



Committed to Connecting the World




ITU C&I Programme Pillars 1&2

**Workshop for SADC Countries to Promote
the Development and Implementation of
Conformity Assessment Programmes
Livingstone, 13-15 October 2014**

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Ghana & Vice Chairman ITU-T SG11***



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ITU Mandate on C&I

ITU's conformance and interoperability Programme



- **WTSA Resolution 76:** (WTSA-08, WTSA-12)
“Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU mark programme”
- **WTDC Resolution 47:** (WTDC-10, WTDC-14)
“Enhancement of knowledge and effective application of ITU Recommendations in developing countries, including conformance and interoperability testing of systems manufactured on the basis of ITU Recommendations”
- **PP Resolution 177:** (PP-10) *“Conformance and interoperability”*
- **RA Resolution 62:** (RA 2012)
“Studies related to testing for conformance with ITU-R Recommendations and interoperability of radiocommunication equipment and systems”
- **ITU Council Decisions:** (2009, 2010, 2011, 2012, 2013, 2014)

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The Business Plan for the ITU C&I Programme in 4 “Pillars”



The Standardization Sector side

- ❖ Pillar 1: Conformity Assessment
- ❖ Pillar 2: Interoperability Events

The Development Sector side

- ❖ Pillar 3: Capacity building
- ❖ Pillar 4: Establishment of test centres and C&I programmes in developing countries

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Pillar 1 as defined in ITU PP-10 Resolution 177



- **Res. 177**
 - mentioned a pilot ITU Conformity Database as informative only
 - invited ITU Sector Members to populate the pilot conformity database with details of products tested to applicable ITU-T Recommendations in accredited test laboratories (1st, 2nd or 3rd party), or by accredited certification bodies, or according to procedures adopted by a standards development organization or forum qualified in accordance with Recommendation ITU-T A.5
 - Continue to study a possible ITU Mark as a voluntary conformity declaration

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Pillar 1 Objectives



1. Produce interoperable standards - ITU-T SGs are identifying ITU-T Recommendations with demonstrated market need for C&I testing and developing testing specifications in collaboration with partner SDOs where appropriate
2. Promote conformity assessment on products/services against ITU-T Recommendation(s) - ITU Conformity database

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WTSA-12



WTSA-12 designated the ITU-T Study Group 11 as a lead group on test specifications, conformance and interoperability testing which coordinates ITU-T activities related to the ITU C&I programme across all SGs and review the recommendations in the Conformance and Interoperability Business Plan for the long term implementation of the C&I programme

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Council-12

C12/48



- ITU-T to run a pilot of the conformity assessment programme for key technologies
- ITU-T study groups to identify further technologies (*ITU-T Recommendations*) for C&I
- ITU Secretariat invite labs/forums/consortia/SDOs to join the C&I Programme
- ITU Secretariat to consult study groups towards identifying and suggesting topics for future events
- ITU-T Study Groups to develop system roadmaps, identify and define the interfaces across which interoperability is needed
- ITU-T Study Groups should identify or develop use cases, application profiles and test plans to use for interoperability testing for Recommendations

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Achievements of Pillar 1&2 as of July 2014 (1/2)



- ✓ ITU-T SG11 developed a **living list of key technologies** suitable for C&I (<http://itu.int/go/key-technologies>)
- ✓ ITU-T SG11 launched the **list of pilot projects** of conformity assessment (<http://www.itu.int/go/pilot-projects>)
- ✓ ITU-T SG11 maintains the **C&I reference table of ITU-T Recs.** (<http://itu.int/go/reference-table>)
- ✓ ITU-T SG11 established the new work item **Q.TL-rec-pro “Testing Laboratories recognition procedure”** (Nov. 13)
- ✓ ITU-T SG11 established the **CG on collaboration between ITU and TL** (Nov. 13)
- ✓ ITU secretariat collaborate with the relevant SDOs (ISO, IEC, DCMAS, ILAC, IAF, etc.)

