INTERNATIONAL TELECOMMUNICATION UNION

No. 10 December 2011

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2011: A year of great achievements

Dr Hamadoun I. Touré
ITU Secretary-General

Six billion mobile cellular subscriptions worldwide and 2.3 billion people online show that we have made good progress in connecting the world. We have to continue to ensure that information and communication technologies (ICT) are safe and secure.

An important step towards digital inclusion was taken at the fourth United Nations Conference for Least Developed Countries. This conference put ICT alongside other basic needs such as water, transport and electricity, demonstrating the increasing importance of ICT — and ITU's work — in social, economic and environmental development.

The World Telecommunication and Information Society Day theme *Better Life in Rural Communities with ICT* drew attention to the 3.5 billion people who are often among the least connected to ICT. It was a great occasion to celebrate ITU's 146th birthday, alongside WSIS Forum 2011, by honouring three eminent laureates for their dedication in promoting ICT as a means of providing a better life for humanity, particularly in rural communities: Finland's President Tarja Halonen, Sam Pitroda, Adviser to the Prime Minister of India on Public Information Infrastructure and Innovations, and Kristin Peterson, Co-Founder and Chief Executive Officer of Inveneo.

The 11th ITU Global Symposium for Regulators held in September in the Colombian highland city of Armenia delivered best practice guidelines to advance the deployment of broadband and enable digital inclusion for all.

The ITU Council took many important decisions, including the convening of a World Telecommunication/Information and Communication Technology Policy Forum for 2013 and the setting up of a Council Working group on International Internet-related Public Policy Issues.

Telecom World celebrated its 40th anniversary, bringing more than 6500 participants together in Geneva, and reaching out to thousands of participants around the world, who interacted in real-time via webcasts and twitter streams.

At our fourth Broadband Commission for Digital Development meeting, held during ITU Telecom World 2011, we endorsed ambitious but achievable targets for broadband policy, affordability and uptake.

We welcomed academia, universities and their associated research establishments to participate in the work of any or all three Sectors of the Union.

The Second Session of the Conference Preparatory Meeting unanimously adopted a consolidated report to the upcoming World Radiocommunication Conference in 2012.

At the 17th Conference of the Parties (COP-17) to the United Nations Framework Convention on Climate Change, ITU together with a coalition of partners raised awareness about the role that ICT can play in helping countries to adapt to and mitigate the effects of climate change.

These are just some of the peaks of our achievement, based on the solid mountain of work that ITU carried out for its members in 2011. With so much to do, I am confident that ITU's high performance will continue in 2012.

Cover photo: AFP/PhotoAlto

ISSN 1020–4148
www.itu.int/itunews
10 issues per year

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Printed in Geneva by the ITU Printing and Dispatch Division.

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Technology Watch

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AFP

The world of video games

Trends in video games and gaming

Big business

Video gaming is a fast-moving multibillion dollar global business. "Trends in video games and gaming", a Technology Watch Report published in September 2011 by ITU's Telecommunication Standardization Sector (ITU–T), surveys some of the hottest developments and highlights the standardization activities needed to offer consumers a better gaming experience.

Over the past 30 years, video gaming has evolved from single-game units to "massively multiplayer online role-playing games" with millions of players. Today it is a huge media business, with bestsellers generating greater sales revenue in first week than blockbuster films.

Gartner research estimates that the global video game industry — software, hardware and online gaming — will grow from USD 74 billion in 2011 to USD 112 billion in 2015, dwarfing cinema's total revenue of USD 31.8 billion in 2010. Gartner predicts that online gaming spending will overtake hardware spending by 2015.

* *This article is adapted from* "Trends in video games and gaming", *a Technology Watch Report written by Martin Adolph of ITU's Telecommunication Standardization Bureau (TSB). Technology Watch Reports assess new technologies with regard to existing ITU–T and other standards, and the likely implications for future standardization. Technology Watch is managed by the Policy and Technology Watch Division of TSB. This report and other Technology Watch Reports are available at http://itu.int/techwatch*

From being the domain of boys and young men, the audience for gaming has expanded to include girls, young women, parents and the elderly. As the number of players expands, it will become increasingly important to analyse the effects of video gaming, not only on economic development, but also on society itself.

