

ITU-T / ITU-D Regional Forum on Bridging the Standardization and Development Gaps Kigali, 2-4 October 2007

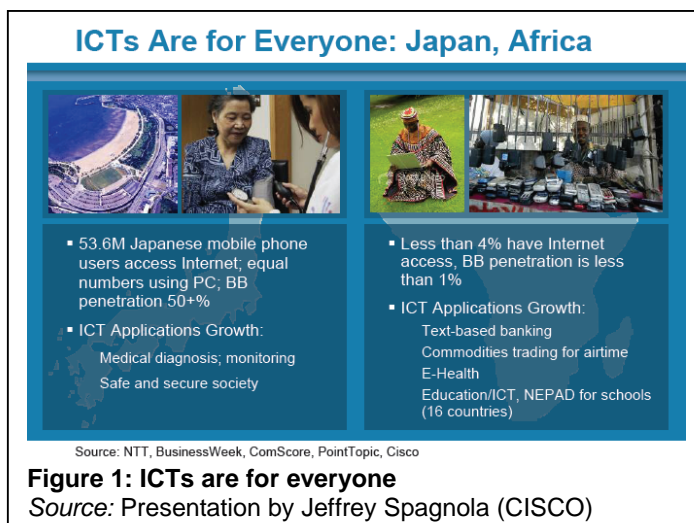
Chairman's Report

At the invitation of the Directors of the ITU-T and ITU-D Sectors, and kindly hosted by the government of Rwanda, a Regional Forum on Bridging the Standardization and Development Gaps was held in Kigali, Rwanda, from 2-4 October 2007. Some 160 participants from 38, mainly African, ITU Member States participated.

The opening address was given by [Mr Malcolm Johnson, Director ITU-T](#) who thanked the government of Rwanda for hosting the event. He explained the purpose of the meeting as being to help bridge the standardization gap which, due to a shortage of human resources, means that the level of participation of representatives from developing countries in ITU-T and ITU-R study groups is lower than it should be. The standardization gap contributes to the persistence of the wider digital divide. This regional forum is intended to be a model for a series of future regional meetings—one per region per year—which will be held as a way of bringing discussion and debate on hot topics in current ITU work closer to the regions. He also welcomed the decision taken by ITU Council, with strong support from African Council Members, on making permanent the free access to ITU-T Recommendations online. This will go a long way towards making ITU-T Recommendations more accessible to developing countries.

Participants were welcomed by **Col. Diogène Mudenge, Acting Director-General of the Rwanda Utilities Regulatory Agency (RURA)**. He argued that the gap between developed and developing countries in terms of access to ICTs continues to be very large and he called for regional efforts to address the problem. He also highlighted the decision taken by ITU Member States in Antalya, during the 2006 Plenipotentiary Conference, in adopting Resolution 123 on efforts to bridge the gap. Rwanda's aim is to become an ICT hub and, indeed, an "ICT brand name". This will require close collaboration among all stakeholders.

The Forum was formally opened by **Hon. Albert Butare, Minister of State in charge of Energy and Communications**. He drew attention to the country's Vision 2020 which has three components: a global vision, a socio-economic development plan and an ICT-led development vision, based on the National Information and Communications Infrastructure (NICI) Plan. The first phase of the plan ran from 2001-2005 and was concerned with getting basic infrastructure in place. The country is now in the second phase of the plan, from 2006-2010, where the aim is to build on the first phase by focusing on the benefits of ICTs for national development and prosperity. Two further phases of the plan will be implemented, from 2011-2015 and from 2016-2020, by which time it is expected that Rwanda will have achieved middle-income status as a knowledge-based economy. The Minister welcomed the support being given by ITU and the international community in helping Rwanda to achieve its goals.



Opening Session: Assessing needs and opportunities: standardization and ICT development in Africa

The opening session of the Forum, chaired by **Mr. Silas Lwakabamba (former Chairman of Board of Rwanda Information Technology Authority — RITA & Rector of National University of Rwanda)**, looked at the standardization and ICT development requirements of Africa.

Mr George Mulamula, (ICT expert and advisor, Ministry of Infrastructure, Rwanda) spoke briefly of the importance of ICT standards in an emerging innovative ICT environment, especially for reducing costs and ensuring interoperability. He said that a new environment is emerging that is characterized by a proliferation in the type and number of voluntary standards organizations and by new modes of inter-working among them. He pointed to the economic dimension of standards in encouraging market entry and enhancing competition, reducing infrastructure investment costs, encouraging innovation and diversity and reducing transaction costs. He argued that standards are essentially a “public good” whose value increases with greater usage.

Mr Jeffrey Spagnola, VP, Worldwide service provider marketing, Cisco Systems (US), in a keynote presentation, addressed the topic of “[The creation of an inclusive information society](#).” He highlighted the importance of ICTs in promoting development, and in this context it is extending access which is the key factor (see Figure 1). Cisco has been engaged with ITU for around 10 years, and has found this a useful way of reaching a global audience and of working in partnership towards long-term goals, such as the establishment of Next-Generation Networks. He announced a new initiative to assist ITU in bridging the standardization gap by making available to ITU Member States Cisco’s WebEx tool for remote participation in seminars. He also announced an extra US\$10 m which would be devoted under the CGI Africa Initiative to promote ICTs for development.