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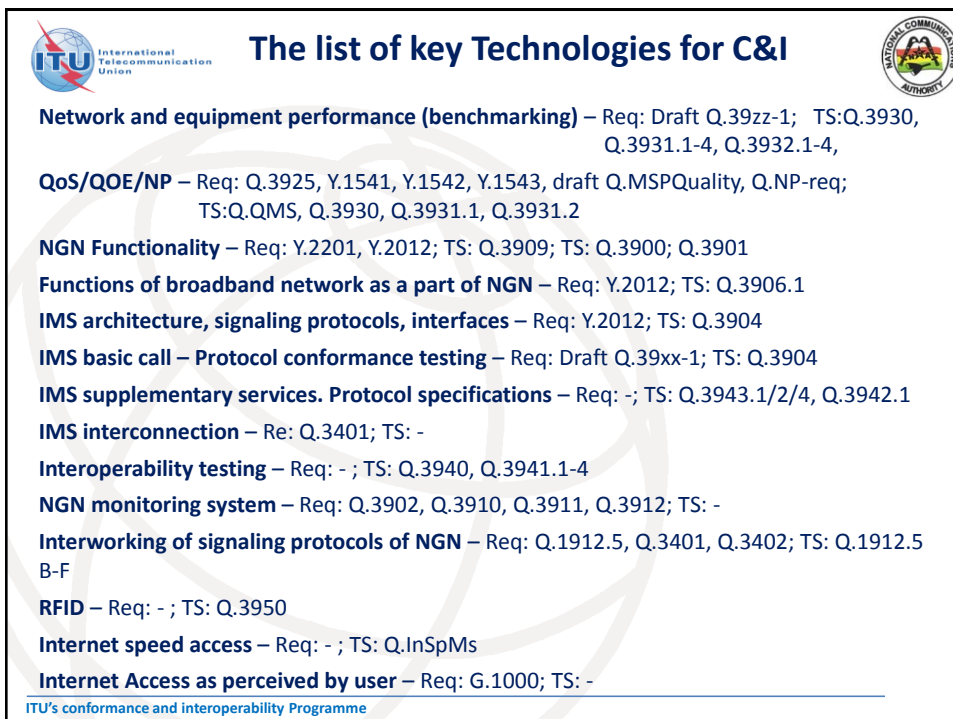
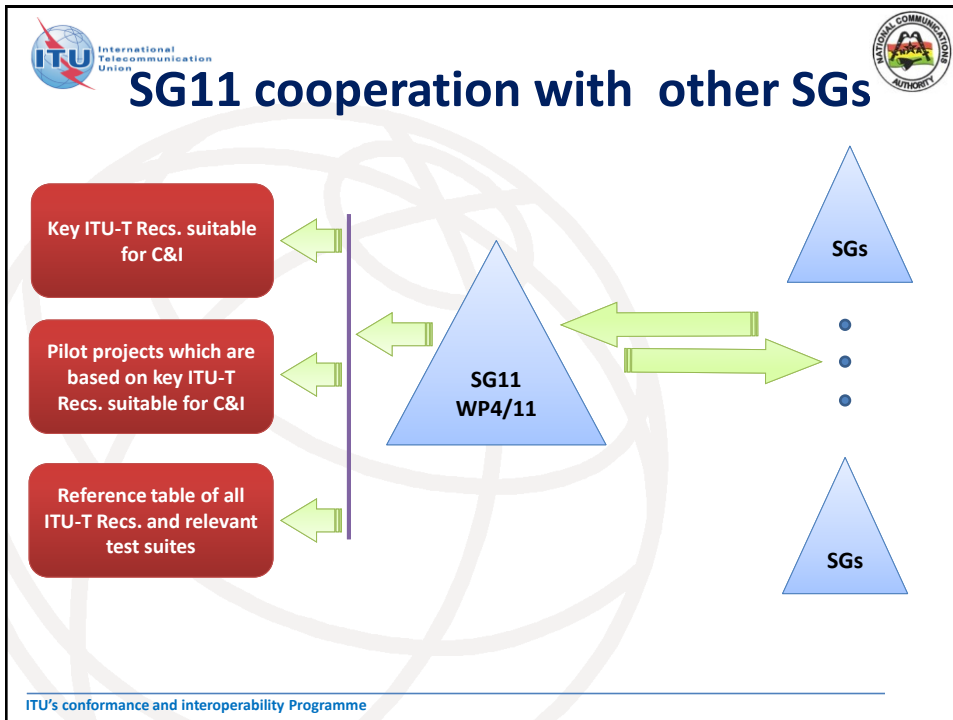


