ITU Telecommunication Standardization Sector

Draft Proceedings of the World Telecommunication Standardization Assembly

Hammamet, Tunisia,
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Parts 1 and 2

Resolutions and Recommendations

MOD

RESOLUTION 1 (REV. HAMMAMET, 2016)

Rules of procedure of the ITU Telecommunication Standardization Sector

(Dubai, 2012; Hammamet, 2016)[1]

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 Article 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);

[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).

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,

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 in the resolutions to which they refer, bearing in mind that, in the case of inconsistency, the Constitution, the Convention, the International Telecommunication Regulations 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 its need 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.

1*bis*.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.

1*bis*.2.3 Deletion

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

1*bis*.3 ITU-T opinions

1*bis*.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.

1*bis*.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.

1*bis*.3.3 Deletion

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

1*bis*.4 ITU-T Questions

1*bis*.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.

1*bis*.4.2 Approval

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

1*bis*.4.3 Deletion

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

1*bis*.5 ITU-T Recommendations

1*bis*.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.

1*bis*.5.2 Approval

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

1*bis*.5.3 Deletion

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

1*bis*.6 ITU-T supplements

1*bis*.6.1 Definition

The definition of supplement is found in 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.

1*bis*.6.2 Agreement

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

1*bis*.6.3 Deletion

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

1*bis*.7 ITU-T implementation guidelines

1*bis*.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.

1*bis*.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.

1*bis*.7.3 Deletion

Each study group may delete implementation guidelines, by consensus.

1*bis*.8 ITU-T technical reports

1*bis*.8.1 Definition

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

1*bis*.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.

1*bis*.8.3 Deletion

Each study group may delete technical reports, by consensus.

1*bis*.9 ITU-T handbooks

1*bis*.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.

1*bis*.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.

1*bis*.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 group[2], 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 group[2]. 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 symposiums 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 Council.

2.2.2 For meetings held outside Geneva, the provisions of Resolution 5 (Kyoto, 1994) of the Plenipotentiary Conference as well as of ITU 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 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 and Telecommunication Development 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.

4.3*bis* 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 WTSAs 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 year[3].

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.

[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.

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.

SECTION 5

Duties of the Director

5.1 The duties of the Director of 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.

5.2*bis* 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.

5.4*bis* 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 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 the 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 this 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 countries[4], 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 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.

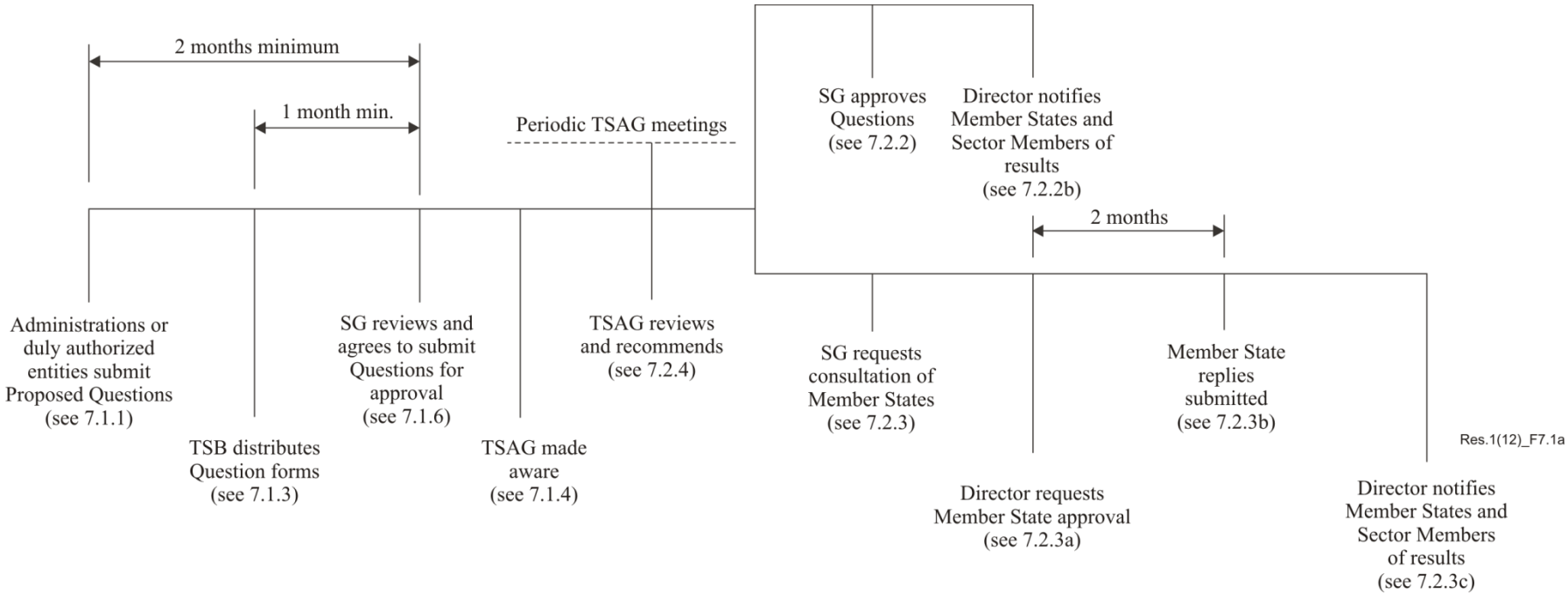
7.2 Approval of new or revised Questions between WTSAs (see Figure 7.1a)

7.2.1 Between WTSAs, 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 WTSAs



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 WTSAs, 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;

