भारत दूरसंचार

INDIA TELECOM

A PRACTICAL GUIDE TO

WRITING ITU CONTRIBUTIONS

MAY, 2025

National Communications Academy-Finance
Department of Telecommunications
New Delhi

FOREWORD

The International Telecommunication Union (ITU), as the United Nations specialized agency for Telecommunications & ICT, plays a pivotal role in providing a platform to stakeholders from governments, industry, academia, and civil society to develop technical standards that ensure interoperability, safety, trustworthiness, and inclusivity in the deployment of networks & systems.

Artificial Intelligence (AI) is one of the most transformative technologies of our time, with the potential to revolutionize communication networks, enhance public services, and power next-generation innovations across industries. As AI systems become increasingly integrated into global digital infrastructure, the need for robust, internationally recognized standards has never been more urgent. This guide being published on the eve of the international workshop on "AI Standards for Increasing Efficiency of Telecommunications & ICTs – Shaping the Future Responsibly", being organized by National Communications Academy – Finance in collaboration with ITU Local Area Office, New Delhi; is designed to assist contributors in preparing effective, well-structured submissions to ITU's standardization activities.

Whether engaging in Study Groups, Focus Groups, or other collaborative frameworks, clear and technically sound contributions are essential to advancing consensus-based standards that reflect a global perspective. Well-articulated submissions help ensure that the global discourse on standardization remains inclusive, informed, and aligned with the values of transparency, equity, and international cooperation.

By offering practical guidance and aligning with ITU's working methods, this guide aims to lower barriers to participation and empower a diverse community of experts to engage meaningfully in the standards development process. This guide offers practical advice & best practices in writing high-quality contributions which can serve as foundation for setting standards for a more robust, inclusive, and trustworthy digital future. In this context, the efforts of authors-Ms. Taruni Pandey, ACAO, NCA-F & Ms. Manjima Bhattacharjee, RA, NCA-F, in putting together this guide, and the mentorship provided by Sh. M C Sathish and Sh. Kunal Srivastava, Directors DoT HQs; are commendable.

As we navigate the fast-evolving AI landscape, it is imperative that our collective efforts reflect both technical rigor and human-centered values. We hope this guide serves as a valuable resource in advancing those efforts.

Madhavi Das
Director General
National Communications Academy-Finance

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GREETINGS

WELCOME TO OUR COMPREHENSIVE BOOKLET ON THE INTERNATIONAL TELECOMMUNICATIONS UNION (ITU) AND THE PROCESS OF CONTRIBUTION WRITING FOR STANDARDS. IN A WORLD WHERE DIGITAL CONNECTIVITY UNDERPINS DAILY LIFE, THE ROLE OF ITU IN DEVELOPING GLOBAL TELECOMMUNICATIONS STANDARDS IS ESSENTIAL.

The ITU, a specialized agency of the United Nations, plays a critical role in coordinating international telecommunications and information technology, providing a unique platform for countries, industries, and academia to collaboratively shape the future of global communications.

Through standards development, the ITU ensures that our global networks, from internet protocols to radio frequencies, operate seamlessly, securely, and efficiently across borders. These standards not only support technological innovation but also uphold accessibility, affordability, and interoperability, making it possible for diverse regions to benefit equally from advancements in telecommunications.

Contribution writing is a cornerstone of this process. By submitting contributions, members and stakeholders bring their expertise, insights, and regional perspectives to the table, influencing how standards are developed and applied. This collaborative input helps ensure that standards reflect a balance of technical rigor and inclusivity, meeting the needs of both developed and developing nations. As the world moves rapidly towards 6G, smart cities, and IoT integration, these contributions are more crucial than ever for fostering a digital ecosystem that is both innovative and equitable.

Whether you're a policymaker, industry expert, or academic, your insights and input are invaluable in fostering a globally connected, innovative, and equitable future. We invite you to explore this booklet and discover how you can contribute to this vital international collaboration. Thank you for being a part of this journey toward a more connected world.

Chapter I

INTRODUCTION TO THE INTERNATIONAL TELECOMMUNICATION UNION (ITU)

WHAT IS ITU?

The International Telecommunication Union (ITU), established in 1865 to regulate the telegraph industry, is the United Nations' oldest specialized agency, guiding the global development and governance of Information and Communication Technologies (ICTs). Headquartered in Geneva and supported by regional offices worldwide, it brings together 194 Member States and over 1,000 private companies, academic institutions, and international organizations. ITU serves as a global platform for collaboration between governments and industry, enabling the creation of inclusive, secure, and interoperable digital systems.

ITU's core functions include allocating global radio spectrum and satellite orbits, developing technical standards for seamless connectivity, and promoting digital inclusion, especially in underserved areas. It operates through three technical sectors that oversee expert study groups responsible for drafting technical and policy recommendations. These recommendations, once adopted, often shape national regulations. With its expanding focus on emerging technologies such as 5G, internet governance, and cybersecurity, ITU plays a central role in ensuring that digital innovation contributes to equitable development worldwide.

ITU'S PURPOSE

- Promote Sustained International Cooperation Among Member States
- Foster Inclusive and Productive Partnerships between Member States and Sector Members
- Support Infrastructure Development in Developing Nations
- Promote Equitable Distribution and Utilization of Telecommunications Technologies
- Ensure Coordinated Management of Radio-Frequency Spectrum and Satellite Orbits
- Facilitate Global Standardization of Telecommunications
- Encourage Economic Development and Affordability
- Ensure Public Safety and Strengthen Peaceful International Relations
- Undertake Research, Adopt Regulation, and Disseminate Information

MEMBERSHIP AT ITU

The International Telecommunication Union, currently, comprises **194** Member States and over **1000** companies, research institutes, universities, international, and regional organizations. ITU has more than **20,000** professionals in its global network. This diverse membership collaborates to shape global information and communication technology (ICT) policies and standards.

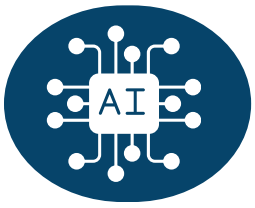
REGIONAL OFFICES OF ITU

The ITU operates six regional offices in Addis Ababa, Brasília, Cairo, Bangkok, Moscow, and Geneva, to support regional coordination and implementation of ICT initiatives. These are complemented by area offices in key locations like Dakar, Bridgetown, Jakarta, and New Delhi to enhance localized engagement and support for member states.

Image Source: International Telecommunication Union (https://www.itu.int/en/Pages/default.aspx)

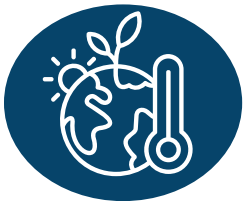
MAPPING ITU'S FOCUS AREAS WITH UN'S 2030 SUSTAINABLE DEVELOPMENT GOALS (SDGS)

Accessibility



Artificial Intelligence

Broadband



Environment & Climate Change

Cybersecurity

Digital Divide

Internet

Emergency Telecom

MAPPING ITU'S FOCUS AREAS WITH UN'S 2030 SUSTAINABLE DEVELOPMENT GOALS (SDGS)

Gender Equality	5 GENDER EQUALITY; 4 QUALITY EDUCATION; 10 REDUCED INEQUALITIES
Entrepreneurship & SMEs	8 DECENT WORK AND ECONOMIC GROWTH; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
Digital Finance Inclusion & Digital Currency	1 NO POVERTY; 8 DECENT WORK AND ECONOMIC GROWTH; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
Youth & Academia	4 QUALITY EDUCATION; 8 DECENT WORK AND ECONOMIC GROWTH; 17 PARTNERSHIPS FOR THE GOALS
Submarine Cable Resilience	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 13 CLIMATE ACTION

Aligning ITU action areas with SDG goals ensures that technological innovation directly advances global priorities like poverty reduction, quality education, and climate action. It promotes inclusive, sustainable development by using ICTs as key enablers across sectors. This linkage strengthens international cooperation, drives targeted investments, and ensures that digital transformation benefits all, leaving no one behind.

Chapter II

UNDERSTANDING THE STRUCTURE OF INTERNATIONAL TELECOMMUNICATION UNION

AN OVERVIEW OF THE GOVERNANCE STRUCTURE OF ITU

The International Telecommunication Union (ITU), as the United Nations' specialized agency for information and communication technologies (ICTs), operates through a well-defined governance framework designed to ensure inclusive decision-making, global coordination, and effective implementation of its mandate. In its current incarnation, ITU comprises:

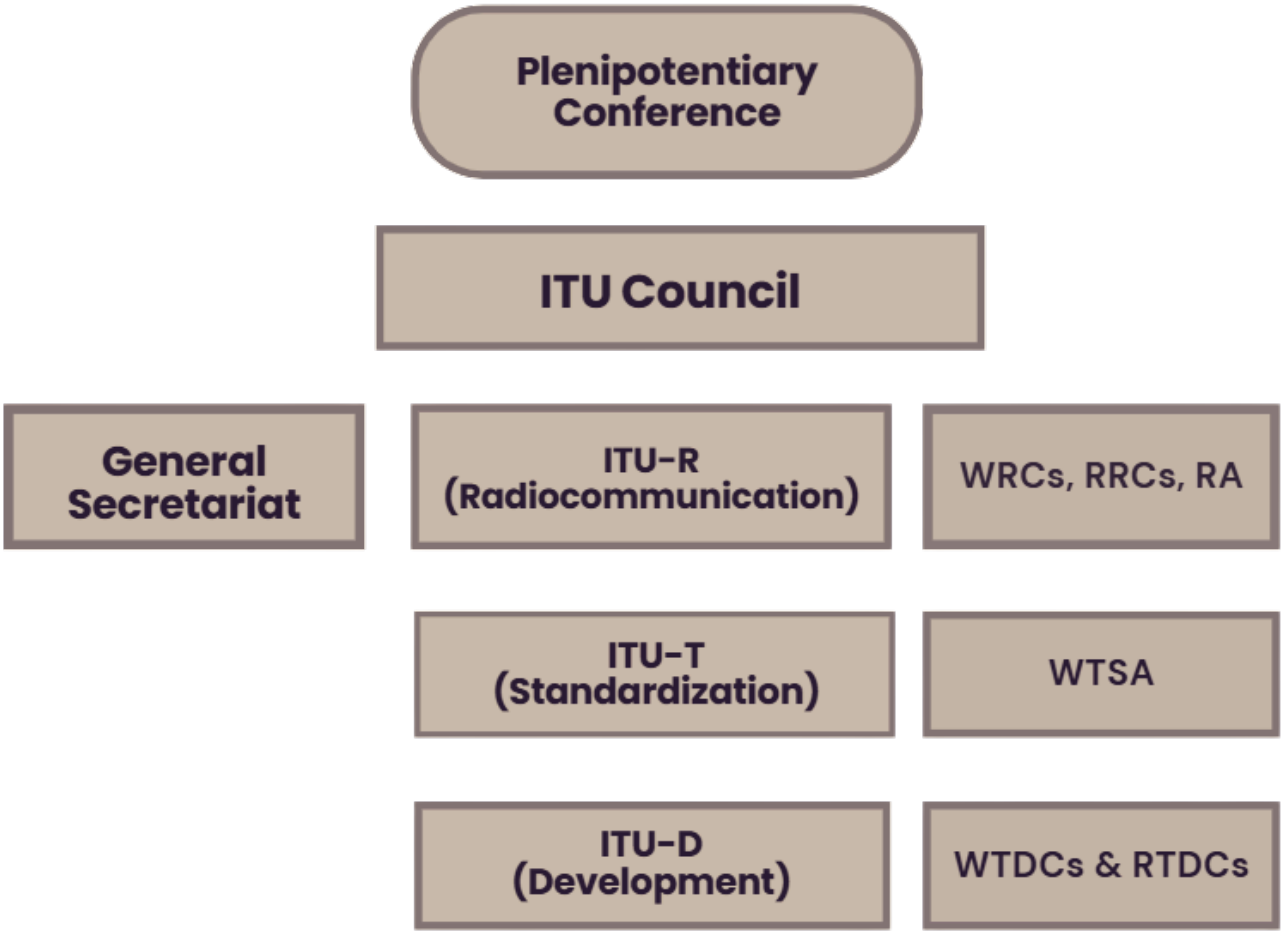
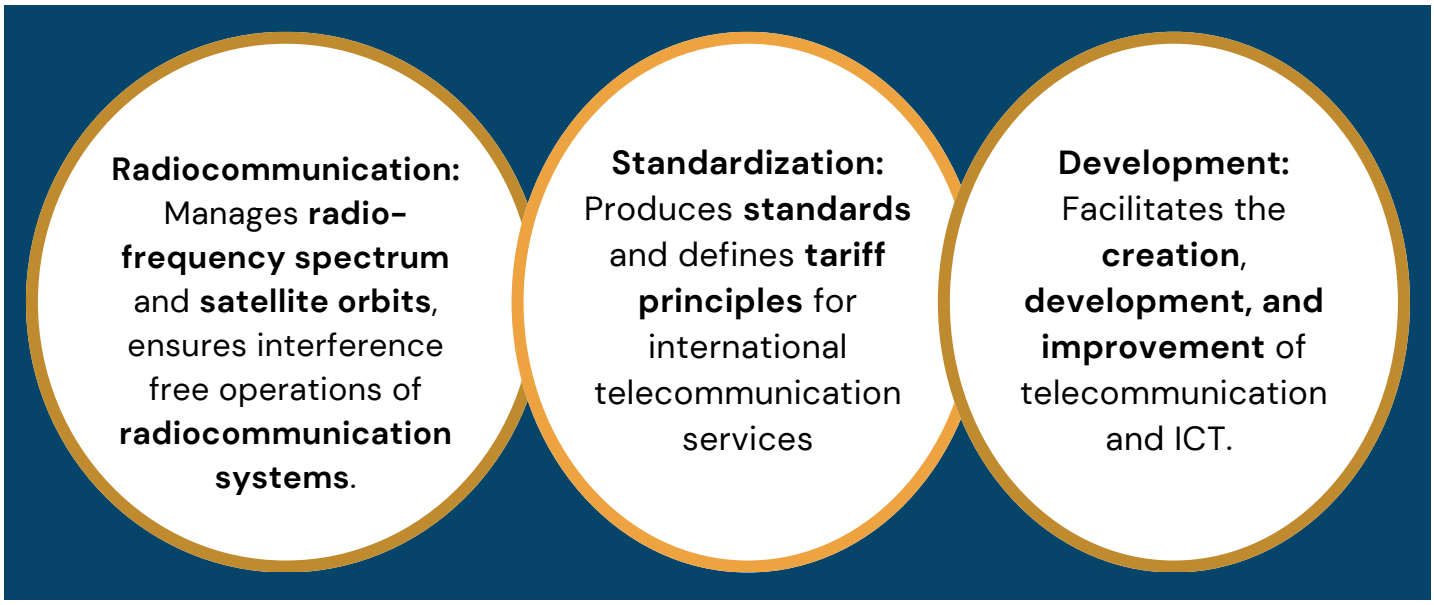