On behalf of Mr Bilel Jamoussi (IEEE), **John Visser, CTO Office, International Standards, Nortel Networks (Canada)** gave a presentation on the “[One Laptop Per Child project](#)”, announced by Nicholas Negroponte during the Tunis Phase of the World Summit on the information Society (WSIS)--sometimes known as the US\$100 laptop--which is supported by Nortel amongst other companies. The five principles of OLPC are child ownership, at an early age, saturation coverage, connectivity (via mesh network technology) and the use of free and open source software (see Figure 2). A recently announced initiative--“Give One, Get One (G1G1)”--allows children in Canada and the USA¹ to buy two laptops for US\$399, one of which is given free of charge in a developing country. The Rwandan President, Paul Kagame, has announced that, in Rwanda, he will also offer a free laptop for every one donated under the G1G1 scheme.

One Laptop per Child
A Nortel-Sponsored Project

Pain Point

- Availability and cost of devices

Background

- OLPC Foundation's mission is to stimulate local grassroots initiatives designed to enhance and sustain over time the effectiveness of XO laptops as learning tools for children living in lesser-developed countries

Solution

- Advanced Technology
- Collaboration on 802.11s Mesh Technology
- OLPC is a proof of point of Hyperconnectivity
- WiFi/WiMAX fundamental to educating the next generation

Figure 2: One Laptop per Child project
Source: Presentation from Bilel Jamoussi/John Visser

Mr Wilfred Lange, Federal Network Agency (Germany) provided an introduction to the topic of Open Standards. He argued that open standards should go beyond mere technical standards in promoting fair trade, open competition and user trust. Open Standards should be publicly available, adopted through a transparent, international procedure, and any intellectual property rights should be fair, reasonable and non-discriminatory.

In discussion, questions focused on how to gain access to the different initiatives mentioned and the best ways for developing countries to shape the standards-making process. Standards-making needs to be oriented to solving problems, so it is important that developing countries provide a clear account of their requirements. Engagement in the standards-making process requires a long-term commitment and can be costly in terms of the time of engineers over many years. Standards-making also requires consensus building among companies with different interests. Today, access to the standards-making process is much easier in

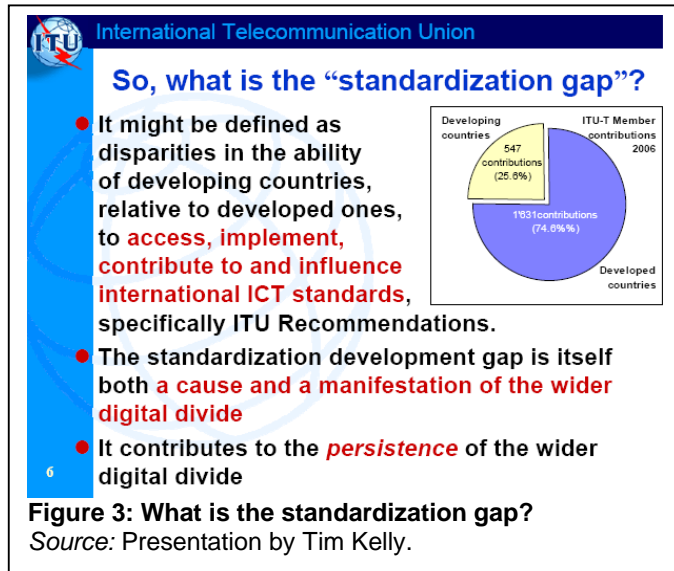
¹ Please see <http://www.xogiving.org/> for further details. Initially, “G1G1” will be available only in Canada and the USA, but it is possible to donate a laptop from anywhere in the world.

the past, thanks to the Internet and to the decision to make ITU-T Recommendations free of charge online. The African Telecommunications Union (ATU) has played a role in developing African common proposals, but is also constrained by the costs of participating in Study Groups. One solution is to hold more SG meetings in the regions. IETF is taking similar measures to ITU-T and the Internet Society is promoting fellowships to assist developing country engineers to participate in IETF meetings (see later presentations).

Session 1: Overview of ITU activities

This session, chaired by **H.E. Romain Murenzi, Minister of State in charge of Science and Technologies**, presented an overview of ITU activities, in particular the Standardization Sector (ITU-T) and the Development Sector (ITU-D).

The first presentation was made by [Mr Tim Kelly, Head Standardization Policy Division, ITU-T](#), focused on “[Bridging the standardization gap](#)” (PP-06 Resolution 123). He began by providing a definition of the standardization gap (see Figure 3) and went on to introduce a methodology for measuring progress in bridging the gap, based on the “standardization development ladder”. This sets out an eight-step path by which developing countries can become more closely engaged with ITU-T’s work. At the bottom of the ladder comes the download and use of ITU Recommendations, for instance in procurement and capacity-building. Higher up the ladder comes membership of ITU Sectors and making contributions to Study Groups. At the top of the ladder comes the possibility to nominate representatives for ITU Study Groups chairs, vice-chairs, rapporteurs etc, and to make proposals for future study questions.



Mr Malcolm Johnson, Director, ITU-T, emphasised the commitment of the ITU management for bridging the standardization gap and his intention to hold meetings of this nature on an annual basis in each of the ITU’s regions. ITU would also like to hold more meetings of Study Groups within the regions, and that can be done simply by a country extending an invitation to host the meeting. He also encouraged more companies from the region to become ITU-T Sector Members and Associates. If the costs prove too high, then companies could band together to form a national or regional association which could then become a Sector Member.



