include in his report to WTSA the request to delete a Recommendation. WTSA may approve this request.

8.2 Deletion of Recommendations between WTSAs

8.2.1 At a study group meeting it may be agreed to delete a Recommendation, i.e. because it has been superseded by another Recommendation or because it has become obsolete. This agreement by the Member States and Sector Members present at the meeting must be unopposed. If unopposed agreement has not been reached, the same criteria as in clause 5.4 above are applied. Information about this agreement, including an explanatory summary about the reasons for the deletion, shall be provided by a circular. If no objection to the deletion is received from a Member State or a Sector Member within three months, the deletion will come into force. In the case of objection, the matter will be referred back to the study group.

8.2.2 Notification of the result will be given in another circular, and TSAG will be informed by a report from the Director of TSB. In addition, the Director shall publish a list of deleted Recommendations whenever appropriate, but at least once by the middle of a study period.

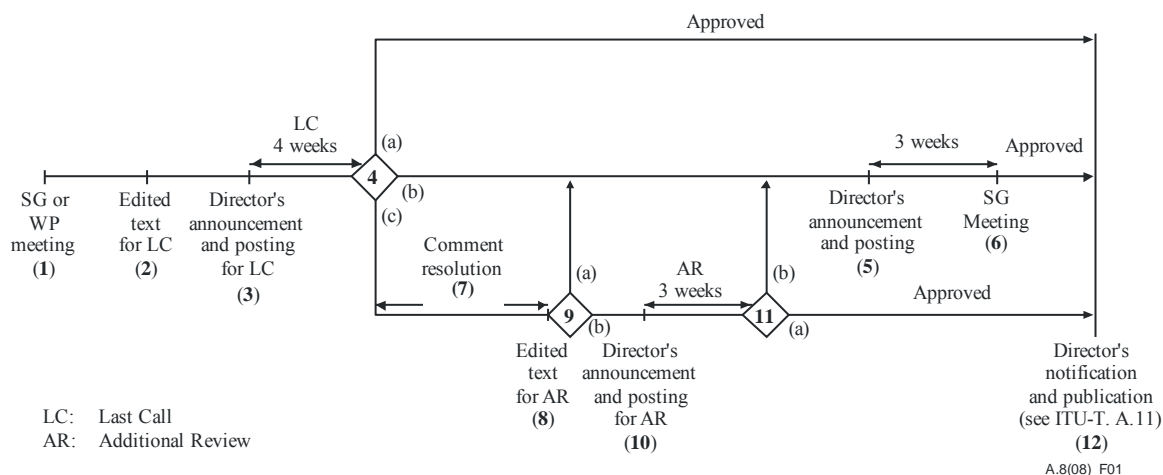


Figure 1 – Sequence of events

Notes to Figure 1 – AAP sequence of events

- 1) *SG or WP consent* – The study group or working party concludes that the work on a draft Recommendation is sufficiently mature to begin the alternative approval process and to initiate the last call (clause 3.1).
- 2) *Edited text available* – The final, edited, draft text, including summary, is provided to TSB, and the study group chairman requests the Director to initiate the last call (clause 3.2). Any associated electronic material included in the Recommendation must also be made available to TSB at the same time.
- 3) *Director's last call announcement and posting* – The Director announces the beginning of the last call to all Member States, Sector Members and Associates, with reference to the summary and complete text. If the draft Recommendation has not already been electronically posted, it is done at this time (clause 3.1).
- 4) *Last call judgement* – The study group chairman, in consultation with TSB, makes the judgement whether:
 - a) no comments other than those indicating typographical errors have been received. In this case, the Recommendation is considered as approved (clause 4.4.1);

- b) a planned study group meeting is sufficiently close to consider the comments received (clause 4.4.2); or
 - c) to save time and/or because of the nature and maturity of the work, comment resolution should be initiated leading to the preparation of edited texts (clause 4.4.2).
- 5) *Director's study group announcement and posting* – The Director announces that the next study group meeting will consider the draft Recommendation for approval and will include reference to either:
 - a) the draft Recommendation (the edited text (LC) version) plus the comments received from the last call (clause 4.6); or
 - b) if comment resolution has been carried out, the revised draft Recommendation text. If the revised draft Recommendation has not already been electronically posted, it is done at this time (clause 4.6).
- 6) *Study group decision meeting* – The study group meeting reviews and addresses all written comments and either:
 - a) proceeds under WTSA Resolution 1 or clause 5.8, as appropriate, if there might be policy or regulatory implications (clause 5.2); or
 - b) approves the draft Recommendation (clause 5.3 or 5.4); or
 - c) does not approve the draft Recommendation. If it is concluded that a further attempt at addressing comments received is appropriate, then additional work should be done and the process returns to step 2 (without further CONSENT at a working party or study group meeting) (clause 5.8).
- 7) *Comment resolution* – The study group chairman, with assistance from TSB and experts, via electronic correspondence and rapporteur and working party meetings, where appropriate, addresses the comments and prepares a new edited draft Recommendation text (clause 4.4.2).
- 8) *Edited text available* – The revised edited text, including summary, is provided to TSB (clause 4.4.2).
- 9) *Next step judgement* – The study group chairman, in consultation with TSB, makes the judgement whether:
 - a) a planned study group meeting is sufficiently close to consider the draft Recommendation for approval (clause 4.4.3 a); or
 - b) to save time and/or because of the nature and maturity of the work, an additional review should be initiated (clause 4.4.3 b).
- 10) *Director's additional review announcement and posting* – The Director announces the beginning of the additional review to all Member States and Sector Members, with reference to the summary and complete text of the revised draft Recommendation. If the revised draft Recommendation has not already been electronically posted, it is done at this time (clause 4.5).
- 11) *Additional review judgement* – The study group chairman, in consultation with TSB, makes the judgement whether:
 - a) no comments other than those indicating typographical errors have been received. In this case, the Recommendation is considered approved (clause 4.5.1); or
 - b) comments other than those indicating typographical errors have been received. In this case, the process proceeds to the study group meeting (clause 4.5.2).
- 12) *Director's notification* – The Director notifies the members that the draft Recommendation has been approved (clause 6.1 or 6.2).

Recommendation ITU-T A.11

Publication of ITU-T Recommendations and World Telecommunication Standardization Assembly proceedings

(2000; 2004; 2008; 2012)

1 Introduction

Under No. 98 of the ITU Convention, the Secretary-General is charged with the task of publishing Recommendations, and Recommendation ITU-T A.12 of the ITU Telecommunication Standardization Sector (ITU-T) sets out the identification and layout of ITU-T Recommendations. In addition to the publication of ITU-T Recommendations, the procedures for publishing the proceedings of the World Telecommunication Standardization Assembly (WTSA) are specified below.

It should be noted that although the designation "CCITT" has not been applied to new publications for some time, references to CCITT and ITU-T Recommendations are contained in numerous legal documents throughout the world.

2 Publication of Recommendations

2.1 Each new and revised Recommendation should be made available to the public as soon as practicable after it has been approved, and in each language as soon as it is available (see Annex A).

2.2 Each new and revised Recommendation should be added to a directly accessible database of ITU-T Recommendations.

2.3 The collection of approved Recommendations should also be published on an appropriate distribution medium.

2.4 Adequate indexing should be provided on all media.

2.5 The current status of each Recommendation in the complete range of Recommendations, including those approved by CCITT prior to 1993, should be accessible online.

3 Publication of WTSA proceedings

3.1 To provide a record of the proceedings of each assembly, an ITU-T Book should be published with the contents restricted to the following in principle:

- Resolutions and Opinions adopted by the assembly;
- Recommendations on the organization of the work of ITU-T (A-series);
- a list of the study groups, the advisory group and any other groups established or maintained by the assembly, with their titles and general areas of work;
- titles of the Questions (continuing or newly approved for study) and their allocation;
- reports of the committees of the assembly.

NOTE – The list of participants and list of documents of the assembly may be provided in the book, or pointers may be provided as to where the online list of participants and the online list of documents of the assembly may be found.

3.2 Resolutions and ITU-T A-series Recommendations should also be published individually in electronic form.

3.3 The colour of the cover of the ITU-T Book recording the results of WTSA will rotate successively through the colours of previous books in their chronological order, i.e. white, green, orange, yellow, red and blue.

4 Associated activities

4.1 The Director of the Telecommunication Standardization Bureau (TSB) should observe the annexed guidelines (see Annex A) when managing the continuing process of publishing Recommendations during the upcoming study period.

4.2 The Director of TSB should report to the next WTSA and to the intervening meetings of TSAG on any difficulties encountered in the timely publication of texts, with proposals for remedial action.

5 Relation with the Council

The Director of TSB should invite the Council to consider what adjustments, if any, may be needed to the ITU policy on publication, pricing, etc., in order to facilitate the rapid, wide and effective dissemination of ITU-T Recommendations.

Annex A

Guidelines on publication of ITU-T Recommendations

(This annex forms an integral part of this Recommendation.)

A.1 The following guidelines have been drawn up to assist in the timely publication of the approved ITU-T Recommendations. These guidelines should apply to those ITU services involved in the publication and distribution of Recommendations, and (to the extent relevant) to other organizations permitted by ITU to publish and distribute Recommendations under conditions and arrangements established with ITU.

A.2 From the users' viewpoint, the main principles that need to be applied are:

- a)* the maximum feasible use of electronic publishing of Recommendations through direct online access to databases that are updated as soon as possible after approval of the Recommendations and by periodic publication on an appropriate distribution medium;
- b)* unambiguous labelling of Recommendations to identify successive versions (see Recommendation ITU-T A.12);
- c)* convenient (e.g. online or on a distribution medium) access to appropriate guidance and definitive information on prices, availability and current status of Recommendations;
- d)* simple-to-use indexes and search facilities to locate specific subjects without necessarily knowing the titles or understanding the general structure and letter series used to designate ITU-T Recommendations.

A.3 Immediately after the conditions for its approval have been met, a new or revised Recommendation should be made available to the public, in accordance with the conditions established by ITU.

Recommendations should be made available¹ in appropriate formats, such as:

- online access – as soon as practicable;
- DVD – periodically (e.g. quarterly).

Minor modifications may be covered by publishing amendments or corrigenda rather than reissuing the complete Recommendation.

A.4 The current status of the complete range of Recommendations must be accessible on a database at any time.

A.5 Adequate indexing and search facilities should be provided.

A.6 For research and reference purposes, ITU should maintain permanently in an archive an official copy of all Recommendations that are or have been valid.

A.7 The generally accessible online database of Recommendations should contain versions of Recommendations currently in force and versions previously in force since the 1988 Blue Book.

A.8 ITU copyright should be strictly enforced on all formats of ITU-T Recommendations.

¹ Paper copies should be made available as quickly as possible at the request of a Member State, Sector Member or Associate not possessing electronic facilities, by which they can access publications of the Union

Recommendation ITU-T A.12

Identification and layout of ITU-T Recommendations

1 Scope

The Telecommunication Standardization Advisory Group (TSAG) periodically reviews the methods of identifying and laying out Recommendations as well as the Author's Guide for drafting ITU-T Recommendations, prepared and updated by the Telecommunication Standardization Bureau (TSB), providing thus detailed guidelines on format and style. This Recommendation provides principles that are applied in identifying and laying out Recommendations.

2 Identification and layout of Recommendations

2.1 All Recommendations of the ITU Telecommunication Standardization Sector (ITU-T) shall be numbered. The number of each Recommendation shall have a letter prefix referring to the series as well as a number identifying the particular subject in that series. The numbering shall be done in a manner that permits clear, unequivocal identification and facilitates electronic storage of information concerning the Recommendation. The Recommendation number shall be associated on the cover with the date of approval in the format YYYY. The month may be added if required for uniqueness.

2.2 The scope of the series identified by the letter shall be as follows:

- A Organization of the work of ITU-T
- B *Not allocated*
- C *Not allocated*
- D Tariff and accounting principles and international telecommunication/ICT economic and policy issues
- E Overall network operation, telephone service, service operation and human factors
- F Non-telephone telecommunication services
- G Transmission systems and media, digital systems and networks
- H Audiovisual and multimedia systems
- I Integrated services digital network
- J Cable networks and transmission of television, sound programme and other multimedia signals
- K Protection against interference
- L Environment and ICTs, climate change, e-waste, energy efficiency; construction, installation and protection of cables and other elements of outside plant
- M Telecommunication management, including TMN and network maintenance
- N Maintenance: international sound-programme and television-transmission circuits
- O Specifications of measuring equipment
- P Telephone transmission quality, telephone installations, local line networks

- Q Switching and signalling, and associated measurements and tests
- R Telegraph transmission
- S Telegraph services terminal equipment
- T Terminals for telematic services
- U Telegraph switching
- V Data communication over the telephone network
- W *Not allocated*
- X Data networks, open system communications and security
- Y Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities
- Z Languages and general software aspects for telecommunication systems

2.3 Recommendations in each series shall be classified in sections, according to subject.

2.4 The title of each Recommendation should be concise (preferably no more than one line) but unique, meaningful and unambiguous. The details identifying the precise intent and coverage should be contained in the text where possible (e.g., under "Scope" clause).

2.5 The date of formal approval of the Recommendation, the study group(s) responsible for its approval and a record of revisions shall be clearly indicated, together with the approval process applied. In accordance with the ITU Convention, the status of Recommendations approved is the same for both the alternative approval process (AAP) and traditional approval process (TAP) methods of approval.

2.6 The author of a new or revised Recommendation shall provide, in front of the main body of the Recommendation, a summary and a set of keywords as outlined in the "Author's Guide for drafting ITU-T Recommendations". The author may also provide other up-front elements, such as background information, as provided for in the Author's Guide.

2.7 The "Author's Guide for drafting ITU-T Recommendations" should be applied in drafting new Recommendations and, wherever practicable, in revising existing Recommendations.

Recommendation ITU-T A.13

Supplements to ITU-T Recommendations

(2000, 2007)

1 Introduction

In the course of its studies, each study group deals with contributions and reports, which are distributed to those organizations that have registered for participation in the study group's work and Recommendations resulting from those studies reach a much wider audience. Normally, any information that is considered as merely illustrative or supplementary to a Recommendation should be included as a (non-integral) Appendix to that Recommendation, where it is useful to the wider audience. However, there are exceptional instances where separate publication of such information is warranted, in the form of Supplements to the Recommendations.

2 Supplements

The following general principles shall be applied by study groups for the development, approval, identification and revision of Supplements:

2.1 Before proposing any new or revised text as a Supplement, a study group or TSAG should ensure, in consultation with the Director, that:

- i) the subject matter is within its mandate;
- ii) there is a sufficient need for the information on a long-term basis;
- iii) the text cannot be reasonably adapted for inclusion in an existing or new Recommendation (e.g. as an appendix);
- iv) the text is sufficiently mature and that the text follows, as far as possible, the format of the "Author's Guide for drafting ITU-T Recommendations";
- v) the text contains material which is supplementary to and associated with the subject matter of one or more Recommendations but is not essential to their completeness or understanding and implementation.

2.2 Supplements do not require approval according to Resolution 1 or Recommendation A.8 procedures; agreement by the study group or by TSAG (in case of a Supplement developed by TSAG) is sufficient. A working party may agree to a Supplement if the study group that set up the working party has previously identified this Supplement and has authorized the working party to do so at the previous study group meeting provided that such Supplement is not related or linked to any Recommendation having policy or regulatory implications in accordance with Nos. 246D to 246 H of the ITU Convention.

2.3 Supplements should be limited in number and volume.

2.4 Supplements are only informative and are therefore not considered to be an integral part of any Recommendation(s). They do not imply any agreement on the part of ITU-T.

2.5 Each Supplement should be unambiguously identified by the series letter to which it is associated followed by a sequential number unique within that series.

2.6 Since Supplements are essentially reference material, no onus is implied on the issuing study group to update or to reissue Supplements. However, should reference to a Supplement be made in a Recommendation, the study group should review the applicability both of that reference and the Supplement at least once every four years, and take any necessary action.

2.7 Supplements should be included in databases along with ITU-T Recommendations, but may be deleted after consultation with the concerned study group if not reviewed or updated after a period of eight years.

2.8 To the extent practicable, Supplements will be published in a similar fashion to Recommendations, but with a lower priority, and taking into account market needs.

Recommendation ITU-T A.23

Collaboration with the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) on information technology

(Helsinki, 1993 amended at Geneva 1996, Montreal, 2000)

The WTSA,

considering

- a)* the purposes of the International Telecommunication Union set forth in Article 1 of its Constitution (Geneva, 1992) relating to the harmonization of telecommunication facilities;
- b)* the duties of the Telecommunication Standardization Sector (Chapter III of the Constitution, Geneva, 1992) of the International Telecommunication Union;
- c)* Resolution 7 (Geneva, 1996) recognizes common interests with ISO and IEC concerning telecommunication and information technologies as well as some other topics and cooperation with them by appropriate means,

decides

- 1 that in accordance with Resolution 7, every effort should be made in establishing respective study programmes to identify overlapping studies with a view to avoiding duplication of work;
- 2 that for those subjects in the fields of information technology including data transmission, multimedia, open system communications and telematic services, etc., where there is a common interest and where it is agreed that coordination is desirable, then text should be drawn up mutually and kept aligned;
- 3 that in carrying on the respective studies, collaborative meetings at appropriate levels should be scheduled, where necessary. In drafting aligned text, it is necessary to take into account the respective timing for approvals and publication, particularly with the ISO/IEC Joint Technical Committee 1 (JTC 1) on Information Technology.

A Guide for ITU-T and ISO/IEC JTC 1 Cooperation is given in Annex A, which contains a set of procedures for cooperation between the two sides. These procedures, which have also been adopted by ISO/IEC JTC 1, should be used, with flexibility, according to need. The "Rules for presentation of ITU-T | ISO/IEC common text"¹ in Annex A should be respected in the drafting of common texts.

¹ The Guide is published as a separate booklet and is available from TSB.

Guide for ITU-T and ISO/IEC JTC 1 cooperation

1 Introduction

1.1 Purpose

This document contains a set of procedures for cooperation between ITU-T and ISO/IEC JTC 1. It is written in an informal style, much like a tutorial, to be a practical, educational and insightful reference for both leaders and participants in cooperative work.

1.2 Background

The ITU-T and ISO and IEC have long established cooperative relationships. For many years, the continued merging of technologies for which these individual organizations have been responsible has resulted in an increasing interdependency of a growing portion of the work programs. This has led, for example, to the creation by ISO and IEC of Joint Technical Committee 1 (JTC 1) on Information Technology. Cooperative arrangements between the ITU-T and ISO/IEC have been growing.

In June 1988, an ad hoc group of CCITT and ISO/IEC JTC 1 leaders met to review the then existing situation of cooperation. Recognizing that these cooperative efforts will continue to grow, the ad hoc group felt it would be beneficial to develop and document a set of procedures which builds upon past successes to facilitate future efforts. As a result, an *Informal Guide on CCITT and ISO/IEC JTC 1 Cooperation* was produced.

This Informal Guide recognized that the areas for cooperative work between CCITT and ISO/IEC JTC 1 are a small portion of the total work program of both organizations. Therefore, it was determined that the practical way to achieve successful cooperation is to work within the flexibility existing within the procedures of each organization rather than to define a fundamentally new framework.

Since that time considerable experience has been gained in the use of the procedures. Consequently, a second meeting of the ad hoc group was held in September 1991 to review and refine the procedures. A draft revised Guide was produced at that meeting and adopted by both CCITT and JTC 1 for interim use, pending formal approval.

The draft revised Guide recognized the value of collaboration between the two organizations in building consensus in areas of common interest and in extending this collaboration to the publication of common text Recommendations and International Standards to better serve the needs of industry and users. Considerable attention was given to defining efficient collaborative procedures that make the best use of resources to produce timely results.

Further revision was made as a result of the formal review and to reflect updated procedures of both organizations. The Guide was adopted by the WTSC and JTC 1 in March 1993.

By 1996, with the experience of developing more than 150 collaborative Recommendations | International Standards, the Guide was updated to reflect insights gained through this experience and to reflect revisions in the procedures of both organizations. The updated Guide was adopted by the WTSC in October 1996 and JTC 1 in December 1996.

In 2001, the Guide was again updated to reflect revisions in the procedures of both organizations. The updated Guide was adopted by the ITU-T in November 2001 and JTC 1 in November 2001.

In 2010, the Guide was again updated to reflect closer alignment of the JTC 1 procedures to those in common between ISO and IEC, and to reflect revised procedures in the ITU-T. It also takes into account the common patent policy for ITU-T/ITU-R/ISO/IEC adopted in 2006. The updated Guide was adopted by the ITU-T in February 2010 and JTC 1 in June 2010.

In 2013, the Guide was again updated to reflect revisions in the procedures of both organizations. The updated Guide was adopted by the ITU-T in June 2014 and JTC 1 in September 2014.

1.3 Organization of the Guide

The remainder of clause 1 provides a listing of useful references, definitions and abbreviations pertinent to ITU-T and JTC 1 cooperation. Clauses 2 and 3 provide tutorial information on the structure and procedures of ITU-T and JTC 1.

The detailed procedures for ITU-T and JTC 1 cooperation are given in clauses 4 through 10 and Appendix I. They supplement, and sometimes repeat for clarity, the basic procedures of each organization (for example, those given in WTSA Resolution No. 1, in Recommendation ITU-T A.1 and in the ISO/IEC Directives, in the Consolidated JTC 1 Supplement to the ISO/IEC Directives and in JTC 1 Standing Documents) which remain controlling.

NOTE – The template for editors to use in the preparation of common text Recommendations | International Standards is available at <http://itu.int/en/ITU-T/studygroups/Pages/templates.aspx>, and the presentation rules at <http://itu.int/en/ITU-T/info/Pages/resources.aspx> and http://iso.org/iso/jtc1_home (Resources, JTC1 Standing documents section).

1.4 References

1.4.1 ITU-T references

1.4.1.1 General

Most information about the ITU and the ITU-T can be found on the ITU website at <http://itu.int>.

The fundamental documents of the ITU are its Constitution and its Convention, which can be found in "Collection of the basic texts of the International Telecommunication Union adopted by the Plenipotentiary Conference, Edition 2007".

The ITU-T WTSA Proceedings of the current Study Period contains the Resolutions and A-series Recommendations approved by the last World Telecommunication Standardization Assembly (WTSA), and includes a listing of the Study Groups and a listing of the Questions allocated to each Study Group.

Contribution No. 1 of each Study Group contains the detailed text for each Question assigned to the Study Group by the WTSA. Changes concerning A-series Recommendations and Questions are published via TSB Circulars and available on the ITU website.

1.4.1.2 WTSA Resolutions

The latest set of WTSA Resolutions is available on the ITU website at <http://itu.int/publ/T-Res/>. Five Resolutions of particular relevance to ITU-T and ISO/IEC JTC 1 cooperation are listed below.

- Resolution 1, *Rules of procedure of the ITU Telecommunication Standardization Sector (ITU-T)*.
- Resolution 2, *ITU-T study group responsibility and mandates*.

- Resolution 7, *Collaboration with the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC)*.
- Resolution 22, *Authorization for TSAG to act between WTSAs*.
- Resolution 67, *Creation of a Standardization Committee for Vocabulary*.

1.4.1.3 A-series Recommendations

A-series Recommendations are adopted by the WTSAs or by the Telecommunication Standardization Advisory Group (TSAG) between WTSAs. The latest set is available on the ITU website at <http://itu.int/rec/T-REC-A>. Ten A-series Recommendations of particular relevance to ITU-T and ISO/IEC JTC 1 cooperation are listed below.

- Recommendation ITU-T A.1 (latest version), *Work methods for study groups of the ITU Telecommunication Standardization Sector*.
- Recommendation ITU-T A.2 (latest version), *Presentation of contributions to the ITU Telecommunication Standardization Sector*.
- Recommendation ITU-T A.4 (latest version), *Communication process between the ITU Telecommunication Standardization Sector and forums and consortia*.
- Recommendation ITU-T A.5 (latest version), *Generic procedures for including references to documents of other organizations in ITU-T Recommendations*.
- Recommendation ITU-T A.6 (latest version), *Cooperation and exchange of information between the ITU Telecommunication Standardization Sector and national and regional standards development organizations*.
- Recommendation ITU-T A.8 (latest version), *Alternative approval process for new and revised ITU-T Recommendations*.
- Recommendation ITU-T A.11 (latest version), *Publication of ITU-T Recommendations and World Telecommunication Standardization Assembly proceedings*.
- Recommendation ITU-T A.12 (latest version), *Identification and layout of ITU-T Recommendations*.
- Recommendation ITU-T A.13 (latest version), *Supplements to ITU-T Recommendations*.
- Recommendation ITU-T A.23 (latest version), *Collaboration with the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) on information technology*.

1.4.2 ISO/IEC references

1.4.2.1 General

Most information about the ISO can be found on its website at <http://iso.org>. Similarly, most information about the IEC can be found on its website at <http://iec.ch>. This information includes:

- Catalogue of IEC Publications [This online publication lists all IEC standards issued as of the first day of the year]
- IEC Yearbook [This annual publication lists all the Technical Committees and Subcommittees of IEC and, for each, lists the subjects under consideration and the publications prepared]
- ISO Catalogue [This online publication lists all published International Standards and Technical Reports of ISO]

- ISO Memento [This annual publication lists all the Technical Committees of ISO and gives their scope and committee structure]
- ISO Technical Programme [This semi-annual publication lists the status of all documents that have reached the balloting stage (e.g., CD, DAM, DIS, DTR)]
- ISO/IEC Directives – Part 1:2013, Procedures for the technical work
- ISO/IEC Directives – Part 2:2011, Rules for the structure and drafting of International Standards
- ISO/IEC Directives – Consolidated JTC 1 Supplement:2014
- JTC 1 Standing Documents 2013

1.4.2.2 JTC 1

Most information about ISO/IEC JTC 1 can be found on its site at <http://jtc1.org>. The key document setting forth the specific procedures for JTC 1 is the ISO/IEC Directives – Consolidated JTC 1 Supplement "Procedures Specific to JTC 1".

1.4.2.3 Subcommittees of JTC 1

Subcommittees of JTC 1 maintain their respective websites, linked from the JTC 1 site. Prior to each JTC 1 plenary, SC Chairmen prepare the Subcommittee Business Plans, including a management summary, a period review and the priorities for the next period.

1.5 Definitions

1.5.1 ITU-T definitions

1.5.1.1 Additional Review: A 3-week period in the Alternative Approval Process where Member States and Sector Members review the text of a Recommendation put for approval and can submit comments.

1.5.1.2 Alternative Approval Process (AAP): The procedure for approval of Recommendations that do not have regulatory or policy implications.

1.5.1.3 Consent: A step in the Alternative Approval Process where a Study Group or Working Party agrees that the text of a Recommendation is sufficiently mature.

1.5.1.4 Consultation: A step in the Traditional Approval Process where Member States are asked to delegate authority for approval of a Recommendation to the next meeting of the Study Group.

1.5.1.5 Determination: A step in the Traditional Approval Process where a Study Group or Working Party agrees that the text of a Recommendation is sufficiently mature.

1.5.1.6 Last Call: A 4-week period in the Alternative Approval Process where Member States, Sector Members and Associates review the text of a Recommendation put for approval and can submit comments.

1.5.1.7 Question: Description of an area of work to be studied, normally leading to the production of one or more new or revised Recommendations.

1.5.1.8 Traditional Approval Process (TAP): The procedure for approval of Recommendations that may have regulatory or policy implications.

1.5.2 ISO/IEC JTC 1 definitions

1.5.2.1 Amendment (AMD): A published amendment to an International Standard.

1.5.2.2 Category A Liaison: An external liaison organization which participates actively in a broad spectrum of work in JTC 1 or in a JTC 1/SC.

1.5.2.3 Committee Draft (CD): Text for a proposed International Standard which has been registered for ballot at the Subcommittee (SC) level – stage 3, committee stage.

1.5.2.4 Draft Amendment (DAM): Text for a proposed amendment to an International Standard which is at stage 4, enquiry stage.

1.5.2.5 Draft International Standard (DIS): Text for a proposed Draft International Standard which is at stage 4, enquiry stage.

1.5.2.6 Draft Technical Report (DTR): Text for a proposed Technical Report which has been submitted for balloting by National Bodies of JTC 1.

1.5.2.7 Final Draft Amendment (FDAM): Text for a proposed amendment to an International Standard which has been submitted for balloting by ISO and IEC National Bodies – stage 5, approval stage.

1.5.2.8 Final Draft International Standard (FDIS): Text for a proposed International Standard which is at stage 5, approval stage.

1.5.2.9 International Standard: A published ISO/IEC standard.

1.5.2.10 International Standardized Profile (ISP): A published ISO/IEC standardized profile.

1.5.2.11 Information Technology Task Force (ITTf): A group of individuals from the staffs of the ISO Central Secretariat and the IEC Central Office that provide joint support for the activities of JTC 1.

1.5.2.12 New work item Proposal (NP): Text for a proposed item to be added to the program of work which is at stage 1, proposal stage and has been registered for ballot at the JTC 1 or Subcommittee (SC) level.

1.5.2.13 Proposed Draft Amendment (PDAM): Text for a proposed amendment to an International Standard which has been registered for ballot at the Subcommittee (SC) level.

1.5.2.14 Proposed Draft Technical Report (PDTR): Text for a proposed Technical Report which has been registered for ballot at the Subcommittee (SC) level – stage 3, committee stage.

1.5.2.15 Technical Report (TR): A document not suitable for issue as an International Standard but valuable for publication in the interests of standardization.

1.5.2.16 Technical Specification (TS): A document not mature for issue as an International Standard but valuable for publication in the interests of standardization.

1.5.2.17 Working Draft (WD): A document at stage 2, preparatory stage, pertaining to a work item with a view to leading toward a Committee Draft.

1.5.3 ITU-T and JTC 1 cooperation definitions

1.5.3.1 Collaborative Interchange: A mode of ITU-T and JTC 1 collaboration aimed at producing one or more common (or twin) text Recommendations | International Standards by means of close liaison and synchronized approval (see clause 7).

1.5.3.2 Collaborative Team (CT): (1) A mode of ITU-T and JTC 1 collaboration aimed at producing one or more common (or twin) text Recommendations | International Standards by means of common meetings and synchronized approval (see clause 8); (2) A group composed of individuals from a JTC 1 SC and from an ITU-T SG that collaboratively develops common (or twin) text for one or more Recommendations | International Standards (see clause 8).

NOTE – In JTC 1, a Collaborative Team is similar to a Working Group to the maximum extent possible.

1.5.3.3 Identical Recommendations | International Standards (or "common text"): Recommendations and International Standards which were developed jointly by ITU-T and ISO/IEC and have identical text. The expression "Identical Recommendations | International Standards" is the title of clause 2.1 in common texts.

1.5.3.4 Paired Recommendations | International Standards (or "twin text"): Recommendations and International Standards which were developed in close collaboration between ITU-T and ISO/IEC, and whose texts are technically aligned but not identical. The expression "Paired Recommendations | International Standards" is the title of clause 2.2 in common texts.

1.5.3.5 Working Level Group: A generic term to refer to a group of individuals in a JTC 1 SC responsible for progressing work on a specific project or a group of individuals in an ITU-T SG responsible for progressing work on a specific Question (see clause 7).

NOTE – In JTC 1, a Working Level Group is similar to a Working Group to the maximum extent possible.

1.6 Abbreviations

For the purposes of this Guide, the following abbreviations apply:

1.6.1 ITU-T abbreviations

AAP Alternative Approval Process

CCITT International Telegraph and Telephone Consultative Committee (replaced by ITU-T in 1993)

ITU International Telecommunication Union

ITU-T International Telecommunication Union – Telecommunication Standardization Sector

SG Study Group

TAP Traditional Approval Process

TSAG Telecommunication Standardization Advisory Group

TSB Telecommunication Standardization Bureau

WP Working Party

WTSA World Telecommunication Standardization Assembly

WTSC World Telecommunication Standardization Conference (replaced by WTSA in 2000)

1.6.2 ISO/IEC abbreviations

AMD	Amendment
CD	Committee Draft
COR	Technical Corrigendum
DAM	Draft Amendment
DCOR	Draft Technical Corrigendum
DIS	Draft International Standard
DTR	Draft Technical Report
FDAM	Final Draft Amendment
FDIS	Final Draft International Standard
IEC	International Electrotechnical Commission
IS	International Standard
ISO	International Organization for Standardization
ISP	International Standardized Profile
ITTF	Information Technology Task Force
JTC 1	Joint Technical Committee 1
NP	New Work Item Proposal
PDAM	Proposed Draft Amendment
PDTR	Proposed Draft Technical Report
SC	Subcommittee
SWG	Special Working Group
TR	Technical Report
TS	Technical Specification
WD	Working Draft
WG	Working Group

1.6.3 ITU-T and JTC 1 cooperation abbreviations

CT	Collaborative Team
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2 Organizational structures

ITU-T and JTC 1 have similar organizational structures for carrying out technical work. The major ITU-T organizational unit is the Study Group (SG) which is comparable to a Subcommittee (SC) within JTC 1. Table 1 lists the ten ITU-T Study Groups as of September 2013 (an up-to-date list may be found on the ITU website at <http://itu.int>). Table 2 lists the nineteen Subcommittees of JTC 1 as of September 2013 (an up-to-date list may be found on the JTC 1 website at <http://jtc1.org>).

Table 1 – List of ITU-T Study Groups

Designation	Title
SG2	Operational aspects of service provision and telecommunication management
SG3	Tariff and accounting principles including related telecommunication economic and policy issues
SG5	Environment and climate change
SG9	Television and sound transmission and integrated broadband cable networks
SG11	Signalling requirements, protocols and test specifications
SG12	Performance, quality of service and quality of experience
SG13	Future networks including cloud computing, mobile and next-generation networks
SG15	Networks, technologies and infrastructures for transport, access and home
SG16	Multimedia coding, systems and applications
SG17	Security
NOTE 1 – A brief description of the general work areas of the Study Groups is contained in WTSA Resolution 2.	
NOTE 2 – In addition to the Study Groups, the Telecommunication Standardization Advisory Group (TSAG) is also part of the ITU-T.	

Table 2 – List of ISO/IEC JTC 1 Subcommittees

Designation	Title
SC 2	Coded character sets
SC 6	Telecommunications and information exchange between systems
SC 7	Software and systems engineering
SC 17	Cards and personal identification
SC 22	Programming languages, their environments and system software interfaces
SC 23	Digitally recorded media for information interchange and storage
SC 24	Computer graphics, image processing and environmental data representation
SC 25	Interconnection of information technology equipment
SC 27	IT security techniques
SC 28	Office equipment
SC 29	Coding of audio, picture, multimedia and hypermedia information
SC 31	Automatic identification and data capture techniques
SC 32	Data management and interchange
SC 34	Document description and processing languages
SC 35	User interfaces
SC 36	Information technology for learning, education and training
SC 37	Biometrics
SC 38	Distributed application platforms and services (DAPS)
SC 39	Sustainability for and by Information Technology
<p>NOTE – Also directly reporting to JTC 1 are:</p> <ul style="list-style-type: none">– Special Working Group on Accessibility;– Special Working Group on Directives;– Special Working Group on Planning;– Special Working Group on Smart Grid;– Special Working Group on Internet of Things (IoT);– Special Working Group on Management;– WG 7 on Sensor Networks;– WG 8 on Governance of IT.	

At the next lower level, ITU-T Study Groups typically divide their work into a number of Working Parties (WPs), and JTC 1 Subcommittees divide their work into Working Groups (WGs). Both organizations appoint Rapporteurs and Editors to facilitate the carrying out of detailed technical work.

Figure 1 illustrates the ITU-T structure as of September 2013 and Figure 2 illustrates the JTC 1 structure as of September 2013.

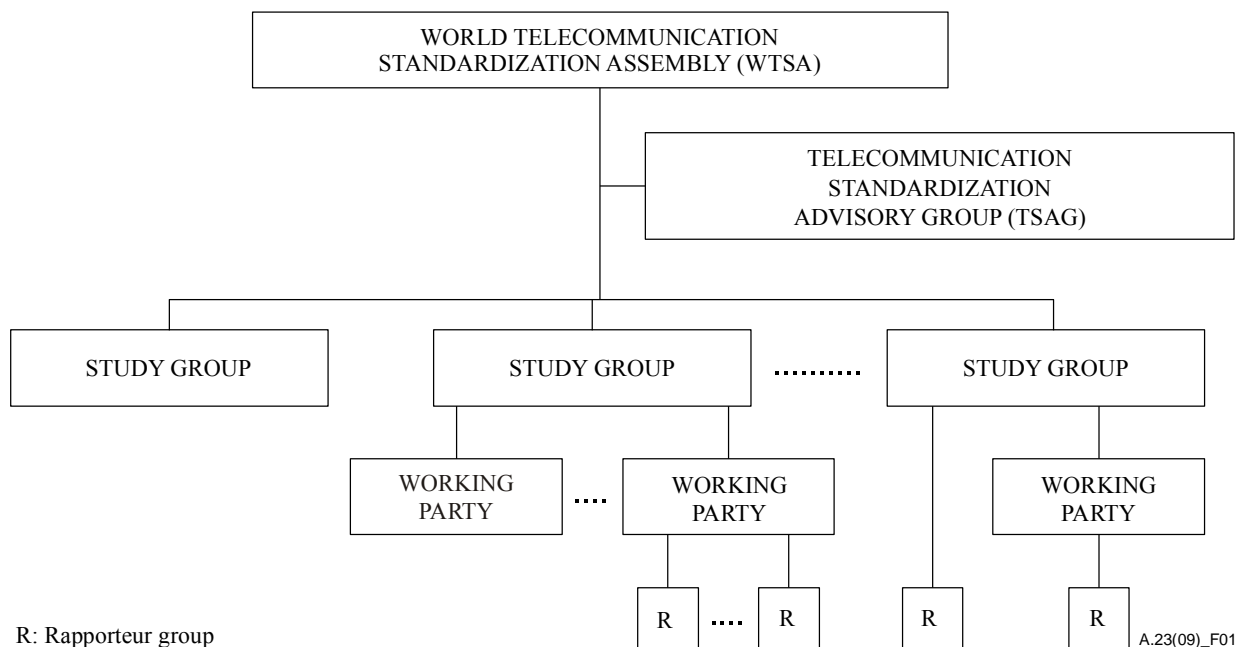


Figure 1 – Organizational structure of ITU-T

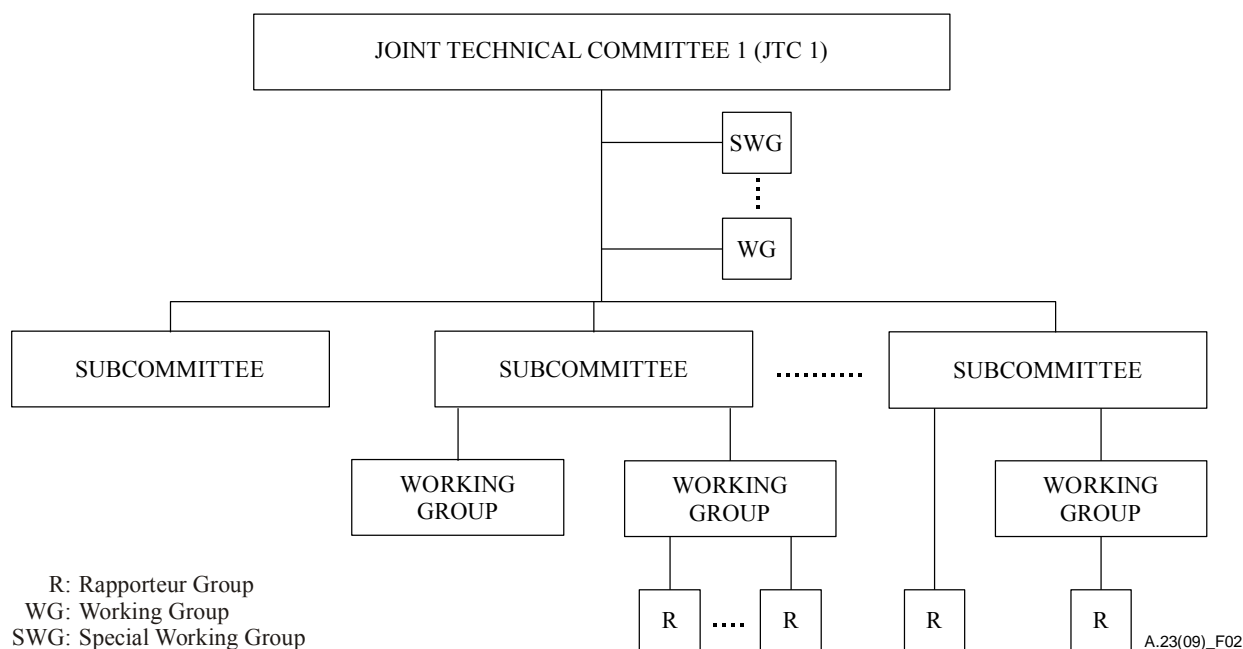


Figure 2 – Organizational structure of JTC 1

3 Organization procedures

The procedures for ITU-T and ISO/IEC JTC 1 cooperation make use of the regular procedures of each organization with the addition of some special procedures that achieve needed synchronization. Therefore, the following background material on the procedures of the two organizations forms the basis upon which the cooperative procedures are built. Of particular importance are the approval processes used by the ITU-T and JTC 1.

3.1 ITU-T procedures

The procedures for the ITU-T are specified in the WTSA Resolutions and in the A-series Recommendations. Highlights of this information are summarized below.

The WTSA meets once every four years. The period between two consecutive Assemblies is called a Study Period (e.g., 2009-2012). Among the principal actions taken by the WTSA are:

- a) Approval of any Recommendations submitted by the Study Groups;
- b) Organization of the Study Groups for the next Study Period;
- c) Allocation of Questions (work program) to Study Groups;
- d) Appointment of the chairman and vice-chairmen of each Study Group; and
- e) Revision of the working methods of the ITU-T.

Between Assemblies, TSAG has been delegated authority to make any necessary changes in Study Groups, work programs and work methods.

The Study Groups are responsible for their own internal organization, for example:

- a) Establishment of Working Parties and the appointment of their chairmen;
- b) Allocation of Questions to each Working Party; and
- c) Appointment of Rapporteurs.

The Working Parties are responsible for the Questions assigned to them. They may appoint Rapporteurs to facilitate carrying out the technical work. When texts are being developed for a Recommendation, it is frequently helpful to appoint an Editor.

At the start of a new Study Period, the Questions are the ones allocated to the Study Group by the WTSA. During the Study Period, new proposed Questions can be drafted and approved.

At the end of the Study Period, each Study Group prepares a set of new or revised Questions for the work they believe should be continued or undertaken during the next four year Study Period. These draft Questions are submitted to the WTSA for approval.

Procedures are in place that permit important work to continue during the period between the final meeting of a Study Group in one Study Period and the first meeting of the Study Group in the next Study Period.

3.1.1 Traditional Approval Process (TAP)

The Traditional Approval Process is used for Recommendations that may have regulatory or policy implications. Details of this procedure are contained in WTSA Resolution 1 and summarized in Figure 3a. It is expected that many Recommendations developed in cooperation with JTC 1 will not have regulatory or policy implications, and will therefore not fall under this procedure.

During the Study Period, work on a draft of a new Recommendation or on a revision of an existing Recommendation may become mature and stable. The Study Group or Working Party may determine that the text is sufficiently mature and that the approval process should be initiated. Any final editing is completed and the Study Group Chairman requests the Director of the TSB to initiate a consultation period, which lasts at least 3 months. The results of the consultation of Member States are conveyed to the next meeting of the Study Group.