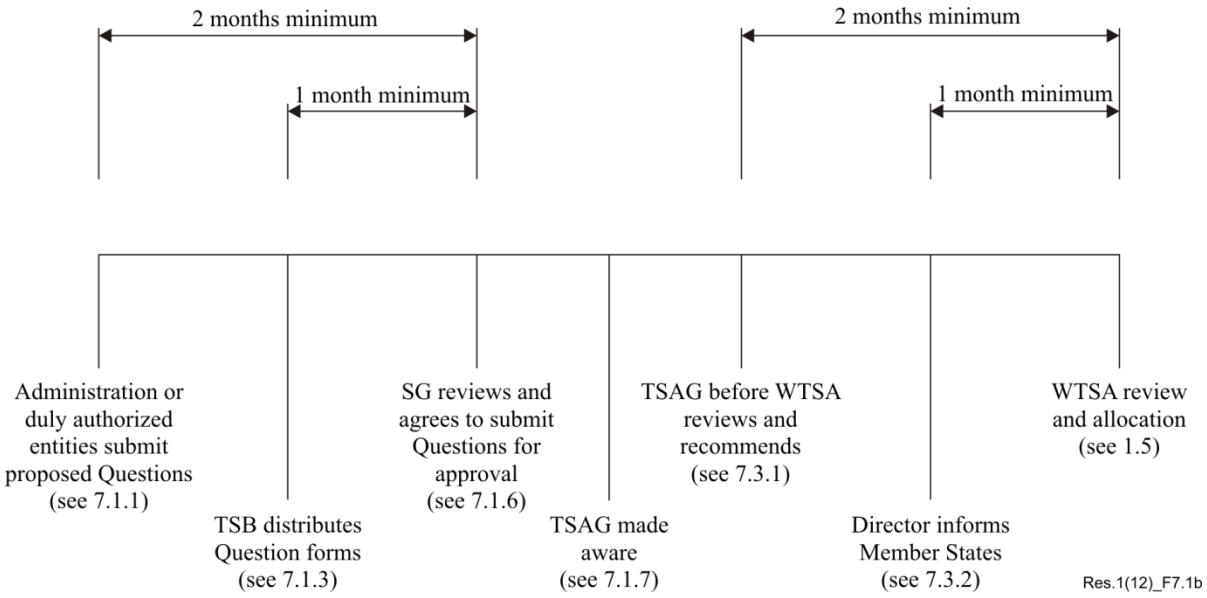
iv) facilitate cooperative efforts with other standardization organizations.

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 about 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 temporary document) 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) 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) 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 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.

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 in conformity with 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 temporary document 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 report to WTSA the request to delete a Recommendation. WTSA should consider the request and act as appropriate.

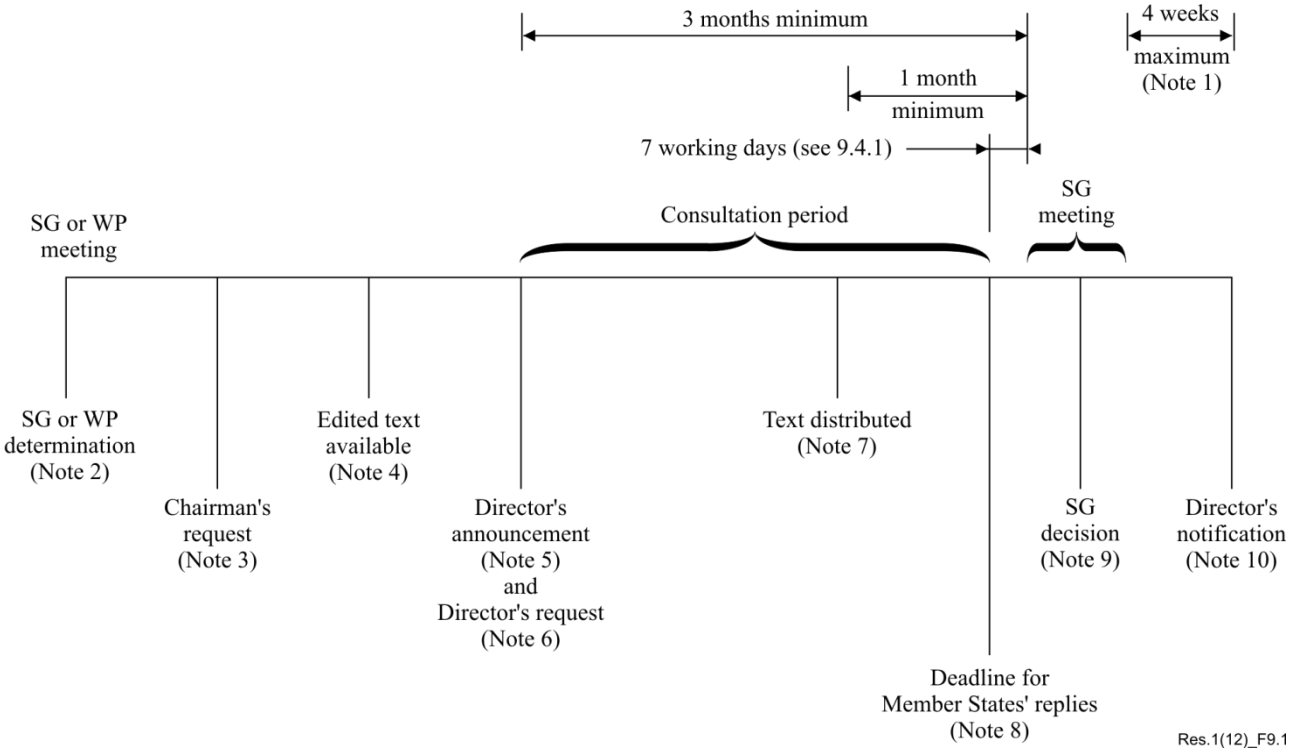
9.8.2 Deletion of Recommendations between WTSAs

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.

FIGURE 9.1

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



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).

APPENDIX I
(to Resolution 1)

Information for submission of a Question

- Source
- Short title
- Type of Question or proposal[5]
- 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)

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.

MOD

RESOLUTION 2 (REV. HAMMAMET, 2016)

ITU Telecommunication Standardization Sector study group responsibility and mandates

(Helsinki, 1993; Geneva, 1996; Montreal, 2000; Florianópolis, 2004; Johannesburg, 2008; 2009[1]; Dubai, 2012; 2015[2]; 2016[3]; 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,

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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 SG role agreed by TSAG on 5 February 2016.

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

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

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

instructs the Telecommunication Standardization Bureau

to support and facilitate the operational aspects of such collocation.

