



# Global ICT Standardization

Presentation by:

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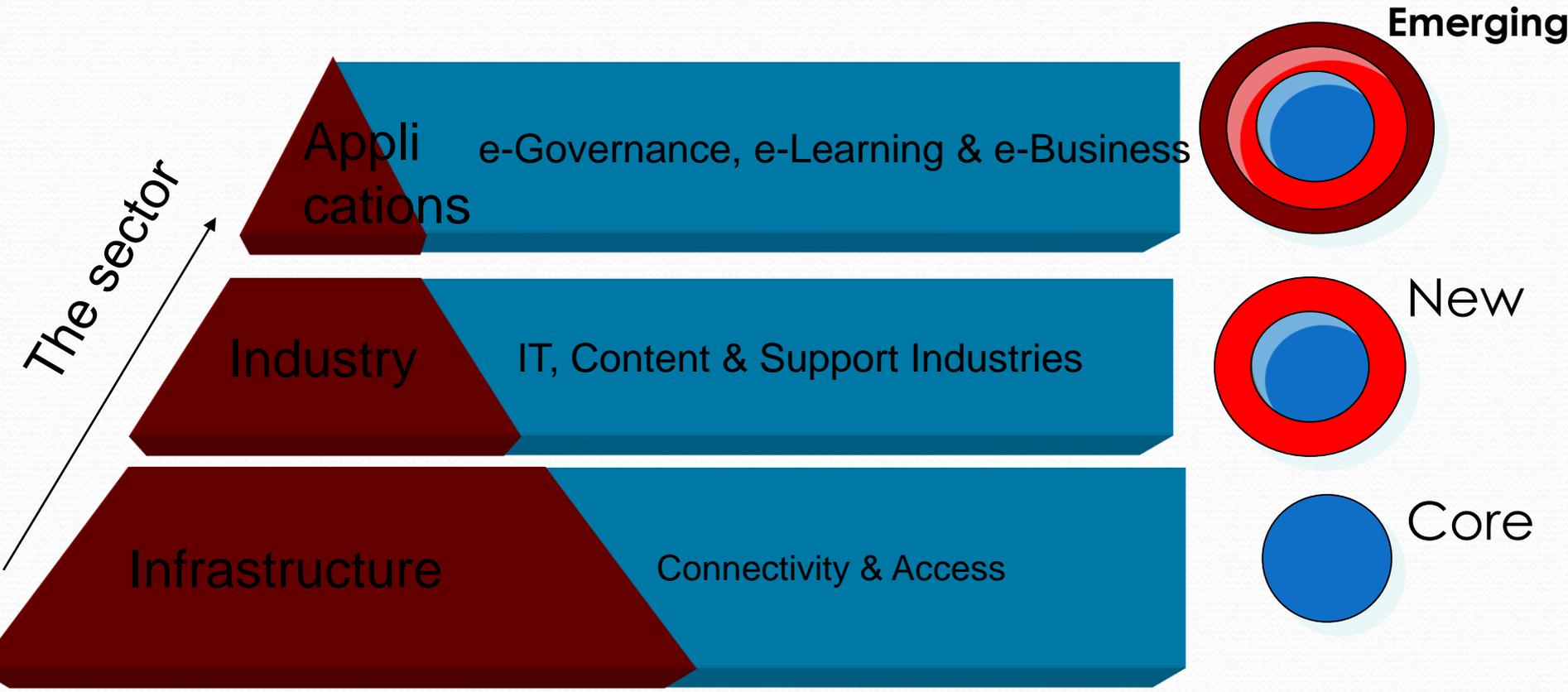
**Bureau of Indian Standards, New Delhi**



# ICT – The key technology to stimulate growth

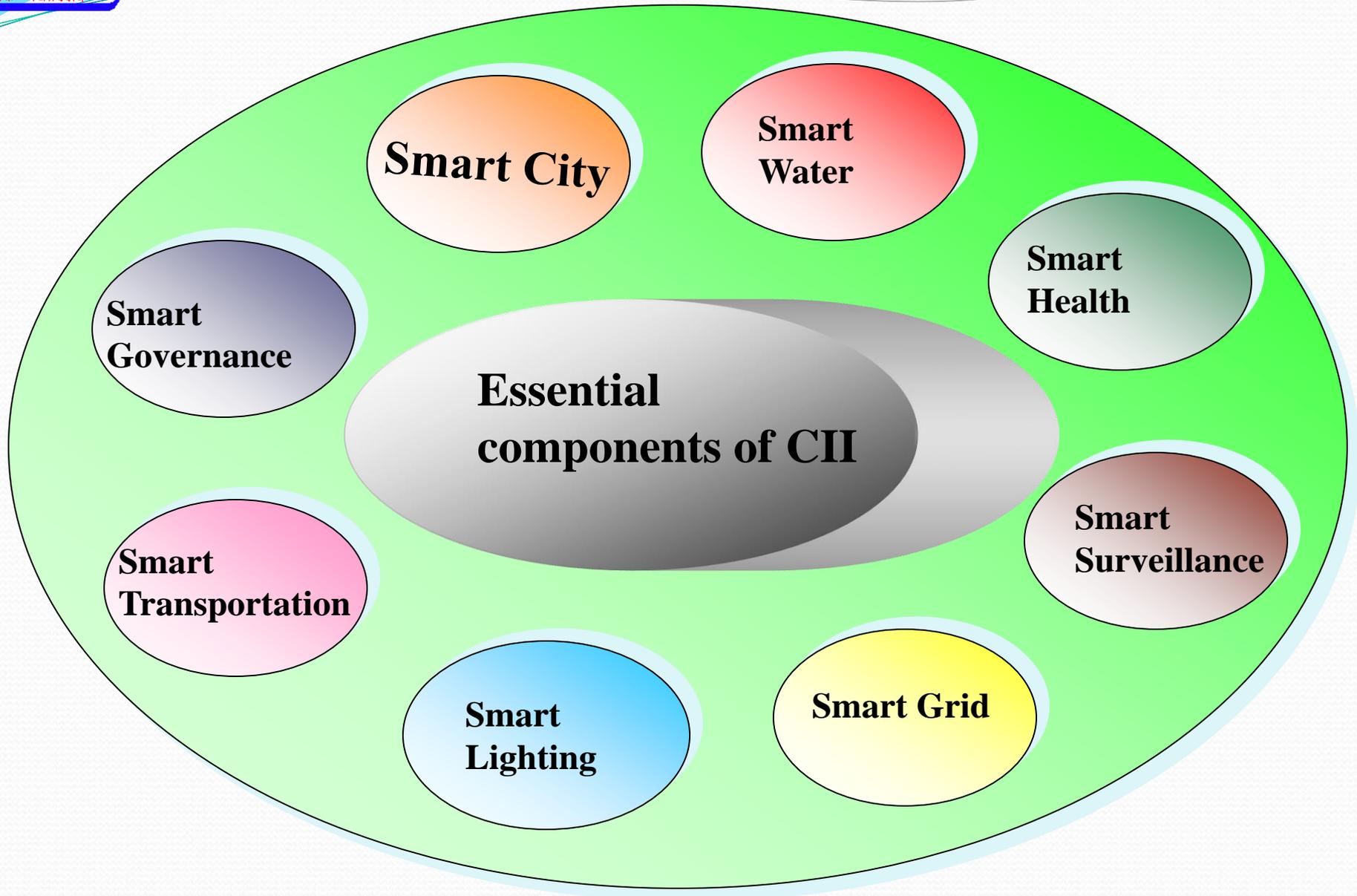
- For the Information Society
- A key productivity enabler for industry
- Application of new services and technology
- Meet the expectation of consumers
- Industry has to adapt and transform fast
- Country specific action plan; eGovernance
- Boost Broadband accessibility