The need for standards

The traditional video gaming industry has not yet embraced standardization, preferring to restrict players to a specific platform and to sell expensive games. Mobile gaming and social network games are now disrupting this traditional market, but they seem to be establishing similar walled gardens, binding users to particular mobile operating systems or social networks.

This lack of interoperability is not in the best interest of users. As electricity bills rise and homes become cluttered with set-top boxes, satellite receivers and gaming consoles, consumers are hoping for a one-box-fits-all solution. This would integrate audio and video streaming, gaming and other entertainment features, natural user interfaces and secure payment mechanisms.

To reflect market realities, all gaming-related policy and standardization work must include mobile and social network gaming. Some companies are moving into cloud computing and three-dimensional (3D) viewing. These two areas are already being studied by ITU–T, which is also working to integrate closely related audiovisual technologies. For example, ITU–T Study Group 16 is already taking such steps in the Internet protocol television (IPTV) field, advancing the technology from a television delivery platform to a multipurpose multimedia solution. To incorporate a variety of audiovisual technologies into a single 3D television, ITU will bring together service and content providers, including developers of games, to attempt to standardize communication protocols, toolboxes, middleware and security frameworks.

Terminals and platforms

Video games have come a long way, with terminals often reflecting the state-of-the art in consumer electronics of the era. From single-game units (pong machines) in arcade halls in the 1970s and 1980s, gaming spread to console or computer games transported on ROM cartridges, tape cassettes, discs, CD-ROMs and DVDs, and to gaming on the smartphone.

Mobile broadband and the growing penetration of smartphones have boosted the gaming ecosystem. Independent developers and small start-up companies can compete in the market and deliver their games to huge audiences. The latest step is the rise of social network games on platforms with hundreds of millions of users. All this has changed the audience and business models of the gaming industry, as well as the way games look.

Consoles

Microsoft, Nintendo, Sega and Sony gaming consoles — some of them handheld — have captivated children and intrigued their parents. Over the years, these products have added networking and graphic capabilities to enhance the gaming experience.

Each brand has created its own gaming ecosystem to retain customers. These walled gardens of hardware, games, accessories and online gaming communities tend to make it impossible for consumers to use third-party equipment or just to export scores or achievements from one console to the other.

Personal computers

Computer games have contributed to the success of home and personal computers since the early days. Atari and Commodore, for example, were first successful in the arcade and game console segments, and subsequently introduced 8-bit home computers for gaming, programming and other applications.

Mobile phones and tablets

In little over a decade, mobile gaming has come to dominate gaming culture. Starting with simple, single-player games embedded in basic handsets, mobile gaming progressed to games on feature phones. Today, in the mobile applications (apps) era, mobile gaming has reached full bloom on smartphones.

The latest smartphones have almost the same processing power and graphic capabilities as dedicated handheld gaming consoles. The communication features, especially mobile broadband, enable gamers to network and interact, to play on websites, and to purchase gaming apps and virtual in-game goods.

The latest financial results from Nintendo and Apple reveal the shift from dedicated handheld gaming consoles to gaming-capable MP3 players (such as iPod Touch), mobile phones (such as iPhone) and tablets (such as iPad).

In the United Kingdom, communications regulator Ofcom reports that almost half of all teenagers own smartphones, half of all households have game consoles, and games are the most popular paid apps. In the United States, games are the most popular category of mobile phone apps, and the average mobile gamer plays 7.8 hours a month. A survey of tablet owners found that gaming was the most popular use for these devices, ahead of web-browsing, e-mailing or reading.