Achievements of Pillar 1&2 as of July 2014 (2/2)



- ✓ **ITU conducted test events:**
 - ✓ [Conformance & Interoperability event of IMS UNI, IPTV](#) (Bangkok, Sept. 13)
 - ✓ [Continua Health Alliance Interoperability event on e-health](#) (Geneva, Oct. 13)
 - ✓ [Performance assessment of mobile phones in conjunction with HFT in a car against Recs. ITU-T P.1100/P.1110](#) (May. 14)
- ✓ ITU-T SG11 established the new work item **Q.Int speed test “Unified methodology of Internet speed quality measurement usable by end-users on the fixed and mobile networks”**

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The pilot projects of conformance testing against ITU-T Recommendations



First ITU-T Pilot project

Testing scope: conformance testing of the Multi-technology network interface in accordance with Recs. ITU-T M.3170.x

Involved companies: China Telecom, FiberHome, ZTE, CTTL, BUPT, etc.

Goal: improvement of an interconnection between EMS, NMS, and OSS for the MTNM interface

Short-term strategy:

- ✓ harmonize requirements based on the inputs provided by vendors, labs, operators
- ✓ select an appropriate TL that has a competence to perform the relevant tests
- ✓ perform testing at the appointed TL
- ✓ populate ITU product conformity DB

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The reference table of ITU-T Recommendations and relevant Test Specifications which suitable for C&I testing



Reference Table is a list of ITU-T Recs and applicable test suites (ITU/other SDOs) which indicate relevant parameters to be tested for conformity/interoperability

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Implementation of ITU Testing Laboratories recognition procedure (1/2)



Goal: ITU recognition procedure is to allow TL to be recognized as a laboratory with a competence to perform tests against ITU-T Recommendations.

First draft of the Recognition procedure was proposed by Russia ([C97](#))

Recognition procedure defines:

- ✓ Requirements for TL
- ✓ Requirements for ITU-T assessors
- ✓ Structure of the CASC
- ✓ Relevant procedure to apply for the ITU recognition

Correspondence group on collaboration between ITU and Tls

- ✓ Chairman: Mr Isaac Boateng (NCA, Ghana, vice-chairman of SG11)
- ✓ CG documents: <http://ifa.itu.int/t/2013/sg11/exchange/wp4/q11/>
- ✓ Last meetings: 20 Feb, 10 April, 14 May, 11 June, 2 July and 10 July 2014
- ✓ Achievement: revised recognition procedure and best practice

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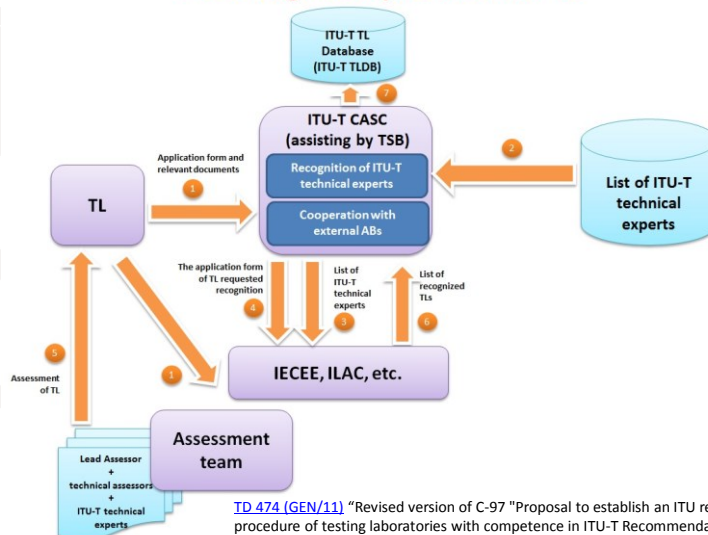