Figure 1. Overview of ITU's Governance Structure

THE THREE SECTORS OF INTERNATIONAL TELECOMMUNICATION UNION

The restructuring of the ITU in 1992 led to the dissolution of three key entities: 1) the Consultative Committee for Telephone and Telegraph (CCITT), 2) the Consultative Committee for Radio (CCIR), and the 3) International Frequency Registration Board (IFRB). Their functions were redistributed among three newly established Sectors.



These sectors do not mirror the exact roles of their predecessors, but carry forward their core responsibilities in a redefined framework. The upcoming section will highlight the leadership, organizational structure, and core responsibilities of each of the three sectors of the ITU.

THE THREE SECTORS OF INTERNATIONAL TELECOMMUNICATION UNION

ITU-R	ITU-D	ITU-T
The ITU-R regulates & manages global radio-frequency spectrum and satellite orbits, ensuring their efficient and equitable use.	The ITU-D promotes global telecommunication development, focusing on the needs of developing and least developed countries.	The ITU-T develops international standards (Recommendations) that ensure the interoperability and security of global telecommunication networks and services.
The ITU-R is led by a Director elected by the Plenipotentiary Conference, who oversees the Radiocommunication Bureau.	ITU-D is headed by a Director elected by the Plenipotentiary Conference (PP). All ITU Member States are automatically part of ITU-D.	The ITU-T is led by a Director elected by the Plenipotentiary Conference, who oversees the Telecommunication Standardization Bureau (TSB)
ITU-R functions through the World Radiocommunication Conferences (WRCs), Regional Conferences, Radiocommunication Assemblies, the Radio Regulations Board (RRB), and ITU-R Study Groups.	ITU-D functions through World Telecommunication Development Conferences (WTDSs), Regional Conferences, Telecommunication Development Advisory Group (TDAG), and ITU-D Study Groups.	ITU-T functions through World Telecommunication Standardization Assembly (WTSA), Telecommunication Standardization Advisory Group (TSAG), Study Groups, and TSB

THE TELECOMMUNICATION STANDARDIZATION SECTOR (ITU-T)

Organizational Structure Flowchart

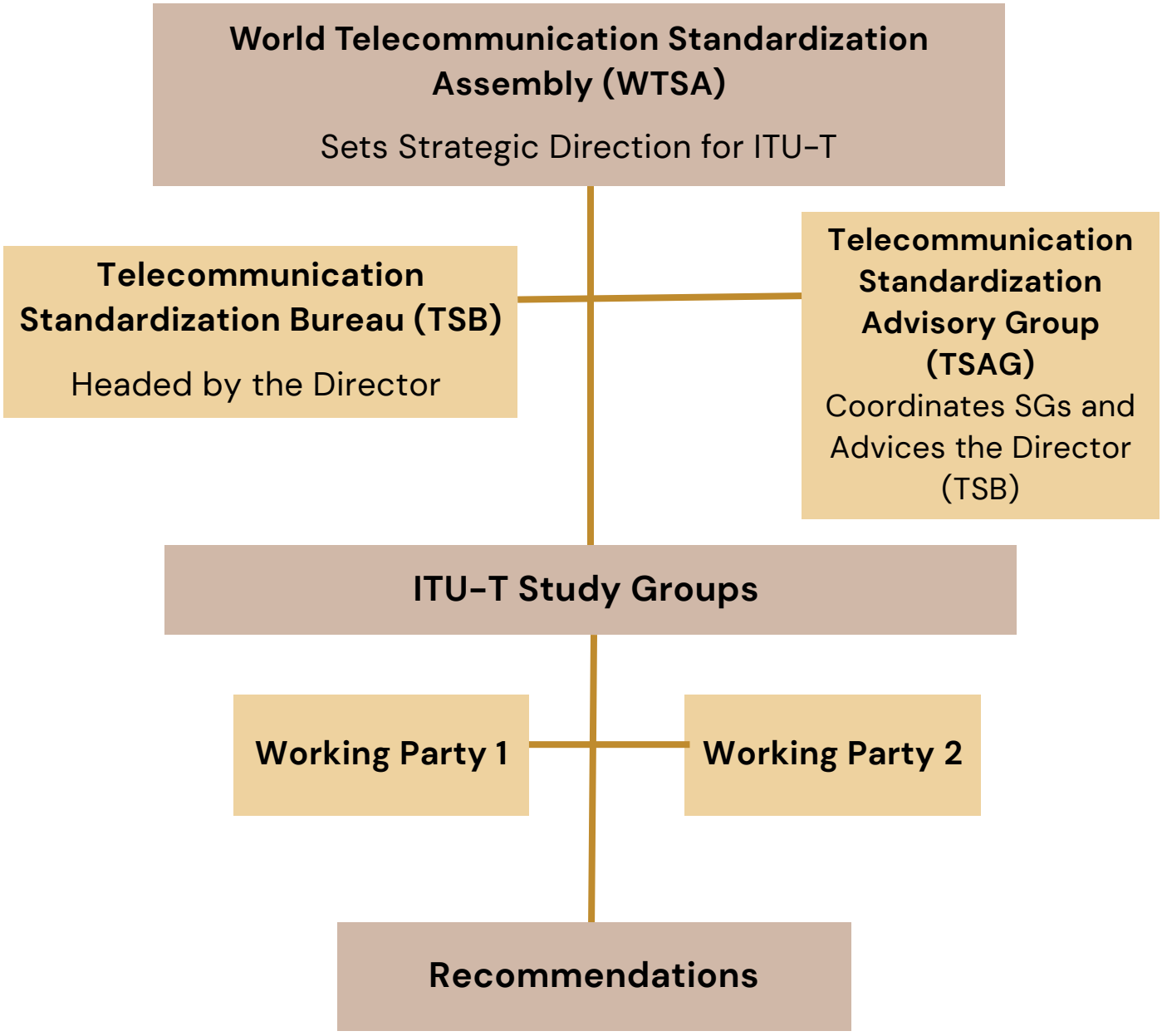


Figure 3. The Organizational Structure of ITU-T

Chapter III

FUNCTIONING OF THE TELECOMMUNICATION STANDARDIZATION SECTOR (ITU-T)

In the world of global telecommunications governance, understanding how technical standards are developed is essential. These standards are not created in a vacuum, rather, they result from a structured and collaborative process that begins with high-level policymaking and flows down to detailed technical drafting.

At the heart of this process are **Study Groups**-specialized expert bodies that transform broad mandates into specific, actionable standards. To fully comprehend how international telecommunication standards come to life, one must first understand the internal structure of these study groups and the workflow from a strategic decision to a finalized Recommendation. This chapter explores this workflow using the Telecommunication Standardization Sector (ITU-T) as a case in point.

To understand the functioning of ITU-T, it is essential to grasp the internal structure of a Study Group, including the roles of Working Parties, Questions, and Work Items, which together organize and guide the technical work. Each element contributes to the lifecycle of a standard, from identifying a need to finalizing a globally recognized Recommendation.

This chapter traces the standardization process starting from the Plenipotentiary Conference, the Union's highest decision-making body, and follows the chain of actions—through World Telecommunication Standardization Assemblies (WTSAs), the Telecommunication Standardization Advisory Group (TSAG), and the **Study Groups**, down to the formulation and approval of a specific work item or standard.

THE STRUCTURE OF A STUDY GROUP

WHAT ARE STUDY GROUPS (SG) ?

Study Groups (SGs) are the primary working bodies within each of the three ITU sectors-ITU-R, ITU-T, and ITU-D. They serve as the engine rooms where international technical standards and policy guidelines are developed. In other words, Study Groups are responsible for generating recommendations and technical standards based on their focus areas.

In ITU-T, these study groups are the core entities responsible for drafting Recommendations, which form the backbone of global telecommunication standards and interoperability. ITU-T currently has 10 SGs for the study period 2025-2028. They are:

Study Group 2	**Operational Aspects**
Study Group 3	**Economic & Policy Issues**
Study Group 5	**Environment, EMF, Climate Action, and Circular Economy**
Study Group 11	**Protocols, Testing, and Combating Counterfeiting**
Study Group 12	**Performance, QoS & QoE**

Study Group 13	**Future Networks**
Study Group 15	**Transport, Access, and Home**
Study Group 17	**Security**
Study Group 20	**IoT, Digital Twins, and Smart Cities**
Study Group 21	**Multimedia, Content Delivery, & Cable TV**

CHAIRMANSHIP AND STRUCTURAL OVERSIGHT

Each Study Group is led by a Chairperson, appointed by WTSA, who bears responsibility for designing an effective organizational framework for that group's work. This includes:

- Establishing an appropriate structure for distributing work across internal subdivisions
- Selecting Working Party chairpersons with proven technical and managerial competence, informed by advice from Study Group members
- Organizing promotion and outreach activities to increase awareness of the Study Group's initiatives and outcomes, in coordination with the Telecommunication Standardization Bureau (TSB)

WHO MAKES STUDY GROUPS?

The World Telecommunication Standardization Assembly (WTSA) is the primary authority that sets the direction for ITU-T's standardization work for each four-year study period. Based on global telecommunication priorities and proposals from Member States and Sector Members, WTSA determines the overall structure of the ITU-T by establishing, merging, or disbanding Study Groups. It assigns each Study Group a specific mandate through the allocation of Questions-well-defined topics that guide technical inquiry and the development of standards. WTSA also appoints the chairpersons and vice-chairpersons of each Study Group, approves draft Recommendations, and revises working methods to ensure continued relevance and efficiency.

WHAT IS A STUDY PERIOD?

A Study Period refers to the four-year cycle during which Study Groups are mandated to carry out their standardization activities. In the case of ITU-T, it begins and ends with the World Telecommunication Standardization Assembly (WTSA), which convenes every four years.

The formation of SGs and their focus areas are based on:

The strategic priorities of the ITU and global telecommunications needs.

Proposals submitted by Member States and Sector Members

Review of outcomes from the previous Study Period, existing Recommendations, ongoing work items, and emerging technology trends.

Advice from the Telecommunication Standardization Advisory Group (TSAG) and the ITU secretariat regarding efficiency, overlapping mandates, or needs for new technical focus areas.