# The ICT Sector... much broader than Telecoms





# Critical Information Infrastructures





# Why we need Standard?

- Operation of CII would need reliable Communication system
- Cellular communication is the most preferred technology
- Standardization is a prerequisite for broad deployment of ICT and to boost innovation and economic growth
- To converge the developments in hardware and software and to get best out of advancement in technology : we need – Interoperability



# Why we need Standard?

- Interoperability - enables integration as well as two-way communication amongst entities
- To achieve interoperability, **Internationally** recognized communication and interface standards need to be developed
- Quality assurance
- Consistency in Evolution



## Standards are:

- Generally voluntary
- Consensus based
- Established by all interested stakeholders
- Driven mainly by business
- Drafted by technical experts
- Approved by a recognized Independent Standardization Body

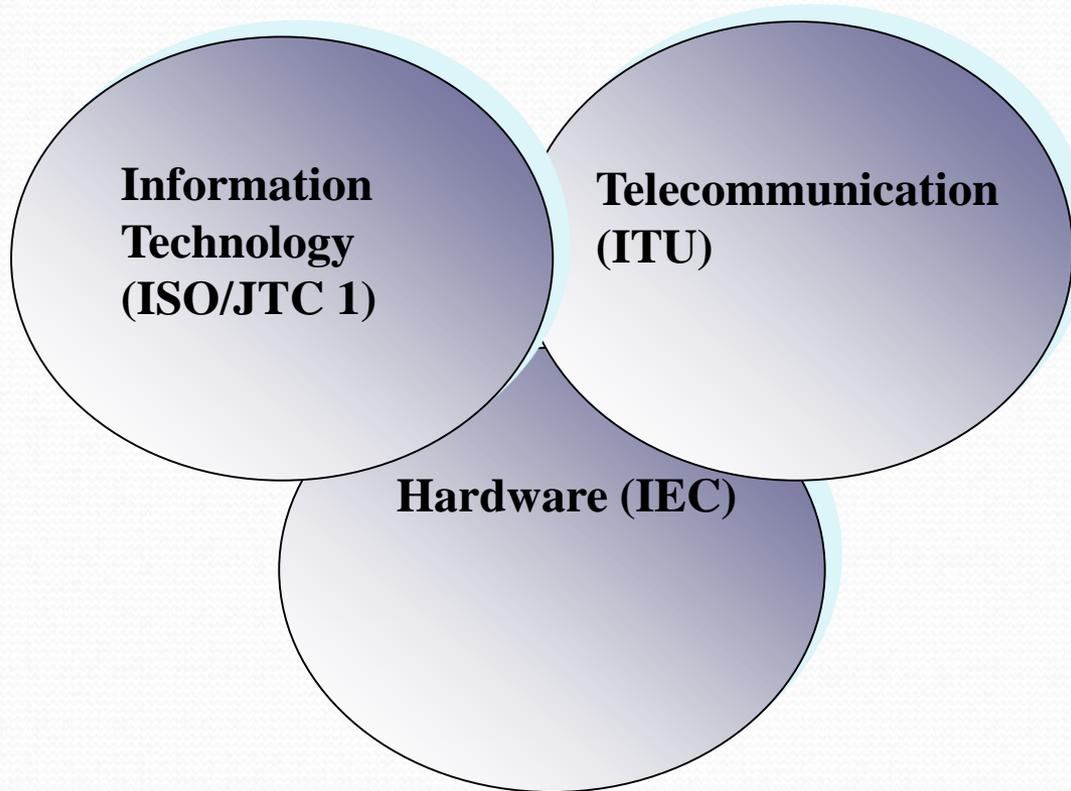


# WTO Principles on Standardization

- Transparency
  - Openness
  - Impartiality and consensus
  - Effectiveness and relevance
  - Coherence
  - Development dimension
- 
- Compliance of “Code of Good Practice for the Preparation, Adoption and Application of Standards”



# International Standardization in ICT Sector





# ICT Standardisation is required in:

- eGovernance
- RFID
- eSkills and eLearning
- The Internet of Things (IoT)
- Smart City/Smart Grid
- Electronic identification and trust services including electronic signatures
- Personal Data security
- IT Security
- Biometrics
- Card, internet and mobile payments
- Intelligent Transport Systems (ITS)
- And many more....