[Ms Chali Tumelo, Senior Advisor, ITU-D African Regional Office](#), gave an “[Overview of ITU-D activities](#)”, explaining the six main programmes under the Doha Plan of Action, and emphasizing the five African regional initiatives that had been selected (see Figure 4) as a focus for the period until the next WTDC in 2010. She also explained the background to the *Connect Africa Summit*, which will be held in Kigali from 29-30 October 2007, co-organized by ITU, World Bank and the Global Alliance for ICT for Development (GAID). She also explained the work of ITU-D Study Groups, which had their mandates renewed at the Doha WTDC. As an

example of the work of the ITU-D Study Groups, work is currently underway on a module to assist developing countries in migrating to NGN. The report is due for completion by September 2009.

In discussion, a number of points were raised, touching in particular on why African prices for broadband are so much higher than those of other regions. Landlocked countries, such as Uganda, are dependent on expensive satellite services for internet connectivity, and this raises costs. While actions are underway to improve the level of undersea connectivity, the different schemes remain mired in controversy which tends to scare away potential investors.

Session 2: Current ITU Standardization Topics

This session, chaired by **Dr Tim Kelly (ITU-T)** looked a number of current topics for ITU-T standardization work in more detail, beginning with next generation networks (NGN), optical transport networks and fixed-mobile convergence.

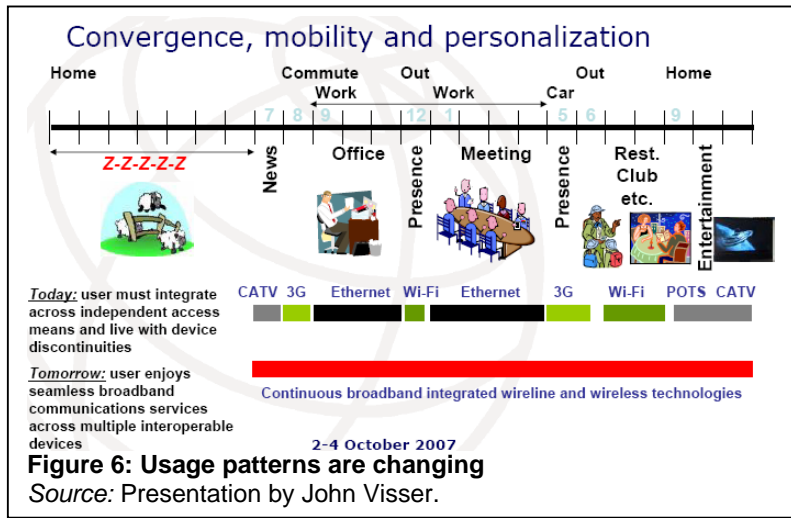
Mr Arshey Odedra, TSB Counselor (ITU-T)

introduced ITU’s work on **NGN**, covering services and requirements/capabilities, NGN architecture and NGN migration strategies (including emulation and simulation). NGN Recommendations are defined in the ITU-T Y.2000 series of Recommendations, with a general definition of NGN provided in Recommendation Y.2001 (Figure 5). NGN work took off in ITU-T at a dramatic pace from mid-2004 when an NGN Focus Group was established and it held nine intensive meetings up to the end of 2005. This NGN work was then continued under the NGN Global Standards Initiative (NGN-GSI) from 2006, as a co-located activity bringing together the NGN work of SGs 11, 13, 19 and other relevant Study Groups. This work is also being carried out in cooperation with relevant international and regional standards organizations, SDOs and forums.

A packet-based network able to provide telecommunication services and able to make use of multiple broadband, QoS-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies. It enables unfettered access for users to networks and to competing service providers and/or services of their choice. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.

Figure 5: Definition of NGN
Source: ITU-T Recommendation Y.2001

Mr Pierre-Andre Probst, chairman of ITU-T Study Group 16 (OFCOM, Switzerland), gave a presentation, on behalf for Mr Dave Faulkner (BT) covering optical transport networks. The first generation of passive optical networks (PON) delivered huge benefits in terms of increased transmission, but nevertheless the demand for ever-higher transmission speeds remains. So ITU’s work has shifted to a second-generation of Gigabit-enabled passive optical transport networks (G-PON), in particular through the G.900 series of ITU-T Recommendations. One of the ITU’s useful contributions has been in showcasing interoperability between different manufacturers’ kit, and a number of demos have been held at major industry exhibitions. Although requirements continue to evolve, G-PON is now commercially available and is already being deployed.



The final presentation of the first day was given by **John Visser, Chairman of ITU-T Study Group 19 (Nortel Networks, Canada)**, on the topic of “Mobility and fixed-mobile convergence as integral aspects of NGN”. He noted that usage patterns are changing and that, during the course of an average day, a user may need to use many different network platforms (see Figure 6). As a result, everyone is going mobile. Megatrends that are shaping our

new world include hyperconnectivity, network-aware applications and applications-aware networks, and the search for “true broadband”. This requires a global approach to standards-making, and this is where the NGN-GSI initiative is so important. The goal is to ensure we meet users’ needs.

The first day of the conference concluded with a cocktail reception hosted by CISCO Systems. The previous day, participants had been welcomed by a cocktail reception hosted by RURA.

Session 2 continued on the second day of the conference, **chaired by John Visser (Nortel Networks)**, with detailed presentations on signalling protocols, emergency telecommunications, IPTV and multimedia.