The 2025–2028 Study Period commenced following the conclusion of WTSA-24, which was held from 15 to 24 October 2024 at Bharat Mandapam, Pragati Maidan, New Delhi, India. This marked the first time in ITU's 150-year history that the WTSA was hosted in India.

During a Study Period,

SGs implement the mandates, Questions, and work program established by the WTSA.

Ongoing and new Work Items are developed, revised, or finalized into ITU-T Recommendations.

Technical progress is reported and reviewed for preparation ahead of the next WTSA.

At the end of a Study Period, each Study Group compiles a list of proposed new or revised Questions, suggesting work areas for the next four-year cycle. These are submitted for approval at the next WTSA.

WHAT ARE QUESTIONS ?

Questions form the fundamental project units within ITU-T, each centered around a specific and well-defined area of study. The scope and objectives of a Question are outlined in its official text, which must be approved either by the WTSA or by the Study Group itself.

Establishing, modifying, relocating, or terminating a Question requires the consensus of the membership. Each Question is referenced by a number, followed by the study group number (for example, Q1/2 refers to Question 1 under Study Group 2).

Within the framework of a Question, a Rapporteur Group, that is, a team of subject-matter experts, is responsible for assessing the standardization needs, drafting the corresponding Recommendations, and maintaining their development over time.

WHAT IS A WORK ITEM?

Work Items are specific projects initiated to develop new Recommendations, revise existing ones, or produce technical reports. Each Work Item is associated with a particular Question under a Study Group and follows a structured process to ensure the development of high-quality international standards.

KEY CHARACTERTISTICS OF WORK ITEMS

1

Work Items are directly linked to Questions, which define the scope and objectives of the study. This linkage ensures that each Work Item addresses a specific area of interest within the Study Group's mandate.

2

Information about ongoing and completed Work Items is publicly accessible through the ITU-T Work Programme portal, allowing stakeholders to stay informed about the progress and scope of standardization activities.

3

The progression of a Work Item typically involves several stages, including drafting, consensus-building, and approval through established procedures.

4

Each Work Item is documented with details such as its title, associated Question, Study Group, study period, and current status.

WHAT ARE THE SUB-DIVISIONS WITHIN A STUDY GROUP?

01 Working Parties (WPs)

These are specialized subdivisions within Study Groups (SGs) that focus on specific areas within the group's overall mandate. Each Working Party addresses more focused topics, allowing for detailed analysis and the development of specific recommendations. WPs allow for deeper technical engagement and detailed analysis. They are headed by a WP Chairman, appointed by the Study Group. WPs oversee a set of Questions, usually thematically related.

02 Sub-Working Parties

These subgroups may be created when detailed, task-specific efforts are required under a Working Party's purview. However, the formation of Sub-working Parties or any additional layers must be carefully considered to avoid unnecessary complexity or redundancy.

03 Rapporteurs and Editors

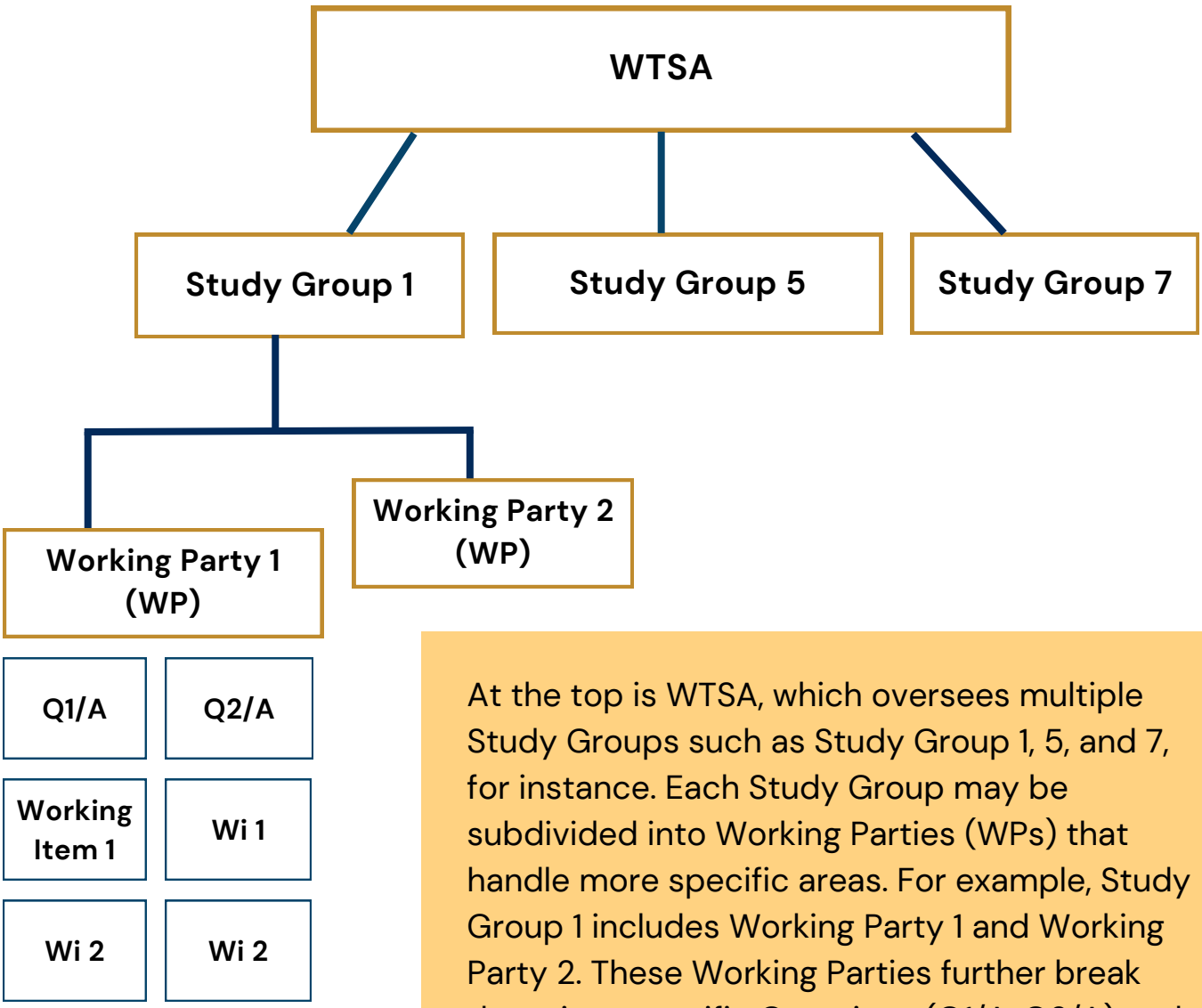
For each Question, a Rapporteur is typically appointed to lead the technical development, supported by Associate Rapporteurs if needed. When a specific text (e.g., draft Recommendation) is under development, an Editor may also be designated to manage and refine the document.

04 Joint Working Parties

Occasionally, a Study Group may, in collaboration with other Study Groups and in consultation with TSAG and the Director of TSB, establish Joint Working Parties to address Questions of common interest. In such cases, one Study Group is designated as the parent group, assuming overall coordination responsibility.

STRUCTURE OF A STUDY GROUP-FLOW CHART

The flowchart illustrates the hierarchical structure of a Study Group under the World Telecommunication Standardization Assembly (WTSA).



At the top is WTSA, which oversees multiple Study Groups such as Study Group 1, 5, and 7, for instance. Each Study Group may be subdivided into Working Parties (WPs) that handle more specific areas. For example, Study Group 1 includes Working Party 1 and Working Party 2. These Working Parties further break down into specific Questions (Q1/A, Q2/A) and corresponding Working Items (Wi 1, Wi 2), reflecting the detailed technical and thematic areas under study.

THE JOURNEY FROM WTSA TO A RECOMMENDATION

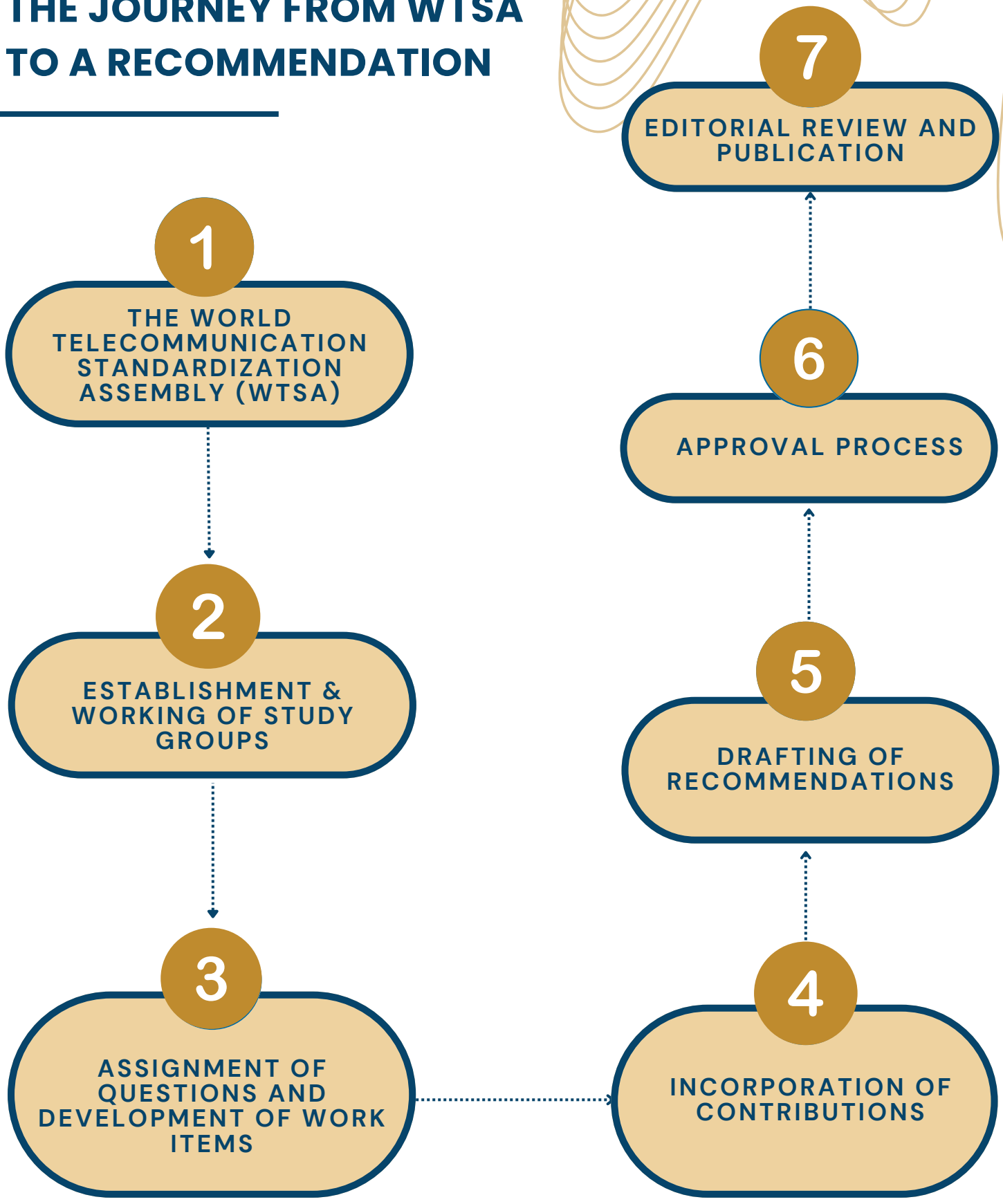


Figure 5. The Process of Recommendation Formation at ITU

Working of ITU-T

1 The World Telecommunication Standardization Assembly (WTSA)

At each WTSA, Study Groups (SGs) are created, merged, or reorganized depending on new technical developments and global priorities. WTSA also assigns Questions to each Study Group.

WTSA appoints the Chairmen and Vice-Chairmen of each Study Group based on technical expertise and leadership abilities.

These Questions form the foundation for the Study Group's work during the Study Period.

2 Establishment and Working of Study Groups (SGs)

A Study Group can assign a Question, a set of Questions, or the maintenance of existing Recommendations to a Working Party.

If the workload within a Working Party is too large, the Study Group may divide it further by creating Sub-Working Parties. However, creating too many subgroups is discouraged and should only happen after careful review of the scope and needs of the work.

In addition to managing technical work, the Study Group Chair and leadership team are encouraged to actively promote the Study Group's work. This involves creating and participating in a marketing and communication plan to share information about new initiatives, achievements, and technical solutions.

Sometimes, when a topic overlaps between two or more Study Groups, they may create a Joint Working Party. In this case, one Study Group acts as the 'parent' and coordinates the work.