# Countries leading in ICT technology

- USA
- Japan
- Korea
- China
- India
- Europe Etc.

*Their success is based on a National strategy!*

*We need a clear Global ICT standardization policy?*



# International Standardization Bodies

**International Organization for Standardization (ISO)**

*All sectors except Electrotechnical*

**International Electrotechnical Commission (IEC)**

*Electrotechnical Sector*

**International Telecommunication Union (ITU)**

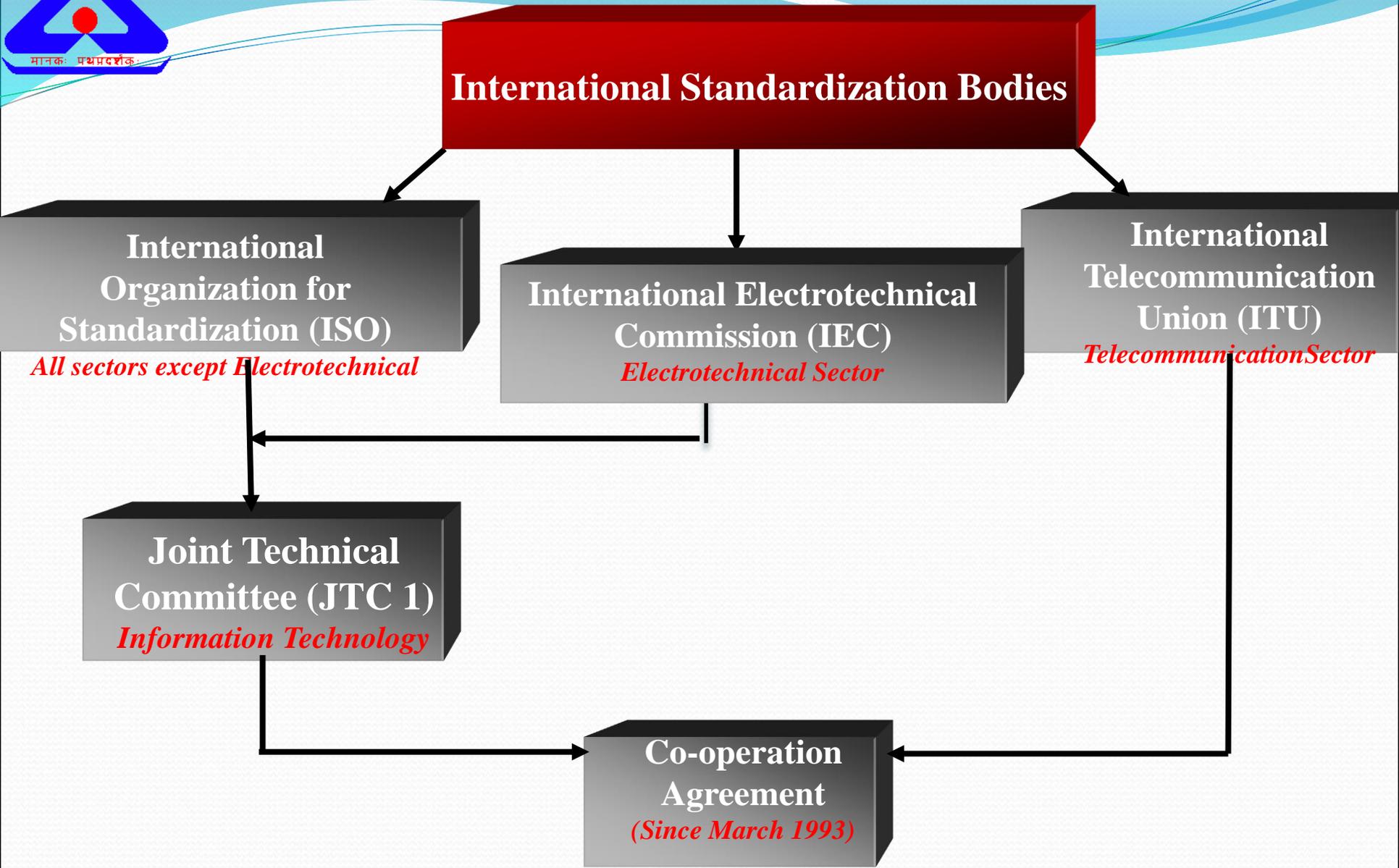
*Telecommunication Sector*

**Joint Technical Committee (JTC 1)**

*Information Technology*

**Co-operation Agreement**

*(Since March 1993)*





# Important Regional Bodies

- European Standardization Bodies - CEN/CENELEC
- European Telecommunications Standard Institute (ETSI)
- Institute of Electrical and Electronics Engineers(IEEE)
- Organization for the Advancement of Structured Information Standards(OASIS)