The rise of app stores has made it easier for developers to list their products, and for users to find and purchase them. But the lack of interoperability between application platforms (Apple iOS, Android, RIM BlackBerry OS, Symbian and others) means that developers have to rework their games using the appropriate application programming interfaces and software development kits.

This is what Rovio Mobile, a computer game developer based in Finland, had to do for Angry Birds, a puzzle game it developed in 2010. Released through the Apple App Store, Angry Birds quickly became a best-seller, and the company then ported the game to other platforms. A total of 350 million downloads had been reported at the time the "Trends in video games and gaming" Technology Watch Report was being written.

Social network games

In social network gaming, Zynga is Rovio's equivalent in terms of overnight success. Zynga's portfolio includes FarmVille and CityVille. These browser games are played on social networking websites, attracting 60 million daily active users and 2 billion minutes of play per day. As this article was being written, Zynga was looking to list shares on the Nasdaq stock exchange in an initial public offering that would value the company at around USD 9 billion.

While similar in appearance to casual games, social games use social connections and customer data (supplied by Facebook or other social network sites) as part of the game. Social games appeal to players who want to compete with their friends or chat or flirt while playing. Entry costs for social game developers are low, and viral distribution over social network sites can quickly reach hundreds of millions of users.

The world of video games

Students playing "Counter-Strike" at a LAN party in Valencia, Spain. According to Wikipedia, a LAN party is a temporary, sometimes spontaneous, gathering of people with computers, between which they establish a local area network (LAN), primarily for the purpose of playing multiplayer computer games.

Educational video games

The purpose of educational video games for children or adults is to teach users about a chosen subject, expand existing knowledge or assist in acquiring a certain skill. Educational games are developed by educationalists and psychologists, as well as game developers.

DreamBox Learning, an educational start-up, sells licences for its web-based Adobe Flash maths application to schools and parents. The game adjusts to the skill level of the child, automatically adapting its sequencing, speed, level of difficulty, and the number and type of hints given.

The Nobel Prize Foundation has set up a website with educational games for young and old, covering topics such as the immune system, lasers and DNA.

Gamification

The concept of "gamification" involves employing gameplay elements to non-game environments such as customer retention, marketing, innovation, training, health, and social change. For example, Zynga's website informs users about the company's privacy policy via a game.

One often-cited example of gamification is Foursquare, a location-based social network that allows users to "check-in" at businesses (including restaurants and shops). Each check-in awards the user points and trophies ("badges"). Business owners can register their venues and offer rewards to loyal visitors.

Another example is the multi-sensor watch developed by Basis, a San Francisco-based company, which monitors fitness level by measuring heart rate, body temperature and movement. Gamifying the process by rewarding the user for a certain caloric burn can help motivate the user to stay in shape.

Gaming technology standards

Most casual games for mobile platforms and the web are built on Adobe Flash or other proprietary formats. A new competitor is the HTML5 open standard format drafted by the World Wide Web Consortium and the Web Hypertext Application Technology Working Group. The HTML5 standard adds multimedia and

graphic features to the hypertext markup language on which the web is built. An attractive feature of HTML5 is that it runs on any device with a modern web browser.

ITU–T's Primetime Emmy Engineering Award-winning encoding standard H.264 is used to compress clips on YouTube, as well as the high-definition content on Blu-ray Discs and high-definition television. Although H.264 is the most common format, it faces competition from WebM, a format sponsored and promoted by Google.

Cloud gaming

Cloud computing and the "anything as a service" (XaaS) paradigm both have considerable influence on gaming. Games played on the web — especially via social networks — require huge computing power. This is often achieved through a mix of data centres and cloud computing. For example, Zynga adds around a thousand servers per week to deliver a petabyte (a million gigabytes) of data.

Games-on-demand service providers such as Gaikai, OnLive or Otoy aim to shift the computing power required to play games out of homes and into their data centres. Instead of buying gaming consoles or game discs, consumers can subscribe to an always available service. Games are streamed — like a YouTube video clip — to a computer, a mobile device, or a proprietary low-cost gaming box that can be connected to the television. Some consumer electronic manufacturers have even started integrating the software into their television sets and DVD players.