At the Study Group meeting, all comments are considered and the final text of the Recommendation is produced. At the designated time during the Study Group meeting, the Chairman will seek approval of the Recommendation. The decision at the Study Group meeting must be unopposed. If one Member State says "NO", the approval process is suspended. One or more Member States at the Study Group meeting may request more time to consider their position. If this is the case, these Member States have four weeks from the end of the meeting to make their position known. Texts which are mature at the end of the Study Period may be approved using this procedure or may be sent to the WTSA for approval.

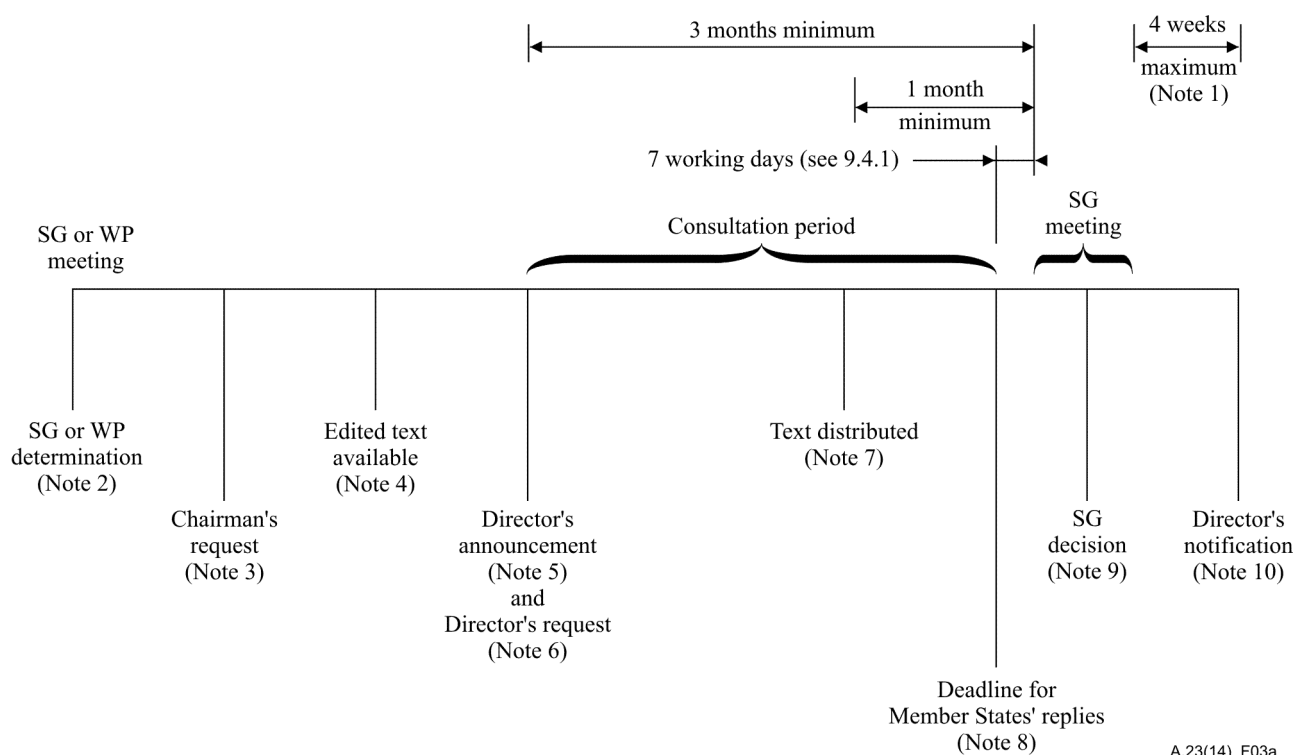
In cases where a delegation does not elect to oppose approval of a text, but would like to register a degree of reservation on one or more aspects, this shall be noted in the report of the meeting. Such reservations shall be mentioned in a concise note appended to the text of the Recommendation.

3.1.2 Alternative Approval Process (AAP)

The Alternative Approval Process is used for Recommendations that do not have regulatory or policy implications. Details of this procedure are contained in Recommendation ITU-T A.8 and summarized in Figure 3b. A major characteristic of the AAP is that approval can be obtained without having to wait until the next Study Group meeting. It is expected that essentially all of the Recommendations developed in cooperation with JTC 1 will fall under this procedure.

During the Study Period, work on a draft of a new Recommendation or on a revision of an existing Recommendation may become mature and stable. The Study Group or Working Party may consent that the text is sufficiently mature and that the approval process should be initiated. Any final editing of the text is completed and the Study Group Chairman requests the Director of the TSB to initiate a four-week Last Call period. Member States, Sector Members and Associates review the text and may submit comments. If there are no comments (other than simple editorial corrections), the Recommendation is approved. If there are comments of substance, they are addressed and depending on time schedules the revised text will be posted for a three-week Additional Review or sent to the next meeting of the Study Group. If the Additional Review is held, the Recommendation is approved if there are no comments (other than simple editorial corrections). Otherwise, the text is sent to the next Study Group meeting. At the Study Group meeting, all comments are considered and the final text of the Recommendation is produced. At the designated time during the Study Group meeting, the Chairman will seek approval of the Recommendation. The decision at the Study Group meeting must not be opposed by more than one Member State present at the meeting. If two or more Member States say "NO", the approval process is suspended. One or more Member States at the Study Group meeting may request more time to consider their position. If this is the case, these Member States have four weeks from the end of the meeting to make their position known. Texts which are mature at the end of the Study Period may be approved using the above procedure or may be sent to the World Telecommunication Standardization Assembly for approval.

In cases where a delegation does not elect to oppose approval of a text, but would like to register a degree of reservation on one or more aspects, this shall be noted in the report of the meeting. Such reservations shall be mentioned in a concise note appended to the text of the Recommendation concerned.



NOTE 1 – Exceptionally, an additional period of up to four weeks would be added if a delegation requested more time under WTSA-12 Resolution 1, clause 9.5.5.

NOTE 2 – *SG or WP determination*: The study group or working party determines that work on a draft Recommendation is sufficiently mature and requests the SG chairman to make the request to the Director (WTSA-12 Resolution 1, clause 9.3.1).

NOTE 3 – *Chairman's request*: The SG chairman requests that the Director announce the intention to seek approval (WTSA-12 Resolution 1, clause 9.3.1).

NOTE 4 – *Edited text available*: Text of the draft Recommendation, including the required summary, must be available to TSB in final edited form in at least one official language (WTSA-12 Resolution 1, clause 9.3.3). Any associated electronic material included in the Recommendation must also be made available to TSB at the same time.

NOTE 5 – *Director's announcement*: The Director announces the intention to seek approval of the draft Recommendation at the next SG meeting. The invitation to the meeting with the announcement of the intention to apply the approval procedure should be sent to all Member States and Sector Members so as to be received at least three months before the meeting (WTSA-12 Resolution 1, clauses 9.3.1 and 9.3.3).

NOTE 6 – *Director's request*: The Director requests Member States to inform the Director whether they approve or do not approve the proposal (WTSA-12 Resolution 1, clauses 9.4.1 and 9.4.2). This request shall contain the summary and reference to the complete final text.

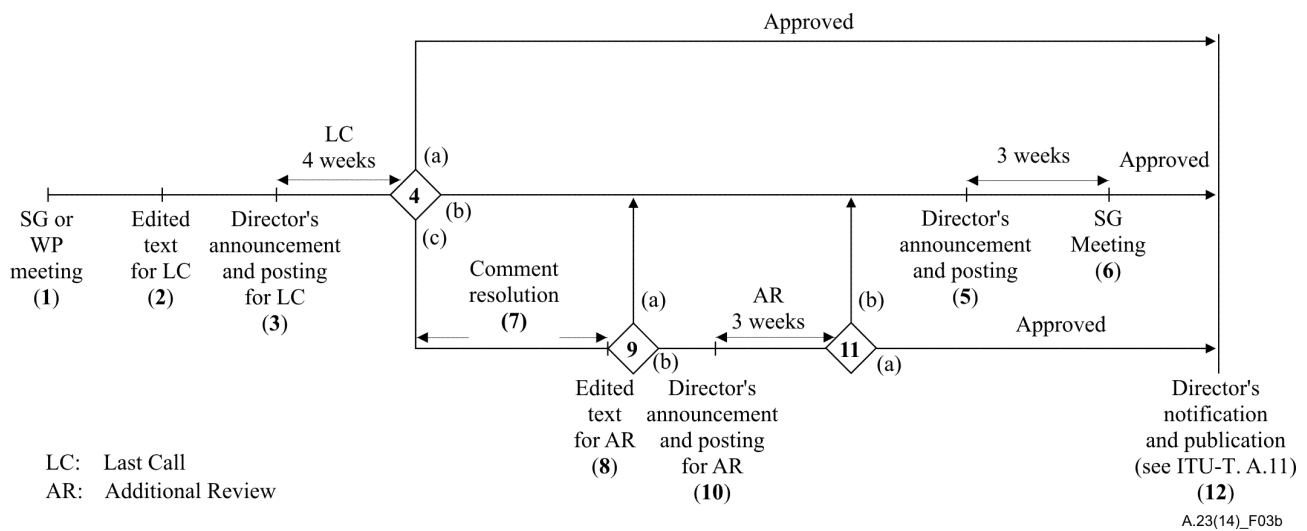
NOTE 7 – *Text distributed*: Text of the draft Recommendation must have been distributed in the official languages at least one month before the announced meeting (WTSA-12 Resolution 1, clauses 9.3.5).

NOTE 8 – *Deadline for Member States' replies*: If 70% of replies received during the consultation period indicate approval, the proposal shall be accepted (WTSA-12 Resolution 1, clauses 9.4.1, 9.4.5 and 9.4.7).

NOTE 9 – *Study group decision*: After debate, the study group reaches unopposed agreement to apply the approval procedure (WTSA-12 Resolution 1, clauses 9.5.3 and 9.5.2). A delegation can register a degree of reservation (WTSA-12 Resolution 1, clause 9.5.4), can request more time to consider its position (9.5.5) or can abstain from the decision (WTSA-12 Resolution 1, clause 9.5.6).

NOTE 10 – *Director's notification*: The Director notifies whether the draft Recommendation is approved or not (WTSA-12 Resolution 1, clause 9.6.1).

Figure 3a (Based on Fig. 9.1 of WTSA Res. 1) – ITU-T Traditional Approval Process (TAP)



- 1) *SG or WP consent* – The study group or working party concludes that the work on a draft Recommendation is sufficiently mature to begin the alternative approval process and to initiate the last call (Rec. ITU-T A.8, clause 3.1).
- 2) *Edited text available* – The final, edited, draft text, including summary, is provided to TSB, and the study group chairman requests the Director to initiate the last call (Rec. ITU-T A.8, clause 3.2). Any associated electronic material included in the Recommendation must also be made available to TSB at the same time.
- 3) *Director's last call announcement and posting* – The Director announces the beginning of the last call to all Member States, Sector Members and Associates, with reference to the summary and complete text. If the draft Recommendation has not already been electronically posted, it is done at this time (Rec. ITU-T A.8, clause 3.1).
- 4) *Last call judgment* – The study group chairman, in consultation with TSB, makes the judgment whether:
 - a) no comments other than those indicating typographical errors have been received. In this case, the Recommendation is considered as approved (Rec. ITU-T A.8, clause 4.4.1);
 - b) a planned study group meeting is sufficiently close to consider the comments received (Rec. ITU-T A.8, clause 4.4.2); or
 - c) to save time and/or because of the nature and maturity of the work, comment resolution should be initiated leading to the preparation of edited texts (Rec. ITU-T A.8, clause 4.4.2).
- 5) *Director's study group announcement and posting* – The Director announces that the next study group meeting will consider the draft Recommendation for approval and will include reference to either:
 - a) the draft Recommendation (the edited text (LC) version) plus the comments received from the last call (Rec. ITU-T A.8, clause 4.6); or
 - b) if comment resolution has been carried out, the revised draft Recommendation text. If the revised draft Recommendation has not already been electronically posted, it is done at this time (Rec. ITU-T A.8, clause 4.6).
- 6) *Study group decision meeting* – The study group meeting reviews and addresses all written comments and either:
 - a) proceeds under WTSA Resolution 1 or clause 5.8, as appropriate, if there might be policy or regulatory implications (Rec. ITU-T A.8, clause 5.2); or
 - b) approves the draft Recommendation (Rec. ITU-T A.8, clause 5.3 or 5.4); or
 - c) does not approve the draft Recommendation. If it is concluded that a further attempt at addressing comments received is appropriate, then additional work should be done and the process returns to step 2 (without further CONSENT at a working party or study group meeting) (Rec. ITU-T A.8, clause 5.8).
- 7) *Comment resolution* – The study group chairman, with assistance from TSB and experts, via electronic correspondence and rapporteur and working party meetings, where appropriate, addresses the comments and prepares a new edited draft Recommendation text (Rec. ITU-T A.8, clause 4.4.2).
- 8) *Edited text available* – The revised edited text, including summary, is provided to TSB (Rec. ITU-T A.8, clause 4.4.2).

- 9) *Next step judgment* – The study group chairman, in consultation with TSB, makes the judgment whether:
- a) a planned study group meeting is sufficiently close to consider the draft Recommendation for approval (Rec. ITU-T A.8, clause 4.4.3 a); or
 - b) to save time and/or because of the nature and maturity of the work, an additional review should be initiated (Rec. ITU-T A.8, clause 4.4.3 b).
- 10) *Director's additional review announcement and posting* – The Director announces the beginning of the additional review to all Member States and Sector Members, with reference to the summary and complete text of the revised draft Recommendation. If the revised draft Recommendation has not already been electronically posted, it is done at this time (Rec. ITU-T A.8, clause 4.5).
- 11) *Additional review judgment* – The study group chairman, in consultation with TSB, makes the judgment whether:
- a) no comments other than those indicating typographical errors have been received. In this case, the Recommendation is considered approved (Rec. ITU-T A.8, clause 4.5.1); or
 - b) comments other than those indicating typographical errors have been received. In this case, the process proceeds to the study group meeting (Rec. ITU-T A.8, clause 4.5.2).
- 12) *Director's notification* – The Director notifies the members that the draft Recommendation has been approved (Rec. ITU-T A.8, clause 6.1 or 6.2).

Figure 3b (Based on Fig. 1 of ITU-T A.8) – ITU-T Alternative Approval Process (AAP)

3.2 JTC 1 procedures

The procedures for the technical work of ISO/IEC JTC 1 are specified in the JTC 1 Supplement to the ISO/IEC Directives. These procedures employ a number of discrete stages, most involving a ballot process of formal voting by National Bodies. The JTC 1 standards development stages 00 through 60 are given in Table 3 for each of the JTC 1 outputs. Highlights are summarized below and the final stages are illustrated in Figure 3c.

Table 3 – JTC 1 Standards Development Stages

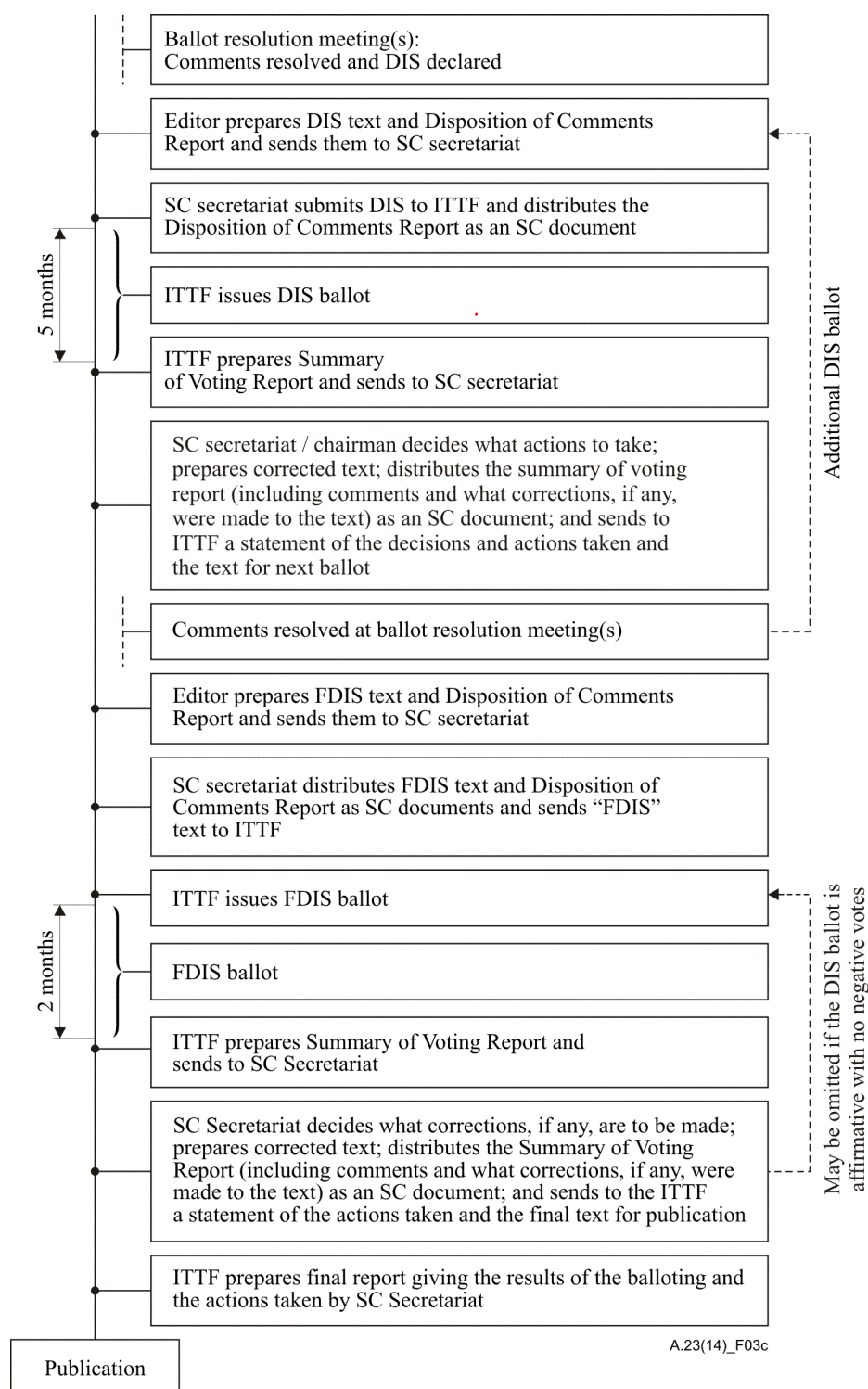
Stage	Standard	Amendment	Fast Track IS	Technical Report	Technical Specification	Technical Corrigendum
00 (optional) Preliminary stage	Preparation of NP	Preparation of NP		Preparation of NP		
01 Proposal stage	Acceptance of NP	Acceptance of NP		Acceptance of NP	Acceptance of NP	
02 Preparatory stage	Preparation of WD	Preparation of WD		Preparation of WD	Preparation of WD	Preparation of Defect report
03 Committee stage	Development and acceptance of CD	Development and acceptance of PDAM		Development and acceptance of PDTR	Development and acceptance of PDTs	Development and acceptance of DCOR
04 Enquiry stage	Development and acceptance of DIS	Development and acceptance of DAM	Development and acceptance of DIS	Approval of DTR	Approval of DTS	
05 Approval stage	Approval of FDIS	Approval of FDAM	Approval of FDIS			
06 Publication stage	Publication of IS	Publication of Amendment	Publication of IS	Publication of Technical Report	Publication of Technical Specification	Publication of Technical Corrigendum

A proposal for a new work item can be initiated by a JTC 1 National Body, an SC, or a Category A Liaison. A standard format exists for a new work item proposal (NP). An NP is circulated for a three-month letter ballot at the JTC 1 level or, if initiated by a Subcommittee, a letter ballot at the Subcommittee level and a simultaneous comment period at the JTC 1 level. If approved, the NP is added to the JTC 1 program of work and assigned to an SC for development.

Working Drafts are texts being developed for an International Standard (IS), an amendment to an International Standard, a Technical Specification (TS) or a Technical Report (TR). When the work reaches a state of maturity as determined by the SC¹⁾, it is registered as a Committee Draft (CD), a Proposed Draft Amendment (PDAM), a Proposed Draft Technical Report (PDTR) or a Proposed Draft Technical Specification (PDTS). It is circulated for letter ballot at the SC level. The ballot period is normally three months but can be extended up to six months.

The results of the ballot, including all comments, are distributed by the SC secretariat in a Summary of Voting document. All comments must be addressed. If the comments are straightforward, they may be addressed by the editor. In more complex situations, an editing meeting is held to resolve the comments. The editor then prepares the text and a Disposition of Comments report and forwards these to the SC secretariat. If the changes are substantive, a second CD, PDAM, or PDTR ballot is required. The same procedure described above is used for the ballot and to handle the ballot results.

¹⁾ This determination is done either by adoption of a Resolution at an SC meeting or by a three-month registration ballot at the SC level.



NOTE – The stage illustrated as DIS equally applies to DAM, DTR or DTS; similarly, the stage illustrated as FDIS equally applies to FDAM.

Figure 3c – Final stages of the JTC 1 approval process

When the Subcommittee considers the text to be stable and declares that the next ballot is intended to be the enquiry stage (DIS DAM, DTR or DTS ballot), the text is registered as a Draft International Standard (DIS), Draft Amendment (DAM), Draft Technical Report (DTR) or Draft Technical Specification (DTS). Following a two-month translation period, DISs and DAMs are circulated for a three-month letter ballot by ISO and IEC members. DTRs and DTSs are circulated for a three-month (can be extended to six months) letter ballot at the JTC 1 level. The results of the ballot, including all comments, are communicated to the SC secretariat who decides, together with the SC Chairman and the Editing group to either (if the ballot was successful) register the standard as FDIS (respectively as FDAM) or (if successful and no negative comments were received) proceed directly to publication or (if not approved) that a second DIS or DAM ballot is required.

The same procedure as described above is used to process the ballot comments. When the text has been finalized, the editor sends it, along with the Disposition of Comments report, to the SC secretariat. The SC secretariat sends the text of the FDIS, or second DIS if so decided (or FDAM or second DAM if so decided) to the ITTF. Unless a second DIS (or a second DAM) is required the ITTF circulates the final text for a two-month letter ballot to National Bodies of ISO and IEC members. This is a "Yes/No" ballot. If the ballot is successful, the text will be promptly published (only obvious editorial corrections will be made in the publication). If unsuccessful, the text may be resubmitted as a CD, DIS or FDIS (respectively PDAM, DAM or FDAM), or published as Technical Specification. For Technical Reports or Technical Publications, no additional balloting is required and the SC secretariat sends the text to the ITTF for publication.

Should the enquiry draft be successful without negative votes, the text may proceed directly to publication.

Defects discovered after publication are handled by a formal defect report process. A special group of nominated experts reviews the material along with any proposed solution. The result of this process is a three month DCOR letter ballot at the SC level. Such defects are normally corrected by the publication of a Technical Corrigendum.

All along the way, the WG and SC oversee the process. In many cases authorization to pass to the next step are contained in Resolutions formally approved at SC meetings.

4 Modes of cooperation

4.1 Introduction

Cooperation between the ITU-T and ISO/IEC JTC 1 spans many levels. The most basic, of course, is the recognition of the areas of work of the respective organizations.

The ITU-T, as one of the three Sectors of the International Telecommunication Union (ITU), has responsibilities for "studying technical, operating and tariff questions and adopting recommendations on them with a view to standardizing telecommunications on a worldwide basis."²⁾ JTC 1, as a joint technical committee of ISO and IEC, has a scope of "standardization in the field of information technology."³⁾

By far, the vast majority of the work program of the ITU-T and the work program of JTC 1 is carried out separately with little, if any, need for cooperation between the organizations.

²⁾ Constitution of the International Telecommunication Union, 2006.

³⁾ JTC 1 Business Plan.

For work programs where cooperation is desirable, appropriate arrangements exist between ISO, IEC and ITU-T to facilitate this cooperation. ISO and IEC each have a membership in the ITU-T as International Organizations. The ITU-T participates in the work of JTC 1 as a Category A Liaison organization. Several modes of cooperation have been defined as described below.

4.2 Liaison mode

Where there is interest in both organizations in an area of work but the prime responsibility falls to one of the two organizations, the liaison approach to cooperation is well suited. In this situation, the work is carried out in one organization and the other organization participates, as appropriate, using its liaison status. The result is published by one organization and is referenced, as needed, by the other organization.

In some situations of common interest, it may be appropriate to reach an agreement that would allocate the standardization of a particular area of work to one organization. One example where this has been done successfully is the interface between a data terminal and a modem. The agreement reached is that the ITU-T will standardize the electrical characteristics and functions of the interchange circuits and JTC 1 will standardize the interface connector and pin assignments. The necessary cooperation is achieved through liaison.

Clause 6 details the liaison procedures.

4.3 Collaboration mode

Where, for a given area of work, each organization plans to develop a Recommendation or International Standard, it may be best to mutually build consensus through collaboration. In this situation, meetings are held at the working level to develop common text, which is then approved using the normal approval process of each organization. The result is published as a Recommendation and an International Standard (or as a Supplement and a Technical Report).

Collaboration can be carried out in one of two ways: by means of Collaborative Interchange or by means of a Collaborative Team.

Collaboration by means of Collaborative Interchange is suited for situations where the work to be carried out is straight-forward and relatively non-controversial, and where there is sufficient common participation in the meetings of the two organizations to make the interchange highly effective. The work on resolving issues and developing common text is continually progressed in the successive meetings of the two groups. Synchronization of the normal approval processes of both the ITU-T and JTC 1 is used leading to publication.

Clause 7 details the collaboration procedures when Collaborative Interchange is used.

Collaboration by means of a Collaborative Team is well suited for situations where extended dialog is necessary to develop solutions and reach consensus. In this situation, all interested parties participate together in a Collaborative Team to mutually progress the work, resolve issues, and develop common text. Synchronization of the normal approval processes of both the ITU-T and JTC 1 is used leading to publication.

Clause 8 details the collaboration procedures when a Collaborative Team is established.

When appropriate, the collaboration mode can also be used to produce twin text.

Collaboration at the international level will be greatly facilitated by effective coordination between ITU-T and JTC 1 delegates at the national level. The true basis of cooperation is dependent upon open sharing of information and the good will of all parties involved.

4.4 Determining the mode of cooperation

Figure 4 summarizes for a specific item of work the various relationships that could exist between the ITU-T and JTC 1.

The vast majority of the work programs of the ITU-T and JTC 1 are significantly separate so that they can be successfully carried out with little, if any, intercommunication.

Agreement for cooperation must be mutually recognized to be successful. Therefore, operation in the liaison mode or in one of the two collaboration modes for a given area of work must be an agreed decision of both organizations. This agreement is to be confirmed at the SG/SC level.

To maximize the effectiveness of resources and minimize duplication of effort, SGs and SCs should identify areas for collaborative work as early as possible in the development process. Normally as part of the development of a new work item proposal in JTC 1 and the development of a new or revised Question in the ITU-T, consideration is given to the need for interactions with other standards groups. If enough information is available at this stage, then, if appropriate, either the liaison mode or one of the collaboration modes can be proposed and agreement of the other organization sought.

It is possible for the mode of cooperation to change as the work progresses. For example, work could be initiated in one organization and, as a result of liaison, it could become recognized as integrally important to the other organization. At this point, agreement could be reached to advance all future work in a collaborative mode.

To facilitate overall cooperation, each Study Group should maintain a listing that identifies the Questions that are being studied in cooperation with JTC 1 and, for each Question, denotes both the mode of cooperation and the relevant JTC 1 project(s). Similarly, each JTC 1 SC should maintain a listing that identifies the projects that are being studied in cooperation with the ITU-T and, for each project, denotes both the mode of cooperation and the relevant ITU-T Question(s).

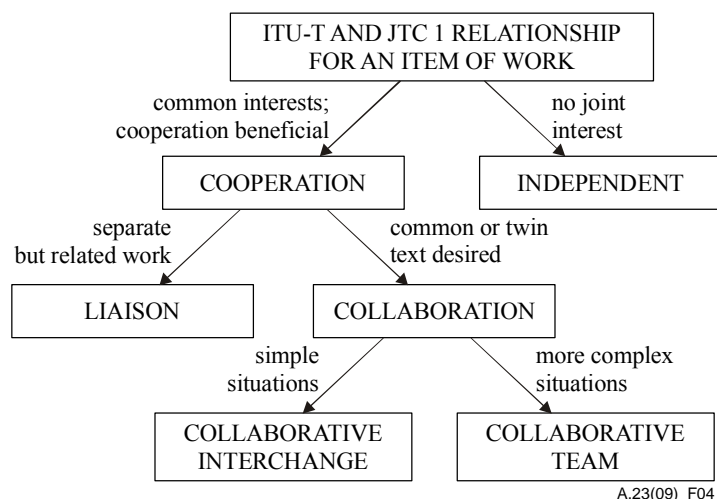


Figure 4 – Possible working relationships between ITU-T and JTC 1

4.5 Termination of collaboration and/or common text publication

As stated in 4.4, a collaborative relationship for a given area of work requires the agreement of both the SC and the SG to be initiated. It continues as long as both organizations feel collaboration is beneficial. In the unusual event that either organization feels that collaboration for a given area of work should be terminated, this situation shall be immediately discussed with the other organization. If satisfactory resolution cannot be obtained, then collaboration for the given area of work can be terminated at any time by either the SC or the SG. If termination should occur, both organizations can make use of the prior collaborative work.

Similarly, if an unusual circumstance should arise to indicate that publication of a collaborative Recommendation | International Standard in common text format is no longer desirable (e.g., because of substantial differences in content), this situation should be immediately discussed with the other organization. If after the consultation either organization determines that common text publication is not appropriate, then each organization can publish separately using its own publication format.

5 Planning and scheduling

Both the ITU-T and JTC 1 have their own multi-year planning activities. Interactions between these planning activities will facilitate effective ITU-T/JTC 1 cooperation.

5.1 Scheduling of SG/WP and SC/WG meetings

Schedules for ITU-T Study Group and Working Party meetings are established one to two years ahead and are quite difficult to change. Meetings of JTC 1 Subcommittees and Working Groups are typically scheduled two years in advance and are also quite difficult to change.

Where collaborative arrangements have been established, the ITU-T SG secretariats and the JTC 1 SC secretariats are responsible for keeping each other informed of meeting schedules. In particular, the SG and SC secretariats should consult each other before firming up their respective SG/WP and SC/WG meeting dates to avoid conflicts that would adversely affect cooperation.

5.2 Work program coordination

The ITU-T and JTC 1 both have requirements for formulating a work plan, including milestones, for each specific area of work. In JTC 1, the key milestones are dates for Working Draft, CD (or PDAM, PDTR or PDTS) ballot, DIS (or DAM, DTR or DTS) ballot, FDIS (or FDAM) ballot, and publication. In the ITU-T, the milestones include dates for SG or WP initiation of the approval process, availability of text for the consultation period (TAP) or Last Call (AAP), and Study Group approval of the Recommendation.

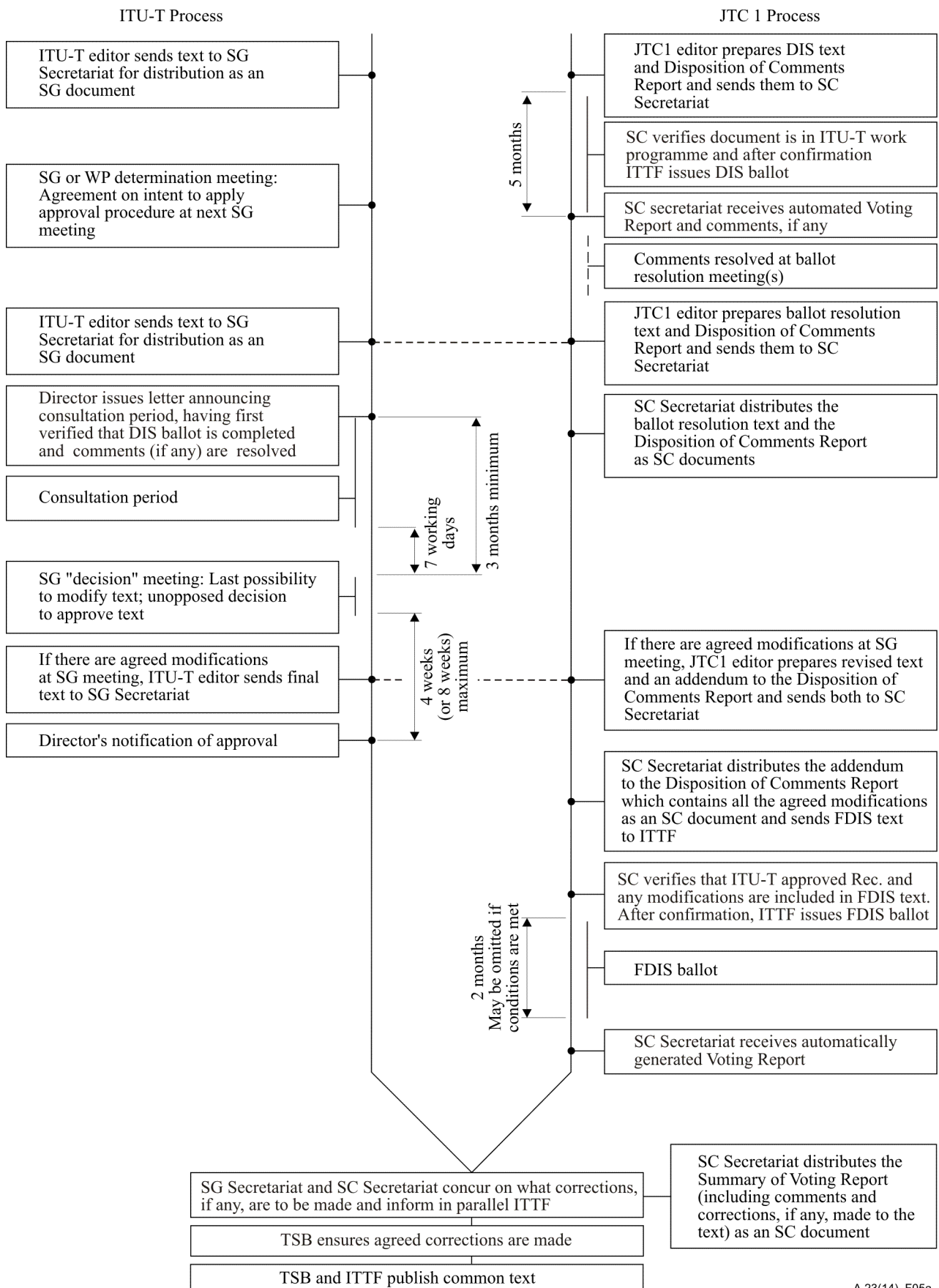
The efficiency of the collaborative process depends in large measure on the synchronization of the approval processes of both organizations. Early planning and establishment of milestones, taking into account key dates in each organization, is essential to achieving synchronization and avoiding added delay. For example, the dates for the DIS (or DAM, DTR or DTS) and FDIS (or FDAM) ballots need to take into account SC/WG meeting dates (for any necessary enabling Resolutions) and the schedule of the ITU-T SG/WP meeting where determination (TAP) or consent (AAP) is contemplated.

Figures 5a and 5b show the final phases of the overall synchronization plan leading to common text publication. In these figures, the stage illustrated as DIS equally applies to DAM, DTR or DTS; similarly, the stage illustrated as FDIS equally applies to FDAM.

The Fast Track process (see clause F.2 of the Consolidated JTC 1 Supplement, complemented by JTC 1 Standing Document 9) may also be used for JTC 1 approval where the fundamental work is done in the ITU-T (e.g., subjects for which JTC 1 has assigned maintenance responsibility to the ITU-T). It should however be noted that only full text ITU-T Recommendations and Supplements may be fast-tracked, not Amendments.

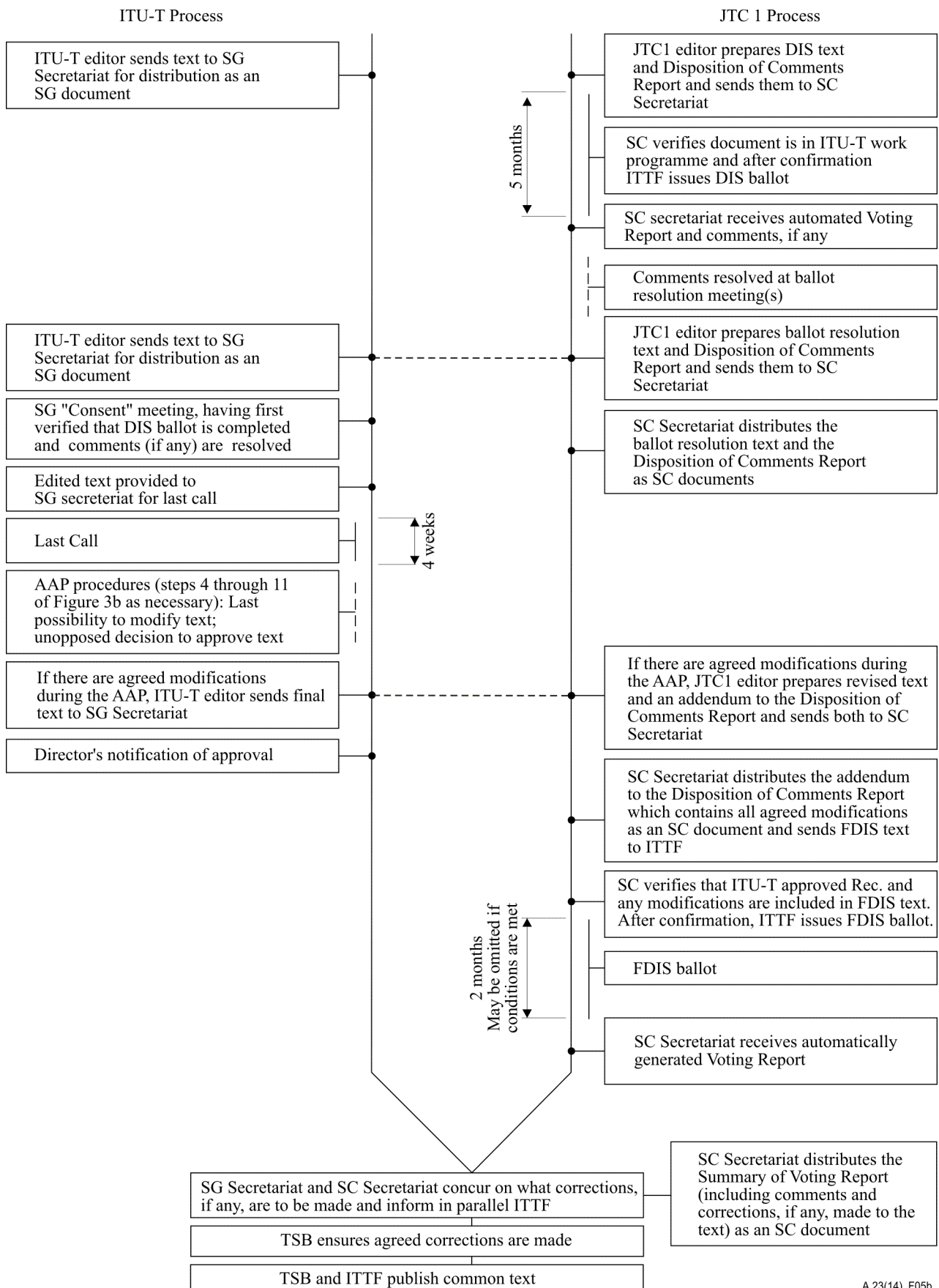
5.3 Synchronized maintenance of cooperative work

Approved collaborative Recommendations | International Standards need to be reviewed and maintained over time. This will require continuing collaborative effort. With the strong interdependence among the large number of information technology Recommendations and International Standards, it is recommended that maintenance updates be done in the same time-frame. This will significantly help to ensure that the work on information technology evolves as a cohesive whole. The review and any necessary updates should be done every four to five years.



A.23(14)_F05a

Figure 5a – Final stages of collaborative approval process when TAP is used



A.23(14)_F05b

Figure 5b – Final stages of collaborative approval process when AAP is used

6 Liaison procedures

6.1 General

Liaison between organizations is an important means of communication that typically involves one or more of the following:

- a) Interchange of general information of mutual interest;
- b) Coordination of related work that is partitioned between the two groups; and
- c) Comments on work that is the responsibility of the other group.

6.2 Liaison representation

Regardless of the mode of cooperation for a particular subject, all interactions at the Study Group/Subcommittee (SG/SC) level and at the Working Party/Working Group (WP/WG) level are conducted using the liaison procedures. In particular, this applies to participation in each other's meetings and submission of contributions. For example, for an individual to represent JTC 1, an SC or a WG at an ITU-T Study Group or Working Party meeting, a letter from JTC 1, the SC, or the WG secretariat is necessary authorizing such representation. Likewise, for an individual to represent an ITU-T Study Group or Working Party at a JTC 1, SC or WG meeting, a letter from the ITU-T SG secretariat is necessary authorizing such representation.

Communication between Rapporteur Groups, between Collaborative Teams, and between a Rapporteur Group and a Collaborative Team is also done by liaison. Individuals attending a Rapporteur meeting in the ITU-T as an ISO/IEC liaison delegate and individuals attending a Rapporteur meeting in JTC 1 as an ITU-T liaison delegate should be officially approved by the respective SG/WP or SC/WG and confirmed with a letter of authorization from the secretariat.

Liaisons are most effective when they are prepared in written form (see 6.3 below) and when a knowledgeable liaison representative attends the meeting to present it and participate in any ensuing dialog. Individuals performing liaison responsibilities should have first-hand knowledge of the work being represented and should be familiar with the procedures of both organizations.

In most cases, liaison between two groups should be both ways. The same or different individuals can be used for the two directions of liaison.

6.3 Liaison contributions

Liaison contributions at the SG/SC level or at the WP/WG level are transmitted by the originating secretariat to the destination secretariat upon appropriate authorization. In exceptional circumstances due to close timing between meetings, liaison contributions may be hand carried by an authorized representative but must be followed by an official transmittal by the originating secretariat.

Liaison contributions at the Rapporteur level (i.e., those without a higher level of approval) are handled between the respective Rapporteurs. Each Rapporteur is responsible for ensuring appropriate distribution within their community of experts.

Liaison contributions must list as their source, the highest entity that approved the liaison. For example, if a liaison statement was developed by a Rapporteur group and subsequently approved by a WP and then the SG, the source would be the SG, indicating the highest stage of approval. It would be most helpful if, within the liaison contribution, the particular group that developed the liaison was indicated. The title of the liaison contribution should be descriptive of the subject matter. The liaison contribution should explicitly state its nature; e.g., whether it is for information, for comment, etc.

Liaison contributions to the ITU-T should contain the Question number. Contribution number 1 in each Study Group contains the Questions assigned to the Study Group by the WTSA. Liaison contributions to JTC 1 should contain the project number.

7 Collaboration using Collaborative Interchange

The basic concept of collaboration using Collaborative Interchange is to closely couple the development, consensus building, and ballot/comment resolution efforts of the two Working Level Groups in an efficient and effective manner to produce mutually agreed common text for one or more Recommendations | International Standards. Although the remainder of this section focuses on common text, development of twin text is also possible using Collaborative Interchange, in which case the approval processes do not require exact timing synchronization.