Working of ITU-T

3 Assignment of Questions and Development of Work Items

Every Question assigned to a Study Group is distributed internally, usually to a specific Working Party.

From each Question, more focused Work Items are initiated. A Work Item defines a very specific project (for example, drafting a new Recommendation or revising an existing one), with a title, scope, deadlines, and assigned Rapporteurs.

New Questions and Work Items can also be proposed during the Study Period. However, they require the agreement of Study Group members through established procedures.

4 Incorporation of Contributions

Contributions are formal written inputs submitted by ITU-T Members, which include Member States, Sector Members, and Associates.

Contributions may propose new work items, suggest changes to draft Recommendations, provide technical research findings, or offer alternative technical solutions.

They are reviewed and incorporated into the technical work primarily during Study Group meetings, Working Party sessions, and Rapporteur group meetings.

The Rapporteurs and Editors assigned to a specific Work Item bear the primary responsibility for incorporating Contributions into the evolving draft texts.

Study Group leadership, including the Chair and Working Party Chairs, ensures that all Contributions are treated fairly, that discussions are inclusive, and that consensus is built among participants.

Working of ITU-T

5 Drafting of Recommendations

Based on the assigned Questions and incorporated Contributions, Rapporteur Groups develop draft Recommendations.

Editors, in collaboration with subject matter experts and rapporteurs, consolidate inputs into a coherent technical document.

Drafts undergo iterative discussions and revisions through meetings and correspondence until consensus is achieved among the membership involved.

6 Approval Process

After drafting and internal discussion, ITU-T Recommendations must undergo a formal approval process before they are published. The approval pathway depends on the type of Recommendation:

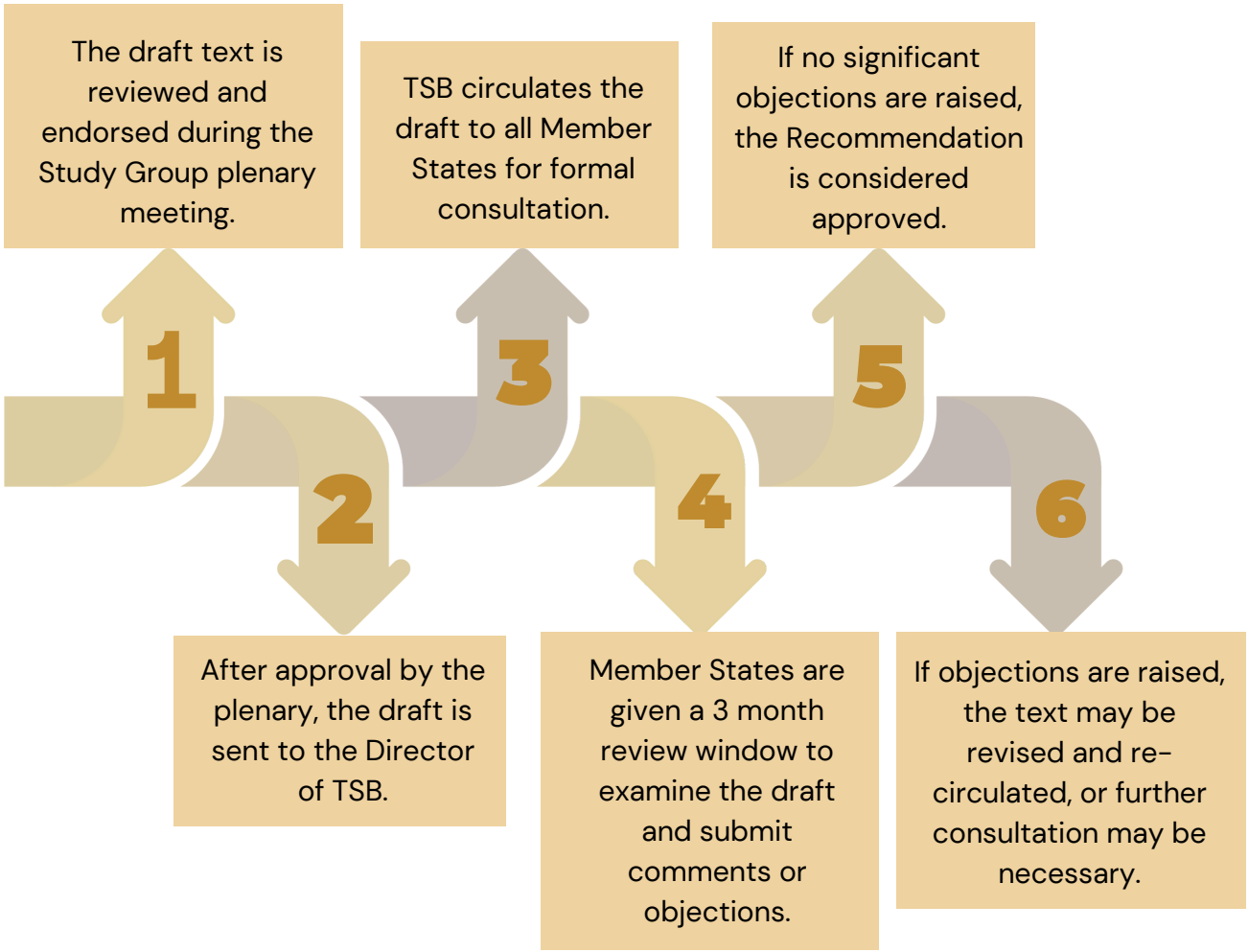
Non-Normative Recommendations	Normative Recommendations
Non-Normative Recommendations provide guidelines, best practices, frameworks, or informative content without imposing mandatory compliance.	Normative Recommendations contain mandatory requirements (e.g., technical specifications, protocols that must be followed to ensure interoperability)

Working of ITU-T

RECOMMENDATIONS ARE SUBJECTED TO TWO KINDS OF APPROVAL PROCESSES:

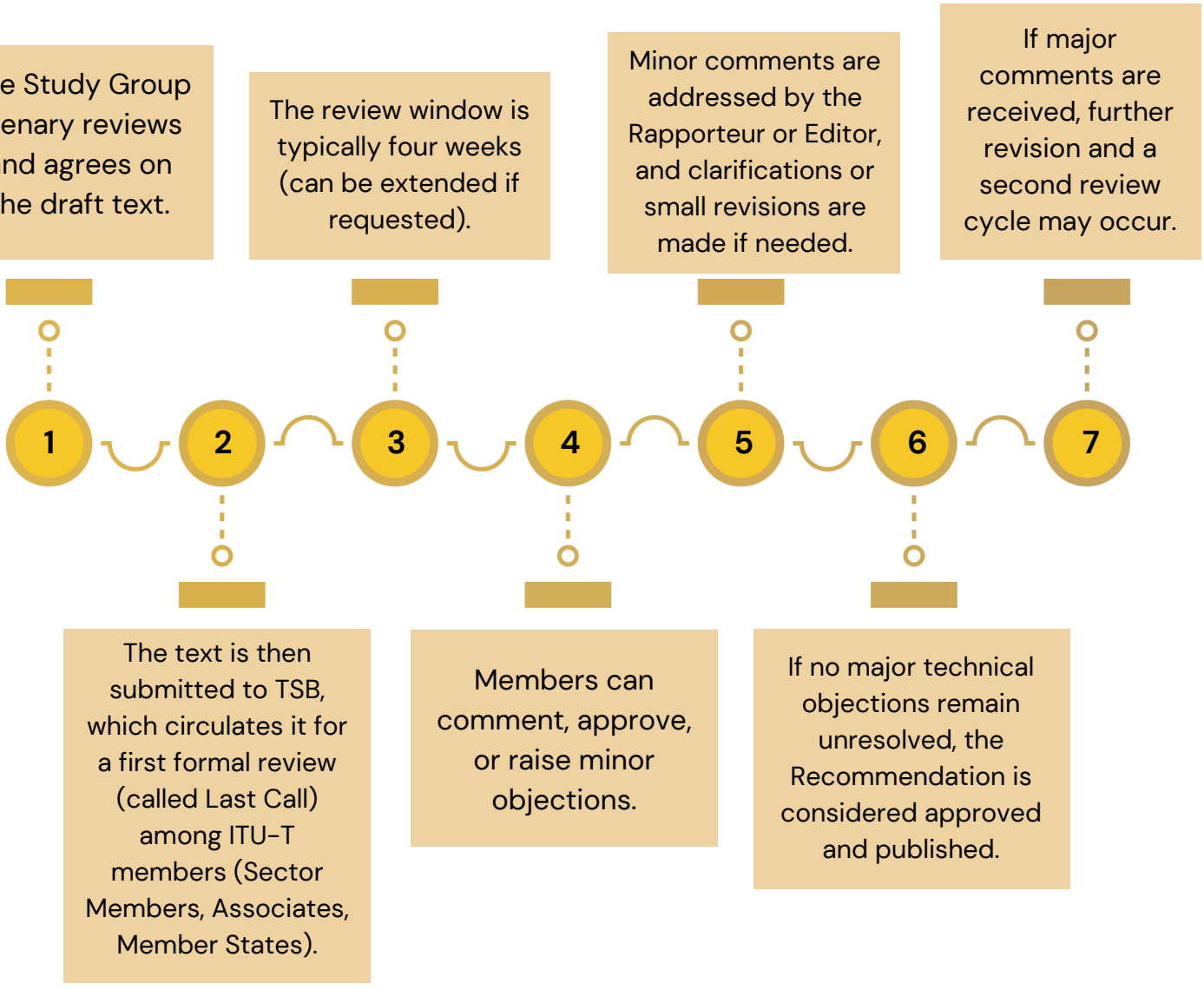
1 Traditional Approval Process (TAP)

TAP is used mainly for Recommendations that have regulatory, policy, tariff, or operational implications.



2 Alternative Approval Process (AAP)

AAP is used mainly for purely technical, normative Recommendations where faster approval is needed, and no regulatory/tariff implications exist.



7 Editorial Review and Publication

Once a Recommendation is approved, it undergoes a final editorial review to ensure consistency, correct language use, alignment with ITU-T formatting rules, and translation into ITU's six official languages (if necessary).

After these final checks, the Recommendation is officially published by ITU-T and becomes available on the ITU-T website for public access.

Chapter IV

CONTRIBUTIONS WRITING FOR STANDARDS

WHAT IS A CONTRIBUTION?

Contributions are formal inputs or proposals made by member states, organizations, and/or stakeholders that aim to influence the development of standards, policies, and resolutions. Contributions play a critical role in shaping the direction of telecommunications by addressing emerging challenges, introducing new technologies, and refining existing practices.

AT WHAT LEVELS CAN CONTRIBUTIONS BE MADE?

Ilt is important to note that contributions can be made at various levels within the ITU. You might be wondering, "Where can I contribute? Is it possible to contribute to a work item, a specific question, a study group, or even directly to a Plenipotentiary?" The answer is yes; contributions can be submitted across all these levels, depending on the nature and significance of the proposal. For instance, a contribution directed at the Plenipotentiary can potentially alter the very mandate of ITU itself.

Imagine a scenario where a member state proposes to address artificial intelligence within the ITU framework- this is a prime example of a contribution that could reshape telecommunications policies.

The decision of where to submit a contribution lies with the member state, reflecting the contribution's policy level and its intended impact. If the contribution aims to modify ITU's overarching policies, it should be presented at the Plenipotentiary level. In contrast, contributions targeting the mandate of a specific study group, such as the need for standards on blockchain technology, would be channeled through the World Telecommunication Standardization Assembly (WTSA), which could establish a resolution on the matter.

Additionally, contributions may encompass smaller yet significant proposals, such as setting tariff principles or developing guidelines for data protection. These can manifest as specific work items within the ITU.

WHY SHOULD YOU PAY ATTENTION TO WRITING CONTRIBUTIONS AT ALL?

Contribution writing is not just a procedural task, is a crucial responsibility that allows India to shape global standards in line with its technological, economic, and strategic interests. Through well-crafted contributions, India can influence the development of international norms in critical areas like 5G, cybersecurity, AI, and satellite communications, ensuring that emerging global standards reflect the realities and priorities of our domestic market.