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Testing Laboratories recognition procedure (2/2)



The recognition procedure of TL



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Results of JCA-CIT meeting on [25 April 2013](#)



JCA-CIT decided to extend the list of conformity assessment approaches to:

- **Conformity assessment of ICT's equipment (signalling protocols, interfaces, codecs, etc.) against International standards**
Benefit: the possibility to reduce the repetition of testing (tested once - accepted everywhere)
- **Conformity assessment of Telecommunication Services against International standards**
Benefit: increasing type of interconnection among operator's networks (interconnection on the service level), to facilitate the distribution of nomadic services provided on the fixed and mobile networks
- **Conformity assessment of system/network/equipment performance based on International standards (benchmarking)**
Benefit: to reduce the operator's risk of the purchasing equipment with unexpected performance
- **Conformity assessment of QoS/QoE/NP against requirements of International standards**
Benefit: to increase the level of customer loyalty for services provided by operators

[Report of JCA-CIT \(25 April 2013\)](#)

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New ITU-T activities on QoS/QoE assessment and benchmarking



ITU-T SG11

- [Q.3930](#) – Performance testing of distributed systems – Concepts and Terminology (in force)
- [Q.3931.x series](#) – Performance benchmark for the PSTN/ISDN emulation subsystem of an IP multimedia system (in force)
- [Q.3932.x series](#) – IMS/NGN performance benchmark (under study)
- [Q.NP-reg](#) - Requirements to network probes for network performance and Quality of service testing (under study)
- [Q.Int_speed_test](#) - Unified methodology of Internet speed quality measurement usable by end-users on the fixed and mobile networks (under study)

ITU-T SG12

- [G.VoLTE](#) - End-to-end performance for managed voice over LTE networks (under study)

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Internet speed quality measurement (1/3)



The key reasons for establishing the global approach:

- Internet services are playing the important role in our life (social networks, OTT, etc.)
- Quality of Internet services becomes a such vexed issue (subscriber loyalty)
- Fixed and Mobile operators are playing the significant role in Internet community
- Customer is looking for the best offer of Internet access “speed/tariff”

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Internet speed quality measurement (2/3)




The key issues of the existing Internet speed measurement systems:

- The existing algorithms are not suitable for operators/regulators to manage customer's SLA
- The method is not standardized by International SDO. There is no reliable mechanism for Internet speed checking
- The existing measurement systems do not provide guarantee that testing results related to operator's network

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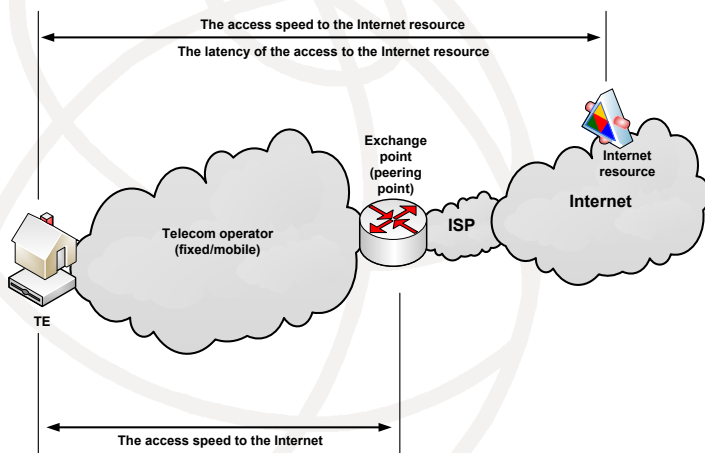


Internet speed quality measurement (3/3)



ITU-T SG11 Q15/11 “Testing as a service TAAS”

Q.Int speed test “Unified methodology of Internet speed quality measurement usable by end-users on fixed and mobile networks”



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ITU fighting counterfeit and sub-standard ICT equipment