# OTHER IMPORTANT BODIES

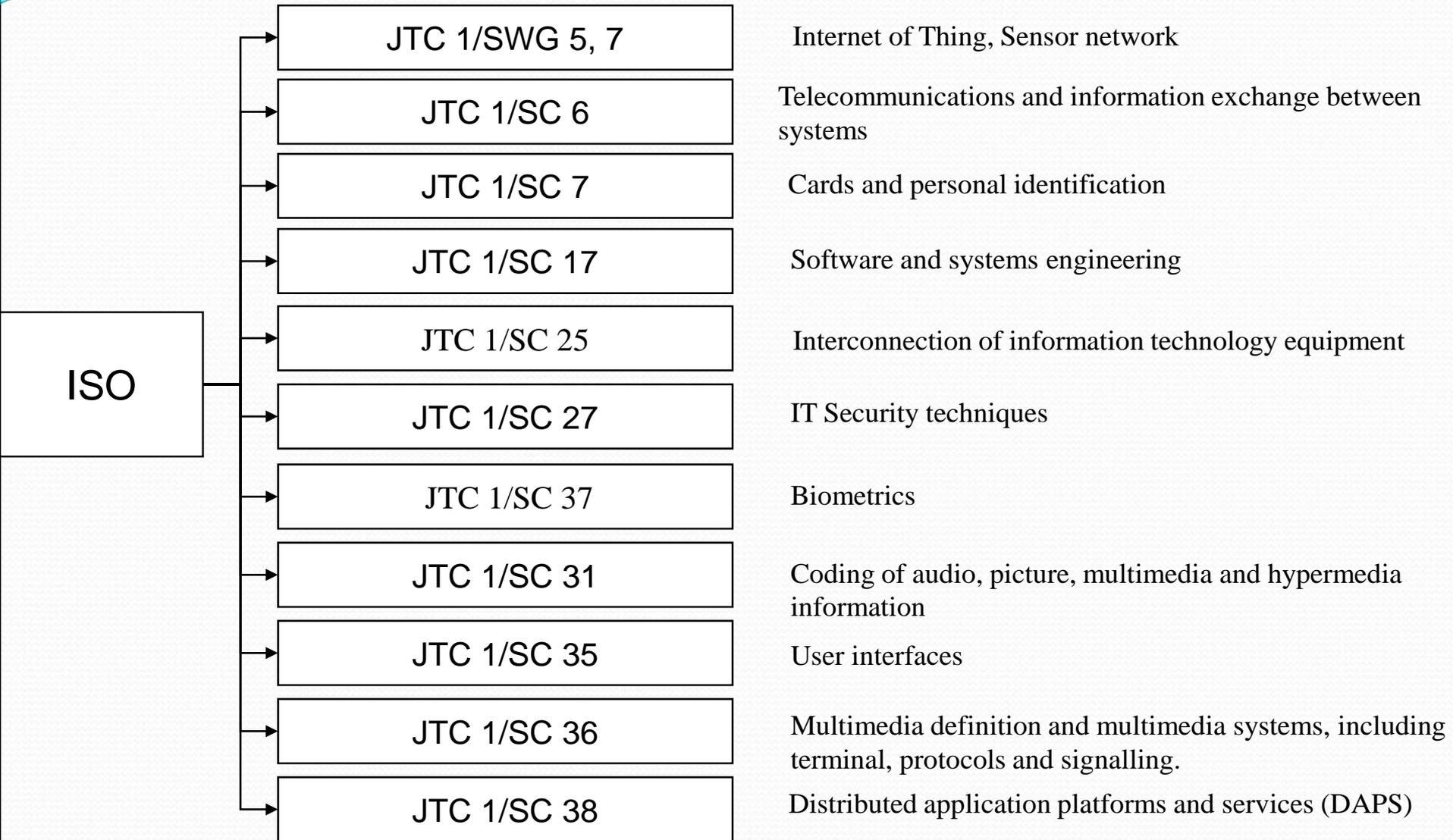


## FORA & CONSORTIA

- BBF
- CAB Forum
- CONTINUA Alliance
- DECT Forum
- DLMS
- DMR Association
- DVB
- ESMIG
- Global Platform
- HGI
- IMS Forum
- IMTC
- IPV6 Forum
- NFC Forum
- NGMN
- OGF
- OIPF
- OMA
- TTCA
- UMTS Forum
- Etc...

