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ITU-T and its activities

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27 April 2004, Moscow

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ITU Structure

3 sectors:

- **Radiocommunication**
- **Telecommunication Standardization**
- **Telecommunication Development**

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ITU Sector Roles and Mission

- ITU-R: management of radio-frequency spectrum and satellite orbits
- **ITU-T: standards covering all fields of telecommunications**
- ITU-D: facilitate connectivity and access, foster policy, regulatory and network readiness, and expand human capacity through training programs, formulate financing strategies and e-enable enterprises in developing countries

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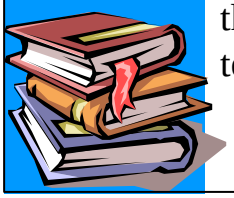
Functions of ITU-T

"The functions of the Telecommunication Standardization Sector shall be, bearing in mind the particular concerns of the developing countries, to fulfill the purposes of the Union relating to telecommunication standardization, as stated in Article 1 of Constitution, by studying technical, operating and tariff Questions and adopting Recommendations on them with a view to standardizing telecommunications on a worldwide basis"



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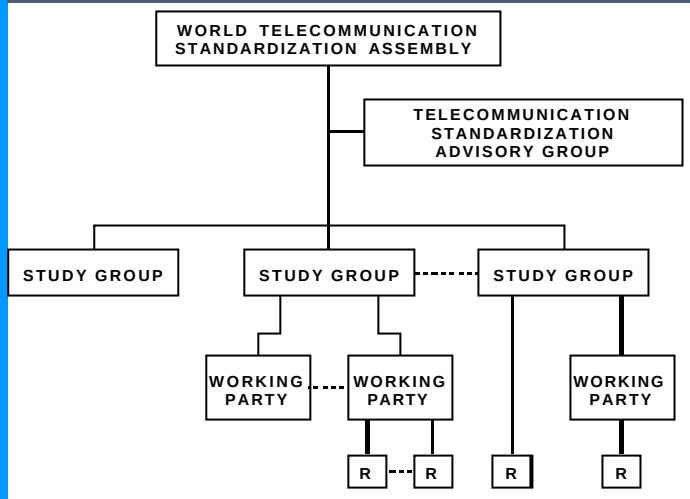
Organizational Structure of ITU-T



R = RAPPORTEUR GROUP

(ITU-R has a similar structure for its standardization work)

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World Telecommunication Standardization Assembly (WTSA)

- normally held every 4 years; WTSA-2000 in Montreal, WTSA-2004 to be in Florianopolis, Brazil
- approves ITU-T work program
- determines priorities, urgency and time-frame for completion of standards work
- approves ITU-T Recommendations
- considers reports of study groups and TSAG
- decides on structure of study groups, allocation of Questions

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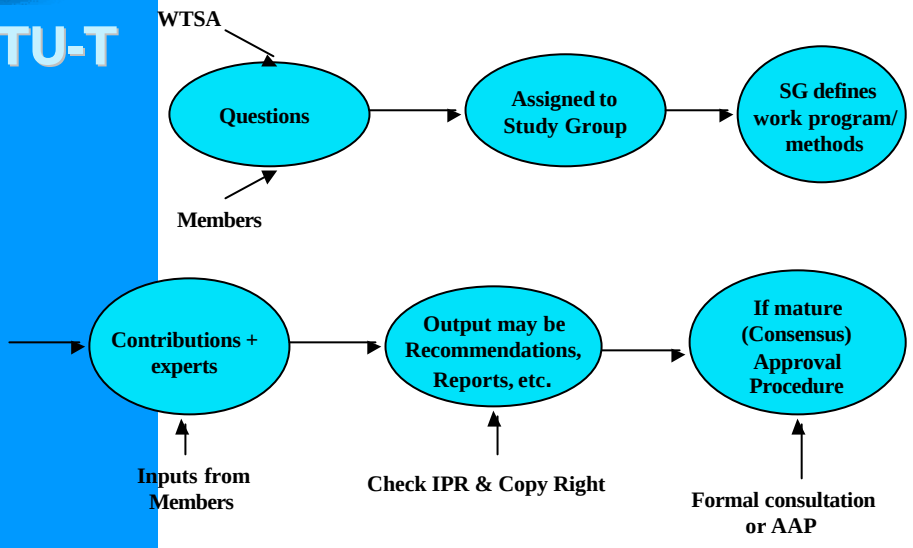
Process of Development of Recommendations



ITU-T's main work areas

Three major items:

- IP-related issues
- mobility
- tariff and accounts

Other items:

- Multi-media, access networks (xDSL), optical transmission, security, numbering and addressing, inter-operabilities, IPR, etc.