- ITU-T SG11 started a new work item “Technical Report on Counterfeited and Substandard ICT Equipment”.
- Ghana leads team of experts on TR due for approval on Nov. 14
- First time international organizations have been involved (e.g. WTO, GSMA, Interpol, WCO, MMF, WIPO, etc.)
- Adopted WTDC-14 Resolution 79 “The role of telecommunications/information and communication technologies in combating and dealing with counterfeit telecommunication/information and communication devices”
- ITU-D&ITU-T workshop on Combating counterfeit and substandard ICT devices. The event is scheduled for 17-18 November 2014

http://www.itu.int/en/ITU-T/C-I/Pages/WSHP_counterfeit.aspx



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Pillar 2

Interoperability Events


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ITU Interop events

- connect various manufacturers
- evaluate interoperability of vendors
- check end to end performance with common “interfaces”
- to validate different implementations of standard, and feedback to standard-making

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ITU conducted test events



- ✓ IPTV Interop and showcasing events on ITU-T H.760
- ✓ NGN Interop and showcasing events
- ✓ [Continua Health Alliance Interoperability event on e-health \(Geneva, Oct. 13\)](#)
- ✓ [Performance assessment of mobile phones in conjunction with HFT in a car against Recs. ITU-T P.1100/P.1110 \(May. 14\)](#)
- ✓ Interoperability of IMS-NNI, IoT (Bangkok, Aug. 14)

Future events planned:

- ✓ [Continua Health Alliance Interoperability event on e-health \(Geneva, 1st Quarter 2015\)](#)

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ITU Test Event



Performance assessment of mobile phones in conjunction with vehicle's HFT in accordance with Recs. ITU-T P.1100/P.1110 www.itu.int/go/test-event

Background

Many mobile phones do not work properly with HFT's system and thereby significantly degrading the speech quality of the complete system

Findings

- ✓ an incorrect behavior of the mobile phone in the wireless connection to a vehicle's HFT
- ✓ an unacceptable quality of a voice-call inside the car and outside the car for the conversational partner

Only 30 % of phones passed the tests !!!!!

Key outcomes

- ✓ New web portal describing the existing issues
- ✓ A "white list" of mobile phones recommended by major car manufactures
- ✓ Updated Recs. ITU-T P.1100/P.1110 with the new values of performance



Venue: ITU Headquarters
TL: HEAD Acoustics
Date: 12-16 May 2014
Participants: Mercedes-Benz, Volvo, Bosch, Toyota
 Number of tests: 40 (30 phones)
[ITU press-release](#)

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Who is invited to join the ITU C&I Programme (1/2)



- ITU-T SG11 invites TLs/SDOs/Consortia to launch the pilot projects on the conformity testing against ITU-T Recs. TSB could help to conduct these events
- TSB invites ICT Companies (e.g. vendors, operators, etc.) to launch the interoperability events based on the ITU-T Recs.
- ITU-T SG11 invites companies to develop Test specifications against ITU-T Recs. Other contributions and proposals which are relevant to C&I issues are welcomed

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Who is invited to join the ITU C&I Programme (2/2)





- ITU-T SG11 invites TLs and all interested parties to participate in SG11 (Q11/11) for discussing the ITU TL's recognition procedure
- TSB invites Vendors and TL to populate the ITU Product Conformity Database

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Background slides

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ITU web sources related to C&I Programme

ITU C&I resources


C&I Portal - <http://www.itu.int/en/ITU-T/C-I/Pages/default.aspx>
JCA-CIT - <http://www.itu.int/en/ITU-T/jca/cit/Pages/default.aspx>
SG11 (lead group on testing) - <http://www.itu.int/en/ITU-T/studygroups/2013-2016/11/Pages/default.aspx>

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ITU-T C&I Portal

<http://www.itu.int/en/ITU-T/C-I/Pages/default.aspx>




ITU Conformity and Interoperability Portal

YOU ARE HERE: HOME > ITU-T > ITU CONFORMITY AND INTEROPERABILITY

SHARE 

- The living list of technologies to be tested on C&I
- List of Pilot projects for conformity assessment against ITU-T Plans
- The reference table of standards are used for C&I assessment
- SG 11 Action plan on C&I
- ITU-T meeting schedules on C&I activities



ITU C&I Task Force

One of the core objectives of international standardization is to enable the global interoperability of ICT networks and devices. Products developed in accordance with ITU standards (ITU-T Recommendations) should provide the interoperability needed for users of these products to make use of them anywhere in the world, regardless of who has manufactured them and who is offering the service.