7.1 Collaborative relationship

Upon agreement by the JTC 1 Subcommittee and the ITU-T Study Group that a specific area of work is to be developed collaboratively using Collaborative Interchange, a collaborative relationship is established between the respective Working Level Groups of the two organizations.

The mutually agreed terms of reference for each Collaborative Interchange relationship should include:

- The scope of the effort as it relates to each organization's program of work (ITU-T Question and JTC 1 project). Where possible, it should include identification of the Recommendation(s) and International Standard(s) that are to be developed collaboratively.
- Any start-up provisions to accommodate work in progress. If the JTC 1 project has been submitted to ITTF for Draft International Standard processing, or if the ITU-T project has been consented for AAP Last Call (or determined for TAP consultation), the window to establish a Collaborative Team is considered as closed.

The Working Level Groups of the two organizations function using the procedures of their respective organizations, but with certain additional procedures, as described below, to facilitate closer collaboration in building consensus and synchronization of approvals leading to publication of common text.

Figure 6 provides a workflow diagram that identifies the various stages of the collaborative process from concept to final publication. Collaboration should also continue for the ongoing maintenance phase (see 7.11 and 7.12).

The terms of reference or mode of collaboration can be changed at any time by mutual agreement of the SG and SC. Procedures for terminating a collaborative relationship are covered in 4.5.

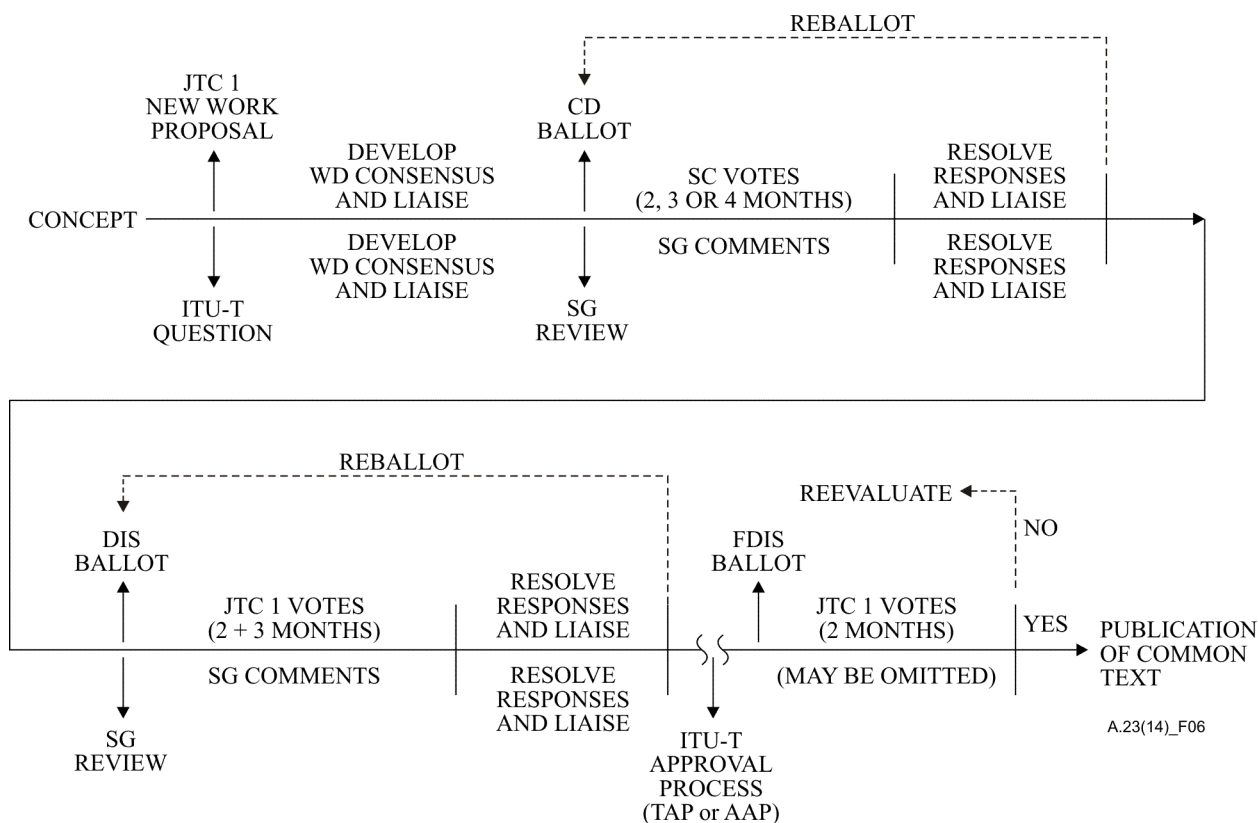


Figure 6 – Workflow diagram when Collaborative Interchange is used

7.2 Participation in working level meetings

Collaboration is facilitated if there is some significant degree of common participation by individuals in the working level meetings of both organizations.

Representation of one organization in a working level meeting of the other organization is achieved by means of liaison (see 6.2). Individuals attending meetings in a liaison capacity should be familiar with the procedures of the organization holding the meeting.

7.3 Scheduling

As the work matures, it is important that careful consideration be given to the scheduling of ballots to take into account the meeting schedule of the JTC 1 SC and WG (e.g., for any necessary resolution authorizing progression to ballot) and the ITU-T SG (e.g., for determination (TAP) or consent (AAP) step of the approval process) so that the necessary synchronization can take place in a timely manner.

7.4 Contributions

Contributions are handled by each Working Level Group according to the normal procedures of their organization. In addition, it is important that the results of analysis of contributions be passed promptly to the other Working Level Group.

7.5 Editor for common text

It is strongly recommended that the two Working Level Groups agree on a single Editor or set of Editors that will maintain the single master collaborative text. The draft text shall be prepared and maintained by the appointed Editor(s) according to the common format criteria agreed by the ISO/IEC and ITU-T secretariats (see the note in clause 1.3). The draft master collaborative text will be updated only when agreement to the specific text has been made by both groups.

Each iteration of the draft collaborative text shall be dated. Changes from the previous draft should be highlighted by change marks.

Appointed Editors will be responsible for the text through draft iterations and final submission to the secretariats for publication. The individuals selected for this task should make a commitment to continue the work to completion so that continuity can be maintained throughout the effort.

7.6 Achieving consensus

Close liaison is maintained during the development of draft documents, editing the draft texts, and resolution of ballots and comments to ensure that the views of all concerned are taken into account in building consensus. A synergy should emerge from the interaction of the two Working Level Groups. The conduct of the meetings should foster this spirit of cooperation.

Achieving consensus at each step of the process will be facilitated through cooperation of JTC 1 and ITU-T experts at their national level to provide consistent viewpoints.

In general, the intent is that the degree of consensus and the stability of the agreements will increase at each step of the collaborative process.

In rare cases, it may become apparent during the development of common text that one or more specific technical differences are necessary taking into account the needs of JTC 1 and ITU-T. All proposed differences should be carefully examined to ensure there is a legitimate need. When this is the case, the common text is to include the full technical material needed by each organization with wording that specifically identifies any text that is applicable only to one organization.

7.7 Progress reporting

Each Working Level Group is responsible for providing written reports of its meetings to its parent SG/WP or SC/WG following normal procedures. These reports should summarize the results of the meeting including agreements reached, areas identified for further study, the status of collaborative progress, and projected upcoming milestones (see 5.2).

These reports, or appropriate extracts, should be conveyed to the other Working Level Group using the normal liaison procedure. Meeting reports should contain sufficient information to enable the collaborative work to mutually progress in both organizations as effectively as possible.

7.8 Liaisons

It is important to ensure continuing coherence of work in the Information Technology area. Therefore, maintaining established liaisons with other activities and organizations that have been identified to have an appropriate relationship is essential to the success of the work. Meeting reports and drafts should be distributed and comments invited. Liaison organizations are also encouraged to provide contributions to the work. Liaison contributions and comments are considered additional views to facilitate the work and to identify other considerations.

Liaisons are handled in the normal manner by each organization. However, liaisons of common interest should be shared with the other Working Level Group.

7.9 Synchronized approval process

Each organization retains its individual procedures for approving the result of the collaboration work as International Standards and ITU-T Recommendations. Clause 3 presents the individual organization procedures and policies that are to be followed. The paragraphs below describe how these procedures are synchronized for the different stages of approval.

As outlined in 7.7 above, each Working Level Group keeps its parent informed of the progress of the collaborative work. When the work has progressed to a point where a schedule for synchronized approval can be established with a degree of confidence, it is important for the two Working Level Groups to jointly plan the specific steps, taking into account scheduled dates of the ITU-T SG and JTC 1 SC meetings. Figure 5 shows the necessary alignment that needs to be achieved between the two approval processes.

When the two Working Level Groups decide that the draft has reached a point of maturity and that the synchronized approval process should commence, each parent is advised of the decision.

For the first level of balloting on the JTC 1 side, the SC secretariat registers the Working Draft as a Committee Draft (CD), Proposed Draft Amendment (PDAM), Proposed Draft Technical Report (PDTR) or proposed Draft Technical Specification (PDTS), and distributes it for letter ballot to the National Bodies of the SC. The ballot period is two, three or four months. At the same time, the draft text is distributed to the ITU-T SG members for review and comment. ITU-T member comments should be provided within the same time period.

Responses from National Bodies to the CD, PDAM, PDTR or PDTS ballot are collected by the SC secretariat and distributed in a Summary of Voting Report. ITU-T members will comment by means of contributions to the SG. Both sets of responses are to be made available to each of the two Working Level Groups.

The two Working Level Groups should coordinate their efforts in resolving all received comments and drafting the revised text. If the changes are substantive, a second CD, PDAM, PDTR or PDTS ballot and comment period for ITU-T members will be necessary.

When the issues have been resolved to the satisfaction of both Working Level Groups, the draft will be elevated to the next level of approval. The document will be registered as a DIS or DAM and circulated for a three-month ballot (following a two-month translation period) by ITTF to the members of ISO and IEC. A DTR or DTS is circulated for a three to six month letter ballot at the JTC 1 level. At the same time the document will be submitted to the SG secretariat. The text will be circulated as an SG document for review and comment. ITU-T member comments should be provided within the same time period so that all responses can be considered together. Also during this time period, the ITTF and the TSB will review the text and submit their comments.

It is at this point where synchronization is critical. The first controlling factor is the date of the ITU-T SG or WP meeting where determination (TAP) or consent (AAP) is to be obtained. At this meeting, the text must be at the DIS, DAM or DTR level in ISO/IEC. The second controlling factor is that the DIS, DAM, DTR or DTS ballot resolution meeting must have produced the final text for ITU-T approval:

- a) for TAP, by 4 months before the SG meeting where approval is to be obtained so that the TSB Director can issue a letter announcing the intent to approve the Recommendation at the upcoming SG meeting;
- b) for AAP, by 2 months after the SG meeting where consent was obtained so that the TSB Director can announce the Last Call for approval of the Recommendation.

Responses from the DIS, DAM, DTR or DTS ballot are distributed in a Summary of Voting Report by the SC secretariat. ITU-T members will comment by means of contributions to the SG. Both sets of responses are to be made available to each of the two Working Level Groups.

NOTE – If an ITU-T Member State indicates a problem which would prevent approval or if a problem is indicated on the JTC 1 side which would delay approval (e.g., an unplanned second DIS ballot), this should be immediately conveyed to all concerned so that appropriate action can be taken and, if necessary, a new synchronized plan established.

The DIS, DAM, DTR or DTS ballot responses and the comments from ITU-T members will be considered at a ballot resolution meeting. With ITU-T participation, the group reviews and resolves the comments and negative ballots. If revisions are substantive, a second DIS, DAM, DTR or DTS ballot and comment period for ITU-T members will be required to affirm that all are in accord with the results.⁴⁾ This ballot and comment period is two to three months for DISs and DAMs, and is three months for DTRs and DTSSs.

The DIS, DAM, or DTR ballot resolution meeting is extended to include the ITU-T approval process so that any needed changes/corrections resulting from review of the text can be mutually agreed⁵⁾. With the text available, the appropriate ITU-T approval process (TAP or AAP) will be conducted. Immediately following ITU-T approval, the editor provides the final text along with the Disposition of Comments document to the SC secretariat. This initiates the two-month ballot of the FDIS or FDAM to National Bodies of ISO and IEC (there is no additional ballot for DTRs or DTSSs). The FDIS ballot may be omitted if the DIS ballot was successful without any negative vote. This two-month letter ballot has only one of two possible outcomes: approval or rejection. If approval is not obtained from the ITU-T approval process or in response to the ISO/IEC letter ballot, the next action will be based on consultation between ISO/IEC JTC 1 and ITU-T, taking into account the specifics of the situation.

While the ISO/IEC letter ballot is being conducted, the ITTF and the TSB will work together to facilitate prompt publication.

⁴⁾ A restart of the ITU-T approval process will normally be necessary if the SG meeting where approval is planned to take place (TAP) or Last Call announcement deadline date (AAP) occurs before the second ballot process will have been successfully completed.

⁵⁾ In the unlikely event that substantive changes are deemed necessary at this late stage, another JTC 1 ballot (and comment period for ITU-T members) will be required to affirm that all are in accord with the results. This ballot (and comment) period is five months (three months for DTRs). Approval on the ITU-T side would normally be delayed until after completion of the JTC 1 ballot.

7.10 Publication

The collaborative Recommendation | International Standard should be published as soon as practical after an affirmative response to the ISO/IEC FDIS ballot has been achieved. Note that, should the DIS ballot be successful without negative votes, the FDIS ballot may be omitted and the text may proceed as soon as practical to publication.

Care should be taken to ensure that there is a single master of the common text for each language that is used for publication.

7.11 Defects

The work is not necessarily completed at the stage of publication. While every effort has been taken to produce a quality document, experience has shown that defects may be found as the document is being applied to implementations. Therefore, there is need for an ongoing responsibility for dealing with Defect Reports.

It is critical that rapid correction of possible errors, omissions, inconsistencies, or ambiguities be performed collaboratively. The procedures for this important effort are outlined below.

7.11.1 Defect Review Groups

The JTC 1 SC and ITU-T SG should each appoint a Defect Review Group that will mutually collaborate in resolving defects. Each Defect Review Group should have a chairperson and be composed of nominated experts.

7.11.2 Submission of Defect Reports

Defect Reports may be submitted by ISO/IEC National Bodies, ITU-T members, liaison organizations, the responsible SG or any of its WPs, the responsible SC or any of its WGs, or by a member of either Defect Review Group. Appendix I provides the Defect Report form to be used. It is a modified version of the JTC 1 Defect Report form to encompass both JTC 1 and ITU-T information.

Defect Reports submitted to one organization should be immediately copied to the other organization. The JTC 1 WG secretariat will handle the administrative aspects.

The Defect Review Groups are responsible for maintaining an up-to-date list of all submitted Defect Reports and the status of each.

7.11.3 Procedures for resolving defects

The JTC 1 procedures for handling Defect Reports (see ISO/IEC Directives for JTC 1) are followed with modifications to encompass collaborative ITU-T and JTC 1 participation in the resolution of the defect.

When mutual agreement of the two Defect Review Groups has been obtained for a resolution of a defect, the appropriate approval procedures are initiated in the ITU-T and JTC 1.

If the resolution of a Defect Report results in a need to correct the text of a collaborative Recommendation | International Standard, then the Editor prepares a draft Technical Corrigendum and sends it to the SC secretariat and the SG secretariat. JTC 1 approval is obtained by means of a three-month SC ballot/JTC 1 comment period. ITU-T approval under TAP is obtained by the SG Chairman submission of the text to the TSB, announcement in the Director's letter followed by a three-month consultation period and approval at a SG meeting. ITU-T approval under AAP is obtained by consent at a SG or WP meeting followed by approval through the Last Call. The approved corrections are published in common text format as a Technical Corrigendum to the Recommendation | International Standard.

Alternatively, if the resolution of the Defect Report involves substantial change, then it is processed as an amendment using the procedures in 7.12.

The Editor for the Recommendation | International Standard will maintain an up-to-date copy of the complete integrated text, including all changes approved through the defect process.

7.12 Amendments

Further work is often identified as a result of the development process and as a result of changing technology and new operational requirements. Accordingly, there is an important need for amendments that provide expansions, enhancements, and updates to the basic provisions of the published Recommendation | International Standard.

The processing of amendments follows the same procedures as the original development beginning with the approval, if necessary, of an NP by JTC 1.

The Editor for the Recommendation | International Standard will maintain an up-to-date copy of the complete integrated text, including all changes approved through the amendment process.

8 Collaboration using a Collaborative Team

The basic concept of collaboration using a collaborative team is to perform all development, consensus building, and ballot/comment resolution in common meetings to produce mutually agreed common text for one or more Recommendations | International Standards. Although the remainder of this section focuses on common text, development of twin text is also possible using a Collaborative Team.

8.1 Collaborative Team

Upon agreement by the ISO/IEC JTC 1 Subcommittee and the ITU-T Study Group that a specific area of work is to be developed collaboratively in common meetings, a Collaborative Team (CT) is established with participants from both organizations.

The mutually agreed terms of reference for each Collaborative Team should include:

- The scope of the effort as it relates to each organization's program of work (ITU-T Question and JTC 1 project). Where possible, it should include identification of Recommendation(s) and International Standard(s) that are to be developed collaboratively.
- The parent body in each organization to which the CT is to directly report (i.e., SG or WP, and SC or WG).
- Any reporting or tracking provisions beyond those specified in 8.7.
- Any start-up provisions to accommodate work in progress. If the JTC 1 project has been submitted to ITTF for Draft International Standard processing, or if the ITU-T project has been consented for AAP Last Call (or determined for TAP consultation), the window to establish a Collaborative Team is considered as closed.

The CT uses the procedures detailed below to build consensus and to achieve synchronization of approvals leading to publication of common text.

Figure 7 provides a workflow diagram that identifies the various stages of the collaborative process from concept to final publication. Collaboration can also continue for the ongoing maintenance phase (see 8.11 and 8.12).

The terms of reference or mode of collaboration can be changed at any time by mutual agreement of the SG and SC. Procedures for terminating a collaborative relationship are covered in 4.5.

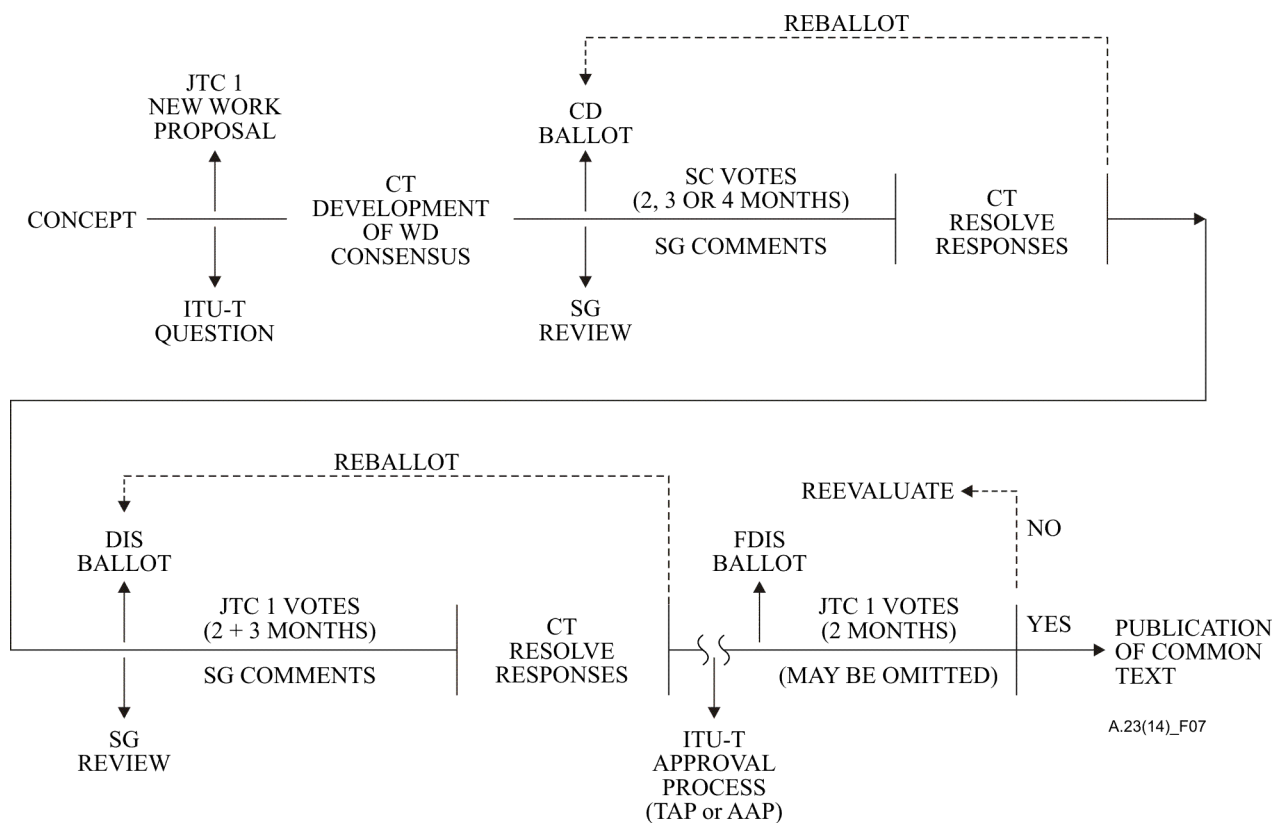


Figure 7 – Workflow diagram when Collaborative Team is used

8.2 Convenor(s) and Editor(s)

The CT will have either a single Convenor agreed upon by the JTC 1 SC and the ITU-T SG, or co-Convenors, one appointed by each organization (JTC 1 SC and ITU-T SG). In the case of co-Convenors, the chairing of meetings can be on a rotational basis or as otherwise agreed by the CT.

Administrative support is the responsibility of the CT Convenor(s) and participating members.

A single Editor or set of Editors shall be appointed to produce and maintain the single master collaborative text during the development and approval process. The draft text shall be prepared and maintained by the appointed Editor(s) according to the common format criteria agreed by the ISO/IEC and ITU-T secretariats (see the note in clause 1.3). Each iteration of the draft collaborative text shall be dated. Changes from the previous draft should be highlighted by change marks.

Appointed Editors will be responsible for the text through draft iterations and final submission to the secretariats for publication. The individuals selected for this task should make a commitment to continue the work to completion so that continuity can be maintained throughout the effort.

8.3 Participants

Eligibility for attendance at a CT meeting is determined by the requirements of the two organizations.

8.4 Meetings

Each CT meeting must be properly scheduled in advance. The CT is responsible for making its own meeting arrangements and schedule, subject to agreement by the SG and SC. Generally, hosts for CT meetings should alternate between JTC 1 and ITU-T organizations, but they may also be cooperatively hosted with appropriate agreement. CT meetings should be scheduled at the same location and time as the respective JTC 1 SC/WG or

ITU-T SG/WP meetings although meetings may also be scheduled at other times and locations. The CT is permitted to meet during a CD/PDAM or DIS/DAM ballot/comment period to pursue its work program but the CT shall not discuss during these periods the material under ballot (see 8.9).

The Convenor(s) of the CT shall maintain a mailing list of all individuals desiring to be informed about meetings of the CT. Meeting notices and agenda shall respect the deadlines of both JTC 1 and ITU-T (e.g., in JTC 1, working group meeting agendas shall be distributed preferably four months but no less than three months before the meeting starting date; in ITU-T, a convening letter for rapporteur meetings is posted, normally at least two months prior to the meeting, on the study group webpage) and shall properly identify the meeting as one of both JTC 1 and ITU-T. The meeting notice and agenda must be sent to the JTC 1 SC secretariat (for distribution to National Bodies of the SC) and to the ITU-T SG secretariat (for posting). Each agenda must provide a list of documents to be considered, which will include previous meeting reports and input contributions (see 8.5).

8.5 Contributions

Contributions to the work of the CT provide proposed concepts and text, comments on working drafts, and editorial and technical revisions to the work. Contributions may be provided by JTC 1/SC National Bodies, ITU-T members, recognized liaison organizations, and individual experts who are accredited participants in the CT. Each contribution shall indicate its source and status (e.g., national position, working proposal, comments). Expert papers are to be given consideration as additional views during the development of working drafts, but contributions from JTC 1/SC National Bodies and ITU-T members will take precedence.

Documents to be considered at the meeting should be in the hands of the CT Convenor(s), or the SC or WG secretariat at least seven working days in advance. Late contributions will only be considered upon agreement by the meeting participants.

All contributions to the CT, regardless of their means of submittal, will be identified and maintained by the CT in a document register. The Convenor(s) of the CT shall maintain a mailing list of the CT participants and ensure timely distribution of contributions and meeting output documents to the experts. Meeting output documents are also sent to the JTC 1 SC or WG secretariat (for distribution to National Bodies of the SC) and to the SG secretariat (for distribution as SG documents). Meeting participants are encouraged to exchange documents directly to facilitate preparation for the meetings.

8.6 Achieving consensus

The functions of the CT meetings are three-fold: the development of draft texts, editing of draft texts, and resolution of ballots and comments. The CT meetings are only authorized to deal with the specific collaborative project/Question identified in the terms of reference of the CT.

Achieving consensus at each step of the process will be facilitated through cooperation of JTC 1 and ITU-T experts at their national level to provide consistent viewpoints.

In general, the intent is that the degree of consensus and the stability of the agreements will increase at each step of the collaborative process.

8.6.1 Development of draft text

In responding to the requirements of the designated JTC 1 project and ITU-T Question, the development of draft text should be a consensus building process. Typically, there are a diversity of contributions introduced during the development process. These should all be objectively considered in seeking a sound solution. A synergy should emerge from the interaction of the participating experts with their different perspectives. The conduct of meetings should foster this spirit of cooperation.

Balloting, or voting, by the CT during the development of working drafts is considered inappropriate in reaching a consensus and could be counter-productive. The CT consensus should be built through discussion, acceptance, compromise, and, if necessary, informal polling of delegates to sample the state of agreement. It would also be appropriate to record in meeting reports points of consensus as well as any specific reservations that meeting delegates have on particular issues.

Topics of concern to only the ITU-T or to only JTC 1 may be addressed by sub-group meetings held within the framework of the CT meeting.

In rare cases, it may become apparent during the development of common text that one or more specific technical differences are necessary taking into account the needs of JTC 1 and the ITU-T. All proposed differences should be carefully examined to ensure there is a legitimate need. When this is the case, the common text is to include the full technical material needed by each organization with wording that specifically identifies any text that is applicable only to one organization.

8.6.2 Editing drafts

Meeting time is often consumed with resolution of issues and development of agreements-in-principle, but there is insufficient time to develop complete text. The editing task can often be done more efficiently by an authorized smaller-sized meeting with a well-defined scope of work. The meeting will be chaired by an individual appointed by the CT.

The meeting will only be authorized to produce text for specifically identified issues and agreements. Any other technical issues that arise during the meeting must be referred back to the CT for resolution. The draft text that is produced by the meeting must be circulated to CT participants within four weeks of completion of the meeting.

8.6.3 Resolution of ballots and comments

The approval processes will be conducted according to the established procedures of each organization with the adaptation and synchronization described in 8.9. A Ballot/Comment Resolution Group should be convened as soon as practical (e.g., within ten weeks) after the close of the ballot/comment period to review and resolve the results. The group should be chaired by the CT Convenor or Editor.

The Ballot/Comment Resolution Group may be the CT. Alternatively, where the CT may be too large for effectiveness, the Ballot/Comment Resolution Group may be composed of the document editor(s), one primary representative for each National Body, and one primary representative for each country participating in the ITU-T SG. Primary representatives from the same country should, whenever possible, coordinate their positions for consistency. Additional representatives from JTC 1 and ITU-T may also be invited to attend as deemed necessary by the CT. Each primary representative should be authorized by its sponsoring organization to approve the handling of its comments by the group.

The purpose of a ballot/comment resolution meeting is to resolve as many of the negative ballots/comments as possible without invalidating any affirmative ballots/positions. The goal is to achieve agreements resulting in the greatest possible consensus. This can be done provided that all affected representatives are satisfied with the handling of the comments. If the ballot/comment resolution spans multiple meetings, it is important that continuity of representation be maintained through the complete process.

In the course of its work, the Ballot/Comment Resolution Group may uncover major technical issues. The resolution of such matters is beyond the scope of the group and must be referred back to the CT (or parent bodies) along with appropriate recommendations for resolution.

8.7 Progress reporting

The CT is responsible for providing written reports of each meeting to the sponsoring JTC 1 SC/WG and ITU-T SG/WP. These reports should summarize the results of the meeting including agreements reached, areas identified for further study, the status of collaborative progress, and projected upcoming milestones (see 5.2). Comments and/or instructions may be provided back to the CT from SG/WP and SC/WG meetings.

8.8 Liaisons

It is important to ensure continuing coherence of work in the Information Technology area. Therefore, maintaining established liaisons with other activities and organizations that have been identified to have an appropriate relationship is essential to the success of the work. Meeting reports and mature drafts should be distributed and comments invited. Liaison organizations are also encouraged to provide contributions to the work. Liaison contributions and comments are considered additional views to facilitate the work and to identify other considerations.

Liaison documents generated by the CT are conveyed to the SC secretariat and the SG secretariat for appropriate distribution.

8.9 Synchronized approval process

While the work of the CT accomplishes the joint work for the JTC 1 project and ITU-T Question to produce a single common text for both organizations to publish, each organization retains its individual procedures for approving the results of the collaborative work as International Standards and ITU-T Recommendations. Clause 3 presents the individual organization procedures and policies that are to be followed. The paragraphs below describe how these procedures specifically apply to the CT work and are synchronized for the different stages of approval.

As outlined in 8.7 above, the CT keeps each organization informed of the progress of its work. When the work has progressed to a point where a schedule for synchronized approval can be established with a degree of confidence, it is important for the CT to plan the specific steps, taking into account scheduled dates of the ITU-T SG and the JTC 1 SC meetings. Figure 5 shows the necessary alignment that needs to be achieved between the two approval processes.

When the CT decides that the draft has reached a point of maturity and that the synchronized approval process should commence, each parent is advised of the decision.

For the first level of balloting on the JTC 1 side, the SC secretariat registers the working draft as a Committee Draft (CD), Proposed Draft Amendment (PDAM), Proposed Draft Technical Report (PDTR) or Proposed Draft Technical Specification (PDTS), and distributes it for a letter ballot to the National Bodies of the SC. The ballot period is two, three or four months. At the same time, the working draft is distributed to the ITU-T SG members for review and comment. ITU-T member comments should be provided within the same time period so that all responses can be considered together.

Responses from National Bodies to the CD, PDAM, PDTR or PDTS ballot are collected by the SC secretariat and distributed in a Summary of Voting Report. ITU-T members will comment by means of contributions to the SG. Both sets of responses are given to the CT.

The SC ballot responses and the comments from ITU-T members are handled by the Ballot/Comment Resolution Group (see 8.6.3). Every effort should be made to resolve all issues. If the changes are substantive, a second CD, PDAM, PDTR or PDTS ballot and comment period for ITU-T members will be necessary. As with the first ballot/comment, the results will be referred to the Ballot/Comment Resolution Group for action.

When the issues have been satisfactorily resolved, the draft will be elevated to the next level of approval. The document will be registered as a DIS or DAM and circulated for a three-month ballot (following a two-month translation period) by ITTF to the National Bodies of ISO and IEC. A DTR or DTS is circulated for a three to six month letter ballot at the JTC 1 level. At the same time, the document will be submitted to the SG secretariat. The text will be circulated as a SG document for review and comment. ITU-T members should also provide their comments within the same time period so that all responses can be considered together. Also during this time period, the ITTF and the TSB will review the text and submit their comments.

It is at this point where synchronization is critical. The first controlling factor is the date of the ITU-T SG or WP meeting where determination (TAP) or consent (AAP) is to be obtained. At this meeting, the text must be at the DIS, DAM, DTR or DTS level in ISO/IEC. The second controlling factor is that the DIS, DAM, DTR or DTS ballot resolution meeting must have produced the final text for ITU-T approval:

- a) for TAP, by 4 months before the SG meeting where approval is to be obtained so that the TSB Director can issue a letter announcing the intent to approve the Recommendation at the upcoming SG meeting;
- b) for AAP, by 2 months after the SG meeting where consent was obtained so that the TSB Director can announce the Last Call for approval of the Recommendation.

Responses to the DIS, DAM, DTR or DTS ballot are distributed in a Summary of Voting Report by the SC secretariat. ITU-T members will comment by means of contributions to the SG. Both sets of responses are given to the CT.

NOTE – If an ITU-T Member State indicates a problem which would prevent approval or if a problem is indicated on the JTC 1 side which would delay approval (e.g., an unplanned second DIS ballot), this should be immediately conveyed to all concerned so that appropriate action can be taken and, if necessary, a new synchronized plan established.

The DIS, DAM, DTR or DTS ballot responses and the comments from ITU-T members are handled by the Ballot/Comment Resolution Group. The group reviews and resolves the comments and negative ballots. If revisions are substantive, a second DIS, DAM, DTR or DTS ballot and comment period for ITU-T members will be required to affirm that all are in accord with the results⁶⁾. This ballot and comment period is two to three months (three months for DTR or DTS).

The Ballot/Comment Resolution meeting is extended to include the ITU-T approval process so that any needed changes/corrections resulting from review of the text can be mutually agreed⁷⁾. With the text available, the appropriate ITU-T approval process (TAP or AAP) will be conducted. Immediately following ITU-T approval, the editor provides the final text along with the Disposition of Comments report to the SC secretariat. This initiates the two-month ballot of the FDIS or DAM to National Bodies of ISO and IEC (there is no additional ballot for DTRs or DTSs). The FDIS ballot may be omitted if the DIS ballot was successful without any negative vote. This two-month ballot has only one of two possible outcomes: approval or rejection. If approval is not obtained from the ITU-T approval process or in response to the ISO/IEC letter ballot, the next action will be based on consultation between ISO/IEC JTC 1 and the ITU-T, taking into account the specifics of the situation.

While the ISO/IEC letter ballot is being conducted, the ITTF and the TSB will work together to facilitate prompt publication.

⁶⁾ A restart of the ITU-T approval process will normally be necessary if the SG meeting where approval is planned to take place (TAP) or Last Call announcement deadline date (AAP) occurs before the second ballot process will have been successfully completed.

⁷⁾ In the unlikely event that substantive changes are deemed necessary at this late stage, another JTC 1 ballot (and comment period for ITU-T members) will be required to affirm that all are in accord with the results. Approval on the ITU-T side would normally be delayed until completion of the JTC 1 ballot.

8.10 Publication

The collaborative Recommendation | International Standard should be published as soon as practical after an affirmative response to the ISO/IEC FDIS ballot has been achieved. Note that, should the DIS ballot be successful without negative votes, the FDIS ballot may be omitted and the text may proceed as soon as practical to publication.

Care should be taken to ensure that there is a single master of the common text for each language that is used for publication.

8.11 Defects

The work is not necessarily completed at the stage of publication. While every effort has been taken to produce a quality document, experience has shown that defects may be found as the document is being applied to implementations. Therefore, there is a need for an ongoing responsibility for dealing with Defect Reports.

It is critical that rapid correction of possible errors, omissions, inconsistencies, or ambiguities be performed collaboratively. The procedures for this important effort are outlined below.

8.11.1 Defect Review Group

The CT may request the JTC 1 SC and the ITU-T SG to establish a collaborative Defect Review Group to be chaired by an appointed Editor. The group should consist of the experts nominated by the JTC 1 SC and the ITU-T SG.

8.11.2 Submission of Defect Reports

Defect Reports may be submitted by ISO/IEC National Bodies, ITU-T members, liaison organizations, the responsible SG or any of its WPs, the responsible SC or any of its WGs, or by a member of the Defect Review Group. Appendix I provides the Defect Report form to be used. It is a modified version of the JTC 1 Defect Report form to encompass both JTC 1 and ITU-T information.

Defect Reports submitted to one organization should be immediately copied to the other organization. The JTC 1 WG secretariat will handle the administrative aspects.

The Defect Review Group is responsible for maintaining an up-to-date list of all submitted Defect Reports and the status of each.

8.11.3 Procedures for resolving defects

The JTC 1 procedures for handling Defect Reports (see ISO/IEC Directives for JTC 1) are followed with modifications to encompass collaborative ITU-T and JTC 1 participation in the resolution of the defect.

When agreement is reached in the Defect Review Group for resolution of a defect, the appropriate approval procedures are initiated in the ITU-T and JTC 1.

If the resolution of a Defect Report results in a need to correct the text of a collaborative Recommendation | International Standard, then the Editor prepares a draft Technical Corrigendum and sends it to the SC secretariat and the SG secretariat. JTC 1 approval is obtained by means of a three-month SC ballot/JTC 1 comment period. ITU-T approval under TAP is obtained by the SG Chairman submission of the text to the TSB, announcement in a Director's letter followed by a consultation period and approval at a SG meeting. ITU-T approval under AAP is obtained by consent at a SG or WP meeting followed by approval through the Last Call. The approved corrections are published in common text format as a Technical Corrigendum to the Recommendation | International Standard.

Alternatively, if the resolution of the Defect Report involves substantial change, then it is processed as an amendment using the procedures in 8.12.

The Editor for the Recommendation | International Standard will maintain an up-to-date copy of the complete integrated text, including all changes approved through the defect process.

8.12 Amendments

Further work is often identified as a result of the development process and as a result of changing technology and new operational requirements. Accordingly, there is an important need for amendments that provide expansions, enhancements, and updates to the basic provisions of the published Recommendation | International Standard.

The processing of amendments follows the same procedures as the original development beginning with the approval, if necessary, of an NP by JTC 1. These may be considered as extensions to the original work by the same CT or may be considered as separate new work that requires the formation of a new CT.

The Editor for the Recommendation | International Standard will maintain an up-to-date copy of the complete integrated text, including all changes approved through the amendment process.

9 Recognition of cooperation

The cooperation between the ITU-T and JTC 1 has resulted in the development of a large and growing set of related Recommendations and International Standards. It is valuable that users perceive these results as a cohesive whole. The common text format (see the note in clause 1.3) facilitates this view. Another important area where cohesiveness can be shown is with respect to previously completed collaborative work that resulted in technically aligned text published separately with "house-style" differences. When these so-called "twins" are to be updated and/or republished, it is recommended that they be converted to the common text format.

If, during a transition period, any of these "twin" Recommendations or International Standards will be updated but not in the common text format, attention should be given to the following means to reinforce the cooperation and cohesiveness of the development effort:

- a) Include a footnote from the title of the ITU-T Recommendation that notes the collaborative nature of the work, gives the title of the "twin" ISO/IEC International Standard, and states the degree of technical alignment (for examples, see the ITU-T X.200-series of Recommendations);
- b) Include text in the Foreword of the International Standard that notes the collaborative nature of the work, gives the title of the "twin" ITU-T Recommendation, and states the degree of technical alignment;
- c) If in the Reference section of a Recommendation there is a reference to an ITU-T Recommendation that has a "twin" International Standard, then include in parentheses a reference to the twin (or use the format mentioned as a note in clause 1.3);
- d) If in the Normative References clause of an International Standard there is a reference to an International Standard that has a "twin" Recommendation, then include in parentheses a reference to the twin (or use the format mentioned as a note in clause 1.3); and
- e) If there are technical differences between a Recommendation and an International Standard, then include an Appendix/Annex in both documents that summarizes the differences.

A third important area involves the large number of Recommendations and International Standards that exist only in one organization, but make use of and reference Recommendations and International Standards that were developed collaboratively. In this situation, the spirit of cooperation can be communicated by ensuring that references are given to documents of both organizations [see items c) and d) above]. To facilitate this referencing, the TSB and the ITTF will maintain a listing of all collaborative Recommendations and International Standards.

10 Applying the Common Patent Policy for ITU-T/ITU-R/ISO/IEC

Information pertaining to the common patent policy for ITU-T/ITU-R/ISO/IEC is available at <http://itu.int/en/ITU-T/ipr> and in the ISO/IEC Directives, Part 1:2013, and Part 2:2011, Annex I (Appendix I).

For a common text or twin text Recommendation | International Standard, entities are to follow this common patent policy and submit patent statements, as appropriate, to all three organizations.

Defect report form



Defect report

1 Defect Report Number:
2 Submitter:
3 Addressed to: JTC 1/SC ____/WG ____ ITU-T SG____/WP____/Q.____
4 WG secretariat:
5 Date circulated by WG secretariat:
6 Deadline on response from editor:
7 Defect Report concerning (number and title of ITU-T Recommendation International Standard):
8 Qualifier (e.g., error, omission, clarification required):
9 References in document (e.g., page, clause, figure and/or table numbers):
10 Nature of defect (complete, concise explanation of the perceived problem):
11 Solution proposed by the submitter (optional):
12 Editor's response:

Recommendation ITU-T A.25

Generic procedures for incorporating text between ITU-T and other organizations

1 Scope

This Recommendation provides generic procedures for incorporating (in whole or in part, with or without modification) the documents of other organizations in ITU-T Recommendations (or other ITU-T documents), and provides guidance for other organizations on how to incorporate ITU-T Recommendations (or other ITU-T documents), in whole or in part, in their documents.

The case of normatively referencing the documents of other organizations in ITU-T Recommendations is addressed in [ITU-T A.5].

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T A.5] Recommendation ITU-T A.5 (2016), *Generic procedures for including references to documents of other organizations in ITU-T Recommendations*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 approved document [ITU-T A.5]: An official output (such as a standard, a specification, an implementation agreement, etc.) which has been formally approved by an organization.

3.1.2 non-normative reference [ITU-T A.5]: The whole or parts of a document where the referenced document has been used as supplementary information in the preparation of the Recommendation or to assist the understanding or use of the Recommendation and to which conformance is not necessary.

3.1.3 normative reference [b-ITU-T A.1]: Another document that contains provisions which, through reference to it, constitute provisions to the referring document.

3.2 Terms defined in this Recommendation

This Recommendation defines the following term:

3.2.1 draft document: An output from an organization, which is still in draft form.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

TSB Telecommunication Standardization Bureau

5 Conventions

None.

6 Generic procedures for incorporating text of other organizations in ITU-T documents

This clause addresses the process of incorporating text (in whole or in part) from another organization into an ITU-T document. This process is expected to be rarely used.

6.1 Documents received from other organizations

6.1.1 An ITU-T study group may incorporate text (in whole or in part, with or without modification) from a draft or approved document from another organization in a draft ITU-T Recommendation (or in another ITU-T document) as explained in clauses 6.1.3 and 6.3.1. ITU-T study groups are strongly encouraged to incorporate approved text rather than draft text from other organizations.

6.1.2 These documents are not issued as contributions. As soon as they arrive they are made available, with the agreement of the study group chairman, and subject to the permission arrangements set out in clause 6.3 and to the copyright arrangements set out in clause 6.4, for advance consideration by the relevant group. Moreover, they are issued as a document to the relevant group with a reference to the originating organization, i.e., as a TD at a study group or working party meeting, or as a document at a rapporteur meeting. In the latter case, the receipt and disposition of the document received should be recorded in the report of the rapporteur meeting.

6.1.3 When an ITU-T study group decides to incorporate text (in whole or in part, with or without modification) from another organization in its own document, it notifies the organization about the actions taken concerning this text. The use, acceptance or reproduction of such text by the ITU-T study group is subject to the permission arrangements set out in clause 6.3 and to the copyright arrangements set out in clause 6.4.