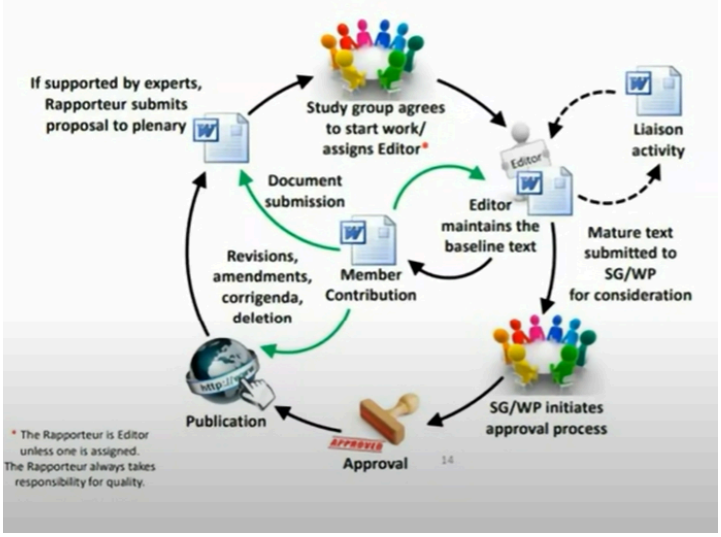
Contribution writing strengthens India's leadership role, promotes indigenous innovation, protects national security and economic interests, and ensures that the global regulatory environment evolves in ways that support equitable, affordable, and sustainable telecommunications growth. It transforms India from a passive recipient of global standards into an active architect of the international telecommunications future, empowering us to set the agenda rather than merely adapt to it.

WHAT IS THE DIFFERENCE BETWEEN A CONTRIBUTION, A WORK ITEM, AND A RECOMMENDATION?

TERM	DEFINITION	PURPOSE	STAGE IN PROCESS
Contribution	A formal document submitted by a Member State, Sector Member, or Associate proposing new work, changes to existing work, or raising new issues for discussion.	To initiate discussion, suggest the development of a new Work Item, revise a draft Recommendation, or influence policy direction within ITU-T activities.	**Starting Point**: Submitted for consideration during meetings of Study Groups, Working Parties, or high-level conferences.

TERM	DEFINITION	PURPOSE	STAGE IN PROCESS
Work Item	A specific project formally agreed upon by a Study Group or Working Party to develop a new Recommendation, revise an existing one, or produce technical reports.	To organize technical work on a focused topic, aligning efforts under a specific Question, with defined objectives and timelines, leading to draft outputs.	**Development Stage:** Active drafting and consensus-building phase within Study Groups.
Recommend--ation	A final, approved document that sets international standards, technical specifications, or guidelines for telecommunications and ICT sectors.	To provide globally recognized, consensus-based standards that ensure interoperability, security, and efficient operation of telecommunication networks.	**Final Output:** Achieved after successful drafting, review (TAP or AAP), and approval processes.

LIFE CYCLE OF A CONTRIBUTION



- **Initiation:** The cycle begins with a member submitting a contribution document.
- **Submission Period:** Contributions can only be submitted during designated submission windows, which align with scheduled meetings.
- **Presentation:** The submitted document is presented by the member at the designated meeting.
- **Discussion and Evaluation:** Member states discuss the contribution's content, with options to:
- *Agree:* Move the document forward for additional processing.
- *Note:* Record the contribution without further action.
- **Advancement:** Contributions approved in preliminary meetings (e.g., Working Party meetings) advance to the Study Group level.
- **Assignment:** The Study Group assigns an editor to the contribution and invites further input from other interested countries.
- **Consensus Building:** Multiple contributions are gathered, reviewed, and refined through consensus, with the editor managing and updating the base document.
- **Liaison Activities:** As needed, liaising occurs with other sectors or groups to align on cross-cutting issues.
- **Editing and Revisions:** Contributions go through rounds of edits, including additions, modifications, and deletions, in a tracked change format.
- **Mature Text:** After multiple meetings and revisions, a consolidated, consensus-based document—referred to as "mature text"—is produced.
- **Study Group Approval:** The mature text is presented to the Study Group, which initiates the final approval process.
- **Member State Endorsement:** All member states review and endorse the document, leading to formal approval.
- **Official Publication:** Upon approval, the document is published as an official recommendation.
- **Ongoing Revisions:** Standards may require periodic updates. If amendments are proposed, the life cycle restarts, ensuring the recommendation remains current and relevant.

LIFE CYCLE OF A CONTRIBUTION

1 SUBMISSION OF A CONTRIBUTION

There are two ways to submit a contribution to an ITU-T Study Group:

A. Direct Document Posting (DDP)
B. Submission via Email to the Study Group Secretariat

1 Direct Document Posting (DDP)

The Direct Document Posting (DDP) system lets delegates reserve a contribution number and upload or update their contributions directly onto the ITU-T web server. This system is specifically designed for handling contributions only. There are certain prerequisites for the Direct Posting method. These are:

1	2	3
To submit a contribution, the submitter must be from a Member State, Sector Member, Associate, or Academia member of the relevant Study Group, and must have an ITU TIES account.	Contributions must be registered and uploaded before the submission deadline, usually 12 calendar days before the Study Group or Working Party meeting starts.	Documents must use the correct ITU-T template and must include the Document Number, which is given once registration is complete. The template can be found through the DDP link on the Study Group or TSAG homepage.

LIFE CYCLE OF A CONTRIBUTION

DDP involves two steps. These are:

1. Registering the Contribution document
2. Uploading the Contribution document

After the initial upload, users can also upload revisions, addenda, and corrigenda, delete or withdraw documents, or update the registration information if needed.

A GUIDE TO THE DDP PROCESS	
	Visit the SG5 web page (or any SG web page), Click on 'Submit Contributions using Direct Document Posting' under Meeting Documents. You will find the DDP User Guide.

2 Submission via Email to the Study Group Secretariat

To submit a Contribution via email:

1. The Member State, Sector Member, Associate, or Academia member of the relevant Study Group must use the right template for a Contribution.
2. Once the Contribution is ready, it should be sent via email to the Study Group email ID: tsbsgxx@itu.int (xx stands for the Study Group number)

tsbsgxx@itu.int (xx: SG number)

LIFE CYCLE OF A CONTRIBUTION

2

CONTRIBUTION SUBMISSION PERIODS

To ensure that contributions are properly reviewed before discussion, the ITU-T sets designated submission windows and standard deadlines. Contributions to ITU-T Study Groups must be submitted during specific submission windows, which align with the scheduled meetings of the Study Groups or Working Parties. These windows are set in advance and are published on the respective Study Group or Working Party webpages. The exact dates and deadlines are announced well ahead of each meeting cycle.

1

Contributions should be submitted at least 12 calendar days before the start of the relevant meeting (Study Group, Working Party, or Rapporteur group).

2

This 12-day rule gives delegates and experts enough time to read, study, and prepare comments on the documents before the meeting begins.

3

Documents received after the 12-day deadline are considered late and may only be accepted if the Chairman of the meeting and the TSB Secretariat agree.

Contributions cannot be submitted at any time. They must be submitted during the designated submission windows corresponding to the scheduled meetings. These periods are not open year-round; they are specific to each meeting cycle.

LIFE CYCLE OF A CONTRIBUTION

3

PRESENTATION

After a Contribution is submitted,

1

The representative of the submitting Member State or Sector Member usually presents the Contribution. If unavailable, another authorized delegate may present.

2

The contributor (or their delegate) is expected to present the Contribution, either physically, virtually, or in hybrid mode. Physical presence is not mandatory.

3

Contributions are first presented at Working Party or Rapporteur Group meetings. Final discussions and approvals happen at the Study Group plenary.

4

The purpose of presentation is to introduce the proposal, explain the content, answer questions, and participate in discussions that refine and advance the Contribution.

4

DISCUSSION AND EVALUATION OF CONTRIBUTIONS AT THE WORKING PARTY LEVEL

After a contribution is submitted and presented, it is discussed and evaluated within the Working Party (WP) during its scheduled meeting. As per ITU-T procedures:

LIFE CYCLE OF A CONTRIBUTION

1. Member States, Sector Members, and other participants of the Working Party discuss the contribution in detail. The session is chaired by the Working Party Chairman, who ensures that all views are heard.

2. After discussion, the Working Party members decide on the contribution's handling:

AGREE	NOTE
If consensus is reached that the contribution adds value to the ongoing work, it is accepted for further processing. It may be used directly to modify a draft Recommendation, incorporated into an existing work item, or developed further.	If the contribution is informative but does not need immediate action, the Working Party notes the contribution. This means it is recorded in the meeting report but no further immediate development is pursued.

3. The Working Party operates by consensus. No formal voting is usually held. If consensus is not achieved, the Chairman may defer the contribution for later consideration or recommend escalation to the Study Group.

4. The secretariat supporting the Working Party records the final status of each contribution ("agreed" or "noted") in the official meeting report, ensuring transparency and traceability.

5. **ADVANCEMENT TO STUDY GROUP (SG)**

LIFE CYCLE OF A CONTRIBUTION

After a contribution is agreed at the Working Party level, the Working Party Chairman forwards the outcome and any associated draft text or report to the parent Study Group (SG). The following steps are taken:

1. The contribution may be forwarded as part of a draft Recommendation, a revised work item, or new text proposals ready for Study Group consideration.

2. The Study Group, under the leadership of the Study Group Chairman, reviews the Working Party's outputs during its plenary meeting.

3. The Study Group verifies that proper procedures were followed at the WP level, that there is broad support for the proposed text, and that the text is technically and editorially mature enough for further approval steps.

4. Participants in the SG plenary include Member States, Sector Members, Associates, and other authorized parties.

6 ASSIGNMENT OF AN EDITOR

After a consensus is built at the WP and SG level, the SG may appoint an editor to oversee the development of the draft Recommendation. The editor is typically an expert from a Member State or Sector Member organization with substantial knowledge in the subject area.

During the drafting process, the editor may engage in liaison activities to ensure the draft Recommendation aligns with related work and avoids duplication. This involves:

LIFE CYCLE OF A CONTRIBUTION

1. Communicating with other ITU-T Study Groups to harmonize overlapping areas
2. Engaging with external organizations to coordinate on joint work items or related standards.
3. Integrating feedback received through liaison statements into the draft document.

7 CREATION OF MATURE TEXT

The mature text represents a consensus-based document ready for the approval process, either through the Alternative Approval Process (AAP) or the Traditional Approval Process.

8 THE APPROVAL PROCESS

The mature text is presented to the Study Group, which initiates the final approval process. Once consensus is reached within the Study Group, the draft text becomes either a determined text (for normative Recommendations under TAP-Traditional Approval Process) or a consented text (for Recommendations under AAP-Alternative Approval Process).

For AAP Recommendations, after consent, the text enters a two-phase public review:

1. **Last Call Phase:** A four-week period where Member States and Sector Members can comment.

LIFE CYCLE OF A CONTRIBUTION

2 **Additional Review Phase** (if comments are received): Further two weeks to resolve concerns.

3 If no substantive objections arise, the Recommendation is approved and published.

For TAP Recommendations,

1 After determination by the Study Group, the draft text is submitted to a formal approval vote by Member States (normally at WTSA or by correspondence).

2 Upon successful approval, the Recommendation is published.

9 OFFICIAL PUBLICATION

After completion of the AAP or TAP process, the final Recommendation is published by TSB (Telecommunication Standardization Bureau) on the ITU-T website. It becomes an official ITU-T Recommendation, forming part of the global telecom standards framework.

10 ONGOING REVISIONS

Standards may require periodic updates. If amendments are proposed, the life cycle restarts, ensuring the Recommendation remains current and relevant.