ANNEX A
(to Resolution 2)

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 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 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 for 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 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;
- relating to electromagnetic compatibility (EMC), particle radiation effects, and assessment of human exposure to electromagnetic fields produced by ICT installations and devices, including cellular phones and base stations;
- on the existing copper network outside plant and related indoor installations;
- relating to achieving energy efficiency and sustainable clean energy in ICTs;

- on 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), 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, e-future networks (FN), software-defined networking (SDN), network function virtualization (NFV), cloud-computing networks, VoLTE/ViLTE-based networks 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 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 considered network architectures. It is responsible for studies relating to 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 future networks, 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 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 (SC&C)

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 for numbering, naming, addressing, identification and routing Lead study group for 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 telecommunication/ICT Lead study group for economic issues relating to international telecommunication/ICT Lead study group for policy issues relating to international telecommunication/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 e-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 (IdM) 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 (SC&C), including its e-services and smart services Lead study group for IoT identification

ANNEX B
(to Resolution 2)

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 numbering, naming, addressing, identification 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 numbering, naming, addressing, identification 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 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, 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 identifications aspects in collaboration with Study Group 20 for IoT and 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 transformation of markets and industries, through the promotion of open, innovation-driven and accountable institutions.

New services are emerging and these services 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 that takes 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 telecommunication/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 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 reach 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 the 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 the 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 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 ITU-R on broadcasting matters.

Inter-Sector 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 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 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 e-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, 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 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 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 fixed-mobile convergence and mobility management between fixed and mobile access.
- Knowledge-centric trustworthy networking and services aspects: Studies related to requirements and functions to support 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 "XaaS (X as a service)" 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. By this, consultations should be enabled with representatives of the ITU Telecommunication Development Sector 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 collocated 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 the 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 and future 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, 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-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 (SDO) 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; countering spam by technical means. In addition, 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, software-defined networking (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 them, 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 SG 20 will work on the following items:

- Framework and roadmaps for the harmonized and coordinated development of Internet of things (IoT), including M2M communications, ubiquitous sensor networks and smart sustainable cities, in ITU-T and in close cooperation with ITU-D and ITU-R SGs and other regional and international standards organizations and industry forums;
- Requirements and capabilities of IoT and its applications including 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 smart sustainable cities and communities 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 the 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, privacy[4] and trust[4] 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.

ANNEX C
(to Resolution 2)

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 Group 12

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

[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.

ITU-T V.51/ITU-T 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

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

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 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/ITU-T O.22 and ITU-T Q.500-series, except ITU-T Q.513 (see Study Group 2)

Maintenance of the ITU-T R-series

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

ITU-T V.38, ITU-T V.55/ITU-T 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 F.700-series, except those under the responsibility of Study Group 20

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/ITU-T Y.1242), ITU-T G.776.1, ITU-T G.799.1/ITU-T 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/ITU-T V.10 and ITU-T X.27/ITU-T 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

MOD

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.

MOD

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 ITU-T study groups 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.

MOD

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 17, 26, 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;

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

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.:

- that the ITU-R study groups are charged (Nos. 151 to 154 of the Convention) to focus 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 are charged (No. 193 of the Convention) to study 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 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:

a) the procedure as given in Annex A to this resolution should be applied; or

b) 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

c) 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)

Procedural method of cooperation

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

a) The joint meeting, as indicated 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)

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

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

a) The joint meeting of the advisory groups as indicated 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 the World Telecommunication Standardization Assembly 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/her Sector.

ANNEX C
(to Resolution 18)

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

With respect to *resolves* 2 *b)*, 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 version of Resolution ITU-R 1, in WTDC Resolution 1 and in Recommendation ITU-T A.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.

MOD

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 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 numbering, naming, addressing and identification 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.

MOD

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 and the ITU Telecommunication Development Sector, 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 WTSA-16,

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 WTSAs 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 to 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 WTSAs, using the approval procedure contained in Resolution 1 (Rev. Dubai, 2012) 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 nominate 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 for 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/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.

MOD

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 countries[1], for the sound development of their telecommunication networks and services;

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

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 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,

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

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

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

instructs the Director of the Telecommunication Standardization Bureau

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

invite Member States

1 to adopt national legal and regulatory frameworks requesting administrations and international telecommunication operators or operating agencies authorized by Member States to avoid using alternative calling procedures that degrade the level of QoS and QoE, to ensure the delivery of 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)

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

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 are recommended to be applied in country X (the location of the ACP user) and country Y (the location of the ACP provider) regarding ACP. 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

Country X (location of ACP user)	Country Y (location of ACP provider)
	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: *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: *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: *a)* in other countries where it is prohibited; and/or *b)* which is harmful to the networks involved.

NOTE 1 – For relations between countries who 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, OTT, refiling, etc.).

MOD

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 towards 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 countries[1] 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,

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

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;

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 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 to 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 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.

MOD

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 countries[1];

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;

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

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,

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 for the vice-chairmen of the advisory groups;

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

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

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

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

resolves further

1 that vice-chairmen of TSAG and study groups should be encouraged to assume the leadership role of activities in order to ensure equitable distribution of the tasks 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)

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 WTSAs are filled in accordance with No. 244 of the Convention.

ANNEX B
(to Resolution 35)

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;

– availability[2];

– 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.

ANNEX C
(to Resolution 35)

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 account[3] to the extent practicable.

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[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.

[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.

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 representation[4] 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 Sector[5].

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.

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[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.

MOD

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. Dubai, 2012) of the World Telecommunication Standardization Assembly (WTSA), 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 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.

MOD

RESOLUTION 44 (REV. HAMMAMET, 2016)

Bridging the standardization gap between developing[1] 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 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 that resolution, 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 resolved that implementation of Resolution 37 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, 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;

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

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;

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 improve 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 the 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 both the quality and quantity of the active participation of developing countries in the standardization work of ITU-T, 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 ITU 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 to support the implementation of the relevant parts of this resolution and to carry out the objectives of the action plan, and launch campaigns to attract new Sector Members, Associates and Academia from developing countries to join ITU-T, and to 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 Telecommunication Development Bureau and the Radiocommunication 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 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 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 use of electronic channels such as webinars or e-learning for education and training on implementation of ITU-T Recommendations;

11 to provide all necessary support and measures for creating and ensuring the smooth functioning of the regional groups, and to facilitate the organization of their 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 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 ITU-T study groups 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 world telecommunication development conferences;

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, which are to be approved 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)

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

I Programme 1: Strengthening standard-making capabilities

1) Objective

- To improve the standard-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 standard-making process, and (iv) to influence global standard-making discussions by having active roles in ITU-T study groups.
- Improving procedures and tools for remote participation via electronic means of 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

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

2) Activities

- To assist 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 groups 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.

MOD

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 countries[1] 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,

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

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;

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 (JCAs), 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;

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 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 joint coordination activities, 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.

MOD

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 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 ITU-T Study Group 2

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 regarding 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,

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.