6.1.4 The resulting ITU-T Recommendation (or ITU-T document) shall identify the incorporated text, and shall provide an explicit reference to the document of the organization and to its particular version, as described in clause 6.4 of [ITU-T A.5].

6.2 Process for incorporation

6.2.1 An ITU-T study group or a member of the study group may identify the need to specifically incorporate text (in whole or in part, with or without modification) from another organization within a specific draft ITU-T Recommendation (or another draft ITU-T document).

6.2.2 Documents submitted to the ITU-T study group by other organizations should conform to the following criteria:

- a) should contain no confidential information (i.e., no distribution restriction);
- b) should indicate the source within the organization (e.g., committee, subcommittee, etc.);
- c) should differentiate between normative references and non-normative references.

6.2.3 Information is provided in a TD (or a contribution), as outlined in clauses 6.2.3.1 to 6.2.3.10.

6.2.3.1 A clear description of the document considered for incorporation (type of document, title, number, version, date, etc.).

6.2.3.2 Status of approval. Incorporating text that has not yet been approved by the organization can lead to confusion; thus, incorporating is usually limited to approved documents. If absolutely necessary, incorporation of text from a draft document can be made where cooperative work requiring cross-incorporation is being approved by ITU-T and another organization in approximately the same time-frame.

6.2.3.3 Justification for the specific incorporation, including why it is inappropriate to reference the text in the draft ITU-T Recommendation (or other draft ITU-T document).

6.2.3.4 Current information, if any, about intellectual property rights (IPR) issues (patents, copyrights, trademarks).

6.2.3.5 Other information that might be useful in describing the "quality" of the document (e.g., whether products have been implemented using it, whether conformance requirements are clear, whether the specification is readily and widely available).

6.2.3.6 The degree of stability or maturity of the document (e.g., length of time it has existed).

6.2.3.7 Relationship with other existing or emerging documents.

6.2.3.8 When text from a document is to be incorporated in an ITU-T Recommendation (or other ITU-T document), an explicit reference to the document shall be provided; all explicit references within the incorporated document should also be listed.

6.2.3.9 A full copy of the existing document. No reformatting is necessary. The objective is to have referenced documents available via the web at no cost, so that the study group (or working party) may proceed with its evaluation. Accordingly, if a document to be incorporated in whole or in part is available in this manner, it is sufficient to provide its exact location on the web. On the other hand, if the document is not available in this manner, a full copy must be provided (preferably in electronic format).

6.2.3.10 Qualification of the organization (per Annex B of [ITU-T A.5]). This needs to be done only the first time a document from the organization is being considered for incorporation, and only if such qualification information has not been already documented. Qualification of an organization is reviewed on a regular basis (any study group willing to incorporate a document from the organization may perform the review). In particular, if the patent policy of that organization has changed, it is important to check that the new patent policy is consistent with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the Guidelines for the Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC.

6.2.4 The study group (or working party) evaluates this information and decides whether to make the incorporation. The format for documenting the study group or working party decision is given in Annex A of [ITU-T A.5]. This decision occurs, at the latest, at the time the Recommendation is determined for consultation in case of the traditional approval process (TAP) or consented for last call in case of the alternative approval process (AAP). The study group or working party report may simply note that the procedures of this Recommendation have been satisfied and provide a pointer to the document where the full details reside.

6.3 Permission arrangements

6.3.1 At the earliest possible moment, upon the request of the study group or working party, the Telecommunication Standardization Bureau (TSB) will ensure that the organization has provided a written statement in which it agrees to:

- the distribution of the material for discussions within the appropriate groups, and
- its possible use (in whole or in part, with or without modification) in any resulting ITU-T Recommendations (or other ITU-T documents) that are published.

6.3.2 Should the organization decline to provide such statement or fail to do so, the incorporation shall not be made. In this case, the decision to incorporate the reference (according to [ITU-T A.5]) instead of the text shall be made by consensus.

6.4 Copyright arrangements

The subject of modifications to texts and arrangements for royalty-free copyright licenses, including the right to sub-license, for texts accepted by ITU-T, is a matter to be agreed upon between TSB and the particular organization. However, the originating organization retains the copyright and change control for its texts, unless explicitly relinquished.

7 Generic procedures for incorporating text of ITU-T documents in the documents of other organizations

Organizations are strongly encouraged to reference approved ITU-T documents as appropriate to progress their work. This clause addresses the process of incorporating text (in whole or in part, with or without modification) from an ITU-T document in a document of another organization. This process is expected to be rarely used.

7.1 Documents sent to other organizations

7.1.1 An organization may incorporate text (in whole or in part, with or without modification) from a draft or approved ITU-T Recommendation (or of other documents produced by ITU-T), as all or part of the text of its draft document. Organizations are strongly encouraged to incorporate text without modification.

7.1.2 When an organization decides to accept ITU-T text, it notifies TSB about the actions taken concerning this text. The use, acceptance or reproduction of such text by the qualified organization is subject to the permission arrangements set out in clause 7.2 and to the copyright arrangements set out in clause 7.3.

7.2 Permission arrangements

7.2.1 At the earliest possible moment, the organization will ensure that the TSB has provided a written statement that it agrees to the distribution of the material for discussions within the appropriate groups and possible use (in whole or in part, with or without modification) in any documents of the organization.

7.2.2 Should the ITU decline to provide such statement or fail to do so, the incorporation shall not be made.

7.3 Copyright arrangements

The subject of modifications to texts and arrangements for royalty-free copyright licenses, including the right to sub-license, for texts accepted by qualified organizations and their publishers and others, is a matter to be agreed upon between TSB and the particular organization. However, the ITU retains the copyright and change control for its texts, unless explicitly relinquished.

Bibliography

- [b-ITU-T A.1] Recommendation ITU-T A.1 (2012), *Working methods for study groups of the ITU Telecommunication Standardization Sector (ITU-T)*.

Recommendation ITU-T A.31

Guidelines and coordination requirements for the organization of ITU-T workshops and seminars

(2008)

1 Scope

This Recommendation provides guidelines and coordination requirements for the organization of workshops and seminars by ITU-T. These workshops and seminars aim for discussion and dissemination of the development of standards for worldwide implementation in telecommunications carried out by the study groups (SGs) of ITU-T.

2 References

The following ITU-T Recommendations and other references contain provisions that, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T A.1] Recommendation ITU-T A.1 (2008), *Work methods for study groups of the ITU Telecommunication Standardization Sector (ITU-T)*.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 seminar: The seminar is a primarily one-way format, focused on the dissemination of information, in what amounts to classroom-style format. Depending on the subject and/or audience, there may be a lesser or greater degree of participant interaction with the experts who are presenting.

3.2.2 workshop: The workshop environment is fundamentally a meeting of peers, gathered to discuss technical, implementation, industry, or strategic issues. Workshops can span a spectrum of styles, from highly technical events focusing on a single detailed issue, to broader gatherings intended to expose a wide spectrum of input and opinion.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

SC	Steering committee
SDO	Standards development organization
SGs	Study groups

5 Conventions

Terminologies and definitions throughout this Recommendation must be considered in accordance with the ITU-T "Author's guide for drafting ITU-T Recommendations".

6 Choice of the proper event format

6.1 The format, scope and goals of each planned event must be determined at the start of the event-planning process, as these choices will determine the addressable target audience, and trigger the workshop or seminar notification and promotion process. The awareness of these nuances among different workshop and seminar events is relevant to appropriate event planning and, therefore, to consistent and successful results.

6.2 As a way forward to accomplish organization consistency and reach common understanding on the Sector's needs, and to facilitate cooperation and coordination in the organization of cross-Sector events, the above-mentioned standardized terminology (see clause 3) should be observed in order to cope with different characteristics of events within the Sector.

7 Event format specifics

7.1 Seminars

Seminars are most useful in sharing ITU-T vision and technical knowledge with new participants who have not previously been exposed to the scope, workings, or results of the ITU-T standardization process.

7.2 Workshops

Workshops are the preferred vehicle for demonstrations, technical issue resolution, and for the creation of specific deliverables (outputs). A workshop should have clear goals and a limited scope, setting and delivering upon well-defined expectations from the participants and workshop leaders.

8 Event coordination

Aiming at the improvement of the organization of ITU-T workshops and seminars, and coordination with the other two Sectors and the General Secretariat for the preparation, running and evaluation of workshops and seminars, four types of ITU-T workshops and seminars are defined, according to the distinct levels of coordination and the structures, scopes and goals each type requires.¹

¹ Some of the events defined in this Recommendation may have a mixed nature, such as dissemination of information and promotion.

8.1 Study group strategy focused

8.1.1 These events are focused on a specific technical topic or standardization area.

8.1.2 The main objective is to review points of current development of technology, application and service.

8.1.3 In general, they gather information on standardization development in other standardization development organizations (SDOs).

8.1.4 They aim at in-depth discussion on the work programme of the SGs, that is, subsequent standardization projects, improvements in coordination or cooperation methods with other SDOs, etc.

8.1.5 The proposal for this type of workshop or seminar normally comes from the SG management teams and membership. Speakers are usually proposed and invited by internal experts.

8.1.6 Such events are in general collocated with SG meetings and the audience comprises mainly SG delegates and non-ITU-T members.

8.1.7 Some of these events are co-organized with the Telecommunication Development Bureau (BDT) to reply to WTSA Resolution 44 concerning the requirements to bridge the standardization gap.

8.1.8 These events have the following advantages:

- a) they ensure that the workshop or seminar topic is closely relevant to SG work;
- b) they are cost-effective in terms of organization, and avoid extra time/cost to SG delegates;
- c) they have a guaranteed quantity and quality of participants; thus, a guaranteed quality of discussion.

8.2 Information focused

8.2.1 These events are focused on a new technology or emerging study area. By carrying them out, it is possible to review points of current development of technology, applications and services.

8.2.2 They are good opportunities for briefing SGs with information regarding standardization development in other SDOs.

8.2.3 The proposal for this type of workshop or seminar normally comes from the SG management teams and membership or from the technology watch function of TSB. Speakers are usually proposed and invited by internal experts.

8.2.4 Such events are in general collocated with SG meetings and the audience comprises mainly SG delegates.

8.2.5 These events have the following advantages:

- a) they ensure that the workshop or seminar topic is closely relevant to SG work;
- b) they are cost-effective in terms of organization, and avoid extra time/cost to SG delegates;
- c) they have a guaranteed quantity and quality of participants; thus, a guaranteed quality of discussion;
- d) they could bring new ideas and work topics to relevant SGs.

8.3 Tutorial focused

8.3.1 These events are focused on ITU-T SG ongoing work or published Recommendations. Topics are selected according to local interest.

8.3.2 The main goal is to disseminate ITU-T technical knowledge and to promote the products of the work on standardization.

8.3.3 They are often co-organized with and funded by BDT and targeted at developing countries.

8.3.4 ITU-T membership or BDT normally initiates this type of event and proposes topics of interest. The Telecommunication Standardization Bureau (TSB) informs and relies on the related SG management team to look for and identify qualified speakers.

8.4 Promotion focused

8.4.1 These events are closely linked to promotion activities held outside ITU in order to promote ITU-T work and demonstrate the extent to which ITU contributes in a specific technical area.

8.4.2 Though this type of event is mostly suggested by one or more SGs, with specific venue and date, it might not be collocated with the SG meeting but rather associated with a non-ITU industry event related to its study topic.

9 Event identification

Once the event format and coordination are properly identified, all related information shall be made available to the Steering Committee (SC), who will be responsible for revising and issuing general advice on the strategic coordination, planning, organization, programme, implementation, drawing and follow-up actions. This SC's task shall be taken according to clause 10 below.

10 Guidelines and coordination requirements for the organization of ITU-T workshops and seminars

An appropriate working party within the Telecommunication Standardization Advisory Group (TSAG) shall undertake the responsibility for all activities and tasks regarding the organization of ITU-T workshops and seminars. The following clauses indicate such duties, followed by those within ITU-T to assist TSAG in this undertaking.

10.1 Guidelines, results and exchange of experience

10.1.1 Study and provide conceptual and strategic guidelines for the preparation, running and evaluation of workshops and seminars.

Support: TSB.

10.1.2 Review the extent to which it is possible to follow the conceptual and strategic guidelines in the preparation, running and evaluation of each workshop or seminar.

Support: TSB.

10.1.3 Review the reports produced by each workshop or seminar that, *inter alia*, cover lessons learned and recommended follow-up actions. These reports should be produced no later than three months following the events. The reports should highlight the needs of developing countries, if any, and be disseminated as widely as possible.

Support: Study groups and TSB.

10.1.4 Contribute to the exchange of positive experience in the preparation, running and evaluation of the workshops and seminars.

Support: Study groups and TSB.

10.1.5 Encourage and evaluate the evolving implementation of the gender perspective in the programme of ITU-T workshops and seminars.

Support: TSB.

10.2 Coordination within ITU-T, and between ITU-T and the other two Sectors and the General Secretariat of ITU

10.2.1 Coordinate and assess the development of the ITU-T programme of workshops and seminars, taking into consideration budgetary implications and the needs of developing countries.

Support: TSB, in cooperation with BDT (e.g., ITU regional offices and centres of excellence), as applicable.

10.2.2 Coordinate and harmonize the programme of ITU-T workshops and seminars, in close cooperation with the other two Sectors and the General Secretariat of ITU.

Support: TSB, in cooperation with BDT, BR and the General Secretariat, as applicable.

10.2.3 Coordinate and harmonize the programme of ITU-T workshops and seminars, in order to optimize the participation of non-ITU-T members involved with technological innovation and technical change (e.g., academia, research organizations, and small and medium enterprises) in as many events as practicable.

Support: TSB.

10.2.4 Work in close cooperation with the study groups' management teams and TSB.

Support: TSB, in cooperation with BDT, as applicable.

10.2.5 Take into account relevant topics identified by the technology watch function of TSAG, in order to encourage the eventual organization of a workshop or seminar associated with them.

Support: TSB.

10.3 Coordination between ITU-T and relevant SDOs and regional organizations

Coordinate and harmonize the programme of ITU-T workshops and seminars, in close cooperation with relevant regional organizations.

Support: TSB.

10.4 Administrative nature

Provide a report on the activities addressed in clauses 10.1, 10.2 and 10.3, to each meeting of TSAG for consideration and appropriate action.

Support: TSB.

11 Basic requirements for the evaluation and follow-up actions of workshops and seminars

11.1 Depending consistently upon the use of information technology, ITU-T homepages are identified as a crucial item for improving the organization of workshops and seminars and giving valuable feedback to TSB and TSAG on current status. Therefore, the website is to be maintained by TSB, so that accurate information provided by workshop and seminar organizers and the SC is made public on the Internet to all interested parties.

11.2 The website shall provide a range of functionalities, including immediate access to past, current and forthcoming events. Data on events is to be shown in a standardized format and is to include the following basic requirements for the evaluation and follow-up actions of ITU-T workshops and seminars, as exemplified in Table 1:

- Title
- Place
- Start date
- End date
- Basic information
 - Contact
 - Invitation
 - Programme
 - Steering committee
 - Sponsorship
 - Introduction
 - Objective
- Type
 - Event format
 - Event coordination
- Content
 - Abstract
 - Presentations
 - Biography
- Report
- List of participants

Table 1 – Format of information for the evaluation and follow-up actions of workshops and seminars

Item	Title	Place	Start date	End date	Basic information							Type	Content			Report *****	List of participants
					Contact	Invitation *	Programme	Steering **	Sponsorshi	Introductio	Objective		Abstract	Presentatio	Biography		
#	<name of event>	<city>, <country>	dd/mm/yy	dd/mm/yy	√	√	√	√	√	√	√	***	√	√	√	√	√

* The invitation letter contains also information notes so that the wording should be: "Invitation letter and information notes", if not explicitly mentioned in a separated link, "Information notes or practical information".

** This column indicates if the steering committee information was available on the webpage of the event.

*** The indication of the "Type" of event implies that both the "event format" (workshop or seminar) and the "event coordination" (study group strategy, information, tutorial or promotion focused) shall be clearly identified (refer to clauses 7 and 8).

**** Three months is the expected period for the final report submission.

Supplement 2 to ITU-T A-series Recommendations

Guidelines on interoperability experiments

(Geneva, 2000)

Introduction

These guidelines relate to interoperability experiments to be performed outside of ITU-T. The guidelines have been prepared to encourage such experiments to be performed and to facilitate information exchange between parties participating in such experiments and ITU-T study groups developing relevant Recommendation(s).

1 Background

1.1 Study Groups of ITU-T have been doing their best to ensure interoperability of products made in accordance with ITU-T Recommendations. There is no better way to assess interoperability than to actually interoperate systems and equipment of various manufacturers. ITU-T has occasionally initiated interoperability experiments for specific projects in the past. Some examples are:

- a) Signalling System No.7 Field Trial in early 1980s (SG 11).
- b) ISDN Field Trials in various places in late 1980s. (SG 11 and then SG 18).
- c) Digital Circuit Multiplexing Equipment (DCME) in early 1990s (SG 15).

1.2 However, when interoperability experiment/testing has not been performed, users may have suffered from the lack of interoperability between products coming from different manufacturers. Moreover, manufacturers are not always members of ITU-T and develop their products only by reading relevant Recommendations.

2 Objective

The objective of these guidelines is to encourage interoperability experiments to be performed outside of ITU-T and to facilitate information exchange between parties participating in such experiments and study groups of ITU-T.

3 Guidelines

3.1 The interoperability experiments are to be performed outside of ITU-T on a voluntary basis, self-governed, self-supporting and incurring no additional cost to ITU-T. Such interoperability experiments may therefore involve non ITU-T members as well.

3.2 The self-governance of interoperability experiments to be performed outside of ITU-T means that parties participating in such an experiment should govern themselves by making rules of their own. ITU-T is in no way involved in such a rule making.

3.3 ITU-T would like to ask the kind cooperation of its members participating in such an interoperability experiment to submit contributions to study groups based on the results of the experiment in order to improve the quality of Recommendations, e.g. by proposing text changes to remove ambiguities, etc.

3.4 Furthermore, ITU-T would like to ask the kind cooperation of its members participating in such an experiment to share information on the experiment at study group meetings as much as possible. Examples of information that would be useful to be shared are as follows:

- how should experiments be performed: experiment items, experiment methods, test equipment, experiment schedules, coordinator, etc;
- where are the experiments going to be conducted;
- how should experiment results be handled in order to submit contributions to ITU-T to improve the quality of Recommendations;
- identification of other activities in the same area and potential cooperation and work-sharing with them.

Supplement 3 to ITU-T A-series Recommendations

IETF and ITU-T collaboration guidelines

1 Introduction and scope

This document provides non-normative guidance to aid in the understanding of collaboration on standards development between the Telecommunication Standardization Sector of the International Telecommunication Union (ITU-T) and the Internet Engineering Task Force (IETF) of the Internet Society (ISOC). Early identification of topics of mutual interest will allow for constructive efforts between the two organizations based on mutual respect.

In the IETF, work is done in working groups (WGs), mostly through open, public mailing lists rather than face-to-face meetings. WGs are organized into areas, each area being managed by two co-area directors. Collectively, the area directors comprise the Internet Engineering Steering Group (IESG).

In the ITU-T, work is defined by study Questions which are worked on mostly through meetings led by rapporteurs (these are sometimes called "rapporteur's group" meetings). Questions are generally grouped within working parties (WPs) led by a WP chairman. Working parties report to a parent study group (SG) led by an SG chairman. Work may also be conducted in ITU-T focus groups (see clause 2.7).

To foster ongoing communication between the ITU-T and IETF, it is important to identify and establish contact points within each organization. Contact points may include:

1. ITU-T study group chairman and IETF area director

An IETF area director is the individual responsible for overseeing a major focus of activity with a scope similar to that of an ITU-T study group chairman. These positions are both relatively long-term (of several years) and offer the stability of contact points between the two organizations for a given topic.

2. ITU-T rapporteur and IETF working group chair

An IETF working group chair is an individual who is assigned to lead the work on a specific task within one particular area with a scope similar to that of an ITU-T rapporteur. These positions are working positions (of a year or more) that typically end when the work on a specific topic ends. Collaboration here is very beneficial to ensure the actual work gets done.

3. Other contact points

It may be beneficial to establish additional contact points for specific topics of mutual interest. These contact points should be established early in the work effort, and in some cases the contact point identified by each organization may be the same individual. ITU-T has an additional level of management, the working party chairman. From time to time, it may be beneficial for this person to exchange views with IETF working group chairs and area directors.

NOTE – The current list of IETF area directors and working group chairs can be found in the IETF working group charters. The current ITU-T study group chairmen and rapporteurs are listed on the ITU-T study group web pages.

2 Guidance on collaboration

This clause describes how the existing processes within the IETF and ITU-T may be utilized to enable collaboration between the organizations.

2.1 How to interact on ITU-T or IETF work items

Study groups that have identified work topics that are related to the Internet protocol (IP) should evaluate the relationship with topics defined in the IETF. Current IETF working groups and their charters (IETF definition of the scope of work) are listed in the IETF archives (see clause 2.8.1).

A study group may decide that development of a Recommendation on a particular topic may benefit from collaboration with the IETF. The study group should identify this collaboration in its work plan (specifically in that of each Question involved), describing the goal of the collaboration and its expected outcome.

An IETF working group should also evaluate and identify areas of relationship with the ITU-T and document the collaboration with the ITU-T study group in its charter.

The following clauses outline a process that can be used to enable each group to be informed about the other's new work items.

2.1.1 How the ITU-T is informed about existing IETF work items

The responsibility is on individual study groups to review the current IETF working groups to determine if there are any topics of mutual interest. Working group charters and active Internet-Drafts can be found on the IETF web site (<http://datatracker.ietf.org/wg/>). If a study group identifies a common area of work, the study group leadership should contact both the IETF working group chair and the area director(s) responsible. This may be accompanied by a formal liaison statement (see clause 2.3).

2.1.2 How the IETF is informed about existing ITU-T work items

The IETF through its representatives will review the current work of the various study groups from time to time. Each ITU-T study group's web page on the ITU-T web site contains its current list of Questions as well as its current work programme. When an area or working group identifies a common area of work, the matter is referred to appropriate working group chairs and area directors, where they may consider sending a liaison statement to the appropriate study group.

2.1.3 How the ITU-T is informed about proposed new IETF work items

The IETF maintains a mailing list for the distribution of proposed new work items among standards development organizations. Many such items can be identified in proposed birds-of-a-feather (BoF) sessions, as well as draft charters for working groups. The IETF forwards all such draft charters for all new and revised working groups and BoF session announcements to the IETF new-work mailing list. An ITU-T mailing list is subscribed to this list. Leadership of study groups may subscribe to this ITU-T mailing list, which is maintained by the Telecommunication Standardization Bureau (TSB). Members of the SG-specific listname may include the SG chairman, SG vice-chairmen, working party chairmen, concerned rapporteurs, other experts designated by the SG and the SG Counsellor. This will enable the SGs to monitor the new work items for possible overlap or interest to their study group. It is expected that this mailing list will see a few messages per month.

Each SG chairman, or designated representative, may provide comments on these charters by responding to the IESG mailing list at iesg@ietf.org clearly indicating their ITU-T position and the nature of their concern. Plain-text email is preferred on the IESG mailing list.

It should be noted that the IETF turnaround time for new working group charters can be as short as two weeks. As a result, the mailing list should be consistently monitored.

2.1.4 How the IETF is informed about ITU-T work items

The ITU-T accepts new areas of work through the creation or update of Questions and these can be found on the ITU-T study group web pages. In addition, the ITU-T work programme is documented on each ITU-T study group's web page on the ITU-T web site.

Study groups send updates to the IETF new-work mailing list as new Questions are first drafted or created, terms of reference for Questions are first drafted or updated, or otherwise when there is reason to believe that a particular effort might be of interest to the IETF. Area directors or WG chairs should provide comments through liaison statements or direct email to the relevant SG chairman in cases of possible overlap or interest.

2.2 Representation

ISOC, including its standards body IETF, is a Sector Member of the ITU-T. As a result, ISOC delegates are afforded the same rights as other ITU-T Sector Members (see clause 2.2.1). Conversely, ITU-T delegates may participate in the work of the IETF as representatives of the ITU-T (see clause 2.2.2). To promote collaboration, it is useful to facilitate communication between the organizations as further described below.

2.2.1 IETF recognition at ITU-T

Experts and representatives from the IETF that are chosen by IETF leadership normally participate in ITU-T meetings as ISOC delegates. The ISOC focal point will facilitate registration and verification of these people, as appropriate.

2.2.2 ITU-T recognition at ISOC/IETF

ITU-T study group chairmen can authorize one or more members to attend an IETF meeting as an official ITU-T delegate speaking authoritatively on behalf of the activities of the study group (or a particular rapporteur group). The study group chairman sends the ITU-T list of delegates by email to the working group chair, with a copy to the area directors, and also to the study group. According to IETF process, opinions expressed by any such delegate are given equal weight with opinions expressed by any other working group participant.

2.3 Communication outside of meetings

Informal communication between contact points and experts of both organizations is encouraged. However, formal communication from an ITU-T study group, working party or rapporteur group to an associated IETF contact point must be explicitly approved and identified as coming from the study group, working party, or rapporteur group, respectively. Formal liaison statements from the ITU-T to the IETF are transmitted according to the procedures described in RFC 4053 [2]. These liaison statements are placed by the IETF onto a liaison statements web page at <https://datatracker.ietf.org/liaison/>. An individual at the IETF is assigned responsibility for dealing with each liaison statement that is received. The name and contact information of the responsible person and any applicable deadline is listed with the links to the liaison statement on this web page.

Formal liaison statements from the Internet Architecture Board (IAB), the IESG, the IETF, an IETF working group or area to the ITU-T are generated, approved, and transmitted according to the procedures described in RFC 4053 [2] and Recommendation ITU-T A.1 [15]. Formal communication is intended to allow the sharing of positions between the IETF and the ITU-T outside of actual documents (as described in clause 2.5.1). This covers such things as comments on documents and requests for input.

2.4 Mailing lists

All IETF working groups and all ITU-T study group Questions have associated mailing lists.

In the IETF, the mailing list is the primary vehicle for discussion and decision-making. It is recommended that the ITU-T experts interested in particular IETF working group topics subscribe to and participate in these lists. IETF WG mailing lists are open to all subscribers. The IETF working group mailing list subscription and archive information are noted in each working group's charter. In the ITU-T, the TSB has set up formal mailing lists for Questions, working parties, and other topics within study groups (more detail can be found on the ITU-T web site). These mailing lists are typically used for ITU-T correspondence, including technical discussion, meeting logistics, reports, etc.

NOTE – Individual subscribers to this list must be affiliated with an ITU-T member or associate (at this time, there is no blanket inclusion of all IETF participants as members, however, as a member, the ISOC focal point can facilitate access by IETF technical experts, liaison representatives, or liaison managers).

IETF participants may subscribe to ITU-T focus group email lists if they are individuals from a country that is a member of ITU-T.

2.5 Document sharing

During the course of ITU-T and IETF collaboration, it is important to share working drafts and documents among the technical working groups. Initially proposed concepts and specifications typically can be circulated by email (often just repeating the concept and not including the details of the specification) on both the IETF and ITU-T mailing lists. In addition, working texts (or URLs) of draft Recommendations, Internet-Drafts, or RFCs may also be sent between the organizations as described below.

Internet-Drafts are available on the IETF web site. The ITU-T can make selected ITU-T documents at any stage of development available to the IETF by attaching them to a formal liaison statement. Although a communication can point to a URL where a non-ASCII document (e.g., Word) can be downloaded, attachments in proprietary formats to an IETF mailing list are discouraged. It should also be recognized that the official versions of all IETF documents are in ASCII.

2.5.1 Contributions and liaison statements from the IETF to ITU-T

IETF documents (e.g., Internet-Drafts) or URLs of those documents are most commonly transmitted to ITU-T study groups as liaison statements (see RFC 4053 [2]), but exceptionally can be submitted to a study group as a contribution from ISOC in accordance with Recommendation ITU-T A.2 [16]. In order to ensure that the IETF has properly authorized this, the IETF working group must agree that the specific drafts are of mutual interest; that there is a benefit in forwarding them to the ITU-T for review, comment and potential use; and that the document status is accurately represented in the cover letter. Once agreed, the appropriate area directors review the working group request and give approval. The rules of the IETF Trust are followed in these circumstances [3]. The contributions are then forwarded (with the noted approval) to the TSB for circulation as a contribution to the appropriate ITU-T study group. Material submitted to the ITU-T as an ISOC contribution is governed by clause 3.1.5 of Recommendation ITU-T A.1 [15]. Any such contribution will be made only after receiving necessary approval of owners of the work in question. In other circumstances, a liaison statement may be appropriate. See RFC 5378 [3] and Recommendation ITU-T A.1 [15] for more information.

2.5.2 Contributions and liaison statements from the ITU-T to IETF

An ITU-T study group or working party may send texts of draft new or revised Recommendations, clearly indicating their status, to the IETF as contributions in the form of liaison statements or Internet-Drafts. Internet-Drafts are IETF temporary documents that expire six months after being published. The study group or working party must decide that there is a benefit in forwarding them to the IETF for review, comment, and potential use. Terms of reference for rapporteur group meetings may authorize rapporteur groups to send working documents, in the form of Internet-Drafts, to the IETF.

If the study group or working party elects to transmit the text as an Internet-Draft, the document editor would be instructed to prepare the contribution in Internet-Draft format (in ASCII and optionally postscript format as per RFC 2223 [8]) and upload it via <https://datatracker.ietf.org/idst/upload.cgi>. Material submitted as an Internet-Draft or intended for inclusion in an Internet-Draft or RFC is governed by the rules set forth in RFCs 5378 [3], 3979 [4], and 4879 [5]. Alternatively, the study group, working party, or rapporteur group could attach the text to a formal liaison statement.

Both the rapporteur and the document editor should be identified as contacts in the contribution. The document should also clearly indicate the state of development in a particular ITU-T study group.

NOTE – Liaison statements and their attachments sent to the IETF are made publicly available on the IETF web site.

2.5.3 ITU-T and IETF

It is envisaged that the processes of clauses 2.5.1 and 2.5.2 will often be used simultaneously by both an IETF working group and an ITU-T study group to collaborate on a topic of mutual interest.

It is also envisaged that the outcome of the collaboration will be the documentation in full by one body and its referencing by the other (see clause 2.6 for details). That is, common or joint text is discouraged because of the current differences in procedures for document approval and revision. Where complementary work is being undertaken in both organizations that will result in Recommendations or RFCs, due allowance should be given to the differing perspectives, working methods, and procedures of the two organizations. That is, each organization should understand the other organization's procedures and strive to respect them in the collaboration.

2.6 Simple cross referencing

Recommendation ITU-T A.5 [6] describes the process for including references to documents of other organizations in ITU-T Recommendations. Recommendation ITU-T A.5 also addresses the situation where a study group or working party decides to incorporate the text of another organization into the text of a Recommendation, rather than referencing it. Information specific to referencing IETF RFCs is found at <http://itu.int/ITU-T/go/ref-ietf-isoc>.

Section 6.1.1 of RFC 2026 [7] describes the process for referencing other open standards (like ITU-T Recommendations) in IETF RFCs.

2.7 Preliminary work efforts

Both ITU-T and IETF provide mechanisms for early discussion of potential new work areas prior to the official start of work in an ITU-T study group or creation of an IETF working group.

Objectives, methods, and procedures for the creation and operation of ITU-T focus groups are defined in Recommendation ITU-T A.7 [17]. Focus groups are frequently created in new work areas where there is a need for deliverables to be produced on a specific topic within a short timeframe. IETF participants who are not members or associates of ITU-T may participate fully in the work of ITU-T focus groups if they are from a country that is a member of ITU-T.

In the IETF, guidance for BoF sessions is provided in RFC 5434 [13]. Efforts that have not yet reached the working group stage may be discussed in BOF sessions. These sessions typically gauge interest in pursuing creation of working groups. In some cases, these discussions continue on mailing lists.

2.8 Additional items

2.8.1 IETF information that may be useful to ITU-T participants

Information on IETF procedures may be found in the documents in the informative references, and URLs below.

NOTE – RFCs do not change after they are published. Rather, they are either obsoleted or updated by other RFCs. Such updates are tracked in the `rfc-index.txt` file.

Current list and status of all IETF RFCs:

<ftp://ftp.ietf.org/rfc/rfc-index.txt>

Current list and description of all IETF Internet-Drafts:

<ftp://ftp.ietf.org/internet-drafts/lid-abstracts.txt>

Current list of IETF working groups and their Charters: (includes area directors and chair contacts, mailing list information, etc.)

<http://www.ietf.org/dyn/wg/charter.html>

Current list of registered BOFs:

<http://trac.tools.ietf.org/bof/trac/>

RFC Editor pages about publishing RFCs, including available tools and lots of guidance:

<http://www.rfc-editor.org/pubprocess.html>

Current list of liaison statements:

<https://datatracker.ietf.org/liaison/>

IETF Intellectual Property Rights Policy and Notices:

<http://www.ietf.org/ipr/>

The Tao of the IETF – A Novice's Guide to the Internet Engineering Task Force:

<http://www.ietf.org/tao.html>

2.8.2 ITU-T information that may be useful to IETF participants

Information about the ITU-T can be found in the informative references and at the URLs below.

ITU-T Main page:

<http://itu.int/ITU-T>

List of all ITU-T Recommendations:

<http://itu.int/itu-t/recommendations/>

ITU-T study group main page for Study Group NN (where NN is the 2-digit SG number):

<http://itu.int/ITU-T/studygroups/comNN/>

Intellectual Property policies, forms and databases:

<http://itu.int/en/ITU-T/ipr/Pages/default.aspx>

Current list of active ITU-T focus Groups

<http://itu.int/en/ITU-T/focusgroups/Pages/default.aspx>

ITU-T Procedures including:

- WTSA Resolution 1, *Rules of procedure of the ITU Telecommunication Standardization Sector (ITU-T)*
- WTSA Resolution 2, *Study Group responsibility and mandates*
<http://itu.int/publ/T-RES/en>

Author's Guide for drafting ITU-T Recommendations:

<http://itu.int/ITU-T/go/author-guide>

Templates for contributions, ITU-T Recommendations, and liaison statements:

<http://itu.int/ITU-T/studygroups/templates/index.html>

3 References

3.1 Normative references

- [1] Daigle, L., Ed., **and Internet Architecture Board**, *IAB Processes for Management of IETF Liaison Relationships*, BCP 102, RFC 4052, April 2005.
- [2] Trowbridge, S., Bradner, S., and F. Baker, *Procedures for Handling Liaison Statements to and from the IETF*, BCP 103, RFC 4053, April 2005.
- [3] Bradner, S., Ed., and J. Contreras, Ed., *Rights Contributors Provide to the IETF Trust*, BCP 78, RFC 5378, November, 2008.
- [4] Bradner, S., Ed., *Intellectual Property Rights in IETF Technology*, BCP 79, RFC 3979, March 2005.
- [5] Narten, T., *Clarification of the Third Party Disclosure Procedure in RFC 3979*, BCP 79, RFC 4879, April 2007.
- [6] Recommendation ITU-T A.5 (2008), *Generic procedures for including references to documents of other organizations in ITU-T Recommendations*, International Telecommunication Union.

3.2 Informative references

- [7] Bradner, S., *The Internet Standards Process – Revision 3*, BCP 9, RFC 2026, October 1996.
- [8] Postel, J. and J. Reynolds, *Instructions to RFC Authors*, RFC 2223, October 1997.
- [9] Brett, R., Bradner, S., and G. Parsons, *Collaboration between ISOC/IETF and ITU-T*, RFC 2436, October 1998.
- [10] Fishman, G. and S. Bradner, *Internet Engineering Task Force and International Telecommunication Union – Telecommunications Standardization Sector Collaboration Guidelines*, RFC 3356, August 2002.
- [11] Hovey, R. and S. Bradner, S., *The Organizations Involved in the IETF Standards Process*, BCP 11, RFC 2028, October, 1996.
- [12] Bradner, S., *IETF Working Group Guidelines and Procedures*, BCP 25, RFC 2418, September 1998.
- [13] Narten, T., *Considerations for Having a Successful Birds-of-a-Feather (BOF) Session*, RFC 5434, February 2009.
- [14] Alvestrand, H., *A Mission Statement for the IETF*, BCP 95, RFC 3935, October 2004.
- [15] Recommendation ITU-T A.1 (2008), *Work methods for study groups of the ITU Telecommunication Standardization Sector (ITU-T)*, International Telecommunication Union.
- [16] Recommendation ITU-T A.2 (2008), *Presentation of contributions to the ITU-T*, International Telecommunication Union.
- [17] Recommendation ITU-T A.7 (2008), *Focus groups: Working methods and procedures*, International Telecommunication Union.
- [18] Recommendation ITU-T A.8 (2008), *Alternative approval process for new and revised ITU-T Recommendations*, International Telecommunication Union.

Supplement 4 to ITU-T A-series Recommendations

Supplement on guidelines for remote participation

1 Scope

Well-documented rules and procedures, including the legal aspects, are useful for electronic meetings of ITU-T groups. ITU-T groups include, but are not limited to, TSAG, study groups, working parties, Questions or Rapporteur groups, focus groups, Joint Coordination Activities (JCAs), correspondence groups, ad hoc groups, regional groups and the Review Committee.

Meetings of ITU-T groups may be conducted in the following formats:

- physical meetings (face-to-face);
- physical meetings with remote observation (i.e., webcast);
- physical meetings with (active) remote participation;
- e-meetings, also called virtual meetings.

The same format may not apply to all sessions of a given meeting. This Supplement provides guidelines for physical meetings with active remote participation and e-meetings. The meeting format (see clause 6.4) to be used for any given meeting or meeting session is beyond the scope of this Supplement.

2 References

- | | |
|--------------------|---|
| [FSTP-AM] | Guidelines for accessible meetings, ITU-T Q26/16.
< http://www.itu.int/md/T13-SG16-150209-TD-WP2-0367/en > |
| [HSTP.ACC-RemPart] | Guidelines for supporting remote participation in meetings for all, ITU-T Q26/16.
< http://www.itu.int/md/T13-SG16-150209-TD-WP2-0365/en > |
| [PP GR] | Plenipotentiary Conference, General Rules of conferences, assemblies and meetings of the Union (Rev. Guadalajara, 2010).
< http://www.itu.int/net/about/basic-texts/rules.aspx > |
| [PP Res.167] | Plenipotentiary Conference, Resolution 167 (Rev. Busan, 2014), Strengthening and developing ITU capabilities for electronic meetings and means to advance the work of the Union.
< http://www.itu.int/dms_pub/itu-s/opb/conf/S-CONF-ACTF-2014-PDF-E.pdf > |
| [WTSA Res.32] | World Telecommunication Standardization Assembly, Resolution 32 (Rev. Dubai, 2012), Strengthening electronic working methods for the work of the ITU Telecommunication Standardization Sector.
< http://www.itu.int/pub/T-RES-T.32-2012 > |

3 Definitions

3.1 Terms defined elsewhere

None

3.2 Terms defined in this Supplement

This Supplement defines the following terms:

3.2.1 group: A study group, TSAG, a working party, a Question, a Rapporteur group, a correspondence group, an ad hoc group, the Review Committee, a JCA, a focus group, a regional group or any other type of group created in ITU-T.

NOTE – A workshop or a seminar is not considered a group in the context of this Supplement.

3.2.2 remote participation: Participation in a meeting from a separate geographical location, using communication technologies.

NOTE – Depending on the group meeting, remote participation may be active or in an observing capacity (in case of webcast), but only active remote participation is considered in this Supplement.

3.2.3 remote participation moderator: A person in charge of monitoring the remote participation tool, ensuring that remote participants know what is taking place in the meeting and allowing remote participants chances to contribute (in case of a meeting with active remote participation).

NOTE – A remote participation moderator is not systematically available for each meeting with remote participation.

4 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

JCA	Joint Coordination Activity
TIES	Telecommunication Information Exchange Service
TSAG	Telecommunication Standardization Advisory Group

5 Conventions

None

6 Organization of a meeting with remote participation

This clause gives guidelines for the group chairman and secretariat who are organizing a meeting with remote participation.

6.1 When scheduling the time for meetings with remote participation or for e-meetings, consideration should be given to the different time zones of the expected remote participants. Consideration should also be given to, when practical, scheduling relevant agenda items identified by a remote participant to better accommodate the remote participant's time zone.

6.2 If remote participation is to be arranged for participation in a group meeting, TSB should be informed at least twelve calendar days before the group meeting, to allow for enough time for logistics arrangements.

6.3 If the group chairman is expected to participate remotely, the group should identify an acting chairman in case the chairman is unable to connect.

6.4 The meeting agenda indicates the format in which the meeting will be conducted:

- physical meetings (face-to-face);
- physical meetings with remote observation (i.e., webcast);
- physical meetings with (active) remote participation (see also clause 7.1);
- e-meetings, also called virtual meetings (see also clause 7.1).

NOTE – The first two formats are not covered by this Supplement. The meeting format could be based on a variety of criteria, including, but not limited to, the nature of the meeting, whether the meeting is held inside or outside Geneva and technical capabilities available for the meeting.

6.5 It is recommended that the technologies used for remote participation are those available from the ITU, even for meetings held outside Geneva.

6.6 For meetings held outside Geneva with (active) remote participation, it is recommended that hosts be supplied with guidelines in order to minimize possible technical issues related to remote participation. These guidelines (e.g., in the form of a checklist) should be accessible for the host well in advance before the event, and should include all the technical and logistics requirements for providing the remote participation facility.

7 Guidelines for the group chairman

This clause gives guidelines for the group chairman to help chairing a meeting with remote participation.

7.1 Based on the remote participation tool used, the management team of the group decides the operation mode for the meeting. The modes described in clauses 7.1.1 and 7.1.2 are suggested. The decision of the management team is announced at the beginning of the meeting and the meeting is chaired accordingly.

7.1.1 All remote participants are unmuted by default and can intervene at any time. To prevent interference of background noise, the chair reminds remote participants to mute their microphones until when they wish to contribute (see also clause 7.6).

NOTE – This may be practical for the meeting of a very small informal group like a correspondence group, but probably not during the meeting of a Question or a Rapporteur group (if at least to avoid echo and other background noise).

7.1.2 All remote participants are muted by default and will be unmuted by the remote participation moderator on a case-by-case basis, if they so request through the remote participation tool.

NOTE – The remote participation moderator would then inform the meeting that a remote participant can intervene and the chairman would include the remote participant in the queue of meeting participants who want to intervene.

7.2 In the case of physical meetings with remote participation, the group chairman and the remote participation moderator are encouraged to meet in the room ten minutes before the scheduled start of the meeting to check that the system is working and that the group chairman can display and share documents.

7.3 At the beginning of each meeting with remote participation, the group chairman announces that there is a remote facility and requests that all remote participants introduce themselves by mentioning their name and affiliation.

NOTE – Remote participants who join a meeting after the initial introduction of participants are expected to announce their arrival by mentioning their name and affiliation. If the remote participation tool announces participants' arrival with a specific sound, the group chairman asks new participants to introduce themselves.

7.4 The group chairman encourages remote participants to announce their name and affiliation clearly before speaking (see also clause 8.3).

NOTE – This is particularly useful in case of a meeting with interpretation or with participants with disabilities or specific needs (see clause 10).