Latency

Today's networks are not engineered to enable simultaneous cloud gaming for all. Bandwidth requirements, latency and response (distance to consumer) are all crucial in enabling cloud gaming to deliver a quality of experience equal to that of traditional gaming consoles.

To survive the market disruption threatened by cloud gaming services, GameStop — a video game retailer with more than six thousand stores worldwide — has acquired an online gaming service and a digital game distribution business.

Security

On 19 April 2011, Sony Computer Entertainment shut down its systems and servers after detecting unauthorized activity in the PlayStation Network and in Sony's online gaming services. The personal data of 100 million customers were exposed, including credit card information of 12 million gamers. During the outage, which lasted almost a month, gamers were unable to download new content or compete online. Sony estimates that it lost USD 171 million in revenue. In the following two months, Nintendo and Sega had to admit to and apologize for similar security breaches.

Security is a major area of concern in standardization efforts related to cloud computing. These efforts are spread across a growing number of organizations, forums and consortia, including the ITU–T Focus Group on Cloud Computing.

Microsoft

Woman playing tennis using Microsoft's Kinect natural user interface

Motion-sensing and natural user interfaces

Nintendo's Wii console, launched in 2006, put motion-sensing capabilities into gaming consoles. The Guinness World Records lists Microsoft's Kinect, a natural user interface for controller-free gaming, as the fastest selling consumer electronics device, with 8 million units sold in the 60 days after its launch.

The future with 3D

Spurred by the success of three-dimensional films (such as "Avatar" in 2009) and television (such as the FIFA World Cup in 2010), game developers are enhancing their best-sellers to offer a three-dimensional experience to users.

The wearing of special spectacles, required by stereoscopy, is a barrier to the acceptance of 3D displays for everyday use. But no additional eyewear is required with autostereoscopic display technologies. Mobile devices including portable game consoles, smartphones and tablets are already moving to 3D. Nintendo's 3DS console was launched in early 2011 and features a 3.5-inch autostereoscopic display.

Standardization efforts for 3D involve ITU, as well as the Society of Motion Picture and Television Engineers, the CEA, DVB Project, HDMI Founders and others. For instance, an extension of ITU–T H.264 (multiview video coding) was selected by the Blu-ray disc association for the distribution of 3D content, and 3D support will be included in the successor to H.264. Also, ITU–T Study Group 9 is working on 3D video quality assessment, and ITU–T Study Group 16 has drafted a technical paper on applications for 3D IPTV. Meanwhile, the ITU Radiocommunication Sector (ITU–R) is addressing digital broadcasting of 3D TV in Question 128/6 and has published a report on the features.

Digital signage

The right information in all the right places

You no longer have to visit New York's Times Square, the London Stock Exchange or Tokyo's Shinjuku to marvel at a rapidly changing digital display. Wherever people wait, shop or transit, there is likely to be one. Often these displays are part of an extensive centrally-managed network. This emerging medium for sending out targeted information, entertainment, merchandising and advertising is described as digital signage.

"Digital signage: the right information in all the right places" — the latest Technology Watch Report published in November 2011 by ITU's Telecommunication Standardization Sector (ITU–T) — gives an overview of digital signage technologies and their major applications, making the case for interoperable standards for digital signage products.

The number of service providers and manufacturers of digital signage components is increasing, but the associated standards ecosystem looks flimsy. Advertising industry associations, technical suppliers, national interest groups and a number of standards-development bodies such as ITU–T are calling for interoperability to facilitate the roll-out of large-scale digital signage networks, foster innovative applications and avoid vendor lock-in. ITU–T Study Group 16 has taken an important first step by starting work on a "Framework for Digital Signage Services".

Multi-technology services

Digital signage uses many different technologies — displays, network infrastructure for content delivery, communication protocols, and software and hardware for management and playback of content. These are proprietary systems that rely on different standards.