MOD

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 countries[1];

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,

considering

a) the crucial importance of telecommunication/ICT infrastructure and 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);

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

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 *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 (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 Outcome 3.1 under that Objective – *Improved confidence and security in the use of ICTs and services*, 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 role 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 competences 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 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 and non-discriminatory cybersecurity-related initiatives globally;

6 to cooperate with the Secretary-General's Global Cybersecurity Agenda (CGA) 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 between 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.

MOD

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 Resolution 130 (Rev. Busan, 2014) and Resolution 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 equipments 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 countries[1], 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 approaches 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 Recommendation ITU-T X.1240 series,

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.,

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

further instructs ITU-T Study Group 17

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

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

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

instructs the Director of the Telecommunication Standardization Bureau

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

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

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

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

invites Member States, Sector Members, Associates and academia

to contribute to this work,

further invites Member States

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

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

MOD

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 developing[1] 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;

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

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;

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 groups[2] 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;

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

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 telecommunication/information and communication technologies, 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 group of Study Group 3 to its 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),

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 on);

3 to invite the 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 holding, whenever possible, 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.

MOD

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/ICT 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) 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 entitled "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 of the its policies, work programmes, information dissemination activities, publications, study groups, seminars, courses, assemblies and conferences reflect our 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 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 the UN High Commissioner for Human Rights to tackle invisible gender bias as a Geneva Gender Champion on behalf of ITU-T,

invites the Secretary-General

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

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

invites Member States and Sector Members

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

2 to actively support and participate in the work of TSB, to nominate experts for the ITU-T Women in Standardization Expert 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.

MOD

RESOLUTION 64 (REV. HAMMAMET, 2016)

IP 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 (WTDC);

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 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 countries[1] 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, however there is 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;

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 network 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,

[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 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 WTDC 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, to facilitate joint training activities, involving appropriate experts from the relevant entities, to provide information, including roadmaps and guidelines, and to assist in the continued establishment of IPv6 test-bed laboratories in developing countries in collaboration with appropriate relevant organizations, and its advantage 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 the 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.

MOD

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 countries[1];

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 non-delivery or spoofing of the calling party number;

d) that work in Study Group 2 of the ITU Telecommunication Standardization Sector (ITU-T) on this topic 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;

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

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;

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 special 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 non-delivery and spoofing of CPN, and/or on ensuring confidence in origination identification, 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, calling party number delivery (CPND) 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, CPND 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 CPND, 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.

MOD

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 (Modified 2016) of the Council, 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 in accordance of Resolution 67 (Johannesburg, 2008) of the World Telecommunication Standardization Assembly (WTSA), on the initiation of SCV, SCV was established,

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)

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 concerned ITU-T study groups regarding terms and definitions.

2 To liaise with CCV and other organizations dealing with vocabulary work in the telecommunication field, for example with 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.

MOD

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 countries[1];

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 communiques and, when relevant, have been taken into account by the Telecommunication Standardization Advisory group (TSAG),

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

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, and may not be able to participate in their meetings;

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, standard-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 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 those 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 encourage 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 regularly a 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.

MOD

RESOLUTION 69 (REV. HAMMAMET, 2016)

Non-discriminatory access and use of Internet resources and telecommunication/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 outcomes of the World Summit on the Information Society;

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 by conducting the needed activities in that 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 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 countries[1];

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;

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

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

instructs the Director of the Telecommunication Standardization Bureau

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

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

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

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

instructs the Secretary-General

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

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

to contribute to the report on progress on this resolution,

invites the ITU membership

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

MOD

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 [D/2 SG16] 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 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 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,

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, in identifying user needs and in 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 telecommunications/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;

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[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)*.

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 telecommunication/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 United Nations General Assembly 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 the 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 this guide on a regular basis, based on contributions from Member States and Sector Members as well as the ITU-T study groups, as appropriate,

invites Member States and Sector Members

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

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

[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.

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.

MOD

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 countries[1], 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 electromagnetic fields;

h) Resolution 62 (Rev. Dubai, 2014) of the World Telecommunication Development Conference, on measurement concerns related to human exposure to electromagnetic fields,

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

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);

d) that the ITU Electromagnetic Field (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, published a technical report on "Electromagnetic field (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 ITU-T 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 organizing 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 Question 7/2;

v) strengthening coordination and cooperation with WHO in the EMF project so that any publications relating to human exposure to electromagnetic fields 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, and 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 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 its 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 in 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 to 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.

MOD

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), on information and communication technologies and climate change;

b) Resolution A/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 information and communication technologies (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 countries[1] 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;

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

d) the work being undertaken following agreements to 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;

h) that the e-waste African 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 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 2-2.5 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 world[2], by distributing their outcomes as widely as possible;

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

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

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

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

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

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[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.

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

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 developing organizations (SDOs) and facilitate collaboration between ITU and those SDOs in order to avoid duplication of, or overlap in, international standards, through in particular the JCA on ICT and climate change;

2 to ensure that study groups carry out a review of both the appropriate existing ITU-T Recommendations and all future Recommendations 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 ITU-T study groups

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;

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 standards development organizations 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 ITU 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, to raise awareness and identify their particular needs and challenges on 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 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 ITU Recommendations related to the matter;

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

5 to integrate the use of ICT into national adaptation plans 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.

MOD

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-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 Telecommunications 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 a 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) 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) the Council Working Group on international Internet-related public policy issues (CWG-Internet), created in accordance with Council Resolution 1336, open to Member States only, with open consultation of all stakeholders, 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, 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.

MOD

RESOLUTION 76 (REV. HAMMAMET, 2016)

Studies related to conformance and interoperability testing, assistance to developing countries[1], 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;

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

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,

recognizing

a) that interoperability of international telecommunication networks was the main reason to create the International Telegraph Union in the year 1865, and that this remains one of the main goals in the ITU strategic plan;

b) that emerging technologies have an increasing requirement 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 testing conformance assessment 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 and 5G/IMT-2020,

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 groups pilot projects, to assess C&I;

b) that the 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, 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 ITU-D Sector Members

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 conformance and interoperability 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-T 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.

MOD

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 maturity trend 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 ITU-T study groups

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 by the SDN orchestrator layer to ITU-T Operation Supporting System (OSS) related work,

instructs Study Group 13

to continue the JCA-SDN work, coordinate and help plan the work to ensure that ITU-T SDN standardization is progressed in a well-coordinated manner and more efficiently among relevant study groups, and to study the SDN-related work programmes (including virtualization of network functions, 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 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, 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.