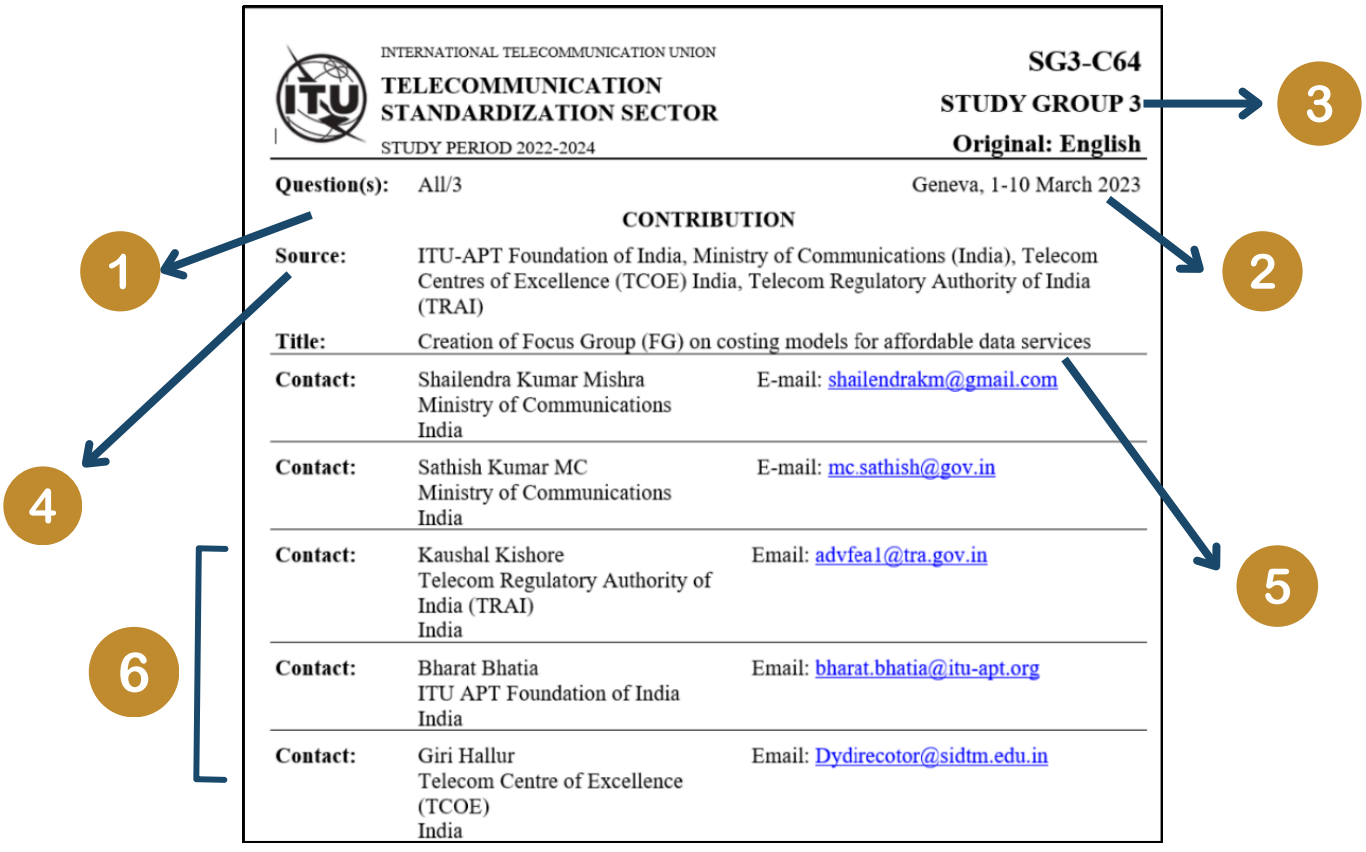
Structuring A Contribution

When preparing a contribution, it is important to ensure that the document is clear, brief, and fully self-contained. A standard contribution begins with a Heading and an Abstract, followed by two primary sections: Rationale (or Discussion) and Proposal (or Conclusion).

HEADING

The heading of the Contribution document submitted to the Telecom Secretariat Board (TSB) should contain the following:

1. The specific Study Group Question(s) the Contribution addresses.
2. The meeting location and dates for which the contribution is intended.
3. The Study Group and Working Party to which it should be submitted.
4. The source of the contribution (the country and/or organization).
5. A title for the contribution.
6. Contact details for the originator or representative, including name, organization, country, telephone, fax, and email address.



INTERNATIONAL TELECOMMUNICATION UNION
TELECOMMUNICATION STANDARDIZATION SECTOR
STUDY PERIOD 2022-2024

SG3-C64
STUDY GROUP 3
Original: English

Question(s): All/3 Geneva, 1-10 March 2023

CONTRIBUTION

Source: ITU-APT Foundation of India, Ministry of Communications (India), Telecom Centres of Excellence (TCOE) India, Telecom Regulatory Authority of India (TRAI)

Title: Creation of Focus Group (FG) on costing models for affordable data services

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Contact:	Giri Hallur Telecom Centre of Excellence (TCOE) India	Email: Dydirecotor@sidtm.edu.in

Figure 6. A Sample Contribution to the ITU From India

Structuring A Contribution

ABSTRACT

The abstract should briefly explain the goal of the contribution (for example, proposing a new Recommendation) and summarize its main points. It helps readers quickly understand if the content is relevant to them and indicates which working party should review it. Generally written after the full document is prepared, the abstract should be concise (around 150–200 words) and understandable even to those outside the direct field of the contribution.

Abstract:	Data has become the new fuel in this Digital world. It is one of the most essential commodities for the humanity in the Telecom/ICT driven world. Affordable data connectivity assumes acute importance economically, affecting all the digital services which are provided using Internet.

RATIONALE (DISCUSSION)

This section should provide background, reasons, and detailed discussion supporting the contribution's proposals or conclusions. It explains the approach taken, presents observations or results, and highlights their importance.

(The Rationale can be understood with the help of Contributions examples followed by this section)

PROPOSAL (CONCLUSION)

The final section of a contribution should bring the document to a clear and purposeful end. Depending on the nature of the contribution, this section may be titled either "Proposal" or "Conclusion", or it may include both under separate headings.

1. Use "Proposal" when the contribution is intended to recommend specific actions, decisions, modifications, or next steps that the Study Group or Working Party is expected to adopt. A Proposal section should be formulated in precise language, stating exactly what the contributor seeks to achieve—for example, approval of a new work item, changes to an existing Recommendation, or initiation of a liaison with another body.

Structuring A Contribution

2. Use "Conclusion" when the contribution is primarily intended to provide information, summarize findings, or offer insights without requesting any formal decision or action from the group. The Conclusion simply closes the document by highlighting key points or summarizing discussions, observations, or analysis.

When both a 'Conclusion' and a 'Proposal' are necessary within the same contribution, First include the Conclusion, summarizing the main observations, context, or findings. Follow it with the Proposal, clearly setting out any actions or approvals being requested based on the preceding discussion.

(The Proposal/Conclusion sections can be understood with the help of Contributions examples followed by this section)

SUPPLEMENTARY SECTIONS

Supporting or detailed information that might interrupt the flow of ideas in the main text should be placed as supplementary sections in the form of annexes, appendices, references, and/or attachments. A solid should be used to separate such sections from the main text.

The difference between annexes and appendices should be clear:

ANNEXES	APPENDICES
Annexes form an integral part of the Contribution and shall appear immediately after the main body of the Recommendation. They shall be designated A, B, C, etc. A single annex shall be designated Annex A.	Appendices do not form an integral part of the Contribution and shall appear immediately after the last annex of the Recommendation or, if there are no annexes, after the main body of the Recommendation. They shall be designated with upper case Roman numerals (i.e., I, II, III). A single appendix shall be designated Appendix I.

Structuring A Contribution

CLAUSE NUMBERING

Contributions should be organized in a logical and easy-to-follow manner. When the content requires presenting different levels of detail, a hierarchical structure should be used. This means dividing the text into discrete clauses and subclauses. Each clause and subclause should be numbered using decimal notation, following the numbering conventions recommended for ITU-T texts. For example-

Main sections: 1, 2, 3, etc.
Subsections: 1.1, 1.2, 2.1, etc.
Further subdivisions: 1.2.1, 1.2.2, etc.

PAGE NUMBERING

The title page of the Contribution should remain unnumbered.

Page numbering should begin from the 2nd page and continue consecutively through the entire document.

Page numbers should normally be centered at the top of each page. Below the page number, if available, the document number should also be indicated.

Where helpful, it is good practice to show the total number of pages (for example, "Page 2 of 10") to help readers track document length and completeness.

FIGURES AND DIAGRAMS

Any figures or diagrams included in the contribution must be clear and easily readable when printed on standard A4 paper. Contributors should ensure that all visual elements maintain sufficient resolution and clarity for distribution and review.

Structuring A Contribution

MATHEMATICAL FORMULAE

Mathematical expressions should only be included when necessary to explain or clarify the main text. Contributors should avoid detailed derivations of formulae within the contribution. The focus should remain on their purpose or application rather than step-by-step development.

QUOTATIONS

Prefer simple citations to the document number or specific paragraph number instead of inserting lengthy quotes directly into the contribution.

If material from other ITU-T documents is referenced, it should not be reproduced at length within the contribution.

If necessary, short excerpts or brief summaries may be included, particularly when it is anticipated that study group members may not have easy access to the referenced material.

REFERENCES

- When citing other ITU-T contributions or Recommendations, use the official document number (for example: COM 14-10)
- If the referenced document belongs to an earlier study period, this should be clearly mentioned.
- For references to standards from other bodies, such as ISO or IEC, contributors should comply with the rules outlined in Recommendation ITU-T A.5. Publications not falling under ITU-T A.5 can be listed separately in a Bibliography section at the end of the contribution.

Structuring A Contribution

GOOD PRACTICES	BAD PRACTICES
Draft contributions clearly and concisely, avoiding unnecessary details, tables, or statistics that do not directly support the Question under study.	Submitting lengthy documents with excessive tables, statistics, or unrelated technical discussions dilutes focus.
Employ internationally recognized terminology, SI units, ISO/IEC standards, and UTC for consistency and universal understanding.	Submitting lengthy documents with excessive tables, statistics, or unrelated technical discussions dilutes focus.
Organize contributions into a standard format: Heading (study group, title, contact) Abstract (150–200 words) Rationale (Discussion) Proposal or Conclusion Annexes/Appendices/References (if needed)	Submitting lengthy documents with excessive tables, statistics, or unrelated technical discussions dilutes focus.
Contributions should not exceed around 2500 words (about 5 printed pages) and up to 3 pages of figures, keeping total within 8 pages.	Articles already published or intended for publication elsewhere should not be submitted unless they directly address ongoing work.
Proper Document Mechanics: Use clause numbering (e.g., 1.1, 1.2.1). Clear page numbering (from page 2 onwards). Legible figures/diagrams printable in A4. Minimal and justified use of mathematical formulae. Proper referencing by document numbers.	**Poor Formatting:** Missing or incorrect heading information. No abstract or poorly written summaries. No clear rationale or proposal section. Unmarked or improperly indicated revisions in update proposals.

Structuring A Contribution

GOOD PRACTICES	BAD PRACTICES
Submit only content directly relevant to ongoing ITU-T Questions or standardization work.	Marketing language or promotional material is prohibited. Such passages can be deleted by TSB in consultation with Chairpersons. Poor quality or non-standard figures and excessive use of colors, which hamper document readability, are discouraged.

Effective Contribution writing is fundamental to influencing standards development within the ITU. Well-crafted Contributions not only reflect the technical and strategic strengths of the submitting entity but also facilitate productive global dialogue. These good and bad practices, based on ITU-T Recommendation A.2 guidelines, should be kept in mind while crafting Contributions.

The next page shows a Contribution submitted by India during the Study Period 2022 to 2024, titled 'Creation of Focus Group (FG) on costing models for affordable data services'.

This sample Contribution highlights an example of the guidelines regarding Contribution format discussed above.

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION STANDARDIZATION SECTOR

STUDY PERIOD 2022-2024

SG3-C64

STUDY GROUP 3

Original: English

Question(s): All/3 Geneva, 1-10 March 2023

CONTRIBUTION

Source: ITU-APT Foundation of India, Ministry of Communications (India), Telecom Centres of Excellence (TCOE) India, Telecom Regulatory Authority of India (TRAI)

Title: Creation of Focus Group (FG) on costing models for affordable data services

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Contact: Giri Hallur
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India
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Abstract: Data has become the new fuel in this Digital world. It is one of the most essential commodities for the humanity in the Telecom/ICT driven world. Affordable data connectivity assumes acute importance economically, affecting all the digital services which are provided using Internet.

Background

ITU-APT Foundation of India (IAFI) presented C28 the SG3 Plenary meeting of November 2022, that contained a proposal to create a new ITU-T Focus Group (FG) on costing models for affordable data services. Members from several regions found interest in the proposal and saw it of importance to study the costing models where a standardized benchmarking model is currently not available, yet a costing model was seen useful but should also include fixed networks.

The meeting agreed to apply Recommendation ITU-T A.7 "Focus groups: Establishment and working procedures". The meeting felt that this proposal for a new Focus Group requires more preparation, clarifications, consultation, and coordination (such as with other relevant study groups). The meeting invited the contributor and interested members to take efforts to bring a complete proposal including

terms of references to the meeting in March 2023, following the procedures set in Recommendation ITU-T A.7.

Meanwhile, Sri Lanka has also submitted a contribution C31 for the SG3 meeting in March, 2023 supporting the idea of establishment of a Focus Group on this subject.

India, with the support of ITU-APT Foundation of India, is therefore submitting this contribution.