Arshey Odedra, TSB Counselor (ITU-T) gave a presentation on ITU-T standardization work related to “[Signalling Protocol Standards](#)”, which is conducted by ITU-T Study Group 11. The presentation provides an overview of key developments in signalling standards and in particular signalling control protocols for next-generation networks (NGN). The most widely used is Signalling System 7 (SS7) for the legacy networks as defined in the ITU-T Q.700 series of Recommendations. For NGN Signalling protocols work SG11 is developing Recommendations for NGN Protocol Set 1 which will lead to the actual realization of NGN networks; the two main signalling areas for which signalling protocols work is currently continuing in SG11 are:

- Network Attachment Control Functions (NACF);
- Resource and Admission Control Functions (RACF).

These are several NGN resource control protocols Recommendations (Q.33xx-Series) and a Recommendation on NGN testing (Q.3900) already approved; also some more draft Recommendations are now in the accelerated approval process for the Q.33xx series and NGN testing in the Q.39xx series, based on the results of the September-2007 meetings. There is considerable ongoing work for more NGN signalling and protocols Recommendations and Supplements as future deliverables from SG11. These will also include Signalling protocols work in the areas of architecture, attachment, support of ETS (Emergency Telecommunication Service) and TDR (Telecommunication Disaster Relief) in IP networks as well as more on NGN resource control and NGN testing,

Wilfred Lange (FNA, Germany) addressed the topic of “Developments in emergency communications”. There are a number of important concepts involved:

- Emergency calling, by citizens to a Public Service Answering Point (PSAP);
- Possible preferential treatment of calls, for instance by emergency relief organizations (ERO);
- Early warning signals from emergency relief organizations to citizens.

In some countries, PSAP functions are centralized, but traditionally they are distributed throughout the country and often co-located with emergency control centres (ECC). The main new developments in the field relate to being able to identify the location of the user. For fixed users, this is usually quite straightforward. For mobile users, there are a number of possibilities, based for instance on cell ID, triangulation etc. He also informed participants of the European “eCall” initiative, whereby emergency calls are immediately transmitted once a car’s airbag is released.

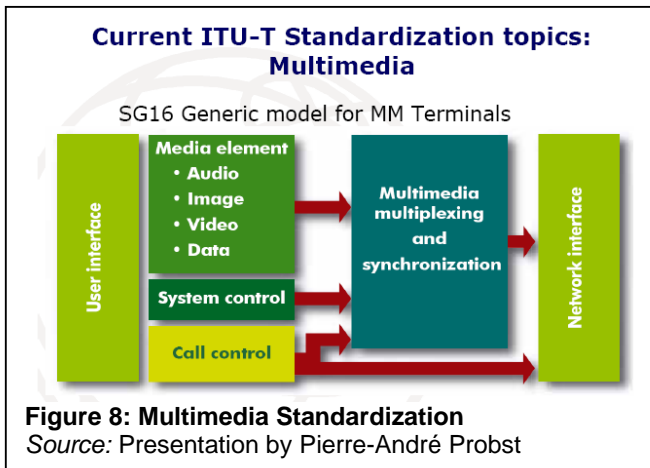
John Visser (Nortel Networks) presented on the work of the [ITU Focus Group on Internet Protocol TeleVision \(IPTV\)](#). The Focus Group was established in April 2006 and has held five meetings to date with further meetings planned in Tokyo (mid October) and Europe (mid December) before the Group is due to wind down in December 2007. The Group will then evolve into an IPTV-GSI (Global Standards Initiative) following a similar model to NGN. The Focus Group will submit its deliverables--which will include draft Recommendations on architecture, service requirements, QoS/QoE, security aspects, user systems and applications and content platforms--primarily to Study Group 13. The Focus

What is IPTV?

- IPTV is defined as multimedia services such as television/video/audio/text/graphics/data delivered over IP-based networks managed to provide the required level of QoS/QoE, security, interactivity and reliability.

IPTV is NOT Television over IP
*** It is much more ***

Figure 7: Definition of IPTV
Source: Presentation by John Visser.



Group experience has shown that ITU can respond quickly to industry requirements and can be open to participation by a wide range of stakeholders, including DVB and ETSI TISPAN.

The session was concluded by **Pierre-André Probst (OFCOM, Switzerland)** who reported on ITU-T's work on [multimedia standards](#), which is handled by ITU-T Study Group 16 (Figure 8). ITU is perhaps best known for the H.26X series of multimedia coding Recommendations which are jointly conducted with ISO/IEC as the MPEG series.

For instance, H.264 corresponds to MPEG-

4/Part 10, and is widely used in consumer electronics equipment. However, as well as providing consumer-oriented applications, the Study Group also does important work in areas such as accessibility standards (e.g., telecommunications for the deaf), video-conferencing, distance-learning etc. Ongoing work is dealing with multimedia services triggered by tag-based identification (e.g., via RFID).

Session 3: African development issues and ICT applications

This session, the first part of which was chaired by [Mr David Mellor \(UK Telecommunications Academy\)](#), looked at ITU activities, in particular those of the Development Sector, aimed at assisting the development and implementation of ICT applications in developing countries.

Ms Chali Tumelo (ITU-D) presented two presentations on behalf of her colleagues Alex Ntoko on [ITU E-Strategies unit](#) (now renamed as ICT Applications and Cybersecurity) and Desiré Karyabwite on [IP-enabled services/applications towards NGN](#). She emphasized the importance of each country expressing their own requirements that could then be built into ITU-D programmes or *ad hoc* assistance.