MOD

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 countries[1];

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,

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

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";

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 14-3/2, 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 ITU-T Study Group 16 and ITU-T Study Group 20, each according to its mandate, in collaboration with the relevant study groups, particularly ITU-T Study Groups 11 and 17

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

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

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

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

invites Member States

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

encourages Member States, Sector Members and academia

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

MOD

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 ITU-T study groups

to acknowledge contributors to the development of study group deliverables, in particular those from academia, universities and associated research establishments, based on the criteria established by the 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.

ADD

DRAFT NEW RESOLUTION [PLEN/1] (HAMMAMET, 2016)

ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information 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) Resolution 176 (Rev. Busan, 2014) of the Plenipotentiary Conference, on human exposure to and measurement of electromagnetic fields;

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/lCT devices;

e) Resolution 47 (Rev. Dubai, 2014) of WTDC, on enhancement of knowledge and effective application of ITU Recommendations in developing countries[1], 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 electromagnetic fields (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;

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

i) that this assembly adopted Resolution 76 (Rev. Hammamet, 2016), on studies related to C&I testing and assistance to developing countries;

j) Resolution 79 (Rev. Hammamet, 2016) of this assembly, on the role of telecommunications/ICT in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it,

recognizing

a) the noticeably growing sales and circulation of counterfeit and tampered telecommunication/lCT 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/lCT 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 of counterfeit and tampered device issues and deployed successful solutions including regulations in their markets to deter the spread of counterfeit and tampered telecommunication/lCT 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 of 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 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, unique identifier, item protected by intellectual property rights or 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 identification mechanism, which can be also effective on 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 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 as activities relating to combating counterfeit and tampered telecommunication/ICT devices, including to restrict 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 actions;

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 ITU-T Study Group 11, 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 production, unique identifiers that are resistant to duplication and respond to confidentiality/security requirements;

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

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

invites Member States

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

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

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

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

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

invites Sector Members

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

invites all the membership

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

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

3 to collaborate and share expertise in this area.

ADD

DRAFT NEW RESOLUTION [PLEN/2] (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 identifier have been tampered for the purpose of re-introducing them to the market;

f) that studies on combating counterfeiting, including of telecommunication/ICT devices, and 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 countries[1];

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,

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

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, exchange of best practices and guidelines and 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 the combat against mobile telecommunication device theft,

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

1 to compile information on best practices developed by industry or governments and promising trends in combating mobile device theft;

2 to facilitate, in collaboration with industry organizations and standards development organizations (SDOs), the standardization and dissemination of Recommendations, technical reports and guidelines to combat mobile device theft and its negative effects, specifically regarding the exchange of identifier 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 ITU-T Study Groups 11 and 17, 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 device,

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.

ADD

RESOLUTION [PLEN/3] (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. Dubai, 2012) of World Telecommunication Standardization Assembly, on bridging the standardization gap between developing[1] 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 ITU-T study groups, 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;

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

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

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

5 to continue engaging with open-source projects,

instructs the Director of the Telecommunication Standardization Bureau

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

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

instructs the Telecommunication Standardization Advisory Group

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

invites the 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.

ADD

DRAFT NEW RESOLUTION [COM3/1] (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), the Telecommunication Standardization Bureau (TSB), 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 WTSA resolutions:

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 countries[1];

b) that Article 13 of the ITU Convention provides that the 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,

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

instructs the Director of TSB, 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.

ADD

DRAFT NEW RESOLUTION [COM4/1] (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 to improve the safety and quality of life in all industries , e.g. Event Data Recorder (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 the 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 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 ITU-T Study Groups 13, 16, 17 and 20

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.

ADD

DRAFT NEW RESOLUTION [COM4/2] (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-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 Telecommunication Standardization Sector (ITU-T) Recommendations, leading to better quality of service/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 protection of users of telecommunication/ICT services and to collaborate on implementing this resolution.

ADD

DRAFT NEW RESOLUTION [COM4/3] (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 positive and important contribution to the United Nations Goals for Sustainable Development;

d) that the International Telecommunication Standardization Sector (ITU-T) is actively continuing its studies on mobility and overall network aspects of IMT, and has initiated the study of non-radio aspects of standardization for IMT for 2020 and beyond in 2015;

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 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 its 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) resolved to include the continuous need to promote IMT throughout the world, and in particular in developing countries[1];

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 by establishment of FG-IMT2020 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) study fixed-mobile convergence, (5) study network slicing for the fronthaul/backhaul network, and (6) to define new traffic models and associated aspects of 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 Focus Groups' establishment and working procedures, and Amendment 1: Appendix I Guidelines for the efficient transfer of focus group deliverables to its parent group,

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

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 related Study Groups, Focus Groups, JCA, 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 ITU-T study groups

1 to strengthen the cooperation and coordination on IMT (especially IMT-2020) standardization activities with a positive and double-win spirit, to ensure the productive and practical standard solution to 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 ITU-T 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 JCA IMT-2020 and coordinate the standardization activities of IMT (especially IMT-2020) among all related study groups, focus groups, and other SDOs,

instructs ITU-T 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 ITU-T Study Group 11

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

instructs ITU-T Study Group 12

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

instructs ITU-T Study Group 17

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

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

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

ADD

DRAFT NEW RESOLUTION [COM4/4] (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 on 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 the 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 lowering IMR rates by taking regulatory measures when applicable.

ADD

DRAFT NEW RESOLUTION [COM4/5] (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 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) 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 ITU-T Study Group 2

to study this matter on the basis of contributions received and information from TSB and to organize the necessary work 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 Study Group 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 ITU-T Study Group 2 and TSAG, 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, to ensure that the electronic repository remains up to date.

ADD

DRAFT NEW RESOLUTION [COM4/6] (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 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 appropriate for interconnection of IP-based networks (e.g. 4G, 5G/IMT-2020 and beyond) to be used for providing voice and video services;

d) that interconnection of the 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 ITU-T Study Group 2 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 countries[1] related to achieving interoperability of telecommunication/information and communication technology (ICT) equipment and services,

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 done on an international basis;

d) that the 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 Telecommunication Standardization Sector (ITU-T) Recommendations,

taking into account

a) that according to the communiqué of the 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 signaling 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 of interconnection of VoLTE/ViLTE-based networks, which aims to specify common requirements regarding interconnection of VoLTE/ViLTE-based networks;

d) that the development of standards which are related to a framework for interconnection among 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,

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

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, 5G/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, 5G/IMT-2020 and beyond;

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

instructs the study groups

1 to identify as soon as possible future ITU-T Recommendations that need to be developed associated with the interconnection of 4G, 5G/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 among 4G, 5G/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, 5G/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.