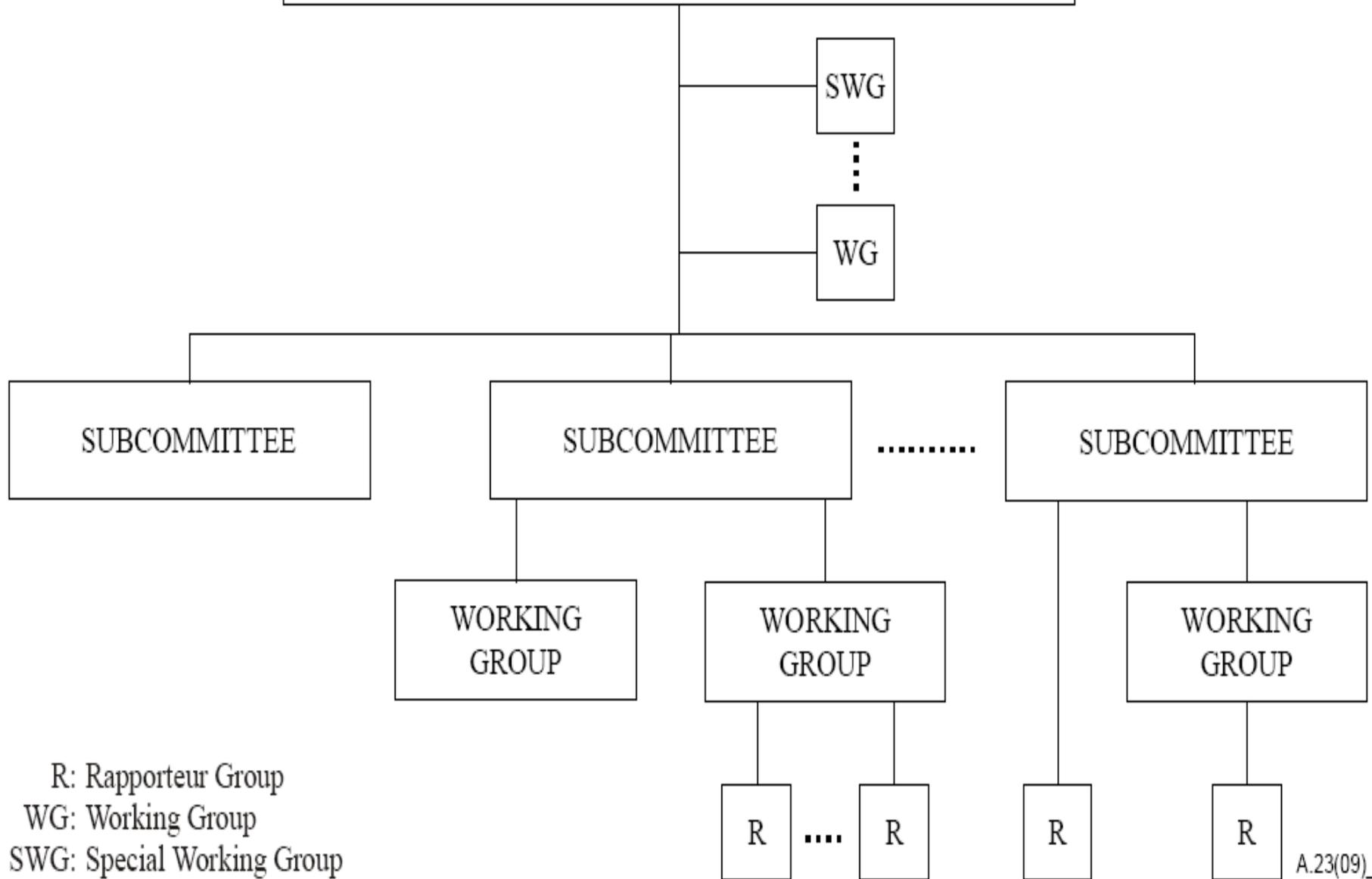


# ISO WORK AREA ON ICT





# JOINT TECHNICAL COMMITTEE 1 (JTC 1)



R: Rapporteur Group  
WG: Working Group  
SWG: Special Working Group



# ITU-Telecommunication Sector

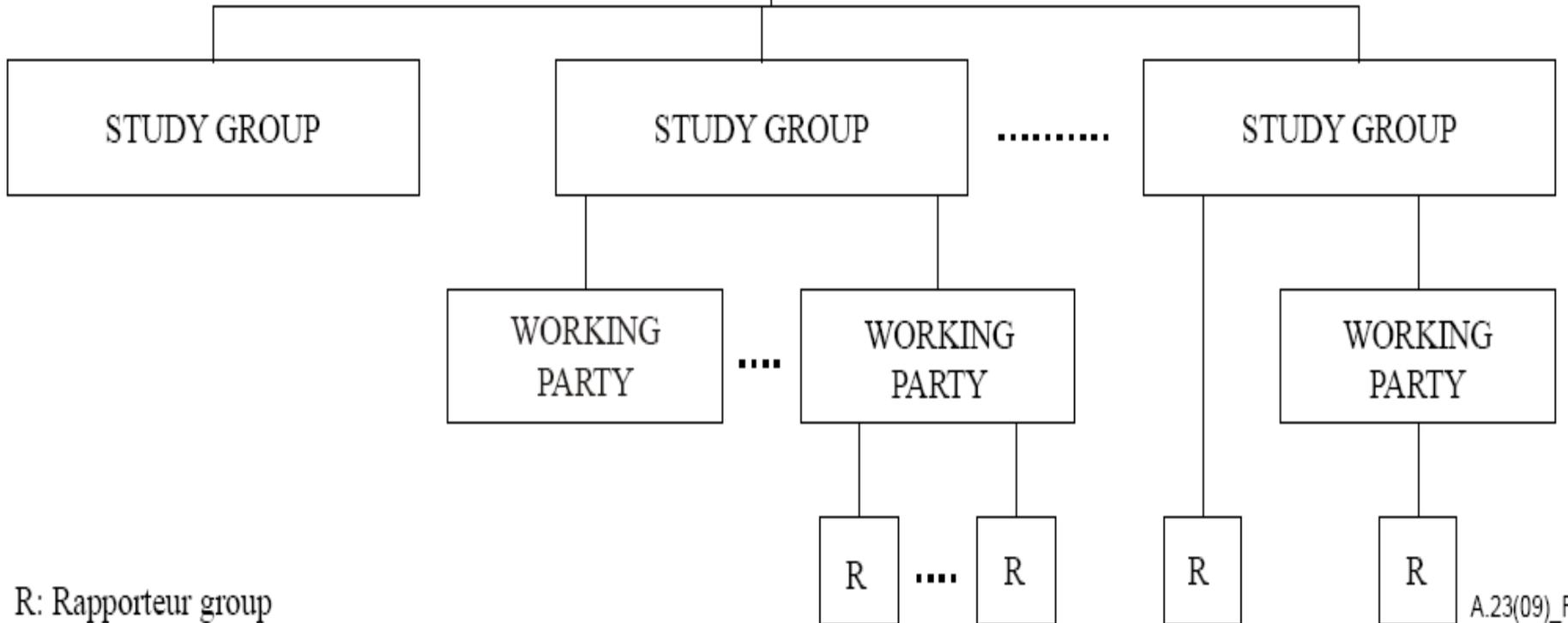
ITU-T

SG2, Operational aspects	Principles of service provisioning, numbering, naming, routing and interworking requirements
SG3, Tariff and accounting	Tariff and accounting principles for International telecommunication services.
SG4, Management	Network and equipment using the telecommunication management network.
SG5, Protections (electromagnet)	Protection of telecommunication networks and equipment from interference and lightning
SG6, Outside plant	Construction, installation, jointing, termination, protection from corrosion and other forms.
SG9, Integrated broadband	Use of cable and hybrid networks, TV, voice and time-critical services.
SG11, Signalling and protocols	Signalling requirements and protocols for IP related functions, multimedia functions and enhancements.
SG12, E2E performance	Guidance of e2e transmission performance of networks, terminals and their operations
SG13, Multi-protocol	Internetworking of heterogeneous networks encompassing multiple domains and protocols.
SG15, Transport Network	Optical and other transport networks, systems and equipments.
SG16, Multimedia services	Multimedia definition and multimedia systems, including terminal, protocols and signalling.
SG17, Data net. And software	Open system communications including networking, directory and security.
SSG, IMT-200 and beyond	Internet Mobile Telecommunications 2000 and beyond, including wireless Internet.