Promotion

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ITU-T Structure (1)

Study Group **2**:	**Operational aspects of service provision, networks and performance**
Study Group **3**:	**Tariff and accounting principles including related telecommunications economic and policy issues**
Study Group **4**:	**Telecommunication management, including TMN**
Study Group **5**:	**Protection against electromagnetic environment effects**
Study Group **6**:	**Outside plant**
Study Group **9**:	**Integrated broadband cable networks and television and sound transmission**

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ITU-T Structure (2)

Study Group **11**:	**Signalling requirements and protocols**
Study Group **12**:	**End-to-end transmission performance of networks and terminals**
Study Group **13**:	**Multi-protocol and IP-based networks and their internetworking**
Study Group **15**:	**Optical and other transport networks**
Study Group **16**:	**Multimedia services, systems and terminals**
Study Group **17**:	**Data networks and telecommunication software**
Special Study Group:	**IMT-2000 and beyond**
TSAG:	**Telecommunication Standardization Advisory**

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Lead Study Groups in specific area of study

SG 2 Lead Study Group for service definition, numbering and routing

SG 4 Lead Study Group on TMN

SG 9 Lead Study Group on integrated broadband cable and television networks

SG 11 Lead Study Group on intelligent networks

SG 12 Lead Study Group on Quality of Service and performance

SG 13 Lead Study Group for IP related matters, B-ISDN, Global Information Infrastructure and satellite matters

SG 15 Lead Study Group on access network transport
Lead Study Group on optical technology

SG 16 Lead Study Group on multimedia services, systems and terminals
Lead Study Group on e-business and e-commerce

SG17 Lead Study Group on frame relay, on communication system security and on languages and description techniques

SSG Lead Study Group on IMT 2000 and beyond and for mobility

Examples of ITU-T Recommendations

- **G.723.1 & G.729** - Speech coding for Voice over IP and other applications
- **H.323** - Packet based multimedia communication systems - the protocols behind Voice over IP, along with:
  - **H.245** - Control protocol for multimedia communications
- **H.248** - Gateway control protocol (joint with IETF)
- **X.509** - Public-key encryption
- **V.90** - 56kbit/s PSTN modems - providing ubiquitous worldwide internet access
- **G.99x** series - xDSL Recommendations for broadband access

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ITU-T SG meetings

- SG 15 - Optical and other transport networks
  Geneva, 19 - 30 April 2004
- SG 4 - Telecommunication management, including TMN
  Geneva, 26 April – 7 May 2004
- SG 9 - Integrated broadband cable networks and television and sound transmission
  Geneva, 10 - 14 May 2004
- SG 2 - Operational aspects of service provision, networks and performance
  Geneva, 18 – 28 May 2004
- SG 3 - Tariff and accounting principles including related telecommunications economic and policy issues
  Geneva, 31 May – 4 June 2004
- SG 6 - Outside plant
  Geneva, 14 - 18 June 2004
- World Telecommunication Standardization Assembly (WTSA-04) Brazil, Florianopolis, 5 –14 October 2004

ITU-T Workshops

- **Convergent regulation - Is it becoming technology-neutral?**
  Geneva, 17 May 2004
- **All Star Network Access**
  Geneva, 2 – 4 June 2004
- **SDL and MSC'04 languages**
  Ottawa, Canada, 2 – 4 June 2004
- **Home Networking and Home Services**
  Japan, 16-18 June 2004
- **Use of ITU-T Languages**
  Geneva, 19 July 2004
- **Cybersecurity Symposium**
  Brazil, Florianopolis, 4 October 2004

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Recent ITU-T Workshops

- **H.350, Directory services for multimedia networks**
  Indiana University Purdue University, Indianapolis, Indiana, USA, 25 March 2004
- **Use of UML for ODP and ITU-T languages**
  Geneva, 14 March 2004
- **High-level workshop on International Standards for Medical Technologies**
  WHO (World Health Organization), Geneva, 26-27 February 2004
- **ITU Seminar on Standardization**
  Phnom Penh, Cambodia, 11-13 February 2004
- **Outside Plant for the Access Network**
  Hanoi, Vietnam, 24 November 2003
- **Standardization in Telecommunications for motor vehicles**
  Geneva, 24-25 November 2003