ADD

DRAFT NEW RESOLUTION [COM4/7] (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 2 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 countries[1] 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;

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

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);

b) the establishment of the ITU-T Focus Group on digital financial services 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, 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 for Universal Financial Access set for 2020 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) that the importance of affordability of digital financial services, especially for people in low-income households, for achieving financial inclusion;

f) the work of the ITU-T Focus Group on digital financial services 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 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 ITU-T study groups

1 to organize the necessary work and studies 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 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 the effective 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 to non-bank service providers accessing payment system infrastructures and financial service providers 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.

ADD

DRAFT NEW RESOLUTION [COM4/8] (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 of the Union, 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 countries[1], 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 INRs,

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;

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

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)*, for possible new measures to generate additional revenue for ITU-T, including revenues that may be obtained from INRs and conformance and interoperability testing.

ADD

DRAFT NEW RESOLUTION [COM4/9] (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 countries[1] 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 (LDCs), small island developing states (SIDS), landlocked developing countries (LLDCs) 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,

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

taking into account

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

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 ITU-T study groups

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 Africa 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.

ADD

DRAFT NEW RESOLUTION [COM4/10] (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 the 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 to contribute to achieving 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 the 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 ITU-T 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 ITU-T Study Group 20

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 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 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 the 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-T membership

1 to submit contributions and continue participating actively in the work of the Study Group 20 and in the studies on IoT and SC&C being conducted by ITU-T;

2 to develop master plans, 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.

ADD

DRAFT NEW RESOLUTION [COM4/11] (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 ITU-T 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 delivery 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 on the importance of keeping users informed about the quality of the services offered by operators;

3 in close collaboration with ITU-D and ITU regional offices, provide references that assist developing[1] 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 the awareness of the importance of QoS and QoE measurement,

instructs the Director of the Telecommunication Standardization Bureau

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

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

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

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

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

instructs ITU-T study groups, 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;

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

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.

ADD

DRAFT NEW RESOLUTION [COM4/12] (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 (ITRs);

d) Resolution 146 (Rev. Busan, 2014) of the Plenipotentiary Conference, on periodic review and revision of the ITRs;

e) Resolution 1379 of the ITU Council, on the Expert Group on the International Telecommunication Regulations (EG-ITRs),

recognizing

a) that, as is stated in Resolution 146 (Rev. Busan, 2014), the ITU Telecommunication Standardization Sector (ITU-T) has most of the work relevant to the ITRs,

b) the importance of ITU-T study groups' input to the ITU-T contributory process to EG-ITRs, 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 ITRs,

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-ITRs,

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.

MOD

Recommendation ITU-T A.1

Working methods for study groups of the ITU Telecommunication Standardization Sector

(1996; 2000; 2004; 2006; 2008; 2012; 2016)

Summary

This Recommendation describes general work methods for ITU-T study groups. It provides guidelines related to work methods, such as the conduct of meetings, preparation of studies, management of study groups, Joint Coordination Groups, the role of Rapporteurs and the processing of ITU-T contributions and temporary documents.

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 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 WTSAs.

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 the World Telecommunication Standardization Assembly (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(s) (*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.

FIGURE 1-1

Example of the information required in a liaison statement

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
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	Anytown, CA USA	e-mail:	jj@abcco.com

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 a 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) which 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 which 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 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 (JCAs)

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 notification[1] 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 temporary document to the next meeting of the study group.

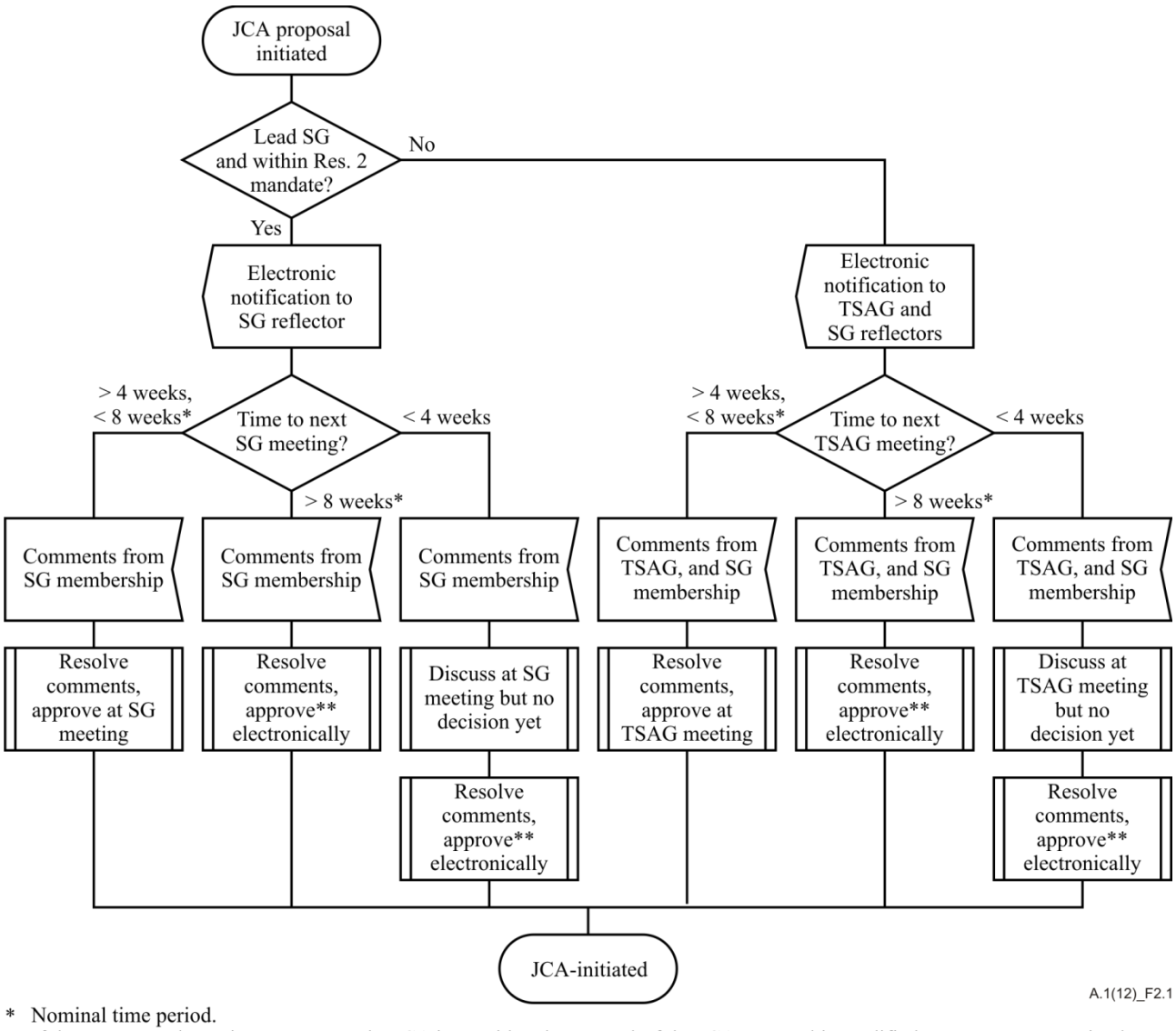
Where the lead study group has not yet been designated by WTSA or TSAG for the subject, or where the subject for the JCA is a broad subject potentially falling under the responsibility and mandate of a number of study groups as described in WTSA Resolution 2, then the proposal has to be made available to the membership for consideration. If a TSAG meeting is pending within the next two months, then an electronic notification[2] 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 temporary document to the next meeting of TSAG.