WORLD TELECOMMUNICATION  
STANDARDIZATION ASSEMBLY (WTSA)

TELECOMMUNICATION  
STANDARDIZATION  
ADVISORY GROUP (TSAG)



R: Rapporteur group

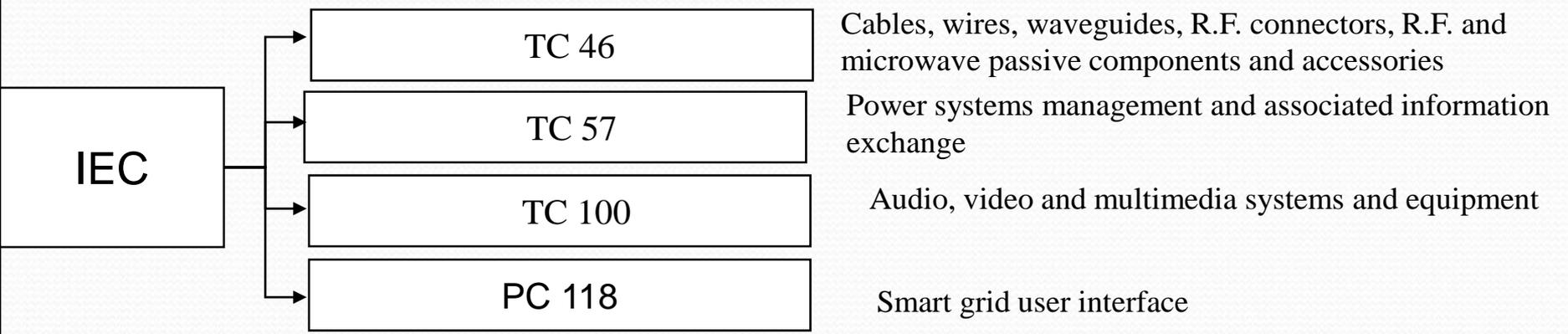


# Collaboration between JTC 1 and other Bodies

- Cooperation agreement between ISO/IEC and CEN/CENELEC
- ISO/IEC with IEEE – Joint Logo Publication
- External Liaison with ETSI, SWEBOK, OASIS etc.