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ITU-T Membership

- 189 Member States (Countries)
- 159 recognized operating agencies
- 168 scientific or industrial organization
- 5 entities dealing with telecommunications
- 82 Associates
- 31 regional and other international organizations
- 10 regional telecommunication organizations
- 1 intergovernmental organizations operating satellite systems

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Standardization Requirements

- Architecture
- Access Networks
- Transport Networks
- Terminals
- Services
- Coding
- Numbering
- Mobility
- QoS and Network Performance
- Interworking and Interoperability
- Market Oriented

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ITU-T and NGN

Main study groups addressing NGN:

- SG 11
  - Network Signalling and Control functional architectures in emerging NGN environments
  - Signalling and control requirements and protocols to support user attachment in NGN environments
- SG 13
  - Functional requirements, services and architectures
- SSG
  - Vision for IMT-2000
  - Mobility Management
  - Convergence of Fixed and Mobile
- SG16 has developed MM Services specifications directly applicable to NGN with the H.323 system, H.248 gateway control protocol, QoS, Security, Services & Applications
- N.B: all SGs have an “NGN” aspect to their work

ITU-T NGN Project

- Joint ITU-T SG13-SSG session on NGN, 5 Nov 02
- NGN-2004 Project description

  http://www.itu.int/ITU-T/studygroups/com13/ngn2004/index.html
- Definition of NGN
- Workshop on "Next Generation Networks: What, When and How?" Geneva, 9-10 July 2003
- Joint Rapporteurs Group on NGN (JRG-NGN)

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Joint Rapporteurs Group on NGN (JRG-NGN)

- 4 meetings held in 10 months

  - coming meeting in June 04
- 11 Recommendations under development
- 2 mailing lists open to non-ITU-T members

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What is NGN ?

- A full (carrier class and business class) service network
  - Telephony and other Legacy (including Internet access) services
  - Data, including High speed access to Internet and its applications
  - Video (VOD, Streaming)
  - Digital TV Broadcast, Multimedia (combining all of the above)
  - Mobility and Nomadism Interworking with Legacy services
  - For Human and Machine users (including RFIDs machines)
- Network features and technical characteristics
  - Packet-based (IP, MPLS, ATM, Ethernet) transport
  - IP and service intelligence, in an IP-managed network
  - Distributed, transport-resource-session-service independent control
  - Using IP-friendly (well defined profile) protocols

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The Transformed Network

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When is NGN coming in ?

- Some (pre-NGN) pieces are already there:
  - PSTN (VoIP, VoATM) trunking, some VoIP offers
  - Private/corporate network solutions (Centrex IP, IP VPN…)
- A long way to the 21st Network. Convergence of Telephony and Data (IT, Internet) approaches:
  - PSTN/ISDN evolving towards NGN oriented platforms
    - Replacement of obsolete PSTN/ISDN network elements: **2005 onwards**
  - Packet Data networks evolution (Fixed-Internet convergence)
    - Evolving from the current High Speed Internet access (ADSL, WLAN …) platforms
    - To offer new generation Services: **2005 onwards**
  - Mobile convergence (IMS): **2006 onwards**

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How will NGN be developed and deployed ?

- Replacing progressively legacy PSTN elements/areas
  - Only when becoming obsolete (too little OPEX/CAPEX gain, particularly in Core)
  - Migration of PSTN->NGN might accelerate after 2010 (PSTN lines moved to DSLAMs -> VoIP)
- Green field deployment (today)
- Overlay deployment, building over xDSL and Fiber-based access to Internet
  - ADSL is being deployed fast, with huge investments
  - Opportunity to provide new (audio-data-video) services
- Convergence between Fixed-Mobile and Internet services/applications
  - Nomadicity (Mobility Management for Roaming)
  - Mobility through Fixed WLAN (spectrum from Fixed->Nomadic->Mobile)
  - Harmonizing/Converging with Mobile IMS and IP-Cable

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Recommended follow-up Actions

- Define Services Framework
  - Generic service Building blocks (or Capabilities)
  - Harmonized with Mobile and Cable/Broadcast
- Define reference Architecture
  - Built upon IMS, adapted to accommodate xDSL access
- Identify Scenarios and Evolution Steps
- Identify Interfaces subject to standardization
- Prioritise Standardization areas and requirements
- Select protocols and specify their profile(s)
- Interact (and share) with relevant SDOs (IETF, 3GPP) and Fora (e.g. DSL, MSF …)

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