FIGURE 2-1

Alternatives in proposing and approving the creation of a JCA



* 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.

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 involved study group meetings (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 concerned TSB counsellor, 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 involved study groups 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 involved study groups 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. Review and approval of the results reside with the study group or working party.

2.3.2 Liaison between ITU-T study groups or with other organizations can be facilitated by the 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 the 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 WTSAs. 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 temporary document to be submitted as soon as possible and not later than the first day of the meeting; when such a temporary document 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 temporary document 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 twelve 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 study group (or working party), states that his 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 twelve 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 twelve 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 Temporary Document 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.

MOD

Recommendation ITU-T A.12

Identification and layout of ITU-T Recommendations

(2000; 2004; 2008; 2015; 2016)

Summary

This Recommendation provides information on the means on assigning the letter series designations for 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.

SUP

RESOLUTION 33 (REV. DUBAI, 2012)

Guidelines for strategic activities of the ITU Telecommunication Standardization Sector

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

SUP

RESOLUTION 38 (REV. DUBAI, 2012)

Coordination among the three ITU Sectors for activities relating to International Mobile Telecommunications

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

SUP

RESOLUTION 57 (REV. DUBAI, 2012)

Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest

(Johannesburg, 2008; Dubai, 2012)

SUP

RESOLUTION 71 (REV. DUBAI, 2012)

Admission of academia[1] to participate in the work of the ITU Telecommunication Standardization Sector

(Johannesburg, 2008; Dubai, 2012)

SUP

RESOLUTION 81 (DUBAI, 2012)

Strengthening collaboration

(Dubai, 2012)

SUP

RESOLUTION 82 (DUBAI, 2012)

Strategic and structural review of the ITU Telecommunication Standardization Sector

(Dubai, 2012)

PART 3

Appointed chairmen and vice-chairmen in the Telecommunication Standardization Sector (2017-2020)

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	Weiling XU	China	Vice-Chairman
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PART 4

Titles of Questions approved by WTSA-16

List of Questions approved for Study Group 2

Question number	Question title
A/2	Application of numbering, naming, addressing and identification plans for fixed and mobile telecommunications services
B/2	Routing and interworking plan for fixed and mobile networks
C/2	Service and operational aspects of telecommunications, including service definition
D/2	Requirements, priorities and planning for telecommunication management and operation, administration and maintenance (OAM) Recommendations
E/2	Management architecture and security
F/2	Interface specifications and specification methodology

List of Questions approved for Study Group 3

Question number	Question title
A/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
B/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
C/3	Study of economic and policy factors relevant to the efficient provision of international telecommunication services
D/3	Regional studies for the development of cost models together with related economic and policy issues
E/3	Terms and definitions for Recommendations dealing with tariff and accounting principles together with related economic and policy issues
F/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)

Question number	Question title
G/3	International mobile roaming issues (including charging, accounting and settlement mechanisms and roaming at border areas)
H/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).
I/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
J/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
K/3	Economic and policy aspects of big data and digital identity in international telecommunications services and networks

List of Questions approved for Study Group 5

Question number	Question title
A/5	Protection of information and communication technology (ICT) infrastructure from electromagnetic surges
B/5	Equipment resistibility and protective components
C/5	Human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs)
D/5	Electromagnetic compatibility (EMC) issues arising in the telecommunication environment
E/5	Security and reliability of information and communication technology (ICT) systems from electromagnetic and particle radiations
F/5	Achieving energy efficiency and sustainable clean energy
G/5	Environmentally sound management of e-waste and information and communication technology (ICT) eco-friendly design, including dealing with ICT counterfeit devices[1]
H/5	Adaptation to climate change and low cost and sustainable resilient information and communication technologies (ICTs)
I/5	Assessment of sustainability impacts of information and communication technology (ICT) to promote the Sustainable Development Goals (SDGs)
J/5	Guides and terminology on environment and climate change

[1] Counterfeit ICT devices include counterfeit and/or copied devices and equipment as well as accessories and components.