# IEC WORK AREA ON ICT



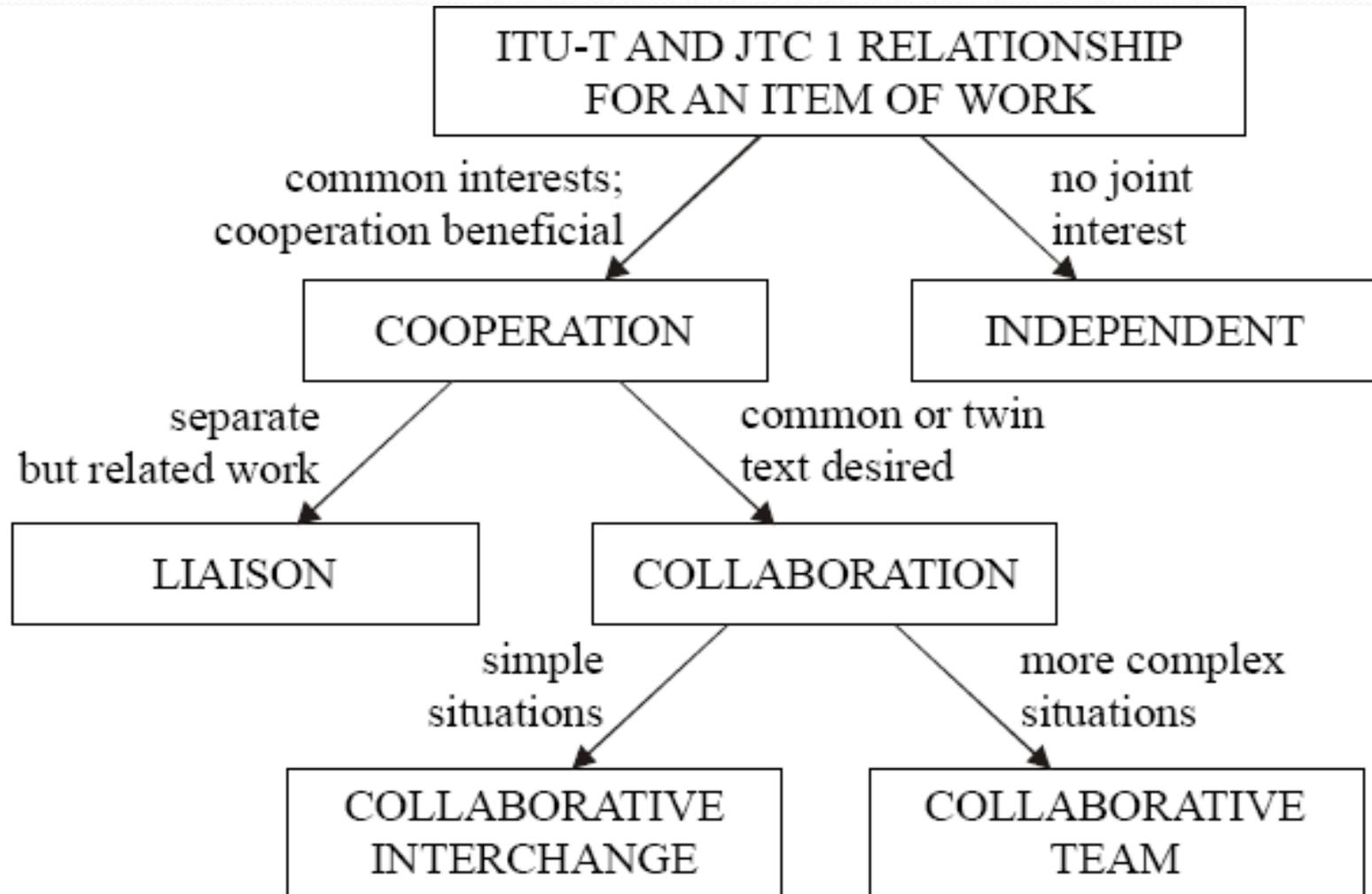


# JTC 1 Standards Development Stages

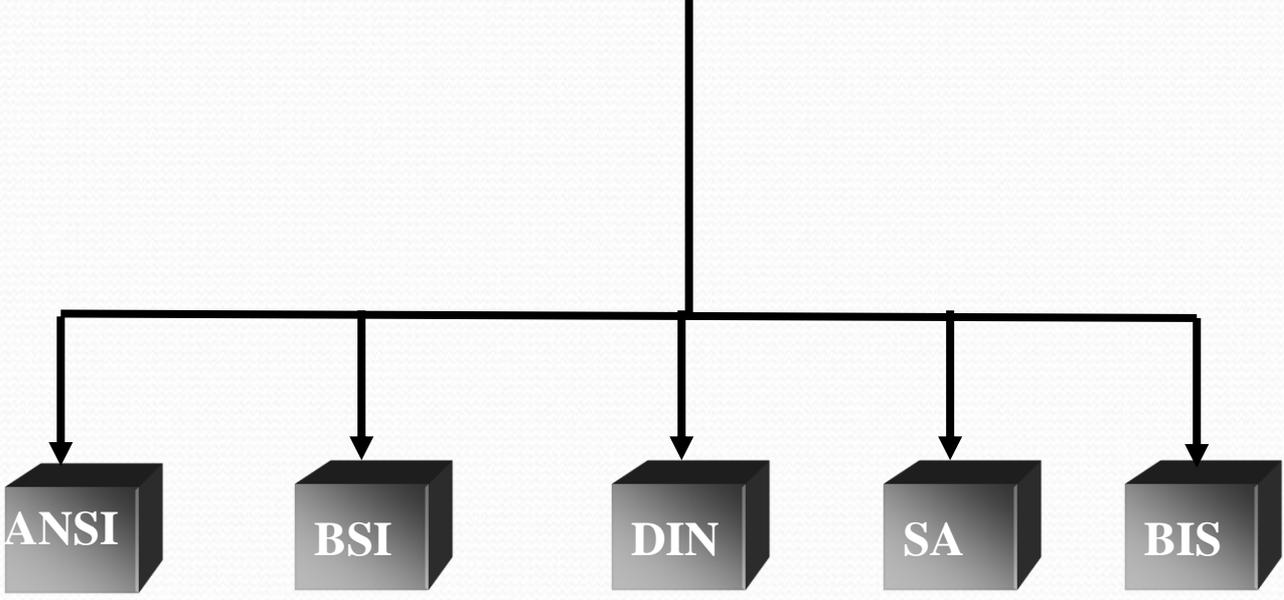
Stage	Standard	Amendment	Fast Track IS	Technical Report	Technical Specification	Technical Corrigendum
00 (optional) Preliminary stage	Preparation of NP	Preparation of NP		Preparation of NP		
01 Proposal stage	Acceptance of NP	Acceptance of NP		Acceptance of NP	Acceptance of NP	
02 Preparatory stage	Preparation of WD	Preparation of WD		Preparation of WD	Preparation of WD	Preparation of Defect report
03 Committee stage	Development and acceptance of CD	Development and acceptance of PDAM		Development and acceptance of PDTR	Development and acceptance of PDTS	Development and acceptance of DCOR
04 Enquiry stage	Development and acceptance of DIS	Development and acceptance of DAM	Development and acceptance of DIS	Approval of DTR	Approval of DTS	
05 Approval stage	Approval of FDIS	Approval of FDAM	Approval of FDIS			
06 Publication stage	Publication of IS	Publication of Amendment	Publication of IS	Publication of Technical Report	Publication of Technical Specification	Publication of Technical Corrigendum



# Working Relationship between JTC 1 & ITU-T



# National Standardization Bodies





# STANDARDIZATION IN INDIA

- Bureau of Indian Standards (BIS), the National Standards Body of India
- Indian Standards are developed by BIS under the provision of *BIS Act (1986)* passed by the Indian Parliament
- Standards developed by BIS can be enforced through Regulation
- BIS is working in 14 technology sectors
- ICT comes under the Electronics & IT Division



# APPROACH TO STANDARDIZATION

Consultations involving all Stakeholders



Documents sent for public comments before finalization



Consensus Principle



Balanced Committee Structure



Compliance of WTO/TBT Principles



# BIS WORK AREA IN ICT

BIS

LITD 06

Wires, Cables, waveguides and accessories

LITD 7

Audio, Video, Multimedia systems and Equipment

LITD 10

Power system control and communications

LITD 12

Transmitting Equipment for Radio communication

LITD 13

Information and Communication Technologies

LITD 14

Software and systems engineering

LITD 16

Computer Hardware, Peripherals and Identification Cards

LITD 17

Information Security and Biometrics

LITD 25

Software systems and applications for E – Governance



# Important work on ICT in Progress in ISO/IEC & BIS

- New Work Item on IOT Reference Architecture
- Cloud Computing
- Sensor Networks and its interfaces for Smart Grid System
- Lightweight Cryptography
- Biometrics
- **New committee on Active Assisted living in IEC**



# OTHER BODIES INVOLVED IN ICT STANDARDIZATION IN INDIA

- Telecom Regulatory Authority of India (TRAI)
- Department of Electronics & IT (DeitY)
- Department of Telecom (DOT)/Telecom Engineering Centre
- Other volunteer Associations



## Issues related to standardization in ICT

- The standard making should match the speed with which new technologies are accepted and put to work as it has a serious impact on economic growth.
- The World needs to play a key role by accelerating the introduction of new (homogeneous) technologies, like smart tags (RFID) etc