7.5 The General Rules of conferences, assemblies and meetings of the Union [PP GR] apply to meetings with remote participation, in particular clauses 20.2 (Order of debates), 20.8 (Limitation of speeches) and 20.9 (Closing the list of speeches).

7.6 Where supported by the remote participation tool, the chairman or the remote participation moderator is permitted to mute remote participants with bad connections or whose connections introduce too much noise, or may ask them to leave the meeting if the situation cannot be remedied.

8 Technical guidelines for remote participants

This clause gives guidelines for remote participants.

8.1 Remote participants are encouraged to use the remote facility through a landline (when available), or to use a headset (and not the microphone and speaker of their machine). Remote participants should make sure that the loudspeaker on their machine is muted when they call from a landline.

8.2 It is recommended that remote participants connect at least five minutes before the start of a meeting to avoid disturbance. This will also allow for the group chairman and/or the remote participation moderator to check sound levels.

8.3 Remote participants are encouraged to announce their name and affiliation clearly before making any intervention (see also clause 7.4).

8.4 Remote participants should speak from a quiet place without background noise. They should speak slowly and clearly to allow the other participants to compensate for any audio problem. They are encouraged to end their remarks with the phrase "This concludes my intervention."

NOTE – Clauses 8.3 and 8.4 are particularly useful in the case of a meeting with interpretation, or with participants with disabilities or specific needs (see clause 10).

8.5 If the connection is poor, and if requested by the chairman, remote participants should be prepared to type their question or comment in the chat window of the remote participation tool.

8.6 During a physical meeting with remote participation, remote participants accept that, in case of technical problems (e.g., lost connection), their participation may be interrupted (see also clause 8.8) while the physical meeting will continue, whereas in case of onsite technical issues (e.g., headphone failure), the chairman may decide to suspend the meeting until the problem is solved.

NOTE – Remote participants recognize that an important part of any meeting are the informal discussions during breaks and lunch where delegates can informally explain, understand, and forge the compromises needed for the consensus processes to work. Remote participants recognize that they will not have this type of interaction with the other participants.

8.7 Remote participants accept that in case of technical problems (e.g., lost connection) during an e-meeting, the chairman will assess whether enough participants are still connected and will decide whether to continue the meeting (see also clause 8.8) or to suspend the meeting until the problem is solved.

8.8 Remote participants may report problems to the remote participation moderator (when available) who should determine where the cause lies and should either take direct remedial action or offer advice as appropriate. A remote participant who experiences problems in joining the meeting should preferably discuss with the remote participation moderator in a private chat window (or tab) so that the main chat window is reserved for discussions of interest to all participants.

9 Technical guidelines for in-person participants

This clause gives guidelines for participants physically present in a meeting with remote participation.

9.1 In order to increase voice quality, only one microphone should be on (open) at a given time in the meeting room, and physically present participants shall speak close to (and in front of) the microphone.

10 Guidelines for persons with disabilities or with specific needs

This clause makes reference to guidelines applying to remote participants with hearing or visual impairments, in particular.

10.1 Guidelines for users with hearing or visual impairments are available from the Joint Coordination Activity on Accessibility and Human Factors (JCA-AHF at <http://www.itu.int/en/ITU-T/jca/ahf>).

10.2 Requirements and good practice for supporting remote participation in meetings for all are contained in [HSTP.ACC-RemPart]. Guidelines for accessible meetings are contained in clause 8.1.3 of [FSTP-AM].

10.3 Persons with disabilities can mention their specific needs (for example, captioning) on the registration form. Provision of specific facilities is done in accordance with *resolves* 3 of [PP Res.167].

Supplement 5 to ITU-T A-series Recommendations

Guidelines for collaboration and exchange of information with other organizations

1 Scope

ITU-T maintains cooperative relationships with many other organizations. The technologies for which these organizations are responsible continue to converge, which has resulted in an increase of interdependency between ITU-T's work programme and the programmes of other organizations. This Supplement describes a process for authoritative document exchange with another organization, which is to be agreed upon with that organization. It also introduces generic procedures for developing an ITU-T document (Recommendation, Supplement, etc.) in collaboration with one (or more) other organization(s). Such generic procedures are to be considered as guidelines for negotiating a process or mode of collaboration with other qualified organization(s).

On a case-by-case basis, ITU-T study groups may use other processes or modes of collaboration to those described in this Supplement. In particular, exchange of information (by way of liaison statements) can occur at any time with another organization without applying the processes described in this Supplement.

NOTE 1 – This Supplement does not apply to ITU-T Recommendations developed in collaboration with ISO/IEC JTC 1 because the long-standing procedures of [ITU-T A.23], which have proved very successful, remain unchanged.

NOTE 2 – Regarding collaboration with the Internet Engineering Task Force (IETF), clause 2.5.3 of [ITU-T A.Supp3] states that "common or joint text is discouraged because of the current differences in procedures for document approval and revision."

The case of normatively referencing the documents of other organizations in ITU-T Recommendations is addressed in [ITU-T A.5].

The case of ITU-T incorporating texts (in part or in whole, with or without modifications) from another organization is addressed in [ITU-T A.25].

2 References

- [ITU-T A.1] Recommendation ITU-T A.1 (2012), *Working methods for study groups of the ITU Telecommunication Standardization Sector (ITU-T)*.
- [ITU-T A.5] Recommendation ITU-T A.5 (2016), *Generic procedures for including references to documents of other organizations in ITU-T Recommendations*.
- [ITU-T A.7] Recommendation ITU-T A.7 (2012), *Focus groups: Establishment and working procedures*.
- [ITU-T A.8] Recommendation ITU-T A.8 (2008), *Alternative approval process for new and revised ITU-T Recommendations*.
- [ITU-T A.23] Recommendation ITU-T A.23 (2000), *Collaboration with the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) on information technology*.
- [ITU-T A.25] Recommendation ITU-T A.25 (2016), *Generic procedures for incorporating texts between ITU-T and other organizations*.

- [ITU-T A.Supp3] ITU-T A-series Recommendations – Supplement 3 (2012), *IETF and ITU-T collaboration guidelines*.
- [Author's Guide] *Author's Guide for drafting ITU-T Recommendations* (2016).
<<http://www.itu.int/ITU-T/go/authors-guide/>>
- [Patent policy] *Common patent policy for ITU-T/ITU-R/ISO/IEC*.
<<http://www.itu.int/en/ITU-T/ipr>>
- [WTSA Res. 1] World Telecommunication Standardization Assembly Resolution 1 (Rev. Dubai, 2012), *Rules of procedure of the ITU Telecommunication Standardization Sector*.
<<http://www.itu.int/pub/T-RES-T.1-2012>>
- [WTSA Res. 18] World Telecommunication Standardization Assembly Resolution 18 (Rev. Dubai, 2012), *Principles and procedures for the allocation of work to, and coordination between, the ITU Radiocommunication and ITU Telecommunication Standardization Sectors*.
<<http://www.itu.int/pub/T-RES-T.18-2012>>

3 Definitions

3.1 Terms defined elsewhere

This Supplement uses the following terms defined elsewhere:

3.1.1 amendment [ITU-T A.1]: An amendment to a Recommendation contains changes or additions to an already published ITU-T Recommendation.

NOTE – An amendment is published by ITU-T as a separate document that contains primarily changes or additions. If it forms an integral part of the Recommendation, approval of an amendment follows the same approval procedures as for Recommendations; otherwise, it is agreed by the study group.

3.1.2 Question [WTSA Res. 1]: Description of an area of work to be studied, normally leading to the production of one or more new or revised Recommendations.

3.1.3 supplement [ITU-T A.1]: A document which contains material which is supplementary to and associated with the subject matter of one or more Recommendations but which is not essential to their completeness or understanding and implementation.

NOTE – Recommendation ITU-T A.13 deals with the subject of supplements to ITU-T Recommendations.

3.2 Terms defined in this Supplement

This Supplement defines the following terms:

3.2.1 collaborative work: A mode of collaboration between an ITU-T Question and a group in an organization (or groups in multiple organizations) aimed at producing one or more common (or technically-aligned) documents through close liaison, and in the case of common documents, through a synchronized approval (see Appendix II).

3.2.2 common document: A document which is developed jointly by an ITU-T Question and a group in an organization (or groups in multiple organizations).

NOTE – A unique document is developed jointly by an ITU-T Question and one (or more) organizations but it may be published with different cover pages, headers and footers, based on the publication rules of each organization (see clause 9).

3.2.3 common team: A working group composed of individuals working on an ITU-T Question and from a group in an organization (or groups in multiple organizations) aimed at producing one or more common (or technically-aligned) documents through common meetings, and in the case of common documents, through a synchronized approval (see Appendix III).

3.2.4 technically-aligned documents: A pair (or set) of documents which are developed in close collaboration between an ITU-T Question and a group in an organization (or groups in multiple organizations), and whose texts are technically aligned (but not identical).

NOTE 1 – Implementation of one technically-aligned document may not hamper interoperability with the implementation of the other technically-aligned document(s).

NOTE 2 – The document developed by the ITU-T Question follows the ITU-T publication rules (such as [Author's Guide]). The other document may follow the publication rules of the (external) organization(s).

4 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

AAP Alternative Approval Process

TAP Traditional Approval Process

TSB Telecommunication Standardization Bureau

5 Conventions

In expressions such as "each organization", "one organization", "the other organization", the term "organization" (singular) designates an ITU-T study group or an (external) organization. In case of bilateral collaboration, the expression "the organization" always designates the (external) organization with which an ITU-T study group has established a mode of collaboration. In case of multilateral collaboration, the expression "the organization" designates the (external) organizations with which one (or more) ITU-T study group(s) has established a mode of collaboration.

In case of bilateral collaboration, the term "organizations" (plural) designates an ITU-T study group and an (external) organization which have a common interest in an area of work. In case of multilateral collaboration, the term "organizations" designates one (or more) ITU-T study groups and (external) organizations which have a common interest in an area of work.

The terms "ballot" and "balloting" are to be understood with respect to the rules and approval process of the organization (ITU-T or the external organization). For ITU-T, this is the last call in the case of the alternative approval process (AAP) and it is the consultation of Member States in the case of the traditional approval process (TAP).

6 Qualification of an organization

6.1 It is recommended that the ITU-T study group (or working party) considers the organization according to the criteria set out in clauses 6.1.1 to 6.1.3 (except for ISO and IEC).

6.1.1 Qualification of the organization according to the criteria of Annex B to [ITU-T A.5] is to be conducted before considering establishing one of the modes of collaboration listed in clause 7.2.

NOTE – Organizations which are already qualified according to Recommendations ITU-T A.4, A.5 or A.6 are considered to satisfy clause 6.1.1.

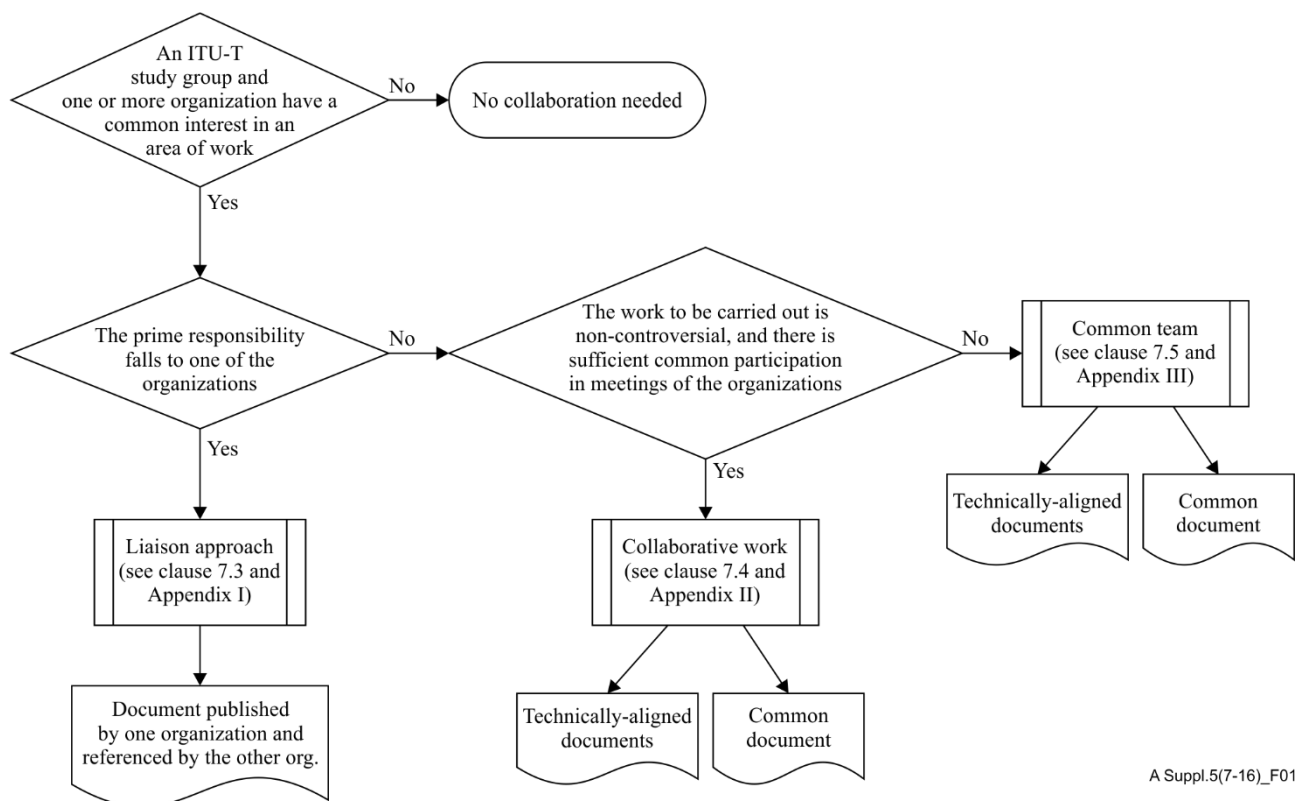
6.1.2 In addition, the organization is expected to have a process by which its output documents are published and regularly maintained (i.e., reaffirmed, revised, withdrawn, etc.).

6.1.3 The organization is also expected to have a document change control process, including a clear, unambiguous document numbering scheme. In particular, a feature to look for is that updated versions of a given document be distinguishable from the earlier versions.

6.2 Qualification of the organization according to the criteria of Annex B of [ITU-T A.5] is reviewed on a regular basis by study groups that need to establish a mode of collaboration with that organization. In particular, if the patent policy of that organization has changed, it is important to check that the new patent policy is consistent with the common patent policy for ITU-T/ITU-R/ISO/IEC and the guidelines for the implementation of the common patent policy for ITU-T/ITU-R/ISO/IEC (see clause 11).

7 Determining the mode of collaboration

7.1 To maximize the effectiveness of resources and to minimize conflict between standards, the ITU-T study group and the relevant group in the organization are encouraged to identify areas for collaborative work as early as possible in the development process. Normally as part of the development of a new Recommendation in ITU-T (see Annex A of [ITU-T A.1]), consideration is given to the need for interactions with other organizations. If enough information is available at this stage, then, if appropriate, one of the following modes of collaboration can be proposed and agreement sought from the other organization (see clause 8).



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Figure 1 – Possible modes of collaboration between ITU-T and one or more organizations

7.2 Collaboration (as specified in this Supplement) can be carried out in one of three ways: by means of a liaison, by means of collaborative work or by means of a common team. Figure 1 provides some criteria for choosing one mode of collaboration but those criteria are not exhaustive and it is recommended that the study group and the organization carefully evaluate the terms of reference of the collaboration (see clause 8.2).

NOTE – These three modes of collaboration can be generalized to a multilateral collaboration as explained in Appendix V.

7.3 Where an ITU-T study group and an organization have a common interest in an area of work and have agreed that the prime responsibility falls to one of the two organizations, the liaison approach (see Appendix I) is well suited. In this situation, the work is carried out in one organization and the other organization participates, as appropriate, using its liaison status. The result is published by one organization and is referenced, as needed, by the other organization (see [ITU-T A.5]).

7.4 Collaboration by means of collaborative work is suited for situations where the work to be carried out is straight-forward and relatively non-controversial, and where there is sufficient common participation in the meetings of the two organizations to make the interchange highly effective. The work on resolving issues and developing one or more common documents is continually progressed in the successive meetings of the two groups. The normal approval processes of both ITU-T and the organization are synchronized until the eventual publication of common or technically-aligned texts (see clause 9). Appendix II details generic procedures when collaborative work is performed.

7.5 Collaboration by means of a common team is well suited for situations where extended dialog is necessary to develop solutions and reach consensus. In this situation, all interested parties participate together in a common team to mutually progress the work, resolve issues, and develop one or more common (or technically-aligned) documents. The normal approval processes of both ITU-T and the organization are synchronized until the eventual publication of common or technically-aligned texts (see clause 9). Appendix III details generic procedures when a common team is established.

7.6 It is possible for the mode of collaboration to change as the work progresses. For example, work could be initiated in one organization and, as a result of a liaison statement, it could become recognized as integrally important to the other organization. At this point, agreement could be reached to advance all future work in a mode of collaboration.

8 Agreeing the mode of collaboration

8.1 Agreement for collaboration needs to be mutually recognized to be successful. Therefore, operation in one of the three modes of collaboration for a given area of work is an agreed decision of both organizations. This agreement (based on the terms of reference presented in clause 8.2) is to be confirmed at the ITU-T study group level and at the appropriate decision-making level of the organization.

8.2 The mutually agreed terms of reference for a given mode of collaboration may include:

- 1) the relevant ITU-T Question and its parent study group;
- 2) the relevant group in the organization and, if applicable, its parent body;
- 3) the mode of collaboration (see clause 7);
- 4) the scope of the effort as it relates to each organization's work programme;
- 5) where possible, identification (type, title and reference) of the document(s) that is (are) to be developed collaboratively and their type (technically-aligned documents or common document).

NOTE 1 – It is recommended to use the template in [ITU-T A.1], Annex A;

- 6) detailed explanations on how to synchronize the ITU-T approval process (AAP according to [ITU-T A.8] or TAP according to section 9 of [WTSA Res. 1] or agreement at the study group level) with the approval process in the organization so that comments coming from one organization during the approval process can be taken into account by the other organization (see Appendix IV);
- 7) any start-up provisions to accommodate work in progress in each organization.

NOTE 2 – If the draft ITU-T Recommendation has been consented for AAP Last Call (or determined for TAP consultation), the window to establish a collaboration is considered to be closed;
- 8) any reporting or tracking provisions beyond those specified in clause II.6 or III.6;
- 9) explanations on how the document(s) would be cooperatively maintained by both organizations (see clause 10);
- 10) statement that the organization's patent policy is consistent with the common patent policy for ITU-T/ITU-R/ISO/IEC (see clause 11).

8.3 A collaborative relationship for a given area of work continues as long as both organizations feel collaboration is beneficial. In the unusual event that either organization feels that collaboration for a given area of work may be terminated, it is recommended to discuss this situation immediately with the other organization. If satisfactory resolution cannot be obtained, then collaboration for the given area of work can be terminated at any time by either the ITU-T study group or the appropriate body in the organization. If termination occurs, both organizations can make use of the prior collaborative work.

9 Publication of documents

9.1 In the case of a common document, the final editing is done by ITU's Telecommunication Standardization Bureau (TSB) according to [Author's Guide]. TSB then sends the final document as soon as possible to the organization for publication according to its own rules.

NOTE – A unique document is developed jointly by ITU-T and an organization but it may be published with different cover pages, headers and footers, based on the publication rules of each organization. Consequently, cover pages, header and footers do not contain any normative statement.

9.2 In the case of technically-aligned documents, each organization publishes its own document according to its own publication rules. However, it is recommended that the organization waits for TSB to produce the final document for ITU-T in case some editorial changes would also apply to its own document.

9.3 The document is published as a Recommendation in ITU-T and as a standard (or any other type of normative document) in the organization (or as a Supplement or any other type of informative document in ITU-T, and as an informative document in the organization).

9.4 It is valuable that users perceive the collaboration between ITU-T and the organization. This may be enforced by the following means:

- a) Include a footnote from the title of the ITU-T document that notes the collaborative nature of the work; in the case of technically-aligned document, the footnote gives the title of the document of the organization, and states the degree of technical alignment.
- b) Include a footnote from the title of the document of the organization that notes the collaborative nature of the work; in the case of technically-aligned documents, the footnote gives the title of the ITU-T document, and states the degree of technical alignment.

- c) If an ITU-T document makes a reference to another ITU-T document that is a common document (or has a technically-aligned document in an organization), then include a footnote from the reference as in item a); if there are technical differences between both documents, then include an appendix or annex that summarizes the differences.
- d) If a document from the organization makes a reference to another document that is a common document (or has a technically-aligned document in ITU-T), then include a footnote from the reference as in item b); if there are technical differences between both documents, then include an appendix or annex that summarizes the differences.

9.5 If any unusual circumstances arise to indicate that publication of a common document is no longer desired (e.g., because of substantial differences in content), this situation is immediately discussed with the other organization. If after the consultation either organization determines that common document publication is not appropriate, then each organization can publish separately using its own publication format.

10 Maintenance of documents

10.1 The work is not necessarily completed at the stage of publication. While every effort has been taken to produce a quality document, experience has shown that defects may be found as the document is being applied to implementations. Therefore, there is need for an ongoing shared responsibility for maintaining the document.

10.2 It is critical that rapid correction of possible errors, omissions, inconsistencies, or ambiguities be performed cooperatively. It is recommended that the procedures for this important effort are outlined in the terms of reference of the chosen mode of collaboration (see clause 8.2).

10.3 Further work is often identified as a result of the development process and as a result of changing technology and new operational requirements. Accordingly, there is an important need for amendments that provide expansions, enhancements, and updates to the basic provisions of the published common (or technically-aligned) documents.

10.4 The processing of amendments may follow the same procedures as the original development. These may be considered as extensions to the original work by the same collaborative work or common team, or may be considered as separate new work that requires the formation of a new collaborative work or a common team (see clause 8.2).

11 Patent policy and copyright arrangements

11.1 For common (or technically-aligned) documents, organizations are to have a patent policy which is consistent with the common patent policy for ITU-T/ITU-R/ISO/IEC [Patent policy], and submit patent statements, as appropriate, to ITU-T and to the organization.

NOTE – Information pertaining to the common patent policy is available at <http://itu.int/en/ITU-T/ipr>.

11.2 The subject of modifications to texts and arrangements for royalty-free copyright licences, including the right to sub-license, for texts accepted by either ITU-T or by the organization and their publishers and others, is a matter to be agreed upon between TSB and the particular organization. However, the originating organization retains the copyright for its texts.

Appendix I

Guidelines for collaboration using the liaison mode

The basic concept of collaboration using the liaison mode is to leave to one organization the prime responsibility in an area of a work and to allow the other organization to participate in the work, as appropriate, using its liaison status.

I.1 In some situations of common interest, it may be appropriate to reach an agreement that would allocate the standardization of a particular area of work to one organization. The result is published by one organization and is referenced, as needed, by the other organization (see [ITU-T A.5]). If such an agreement cannot be reached, it is recommended that each organization does not produce a document whose implementation hampers interoperability with the implementation of a document of the other organization.

I.2 In some situations, authoritative document exchange between an ITU-T study group and an organization helps to strengthen the information flow between ITU-T and this organization. Such a framework for ongoing communications is particularly needed to provide authoritative information of one organization's dependencies on the other's work.

I.3 All interactions between an ITU-T study group and the relevant group in the organization are conducted using the liaison procedures. In particular, this applies to participation in each other's meetings and to the submission of input documents.

NOTE – For example, for an individual to represent the relevant group of the organization in an ITU-T study group meeting, a letter (or liaison statement) from that organization is recommended authorizing such representation. Likewise, for an individual to represent an ITU-T Question in the meeting of an organization, a liaison statement from the ITU-T study group to that organization is recommended authorizing such representation.

I.4 The decision to send a liaison statement is made by the study group. When necessary, between scheduled meetings, the liaison statement may be prepared by an appropriate correspondence process and approved by the study group chairman in consultation with the study group management. The liaison statement is sent by TSB (on behalf of the study group) to the organization.

I.5 Where possible, the exchange of documents is in electronic format. Questions of electronic links to enable document exchange are to be agreed upon by the secretariats of the organization concerned.

I.6 Documents submitted to the ITU-T study group by the organization conform to the following criteria:

- a) contain no confidential information (i.e., no distribution restriction);
- b) indicate the source within the organization (e.g., committee, subcommittee, etc.);
- c) differentiate between normative references and non-normative references.

These documents are not issued as contributions but as a TD at a study group or working party meeting, or as a document at a rapporteur meeting. As soon as they arrive they are made available, with the agreement of the study group chairman, for advance consideration by the relevant group. Moreover, they are issued with a reference to the originating organization.

Appendix II

Guidelines for collaboration using collaborative work

The basic concept of collaboration using collaborative work is to closely couple the development, consensus building, and ballot/comment resolution efforts of an ITU-T Question and of the relevant group in an organization in an efficient and effective manner to produce mutually agreed common (or technically-aligned) documents.

II.1 Establishing a collaborative work

II.1.1 Upon agreement by the ITU-T study group and the relevant group in the organization that a specific area of work is to be developed collaboratively, a collaborative work is established between the respective ITU-T Question and group in the organization (see clause 8.2).

II.1.2 The ITU-T Question and the relevant group in the organization function using the procedures of their respective organization, but with certain additional procedures, as described below, to facilitate closer collaboration in building consensus and synchronization of approvals leading to the publication of common (or technically-aligned) documents (see Appendix IV).

II.1.3 During the time of development of a common (or technically-aligned) document, it is important that communication is consistently maintained between organizations by exchanging the different versions of the draft document as it evolves (see also clause II.4).

II.1.4 The terms of reference (see clause 8.2), including the mode of collaboration, can be changed at any time by mutual agreement of the ITU-T study group and of the relevant group in the organization. It is recommended that collaboration also continues for the ongoing maintenance phase (see clause 10). Procedures for terminating a collaborative work are covered in clause 8.4.

II.2 Participation in meetings of the other organization

II.2.1 The collaborative work is facilitated if there is some significant degree of common participation by individuals in the meetings of both organizations.

II.2.2 Representation of one organization in a meeting of the other organization is achieved by means of liaison officers (see clause I.3). It is recommended that individuals attending meetings in a liaison capacity are familiar with the procedures of the organization holding the meeting.

NOTE – The fact that a liaison officer officially represents one organization in a meeting of the other organization does not preclude experts from that organization from participating in the meeting of the other organization as explained in clause II.2.1. In that case, each expert participates according to his/her membership in the relevant organization.

II.3 Contributions

Contributions are handled by each organization according to its normal procedures (e.g., clause 3 of [ITU-T A.1] for ITU-T). In addition, it is important that the results of analysis of contributions be passed promptly to the other organization.

II.4 Editors for a common document

NOTE – In the case of technically-aligned documents, each organization nominates one or more Editor(s) for its own document.

II.4.1 It is strongly recommended that the ITU-T Question and the relevant group in the organization agree on a single Editor who will produce and maintain the single master common document, normally in accordance with the [Author's Guide].

II.4.2 The draft master common document will be updated only when agreement to the specific text has been made by both organizations. Each iteration of the draft common document is dated. Changes from the previous draft are highlighted by change marks.

II.4.3 The appointed Editor is responsible for the common document through draft iterations and final submission to the secretariats for publication (see clause 9). The individual selected for this task commits to following the work through to completion so that continuity can be maintained.

II.5 Achieving consensus

II.5.1 Close liaison is maintained during the development of draft documents, and resolution of ballots and comments to ensure that the views of all concerned are taken into account in building consensus.

II.5.2 In general, the intent is that the degree of consensus and the stability of the agreements will increase at each step of the collaborative process.

II.5.3 In rare cases, it may become apparent during the development of a common document that one or more specific technical differences are necessary in order to take into account the needs of ITU-T and of the organization. All proposed differences are carefully examined to ensure there is a legitimate need for these. In such a case, the common document is to include the full technical material needed by each organization with wording that specifically identifies any text that is applicable only to one organization. If consensus cannot be reached, the collaboration may cease as specified in clause 8.3.

II.6 Progress reporting

II.6.1 The ITU-T Question is responsible for providing written reports of its meetings to its parent study group. Similarly, the group in the organization is responsible for reporting the results of its meetings to its parent group following normal procedures. These reports summarize the results of the meeting including agreements reached, areas identified for further study, the status of collaborative progress, and projected upcoming milestones (see Appendix IV).

II.6.2 These reports, or appropriate extracts, are conveyed to the other group using the normal liaison procedure (see Appendix I). Meeting reports contain sufficient information to enable the collaborative work to mutually progress in both organizations as effectively as possible.

Appendix III

Guidelines for collaboration using a common team

The basic concept of collaboration using a common team is to perform all development, consensus building, and ballot/comment resolution efforts in common meetings to produce mutually agreed common (or technically-aligned) documents.

III.1 Establishing a common team

III.1.1 Upon agreement by the ITU-T study group and the relevant group in the organization that a specific area of work is to be developed collaboratively in common meetings, a common team is established with participants from both organizations (see clause 8.2).

III.1.2 The common team has either a single convenor agreed upon by the ITU-T study group and the relevant group in the organization, or co-convenors, one appointed by each organization. In the case of co-convenors, the chairing of meetings can be on a rotational basis or as otherwise agreed by the common team.

III.1.3 Eligibility for attendance at a common team meeting is determined by the requirements of each organization.

III.1.4 The common team uses the procedures described below to build consensus and to achieve synchronization of approvals with the aim of leading to publication of common (or technically-aligned) documents (see Appendix IV).

III.1.5 The terms of reference (see clause 8.2) or mode of collaboration can be changed at any time by mutual agreement of the ITU-T study group and of the relevant group in the organization. It is recommended that collaboration also continues for the ongoing maintenance phase (see clause 10). Procedures for terminating a collaborative work are covered in clause 8.3.

III.2 Meetings

III.2.1 Each common team meeting is properly scheduled in advance. The common team is responsible for making its own meeting arrangements and schedule, subject to agreement by the ITU-T study group and by the organization. In ITU-T, a meeting of the common team is considered as a rapporteur meeting of the relevant Question (see clauses 2.3.3.10 to 2.3.3.15 of [ITU-T A.1]).

III.2.2 Generally, hosts for common team meetings alternate between ITU-T and the organization, but they may also be cooperatively hosted with appropriate agreement. It is recommended that common team meetings be scheduled at the same location and time as the respective ITU-T study group or relevant group in the organization, although meetings may also be scheduled at other times and locations.

III.2.3 It is recommended that the convenor(s) of the common team maintain a mailing list of all individuals who wish to be informed of the meetings of the common team.

III.2.4 Meeting notices and the agenda respect the deadlines of both ITU-T (e.g., a convening letter for rapporteur meetings is posted, normally at least two months prior to the meeting, on the study group webpage) and the organization. It is recommended that the meeting notice identifies the meeting as one of both ITU-T and the organization, and that the meeting notice and agenda are sent for posting to the ITU-T study group secretariat and to the secretariat of the organization. Each agenda provides a list of documents to be considered, including previous meeting reports and input contributions (see clause III.3).

III.2.5 Communication between an ITU-T Question (or rapporteur group) and a common team is also done through liaison statements. It is expected that the relevant group in the organization also communicates with a common team by way of liaison statements.

III.3 Contributions

III.3.1 Contributions to the work of the common team may be provided by ITU-T members or by members of the organization. Each contribution indicates its source.

III.3.2 Contributions to be considered at a common team meeting are normally in the hands of the common team convenor(s) at least twelve calendar days in advance. Late contributions will only be considered upon agreement by the meeting participants, in particular to accommodate particular deadlines or meeting dates of the organization.

III.3.3 All contributions to the common team, regardless of their means of submission, will be identified and maintained by the common team in a document register.

III.3.4 It is recommended that the convenor(s) maintain a mailing list of the common team participants and ensure timely distribution of contributions and meeting output documents to eligible participants.

III.4 Editor in case of a common document

NOTE – In the case of technically-aligned documents, each organization nominates one or more Editor(s) for its own document.

III.4.1 It is strongly recommended that the common team appoints a single Editor to produce and maintain the single master common document, normally in accordance with [Author's Guide].

III.4.2 The draft master common document will be updated only when agreement to the specific text has been made by the common team. Each iteration of the draft common document are dated. Changes from the previous draft are highlighted by change marks.

III.4.3 The appointed Editor is responsible for the common document through draft iterations and final submission to the secretariats for publication (see clause 9). The individual selected for this task commits to following the work through to completion so that continuity can be maintained throughout the effort.

III.5 Achieving consensus

III.5.1 The functions of the common team meetings are three-fold: the development and editing of draft documents, and resolution of ballots and comments. The common team meetings are only authorized to deal with the specific collaborative projects identified in the terms of reference (see clause 8.3).

III.5.2 In responding to the requirements of the designated collaborative projects, the development of draft documents is a consensus building process.

III.5.3 Balloting, or voting, by the common team during the development of draft documents is considered inappropriate in reaching a consensus and could be counter-productive. The common team consensus is built through discussion, acceptance, compromise, and, if necessary, informal polling of delegates to sample the state of agreement. It would also be appropriate to record in meeting reports points of consensus, as well as any specific reservations that meeting delegates have on particular issues.

III.5.4 Topics of concern to only the ITU-T or to only the organization may be addressed by sub-group meetings held within the framework of the common team meeting.

III.5.5 In rare cases, it may become apparent during the development of a common document that one or more specific technical differences are necessary in order to take into account the needs of ITU-T and of the organization. All proposed differences are carefully examined to ensure there is a legitimate need for these. In such a case, the common document is to include the full technical material needed by each organization with wording that specifically identifies any text that is applicable only to one organization.

III.5.6 The approval processes will be conducted according to the established procedures of each organization with the adaptation and synchronization described in Appendix IV. It is recommended to convene a ballot resolution meeting as soon as practical after the close of a ballot/comment period to review and resolve the results. The group is normally chaired by the common team convenor(s) or the editor of the draft document.

III.5.7 The purpose of a ballot resolution meeting is to resolve as many of the negative comments as possible without invalidating any affirmative positions. The goal is to achieve agreements resulting in the greatest possible consensus. This can be done provided that all affected representatives are satisfied with the handling of the comments.

III.6 Progress reporting

III.6.1 The common team is responsible for providing written reports of each meeting to the ITU-T study group and to the relevant group in the organization. These reports summarize the results of the meeting including agreements reached, areas identified for further study, the status of collaborative progress, and projected upcoming milestones (see Appendix IV).

III.6.2 Comments and/or instructions may be provided back to the common team from the ITU-T study group and from the relevant group in the organization.

Appendix IV

Guidelines for synchronization of approval processes

To facilitate closer collaboration in building consensus, this appendix explains how to synchronize approvals between the ITU-T study group and the organization in order to lead to the publication of common (or technically-aligned) documents.

IV.1 Each organization retains its individual procedures for approving the result of the collaboration work. The following clauses describe how these procedures are synchronized for the different stages of approval.

NOTE – In the case of the development of technically-aligned documents, the approval processes do not require exact timing synchronization as explained below. In the case of the development of non-normative documents (i.e., Supplements or other types of non-normative documents in ITU-T), the following process needs to be adapted.

IV.2 As outlined in clause II.6 (in the case of collaborative work), each group keeps its parent body informed of the progress of the collaborative work. As outlined in clause III.6 (in the case of a common team), the common team keeps the ITU-T Question and the relevant group in the organization informed of the progress of the collaborative work. When the work has progressed to a point where a schedule for synchronized approval can be established with a degree of confidence, it is important for the two groups (in the case of collaborative work) or the common team to jointly plan the specific steps, taking into account scheduled dates of meetings of the ITU-T study group and of the relevant group in the organization.

IV.3 When the groups (in case of collaborative work) or the common team decide that the draft has reached a point of maturity and that the synchronized approval process may commence, each organization is advised of the decision.

IV.4 The following subclauses only apply if the organization has one or more intermediate levels of balloting (before final balloting for approval).

IV.4.1 The organization distributes the draft document for comment to its members.

IV.4.2 At the same time, the draft document is distributed to the ITU-T study group members for review and comment. ITU-T member comments are provided by means of contributions within the same time period. The organization considers all responses together.

IV.4.3 In the case of collaborative work, both sets of responses are made available to the ITU-T Question as well as to the relevant group in the organization. Both groups coordinate their efforts in resolving all received comments and producing the revised draft document.

IV.4.4 In the case of a common team, both sets of responses are made available to the common team which resolves all received comments and produces the revised draft document (see clauses III.5.6 and III.5.7).

IV.4.5 If the changes are substantive and if another intermediate level of balloting (before final balloting for approval) is available in the organization, clause IV.4 is recursively applied.

IV.5 When all issues have been resolved to the satisfaction of both organizations, the organization conducts the final balloting for approval according to the following subclauses.

NOTE – If a problem is indicated on the side of the organization which would delay approval, this is immediately conveyed to the ITU-T study group so that appropriate action can be taken and, if necessary, a new synchronized plan established.

IV.5.1 At the same time, the draft document is distributed to the ITU-T study group members for review and comment. ITU-T member comments are provided by means of contributions within the same time period. The organization considers all responses together.

IV.5.2 Also during this time period, TSB will review the document and submit comments, if any.

IV.5.3 In the case of collaborative work, both sets of responses are made available to the ITU-T Question as well as to the relevant group in the organization. Both groups coordinate their efforts in resolving all received comments and producing the revised draft document.

IV.5.4 In the case of a common team, both sets of responses are made available to the common team which resolves all received comments and produces the revised draft document (see clauses III.5.6 and III.5.7).

IV.5.5 It is at this point where synchronization is critical. The first controlling factor is the date of the ITU-T study group (or working party) meeting where determination (TAP) or consent (AAP) or agreement (non-normative documents) is to be obtained. At this meeting, the balloting has normally concluded in the organization and a revised draft document is published as a TD in time for the ITU-T study group (or working party) meeting. However, the ITU-T study group (or working party) meeting may accept to consent (for AAP) or determine (for TAP) a draft document pending further adjustments based on the result of the balloting in the organization.

NOTE – It is understood that the stable draft document would always be available for comments to ITU members for the AAP Last Call or TAP consultation (see clause IV.5.6).

IV.5.6 The second controlling factor is that the balloting has concluded in the organization and a revised draft document is produced for ITU-T approval:

- a) for TAP: by 4 months before the ITU-T study group (or working party) meeting where approval is to be obtained so that the Director of TSB can issue a letter announcing the intent to approve the Recommendation at the upcoming study group (or working party) meeting;
- b) for AAP: normally by 2 months after the ITU-T study group (or working party) meeting where consent was obtained so that the Director of TSB can announce the Last Call for approval of the Recommendation;
- c) for agreement (in case of non-normative documents): at least seven calendar days before the ITU-T study group (or working party) meeting (see clause 3.3.3 of [ITU-T A.1]).

IV.6 If no negative votes and no technical comments are submitted during the AAP Last Call or the TAP consultation, or discussion at the study group (or working party) meeting in case of agreement, and if, in the case of TAP, the following ITU-T study group (or working party) meeting approves the document, the organization is informed and the document is published according to clause 9.

IV.7 If negative votes and/or technical comments are submitted during the AAP Last Call or the TAP consultation, or if comments are made at the study group (or working party) meeting in the case of agreement, the comments are resolved according to the following subclauses.

NOTE – If an ITU-T Member State indicates a problem which would prevent approval, this is immediately conveyed to the organization so that appropriate action can be taken and, if necessary, a new synchronized plan established.

IV.7.1 In the case of collaborative work, the ITU-T Question resolves all received comments and produces the revised draft document. Comments and the revised draft document are also made available to the organization.

IV.7.2 In the case of a common team, the team resolves comments and produces the revised draft document (see clauses III.5.6 and III.5.7).

IV.7.3 If the changes are substantive, this is immediately conveyed to the organization to find an appropriate solution:

- a) In case of technically-aligned documents, the organization considers whether some or all of the changes can be applied to its own document or if the documents are published separately.
- b) In case of a common document, if the organization can conduct another final balloting for approval, clause IV.5 is applied once again (for an additional review in ITU-T in the case of AAP) and the approval in ITU-T is delayed.
- c) Otherwise, the ITU-T study group and the organization may decide to publish the document as either technically-aligned documents or separately.

Appendix V

Guidelines for multilateral collaboration

This appendix explains how the processes described in previous appendices can be generalized to a multilateral collaboration (including the development of multiple documents) between ITU-T and more than one organization in a given area of work, while avoiding the approval of multiple bilateral agreements.

NOTE – The rest of this Supplement covers bilateral collaboration as this is the most common case. In case of multilateral collaboration as introduced in this appendix, some parts of the text (e.g., "the other organization", "two", "both") should be understood to apply to multiple organizations according to the conventions given in clause 5.

V.1 When it is recognized that other organizations are working on the same area as an ITU-T study group and that coordination with them is complicated, the study group may consider establishing a multilateral collaboration to avoid incompatibility between standards and for a more efficient use of resources.

NOTE 1 – Before establishing multilateral collaboration as proposed in this appendix, the study group is expected to investigate whether a focus group (see [ITU-T A.7]) is feasible.

NOTE 2 – This appendix does not apply when the multilateral collaboration only involves ITU-T and ITU-R study groups because an intersector coordination group or an intersector rapporteur group can then be established (see Annexes B and C of [WTSA Res. 18]). The Inter-Sector Coordination Team could also consider the matter.

V.2 Each of the organizations involved in multilateral collaboration needs to be qualified (see clause 6).

V.3 The terms of reference for the multilateral collaboration are established as explained in clause 8.2. Different instances of the three modes of collaboration (see clause 7) may be described, depending on the subset of organizations involved in the development of particular common (or technically-aligned) documents. The terms of reference are mutually agreed by all organizations involved in the multilateral collaboration.