List of Questions approved for Study Group 9

Question number	Question title
A/9	Transmission of television and sound programme signal for contribution, primary distribution and secondary distribution
B/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)
C/9	Software components application programming interfaces (APIs), frameworks and overall software architecture for advanced content distribution services within the scope of Study Group 9
D/9	Functional requirements for residential gateway and set-top box for the reception of advanced content distribution services
E/9	Digital programme delivery controls for multiplexing, switching and insertion in compressed bit streams and/or packet streams
F/9	Cable television delivery of digital services and applications that use Internet protocol (IP) and/or packet-based data over cable networks
G/9	The Internet protocol (IP) enabled multimedia applications and services for cable television networks enabled by converged platforms
H/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
I/9	Guidelines for implementations and deployment of transmission of multichannel digital television signals over optical access networks
J/9	Work programme, coordination and planning

List of Questions approved for Study Group 11

Question number	Question title
A/11	Signalling and protocol architectures in emerging telecommunication environments and guidelines for implementations
B/11	Signalling requirements and protocols for service and application in emerging telecommunication environments
C/11	Signalling requirements and protocol for emergency telecommunications

Question number	Question title
D/11	Protocols for control, management and orchestration of network resources
E/11	Protocols and procedures supporting services provided by broadband network gateways
F/11	Signalling requirements and protocols for network attachment including mobility and resource management for future networks and 5G/IMT-2020
G/11	Combating counterfeit and stolen ICT equipment
H/11	Protocols supporting distributed content networking and information centric network (ICN) for future networks and 5G/IMT-2020, including end-to-end multi-party communications
I/11	Service and networks benchmark testing, remote testing including Internet related performance measurements
J/11	Protocols and networks test specifications; frameworks and methodologies
K/11	Testing of Internet of things, its applications and identification systems
L/11	Monitoring parameters for protocols used in emerging networks, including cloud computing and software-defined networking/network function virtualization (SDN/NFV)
M/11	Cloud interoperability testing
N/11	Testing of emerging 5G/IMT-2020 technologies
O/11	Protocols supporting control and management technologies for 5G/IMT-2020

List of Questions approved for Study Group 12

Question number	Question title
A/12	SG12 work programme and quality of service/quality of experience (QoS/QoE) coordination in ITU-T
B/12	Definitions, guides and frameworks related to quality of service/quality of experience (QoS/QoE)
C/12	Speech transmission and audio characteristics of communication terminals for fixed circuit-switched, mobile and packet-switched Internet protocol (IP) networks
D/12	Objective methods for speech and audio evaluation in vehicles
E/12	Telephonometric methodologies for handset and headset terminals
F/12	Analysis methods using complex measurement signals including their application for speech and audio enhancement techniques

Question number	Question title
G/12	Methods, tools and test plans for the subjective assessment of speech, audio and audiovisual quality interactions
H/12	Virtualized deployment of recommended methods for network performance, quality of service (QoS) and quality of experience (QoE) assessment
I/12	Perceptual-based objective methods for voice, audio and visual quality measurements in telecommunication services
J/12	Conferencing and telemeeting assessment
K/12	Performance considerations for interconnected networks
L/12	Operational aspects of telecommunication network service quality
M/12	Quality of experience (QoE), quality of service (QoS) and performance requirements and assessment methods for multimedia
N/12	Development of models and tools for multimedia quality assessment of packet-based video services
O/12	Parametric and E-model-based planning, prediction and monitoring of conversational speech quality
P/12	Framework for diagnostic functions
Q/12	Performance of packet-based networks and other networking technologies
R/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
S/12	Objective and subjective methods for evaluating perceptual audiovisual quality in multimedia services within the terms of Study Group 9

List of Questions approved for Study Group 13

Question number	Question title
A/13	IMT-2020: Network requirements and functional architecture
B/13	Next-generation network (NGN) evolution with innovative technologies including software-defined networking (SDN) and network function virtualization (NFV)
C/13	Software-defined networking, network slicing and orchestration
D/13	Quality of service (QoS) aspects including IMT-2020 networks
E/13	Upcoming network technologies for IMT-2020 and future networks
F/13	Fixed-mobile convergence including IMT-2020

Question number	Question title
G/13	Knowledge-centric trustworthy networking and services
H/13	Innovative services scenarios, deployment models and migration issues based on future networks
I/13	Applying networks of future and innovation in developing countries
J/13	Big data driven networking (bDDN) and deep packet inspection (DPI)
K/13	Requirements, ecosystem, and general capabilities for cloud computing and big data
L/13	Functional architecture for cloud computing and big data
M/13	End-to-end cloud computing management and security

List of Questions approved for Study Group 15

Question number	Question title
A/15	Coordination of access and home network transport standards
B/15	Optical systems for fibre access networks
C/15	Coordination of optical transport network standards
D/15	Broadband access over metallic conductors
E/15	Characteristics and test methods of optical fibres and cables
F/15	Characteristics of optical systems for terrestrial transport networks
G/15	Characteristics of optical components and subsystems
H/15	Characteristics of optical fibre submarine cable systems
I/15	Transport network protection/restoration
J/15	Interfaces, interworking, operation, administration and maintenance (OAM) and equipment specifications for packet-based transport networks
K/15	Signal structures, interfaces, equipment functions, and interworking for optical transport networks
L/15	Transport network architectures
M/15	Network synchronization and time distribution performance
N/15	Management and control of transport systems and equipment
O/15	Communications for smart grid
P/15	Optical physical infrastructures
Q/15	Maintenance and operation of optical fibre cable networks
R/15	Broadband in-premises networking
S/15	Requirements for advanced service capabilities over broadband cable home networks

List of Questions approved for Study Group 16

Question number	Question title
A/16	Multimedia coordination
B/16	Immersive live experience systems and services
C/16	Multimedia systems, terminals, gateways and data conferencing
D/16	Multimedia framework, applications and services
E/16	Multimedia application platforms and end systems for IPTV
F/16	Digital signage systems and services
G/16	Accessibility to multimedia systems and services
H/16	Vehicle gateway platform for telecommunication/ITS services and applications
I/16	Multimedia framework for e-health applications
J/16	Visual coding
K/16	Speech/audio coding, voiceband modems, facsimile terminals and network-based signal processing
L/16	Human factors related issues for improvement of the quality of life through international telecommunications

List of Questions approved for Study Group 17

Question number	Question title
A/17	Telecommunication/ICT security coordination
B/17	Security architecture and framework
C/17	Telecommunication information security management
D/17	Cybersecurity
E/17	Countering spam by technical means
F/17	Security aspects of telecommunication services and networks
G/17	Secure application services
H/17	Cloud computing security
I/17	Telebiometrics
J/17	Identity management architecture and mechanisms
K/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
L/17	Formal languages for telecommunication software and testing

List of Questions approved for Study Group 20

Question number	Question title
A/20	Research and emerging technologies including terminology and definitions
B/20	Requirements and use cases for Internet of things (IoT)
C/20	Internet of things (IoT) functional architecture including signalling requirements and protocols
D/20	Internet of things (IoT) applications and services including end user networks and interworking
E/20	Smart cities and communities (SC&C) requirements, applications and services
F/20	Smart cities and communities (SC&C) infrastructure and framework