ITU created the Conformity and Interoperability (C&I) Programme in response to a request from the ITU membership to ensure the conformance and interoperability of ICT products implemented according to ITU-T Recommendations or part thereof.

The Programme is also aimed at soliciting feedback to improve the quality of ITU-T Recommendations and at reducing the digital divide and the Standardization Gap by providing developing countries with the requisite tools and expertise to establish regional C&I test centres.

News Databases Baseline Documents

Press Release: Test event finds mobile phones have poor hands-free performance

12-16 May: Leading car makers to test hands-free systems to ITU standards

ITU hosts testing event for hands-free in car systems

Call for Expression of Interest


Milestones reached in ITU Conformity and Interoperability programme

More > Archives >


QUICK LINKS

- C&I Portal home page
- JCA-CIT
- ITU-T SG11 (lead group on testing)
- BDT C&I Activities
- ITU Conformity Database (application form)
- ITU Promotional materials
- ITU Pilot Conformity Database (TSB Circular 98)

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Some C&I basic terms



- **Conformity assessment (CA):** *the process used to demonstrate that a product, service or system conform to specified requirements.* – ISO/IEC 17000
 - 1st party CA – manufactures' self-declaration of conformity
 - 2nd party CA - by user, e.g. purchaser, importer, retailer...
 - 3rd party CA – ISO/IEC 17025, 17065, etc
- **Interoperability:** *the ability of two or more systems or applications to exchange information and to mutually use the information that has been exchanged.* - Rec. ITU-T Y.101
- conformance increases the probability of interoperability, but does not guarantee

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C&I testing is common telecom/ICT industry practice



- National regulatory conformity assessment, focusing on:
 - Safety of life
 - Interference-free
 - Type approval according to national regulation
- Limited number of bilateral/multilateral Mutual Recognition Agreements(MRA)
 - APEC TEL MRA 1998
 - US-EU MRA
 - Australia-European MRA
 - Canada-Switzerland MRA
- Voluntary conformity assessment, by influential SDOs/industry fora
 - designated testing lab(s), issue product certification against their specific standard(s)
- Interoperability testing
 - Organized by a SDO:
 - to verify a standard's specification and its implementation before it's completed
 - To facilitate its members to delivery 'standardized' product to market in synchronization with standard
 - requested by specific customer(s), e.g, decision of telecom operator to procure new devices/systems which must be interoperable with legacy system of either their own or their interconnection partner operator

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Telecom/ICT Environment



- **Net externality** of telecom industry necessitate interconnection and interoperability
- **ICT innovation and convergence** challenges ICT standardization
 - Product/service involve many standards
 - 500+ standards development organizations
- Global trend of **privatization** and **deregulation** since 1990s
 - competitive telecom operators in a national market
 - Existence of dominant power in different market sections
 - many developing countries lack capability in Telecom/ICT standardization/conformity assessment
 - ITU-T Rec. are voluntary since 1988 ITRs

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C&I Issues



Lack of required standards and/or standard enforcement leads to:

- poor interconnection and interoperability
- Undue interference and damages to interconnected networks
- damage reputation of company
- damaged reputation of new service/technology
- jeopardized competition by dominant market player
- vendor locked telecom operators
- redundant testing is a burden to both vendors and operators
- trade barrier for vendors to access new market
-

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Why ITU C&I Programme



- **A call by DCs (WSAT_08, SA) to address the challenges of C&I particularly in DCs**
- **ITU-T's Mission**
 - Develop interoperable, non-discriminatory and demand-driven international standards for International telecommunication
- **Conformity to ITU Recommendations will**
 - Enable telecom operators, vendors, end users, and regulators worldwide to have confidence that products sourced in global market meet international telecommunication requirements
 - Improve interconnection and interoperability
 - Reduce trade barrier and improve transparency to market access
 - increased choice from multiple manufacturers/service providers
 - Help telecom operators to reduce time of new service provision
 - Help vendors to save cost on repetitive testing/certification for same product, thus reduce time to market

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