PART III

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	Wala LATROUS	Tunisia
	Gökhan EVREN	Turkey
	Hugo Darío MIGUEL	Argentina

Study Group 20 – Internet of things (IoT) and smart cities and communities (SC&C)

Chairman:	Nasser AL MARZOUQI	United Arab Emirates
Vice-Chairmen:	Ramy AHMED	Egypt
	Takafumi HASHITANI	Japan
	Guy-Michel KOUAKOU	Côte d'Ivoire
	Ziqin SANG	China
	Achime Malick NDIAYE	Senegal
	Hyoungjun KIM	Korea (Rep. of)
	Blanca GONZALEZ	Spain
	Abdurahman AL HASSAN	Saudi Arabia
	Oleg MIRONNIKOV	Russian Federation
	Bilel CHABOU	Tunisia
	Bako WAKIL	Nigeria
	Fabio BIGI	Italy
	Héctor Mario CARRIL	Argentina

Standardization Committee for Vocabulary

Tong WU	China
Paul NAJARIAN	United States
Konstantin TROFIMOV	Russian Federation

PART IV

Questions approved for study by the Telecommunication Standardization Sector

Study Group 2 – Operational aspects of service provision and telecommunication management

Final Question number	Question title	Comment
Q1/2	Application of numbering, naming, addressing and identification plans for fixed and mobile telecommunications services	Continuation of Q1/2
Q2/2	Routing and interworking plan for fixed and mobile networks	Continuation of Q2/2
Q3/2	Service and operational aspects of telecommunications, including service definition	Continuation of Q3/2
Q5/2	Requirements, priorities and planning for telecommunication management and operation, administration and maintenance (OAM) Recommendations	Continuation of Q5/2
Q6/2	Management architecture and security	Continuation of Q6/2
Q7/2	Interface specifications and specification methodology	Continuation of Q7/2

Study Group 3 – Tariff and accounting principles and international telecommunication/ICT economic and policy issues

Final Question number	Question title	Comment
Q1/3	Development of charging and accounting/settlement mechanisms for international telecommunications services using the next-generation networks (NGNs), future networks, and any possible future development, including adaptation of existing D-series Recommendations to the evolving user needs	Continuation of Q1/3
Q2/3	Development of charging and accounting/settlement mechanisms for international telecommunications services, other than those studied in Question 1/3, including adaptation of existing D-series Recommendations to the evolving user needs	Continuation of Q2/3
Q3/3	Study of economic and policy factors relevant to the efficient provision of international telecommunication services	Continuation of Q3/3
Q4/3	Regional studies for the development of cost models together with related economic and policy issues	Continuation of Q4/3
Q5/3	Terms and definitions for Recommendations dealing with tariff and accounting principles together with related economic and policy issues	Continuation of Q5/3
Q6/3	International Internet connectivity including relevant aspects of Internet protocol (IP) peering, regional traffic exchange points, cost of provision of services and impact of transition from Internet protocol version 4 (IPv4) to Internet protocol version 6 (IPv6)	Continuation of Q6/3
Q7/3	International mobile roaming issues (including charging, accounting and settlement mechanisms and roaming at border areas)	Continuation of Q7/3
Q8/3	Alternative calling procedures and misappropriation and misuse of facilities and services including calling line identification (CLI), calling party number delivery (CPND) and origin identification (OI).	Continuation of Q8/3
Q9/3	Economic and regulatory impact of the Internet, convergence (services or infrastructure) and new services, such as over the top (OTT), on international telecommunication services and networks	Continuation of Q9/3

Final Question number	Question title	Comment
Q10/3	Definition of relevant markets, competition policy and identification of operators with significant market power (SMP) as it relates to the economic aspects of the international telecommunication services and networks	Continuation of Q10/3
Q11/3	Economic and policy aspects of big data and digital identity in international telecommunications services and networks	New Question

Study Group 5 – Environment, climate change and circular economy

Final Question number	Question title	Comment
Q1/5	Protection of information and communication technology (ICT) infrastructure from electromagnetic surges	Continuation of Q3/5 and Q5/5
Q2/5	Equipment resistibility and protective components	Continuation of Q2/5 and Q4/5
Q3/5	Human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs)	Continuation of Q7/5
Q4/5	Electromagnetic compatibility (EMC) issues arising in the telecommunication environment	Continuation of Q6/5, Q8/5, Q9/5 and Q11/5
Q5/5	Security and reliability of information and communication technology (ICT) systems from electromagnetic and particle radiations	Continuation of Q10/5
Q6/5	Achieving energy efficiency and sustainable clean energy	Continuation of Q17/5, Q19/5 and part of Q14/5
Q7/5	Environmentally sound management of e-waste and information and communication technology (ICT) eco-friendly design, including dealing with ICT counterfeit devices NOTE – Counterfeit ICT devices include counterfeit and/or copied devices and equipment as well as accessories and components	Continuation of Q13/5
Q8/5	Adaptation to climate change and low cost and sustainable resilient information and communication technologies (ICTs)	Continuation of Q14/5 and Q15/5
Q9/5	Assessment of sustainability impacts of information and communication technology (ICT) to promote the Sustainable Development Goals (SDGs)	Continuation of Q18/5 and Q16/5
Q10/5	Guides and terminology on environment and climate change	Continuation of Q12/5

Study Group 9 – Television and sound transmission and integrated broadband cable networks

Final Question number	Question title	Comment
Q1/9	Transmission of television and sound programme signal for contribution, primary distribution and secondary distribution	Continuation of Q1/9
Q2/9	Methods and practices for conditional access, protection against unauthorized copying and against unauthorized redistribution ("redistribution control" for digital cable television distribution to the home)	Continuation of Q3/9
Q3/9	Digital programme delivery controls for multiplexing, switching and insertion in compressed bit streams and/or packet streams	Continuation of Q6/9
Q4/9	Guidelines for implementations and deployment of transmission of multichannel digital television signals over optical access networks	Continuation of Q11/9
Q5/9	Software components application programming interfaces (APIs), frameworks and overall software architecture for advanced content distribution services within the scope of Study Group 9	Continuation of Q4/9
Q6/9	Functional requirements for residential gateway and set-top box for the reception of advanced content distribution services	Continuation of Q5/9
Q7/9	Cable television delivery of digital services and applications that use Internet protocol (IP) and/or packet-based data over cable networks	Continuation of Q7/9
Q8/9	The Internet protocol (IP) enabled multimedia applications and services for cable television networks enabled by converged platforms	Continuation of Q8/9
Q9/9	Requirements, methods, and interfaces of the advanced service platforms to enhance the delivery of sound, television, and other multimedia interactive services over cable television network	Continuation of Q10/9
Q10/9	Work programme, coordination and planning	Continuation of Q13/9

Study Group 11 – Signalling requirements, protocols, test specifications and combating counterfeit products

Final Question number	Question title	Comment
Q1/11	Signalling and protocol architectures in emerging telecommunication environments and guidelines for implementations	Continuation of Q1/11
Q2/11	Signalling requirements and protocols for services and applications in emerging telecommunication environments	Continuation of Q2/11
Q3/11	Signalling requirements and protocols for emergency telecommunications	Continuation of Q3/11
Q4/11	Protocols for control, management and orchestration of network resources	Continuation of Q4/11 and Q6/11
Q5/11	Protocols and procedures supporting services provided by broadband network gateways	Continuation of Q5/11
Q6/11	Protocols supporting control and management technologies for IMT-2020	New Question
Q7/11	Signalling requirements and protocols for network attachment including mobility and resource management for future networks and IMT-2020	Continuation of Q7/11
Q8/11	Protocols supporting distributed content networking and information centric network (ICN) for future networks and IMT-2020, including end-to-end multi-party communications	Continuation of Q9/11
Q9/11	Service and networks benchmark testing, remote testing including Internet related performance measurements	Continuation of Q10/11 and Q15/11
Q10/11	Testing of emerging IMT-2020 technologies	New Question
Q11/11	Protocols and networks test specifications; frameworks and methodologies	Continuation of Q11/11
Q12/11	Testing of Internet of things, its applications and identification systems	Continuation of Q12/11
Q13/11	Monitoring parameters for protocols used in emerging networks, including cloud computing and software-defined networking/network function virtualization (SDN/NFV)	Continuation of Q13/11
Q14/11	Cloud interoperability testing	Continuation of Q14/11
Q15/11	Combating counterfeit and stolen ICT equipment	Continuation of Q8/11

Study Group 12 – Performance, quality of service and quality of experience

Final Question number	Question title	Comment
Q1/12	SG12 work programme and quality of service/quality of experience (QoS/QoE) coordination in ITU-T	Continuation of Q1/12
Q2/12	Definitions, guides and frameworks related to quality of service/quality of experience (QoS/QoE)	Continuation of Q2/12
Q3/12	Speech transmission and audio characteristics of communication terminals for fixed circuit-switched, mobile and packet-switched Internet protocol (IP) networks	Continuation of Q3/12
Q4/12	Objective methods for speech and audio evaluation in vehicles	Continuation of Q4/12
Q5/12	Telephonometric methodologies for handset and headset terminals	Continuation of Q5/12
Q6/12	Analysis methods using complex measurement signals including their application for speech and audio enhancement techniques	Continuation of Q6/12
Q7/12	Methods, tools and test plans for the subjective assessment of speech, audio and audiovisual quality interactions	Continuation of Q7/12
Q8/12	Virtualized deployment of recommended methods for network performance, quality of service (QoS) and quality of experience (QoE) assessment	New Question
Q9/12	Perceptual-based objective methods for voice, audio and visual quality measurements in telecommunication services	Continuation of Q9/12
Q10/12	Conferencing and telemeeting assessment	Continuation of Q10/12
Q11/12	Performance considerations for interconnected networks	Continuation of Q11/12
Q12/12	Operational aspects of telecommunication network service quality	Continuation of Q12/12
Q13/12	Quality of experience (QoE), quality of service (QoS) and performance requirements and assessment methods for multimedia	Continuation of Q13/12
Q14/12	Development of models and tools for multimedia quality assessment of packet-based video services	Continuation of Q14/12
Q15/12	Parametric and E-model-based planning, prediction and monitoring of conversational speech quality	Continuation of Q8/12 and Q15/12
Q16/12	Framework for diagnostic functions	Continuation of Q16/12
Q17/12	Performance of packet-based networks and other networking technologies	Continuation of Q17/12
Q18/12	Measurement and control of the end-to-end quality of service (QoS) for advanced television technologies, from image acquisition to rendering, in contribution, primary distribution and secondary distribution networks	Continuation of Q2/9
Q19/12	Objective and subjective methods for evaluating perceptual audiovisual quality in multimedia	Continuation of Q12/9

Study Group 13 – Future networks, with focus on IMT-2020, cloud computing and trusted network infrastructures

Final Question number	Question title	Comment
Q1/13	Innovative services scenarios, deployment models and migration issues based on future networks	Continuation of Q1/13
Q2/13	Next-generation network (NGN) evolution with innovative technologies including software-defined networking (SDN) and network function virtualization (NFV)	Continuation of Q2/13 and Q3/13
Q5/13	Applying networks of future and innovation in developing countries	Continuation of Q5/13
Q6/13	Quality of service (QoS) aspects including IMT-2020 networks	Continuation of Q6/13
Q7/13	Big data driven networking (bDDN) and deep packet inspection (DPI)	Continuation of Q7/13
Q16/13	Knowledge-centric trustworthy networking and services	Continuation of Q11/13 and Q16/13
Q17/13	Requirements, ecosystem, and general capabilities for cloud computing and big data	Continuation of Q17/13
Q18/13	Functional architecture for cloud computing and big data	Continuation of Q18/13
Q19/13	End-to-end cloud computing management and security	Continuation of Q19/13
Q20/13	IMT-2020: Network requirements and functional architecture	New Question
Q21/13	Software-defined networking, network slicing and orchestration	Continuation of Q14/13 and Q12/13
Q22/13	Upcoming network technologies for IMT-2020 and future networks	Continuation of Q13/13 and Q15/13
Q23/13	Fixed-mobile convergence including IMT-2020	Continuation of Q4/13, Q9/13 and Q10/13

Study Group 15 – Networks, technologies and infrastructures for transport, access and home

Final Question number	Question title	Comment
Q1/15	Coordination of access and home network transport standards	Continuation of Q1/15
Q2/15	Optical systems for fibre access networks	Continuation of Q2/15
Q3/15	Coordination of optical transport network standards	Continuation of Q3/15
Q4/15	Broadband access over metallic conductors	Continuation of Q4/15
Q5/15	Characteristics and test methods of optical fibres and cables	Continuation of Q5/15
Q6/15	Characteristics of optical systems for terrestrial transport networks	Continuation of Q6/15
Q7/15	Characteristics of optical components and subsystems	Continuation of Q7/15
Q8/15	Characteristics of optical fibre submarine cable systems	Continuation of Q8/15
Q9/15	Transport network protection/restoration	Continuation of Q9/15
Q10/15	Interfaces, interworking, operation, administration and maintenance (OAM) and equipment specifications for packet-based transport networks	Continuation of Q10/15
Q11/15	Signal structures, interfaces, equipment functions, and interworking for optical transport networks	Continuation of Q11/15
Q12/15	Transport network architectures	Continuation of Q12/15
Q13/15	Network synchronization and time distribution performance	Continuation of Q13/15
Q14/15	Management and control of transport systems and equipment	Continuation of Q14/15
Q15/15	Communications for smart grid	Continuation of Q15/15
Q16/15	Optical physical infrastructures	Continuation of Q16/15
Q17/15	Maintenance and operation of optical fibre cable networks	Continuation of Q17/15
Q18/15	Broadband in-premises networking	Continuation of Q18/15
Q19/15	Requirements for advanced service capabilities over broadband cable home networks	Continuation of Q9/9

Study Group 16 – Multimedia coding, systems and applications

Final Question number	Question title	Comment
Q1/16	Multimedia coordination	Continuation of Q20/16
Q6/16	Visual coding	Continuation of Q6/16 and part of Q7/16
Q7/16	Speech/audio coding, voiceband modems, facsimile terminals and network-based signal processing	Continuation of Q10/16, Q15/16, Q18/16 and part of Q7/16
Q8/16	Immersive live experience systems and services	New Question
Q11/16	Multimedia systems, terminals, gateways and data conferencing	Continuation of Q1/16, Q2/16, Q3/16 and Q5/16
Q13/16	Multimedia application platforms and end systems for IPTV	Continuation of Q13/16
Q14/16	Digital signage systems and services	Continuation of Q14/16
Q21/16	Multimedia framework, applications and services	Continuation of Q21/16
Q24/16	Human factors related issues for improvement of the quality of life through international telecommunications	Continuation of Q4/2
Q26/16	Accessibility to multimedia systems and services	Continuation of Q26/16
Q27/16	Vehicle gateway platform for telecommunication/ITS services and applications	Continuation of Q27/16
Q28/16	Multimedia framework for e-health applications	Continuation of Q28/16

Study Group 17 – Security

Final Question number	Question title	Comment
Q1/17	Telecommunication/ICT security coordination	Continuation of Q1/17
Q2/17	Security architecture and framework	Continuation of Q2/17
Q3/17	Telecommunication information security management	Continuation of Q3/17
Q4/17	Cybersecurity	Continuation of Q4/17
Q5/17	Countering spam by technical means	Continuation of Q5/17
Q6/17	Security aspects of telecommunication services and networks	Continuation of Q6/17
Q7/17	Secure application services	Continuation of Q7/17
Q8/17	Cloud computing security	Continuation of Q8/17
Q9/17	Telebiometrics	Continuation of Q9/17
Q10/17	Identity management architecture and mechanisms	Continuation of Q10/17
Q11/17	Generic technologies (Directory, public key infrastructure (PKI), privilege management infrastructure (PMI), Abstract Syntax Notation One (ASN.1), object identifiers (OIDs)) to support secure applications	Continuation of Q11/17
Q12/17	Formal languages for telecommunication software and testing	Continuation of Q12/17

Study Group 20 – Internet of things (IoT) and smart cities and communities (SC&C)

Final Question number	Question title	Comment
Q1/20	Research and emerging technologies including terminology and definitions	Continuation of Q1/20
Q2/20	Requirements and use cases for Internet of things (IoT)	Continuation of Q2/20
Q3/20	Internet of things (IoT) functional architecture including signalling requirements and protocols	Continuation of Q3/20
Q4/20	Internet of things (IoT) applications and services including end user networks and interworking	Continuation of Q4/20
Q5/20	Smart cities and communities (SC&C) requirements, applications and services	Continuation of Q5/20
Q6/20	Smart cities and communities (SC&C) infrastructure and framework	Continuation of Q6/20

PART V

Reports and documents of the Assembly

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Section V-1 – Plenary reports

V-1.1 – Report of the opening ceremony and the first and second plenary meetings

Chairman: H.E Habib Dababi, Secretary of State for Digital Economy, Republic of Tunisia; Dean of the Assembly

Later: Mr Moktar Mnakri (Republic of Tunisia)

INAUGURAL CEREMONY

(Tuesday, 25 October 2016, 1100-1130 hours)

H.E. Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy, Republic of Tunisia, welcomed delegates to the World Telecommunication Standardization Assembly in Hammamet, Tunisia (his opening address is in Annex 1).

ITU Secretary-General, **Mr Houlin Zhao**, welcomed the delegates to Tunisia (his welcome address is in Annex 2).

H.E. Youssef Chahed, Head of Government of the Republic of Tunisia, welcomed the delegates to Tunisia (his welcome address is in Annex 3).

FIRST PLENARY MEETING

(Tuesday, 25 October 2016, 1130-1230 hours & 1430-1730 hours)

1 Opening of first plenary

ITU Secretary-General Mr Houlin Zhao announced that according to the ‘Rules of Procedure of Conferences, Assemblies and Meetings’ of the Union, Tunisia appointed H.E. Habib Dababi, Secretary of State for Digital Economy, to open the Assembly. H.E. Habib Dababi declared open WTSA-16 and announced that Tunisia has proposed Mr Moktar Mnakri as Chairman of the Assembly. Mr Mnakri was elected Chairman of the Assembly by acclamation.

Mr Mnakri welcomed the delegates to Tunisia. He said that delegates were here to express their positions and opinions and to listen to each other, and that it was their duty to bring WTSA to a successful conclusion to give ITU the right scope, the right mandates, the right working methods and the right priorities for efficient standardization work to be done over the next four years.

2 Approval of the agenda

The agenda ([ADM/3](#)) was adopted.

3 Welcome by the Director of the Telecommunication Standardization Bureau (TSB)

The Director of TSB, Mr Chaesub Lee, expressed his appreciation to the host country Tunisia for its great hospitality. He highlighted the importance of the Assembly which brings all delegates together to make ITU a more valuable place.

4 Election of the Vice-Chairmen of the Assembly

Plenary appointed the WTSA Vice-Chairmen by acclamation ([DT/5rev2](#)).

5 Establishment of Committees (Structure of the Assembly)

Plenary approved the structure of the Assembly and the mandates of the Committees and the Working Groups of the Committees ([DT/4](#)).

6 Election of Committee and Working Group Chairmen and Vice-Chairmen

The Assembly elected the chairmen and vice-chairmen of the Committees and Working Groups by acclamation ([DT/5rev2](#)).

7 Secretariat of WTSA-16

The Chairman informed the meeting of the Secretariat of WTSA ([DT/6](#)).

8 Draft time management plan

Plenary approved the time management plan [DT/3](#). The Chairman pointed out that the time management plan would be revised according to the progress of the assembly.

9 List of contributions/proposals and allocation of documents to Committees and Working Groups of the Committees

Plenary approved [DT/1](#).

10 Tribute to deceased delegates

The Assembly observed a minute of silence in tribute to the delegates deceased since WTSA-12 ([60Rev1](#)).

11 Expression of appreciation to retired delegates

The Chairman thanked the retired delegates for their valuable contributions to the standardization work of ITU ([61Rev1](#)).

12 Report on the outcome of the Global Standards Symposium (GSS)

Mr Mongi Marzoug, former Minister of ICT, Tunisia, presented the conclusions of GSS ([58rev1](#)). The Chairman, on behalf of the Assembly, thanked Mr Marzoug for his chairmanship of GSS.

13 Report of the Review Committee

The Chairman of the Review Committee, Mr Yoichi Maeda, presented the report of the Review Committee (23). Plenary noted the report and thanked the Review Committee and its Chairman for the excellent work accomplished.

14 Report of the Telecommunication Standardization Advisory Group to WTSA-16

The Chairman of TSAG, Mr Bruce Gracie, presented the reports of TSAG to WTSA (24, 25, 26, 27).

Plenary noted the reports in 24 and 27 while deferring the proposals in 25 and 26 for consideration by the respective Committees. Plenary thanked the TSAG Chairman and his team for the excellent work accomplished.

15 Suppression of Resolution 82

Plenary suppressed Resolution 82 "Strategic and structural review of the ITU Telecommunication Standardization Sector".

16 Report of the Director of TSB

Mr Chaesub Lee, Director of the Telecommunication Standardization Bureau, presented his report of activities in ITU-T of the 2013-2016 study period (28, see also <http://www.itu.int/en/ITU-T/wtsa16/Pages/presentations.aspx> (without the videos) and <http://www.itu.int/en/publications/Documents/tsb/2016-4-Years-report/index.html>).

17 Presentations of the ITU-T study group chairmen

The following chairmen gave summaries of the achievements of their study groups in the 2012-2016 study period (supplemented by presentation slides, please see <http://www.itu.int/en/ITU-T/wtsa16/Pages/presentations.aspx>, DT/7).

- ITU-T SG2 – Operational aspect: Mr Sherif Guinena (1rev1).
- ITU-T SG3 – Tariff and accounting principles including related telecommunication economic and policy issues: Mr Seiichi Tsugawa (3).

18 Approval of draft ITU-T Recommendations

After discussion, Plenary approved the following Recommendations:

- Draft revised Recommendation ITU-T D.271 "Charging and accounting principles for NGN" (41);
- Draft new Recommendation ITU-T D.97 "Methodological principles for determining international mobile roaming rates" (39);
- Draft new Recommendation ITU-T D.52 "Establishing and connecting Regional IXPs to reduce costs of International internet connectivity" (37);
- Draft new Recommendation ITU-T D.53 "International aspects of universal service" (38);
- Draft new Recommendation ITU-T D.261 "Principles for market definition and identification of operators with significant market power – SMP" (40).

The United States requested that the following text be included in the report of this meeting: "The United States does not support approval of Recommendations ITU-T D.52, D.53, D.97, D.261, or the revisions to D.271. These recommendations deal with national policy matters rather than worldwide telecommunication standards as required by the Convention and elaborated by the ITU-T strategic plan. Consistent with clause 9.5.4 of WTSA Resolution 1, which requires that reservations be mentioned in a concise note appended to the text of the Recommendation, we will provide the appropriate text for ITU-T D.52, D.53 and D.261 to the Chair."

Canada expressed concerns over these Recommendations, in particular ITU-T D.261.

Australia said it would register a reservation for ITU-T D.261 according to clause 9.5.4.

Germany reserved its right to register a reservation according to clause 9.5.4.

Portugal said that some additional European Member States may express reservations.

19 Closing of the first plenary

The Chairman adjourned the meeting at 1800 hours.

SECOND PLENARY MEETING

(Friday, 28 October 2016, 1600-1800 hours)

20 Approval of the agenda

The agenda ([ADM/21](#)) was adopted.

21 Presentations of the ITU-T study group chairmen, continued

The ITU-T Study Group chairmen gave summaries of the achievements of their study groups in the 2012-2016 study period (documents supplemented by the slide presentation slides: <http://www.itu.int/en/ITU-T/wtsa16/Pages/presentations.aspx>, [DT/7](#)).

- ITU-T SG5 – Environment and climate change; Mr Ahmed Zeddami ([5rev1](#)).
- ITU-T SG9 – Television and sound transmission and integrated broadband cable networks: Mr Taekyoon Kim on behalf of Mr Arthur Webster ([7rev1](#)).
- ITU-T SG11 – Signalling requirements, protocols and test specifications: Mr Kaoru Kenyoshi on behalf of Mr Wei Feng ([9](#)).
- ITU-T SG12 – Performance, QoS and QoE: Mr Kwame Baah-Acheamfour ([11rev1](#)).
- ITU-T SG13 – Future networks including cloud computing, mobile and NGN: Mr Leo Lehmann ([13](#)).
- ITU-T SG15 – Networks, Technologies and Infrastructures for Transport, Access and Home: Mr Steve Trowbridge ([15rev1](#)).
- ITU-T SG16 – Multimedia coding, systems and applications: Mr Yushi Naito ([17rev1](#)).
- ITU-T SG17 – Security: Mr Heung Youl Youm on behalf of Mr Arkadiy Kremer ([19rev1](#)).
- ITU-T SG20 – IoT and its applications including smart cities and communities: Mr Nasser Al Marzouqi ([21rev1](#)).

22 First Series of texts submitted by the Editorial Committee to Plenary ([67](#))

Plenary approved the suppression of

- Resolution 33 "Guidelines for strategic activities of the ITU Telecommunication Sector".
- Resolution 38 "Coordination among the three ITU Sectors for activities relating to International Mobile Telecommunications".
- Resolution 81 "Strengthening Collaboration".

Plenary approved revised Resolution 32 "Strengthening electronic working methods for the work of the ITU Telecommunication Standardization Sector".

Plenary approved revised Recommendation ITU-T A.1 "Working methods for study groups of the ITU Telecommunication Standardization Sector".

23 Progress reports by Committee chairmen

The Chairman of Committee 2, Ms Weiling Xu, gave a status report of Committee 2.

The Chairman of Committee 3, Mr Steve Trowbridge, gave a status report of Committee 3.

The Chairman of Committee 4, Mr Kwame Baah-Acheamfuor, gave a status report of Committee 4 ([65](#), [70](#)).

24 Schedule of meetings for Saturday and Sunday

The Chairman pointed out that the Steering Committee – which would meet right after plenary – would most likely decide for COM4 to meet on Saturday morning. In addition, numerous ad hoc groups, drafting sessions and informal consultations were scheduled for the weekend ([DT/41](#) and subsequent revisions).

25 Expression of appreciation to study group officials

The TSB Director on behalf of the ITU membership expressed his thanks to the chairmen of the study groups, the Review Committee and TSAG for their outstanding work accomplished during the study period and handed out certificates of appreciation:

- | | | |
|---|--------------------------|------------------------|
| – | Mr Sherif Guinena | ITU-T Study Group 2 |
| – | Mr Seiichi Tsugawa | ITU-T Study Group 3 |
| – | Mr Ahmed Zeddami | ITU-T Study Group 5 |
| – | Mr Arthur Webster | ITU-T Study Group 9 |
| – | Mr Wei Feng | ITU-T Study Group 11 |
| – | Mr Kwame Baah-Acheamfuor | ITU-T Study Group 12 |
| – | Mr Leo Lehmann | ITU-T Study Group 13 |
| – | Mr Steve Trowbridge | ITU-T Study Group 15 |
| – | Mr Yushi Naito | ITU-T Study Group 16 |
| – | Mr Arkadiy Kremer | ITU-T Study Group 17 |
| – | Mr Nasser Al Marzouqi | ITU-T Study Group 20 |
| – | Mr Yoichi Maeda | ITU-T Review Committee |
| – | Mr Bruce Gracie | ITU-T TSAG |

26 Closing of the second plenary

The Chairman adjourned the meeting at 1800 hours.

Annex 1
(to opening ceremony report)

Welcome address at WTSA-16
H.E. Mohamed Anouar Maârouf,
Minister of Communication Technologies and Digital Economy,
Republic of Tunisia
(25 October 2016, Hammamet)

Mr Chief of Government,
Mr Secretary-General, International Telecommunication Union,
Mr Director, Telecommunication Standardization Bureau,
Mr Director, Telecommunication Development Bureau,
Ministers, Excellences, ladies and gentlemen,
Distinguished guests of Tunisia,

Speaking for myself and on behalf of the Government and people of Tunisia, it is my pleasure to welcome you all to the city of Hammamet, which you have chosen to host the 2016 World Telecommunication Standardization Assembly.

Your choice of Tunisia is an expression of the deep historical ties between our country and the International Telecommunication Union, embodied in the person of the late Mohamed Ezzedine Mili, who held the position of Secretary-General of the Union for 16 years (1965-1982), during which he helped to consolidate the foundations of this international organization. Adopting the participatory approach and seeking consensus among all, he was a defender of the right of all the peoples of the world to benefit from communication technologies to reduce the gap between the developed and developing countries.

The relationship between Tunis and ITU was further cemented when our country hosted the second phase of the World Summit on the Information Society in 2005, after initiating the idea of holding an international conference in 1998.

Ladies and gentlemen,

Today, the new Tunisia, the Tunisia of the jasmine revolution, has the honour of hosting the 16th session of WTSA, during which the future technical directions and standards for communication technologies, such as the fifth generation of mobile telephones, the Internet of Things, smart cities etc., will be adopted.

Some 750 delegates from 96 countries, 16 regional and international organizations, 13 telecommunication operators and 14 major telecommunication manufacturing companies, as well as academics and specialists, will meet over ten days in the host country, where we will work to facilitate consensus and the convergence of views between participants for the benefit of all.

Ladies and gentlemen,

Since the host country agreement was signed, Tunisia has devoted all its energies to ensuring the success of your conference. A national committee and various subcommittees were dispatched, consisting of around 200 individuals, representing seven ministries, as well as university student volunteers. Permit me to extend to them my sincere gratitude and appreciation for their efforts and dedication.

Furthermore, I would also like to invite you to take part in the various technology, cultural and tourist programmes and events organized in your honour on the sidelines of the conference, which I hope will be to your liking.

Ladies and gentlemen,

Welcome once again to Tunisia. I wish the proceedings of the 16th session of the World Telecommunication Standardization Assembly every success.

Annex 2
(to opening ceremony report)

Welcome Remarks to WTSA-16
Mr Houlin Zhao,
Secretary-General,
International Telecommunication Union
(25 October 2016, Hammamet)

Excellency Youssef Chahed, Chief of Government of the Republic of Tunisia,
Excellency Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy,
Republic of Tunisia,
Excellencies, Ambassadors,
Distinguished colleagues,
Ladies and gentlemen,

It is a great pleasure to welcome you to beautiful Hammamet for the opening of the World Telecommunication Standardization Assembly 2016.

Let me begin by thanking our host, Tunisia, for its great hospitality.

We have received a very warm welcome. The facilities provided are outstanding, and all is in place for a successful Assembly.

I would also like to commend Tunisia on its work to encourage ICT development, in this country, in this region, and internationally.

Tunisia has played a visionary role in supporting the use of ICTs to drive sustainable development.

Tunis is one of the initiators of WSIS Resolutions in 1998.

In 2005, Tunisia hosted the second phase of the World Summit on the Information Society, WSIS, following the first phase in Geneva in 2003. The result was the agreement of the Tunis Commitment and Tunis Agenda for the Information Society, which set an ambitious global agenda to build an inclusive, development-oriented Information Society.

Tunisia can take great pride in its contribution to the WSIS process.

This process continues to be the world's foremost platform for multi-stakeholder collaboration in the interests of leveraging ICTs to drive sustainable development.

Distinguished colleagues,

International traffic runs over fibre-optic networks built in conformance with ITU standards.

ITU standards underpin the critical broadband access technologies of the Internet.

And with video accounting over 60 per cent of Internet traffic – a figure expected to rise to over 80 per cent by 2020 – ITU's networking and video-coding work is key to the future of ICTs.

ICTs now support innovation in all industry sectors.

New ITU standards are supporting medical-grade e-health wearables, smart energy grids and communications for the connected car.

We have provided a platform for the collaboration of the ICT and financial-services sectors, with the aim of using mobile phones to bring basic financial services to the over 2 billion adults worldwide without access to a bank account.

Our standardization work for the Internet of Things and Smart Sustainable Cities will help government and industry to build future cities on the reliability provided by interoperable standards-based ICTs.

Government and industry are looking to ICT to form an essential part of their sustainability measures.

ITU is providing platform for ICT stakeholders to work together towards achieving the UN Sustainable Development Goals.

This work receives valuable support from ITU standardization.

Ladies and gentlemen,

As we approach year 2020, one of the most important areas of ITU work will be our international standardization of 5G systems.

ITU's Radiocommunication Sector is coordinating the international standardization for 5G mobile development. ITU's Standardization Sector will play a similar convening role for the wireline elements of 5G systems.

ITU is supporting government and industry in their work to build a 5G environment where all of us will have access to reliable, affordable communications; where highly-reliable ICTs will be core to innovation in all industry sectors.

As a UN specialized agency, ITU holds a unique position in the ICT ecosystem.

One of our key strengths is the knowledge and technology transfer that we encourage between developed and developing countries.

This inclusivity of ITU standardization is supported by our Bridging the Standardization Gap programme. This programme will assist us in ensuring that developing countries are able to share in the social and economic benefits to be enacted by 5G systems.

Distinguished colleagues,

ITU is given life by a membership of 193 Member States and over 700 private-sector entities and 120 academic and research institutes.

This unique public-private partnership of members is essential to ITU's value proposition. Our 193 Member States ensure that ITU is globally representative. This gives great strength to our standardization work – we are the only ICT standards body to have the Membership of governments, industry players and academia.

ITU understands the challenges and opportunities. We wish to work with you all to strengthen ITU.

The task of this Assembly is to ensure that ITU standardization remains well-positioned support the development of the global ICT ecosystem.

I would like to wish WTSA-16 every success in its efforts to ensure that the ITU platform is welcoming to all ICT stakeholders: major operators and manufacturers as well as SMEs and open-source communities; national governments and their regulators; local governments and city planners; and the many vertical sectors applying ICTs as enabling technologies.

I have no doubt that the decisions of WTSA-16 will protect these principles, strengthening the inclusivity of ITU standardization to give all the world's countries equal opportunity to benefit from the ICT advances changing our world.

Thank you. I wish you a most successful Assembly.

Annex 3
(to opening ceremony report)

Welcome remarks
Mr Youssef Chahed,
Chief of Government of the Tunisian Republic
(25 October 2016, Hammamet)

Mr Secretary-General, International Telecommunication Union,
Mr Director, Telecommunication Standardization Bureau,
Ministers, Excellences, ladies and gentlemen,
Distinguished guests of Tunisia,

It is my pleasure, at the inauguration of the 2016 World Telecommunication Standardization Assembly, to welcome Tunisia's distinguished guests from fraternal and friendly countries, international and regional organizations, private enterprises active in the field of telecommunications and representatives of civil society.

I should like to express my great appreciation to all participants and all countries for choosing Tunisia to host this event. It is a choice that expresses the international community's confidence in our country. Tunisia remains at all times prepared to host such important international events and can provide a suitable business framework to ensure their successful outcome.

Ladies and gentlemen,

The regular, four-yearly meetings of your assembly highlight its role as an ideal framework within which the entire membership can ensure that the Union's standardization work continues to play a key role in building the advanced information society in preparation for 2020.

Given that the years leading up to 2020 are expected to see major structural changes in the global economy and that the information and telecommunication industry will be the main driver of those changes, all interested parties are awaiting the standardization strategy which your assembly will define. It is a strategy that will have a major role to play in supporting and developing the ICT infrastructure essential to successful innovation in new fields, such as the fifth generation of mobile telephones, the Internet of Things, smart cities, and so on.

Ladies and gentlemen,

Keeping up with the technological developments that are such a critical and influential factor in all fields of development has become a matter of urgency for all countries, especially the developing ones. ICTs have an enormous impact on State structures and public institutions, and are a contributing factor to private-sector wealth creation. They are also helping to improve the lives of citizens, meeting their needs and ensuring equality of opportunity. In general, they are stimulating economic development and social progress.

Tunisia has for several years been engaged in a process of gradual liberalization of telecommunication services and promoting competition and private initiative. This has enabled three operators operating in a competitive framework to strengthen the telecommunication infrastructure.

Tunisia has also sought to provide a legislative framework to support investment in telecommunications and promote digital confidence. We are currently conducting a comprehensive, in-depth review of the ICT legal framework and preparing a new digital journal as part of a comprehensive future vision commensurate with the sector's rapid development.

Ladies and gentlemen,

Despite all these efforts and measures, the results have not been what we might have hoped for. No strategic projects have been registered in priority sectors with a view to increasing the competitiveness and productivity of the economic and social sectors and develop the capacities of private-sector enterprises active in this area. This may in part be attributable to an absence of "digital culture".

Accordingly, we are working on a number of levels to improve international indicators in order to ensure that our country occupies the place it deserves in the international rankings. This takes the form of several ambitious projects and schemes, some of which we are relying on the cooperation of our friends to implement.

Once we have been able to achieve the desired political level, Tunisia's partners – States, organizations and enterprises – will have an opportunity to help our country move towards economic and social take-off. In this regard, Tunisia will host an international investment conference on 29 and 30 November 2016, designed to help implement specific projects and programmes within the five-year development plan (2016-2020) in several areas, including the digital sphere.

Permit me to give you a brief presentation of the key elements of Tunisia's approach to developing the digital sector. It is an approach formulated within a framework of cooperation and genuine partnership between the public and private sectors, science and technology research institutes, professionals and experts, and is intended to help integrate Tunisia effectively within global networks and position the country as a hub for goods and services. The approach has five themes:

- Theme 1 consists of strengthening the ICT infrastructure by building broadband mobile networks and data centres, developing measures and legislation relating to cybersecurity and stimulating innovation.
- Theme 2 concerns e-administration and online services, which will provide opportunities for citizens, enterprises, the Government and the economic system in general by making available user-friendly administrative services that have the citizen at the core and as the goal, and by improving productivity, controlling costs, consolidating sound governance and boosting transparency, thereby improving competitiveness, making the economy more attractive to national and foreign investment, creating new job opportunities and helping to conserve the environment.

- Theme 3 of the strategy involves positioning Tunisia as regional service hub. The "Smart Tunisia" project will help to promote and develop high value-added services, attract global ICT companies and highlight Tunisia as an outstanding investment destination. We are seeking to enrich this project with measures to support and develop local digital enterprises.
- Theme 4 is designed to promote e-services and commercial exchange in the fields of education, health, commerce, tourism, culture, agriculture, banking and other service and production sectors. Digital spaces will be provided within which to offer services, exchange information, conclude deals, settle financial obligations and monitor transactions electronically, in addition to traditional channels. Furthermore, the foundation for a national policy on digital research, development and innovation will be laid by putting in place a suitable, standardized system to support scientific research and encourage innovation in the form of research projects and experiments that will contribute to the development of the national economy.
- Finally, Theme 5 of the national strategy involves adopting a support programme that includes development of the legislative framework to expedite funding for and implementation of digital projects, as well as the establishment of a secure and reliable environment for digital exchange.

Ladies and gentlemen,

Once again, I express my hopes for the success of your assembly. In this I am confident because, it has been a feature of the Telecommunication Standardization Bureau, ever since its inception, that it follows the path of consensus of opinion in formulating standards and gives all countries and companies – big or small – equal rights in influencing the wording of Telecommunication Standardization Sector Recommendations. We in the new democracy of Tunisia have chosen, and are continuing to pursue, the path of consensus, of whose value we are very well aware.

In conclusion, I should like once again to extend my thanks and appreciation to everyone who helped to prepare for this event, and to all participants for their attendance in such numbers. I wish all of you every success.

V-1.2 – Report of the third to seventh plenary meetings and closing ceremony

Chairman: Mr Moktar Mnakri (Republic of Tunisia)

3rd Plenary, Wednesday 2 November 2016, 0930-1050 hours

4th Plenary, Wednesday 2 November 2016, 1400-1715 hours

5th Plenary, Wednesday 2 November 2016, 1930-2345 hours

6th Plenary, Thursday 3 November 2016, 0930-1250 hours

7th Plenary, Thursday 3 November 2016, 1430-2045 hours

Closing ceremony, Thursday 3 November 2016, 2045-2115 hours

THIRD PLENARY

(Wednesday, 2 November 2016, 0930-1050 hours)

1.1 Opening of third plenary

The Chairman opened the third plenary.

1.2 Approval of the agenda

The agenda ([ADM/33](#)) was adopted.

1.3 Approval of the report of the 1st and 2nd Plenary

Plenary approved the report of the 1st and 2nd plenary ([89](#)).

1.4 Oral status reports of Committees

The Chairman of Committee 3, Mr Steve Trowbridge, and the Chairman of Committee 4, Mr Kwame Baah-Acheamfuor, gave a status report of their Committees.

1.5 Second series of texts submitted by Editorial Committee to the Plenary Meeting ([74](#))

Plenary approved:

- revised Resolution 72 "Measurement and assessment concerns related to human exposure to electromagnetic fields";
- revised Resolution 73 "Information and communication technologies, environment and climate change".

1.6 Third series of texts submitted by Editorial Committee to the Plenary Meeting ([75](#))

Plenary approved

- revised Resolution 40 "Regulatory aspects of the work of the ITU Telecommunication Standardization Sector";
- revised Resolution 44 "Bridging the standardization gap between developing and developed countries";

- revised Resolution 76 "Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme".

1.7 Fourth series of texts submitted by Editorial Committee to the Plenary Meeting (84)

Plenary approved

- revised 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" (with the correction of *taking into account c*) which needs to refer only to the advisory group of the T-Sector);
- revised Resolution 55 "Promoting gender equality in ITU Telecommunication Standardization Sector activities";
- revised Resolution 68 "Evolving role of industry in the ITU Telecommunication Standardization Sector".

1.8 Fifth series of texts submitted by Editorial Committee to the Plenary Meeting (95)

Plenary approved

- revised Resolution 7 "Collaboration with the International Organization for Standardization and the International Electrotechnical Commission";
- revised 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";
- revised Resolution 67 "Use in the ITU Telecommunication Standardization Sector of the languages of the Union on an equal footing";
- revised Resolution 70 "Telecommunication/information and communication technology accessibility for persons with disabilities and persons with specific needs";
- revised Resolution 80 "Acknowledging the active involvement of the membership in the development of ITU Telecommunication Standardization Sector deliverables".

Plenary approved the suppression of

- Resolution 57 "Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest";
- Resolution 71 "Admission of academia to participate in the work of the ITU Telecommunication Standardization Sector".

Argentina agreed with the suppression of Resolution 71 because the participation of Academia was regularized by the PP decision. However, Argentina highlighted the importance of participation of Academia in various activities of the Union, in particular in ITU-T. Argentina asked that the following points be captured in the report: "

- to continue with the Kaleidoscope events on an annual basis rotating between the six regions, to the greatest extent possible
- as a most forward looking community of collaborators, to encourage the participation of academia in the elaboration of technical reports and the publications of the Union, such as the ITU News, the Technical Journal and other technical publications, taking into account that academia does research, studies and follow up the development of future technology, corresponding to the competence of the ITU."

Plenary agreed with Argentina's proposal.

1.9 Sixth series of texts submitted by Editorial Committee to the Plenary Meeting ([98](#))

Plenary approved

- revised Resolution 77 "Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking";
- draft new Resolution [COM4/1]¹ "Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology";
- draft new Resolution [COM4/2]² "Studies concerning the protection of users of telecommunication/information and communication technology services".

1.10 Seventh series of texts submitted by Editorial Committee to the Plenary ([101](#))

Plenary approved

- revised Resolution 20 "Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources";
- revised Resolution 49 "ENUM";
- revised Resolution 64 "IP address allocation and facilitating the transition to and deployment of IPv6";
- revised Resolution 65 "Calling party number delivery, calling line identification and origin identification information";
- revised Resolution 69 "Non-discriminatory access and use of Internet resources and telecommunications/information and communication technologies";
- draft new Resolution [COM4/3]³ "Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications";
- draft new Resolution [COM4/4]⁴ "International mobile roaming";
- draft new Resolution [COM4/5]⁵ "Enhancing access to an electronic repository of information on numbering plans published by the ITU Telecommunication Standardization Sector";
- draft new Resolution [COM4/6]⁶ "Interconnection of 4G, IMT-2020 networks and beyond".

1.11 Eighth series of texts submitted by Editorial Committee to the Plenary ([103](#))

Plenary approved

- revised Resolution 11 "Collaboration with the Postal Operations Council (POC) of the Universal Postal Union (UPU) in the study of services concerning both the postal and the telecommunication sectors";
- revised Resolution 22 "Authorization for the Telecommunication Standardization Advisory Group to act between world telecommunication standardization assemblies";

¹ Draft new Resolution [Com4/1] was later numbered as Resolution 94 (Hammamet, 2016)

² Draft new Resolution [Com4/2] was later numbered as Resolution 84 (Hammamet, 2016)

³ Draft new Resolution [Com4/3] was later numbered as Resolution 92 (Hammamet, 2016)

⁴ Draft new Resolution [Com4/4] was later numbered as Resolution 88 (Hammamet, 2016)

⁵ Draft new Resolution [Com4/5] was later numbered as Resolution 91 (Hammamet, 2016)

⁶ Draft new Resolution [Com4/6] was later numbered as Resolution 93 (Hammamet, 2016)

- revised 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";
- draft new Resolution [COM3/1]⁷ "Evaluation of the implementation of WTSA Resolutions".

1.12 Closing of the third Plenary

Following a suggestion by the Russian Federation, a meeting with the six WTSA-16 vice-chairmen and a representative from each of the six regions was organized during lunch time to find a way forward to solve the outstanding issues.