Propelled by advances in the fields of display technologies (such as touch-screen), radio-frequency identification (RFID) and near-field communication, the personalization of content and user interaction are becoming increasingly relevant.

Other trends include customized application programming interfaces, and software-as-a-service models that allow digital signage network operators to set up their networks, and control and monitor campaigns, via a remote location or the web. Many digital signage service providers are following the cloud-based trend and offering digital signage software as a metered and managed service, payable per hour of use or by number of operations. The service is reliable and cost efficient, and can be deployed rapidly on digital signage networks of any size.

Digital signage market

Allied Business Intelligence (ABI Research) forecasts that spending on digital signage systems, including displays, media players, software, and installation and maintenance costs, will grow from around USD 1.3 billion in 2010 to almost USD 4.5 billion by 2016. Global Industry Analysts, another market research firm, expects global spending of USD 13.8 billion by 2017.

While the United States represents the largest regional market, a retail boom in some developing economies in Asia, Latin America and the Middle East is seen as boosting the uptake of digital signage.

Content

Crafting and conveying an appealing and appropriate message that engages the consumer is a skill involving aspects of market research, psychology, aesthetics and business. In many digital signage applications, content has to be updated regularly and adapted to the market environment.

While audio messages are an option, the predominant mode is visual. Providing audio requires more bandwidth, more processing power and higher-quality end terminals. This can overload the communications infrastructure and limits responsiveness in content delivery.

Corporate, education, hospitality, healthcare and banking uses

Modern office buildings, such as the one housing the ITU Telecommunication Standardization Bureau in Geneva, Switzerland, use digital signage to display information to visitors and staff. Point-of-wait networks target consumers who are waiting to receive a product or service. Information may include the time and place of upcoming meetings, a news feed, financial and weather updates, or simply content designed to create a pleasant ambience. Hospitals, medical practices, banks, museums, universities, sports stadiums, hotels and restaurants are just some of the locations in which point-of-wait installations are often to be found.

In ITU's museum, called ICT Discovery, visitors are equipped with a mobile tablet serving as an audiovisual guide. The tablet also enables visitors to interact with the exhibition. When the visitor holds the tablet near the RFID reader for a given display, additional background information appears on the screen.

Advertisements for retail products

Point-of-sale networks comprise digital signage that consumers encounter close to a product or service offered for sale. Big retail chains are using digital signage to cross-promote products, personalize and improve the customer experience, and inform customers about the availability of products and services. Digital kiosks and screens are placed where the shopper is sure to see them.

Traveller information and advertising on the go

Digital signage is used for all modes of public transport — train stations, airports, buses and taxis — to meet the needs of on-the-go viewers by providing real-time, location-specific and context-aware information and advertising. Point-of-transit installations must meet stringent safety requirements and standards, be able to cope with a wide temperature range (for example, from -25°C to +75°C) and be resistant to vibration. Point-of-transit signage is often implemented in close collaboration with transport operators and public authorities.

Emergency communication

Digital signage systems that carry retail advertising in shopping malls or traveller information in underground trains can also be used for emergency alerts and communication. Intruder messages, national warnings and earthquake or hurricane evacuation instructions can be sent instantly to all displays within a large-scale digital signage network.

Display technologies

Over the past decade, cumbersome cathode ray tubes have given way to ultra-flat light-emitting diode (LED), liquid crystal display (LCD) and plasma panels. Displays based on organic LEDs (OLEDs) are becoming increasingly dominant for devices with small- to medium-sized screens (smartphones, portable digital media players and laptops), and will make their way to larger panels once manufacturing becomes profitable. Also, if three-dimensional (3D) displays succeed in the consumer electronics market, it is reasonable to assume that "glasses-free 3D" screen technology will soon be seen in digital signage.

Displays incorporate an increasing amount of functionality, in many cases on a par with a set-top box. This makes it easier to implement digital signage terminals, especially if they build upon already defined technologies, such as Internet protocol television (IPTV) services (ITU–T H.721).