Mr. Nkubito Bakuramutsa, Executive Director of the Rwanda Information Technology Authority (RITA) presented more information on the NICI 2010 plan, which had been introduced on the first day by the Minister. Priorities include building a national backbone network, building national data centres and human capacity-building. ITU has assisted RITA with a project for computerization of the immigration and visa system as part of a wider e-government project. RITA has also recently completed the construction of 12 community telecentres, bringing not only connectivity but also electricity to rural areas. The telecentres will also be used for local language dissemination of relevant information, for instance on agricultural extension work, or how to use mobile phones effectively. The high cost of international bandwidth, mainly delivered by VSAT, is a major constraint on further development of ICTs in the country at affordable rates. There is also a need for greater customization of technology to local requirements.

Mr John Kimbe, Southern Africa Telecommunication Association (SATA) looked at [telecommunication standardization and QoS in the SADC region](#). SATA is a trade association representing each of the main incumbent operators in the region. One of the concerns of the Association is the growing use of VoIP in the region. Another problem is the high diversity of different equipment used in the region, which makes interoperability challenging. He described his presentation as a “cry for help” to ITU and other partners.

Theo Hess, Managing Executive, Network Core Operations, Telkom (South Africa) addressed the work of ITU's Service and Network Operations Group (SNO). The SNO dates as far back as 1978, when a network management field trial was held between a number of participating countries. More recently, annual SNO meetings have been hosted in 2006 by Telkom SA and in 2007 by Anatel (Brazil). The SNO's relationship with ITU is via Study Group 2, in particular questions 5/2 and 4/2. Current work includes Recommendation ITU-T E.41 on Next-Generation Networks and Services, to identify operational challenges and key parameters related to performance, based on inputs from the SNO group, as well as from the TeleManagement Forum (TMF). The feasibility of a possible African regional SNO is currently being

investigated. This would mirror similar regional SNOs in North America, Western Europe and Asia-Pacific. An inaugural SNO meeting was held in Cape Town, South Africa in September 2006. An interim committee was established, spearheaded by Telkom SA, with SATA as the coordinator for the wider SADC region.

Session 3 reconvened on Day 2 after lunch with a session chaired by **Ms Chali Tumelo (ITU-D)**.

Mr Peter Ulanga, Principal Telecom Engineer, Tanzania Communications Regulatory Authority addressed the topic “[ICT backbone implementation for broadband access in Tanzania](#).”

Tanzania has a population of around 40 million people, around 70 per cent of which live in rural areas, working in the agricultural sector. Average per capita income is around US\$365 p.a. Tanzania’s aim is to provide broadband connectivity to all of the main urban areas. There are around 50’000 existing ADSL users. 3G/HSPDA is implemented in two cities and there are some limited deployments of Wi-Fi/WiMAX and cable modems. The Tanzanian market is relatively liberalized (see Figure 9) with around 6.3 million phone users (mainly mobile) as of March 2007. Around 3’600 km of a planned 6’000 km backbone network has already been constructed, by the power company (TRANCO), the railway company (TRC) and the gas company (SONGAS). Other links are being delayed by environmental impact assessment. But further investment will require government assistance via public private partnerships. The total cost is estimated at US\$200 m.

Mr Thomas Senaji, Telkom Kenya gave a presentation on “[Making sense of the linkage between ICT Standardization and Development: The case of developing countries](#)”. The presentation began with a needs assessment, noting that developing country needs involve, *inter alia*, mainstreaming ICTs into the national economy, deployment of broadband, development of a technology-neutral licensing framework, migrating from legacy networks to NGNs, and human capacity-building. Kenya has adopted a national broadband initiative and also an initiative on rural connectivity and for e-government. He identified an important role for ITU to play (see Figure 10) but also a role for African stakeholders, including operators, users and regulators. For the latter, an urgent need is to address high spectrum fees. He argued that standardization is critical in reducing capital and operational expenditure, and therefore in reducing prices to consumers.

Col. Diogène Mudenge (RURA) presented a case study of telecoms reform in Rwanda. There are three main steps envisaged:

- Liberalization of the commercial environment
- Establishment of a legal and regulatory framework
- Achievement of universal service.

The privatization of Rwandatel, by sale to Terracom, did not produce the expected results, so the company has been renationalized and is about to be privatized once more. The preferred bidder and two reserves should be known in a couple of weeks. The aim is that Rwanda should become an ICT hub. Rwanda’s telecom law is being converted into an ICT law to take account of convergence. A competition law is also in place. Rwanda is also relying upon ITU for human capacity-building and is looking to bring in outside experience. Rwanda also has a universal service fund, which is funded by a 2% levy on operators.

Session 4: Security and regulatory issues

Legal and Regulatory Framework

ICT Sector Overview:

- **A fully liberalized market:-**
 - regulation is for creating a level playing field to enable fair competition among licensed service providers.
- **Telecommunications services:**
 - Four licensed international gateway operators
 - Six licensed mobile telephones providers
 - Two licensed fixed telephones providers
 - Over 40 licensed Internet Service Providers (ISPs)
 - Telephone subscribers 6.3 million (March, 2007)
 - Tele-density of 16%

Figure 9: Tanzania Regulatory Framework

Source: presentation by Peter Ulanga.