## **Remove barriers for the introduction of innovative technology**

- Need to anticipate in an early stage the barriers for investments in next generation networks.
- Need to refrain from protectionist policies through standard development



## Standardisation should...

- Encourage new technologies to be integrated into existing networks to augment user services and new applications
- Allow innovative solutions offering alternative means of delivering new services and smart applications
- Ensure backward compatibility of technology
- Avoid duplicacy of work



## Complexities in Standardization in ICT

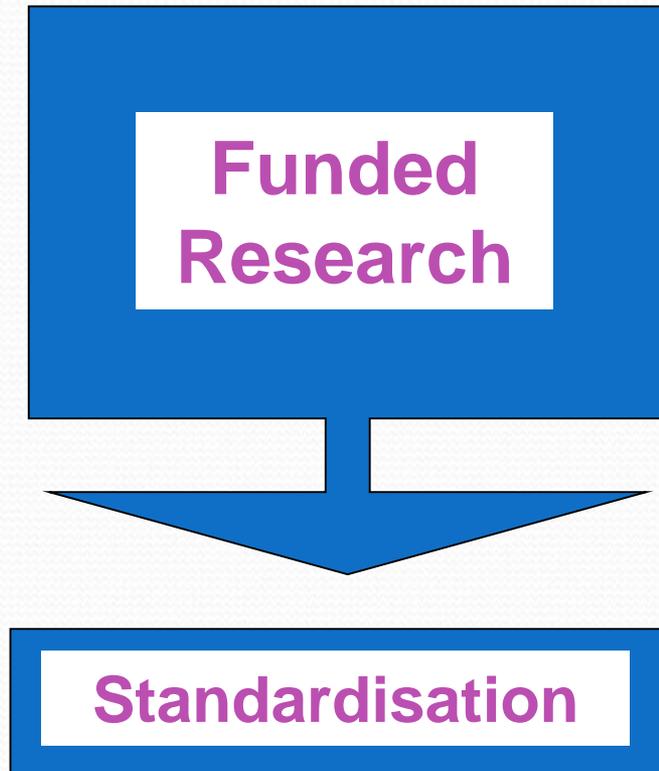
- Too many bodies working in different technologies
- Many modern standards face a very complex IPR “environment”
  - Many claimants, unclear situations
  - Licensing difficulties delay market deployment (4 years+)
- Major approved standards have problems on IPR



# Market Acceptance is Becoming a Real Problem

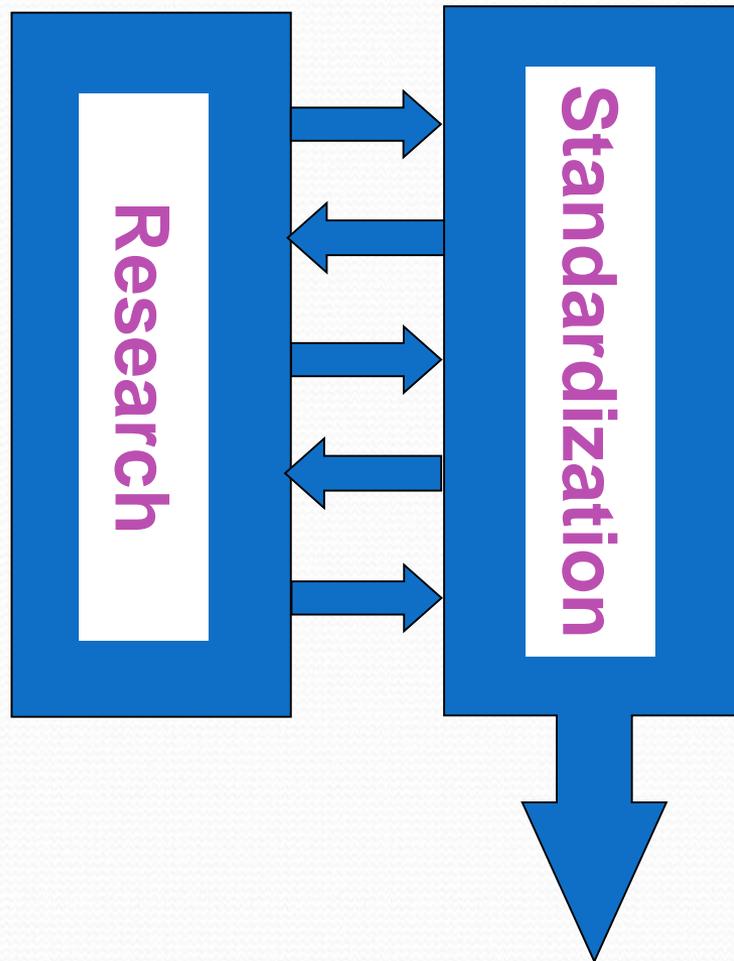
- Adopting Standard is becoming difficult due to:
  - Too many claimed IPR holders (sometimes 50)
  - Lots of valid IPR, hard to determine owners
  - Often too expensive
  - Unrealistic licensing schemes
  - Impossible to get all licenses (too many IP holders)
    - Total cost is unpredictable
- Consequence: Market movement toward proprietary solutions Examples :MPEG

# Research and standardization (traditional model)



- Consortium appointed to carry out funded research programme
- Completed work passed to standards body
- Wider community may not contribute to the research project
- Consensus may be difficult
- What about IPR?

# Research and standardization (alternative model)



- Consortium appointed to carry out funded research programme
- Interim results passed to standards body for peer review
- Wider community contributes to research objectives
- Consensus may be enabled/facilitated
- Availability of IPR licences
- Improved market acceptance



# Conclusions

- Standards must be market driven
  - The market looks for services and applications
  - Technology is not an end in itself
- Standardizers and Regulators must co-operate internationally
  - Global market place for telecommunications
  - Encourage innovation/introduce smart technologies
- Closer ties between research and standardization
- Improve IPR policies



**Thank you!**