Rationale

As per ITU's new estimate in 2022 around 2.7 billion people remained unconnected. It has been recognised that cost of the telecom service is one of the most important factors in proliferation of the Telecom services.(https://www.itu.int/en/mediacentre/backgrounders/Pages/affordability.aspx)

Latest edition of the Alliance for affordable internet(A4AI) report on mobile pricing data(https://a4ai.org/a4ai-2021-mobile-broadband-pricing-usd/) revealed that "*1GB of mobile broadband data became less affordable in 2021 meaning significant consequences for people who greatly needed internet access during the COVID-19 pandemic to access critical information, healthcare, and education services"*. It highlighted that *"the economies that were hardest hit by worsening levels of affordability levels were also the most fragile".*

According to the UN Broadband Commission on Sustainable Development's Target 2 for 2025, entry-level broadband service in developing countries should not cost more than 2 per cent of monthly Gross National Income (GNI) per capita. The global median price for entry-level mobile-broadband services in 2020 fell within that target, at 1.7 per cent. However, the median price for entry-level fixed-broadband (i.e., at least 5 GB) services was considerably above the target, at 2.9 per cent of GNI per capita. (The State of Broadband 2022: Accelerating broadband for new realities ITU/UNESCO Broadband Commission for Sustainable Development (samenacouncil.org)

India is of the view that the subject of affordable internet is the most important factor for connecting the unconnected. It recognises that cost economics acts as the bedrock for making the telecom/ICT services sustainable on a long run. Considering the fact that ITU-T SG3 is the lead study group dealing with costing principles and methodologies in the ICT sector as well as fostering collaboration among its participants with a view to the establishment of rates at levels as low as possible consistent with an efficient service, creation of an FG under ITU-T SG 3 to deal with costing of data under is a rational and logical way forward.

As noted in the C28, the supply-chain of Telecom/ICT is long, complex and varying. There are multiple cost models such as Fully Allocated Cost Models (FAC), Long Run Incremental Cost Models (LRIC), Total Service Long Run Incremental Cost (TSLRIC+), Bottom-Up (BU), Building Block Model (BBM), Top-Down (TD) Cost Models, Hybrid Cost Models used for pricing of internet services etc. The cost modelling used for legacy network has to undergo significant changes to incorporate the changed scenarios of the ecosystem such as shared networks, new technologies, etc. There are also various pricing strategies used such as Value-based pricing, Competitive pricing, Cost-plus pricing, Dynamic pricing and many more.

Moreover, with the technological advances, disruptive innovations and speed at which the telecom/ICT ecosystem is changing, there is a vacuum getting created at a broader policy level in understanding the layers which create the costing structure for data services. It is felt that there is a dire necessity to focus on these economic aspects, tariff principles and costing methodologies involved which will guide as well as enable the relevant stakeholders to create a self-sustainable ecosystem.

Similarly, the bundling of services and content and interplay of OTTs and the Service providers bring in the need to evolve and facilitate newer cost, tariff and revenue share models.

The ITU workshop on "**Economic and fiscal incentives to accelerate digital transformation of data and applications over telecommunication infrastructure"** https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2022/1103/Pages/default.aspx) provided a platform for discussions between taxation experts, policy makers, regulators, economists, standardization experts and other interested participants from the membership of ITU and other non-members; from developing and developed countries, including economies in transition, academia and research entities, industry, OTT and/or telecommunication/ICT service providers and platforms, other international organizations, and interested individuals etc. It provided a glimpse into various complex and intertwined economic and financial aspects of providing ICTs in the aspects of emerging internet value chain. Apart from the other key lessons it demonstrated that there need to be a closer and regular dialogue amongst all stakeholders and that many of these stakeholders are not necessarily the Members of ITU. It also brought to fore that open and regular multilateral dialogue amongst multiple players of the Internet value chain will facilitate greater understanding and cooperation amongst them.

Accordingly, it is imperative on our part to establish an FG for this item rather than create a work item or question under existing structure of SG3, considering the following points:

1. ITU-T Focus Groups encourage the participation of members of other standards organizations, including experts and individuals who may not be the members of ITU.
2. It will save the time and resources of the existing ITU-T SG3.
3. FG deliverables act as good source of material for SGs for consideration in the development of Recommendations.
4. With a specific focus, the FG will be able to complete the work in a short period of time and with more expert inputs.
5. Focus groups can establish their own method of providing and financing administrative support between meetings

Considering the above aspects, India has attempted to provide a draft of terms of Reference (ToR) keeping in view the Recommendation ITU-T A.7 "Focus groups: Establishment and working procedures". The draft ToR is enclosed as Annex.

Proposal

It is proposed to create a FOCUS GROUP (FG) on costing models for affordable data services. This focus group will study and explore the various possible economic and policy measures including, inter alia, various costing and pricing models for providing affordable data solutions. This FG will facilitate effective consultation and collaboration between stakeholders to analyse the various parameters involved in costing of data services and suggest methodologies/frameworks for modelling the costing of data. India proposes to host and support the functioning of the Focus Group.

India also seeks active support for the proposal from the Members. It looks forward to them for inputs to further enrich the proposal and to actively collaborate with them and other stakeholders in the internet value chain.

ANNEX

Terms of Reference:

ITU-T Focus Group on "on costing models for affordable data services" (FG-CostingData)

The ITU-T Focus Group on costing models for affordable data services to be established by ITU-T Study Group 3 will work towards studying and exploring the various costing models for providing affordable data services.

Participation in the FG-DataCosting is free of charge and open to all.

Parent group: ITU-T Study Group 3

1. Rationale and scope

The pricing of Data is complex, and market driven. The costs involved in managing the lengthy supply chain to provide Internet are being recovered predominantly by directly charging the customers. There is a need to have a focused study on the pricing mechanisms and how the cost recovery should be articulated. There are a range of factors which are considering while costing the services such as competition, consumer demand, buying capacity, willingness to pay, etc.

The supply-chain of Telecom/ICT is long, complex, and varying. There are multiple cost models such as Fully Allocated Cost Models (FAC), Long Run Incremental Cost Models (LRIC), Total Service Long Run Incremental Cost (TSLRIC+), Bottom-Up (BU), Building Block Model (BBM), Top-Down (TD) Cost Models, Hybrid Cost Models used for pricing of internet services. The cost modelling used for legacy network must undergo significant changes to incorporate the changed scenarios of the ecosystem such as shared networks, new technologies, etc. There are also various pricing strategies used such as Value-based pricing, Competitive pricing, Cost-plus pricing, Dynamic pricing etc.

The ITU-T SG3 is the lead study group dealing with costing principles and methodologies. It also deals with fostering collaboration among its participants with a view to the establishment of rates at levels as low as possible consistent with an efficient service and considering the necessity of maintaining independent financial administration of telecommunications on a sound basis.

The relevant extract of the mandate of ITU-T SG3 is shown below

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

Considering the prime importance of affordable internet, it is becoming increasingly imperative to study the various aspects involved in the costing of data which involves various dimensions such as policy, economic and social. As the Telecom/ICT is expanding and transforming at a rapid pace, the principles adopted for costing methodologies should also travel together. There is also a dire need to balance the commercial interests and public interest. These aspects should be incorporated at the stage

of costing itself. The factors such as competition, demand, technology, cost optimisation, pricing strategies, billing models, accounting separation, settlement mechanisms and regulatory compliances play considerable role.

2. Goals and objectives of the "Focus Group on on costing models for affordable data services" (FG-CostingData)

The key objectives of the Focus Group may include, inter alia, the following:

1. To identify and understand the components involved in the internet value chain and data services which affect of costing structure;
2. To benchmark best practices that could help the stakeholders in framing a costing and tariff model for efficient and affordable provision of data services which are commercially viable;
3. To collaborate with stakeholders, including Policymakers, Regulators, Financial and Accounting experts, Researchers, Economists, Developers, international and regional organizations, Academia, ICT Service providers, Manufacturers, Industry and Industry Associations, OTTs, FinTech, Civil society and Consumer Organisations in evaluating the prevalent costing and tariff methodologies and study the possibilities of arriving at innovative ways to make them affordable and ubiquitous;
4. To provide an open global platform for individual experts and Standard Development Organisations (SDOs) to join hands and work together;
5. To produce relevant report(s) of the FG activities;
6. To identify standardization opportunities that will assist relevant stakeholders in balancing the commercial and social interests in the domain of Data services;
7. To incorporate the factors such as competition, demand, technology, cost optimisation, pricing strategies, billing models, accounting separation, settlement mechanisms and regulatory compliances to develop models of costing data.

3. Structure

The FG-CostingData may establish sub-groups if needed.

4. Specific tasks and deliverables

Tasks and deliverables developed by the FG-CostingData may include, but not limit to the following:

Specific Tasks

- Outreach activities
    - To reach out to all key stakeholders including policy makers, ICT sector members, national telecommunication authorities, academia, SDOs/Fora, UN agencies to seek cooperation and facilitate inclusive and informed deliberations;
- Requirements gathering and study of existing policy and economic measures
    - Collect and document information on current policy and economic measures taken by various stakeholders for providing affordable data services.
    - To study various economic and policy aspects of the Internet value Chain including the best practices and to recommend economic and fiscal incentives for proliferation of affordable data services;
    - Ascertainment of costs of elements involved in various layers including methods of costing used for cost accumulation and techniques used for cost optimization. Also,

collate various frameworks of Cost accounting standards for cost ascertainment, cost accounting and reporting.

- Policy and economic analysis and conduct a gap analysis
    - Analysing and identify the policy, economic, regulatory and standardization gaps related to affordable data services and develop a future roadmap, taking into consideration the activities currently undertaken by other ITU groups, various standards developing organizations (SDOs) and forums
    - Understanding the Economics behind the supply chain of Telecom/ICT infrastructure.
    - Analyse the costing elements of components involved in various layers leading up to provision of Internet data services and attempt to suggest methodologies for provision of Affordable connectivity in line with the ITU goals.
    - Analyse the impact on costing of data services in the context of competition issues arising due to convergence in Telecom/ICT domain.

- Best practices and use cases analysis
    - Gathering information on initiatives, projects, and use-cases pertaining to affordable data services; to identify existing standards, best practices/findings as well as challenges for the adoption of the same.

- Collaboration and partnerships
    - To organize thematic workshops and forums on costing and pricing of Data services, which will bring together all stakeholders to promote the FG activities and encourage both ITU members and non-ITU members to jointly contribute on this work;
    - To liaise with relevant international and regional organizations.

Deliverables

1. Holding Three workshops that bring together stakeholders and experts;
2. Developing a process document including terminology and taxonomy of the entire supply chain of telecom/ICT domain leading to understanding of the economics behind data services, including the clarification on related terms and concepts;
3. Draft technical reports on the policy, economic, regulatory and standardization aspects related to affordable data connectivity and suggest costing methodologies, policy and economic framework and the underlying nature of the ecosystem including best practices of cost assessment methodologies and economic models being used;
4. Develop a regulatory toolkit for costing which can be used by policymakers and regulatory authorities;
5. Development of a web-based tool that regulators and policy makers could use for costing of Data;
6. Creating a comprehensive report, once FG-CostingData has achieved the aforementioned tasks, which summarizes these accomplishments and provides suggestions for future directions.

5. Relationships

This Focus Group will work closely with relevant Study Groups in ITU (-R, -T and –D) including co-located meetings when possible.

Furthermore, the FG-CostingData will collaborate (as required) with other relevant groups and entities, in accordance with Recommendation ITU-T A.7. These include governments, non-governmental organizations (NGOs), policy makers, Standard Development Organisations (SDOs),

industry forums and consortia, companies, academic institutions, research institutions and other relevant organizations. These include Broadband commission, A4AI, Worldbank, OECD and other related entities working in the field domain of finance, accounts and economics of Telecom/ICT.

6. Parent group

The parent group of the FG-Data Costing is **ITU-T Study Group 3** "Tariff and accounting principles and international telecommunication/ICT economic and policy issues".

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

7. Leadership

See clause 2.3 of Recommendation ITU-T A.7.

8. Participation

See clause 3 of Recommendation ITU-T A.7. A list of participants will be maintained for reference purposes and reported to the parent group.

It is important to mention that the participation in this Focus Group has to be based on contributions and active participations.

9. Administrative support

See clause 5 of Recommendation ITU-T A.7.

10. General financing

See clauses 4 and 10.2 of Recommendation ITU-T A.7.

11. Meetings

The Focus Group will conduct regular meetings. The frequency and locations of meetings will be determined by the Focus Group management. The overall meetings plan will be announced after the approval of the Terms of Reference. (ToR)

The Focus Group will use remote collaboration tools to the maximum extent, and collocation with existing ITU Study Group(s) meetings is encouraged.

The meeting dates will be announced by electronic means (e.g., e-mail and website, etc.) at least four weeks in advance.

12. Technical contributions

See clause 8 of Recommendation ITU-T A.7.

13. Working language

The working language is English.

14. Approval of deliverables

Approval of deliverables shall be taken by the method of consensus.