Digital signage

AFP/Bilderberg

Interactivity

One way of increasing interactivity is via consumer mobile devices. All handsets feature at least some basic interfaces, including SMS, and short-range radiocommunication technologies such as Bluetooth and near-field communication. If the point-of-wait or sale or transit is equipped with the same interface, an SMS or the proximity of a consumer with a handset can trigger an event on the display or handset — for example starting a video clip or issuing a coupon.

Incorporating biometric recognition in digital signage is a hot topic. This would involve tracking heat paths to show a consumer's movement around a retail environment, or gaze tracking to identify the area of a sign that the consumer spends most time looking at.

Microsoft Surface gives a hint as to what digital signage might be like in the future. Five infrared cameras embedded in the housing of a flat panel display are capable of recognizing and locating the fingertips of users touching and interacting with the display.

NTT Japan has even launched digital signs equipped with aroma-emitting devices. Branded as Kaoru Signage (aroma signage), the product combines digital signage and NTT's Kaori Tsushin (fragrance communication) online service, which instructs specified web-connected devices to emit mood-heightening aromas. A broadband connection enables video, sound and fragrance settings to be transmitted to multiple locations.

Standards

Digital signage standards need to cover screen formats, advertising units, network requirements, and areas such as security and privacy.

Open interfaces that mediate and manage media objects and resources, such as ECMAscript (JavaScript), ITU–T H.761 LIME and ITU–T H.762 Ginga/NCL, simplify the reuse of content, and the replication of playing experience and interactivity across a wide variety of terminals. Thus, standards-based systems can increase the return on investment in digital signage.

By collaborating with the digital signage industry and its interest groups, ITU–T Study Group 16 intends to move ahead in standardization without duplicating the efforts of others. There will be a particular focus on identifying links to related technologies (such as IPTV

and cloud computing) and on leveraging the full potential of the medium.

ITU–T Study Group 16 is moving fast in its efforts to draft a "Framework for Digital Signage Services" (ITU–T Draft Recommendation H.FDSS) addressing the high-level requirements, architecture and mechanisms for dealing with digital signage content, networks, middleware, metadata and terminal devices. Many of the functionalities and building blocks defined in the IPTV suite of ITU–T Recommendations can be used to implement digital signage functionality — for example, the ITU–T H.721 set-top box terminal device specification, ITU–T H.761 LIME, ITU–T H.762 Ginga/NCL, and an audience measurement text that is in the final stages of preparation.

POPAI, an international trade association for the marketing at retail industry, has created a digital signage group to promote the adoption of digital signage technologies and applications. The group's activities include the definition of standards. For example, the POPAI Digital Signage Playlog specification provides a standardized format that makes the sharing of information easier among digital signage service providers. Also, the POPAI Screen-Media Formats establishes a baseline set of standard formats for media intended for use in digital signage applications. The list, which covers audio, video, still image and vector graphics, as well as container formats, includes MPEG-1, MPEG-2, MPEG-4, ITU–T H.264, JPEG (ITU–T T.81/ISO/IEC 10918) and Flash.

HTML5, the emerging language for structuring and presenting web content, references IETF's RFC 4281, and can therefore be considered as more universal than the POPAI Screen-Media Formats.

Microprocessor giant Intel has created an open pluggable specification to address digital signage market fragmentation. The objective is to simplify device installation, usage, maintenance and upgrades, and to implement scalable digital signage applications that interoperate with other equipment. The Digital Signage Consortium, a Japanese industry consortium with some 130 members, established in 2007, has published three guidelines and guidebooks addressing the design and performance of digital signage systems. Finally, the Digital Signage Federation, a global industry association, has published a set of privacy and transparency guidelines.