The Chairman adjourned the third plenary at 1050 hours.

FOURTH PLENARY

(Wednesday, 2 November 2016, 1400-1715 hours)

2.1 Opening of the fourth plenary

The Chairman opened the fourth plenary.

2.2 Approval of the agenda

The agenda ([ADM/35Rev1](#)) was adopted.

2.2.3 Ninth series of texts submitted by Editorial Committee to the Plenary ([116](#))

Regarding Resolution 1, there was discussion on whether or not to keep the paragraph 1bis.10 in ([116](#)): "[1bis.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.]"

Plenary agreed not to include new provision 1bis.10 in the revised Resolution 1 but requested TSAG to take into account the text of 1bis.10 during the development of a draft revised WTSA Resolution 1 for consideration at WTSA-20 or for inclusion in Recommendation ITU-T A.1.

Plenary approved revised Resolution 1 "Rules of procedure of the ITU Telecommunication Standardization Sector".

Plenary approved revised Recommendation ITU-T A.12 "Identification and layout of ITU-T Recommendations".

⁷ Draft new Resolution [Com3/1] was later numbered as Resolution 83 (Hammamet, 2016)

2.4 Issues from Committee 4

2.4.1 Over the top

After a long discussion, plenary agreed not to have a new Resolution on over the top (OTT) ([110](#)). Instead, in Part 1 of Annex A to Resolution 2, text is added that

- ITU-T Study Group 2 is responsible for studies relating to "the operational impact of the Internet, convergence (services or infrastructure) and new services, such as OTT, on international telecommunication services and networks";
- "Additionally, Study Group 3 will study the economic and regulatory impact of the Internet, convergence (services or infrastructure) and new services, such as OTT, on international telecommunication services and networks."

2.4.2 Resolution 29

Plenary approved draft revised Resolution 29 "Alternative calling procedures on international telecommunication networks", after having taken into account the previous agenda item on OTT in *resolves 4* and *resolves 5* ([111](#)).

2.5 Closing of the fourth Plenary

The Chairman adjourned the fourth plenary at 1715 hours.

FIFTH PLENARY

(Wednesday, 2 November 2016, 1930-2345 hours)

3.1 Opening of the fifth plenary

The Chairman opened the fifth plenary.

3.2 Approval of the agenda

The agenda ([ADM/36](#)) was adopted but with the agenda point "Study group structure and Questions" moved further down.

3.3 Consideration and approval of the report of Committee 2

Ms Weiling Xu presented the report of Committee 2 ([77](#)). Plenary approved the report.

3.4 Draft revised Resolution 52 – Countering and combating spam

After discussion, plenary approved draft revised Resolution 52 "Countering and combating spam" ([112](#)) but without "*further instructs 4*" regarding ITU-T SG3.

3.5 Draft new Resolution [ARB-6] – Strengthening the role of ITU-T in ensuring data privacy and trust in ICT infrastructures and services ([113](#))

After a long discussion, the topic was postponed (see sixth plenary).

3.6 Draft new Resolution on ITU-T studies for combating counterfeit telecommunication/ICT devices

After a long discussion, the Chairman declared consensus that plenary approved draft new Resolution [PLEN/1 (ex-COUNTERF), [121](#)]⁸ "ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/ information and communication technology devices" as follows (with respect to [107](#)):

- square brackets were removed in *recognizing further a*) and (with editorial change) in *aware b*);
- clauses 5 and 8 were removed in *instructs ITU-T Study Group 11, in collaboration with other study groups concerned*);
- *recognizing further b*) to read "that as in Resolution 188 (Busan, 2014), Recommendation ITU-T X.1255, which is based on the digital object architecture, provides a framework for discovery of identity management information";
- all other references to DOA or DONA were removed.

Points of order were raised. Canada and the United States said no chance was given to countries to provide statements before deciding that the issue was closed.

Canada, United States, Sweden, United Kingdom, Australia, Germany and Finland did not support the decision.

3.7 Closing of the fifth Plenary

The Chairman adjourned the fifth plenary at 2345 hours.

SIXTH PLENARY

(Thursday, 3 November 2016, 0930-1250 hours)

4.1 Opening of the sixth plenary

The Chairman opened the sixth plenary.

The ITU Secretary-General, Mr Houlin Zhao, addressed the assembly.

China called upon the delegates to adhere to the spirit of cooperation to move forward the work of the assembly.

Germany, on behalf of the European region, made the following statement, supported by the United States, United Kingdom, Sweden and Australia:

"Mr Chairman, on behalf of the European region we thank you for your efforts and willingness and patience to achieve a successful outcome of the Assembly. We all work in good faith to find common ground. Europe believes that the ITU is, and should continue to be, a respected international body which works by consensus with due regard to proper decision-making processes. We believe that the International Telecommunication Union owes the word "Union" to that consensus-based approach. We believe that ITU-T should be an efficient standards development organization, where technical expertise prevails over political considerations. Europe will work hard to find common ground. However, Europe can only endorse Resolutions where there is consensus agreement."

South Africa recalled the tradition of the Union, which is a give and take to reach a compromise.

⁸ Draft new Resolution [PLEN/1] was later numbered as Resolution 96 (Hammamet, 2016)

The United States said they would not recognize the counterfeit Resolution. UK, Australia, Canada, Sweden, Germany, Norway and Finland supported the United States. Those countries submitted the following text to be included in the report: "Australia, Canada, Finland, Germany, Norway, Sweden, the United Kingdom and the United States of America object to the content of draft new Resolution [PLEN/1] "ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information and communication technology devices" (Hammamet, 2016) and do not recognize that a valid decision was taken by the WTSA with regard to this resolution. Therefore, Australia, Canada, Finland, Germany, Norway, Sweden, the United Kingdom and the United States of America do not recognize this Resolution."

Following a question by the Russian Federation whether reservations can be included in Resolutions, the ITU legal advisor said that while ITU-T has a procedure to note reservations in an ITU-T Recommendation according to clause 9.5.4 of WTSA Resolution 1, ITU does not have such a procedure for WTSA Resolutions; it would seem more appropriate to include reservations in the report of the meeting.

4.2 Approval of the agenda

The agenda ([ADM/37](#)) was adopted.

4.3 Twelfth series of texts submitted by Editorial Committee to the Plenary ([119](#))

Plenary approved draft new Resolution [COM4/7]⁹ "Promoting the use of ICTs to bridge the financial inclusion gap".

Plenary approved draft new Resolution [COM4/8]¹⁰ "Strengthening and diversifying the resources of the Telecommunication Standardization Sector of the International Telecommunication Union".

Canada asked that the following statement be included in the report: "INRs, C&I and Revenue Generation: As stated consistently throughout this Assembly, Canada reiterates the need for the ITU, and particularly the TSB, to refrain from undertaking any activities beyond its clearly defined mandates and core competencies. Canada strongly opposes any decision from WTSA-16 on instructing or suggesting that the TSB should become or facilitate the establishment of an ITU C&I testing laboratory, or on continuing to advocate for revenue generation from INRs. We are concerned of the potential conflict of interest and loss of credibility for ITU-T if it were to pursue a path of top down standard setting for the purposes of raising revenue for the organization. Focus by the TSB must be on enhancing, and not on impeding and discouraging the participation of the private sector in ITU-T Study Groups."

Plenary further approved:

- Draft new Resolution [COM4/9]¹¹ "Facilitating the implementation of the Smart Africa Manifesto";
- Draft new Resolution [COM4/10]¹² "Enhancing the standardization of Internet of things and Smart Cities and Communities for global development";
- Draft new Resolution [COM4/11]¹³ "ITU Telecommunication Standardization Sector initiatives to raise awareness on best practices and policies related to service quality";
- Draft new Resolution [COM4/12]¹⁴ "Participation of the ITU Telecommunication Standardization Sector in the periodic review and revision of the International Telecommunication Regulations".

⁹ Draft new Resolution [Com4/7] was later numbered as Resolution 89 (Hammamet, 2016)

¹⁰ Draft new Resolution [Com4/8] was later numbered as Resolution 85 (Hammamet, 2016)

¹¹ Draft new Resolution [Com4/9] was later numbered as Resolution 86 (Hammamet, 2016)

¹² Draft new Resolution [Com4/10] was later numbered as Resolution 98 (Hammamet, 2016)

¹³ Draft new Resolution [Com4/11] was later numbered as Resolution 95 (Hammamet, 2016)

¹⁴ Draft new Resolution [Com4/12] was later numbered as Resolution 87 (Hammamet, 2016)

4.4 Tenth series of texts submitted by Editorial Committee to the Plenary ([117](#))

Plenary approved

- draft revised Resolution 54 "Creation of, and assistance to, regional groups";
- draft revised 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."

4.5 Study group structure and Questions

Plenary approved Resolution 2 "ITU Telecommunication Standardization Sector study group responsibility and mandates" (in Eleventh series of texts submitted by Editorial Committee to the Plenary, [118 \(Rev.2\)](#)).

The United States requested that the following statement be included in the plenary record:

"With respect to Resolution 2, the ITU Telecommunication Standardization Sector study group responsibility and mandates, the United States wishes to clarify its understanding of the mandate of Study Group 2. Consistent with CS104 and CV193, as well as the longstanding tradition of the Union, Study Group 2's mandate for numbering, naming, addressing and identification and routing is confined to international telecommunication networks. This is reflected in the title of Resolution 20 "*Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification (NNAI) resources*". Thus, the United States understands that text concerning "numbering, naming, addressing, identification" and any variation thereof applies only to "international telecommunication" and relates exclusively to resources within the purview of ITU. In addition, the new work item directing Study Group 2 to "study the operational impact of the Internet, convergence (services or infrastructure) and new services, such as OTT, on international telecommunication services and networks" does not, and could not, apply to the operational aspects of the Internet. The United States' view is consistent with the fundamental principle of the World Summit on the Information Society (WSIS), that United Nations organizations should not be engaged in the day-to-day technical operations of the Internet. Therefore, the United States does not support the development or application of Recommendations that are inconsistent with the widely shared understanding of Study Group 2's mandate of numbering, naming, addressing and identification and routing for international telecommunication networks and the day-to-day management of the technical operations of the Internet, which are managed by other entities."

This statement was supported by Australia.

Regarding the proposed additional new Questions for ITU-T SG20 ([ARB/43 Add.32](#)), plenary agreed that these Questions be sent to ITU-T SG20 for consideration at its first meeting after WTSA-16.

Plenary approved the text of Questions and the allocation of Questions as agreed by COM4, see ([92](#)) §§ 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5 and 2.2.6.

Plenary appointed the chairmen and vice-chairmen of study groups, TSAG and SCV ([97\(Rev.1\)](#)). The TSB Director welcomed a woman as Chairman of ITU-T SG5.

4.6 Draft new Resolution [ARB-6] - Strengthening the role of ITU-T in ensuring data privacy and trust in ICT infrastructures and services ([113](#)) – continued

The Arab States submitted the following text for the report: "On the last day of the assembly, the Arab Group decided to withdraw their proposal for the draft new Resolution with regard to privacy and trust due to the lack of time in this assembly while still believing in the importance of this matter and the need for addressing it in depth during upcoming relevant ITU events."

4.7 Closing of the sixth Plenary

The Chairman adjourned the sixth plenary at 1250 hours.

SEVENTH PLENARY

(Thursday, 3 November 2016, 1430-2045 hours)

5.1 Opening of the seventh plenary

The seventh plenary continued the agenda items of ADM/37.

5.2 Draft new and revised resolutions with references to DOA, DONA and handle system

The Plenary addressed the following pending draft and revised Resolutions:

- draft new Resolution [MOB-THEFT] "Combating mobile telecommunication device theft" ([108](#));
- draft revised Resolution 50 "Cybersecurity" ([104](#));
- draft revised Resolution 60 "The evolution of the identification and numbering systems to meet the emerging technological trends including Internet of Things (IoT)" ([105](#)); and
- draft revised Resolution 78 "Information and communication technology applications and standards for improved access to e-health services" ([106](#)).

After a long discussion, plenary agreed

- to have no change to Resolution 60 and its title, "Responding to the challenges of the evolution of the identification/numbering system and its convergence with IP-based systems/networks";
- to remove references to the digital object architecture, DOA, DONA and the handle system in new Resolution [MOB-THEFT] and revised Resolutions 50 and 78, and to approve
 - draft new Resolution [PLEN/2 (ex MOB-THEFT)]¹⁵ "Combating mobile telecommunication device theft" (with respect to [108](#): *recognizing c*) deleted; "such as International Mobile Equipment Identity" in *recognizing d*) kept; and with 2-BIS kept instead of 2 in *resolves*);
 - draft revised Resolution 50 "Cybersecurity"(with *considering further d*) in [104](#) replaced by "the importance of ongoing work on security reference architecture for lifecycle management of e-commerce business data"; and with *resolves* 9 in [104](#) deleted);
 - draft revised Resolution 78 "Information and communication technology applications and standards for improved access to e-health services".

Plenary recognized that identity management plays an important role in many telecommunication/ICT services and that it can be implemented using a range of technologies and solutions.

The United States asked that the following statement be included in the report:

"The United States opposes the decision to include direct and indirect references to the Digital Object Architecture (DOA) in the output of the 2016 International Telecommunication Union (ITU) World Telecommunication Standardization Assembly (WTSA). The role of the WTSA is to determine what problems the study groups should solve, not instruct study groups to determine what technical approaches to adopt. This is the fundamental difference between a standards development process that is bottom-up and one that is top-down. If the ITU-T is to be considered a peer to other standards development organizations, its recommendations must be technical in nature and considered in an inclusive and transparent process that results

¹⁵ Draft new Resolution [PLEN/2] was later numbered as Resolution 97 (Hammamet, 2016)

in high quality, flexible outcomes that are technology-neutral, that promote non-proprietary solutions, and that are consensus-based. With this decision to incorporate reference to a proprietary solution and to make reference to it as a solution for problems for which its use has never been explored makes us question whether the ITU-T meets such a threshold. We are also concerned with the precedent of using an MOU between the ITU and another organization, in this case the DONA Foundation, as precedent for technical work on that organization's products. These decisions undermine our confidence in the ITU-T and illustrate a need for the 2018 Plenipotentiary Conference to evaluate this situation."

The United Kingdom, Australia, Canada, Norway, Sweden, Paraguay, Finland and Costa Rica associated themselves with the statement of the United States.

5.3 Draft new Resolution on open source

After discussion ([114](#), as well as [Working Document 30 of COM4](#) "Results of further informal consultations on draft new Resolution [ARB-5] 'Open source in ITU-T'", plenary approved draft new Resolution [PLEN/3]¹⁶ "Open source in the ITU Telecommunication Standardization Sector".

5.4 Report of Committee 3

The Chairman of Committee 3, Mr Steve Trowbridge, presented the final report of Committee 3 – Working methods of ITU-T ([115Rev1](#)).

Plenary approved the report of Committee 3 and agreed

- to request TSAG to find a definition for "agreement" as applied to non-normative texts,
- to instruct 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,
- to instruct the TSB Director to report on an ongoing basis to TSAG concerning the implementation of Resolution 66 "Technology Watch in the Telecommunication Standardization Bureau",
- to instruct TSAG to investigate further the procedures for development and agreement of non-normative texts within ITU-T and assign the urgency of the issue.

5.5 Report of Committee 4

The Chairman of Committee 4, Mr Kwame Baah-Acheamfuor, presented the final report of Committee 4 – Work programme and organization of ITU-T ([92](#)). Plenary noted the following reports of Committee 4: [65](#) (first meeting), [70](#) (second meeting), [73](#) (third meeting), [83](#) (fourth meeting), [90](#) (fifth meeting), and approved the report of its sixth and seventh meetings in [DT/119](#) (as found in [91](#)).

Plenary agreed to mandate TSB to check Resolution 2 Annex C prior to publication, to ensure that the detailed Recommendation series allocations to study groups properly reflect all decisions taken by the assembly.

Plenary approved the final report of Committee 4 in ([92](#)).

5.6 Report of Committee 5

The Chairman of Committee 5, Ms Rim Belhaj, presented the final report of Committee 5 – Editorial Committee. Committee 5 addressed all the texts that were submitted to it.

¹⁶ Draft new Resolution [PLEN/3] was later numbered as Resolution 90 (Hammamet, 2016)

5.7 Any other business

The Chairman thanked the dream team of WTSA, that is the management team of WTSA, composed of the six vice-chairmen, and the chairmen of the Committees: the Chairman of Committee 2, Ms Weiling Xu; the Chairman of Committee 3, Mr Steve Trowbridge; the Chairman of Working Group 3A, Mr Ahmed Raghy; the Chairman of Working Group 3B, Mr Bruce Gracie; the Chairman of Committee 4, Mr Kwame Baah-Acheamfuor; the Chairman of Working Group 4A, Mr Fabio Bigi; the Chairman of Working Group 4B, Mr Jeferson Nacif; and the Chairman of Committee 5, Ms Rim Belhaj.

CLOSING CEREMONY

(Thursday, 3 November 2016, 2045-2115 hours)

Mr Chaesub Lee, Director of the Telecommunication Standardization Bureau, delivered his closing remarks (His closing remarks are in Annex 1).

Mr François Rancy, Director of the Radiocommunication Bureau, delivered the closing remarks (Annex 2) on behalf of the ITU Secretary-General. Mr Rancy presented Mr Moktar Mnakri with a certificate and the silver medal of the Union as a token of ITU's appreciation for his contribution to this assembly, and he thanked H.E. Mr Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy, Republic of Tunisia, and H.E Habib Dababi, Secretary of State for Digital Economy, Republic of Tunisia, for hosting WTSA-16.

Mr Moktar Mnakri, Chairman of WTSA-16, delivered his closing remarks (Annex 3).

H.E. Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy, Republic of Tunisia, delivered his closing remarks (Annex 4).

WTSA-16 closed at 2115 hours.

Annex 1
(to closing ceremony report)

**World Telecommunication Standardization Assembly 2016,
3 November 2016,
Hammamet, Tunisia**

Closing Remarks

Chaesub Lee

**Director, Telecommunication Standardization Bureau
International Telecommunication Union**

Your Excellency Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy, Republic of Tunisia,
Your Excellency Habib Dababi, Secretary of State for Digital Economy, Republic of Tunisia,
Moktar Mnakri, Chairman of WTSA-16,
Francois Rancy, Director of the ITU Radiocommunication Bureau,
Distinguished delegates,
Ladies and gentlemen,

I am pleased to have the opportunity to address you at this closing ceremony of the World Telecommunication Standardization Assembly 2016.

I would like to thank our hosts, Tunisia, for the great hospitality that we have enjoyed over the past two weeks. Your support to the work of ITU is highly appreciated.

I would especially like to thank the Chairman of WTSA-16, Moktar Mnakri. Mr Mnakri has steered our discussions with the utmost calm, often in the midst of difficult negotiations.

Mr Mnakri, ITU is very grateful for the contribution that you have made to this Assembly. Thank you.

Distinguished delegates,

The discussions of this Assembly have been very challenging at times.

This offers evidence of the gravity of the issues at hand. We can all be proud of our will to tackle these important issues on the ITU platform.

We have worked through a huge volume of documents, and we have made great effort to understand each other's views.

This hard work has helped us to find common ground.

We have built the consensus required to reach a series of agreements.

This is what makes ITU unique.

Our world is very diverse in culture, language and levels of economic development.

We convene at ITU in a spirit of collaboration and mutual respect.

On the neutral platform provided by ITU, we broker consensus on policy and technical questions of common global concern.

This Assembly has produced many victories for international collaboration.

We have given greater impetus to ITU-T's study of the wireline networking innovations required to meet the performance targets of 5G systems.

We have encouraged ITU to promote strong consumer protection.

We have given further support to ITU's development of technical frameworks to record event data from aircraft, cars and other connected machinery.

We have encouraged ITU to promote affordable tariffs for international mobile roaming.

We have recognized the importance of ITU's work to support policymakers and industry players in their efforts to achieve high-quality ICT services in the packet-based communications environment.

We have called for ITU standards to capitalize on the potential of ICTs to increase financial inclusion in developing countries.

We have acknowledged the great importance of ITU's standardization work to enable the coordinated development of the Internet of Things and Smart Cities and Communities.

We have agreed the mandates of ITU's expert groups, and we have elected globally representative leadership teams to guide these groups towards the fulfilment of these mandates.

And we have ensured that ITU's working methods will continue to offer reliability and consistency to the international standardization community.

Together we have strengthened the ability of ITU standardization to provide an equitable basis for ICT development worldwide.

The deliberations of WTSA-16 have spoken volumes for the inclusivity of ITU.

I would like to thank all delegates for their valuable contribution the work of this Assembly.

ITU-T has emerged from WTSA-16 in a stronger position to provide common platforms for ICT growth and innovation.

I look forward to our continued collaboration to build a trusted ICT environment, one that will drive social and economic development in all regions of the world.

I would also like to take this opportunity, on behalf of all delegations, to thank our interpreters, captioners, local supporters, ITU staff, as well as our security guards, for the dedication with which they have contributed to this conference's success.

I thank you and wish you all a safe trip home.

Annex 2
(to closing ceremony report)

**World Telecommunication Standardization Assembly 2016,
3 November 2016,
Hammamet, Tunisia**

Closing Remarks

Houlin Zhao

**Secretary-General
International Telecommunication Union
(delivered by François Rancy, Director, Radiocommunication Bureau)**

Your Excellency Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy, Republic of Tunisia,
Your Excellency Habib Dababi, Secretary of State for Digital Economy, Republic of Tunisia,
Moktar Mnakri, Chairman of WTSA-16,
Fellow elected officials of ITU,
Distinguished delegates,
Ladies and gentlemen,

Good evening. It is a great pleasure to be here with you for this closing ceremony of the World Telecommunication Standardization Assembly 2016.

I would like to congratulate Tunisia for hosting a very successful event. We have received the support of excellent facilities, highly professional staff and tremendous hospitality.

Distinguished delegates,

ITU's globally representative membership is known for its longstanding commitment to consensus.

The principles that guide the work of ITU ensure that all Member States are able to influence our work on an equal footing.

We have seen the strengths of ITU in action at WTSA-16.

This Assembly has provided ample evidence of the ITU membership's strong spirit of collaboration.

WTSA-16 has considered an enormous volume of documents. Delegates have worked late into the night and throughout the weekend.

A wide variety of views have been taken into account, and I congratulate you on your efforts to build consensus on the key issues discussed at this Assembly. You have done it!

Following close to two weeks of deliberations, we have converged on a set of agreements that have the consensus-derived support of the diverse ITU membership.

A new WTSA Resolution has given further impetus to ITU-T's study of the wireline networking innovations required to achieve the performance targets of 5G systems.

Other new Resolutions include calls for ITU-T to continue promoting strong consumer protection; affordable mobile roaming tariffs; high-quality ICT services; and the use of cloud computing to record event data from aircraft, cars and other connected machinery.

We have also agreed new Resolutions calling for ITU standards to capitalize on the ability of ICTs to increase financial inclusion in developing countries; and to drive the success of the Internet of Things and Smart Cities and Communities.

The agreements reached at this Assembly have placed ITU-T in a strong position to support government, industry and academia in achieving their ambitions for year 2020 and beyond.

I would like to thank all delegates for their hard work in the various committees and ad hoc groups.

I would like to congratulate all the new members of the study group management teams, and I wish them every success in their new roles.

I thank our outgoing chairmen and vice-chairmen for their valuable contribution to ITU standardization over the past few years.

I would also like to thank all of our translators, interpreters, captioners and secretariat staff for their expert facilitation of this event.

I wish to congratulate Chaesub Lee, Director of TSB, and his team of TSB staff and staff from other services for their dedicated contribution to the services of WTSA-16.

Last, but more importantly, in particular I would like to thank the Chairman of WTSA-16, Moktar Mnakri.

Mr Mnakri has steered this Assembly's discussions with calm resolve and a quick-witted sense of humour that has been well appreciated by all participants.

I am honoured to have the opportunity to present Mr Mnakri with a certificate and medal as a token of ITU's appreciation for his contribution to this Assembly.

Distinguished delegates,

I wish you all a safe trip home and look forward to our continued efforts to ensure that all countries have equal opportunity to benefit from the ICT advances changing our world.

Thank you.

Annex 3
(to closing ceremony report)

**World Telecommunication Standardization Assembly 2016,
3 November 2016,
Hammamet, Tunisia**

Closing Remarks

Moktar Mnakri

Chairman, World Telecommunication Standardization Assembly 2016

Your Excellency Mohamed Anouar Maârouf, Minister of Communication Technologies and Digital Economy, Republic of Tunisia,
Your Excellency Habib Dababi, Secretary of State for Digital Economy, Republic of Tunisia,
Mr Chaesub Lee, Director of the ITU Telecommunication Standardization Bureau,
Mr Francois Rancy, Director of the ITU Radiocommunication Bureau,
Distinguished delegates,

We have lived together almost day and night for more than twelve days. We have come to know each other. I have had many interesting discussions with many of you on a variety of subjects in addition to WTSA. Having all these distinguished delegates here, with this high level of expertise and diverse cultural mix, was a unique opportunity to discover people, to discover culture, and to interact. Thank you for having given this opportunity to me and my team.

Thank you also for having sustained the hard work necessary to achieve what we set out to over these past twelve days. You have sustained it, and I see in your faces that you look happy with the job you have done.

I received some information providing statistics on the 200 or so meetings that we have had. I don't have the exact numbers in mind. But what I do have in mind is your faces. Believe me, all your faces are in my mind. Wherever you will go, if one day our roads cross, I will recognize you. I am absolutely sure of that.

I have seen a very good spirit of collaboration in all of you, recognizing of course that, from time to time, as per your duties, you were required to hold strong to your positions.

We have now come to the end of this Assembly, and I have one big regret. Twelve days ago I was here with you at the opening of this Assembly, and I was telling you many things about the beauty of this country and all the things we could discover and enjoy. And my regret is that you did not get enough time to discover and enjoy this country.

But I hope that the relationships we have built over these twelve days working together will help you to keep Tunisia in mind, a memory that may encourage you to return to discover more about this country. I assure you that you will receive a very warm welcome, just as you have received over these past two weeks.

I will not spend time talking about the outcome of this Assembly. I believe that we have all done our jobs well. We can all be satisfied. We have worked through the details that we needed to work through and taken the decisions that we needed to take.

My closing words will be words of thanks.

I would like to start by thanking all of you, distinguished delegates, because you are this Assembly. You are this WTSA, you are the basis of the Assembly, and its success is yours.

Then we have what we can call the management team, the six vice-chairmen of this Assembly from the various regions, and the chairs of the committees and these committees' working groups. My thanks go to Stephen Trowbridge and Kwame Baah-Acheamfuor, the chairmen of Committee 3 and 4, respectively; as well as the chairmen of these committees' working groups, Ahmed Raghy, Bruce Gracie, Fabio Bigi and Jeferson Nacif. My thanks also go to Ms Weiling Xu, Chair of the Budget Control Committee, and Ms Rim Belhaj, Chair of the Editorial Committee, as well as the teams which have supported them.

I would like to join Dr Lee in once again thanking the interpreters and captioners for their excellent work interpreting and captioning our discussions in real time.

Please also allow me to offer my personal thanks and congratulations to my team here.

First, our organizing team. This team is made up of roughly 150 people who have worked for months to organize this Assembly, on the logistics, the housing, the transportation and the IT system. This team has worked hard to provide you with good facilities for your work, facilities which have been essential to the success of WTSA.

We also have what I call the content team. Roughly 30 young people have been working for many months on the processes of ITU-T and the content. Members of this content team have attended almost all the meetings of the ad-hoc and informal-consultation groups. In parallel with the reports that I have received from the ITU-T secretariat and the Chairs of the committees, I have also received reports from this content team.

I would like to conclude by thanking the dream team of the ITU-T secretariat. I do not know how they sustain it, but when we have finished our work, the secretariat staff continue working to prepare for the following day. And when I come to the office in the morning, I find them already there. I express my deep gratitude to all of them.

Thank you very much. I hope to meet all of you again soon.

Annex 4
(to closing ceremony report)

Closing remarks

H.E. Mohamed Anouar Maârouf

Axes of intervention

Minister of Communication Technologies and the Digital Economy

ON THE OCCASION OF THE CONCLUSION OF
THE WORLD TELECOMMUNICATION STANDARDIZATION ASSEMBLY
HAMMAMET, 2016

MR MOHAMED ANOUAR MAAROUF – MINISTER OF COMMUNICATION
TECHNOLOGIES AND THE DIGITAL ECONOMY

Mr Houlin Zhao, Secretary-General, ITU,
Mr Chaesub Lee, Director, ITU Telecommunication Standardization Bureau,
Mr François Rancy, Director, ITU Radiocommunication Bureau,
Heads of delegation,
Distinguished guests,
Ladies and gentlemen,

It is an honour and a pleasure for me today to conclude the proceedings of the 2016 World Telecommunication Standardization Assembly in Hammamet, after two full weeks of continuous work and effort by all the committees, working groups and plenary meetings.

At the outset, permit me to thank personally and on behalf of the Tunisian delegation Mr Houlin Zhao, Secretary-General of ITU, Mr Chaesub Lee, Director of the Telecommunication Standardization Bureau, all delegates of Member States and all Sector Members for their confidence in my country's ability to organize this major international event. I hope that Tunisia has done a good job of organizing the event by providing the conditions for its success.

I extend greetings and thanks to the officials of ITU and the interpretation and translation teams, who have worked tirelessly and with such dedication over these two weeks.

I must not forget to thank the local organizing body, consisting of staff and volunteers, headed by Mr Moktar Mnakri, Chairman of WTSA-16.

Furthermore, I am grateful for and value the important role played by the sponsoring bodies, which have spared no effort to ensure the success of this event.

Ladies and gentlemen,

WTSA-16 has been an excellent opportunity for those working in the telecommunication and digital economy sector in Tunisia to follow the main issues relating to standardization of the latest technologies, such as 5G, the Internet of Things, privacy and other important topics.

Despite sometimes vigorous debate, consensus prevailed at the end of the day. This is what distinguishes ITU.

Evaluated objectively, the results of our work have enabled us to formulate an ITU-T action programme for 2016-2020 by adopting a set of new resolutions and updating existing resolutions as proposed by Member States, ITU-T members and regional groups.

Areas of intervention for study groups have been identified and their bureaux formed. I trust that the study groups will receive the support of the Union and Member States to enable them carry out their work to the fullest extent.

In the course of your work and deliberations, it has become apparent that standardization has begun to enjoy the same level of interest in all countries, both developed and developing. I ask your permission here to call upon ITU to support programmes to close the digital gap in the field of standardization and provide the necessary impetus to skills development in this area of vital concern to the developing countries.

In this context, Tunisia renews its commitment to support the work of ITU and implement all its recommendations so as to serve the interests of telecommunication network users and achieve sustainable development for all.

Ladies and gentlemen,

I would like to take this opportunity to inform you of the newly-designed, forthcoming session of our ICT 4 All Forum, which Tunisia has organized since holding the World Summit on the Information Society in 2005. This forum, which represents a temporary space for local and regional action to promote ICT sector development in the Arab and African regions, will this year witness a fundamental change in the topics for discussion and organizational structure, consistent with the new challenges facing the ICT sector in the region.

In conclusion, I would like to renew my gratitude to everyone and express my hope that you may have found some time to visit the tourist areas of the country – although I know that some of you delegates have worked late, even into the small hours of the morning.

Once again, I extend a welcome to all our guests and wish you a safe journey back to your own countries.

Annex 5
(to closing ceremony report)

WTSA-16 decisions relative to resolutions

Table 1 – Revised resolutions

Res #	Title
1	Rules of procedure of the ITU Telecommunication Standardization Sector
2	ITU Telecommunication Standardization Sector study group responsibility and mandates
7	Collaboration with the International Organization for Standardization and the International Electrotechnical Commission
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
18	Principles and procedures for the allocation of work to, and coordination among, ITU Telecommunication Standardization and ITU Telecommunication Development Sectors
20	Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources
22	Authorization for the Telecommunication Standardization Advisory Group to act between world telecommunication standardization assemblies
29	Alternative calling procedures on international telecommunication networks
32	Strengthening electronic working methods for the work of the ITU Telecommunication Standardization Sector
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
40	Regulatory aspects of the work of the ITU Telecommunication Standardization Sector
44	Bridging the standardization gap between developing and developed countries
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
49	ENUM
50	Cybersecurity
52	Countering and combating spam
54	Creation of, and assistance to, regional groups
55	Promoting gender equality in ITU Telecommunication Standardization Sector activities
64	Internet protocol address allocation and facilitating the transition to and deployment of IPv6
65	Calling party number delivery, calling line identification and origin identification information
67	Use in the ITU Telecommunication Standardization Sector of the languages of the Union on an equal footing
68	Evolving role of industry in the ITU Telecommunication Standardization Sector
69	Non-discriminatory access and use of Internet resources
70	Telecommunication/information and communication technology accessibility for persons with disabilities

Table 1 – Revised resolutions

Res #	Title
72	Measurement and assessment concerns related to human exposure to electromagnetic fields
73	Information and communication technologies, environment and climate change
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
76	Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme
77	Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking
78	Information and communication technology applications and standards for improved access to e-health services
80	Acknowledging the active involvement of the membership in the development of ITU Telecommunication Standardization Sector deliverables

Table 2 – New resolutions

Note – The final Resolution numbers were added after the Assembly.

Res #	Title
83	Evaluation of the implementation of resolutions of the World Telecommunication Standardization Assembly
84	Studies concerning the protection of users of telecommunication/information and communication technology services
85	Strengthening and diversifying the resources of the ITU Telecommunication Standardization Sector
86	Facilitating the implementation of the Smart Africa Manifesto
87	Participation of the ITU Telecommunication Standardization Sector in the periodic review and revision of the International Telecommunication Regulations
88	International mobile roaming
89	Promoting the use of information and communication technologies to bridge the financial inclusion gap
90	Open source in the ITU Telecommunication Standardization Sector
91	Enhancing access to an electronic repository of information on numbering plans published by the ITU Telecommunication Standardization Sector
92	Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications
93	Interconnection of 4G, IMT-2020 networks and beyond
94	Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology
95	ITU Telecommunication Standardization Sector initiatives to raise awareness on best practices and policies related to service quality
96	ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information and communication technology devices
97	Combating mobile telecommunication device theft
98	Enhancing the standardization of Internet of things and smart cities and communities for global development

Table 3 – Resolutions unchanged

Res #	Title
31	Admission of entities or organizations to participate as Associates in the work of the ITU Telecommunication Standardization Sector
34	Voluntary contributions
43	Regional preparations for world telecommunication standardization assemblies
47	Country code top-level domain names
48	Internationalized (multilingual) domain names
58	Encouraging the creation of national computer incident response teams, particularly for developing countries
59	Enhancing participation of telecommunication operators from developing countries
60	Responding to the challenges of the evolution of the identification/numbering system and its convergence with IP-based systems/networks
61	Countering and combating misappropriation and misuse of international telecommunication numbering resources
62	Dispute settlement
66	Technology Watch in the Telecommunication Standardization Bureau
74	Admission of Sector Members from developing countries in the work of the ITU Telecommunication Standardization Sector
79	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

Table 4 – Resolutions suppressed

Res #	Title
33	Guidelines for strategic activities of the ITU Telecommunication Standardization Sector
38	Coordination among the three ITU Sectors for activities relating to International Mobile Telecommunications
57	Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest
71	Admission of academia to participate in the work of the ITU Telecommunication Standardization Sector
81	Strengthening collaboration
82	Strategic and structural review of the ITU Telecommunication Standardization Sector

Annex 6
(to closing ceremony report)

WTSA-16 decisions relative to Recommendations

Table 1 – Revised Recommendations	
Rec #	Title
ITU-T A.1	Working methods for study groups of the ITU Telecommunication Standardization Sector
ITU-T A.12	Identification and layout of ITU-T Recommendations
ITU-T D.271	Charging and accounting principles for NGN

Table 2 – New Recommendations	
Rec #	Title
ITU-T D.52	Establishing and connecting regional Internet exchange points to reduce costs of international Internet connectivity
ITU-T D.53	International aspects of universal service
ITU-T D.97	Methodological principles for determining international mobile roaming rates
ITU-T D.261	Regulatory principles for market definition and identification of operators with significant market power - SMP

Table 3 – Unchanged ITU-T A-series Recommendations and supplements

Rec #	Title
ITU-T A.2	Presentation of contributions to the ITU Telecommunication Standardization Sector
ITU-T A.4	Communication process between the ITU Telecommunication Standardization Sector and forums and consortia
ITU-T A.5	Generic procedures for including references to documents of other organizations in ITU-T Recommendations
ITU-T A.6	Cooperation and exchange of information between the ITU Telecommunication Standardization Sector and national and regional standards development organizations
ITU-T A.7	Focus groups: Establishment and working procedures
ITU-T A.8	Alternative approval process for new and revised ITU-T Recommendations
ITU-T A.11	Publication of ITU-T Recommendations and World Telecommunication Standardization Assembly proceedings
ITU-T A.13	Supplements to ITU-T Recommendations
ITU-T A.23	Collaboration with the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) on information technology
ITU-T A.25	Generic procedures for incorporating text between ITU-T and other organizations
ITU-T A.31	Guidelines and coordination requirements for the organization of ITU-T seminars and workshops
ITU-T A Sup.2	Guidelines on interoperability experiments
ITU-T A Sup.3	IETF and ITU-T collaboration guidelines
ITU-T A Sup.4	Supplement on guidelines for remote participation
ITU-T A Sup.5	Guidelines for collaboration and exchange of information with other organizations

Section V-2 – Committee reports to the Plenary

V-2.1 – Committee 2: Budget Control

Chairman: Ms Weiling Xu (China, People's Rep. of)

REPORT OF COMMITTEE 2 TO PLENARY

1 Budget Control Committee

The Budget Control Committee held two meetings during the World Telecommunication Standardization Assembly (WTSA-16) under the Chairmanship of Ms Weiling Xu (China, People's Rep. of), assisted by Vice-Chairmen Mr Santiago Reyes-Borda (Canada) and Mr Dietmar Plesse (Germany), and considered the issues arising from its terms of reference.

2 Draft time management plan/List of proposals to be examined by WTSA/Terms of reference

The draft time management plan, the list of proposals to be examined and the terms of reference relative to Committee 2 were presented and approved (Documents [DT/3](#), [DT/1](#) and [DT/4](#)). The agenda of meetings of Committee 2 are in Documents [ADM4](#) and [ADM27](#).

3 Agreement between the Government of the Tunisian Republic and ITU

In accordance with Resolution 77 of the Plenipotentiary Conference (Rev. Busan, 2014), Resolution 5 of the Plenipotentiary Conference (Kyoto, 1994) and Resolution No. 83 (amended) of the ITU Council concerning the organization, financing and liquidation of the accounts of ITU conferences and meetings, the Government of the Tunisian Republic and ITU concluded an agreement concerning the holding, organization and financing of the World Telecommunication Standardization Assembly (WTSA-16) and the holding, organization and financing of the Global Standardization Symposium of the International Telecommunication Union (GSS).

The Budget Control Committee took note of the agreement (Document [30](#)) and warmly thanked the Government of the Tunisian Republic for the excellent organization and facilities provided for the Assembly.

4 Financial responsibilities of conferences

The attention of Committee 2 was drawn to No. 115 of Article 18 of the Constitution of the International Telecommunication Union and to Nos 488 and 489 of Article 34 of the Convention of the International Telecommunication Union, concerning the financial responsibilities of conferences (Documents [33](#) and [DT/10](#)). After the meeting, Document [DT/10](#) was converted into Document [62](#).

5 Budget of the World Telecommunication Standardization Assembly (WTSA-16)

At its 2015 session, the Council approved via Resolution 1375 the budget of the World Telecommunication Standardization Assembly (WTSA-16) for the biennium 2016-2017, amounting to CHF 2 154 000, of which CHF 1 457 000 are foreseen for documentation.

The estimated expenditure of WTSA-16 as at 31 October 2016, indicates an amount of 43 kCHF of unused appropriations excluding documentation costs. An excess of expenses of 23 kCHF is forecasted for the cost of documentation due to higher volumes than planned. Total costs including documentation are expected to be 20 kCHF below budget. (Document DT/[52](#) and Annex A to this report).

6 Contributions to the expenses of the World Telecommunication Standardization Assembly (WTSA-16)

The Committee took note of the amount that non-exempted international organizations and Sector Members (other than ITU-T Members) would have to pay to defraying the expenses of the Conference (Document [32](#)).

As at 2 November 2016, no organizations or Sector Members that must share in defraying the expenses of the conference were registered.

7 Report on estimated financial needs up to WTSA-20 and ITU-T expenditure for the years 2012 to 2016

The report on estimated financial needs up to WTSA-20 and ITU-T expenditure for the years 2012 to 2016 (Document [29](#)) was presented. With regards to the financial needs for the period up to 2020, the Committee stressed the importance to optimize the use of resources of the Union. It was recalled that the 2016-2017 budget, approved by Council 2015 (Resolution 1375), and the Financial Plan for 2016-2019, approved by PP-14 (Decision 5), already set the framework of the expenses for 2016-2019. In addition to Document DT/[10](#), the Committee agreed that a note by the Chairman of the Committee 2 to the Chairmen of Committee 3, Committee 4 and Working Groups, be prepared (Document [63](#))

8 Financial implications of Decisions and Resolutions of the WTSA-16

As at 31 October 2016, the Budget Control Committee has identified several areas that might have some financial impact (ref. Document DT/[53](#)). The document was discussed by Committee 2, which agreed to modify the title of Document DT/[53](#), to read as follows: Preliminary cost estimate of the Decisions and Resolutions of the World Telecommunications Standardization Assembly (WTSA-16).

During the discussion regarding the financial impact on interpretation expenses that the revised Resolution 44 might have, the Committee 2 expressed its concerns about the large amount, and advised, if needed, to consider the most costly option (option 2) when preparing the 2018-2019 budget.

The Secretariat confirmed that the options discussed in the framework of revised Resolution 44, would still be within the ceiling of CHF 85 million for the years 2016-2019 as set out in PP-14 Decision 5 (*decides* 1.2). A middle alternative comprised between the two proposed options could also be studied when preparing the 2018-2019 budget.

After its second meeting on Tuesday, 1 November, Committee 2 received additional requests to examine and provide its opinion on new and revised Resolutions that might have a financial impact (Documents [93](#), [96](#) and [100](#)).

The estimated financial impact is indicative and will be further reviewed by Council at its 2017 session when adopting the 2018-2019 budget. The Financial Plan 2016-2019, approved by PP-14, already setting the framework of the expenses for 2016-2019, the Secretariat informed Committee 2 that it will be difficult to balance the 2018-2019 budget with these Decisions and Resolutions that require additional financial funding.

For 2017, TSB will endeavour to accommodate the new requirements within the approved 2016-2017 budget, although this may be challenging.

Annex B includes a summary table of the potential financial implications of Decisions and Resolutions of WTSA-16, the cost assessment, as well as the list of Decisions and Resolutions of WTSA-16 with potential financial implications.

In summary, the additional expenses identified in the various Decisions and Resolutions of WTSA-16, are estimated between 1,342 kCHF and 1,628 kCHF for option 1, and between 2,602 kCHF to 3,788 kCHF for option 2 per biennium.

The Plenary meeting is requested to consider and approve this Report, which will then be forwarded by the Secretary-General, together with the Comments of the Plenary meeting, for submission to the 2017 session of Council.