- Support efforts by LDCs to migrate their systems
- Human capacity building
- Standardization in the ICT sector
- Facilitation of forums (like this one) for all stakeholders to engage in realization of the desired results

Figure 10: Proposed role for ITU

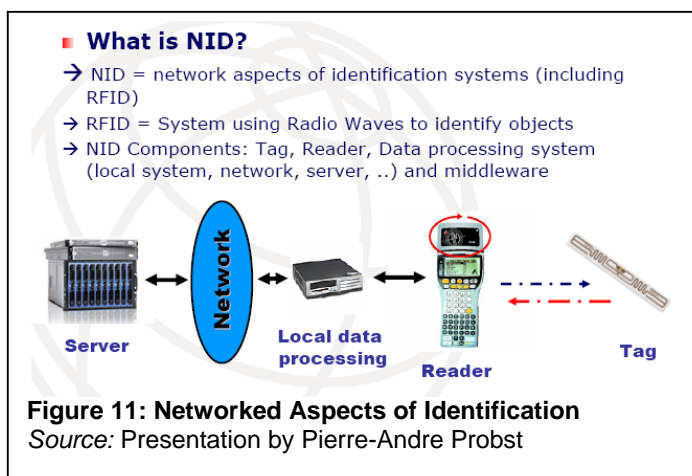
Source: presentation by Thomas Senaji.

The fourth session of the Forum, chaired by **Col. Diogène Mudenge (RURA)** dealt with security and regulatory issues and, because of the reorganization of the programme, two sessions were combined into one.

The first presentation was given by **Mr Cornelius Fotindong Fonzouk (Cameroon)** on “[Security and regulatory issues related to electronic communication in Cameroon](#).” He described the principle of public key infrastructure (PKI) cryptography as a way of handling secure documents. ITU has assisted the government of Cameroon in constructing a PKI in the Ministry of Posts and Telecommunications. ITU supplied LAN equipment and training. The idea is that the MPT network would be extended to a nationwide platform. The main application to date is secure email as a means of facilitating eGovernment. However, there is a lack of standards in the field of PKI and currently each application requires a separate license.

Dr Tim Kelly (ITU-T) outlined the ITU’s work in the three areas of “[Cybersecurity, combatting spam and identity management](#).” Cybersecurity has been identified as an area of high priority by the ITU membership at the Antalya Plenipotentiary and there are a number of important initiatives, in addition to the regular work programme of ITU-T and ITU-D. ITU has been selected by the WSIS as the coordinator for activities related to action line C5 on building confidence and security in the use of ICTs. In carrying out this mission, ITU has launched the Cybersecurity Gateway (www.itu.int/cybersecurity/gateway) as a portal for cybersecurity-related information for citizens, governments, businesses and international organizations. ITU has also joined other institutions in launching the Stop Spam Alliance (www.stopspamalliance.org) to raise awareness and to develop a framework for combatting spam. The Secretary-General has launched a “Global Cybersecurity Agenda”, including creating a high-level experts group, to create a global framework for international cooperation in cybersecurity. The presentation also covered the ITU-T security building blocks and the work programme of the ITU-D on providing assistance to developing countries in the area of cybersecurity.

Mr Pierre-André Probst (OFCOM) described briefly the work of the ITU’s Joint Coordination Activity on [Networked Aspects of Identification \(JCA-NID\)](#). The most common implementation of NID is in Radio Frequency Identification (RFID: see Figure 11) however there are also many other possible implementations and RFID tags may be part of a multimedia terminal as well as standalone. There are a wide range of possible RFID applications, including in transport, security and logistics management, and many different standards development organizations are involved. RFID work was introduced to ITU via a correspondence group under the ITU-T’s Technology Watch function. The Joint Coordination Activity was established in July 2006. The deliverables include a generic architecture model, high-level requirements, a standardization roadmap and a terms and definitions document. It is expected that RFID will create the platform for the so-called “Internet of Things”.



Prof David Mellor (UKTA) presented on the “[Challenges of developing an NGN regulatory body](#)”. He argued that the challenges are how to fund, how to develop, how to justify, what to develop and who to develop? Of these, perhaps the most important is the investment in human capital. As the example of Pakistan shows, getting the regulatory body right, in terms of a high profile and with excellent and independent staff, is an essential step towards attracting investment. He argued that, for an NGN regulatory body, the East African community should consider establishing a regional organization. The UKTA, amongst other activities, has contributed lectures for a communications management course over a five year period, at the Kigali Institute of Science and Technology (KIST) and has also offered mentoring services to staff at RURA, RITA and TCRA. Fellowships are available for the KIST course with the support of ITU.

Day 2 of the conference concluded with a conference dinner, generously hosted by RURA.

Session 5: International cooperation

On the morning of the third day, the local hosts organized a visit to the Kigali memorial centre, which commemorates the 1994 genocide. The visit was much appreciated by Forum participants.

The Forum resumed with a session on international cooperation, chaired by **Ms Marie-Claire Mukasine (RURA)**, which included presentations on other standards development organizations, including IEEE, ISOC/IETF and 3GPP, as well as presentations on consumer protection and regulation.

The first presentation was made by **John Visser (Nortel Networks)** on behalf of Bilel Jamoussi (IEEE), on the topic of “Overview of the Institute of Electrical and Electronic Engineers (IEEE)”. IEEE is the world’s largest professional society with some 367’000 members in more than 160 countries. IEEE holds more than 350 workshops, seminars and tutorials each year. IEEE also has some 900 published standards plus a further 400 currently under development. IEEE’s standards development is guided by five principles:

1. Due process;
2. Openness;
3. Consensus;
4. Balance
5. Right of appeal.

IEEE is probably best known for its IEEE 802 family of wireless standards including Wi-Fi (802.11) and broadband wireless access (802.16)². IEEE collaborates with other standards development organizations (SDOs) including ITU (IEEE is a Sector Member of both ITU-T and ITU-R and soon ITU-D). ITU and IEEE cooperated together on a joint workshop on carrier-class Ethernet, held 31 May – 1 June 2007 in Geneva.