* *This article is adapted from "Digital signage: the right information in all the right places", the latest Technology Watch Report, written by Franck Dupin CEO and founder of Innes and Martin Adolph of ITU's Telecommunication Standardization Bureau (TSB). Innes, based in Rennes, France, is a provider of digital signage, Web TV and IPTV technologies and services. Technology Watch Reports assess new technologies with regard to existing ITU–T and other standards, and the likely implications for future standardization. Technology Watch is managed by the Policy and Technology Watch Division of TSB. This report and other Technology Watch Reports are available at http://itu.int/techwatch*

Telecom World 2011

A new paradigm for top-level networking and knowledge-sharing

ITU TELECOM WORLD '11

Geneva, 24-27 October 2011

This year Telecom World celebrated its 40th anniversary, bringing together in Geneva more than 6500 participants including Heads of State and Government, ministers, city mayors, industry CEOs and technology gurus, along with thousands of participants from around the world interacting in real-time via webcasts and twitter streams.

A vibrant opening ceremony on 25 October 2011 sponsored by China Mobile featured: Gabon's President Ali Bongo Ondimba; Fiji's Prime Minister Commodore Josaia Voreqe Bainimarama; the Russian Federation's Minister of Telecom and Mass Communications Igor Shchegolev; Switzerland's Head of the Federal Department of Environment, Transport, Energy and Communications Doris Leuthard; Chairman of Qatar Telecom

ITU

ITU Secretary-General Dr Hamadoun I. Touré welcoming guests at the 40th anniversary celebration of Telecom World in the OpenSpace arena

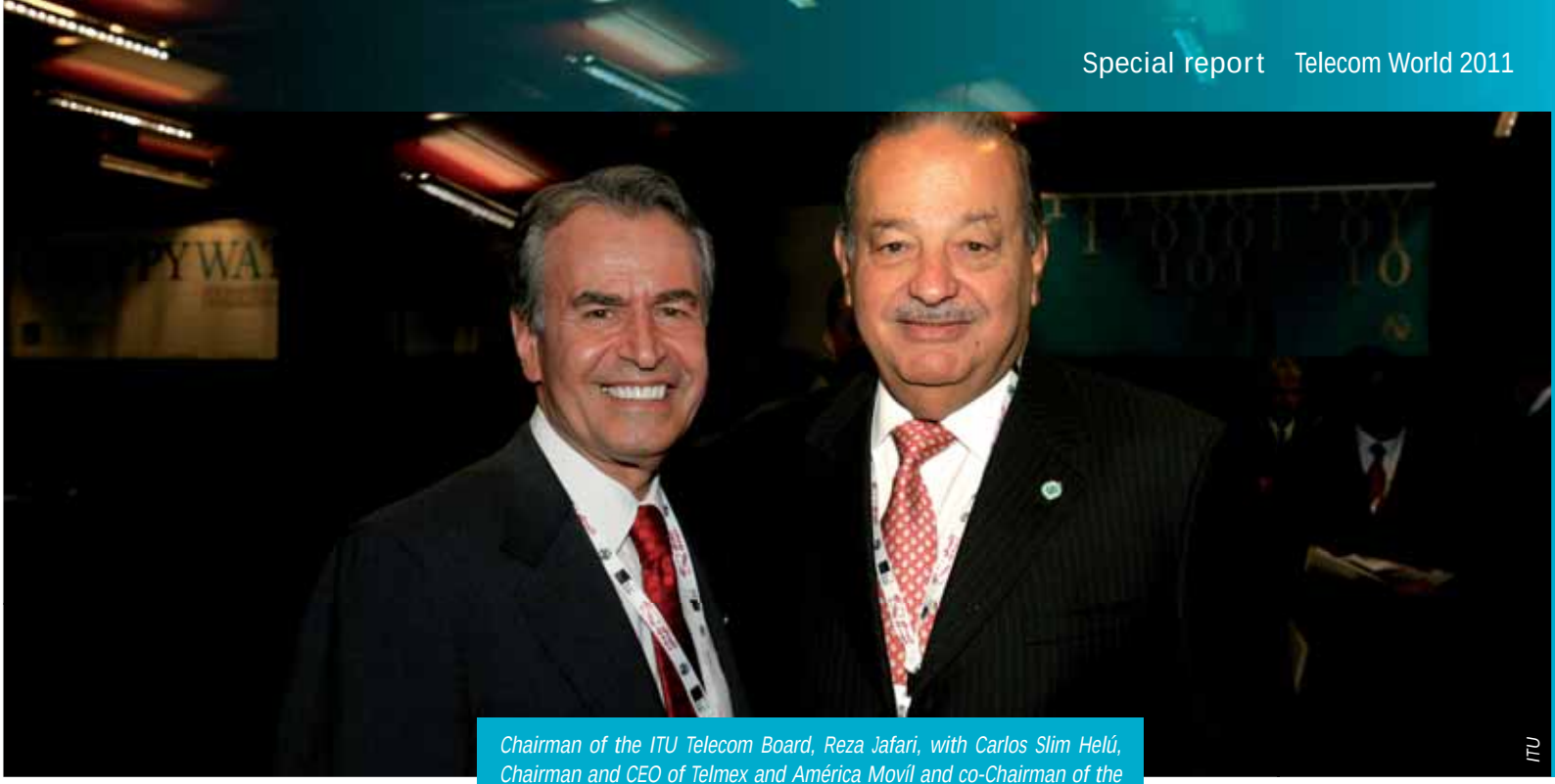
Sheikh Abdullah Bin Mohammed Bin Saud Al Thani; Chairman of China Mobile Wang Jianzhou; and ITU Secretary-General Dr Hamadoun I.Touré.