Ms Weiling XU (China, People's Rep. of)
Chairman, Committee 2

Annexes: 2

Annex A
(to COM2 Report)

**Budget of the World Telecommunication
Standardization Assembly (WTSA-16)**

Status as at 31 October 2016

Amounts in thousands of Swiss francs

Category of expenses	Budget	Actual expenses and commitments as at 31 October 2016	Projected additional expenses until the end of the Assembly	Projected balance
Staff costs	466	320	170	-24
Other staff costs	31	2	1	28
Travel on duty	110	45	63	2
Contractual services	60	37	3	20
Rental and maintenance	10	0	0	10
Material and supplies	10	13	0	-3
Misc. expenses	10	0	0	10
Sub-total Expenses	697	417	236	43
Translation (5,790 pages)	863	777	188	-101
Typing (5,790 pages)	345	403	98	-156
Reprography (1,700,000 pages)	249	0	15	234
Sub-total Documentation	1,457	1,180	300	-23
Total	2,154	1,597	537	20

Annex B
(to COM2 Report)

**Potential Financial implications of Decisions and Resolutions
of the Assembly (WTSA-16)**

Resolution	Expense category	kCHF
Resolution 44	Interpretation	Between 422 kCHF and 708 kCHF (option 1) or between 1,682 kCHF and 2,868 kCHF (option 2) per biennium
New Resolution [RCC-3] Studies concerning the protection of users of telecommunications/ICT services	Consulting	40 kCHF per biennium
Resolution 77	Workshops	180 kCHF per biennium
New Resolution [APT-3] Standardization work in the ITU Telecommunication Standardization Sector for cloud based event data technology	Workshops	60 kCHF per biennium
New Resolution [AFCP-2] promoting use of ICTs to Bridge the Financial Inclusion Gap	Staff, Consulting, Workshops/Seminars	580 kCHF per biennium
New Resolution [APT-2]/[IAP-3] Enhancing the standardization of Internet of Things and Smart Cities & Communities for global development	Workshops	60 kCHF
Total with option 1 (Res. 44)		Between 1,342 kCHF and 1,628 kCHF per biennium
Total with option 2 (Res. 44)		Between 2,602 kCHF and 3,788 kCHF per biennium

COST ASSESSMENT

Interpretation

Ref. Document [72](#) (Resolution 44, *resolves* 6: that interpretation shall be provided, based on the requests of participants, at the entire Plenary and Working Parties of Study Groups and the entire meeting of TSAG).

The ITU-T budget 2017 for interpretation is 313 kCHF.

One day of interpretation costs approximately:

- 12kCHF when interpretation is provided in 6 languages
- 9kCHF when interpretation is provided in 5 languages
- 7kCHF when interpretation is provided in 4 languages

Currently, interpretation is provided to the TSAG meeting during two days (Opening and Closing sessions). Should interpretation be provided for the entire meeting of TSAG, the additional expense would be around 36kCHF per TSAG meeting (for a TSAG meeting lasting 5 days), or 24kCHF per TSAG meeting (for a TSAG meeting lasting 4 days). By biennium, the financial impact will be between 72kCHF (3 TSAG meetings of 4 days) and 108kCHF (3 TSAG meetings of 5 days).

Option 1

Currently interpretation is provided to Closing sessions of Study Groups. The provision of interpretation at the Plenaries of Study Groups (Opening and Closing sessions) and at stand-alone Working Parties (Opening and Closing sessions), would entail 25 additional days of interpretation. The financial impact can be estimated between 350 kCHF and 600 kCHF per biennium, depending on the number of languages requested.

Additional days of interpretation	Number of languages provided	Daily cost (in kCHF)	Additional expense per year (in kCHF)	Additional expense per biennium (in kCHF)
25	6	12	300	600
25	5	9	225	450
25	4	7	175	350

Option 2

The provision of interpretation at the Plenaries of Study Groups (Opening and Closing sessions) and at the Plenaries of all Working Parties (Opening and Closing sessions), would entail 115 additional days of interpretation. The maximum financial impact can be estimated between 1,610kCHF and 2,760 kCHF per biennium, depending on the number of languages requested.

Additional days of interpretation	Number of languages provided	Daily cost (in kCHF)	Additional expense per year (in kCHF)	Additional expense per biennium (in kCHF)
115	6	12	1,380	2,760
115	5	9	1,035	2,070
115	4	7	805	1,610

Consulting

Ref. New Resolution [RCC-3] and New Resolution [AFCP-2]

The implementation of the above will imply the hiring of experts under Special Service Agreements (SSA) contracts in connection with the development of reports and studies.

Workshops/Seminars

Ref. Resolution 77, New Resolution [APT-3], New Resolution [AFCP-2] and New Resolution [APT-2]/[IAP-3]

The organization of Workshops/Seminars entail ITU Staff Travel cost, Expert Travel cost in some cases, fellowships, rental of conference room and audiovisual equipment, for an estimated amount of 30 kCHF per Workshop/Seminar.

The following number of workshops per year are included in the estimated potential implications:

Resolution 77	3
New Resolution [APT-3]	1
New Resolution [AFCP-2]	3
New Resolution [APT-2]/[IAP-3]	1

TSB Staff Resources

Ref. New Resolution [AFCP-2]

The management of the platform for peer learning, dialogue and experience-sharing in digital financial services will require an additional post P2. The annual cost of this post amounts to 140 kCHF (280kCHF per biennium)

Decisions and Resolutions of the Assembly (WTSA-16) with potential financial implications

Resolution 44 Document 72	Bridging the standardization gap between developing and developed countries
<p>a) Under <i>resolves</i> 2 iii): "assist developing countries on developing strategies in establishing national/international test laboratories for emerging technologies". This is also repeated in Programme 2 of the Action Plan (Annex).</p> <p>b) Under <i>resolves</i> 6: "that interpretation shall be provided, based on the requests of participants, at the entire Plenary and Working Parties of Study Groups and the entire meeting of TSAG".</p> <p>c) Under <i>instructs the TSB Director</i> 14: "to provide remote participation, where possible, for more ITU-T workshops, seminars and forums, encouraging more participation from developing countries;"</p> <p>d) Under <i>Action Plan Programme III</i>: "Provide guidance and supportive material to developing countries to assist them in developing and providing undergraduate and post graduate courses on standardization in their universities".</p>	
New Resolution [RCC-3] Document 93	Studies concerning the protection of users of telecommunication/ICT services
<p>1 <i>invites the Director of the Telecommunication Standardization Bureau</i></p> <p>to assist the Director of the Telecommunication Development Bureau in implementation of the Resolution 196 (Busan, 2014) of the Plenipotentiary Conference;</p> <p>2 to strengthen relations with other standards development organizations (SDOs) involved in resolving issues of protection of telecommunication/ICT service users,</p>	

Resolution 77 Document 93	Enhancing the Standardization work in the ITU Telecommunication Standardization Sector for software-defined networking
<p><i>instructs the Director of the Telecommunication Standardization Bureau</i></p> <p>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. Dubai, 2012) of this assembly) and in particular to promote participation of the industry in SDN standardization work in ITU-T;</p> <p>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, to organize the annual SDN&NFV workshop with Open Source solutions representation to share the SDN/NFV standard progress and real experience in the current carrier network,</p>	

New Resolution [APT-3] Document 93	Standardization work in the ITU Telecommunication Standardization Sector for cloud based event data technology
<p><i>instructs the Director of the Telecommunication Standardization Bureau</i></p> <p>1 to provide necessary assistance to speed up the standardization work on cloud-based event data technology and to encourage participation and contributions from Member States particularly from developing countries;</p> <p>2 to organize a workshop(s) to collect requirements and input on this topic from a wide range of various stakeholders,</p>	

New Resolution [AFCP-2] Document 100	Promoting use of ICTs to Bridge the Financial Inclusion Gap
	<p>Under <i>"instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the other Bureaux"</i></p> <p>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 that other SDOs and institutions are responsible for;</p> <p>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 telecom and financial services sectors, industry experts and international and regional organizations;</p> <p>4 to organize workshops and seminars for ITU Membership in collaboration with other relevant SDOs and institutions with primary responsibility for financial services standards development, implementation and capacity building, to raise awareness and identify regulators particular needs and challenges in enhancing financial inclusion;</p>

New Resolution [APT-2]/[IAP-3] Document 100	Enhancing the standardization of Internet of Things and Smart Cities & Communities for global development
	<p>Under <i>"instructs the Director of the Telecommunication Standardization Bureau"</i></p> <p>2 to carry out, in collaboration with member states and cities, pilot projects in cities related to the SC&C KPI assessment activities, aimed at facilitating the deployment and implementation of the IoT and SC&C standards worldwide;</p> <p>Under <i>"instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the Telecommunication Development Bureau and the Radiocommunication Bureau"</i></p> <p>1 to prepare reports considering, in particular, the needs of developing countries related to the studies of IoT and its applications, sensor networks, services and infrastructure;</p> <p>2 to continue disseminating ITU publications on IoT and SC&C, as well as organizing fora, seminars and workshops on the subject, taking into account the needs of developing countries, in particular,</p>

V-2.2 – Committee 3: Working methods of ITU-T

Chairman: Dr Stephen Trowbridge (USA)

FINAL REPORT OF THE WORK OF COMMITTEE 3 "WORKING METHODS OF ITU-T", INCLUDING ITS WORKING GROUPS

1 Introduction

1.1 The terms of reference for Committee 3 are contained in document [DT4](#).

1.2 Committee 3 (Working methods of ITU-T) was chaired by Dr Stephen Trowbridge (USA) with the support of the vice-chairmen of the Committee: Mr Alexander A. Grishchenko (Russian Federation), Ms Tran Thanh Ha (Vietnam) and Mr Hassan Talib (Morocco).

WTSA established two Working Groups under Committee 3 as follows:

Working Group 3A of Committee 3 with Mr Ahmed Raghy (Egypt) as a Chairman.

Working Group 3B of Committee 3 with Mr Bruce Gracie (Canada) as a Chairman.

Terms of reference of the Working Groups are given in [DT4](#).

1.3 The meetings took into account the documents allocation to Committee 3 given in [DT1](#) and worked out its general agenda as appears in [DT11](#).

1.4 Committee 3 examined 65 proposals for 20 existing Resolutions, two new Resolutions, updates to 4 A-series Recommendations and a request to publish [A.7](#) together with its [Appendix](#) as one publication. Committee 3 held 5 meetings in 10 sessions, the respective reports can be found in documents [DT12](#), [DT20](#), [DT50](#) and [DT89](#).

1.5 Resolutions and A-series Recommendations under the responsibility of Committee 3 are found in the Annex along with the final document/actions taken on them.

2 Results of the Work of Committee 3

2.1 Resolutions

2.1.1 Revised Resolutions

Resolution 1 – Rules of procedure of the ITU Telecommunication Standardization Sector (ITU-T)

Per document DT1 Resolution 1 falls in the mandate of Working Group 3A where it was examined and revised based on 6 proposals ([AFCP/42A12-R1/1](#), [ARB/43A17/1](#), [APT/44A2/1](#), [IAP/46A10/1](#), [RCC/47A1/1](#), [USA/48A16/1](#)) received for modification of Resolution 1.

Committee 3 agreed on every piece of the revision in Resolution 1 except the portion in between the square brackets as shown in new clause 2.10 on the first page 9 of Resolution 1.

Committee 3 requests Plenary to take decision on the text in between the square brackets and proceed with approval of Resolution 1 (Document [99](#)).

Plenary is requested to request TSAG to find a definition for "agreement" as applied to non-normative texts.

Plenary is requested to instruct 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.

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

Per document DT1 Resolution 7 falls in the mandate of Working Group 3B where it was examined and revised. Resolution 7 received two proposals ([RCC/47A2/1](#), [USA/48A5/1](#)) to modify Resolution 7.

Plenary is requested to approve draft revised Resolution 7 as found in Document [85](#).

Resolution 11 – Collaboration with the Postal Operations Council (POC) of the Universal Postal Union (UPU) in the study of services concerning both the postal and the telecommunication sectors

Per document DT1 Resolution 11 falls in the mandate of Working Group 3B where it was examined and revised based on the one proposal ([AFCP/42A2-R1/1](#)) to modify Resolution 11 and one proposal ([IAP/46A13/1](#)) to suppress Resolution 11.

Plenary is requested to approve draft revised Resolution 11 as found in Document [94](#).

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

Per document DT1 Resolution 18 falls in the mandate of Working Group 3B where it was examined and revised. Resolution 18 received three proposals ([AFCP/42A3-R1/1](#), [ARB/43A1/1](#), [RCC/47A3/1](#)) to modify Resolution 18.

Plenary is requested to approve draft revised Resolution 18 as found in Document [85](#).

Resolution 22 – Authorization for TSAG to act between WTSAs

Resolution 22 received four proposals ([ARB/43A20/1](#), [APT/44A3/1](#), [EUR/45A2/2](#), [IAP/46A31/1](#)) for modification to Resolution 22.

Given the diversity of proposals for changing this Resolution, the meeting agreed to create an ad-hoc group under the leadership of Mr Bruce Gracie (Canada), which was tasked to reconcile the proposals into a single document. The ad-hoc brought back the proposal for consideration to the meeting and committee 3 after some discussions agreed to the revision of Resolution 22.

Plenary is requested to approve draft revised Resolution 22 as found in Document [94](#).

Resolution 31 – Admission of entities or organizations to participate as Associates in the work of ITU-T

Resolution 31 received two proposals (from ATU [AFCP/42A5-R1/1](#), and United States [USA/48A6/1](#)) to modify Resolution 31.

For AFCP/42A5-R1/1, the meeting recognized that the issue is covered by Resolution 187 (Busan, 2014) and membership issues are not in the remit of this Assembly, whereas the Council Working Group on Financial and Human Resources has been considering the issue on an ITU-wide basis. Committee 3 agreed not to introduce additional text from proposal AFCP/42A5-R1/1 into Resolution 31 but to invite the Council to continue addressing the issue with urgency.

The second proposal, USA/48A6/1, was supported by Canada. Russian Federation with support by Zimbabwe expressed objections to the proposal and proposed to keep *request 2* of Resolution 33.

The meeting agreed to keep Resolution 31 unchanged.

Resolution 32 – Strengthening electronic working methods for the work of the ITU Telecommunication Standardization Sector

Per document DT1 Resolution 32 falls in the mandate of Working Group 3A. The meeting agreed on the revision to Resolution 32 as developed by the Working Group 3A. Changes to this Resolution may have financial implication, therefore the Resolution 32 was passed over to the Committee 2 for review from the budget perspective.

The draft revised Resolution 32 was submitted via the editorial committee to Plenary in Document [64](#) and was approved during the Plenary session held on Friday, 28 October 2016 from 16:15-17:30 hours.

Resolution 33 – Guidelines for strategic activities of the ITU Telecommunication Standardization Sector

The meeting of Committee 3 looked at Resolution 33, which received one proposal from CITEL ([IAP/46A26/1](#)) to suppress Resolution 33.

The meeting agreed to suppress Resolution 33. ***The suppression was submitted via the editorial committee to Plenary in Document [64](#) and was approved during the Plenary session held on Friday, 28 October 2016 from 16:15-17:30 hours.***

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 received two proposals ([APT/44A4/1](#), [IAP/46A24/1](#)) for modification of Resolution 35.

Plenary is requested to approve draft revised Resolution 35 as found in Document [80](#).

Resolution 38 – Coordination among the three ITU Sectors for activities relating to International Mobile Telecommunications

Per document DT1 Resolution 38 falls in the mandate of Working Group 3B. Resolution 38 received two proposals ([APT/44A11/1](#), [IAP/46A28-R1/1](#)) for suppression of Resolution 38.

The meeting agreed to suppress Resolution 38. *The suppression was submitted via the editorial committee to Plenary in Document [64](#) and was approved during the Plenary session held on Friday, 28 October 2016 from 16:15-17:30 hours.*

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

Per document DT1 Resolution 45 falls in the mandate of Working Group 3B where it was examined and revised. Resolution 45 received one proposal ([IAP/46A27/1](#)) for suppression and one proposal ([APT/44A5/1](#)) for modification of Resolution 45.

Plenary is requested to approve draft revised Resolution 45 as found in Document [94](#).

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

Resolution 55 received one proposal ([APT/44A6/1](#)) for modification, one proposal ([IAP/46A4/1](#)) for suppression of Resolution 55. In addition, companion contribution from CITEU ([IAP/46A5-R1/1](#)) put forward the proposal to adopt a new Resolution on Promoting gender equality in ITU-T activities [IAP-2]. Committee 3 examined these three proposals together and developed the revised text of Resolution 55 through the activities of the drafting group on gender Resolutions led by Ms Tran Thanh Ha (Vietnam).

The meeting agreed to forward revised Resolution 55 to the Budget Committee to hear if generation of some of statistics might require some additional resources.

Plenary is requested to approve draft revised Resolution 55 as found in Document [80](#).

Resolution 57 – Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest

Per document DT1 Resolution 57 falls in the mandate of Working Group 3B. Resolution 57 received two proposals ([AFCP/42A7/1](#), [ARB/43A5/1](#)) for suppression and one proposal ([RCC/47A4/1](#)) for modification of Resolution 57.

The meeting agreed to suppress Resolution 57. The suppression is forwarded via the editorial committee to Plenary in Document [85](#) for approval.

Resolution 66 – Technology Watch in the Telecommunication Standardization Bureau

Resolution 66 received one proposal from United States ([USA/48A1/1](#)) to suppress Resolution 66. Canada supported this proposal. Several Member States expressed their opinion of preserving Resolution 66. There were other Member States who supported the suppression. The opinion was expressed also that more time for consideration should be given to the members before suppression of this Resolution. After a lengthy debates addressing many questions for clarification, including the intervention from TSB Deputy Director indicating that some reports prepared under Resolution 66 had been submitted as TDs directly to study groups not using the title "Technology Watch", the meeting concluded that Resolution 66 should not be suppressed at this point in time.

Plenary is requested to instruct the TSB Director to report on an ongoing basis to TSAG concerning the implementation of Resolution 66.

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

Resolution 67 received two proposals (from [RCC/47A5/5](#), and from Standardization Committee for Vocabulary [SCV/50/1](#)) to modify Resolution 67. Four additional proposals from RCC on translation of AAP approved Recommendations, [RCC/47A5/1](#), on holding joint SCV/CCV meetings, [RCC/47A5/2](#), on terminology/vocabulary, [RCC/47A5/3](#), and on the use of the languages of the Union on ITU-T web-pages, [RCC/47A5/4](#), accompanied the proposal to revise Resolution 67.

The meeting understood that the Coordination Committee on the Vocabulary (CCV) on the ITU Radio Sector did not concur with the proposed changes that were proposed by the SCV, due to procedural reasons, and henceforth it is not possible at this time to create a joint group.

After an informal consultation the revised text of Resolution 67 was proposed and adopted at Committee 3. Since this Resolution may have budget implications, it was forwarded to Committee 2 for evaluation.

Plenary is requested to approve draft revised Resolution 67 as found in Document [85](#).

Resolution 68 – Evolving role of industry in ITU-T

Resolution 68 received two proposals ([AFCP/42A30/1](#), [EUR/45A4/1](#)) to modify Resolution 68.

The meeting agreed to create an Ad-hoc group on Resolution 68 under the leadership of Mr. Christopher K. Kemei (Kenya), which was tasked to facilitate to combine the proposals including those new ones brought to Committee 3, to improve language, and to find more positive wording with regards to the cooperation with other relevant SDOs. The group submitted the revision to Resolution 68 to Committee 3 for consideration. This revision was agreed by Committee 3.

United Arab Emirates believed that the future CxO/CTO meetings should be an event for participation of high-level executives of the enterprises. They requested to put this statement in the report alongside the Resolution 68 deliberations.

Plenary is requested to approve draft revised Resolution 68 as found in Document [80](#).

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

Per document DT1 Resolution 70 falls in the mandate of Committee 3. Resolution 70 received three proposals ([ARB/43A7/1](#), [APT/44A7/1](#), [IAP/46A14/1](#)) for modification to Resolution 70.

The meeting agreed to set-up a drafting group under the leadership of Ms Andrea Saks (JCA-AHF convener) to consolidate the proposals into a single text. The drafting group brought back the proposed revision of Resolution 70 that the Committee 3 meeting agreed to. In addition, this Resolution was passed over to the Committee 2 for evaluation of possible financial implications.

Plenary is requested to approve draft revised Resolution 70 as found in Document [85](#).

Resolution 71 – Admission of academia to participate in the work of the ITU Telecommunication Standardization Sector

Resolution 71 received one proposal ([IAP/46A6/1](#)) for modification and one proposal ([ARB/43A8/1](#)) for suppression of Resolution 71. Both proposals were introduced at the second meeting of Committee 3. Some time for informal consultations was admitted and the Resolution 71 was taken again at the agenda of the fourth meeting of Committee on Working Methods on Monday, 31 October 2016.

The chairman explained that the pieces of the text from Resolution 71 were incorporated into the Resolution 80 and the other ITU sectors (ITU-R) suppressed the similar Resolutions, because the Academia became a regular ITU member since a while per the decision of the Plenipotentiary Conference. With this rational he put a proposal forward to ask the meeting to suppress this Resolution. This proposal received no objections.

The meeting agreed to suppress Resolution 71. *The suppression is forwarded via the editorial committee to Plenary in Document [85](#) for approval.*

Further down the agenda of that meeting, Argentina asked when the Resolution 71 will be addressed. Apparently, the meeting took a decision to propose the suppression of this Resolution to the Plenary meeting. Argentina was advised accordingly but requested to reconsider this decision. To not set a precedent that committee decisions taken at WTSA could be reopened because a delegation was not in the room, chairman explained that the debates on Resolution 71 won't reopen. Argentina was advised that bringing the issue to the Plenary is indeed appropriate.

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

Resolution 80 received one proposal ([IAP/46A12/1](#)) for modification, one proposal ([ARB/43A11/1](#)) for suppression and the TSB Director's report on implementation of this resolution ([SGALL/59/1](#)).

Resolution 80 was revised.

Plenary is requested to approve draft revised Resolution 80 as found in Document [85](#).

Resolution 81 – Strengthening collaboration

Per document DT1 Resolution 81 falls in the mandate of Working Group 3B. Resolution 81 received one proposal ([IAP/46A21/1](#)) for suppression.

The meeting agreed to suppress Resolution 81. *The suppression was submitted via the editorial committee to Plenary in Document [64](#) and was approved during the Plenary session held on Friday, 28 October 2016 from 16:15-17:30 hours.*

2.1.2 New Resolution [AFCP-1] on Evaluation of the implementation of WTSA Resolutions

The proposal to initiate a new Resolution on Evaluation of the implementation of WTSA Resolutions ([AFCP/42A1/1](#)) was submitted to the WTSA-16 by ATU.

It was considered in Committee 3 and agreed with modifications.

Plenary is requested to approve draft new Resolution [AFCP-1], Evaluation of the implementation of WTSA Resolutions, as found in Document [94](#).

3 Recommendations

3.1 Revised Recommendations

Recommendation ITU-T A.1 – Working methods for study groups of the ITU Telecommunication Standardization Sector

Per document DT1 Recommendation ITU-T A.1 falls in the mandate of Working Group 3A where it was considered. The meeting agreed not to change the Recommendation ITU-T A.1 at this point in time allowing only the change introduced by TSAG (July 2016) meeting for submission to the WTSA-16. It is about abolishing the Global Standards Initiative (GSI) concept by omitting clauses 2.2.11 and 2.2.12 in the current edition of Recommendation ITU-T A.1.

The draft revised Recommendation ITU-T A.1 was submitted via the editorial committee to Plenary in Document [64](#) and was approved during the Plenary session held on Friday, 28 October 2016 from 16:15-17:30 hours.

Recommendation ITU-T A.7 – Focus groups: Establishment and Working procedures

Recommendation ITU-T A.7 received one proposal (from European Administrations [EUR/45A3/1](#)) not to change this Recommendation. The same document contained the request to TSB to make the Recommendation ITU-T A.7 (2012) and its Appendix I (2015) available as a single publication.

The meeting agreed to this proposal.

Editorial Committee received corresponding instructions concerning single publication of Recommendation ITU-T A.7 together with its Appendix I.

Recommendation ITU-T A.12 – Identification and layout of ITU-T Recommendations

Recommendation ITU-T A.12 received one proposal not to change its current text ([AFCP/42A19/2](#)) and three different proposals for modifications ([RCC/47A24/1](#), [ARB/43A13/1](#), and [EUR/45A5/1](#)). Committee 3 agreed to revise this Recommendation.

Plenary is requested to approve draft revised Recommendation ITU-T A.12 as found in Document [99](#).

Recommendation ITU-T A.13 – Supplements to ITU-T Recommendations

Recommendation ITU-T A.13 received two proposals ([AFCP/42A19/3](#), [ARB/43A30/1](#)) of no change and one proposal ([IAP/46A20/1](#)) of modification to Recommendation ITU-T A.13.

The meeting agreed not to modify Recommendation ITU-T A.13 at this point in time but invite TSAG to investigate further the non-normative texts publications within ITU-T.

This meeting decided to maintain the Recommendation ITU-T A.13 unchanged.

Plenary meeting is requested to instruct TSAG to investigate further the procedures for development and agreement of non-normative texts within ITU-T and assign the urgency of the issue.

Acknowledgments

Committee 3 Chairman expressed his sincere thanks to all the participants, Vice-Chairmen of Committee 3, all of whom enthusiastically took additional tasks to lead the Ad-hoc and Drafting Groups Ms Andrea Saks, Ms Tran Thanh Ha, Mr Christopher Kemei and Mr Bruce Gracie. He also thanked the TSB staff, Ms T. Kurakova, Mr M. Euchner, Ms X. Yang, Ms A. Meshkurti, and the interpreters for their support.

Germany on behalf of all participants thanked Committee 3 chairman, Dr Stephen Trowbridge, for his patience, guidance and experience in running this group meeting towards the good compromise and achievements.

Annex
(to COM3 Report)

Resolutions and A-series Recommendations under the responsibility of Committee 3

Resolutions	Document/Disposition
Resolution 1 – Rules of procedure of the ITU Telecommunication Standardization Sector (ITU-T)	99
Resolution 7 – Collaboration with the International Organization for Standardization and the International Electrotechnical Commission	85
Resolution 11 – Collaboration with the Postal Operations Council (POC) of the Universal Postal Union (UPU) in the study of services concerning both the postal and the telecommunication sectors	94
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	85
Resolution 22 – Authorization for TSAG to act between WTSAs	94
Resolution 31 – Admission of entities or organizations to participate as Associates in the work of ITU-T	Remains unchanged
Resolution 32 – Strengthening electronic working methods for the work of ITU-T	Suppressed
Resolution 33 – Guidelines for strategic activities of the ITU Telecommunication Standardization Sector	Suppressed
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	80
Resolution 38 – Effective coordination of standardization work across study groups in ITU-T and the role of TSAG	Suppressed
Resolution 45 – Effective coordination of standardization work across study groups in ITU-T and the role of TSAG	94
Resolution 55 – Promoting gender equality in ITU Telecommunication Standardization Sector activities	80
Resolution 57 – Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest	Suppressed
Resolution 66 – Technology Watch in the Telecommunication Standardization Bureau	Remains unchanged
Resolution 67 – Use in the ITU Telecommunication Standardization Sector of the languages of the Union on an equal footing	85
Resolution 68 – Evolving role of industry in ITU-T	80
Resolution 70 – Telecommunication/information and communication technology accessibility for persons with disabilities and persons with specific needs	85
Resolution 71 – Admission of academia to participate in the work of the ITU Telecommunication Standardization Sector	Suppressed
Resolution 80 – Acknowledging the active involvement of the membership in the development of ITU Telecommunication Standardization Sector deliverables	85
Resolution 81 – Strengthening collaboration	Suppressed
New Resolution [AFCP-1] – Evaluation of the implementation of WTSAs Resolutions	96

Resolutions	Document/Disposition
Resolution [IAP-2] – Promoting gender equality in ITU-T activities	Integrated in Resolution 55

Resolutions with square brackets	Document
Resolution 1 – Rules of procedure of the ITU Telecommunication Standardization Sector (ITU-T)	99

A-series Recommendations	Document/Disposition
Recommendation ITU-T A.1 – Working methods for study groups of the ITU Telecommunication Standardization Sector	64
Recommendation ITU-T A.7 – Focus groups: Establishment and Working procedures	64
Recommendation ITU-T A.12 – Identification and layout of ITU-T Recommendations	99
Recommendation ITU-T A.13 – Supplements to ITU-T Recommendations	Remains unchanged

V-2.3 – Committee 4: Work programme and organization of ITU-T

Chairman: Mr Kwame Baah-Acheamfuor (Ghana)

FINAL REPORT OF COMMITTEE 4 "WORK PROGRAMME AND ORGANIZATION OF ITU-T" Chairman: Mr Kwame Baah-Acheamfuor (Ghana)

1 Introduction

1.1 The terms of reference for Committee 4 (Work programme and organization of ITU-T) are contained in DT/4.

1.2 Committee 4 was chaired by Mr Kwame Baah-Acheamfuor (Ghana) with the support of the vice-chairmen of the Committee, Messrs Rodolfo De la Rosa Rábago (Mexico), José Cabrera (Spain), Hyoungh Jun Kim (Korea, Rep. of) and Ms Umida R. Musayeva (Uzbekistan). Committee 4 had two working groups: Working Group 4A chaired by Mr Fabio Bigi (Italy) with the support of the vice-chairman of WG4A Mr Kaoru Kenyoshi (Japan), and Working Group 4B chaired by Mr Jeferson Nacif (Brazil). The Chairman was directly assisted by Mr Simão Campos-Neto, Ms Cristina Bueti and Mr Stefano Polidori from the TSB.

1.3 The committee held seven sessions, and the respective reports can be found in Documents [65](#), [70](#), [73](#), [83](#), [90](#) and [91](#). The reports of meetings 1 and 2 (65, 70) were agreed by WTSA Plenary, and the report of meetings 3 to 5 (73, 83) were agreed by Committee 4 but not yet reviewed by the plenary. The combined report of meeting 6 and 7 in doc 91 is submitted directly to the plenary, for its approval.

1.4 The meetings took into account the document allocation to Committee 4 given in [DT/1](#) and the topics listed in [DT/8](#) and its Revision 2, plus daily updates listed in the agendas in the ADM series.

2 Study group structure

2.1 General

2.1.1 The discussions on the study group structure and mandates and allocation of Questions were based on the numerous member proposals received and allocated to Committee 4.

2.1.2 The agreements regarding the study group structure, titles, numbering, mandate and allocation of Questions are listed in 2.3 below. The number of 11 study groups remains.

2.1.3 The title, mandate, lead study group roles and points of guidance for Resolution 2 were agreed by COM4 as found in [118](#) (white series from COM5).

2.1.4 Concerning Annex C of Resolution 2, it was also agreed to **task TSB** with **updating Annex C** of Resolution 2, as done in previously assemblies.

2.2 Individual study group's titles, mandates, Questions, etc.

2.2.1 The text of the Questions and their allocation found in Docs [2](#), [4](#), [6](#), [8](#), [10](#), [12](#), [14](#), [16](#), [18](#), [20](#), [22](#) were agreed by COM4 as submitted by the various Study Groups, with the following adjustments.

2.2.2 The text of Question I/11 is **amended** as found in Doc. [88](#).

2.2.3 Question D/2 (ex Q4/2) is **transferred** to SG16 as a separate Question.

2.2.4 Question I/9 (ex Q9/9) is **transferred** to SG15.

2.2.5 Questions B/9 (ex Q2/9) and L/9 (ex Q12/9) are **transferred** to SG12.

2.2.6 After the discussions of the ad hoc group on SG20 matters, **no further changes** were identified to the text of SG20 Questions in Doc [22](#), thanks to the agreements reached for changes in the SG20 mandate in Resolution 2 itself.

2.2.7 Proposed new Questions

a) Bangladesh is **invited to submit to SG3** its proposed new Question "*Policy and regulatory aspects of Quality of Service (QoS) and Quality Of Experience (QoE)*" found in BGD/[52](#) at its first meeting in the new study period.

b) The matter of the proposed two new Questions proposed in Doc [43 Add. 32](#) (Q2/20 and Q3/20) could not be dealt with in COM4 and is deferred to the Plenary. The chairman proposal here is, applying customary practice in previous WTSAs, to defer the matter to the concerned study group (and consistent with the handling of the proposal in Doc [52](#) (Bangladesh), see previous paragraph.

3 Resolutions actions agreed at COM4 level

3.1 Agreed Revised Resolutions

Number	Title	Reference
2	ITU-T study group responsibilities and mandates	118
20	Procedures for allocation and management of international telecommunication numbering, naming, addressing and identification resources	101
40	Regulatory aspects of the work of the ITU Telecommunication Standardization Sector	75
44	Bridging the standardization gap between developing and developed countries	75
49	ENUM	101
54	Creation of, and assistance to, regional groups	117
64	IP address allocation and facilitating the transition to and deployment of IPv6	101
65	Calling party number delivery, calling line identification and origin identification information	101
69	Non-discriminatory access and use of Internet resources and telecommunications/ICTs	101
72	Measurement and assessment concerns related to human exposure to electromagnetic fields	74
73	Information and communication technologies, environment and climate change	74
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	117
76	Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme	75
77	Enhancing the standardization work in the ITU Telecommunication Standardization Sector for software-defined networking	98

3.2 New Resolutions

COM4 Number	EDCOM Number	Title	Reference
[AFCP-2]	[COM4/7]	Promoting the use of ICTs to bridge the financial inclusion gap	119
[AFCP-8]	[COM4/9]	Facilitating the implementation of the Smart Africa Manifesto	119
[APT-1]	[COM4/3]	Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications	101
[APT-2/IAP3]	[COM4/10]	Enhancing the standardization of Internet of Things and Smart Cities & Communities for global development	119
[APT-3]	[COM4/1]	Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology	98
[ARB-4]	[COM4/8]	Strengthening and diversifying the resources of the Telecommunication Standardization Sector of the International Telecommunication Union	119
[IAP-1/ AFCP-6]	[COM4/11]	ITU-T initiatives to raise awareness on best practices and policies related to service quality	119
[IAP-4]	[COM4/4]	International mobile roaming (IMR)	101
[ITR]	[COM4/12]	Participation of the Telecommunication Standardization Sector in the Periodic review and revision of the International Telecommunication Regulations	119
[RCC-3]	[COM4/2]	Studies concerning the protection of users of telecommunication/ICT services	98
[RCC-4]	[COM4/5]	Enhancing access to an electronic repository of information on numbering plans published by the ITU Telecommunication Standardization Sector	101
[RCC-5]	[COM4/6]	Interconnection of 4G, 5G/IMT-2020 networks and beyond	101

3.3 Resolutions with no changes

Number	Title
47	Country code top-level domain names
48	Internationalized (multilingual) domain names
59	Enhancing participation of telecommunication operators from developing countries
61	Countering and combating misappropriation and misuse of international telecommunication numbering resources

NOTE – The following Resolutions and Opinion under COM4 and its WGs did not receive any proposals are retained unchanged from WTSA-12: 79 (under COM4); 58, 62 (under WG4A); and 74 (under WG4B). Opinion 1 also did not receive any proposals and it is retained unchanged from WTSA-12.

3.4 Suppression of Resolutions

No Resolutions were proposed for suppression by COM4.

4 Issues deferred by COM4 to the Plenary

4.1 Documents with DOA language

Due to lack of time, the COM4 Plenary was not able to resolve the issues and to take a decision on the proposals in the following documents that contain language referring to DOA and the handle system.

The Plenary is requested to take appropriate actions.

Number	Title	Reference
Res [MOB-THEFT]	Countering mobile device theft using advanced information and communication technologies	Doc 108
Res [COUNTERF]	ITU-T studies for combating counterfeit telecommunication/ICT devices	Doc 107
Resolution 78	Information and communication technology applications and standards for improved access to e-health services	Doc 106
Resolution 60	The evolution of the identification and numbering systems to meet the emerging technological trends including Internet of Things (IoT)	Doc 105
Resolution 50	Cybersecurity	Doc 104

4.2 Instructs in revised Resolution 52

COM4 tried to resolve the square bracket in draft revised Resolution 52 "Countering and combating spam" as found in Doc. [112](#), but was unable to arrive at an agreement. Consequently, the document is forwarded to the plenary. The Plenary is requested to take appropriate actions.

4.3 Open source

COM4 was not able to reach an agreement on the text of proposed new Resolution [ARB-5] "Enable Open Source as a Work Methodology in ITU-T", as found in Doc. [114](#). Consequently, the document is forwarded to the plenary, which is requested to take appropriate actions.

4.4 OTT

COM4 was not able to reach an agreement on the five square brackets in proposed new Resolution [AFCP-3] "On-line services for voice and messaging that require access to international public telecommunication numbering resources", as found in Doc. [110](#). The text under dispute is the same as the title of the resolution.

COM4 did not discuss draft revised Resolution 29 "Alternative calling procedures on international telecommunication networks" as found in [111](#), since it is dependent on the resolution of the issues in Resolution [AFCP-3].

Consequently, the document is forwarded to the plenary, which is requested to take appropriate actions for both documents.

4.5 Resolution on data privacy and trust in ICT infrastructures and services

Due to lack of time, the COM4 Plenary was not able to review the draft new Resolution [ARB-6] – "Strengthening the role of ITU-T in ensuring data privacy and trust in ICT infrastructures and services" that had been developed in WG4A. The latest version is found in Doc [113](#), and the plenary is requested to take appropriate actions.

Acknowledgments

Committee 4 Chairman, Mr Kwame Baah-Acheamfuor, wishes to express his heartfelt thanks to all the contributors of documents allocated to Committee 4 and its participants and distinguished delegates, in particular, the support and leadership of:

Ad hoc group/Drafting Group/Informal consultation	Chairman/Convener/Focal Point
Ad hoc group on Allocation of block of work – Management work (WP2/2)	Mr Leo Lehmann (Switzerland) and Mr Sherif Guinena (Egypt)
Ad hoc group on IMT related resolutions: New Res. APT-1, New Res. RCC-5, Res. 49	Mrs Karima Mahmoudi and Mrs Jihene Ben Abderrazek (Tunisia)
Ad hoc group on mandate and scope of SG3	Mr Lwando Bbuku (Zambia)
Ad hoc group on numbering resolutions: Res. 20, 29, 40, 60, 61, 65 and new Res. RCC-4	Mr Phil Rushton (UK)
Ad hoc group on Resolution 2	Ms María Victoria Sukenik (Argentina)
Ad hoc group on SG20 matters related to IoT privacy, security and infrastructure	Mr Nilo Pasquali (Brazil)
Ad hoc group on SG20 matters	Mr Ratnam Na (Malaysia)
Ad hoc group on SG9 Restructuring	Mr Greg Ratta (USA)
Ad hoc group on internet related resolutions: Res. 48, Res. 69, Res. 47 and Res. 64	Mr Dietmar Plesse (Germany)
Ad hoc group on OTT and IMR resolutions: New Res. AFCP-3 and New Res. IAP-4	Mr Abraao Silva (Brazil)
Ad hoc group on security related resolutions: Res. 52, new Res. ARB-6 and Res. 50	Mr Jeferson Fued Nacif (Brazil)

Ad hoc group/Drafting Group/Informal consultation	Chairman/Convener/Focal Point
Ad hoc group on: Allocation of QI/11	Ms Irene Kaggwa Sewankambo (Uganda)
Ad-hoc group on Resolution 68 "The implementation of Resolution 122 (Rev. Antalya, 2006) on the evolving role of the World Telecommunication Standardization Assembly"	Mr Christopher K. Kebei (Kenya)
Drafting group on Resolution 78 – E-health	Mr Ramy Ahmed (Egypt)
Drafting group on combating counterfeit	Mr Isaac Boateng (Ghana)
Drafting group on draft new Res. [RCC-3] (Consumer protection)	Ms Memiko Otsuki (Japan)
Drafting group on Draft New Resolution [IAP-1 AFCEP-6] (service quality)	Mrs Irene Kaggwa Sewankambo (Uganda)
Drafting group on IoT and Smart Cities	Mr Harin Grewal (Singapore)
Drafting group on mobile theft	Mr Isaac Boateng (Ghana)
Drafting group on new Resolution for Digital Financial Services	Mr Ahmed Said (Egypt)
Drafting group on Res ARB-5 – Open source	Mr Dmitry Cherkasov (Russia)
Drafting group on Resolution 72 and Resolution 73	Mr Ahmed Zeddani (France)
Drafting group on Resolution 76 – Conformance and Interoperability	Mr Rahmy Ahmed Fathy (Egypt)
Drafting group Res ARB 4 – Strengthening and diversifying the resources of the Telecommunication Standardization Sector of the ITU	Mr Nasser Al Marzouqi (UAE)
Informal consultation on draft Resolution on ITR	Mr Musab Abdulla (Bahrain (Kingdom of))
Informal consultation on Res APT-3 – Standardization work in the ITU Telecommunication Standardization Sector for cloud based event data monitoring application	Mr Sean Sharidz Doral (Malaysia)
Informal consultation on Res. 77 – Standardization Work In The ITU Telecommunication Standardization Sector for Software-Defined Networking	Mr Kai Hu (China)

He also thanks the TSB staff for the excellent support received, in particular Mr Simão Campos-Neto, Ms Cristina Bueti and Mr Stefano Polidori, Ms Emma Norton Viard and Ms Reyna Ubeda, in addition to the various ITU staff members supporting the various ad hoc and drafting activities.

Annex
(to COM4 Final Report)

Committee 4 requests the following actions by the Plenary as listed below:

- 1) to approve the six reports of Committee 4 listed as listed in clause 1.3;*
- 2) address the pending issues from Committee 4 identified in clauses 4;*
- 3) to approve the text of Questions as given in clause 2.2.1 and 2.2.2;*
- 4) agree transfer of blocks of work in 2.2.3, 2.2.4 and 2.2.5;*
- 5) endorse the way forward in 2.2.7 concerning proposals for new Questions;*
- 6) to approve revision of the Resolutions as given in clause 3.1;*
- 7) to approve the new Resolutions as given in clause 3.2;*
- 8) to agree NOC for the Resolutions listed in 3.3;*
- 9) is requested to mandate TSB to check Resolution 2 Annex C prior to publication, to ensure that the detailed Recommendation series allocations to study groups properly reflect all decisions taken by the assembly.*

Section V-3 – Other reports and documents

Title	Document number
Committee meeting reports	
Report of the first meeting of Committee 4 to Plenary	65
Report of the second meeting of Committee 4 to Plenary	70
Report of the third meeting of Committee 4 to Plenary	73
Report of the fourth meeting of Committee 4 to Plenary	83
Report of the fifth meeting of Committee 4 to Plenary	90
Report of the sixth and seventh meetings of Committee 4 to Plenary	91
Reports of the Telecommunication Standardization Advisory Group to WTSA-16	
General	24
Draft revised Resolutions	25
Draft revised recommendations of the ITU-T A-series	26
TSAG report in respect of Resolution 22	27
Report of the Review Committee to WTSA-16	23
Reports by the Director of the Telecommunications Standardization Bureau	
Report of activities in ITU-T over the 2013-2016 Study period	28
Report on estimated financial needs up to WTSA-20 and ITU-T expenses for the years 2012 to 2016	29
Final list of WTSA-16 documents	133
Final list of participants	TD-2-Gen

International
Telecommunication
Union

Telecommunication
Standardization
Sector

Place des Nations
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Switzerland

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