The second presentation was made by **Mr Dawit Bekele, Manager, African Regional Bureau, Internet Society (Ethiopia)** whose presentation covered “[Internet Engineering Task Force \(IETF\) and Internet Standardization](#)”. The mission of the IETF, formed in 1986, is focused on the development of the Internet (see Figure 12). IETF is proud of its commitment to “Rough consensus and running code” and the openness of its processes. The Internet Society (ISOC) differs from IETF in that it is a membership based organization, with 26’000 individual members in more than 80 chapters worldwide. ISOC provides education, policy inputs and awareness-raising provides fellowships to participate in IETF meetings and publishes a regular journal.

IETF Mission - RFC 3935

The mission of the IETF is to produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to make the Internet work better. These documents include protocol standards, best current practices, and informational documents of various kinds.

Figure 12: IETF mission

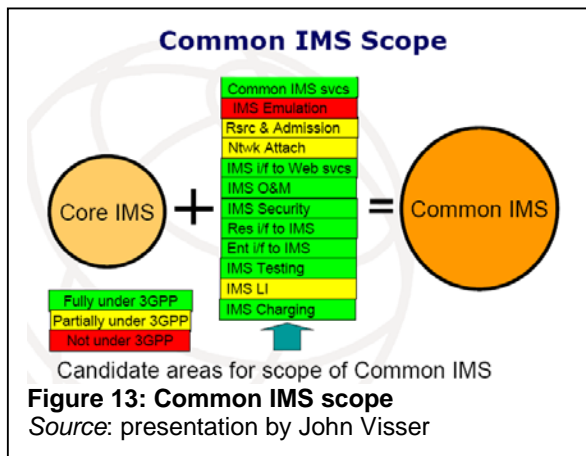
Source: Presentation by Dawit Bekele.

The third presentation was by **Wilfred Lange (FNA, Germany)** on the regulation of network interconnection and consumer protection, focusing on the situation in the European Union, but drawing possible lessons for other parts of the world.

The final presentation was given by **John Visser (Nortel Networks)** on “[3GPP and ITU cooperation and IP Multimedia Subsystem \(IMS\) as a core element of next-generation networks \(NGN\)](#)”. The development of IMS began around 2000 as a way of making best use of the higher bandwidth becoming available on mobile networks by using IP. 3GPP, an industry association and standards development organization, specified IMS as part of release 5 in 2002 and has subsequently made improvements in release 6 (2004) and 7 (2007). There is now a growing problem of fragmentation of IMS as it has been adopted by other SDOs.

² Note that IEEE 802 specifications may be freely downloaded: “Get 802”: <http://standards.ieee.org/getieee802/index.html>.

Accordingly, 3GPP has launched the Open IMS initiative with a new charter to cover requirements from any industry sector, but with a requirement of 3GPP membership (for IPR concerns). A second initiative—



Common IMS—is aimed at extending the scope of IMS (Figure 13). Negotiations are under way for closer cooperation between ITU and 3GPP in support of globally consistent IMS standards, for instance for co-located or co-organized meetings. It has been agreed that ITU will submit to 3GPP its requirements for IMS, and 3GPP will feed back to ITU its draft standards for comment. This will be an iterative process, with the objective of IMS standards eventually being incorporated in the series of ITU standards on NGN.

Discussion focused on ways to improve cooperation between ITU and other standards development organizations. One example of this is the joint meeting in Chicago held in July this year between

ITU Study Group chairs and their IETF peers.

Panel session: ITU for Africa

The final substantive session, chaired by **Ms Chali Tumelo (ITU-D)**, took the format of a panel discussion with each of the session chairs and Forum speakers participating.

Mr Visser raised the need for Member States, especially from developing countries, to express their requirements and challenged participants to come up with a possible title for the type of document from ITU that they would find the most useful for the delivery of assistance. Mr Kelly raised two issues: first to get feedback from participants on their impressions of this meeting, which was intended to be a model for a series of regional Forums on bridging the ICT standardization gap, and second on what message this meeting should forward to the *Connect Africa Summit*, to be held in Kigali at the end of October. Mr Mudenge reported on what is happening in Rwanda in terms of how it is using ITU's assistance in a pro-active manner.

In discussion, a number of issues were raised:

- The importance of getting the *Connect Africa Summit* in Kigali to give a clear message of support for the ICT standardization process;
- The need for developing countries to identify focal points to represent them, and their region, on different standardization topics within ITU;
- The use of ITU resources as a “virtual platform” that feeds into local centres of excellence, and which can be used by national and regional focal points;
- The need to prioritize funding and for Member States to indicate to ITU how best to allocate its limited funds;
- How best to prepare, at the regional level, for WTSA-08, for instance by proposing new study questions or nominating candidates for Study Group chairs and vice chairs from the region;
- Ways of enhancing the relevance of Study Group activities for developing countries, for instance by developing an “umbrella” question on issues of relevance for developing countries, encouraging remote participation, creating email reflectors for interactive questions and establishing priorities;
- The need to develop local content;
- Possible creation of regional groups for different standardization topics;
- How to reverse the brain drain whereby bright young engineers from Africa go abroad to study or work and never return;
- In addition to the Free Recommendations already made available to the public, it was indicated that free access to draft texts and all documents of meetings would help and encourage particularly developing countries (including students, universities) to increase contribution and participation in ITU-T work;
- The need for a repository of best practices;

- The need for Member States themselves to also create vehicles to facilitate effective participation in ITU's activities and to ensure consistency and continuity of participation;
- The need for transnational corporations in Africa to designate local representatives to take part in ITU's activities, to supplement the representatives from Head Office.
- How to promote ITU's work in the universities and training centres of the region.

