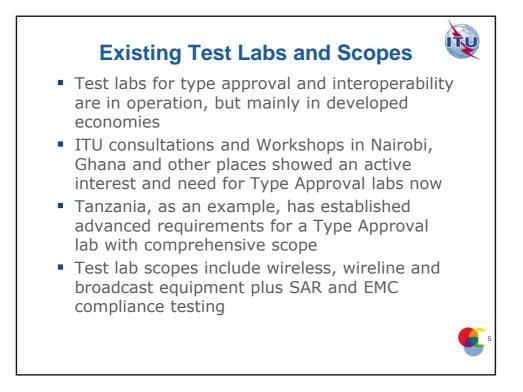


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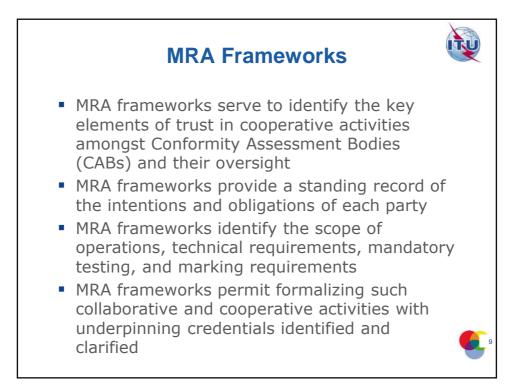


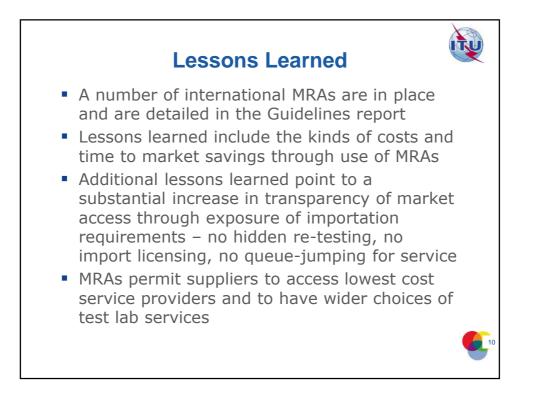
## Criteria to Establish Accreditation Bodies and Test Labs

- ISO/IEC has established a set of internationally accepted standards (CASCO Toolbox) which give gold standard credentials to compliant accreditation, certification and test bodies
- These form foundational elements for both trusted services and for framework agreements for sharing services
- The Guidelines provide substantial detail on the various criteria

## Steps to Establish an ISO 17025 Compliant Test Lab The steps which are detailed in the Guidelines include: Management requirements and systems for the lab Lab requirements, test methods and procedures, audits, equipment handling Document control, calibration records and staff records Handling of test reports and calibration certificates Service to customers and handling of complaints









## **Funding and Training Sources**

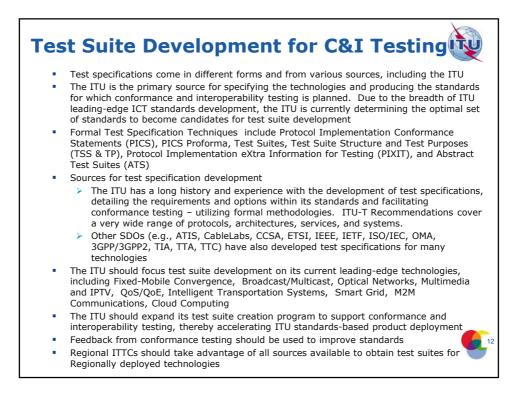
Many sources of funding and training worldwide are identified in the Guidelines:

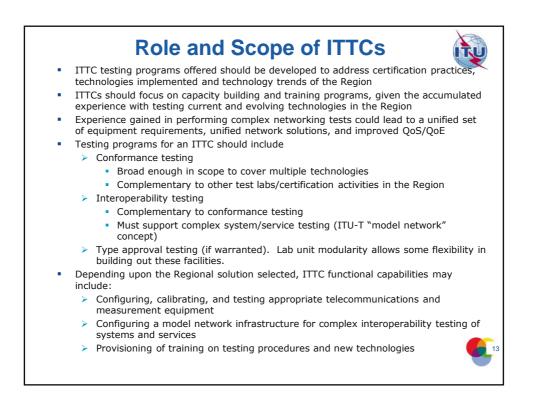
➢ Funding bodies referenced in an extensive Appendix include UNIDO, major Banks in each region, specialized funding agencies for telecoms projects and others

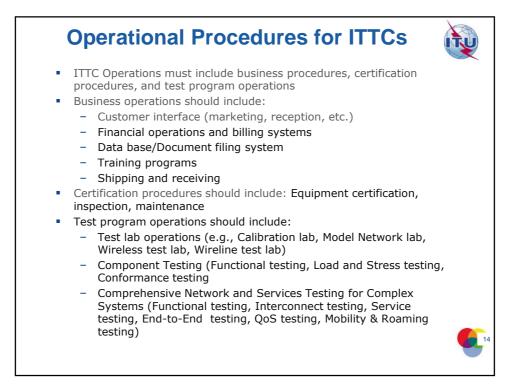
Requirements to access funds vary from low interest loans, to grants, seed funding and cost underwriting

Sample well known telecom training organizations operating internationally in various regions are listed

These training organizations offer training for which costs vary from just travel to and from location, to government and supplier subsidized training, to private for-profit fully costed training.







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## Equipment Requirements for ITTC Testing Programs

- ITTC test equipment requirements will depend on the Regional technologies supported and network evolution plans
- Conformance testing must support testing of standards implemented in a variety of equipment types. Testing of standards and equipment specifications requires a methodical analysis of test cases. An automated test execution environment (utilizing TTCN-3) is encouraged.
- Interoperability testing is complementary to conformance testing and must support complex system/service testing (ITU-T "model network" concept)
- The Model Network Test lab needs to be flexible to address numerous test architectures. Testing of typical NGN service scenarios require:
  - Media Gateway Controllers (MGC), Proxy Servers SIP (PS), Signaling Gateways (SG), IP Multimedia Subsystem (IMS), Media Gateways (GW), Transport Network Environment (TNE), Application Servers (AS), Media servers (MS), Messaging Servers (MeS), Management System (MS), Billing system (BS), NGN Access Devices (NGN-AD), Media Gateway for Legacy Terminal Equipment (GW-LTE)
- Type approval testing equipment must support calibration testing as well as a variety of wireline and wireless equipment tests
- Specialized facilities are also required, such as EM shielded rooms, Anechoic chambers, EMC test equipment, SAR test systems, Environmental chambers and Open Area Test Sites (OATS)

Economics and Cost Implications for ITTC	
Economics and Cost Implications for ITTCs	
	A Regional Testing Center has the potential advantage of size and the potential of being a center of excellence for testing expertise and training. Economies of scale can permit focus and specialization of processes and tools not otherwise available.
1	An assessment of current and planned network services and technologies must be completed to prioritize the construction of labs and equipment for conformance testing, interoperability testing and type approval
	Region-specific data (funding, expertise, certification experience, network services deployed) is necessary to determine the test program, initial facility size, and scope of a Regional ITTC
1	Assuming the total plan (including envisioned future expansion) cannot be funded immediately, the technology and test program priorities will drive the development of phases for the rollout plan
	Modular design enables flexibility for initial lab scope, expansion decisions, and costs
	<ul> <li>Test lab modules could include: wireless test lab, wireline test lab, calibration lab, model network test lab, anechoic chamber, OATS, etc</li> <li>Type Approval testing may be required in some cases – requiring</li> </ul>
	additional, different and potentially costly facilities
•	Producing test specifications within the ITTC and/or contracting to produce specifications could be costly and time-consuming
	A system must be in place to identify and obtain the required test specifications