15. Working guidelines

Working procedures shall follow the procedures of Rapporteur group meetings.

The FG will exchange draft deliverables and other outcomes on a regular basis with its parent group, to ensure efficient transfer of deliverables to streamline future standardization (see ITU-T A.7 Appendix I).

No additional working guidelines are defined at this stage.

16. Progress reports

See clause 11 of Recommendation ITU-T A.7.

17. Announcement of Focus Group formation

The formation of the Focus Group will be announced via TSB Circular to all ITU membership, via the ITU-T News log, press releases and other means, including communication with the other involved organizations.

18. Milestones and duration of the Focus Group

The Focus Group lifetime is set for two years from the first meeting but extensible, if necessary, by decision of the parent group (see ITU-T A7, clause 2.2).

19. Patent policy

See clause 9 of Recommendation ITU-T A.7.

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How to Contribute from India?

India, represented by the Government of India, is a member organization of ITU. The Department of Telecommunications (DoT) serves as the primary focal point for India's contributions to ITU.

The International Relations (IR) Division of the Department of Telecommunications (DoT), Government of India, issues the Standard Operating Procedure (SOP) to guide the submission of contributions to International Telecommunication Union (ITU) Study Groups. All contributors are required to strictly adhere to this SOP, particularly regarding internal deadlines and submission processes before sending any document to the ITU.

1 Formation of National Working Groups (NWGs)

After the start of each new ITU Study Period, the DoT reconstitutes various National Working Groups (NWGs) within one month. These groups are organized under the Telecom Engineering Center (TEC).

NWGs are structured to mirror the study groups and focus areas of ITU and ensure that India's national interests in the telecommunications sector are represented. Each NWG consists of:

- A Chair person, responsible for overall leadership.
- A Vice-Chairperson.
- A Convenor, coordinating meetings and contributions.

The management group ensures the active participation of stakeholders from diverse domains, including:

- Industry representatives
- Academic institutions
- Start-ups
- Research organizations
- Patent holders and domain experts
- Government agencies

How to Contribute from India?

2 Joining an National Working Group (NWG)

For a novice Contributor wishing to submit a contribution, the process of joining an NWG is as follows:

- Visit the Telecommunication Engineering Centre (TEC) website.
- Identify the relevant NWG based on area of interest.
- Request to become a member by contacting the NWG convenor or through the contact information provided on the website.

3 Identifying Contribution Topics

It is always best practice to participate in NWG meetings (at least two meetings per quarter are expected) and work with other members to identify, prioritize, and build consensus on topics for contributions that align with India's policy objectives.

4 Drafting and Reviewing Contributions

Draft contributions should be submitted to the NWG Chairperson/Convenor **six (6) weeks** before the ITU Study Group deadline. Post that, NWG meetings will deliberate and finalize the contribution no later than T-5 weeks (T refers to the SG meeting date). The minutes of these meetings, once approved by the The chairperson/convenor of NWG should initiate the file for submission of contributions to ITU for approval of Member (S) through the Head of TEC/WPC.

5 Internal Approvals

Depending on the ITU sector (ITU-T, ITU-R, ITU-D), the contribution approval path differs:

How to Contribute from India?

For ITU-R (Radiocommunication Sector) and ITU-T (Telecom Standardization Sector):

- File movement through the Member (T) must be initiated by T-4 weeks. (T-Date of SG meeting)

For ITU-D (Development Sector):

- Approval must be routed through Additional Secretary (T) via Deputy Director General (IR) by T-4 weeks.

For Policy-Related Contributions:

- Final approval must be obtained from the Secretary (Telecom).

6 Submission to ITU

Once internal approvals are complete:

- The NWG Chairperson/Convenor must upload the contribution to the ITU platform no later than T-2 weeks before the ITU deadline, or earlier if ITU specifies a closer deadline.
- Contributions are then presented officially as India's Contributions at ITU meetings, often defended by the contributor or a designated Indian delegate.
- All contributions must align with national policies and aim to represent a unified Indian position internationally.

Chapter V

POSITIONING INDIA AT LEADERSHIP IN ITU

INDIA'S LEADERSHIP AT ITU: WHY IT MATTERS GLOBALLY

As the world's second-largest telecommunications market, with over 1.19 billion telephone subscribers and close to 949 million broadband users as of 2024, India is not just a consumer of telecom technologies but an emerging innovator and standard-setter. In recent years, India has made landmark achievements: the successful development and launch of an indigenous 5G stack, progress toward formulating 6G standards through the Bharat 6G Alliance, advancements in satellite communications (satcom) with projects like GSAT and upcoming low-earth orbit constellations, and major investments in building a domestic semiconductor ecosystem under the India Semiconductor Mission, to name a few.

These milestones showcase India's transition from a technology adopter to a technology creator. India's experience in developing affordable, scalable, and secure digital infrastructure such as the Unified Payments Interface (UPI) and Aadhaar-enabled telecom services, offers valuable models for the world, especially for developing nations striving for inclusive digital growth. In a global landscape increasingly shaped by rapid technological shifts, India's leadership ensures that emerging standards and frameworks at ITU prioritize accessibility, equity, and innovation beyond traditional power centers.

Moreover, India's leadership at ITU matters because of its ability to balance competing global interests in technology governance. With its policy of strategic autonomy, India offers a bridge between advanced economies and the Global South. At a time when digital ecosystems are being fragmented along geopolitical lines, India's participation ensures that discussions around telecommunications standards, spectrum management, cybersecurity, and emerging technologies like AI and quantum communications are balanced, inclusive, and future-proof.

INDIA'S HISTORIC CONNECTION WITH ITU

01

India's association with the International Telecommunication Union (ITU) stretches back to 1869, making it one of the earliest countries to engage with global telecommunications governance. Over the last 150 years, India has transitioned from being a participant in shaping early international telegraphy to becoming a global leader driving critical conversations on the future of telecommunications, digital innovation, and technological inclusivity.

02

After gaining independence in 1947, India continued its active engagement with the International Telecommunication Union (ITU), transitioning from a colonial representation to a sovereign voice in global telecommunications governance. India became a regular member of the ITU Council in 1952, and since then, has played a consistent and strategic role in shaping global ICT policies, particularly those relevant to the developing world.

03

Today, India's contributions to ITU and the global telecommunications ecosystem span cutting-edge innovations such as indigenous 5G (5Gi) and 6G technology frameworks, advances in satellite communications, pioneering work in semiconductors, and leadership in digital public infrastructure. India's achievements are not just national milestones, they are global contributions that address issues of equitable access, affordability, sustainability, and technological sovereignty.

INDIA’S RECENT MILESTONES IN GLOBAL TELECOMMUNICATIONS

Pioneering the 6G Vision

India has been instrumental in shaping ITU's 6G framework under the IMT-2030 initiative. The Department of Telecommunications (DoT), through its technical arm, the Telecommunication Engineering Centre (TEC), led the National Study Group (NSG) for 6G development, making substantial contributions to the ITU’s Vision Framework. A major success was the inclusion of 'Ubiquitous Connectivity' as a key usage scenario in IMT-2030, thanks to India's advocacy. This ensures that the future 6G networks are designed not just for high-end users but also for bridging the digital divide, reaching remote villages, underserved communities, and marginalized groups. India's vision stresses affordability, sustainability, and universal access, positioning it as a critical voice for global inclusivity in next-generation technologies.

Elevated Representation in ITU's Standardization Sector

India secured leadership positions in all 10 Study Groups of ITU-T (Standardization Sector), with a Chair position in one group and Vice-Chair positions in nine other Study Groups and the SCV Committee. This expansion from 7 leadership positions in WTSA-2022 to 11 in WTSA-2024 demonstrates India's rapidly growing influence in global telecommunications standardization.

Co-Chairing the Digital Innovation Board

In another landmark, Dr. Neeraj Mittal, Secretary (DoT), was unanimously elected as the Co-Chair of the ITU's Digital Innovation Board in March 2024. The Board includes ministers and vice-ministers from 23 member countries and is tasked with fostering innovation, entrepreneurship, and equitable digital development globally. India's leadership role here signals its firm commitment to driving inclusive innovation ecosystems, helping to create digital opportunities for all and not just a few privileged economies.

India and ITU Sign Landmark LoI to Launch PhD Fellowship Program

In a bold step toward global leadership, the Department of Telecommunications (DoT), Government of India, and the International Telecommunication Union (ITU) signed a Letter of Intent on 29 April 2025 in Geneva to launch a collaborative PhD fellowship scheme. This visionary initiative aims to nurture India's brightest minds, aligning their research with ITU's cutting-edge focus areas like 5G, AI, cybersecurity, IoT, and quantum technologies. By empowering Indian researchers to drive the next wave of telecom innovation, India is poised to shape the future of global telecom standards and digital transformation.

The Host Country Agreement and the Establishment of ITU's Area Office and Innovation Centre

In March 2023, India and ITU entered a new era of collaboration with the signing of the Host Country Agreement (HCA). Under this agreement, an ITU Area Office and Innovation Centre will be established in New Delhi, a first for South Asia.

This Area Office will serve countries including Afghanistan, Bangladesh, Bhutan, Iran, Maldives, Nepal, Sri Lanka, and India, helping to harmonize regional telecommunications development strategies. More importantly, the Innovation Centre will act as a hub for research, capacity building, and technological advancements in cutting-edge fields such as:

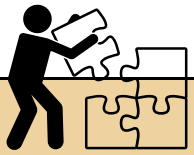
- Digital twins (virtual modeling and simulation technologies)
- AI-driven telecommunications solutions
- Virtual world and immersive technologies
- Emerging innovations under IMT-2030 (6G and beyond)

Advancing Rural Connectivity through BharatNet

India’s BharatNet initiative stands as the world's largest rural broadband project, aiming to provide high-speed internet access to more than 625,000 villages, by March 2023. By strengthening the middle layer of the nationwide broadband infrastructure, BharatNet empowers critical government programs under the Digital India mission. It significantly enhances rural access to education, healthcare, e-governance, and financial inclusion. BharatNet is a testament to India's commitment to ensuring that connectivity and the digital economy are truly inclusive and universal.

STRATEGIC FOCUS AREAS IN GLOBAL TELECOMMUNICATIONS AND ITU ENGAGEMENT

As global telecommunications evolve toward a seamless integration of AI, digital twins, and ubiquitous connectivity, particularly under the vision of IMT-2030 and aligned with the resolutions adopted at WTSA 2024, India must strategically strengthen its role within the International Telecommunication Union (ITU) and the global digital ecosystem. To effectively lead and shape this transformation, India should focus on the following strategic areas:



Capacity Building

Leverage DoT's *Sangam* initiative and ITU's *Citiverse* to enhance expertise in data integration, urban planning, and cross-industry synergy-ingredients for smart and sustainable cities.

Global Standards Development

India must lead ITU-T SG20 on IoT, digital twins, and smart cities to shape inclusive, scalable global tech standards.

Sandbox Environments & Pilot Projects

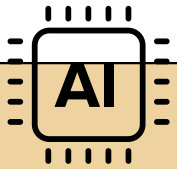
India should invest in the creation of regulatory sandboxes and pilot projects that allow real-world testing of digital twin technologies.

Citizen Engagement & Simulations

Harnessing AI-powered platforms for real-time urban simulations and participatory governance can significantly enhance citizen engagement in infrastructure planning.

Privacy & Data Security

India should champion the use of Privacy-Enhancing Technologies (PETs) to ensure secure ICT measurements and safeguard citizen data in smart city initiatives.



AI Model Integration for Digital Twins

To optimize urban mobility, infrastructure development, and service delivery, India should focus on developing customized AI models trained on indigenous datasets.

CONCLUSION

The International Telecommunication Union remains a pivotal platform for fostering global cooperation, innovation, and standardization in the field of telecommunications and digital technologies. Active engagement through well-structured contributions, leadership in standardization activities, and capacity building will be essential to ensuring that technological advancements are inclusive, secure, and sustainable for all.

India, with its rich legacy of technological innovation, inclusive digital infrastructure models, and growing leadership within the ITU framework, is uniquely positioned to influence this global evolution. Through sustained participation, strategic advocacy, and contribution of indigenous technological perspectives, India can help shape an equitable digital future that serves the needs of both emerging and developed economies alike.

Going forward, collective efforts by all stakeholders will be crucial to strengthening international collaboration, bridging digital divides, and advancing a future-ready global telecommunications ecosystem.

To realize this vision, India must galvanize academia, industry, and policymakers to co-create solutions aligned with global standards while addressing local needs. By nurturing talent, investing in research, and leading multilateral dialogues, India can emerge not only as a user of global technologies but as a torchbearer for inclusive innovation worldwide.

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