To quote one participant: "The future is not a gift; it is an achievement". It must be emphasized that effective participation in ICT standardization work, at ITU and elsewhere, requires a long-term commitment of time and resources, but the results are certainly rewarding.

Wrap-up session: Future initiatives, next steps and conclusions

The final wrap-up session was chaired by **John Visser (Nortel Networks)**. Participants were encouraged to return feedback forms. A full chairman's report of the meeting would be prepared and posted online, in close cooperation with the session chairs. In addition, a post-event CD-ROM, with full details of all the presentations and inputs, would be delivered to all registered participants.

Mr Visser presented a [summary](#) of the 29 presentations and over 650 PowerPoint slides presented during the course of the Forum. He expressed the appreciation of ITU and all participants to Rwanda for hosting this event, which will hopefully be a model for a future series of regional forums on bridging the ICT standardization gap, in coming years. He emphasized the importance of engagement with the standardization process. He also provided a guide to resources on where to find more information, including the documents prepared by each Study Group highlighting its activities of relevance to developing countries. Mr Visser concluded with a vote of thanks to Ms Antonella Maffi, Ms Woinishet Asnake Sisay and the others in the support team for running the event so smoothly.

Mr Kelly (ITU-T) thanked the host countries, the speakers and the participants on behalf of the ITU and introduced a draft conclusions document (attached as an annex). He invited participants to comment on the conclusions document, which would also be posted on the website, so that it could be forwarded to the *Connect Africa Summit*.

Ms Mukasine (RURA) formally closed the Forum, thanking all the session chairs, speakers, sponsors (CISCO and Rwandatel as well as RURA) and participants, and expressing her gratitude to ITU for organizing the event. She argued that the focus of the Forum on ICT standardization should not mask the other problems posed, for instance, by problems of access to ICTs. Nevertheless, the themes developed in the Forum had demonstrated the huge opportunities offered by ICTs and their potential benefits to future generations. She expressed the hope that this would be a model for similar events in Africa and other regions and invited participants to come back to Kigali for the *Connect Africa Summit*.

Conclusions from ITU Regional Forum on Bridging the ICT Standardization and Development Gaps

Kigali, 2-4 October, 2007

1. At the initiative of the Directors of ITU-T and ITU-D, and generously hosted by the government of Rwanda, a Regional Forum on Bridging the ICT Standardization and Development Gaps was held in Kigali, Rwanda, 2-4 October 2007. Some 160 participants from 38 mainly African ITU Member States took part in the meeting, with several countries being represented at government Minister or company CEO level.
2. The meeting participants recognized the importance of the standardization gap which results from the continued shortage of human resources in the standardization field in developing countries. As a result, there is frequently a low-level of participation in Study Group meetings and other ITU-T and ITU-R meetings. One consequence of this is difficulties in accessing and implementing ITU Recommendations, as recognized in PP Resolution 123 (Antalya, 2006).
3. The meeting participants also recognized that the standardization gap has several different dimensions and that effective participation involves a process of “learning by doing” that can only be acquired over a period of years. The standardization gap contributes to the persistence of the wider digital divide. In this respect, a sustained commitment to raising standards awareness and to capacity-building is of particular importance and the meeting called on ITU-T and ITU-D to step up their efforts in promoting capacity-building in the field of ICT standardization. Member States themselves should also create vehicles to facilitate effective participation in ITU’s activities and to ensure consistency and continuity of participation.
4. The meeting participants welcomed the initiative taken by the Directors of the ITU-T and ITU-D to hold an annual series of Regional Forums on Bridging the Standardization Gap, with one meeting per ITU region per year. This issue will also be addressed at a special Global Standardization Symposium, to be held just ahead of WTSA-08, on 20 October 2008. They further welcomed the establishment of a special fund to support the implementation of the plan of action set out in WTSA Resolution 44 (Florianópolis, 2004).
5. The meeting participants particularly welcomed the decision taken by Council 2007 to make permanent the free-of-charge access to ITU-T Recommendations online, considering that this will greatly widen the level of access to ICT standards by engineers, students and others in developing countries, and is therefore a substantial positive step towards bridging the standardization gap. The participants also appreciated the TSB Director’s views on increasing the emphasis on implementation guidelines for ITU-T Recommendations, and his observation on the opportunities for African countries to seek leadership positions at WTSA-2008, and to use those as leverage points for increasing the number of Study Group and other meetings held within the African continent.
6. Meeting participants requested that this summary, and the full meeting report (available at: <http://www.itu.int/ITU-T/worksem/standardization/kigali/index.html>), be forwarded as an input document to the Connect Africa Summit, to be held on 29-30 October 2007, also in Kigali, Rwanda. In the light of the focus of the Connect Africa Summit, *inter alia*, on achieving connectivity goals by 2015, the participants recognized the important contribution that can be made by standardization, awareness-raising and ICT capacity building in making these goals easier to achieve.