"As we accelerate towards a ubiquitous high-speed future, international dialogue is essential to ensuring that we take the right decisions, learn from one another's experiences and avoid having to reinvent the wheel," said Dr Touré. "ITU Telecom World plays an increasingly central role in forging best practices that the public and private sectors can draw on when defining and deploying the networks that will offer best quality affordable service to all users."

The official ceremony was followed by an informal celebration in the OpenSpace arena, where participants heard from other dignitaries including Geneva's State Councillor in charge of the Department of Construction and Information Technology Mark Muller, the Executive Director of the United Nations Population Fund (UNFPA) Babatunde Osotimehin, the Chairman of the Board of the Telecommunications Regulatory Authority of the United Arab Emirates Mohammad Al Qamzi, and the Chairman of the ITU Telecom Board Reza Jafari, who took the occasion to announce Dubai as the winner of the global bid to host ITU Telecom World 2012.

Intel Vice-President and General Manager of the Intel World Ahead Program John Davies announced an initiative by Intel and selected partners — Reaching the Third Billion Technology Users. Reaching the third billion means putting Internet access within affordable reach of another one billion people. In order to achieve this aim, the Intel World Ahead Program is aiming to both bring down the cost of a connecting device and also lower the financial barrier of connection itself.

ITU unveiled a new mini-report, *The World in 2011,* which reveals impressive growth in areas such as global Internet use, particularly in developing countries. The publication confirms that uptake in information and communication technologies (ICT) continues apace, with close to six billion mobile cellular subscriptions forecast by the end of 2011, and around 2.3 billion people using the Internet. The developing world's share of the world's total Internet users has grown from 44 per cent five years ago, to 62 per cent today. Global Internet penetration has grown by more than 50 per cent in three years — from 13 per cent in 2008 to 20 per cent in 2011. This special report provides some of the Telecom World 2011 event's highlights.



ITU

Chairman of the ITU Telecom Board, Reza Jafari, with Carlos Slim Helú, Chairman and CEO of Telmex and América Movíl and co-Chairman of the Broadband Commission for Digital Development

Broadband Commission sets new targets for countries worldwide

At its fourth meeting, held during Telecom World 2011 on 24–25 October, the Broadband Commission for Digital Development set four important targets to be reached by 2015. These are:

1. Making broadband policy universal. By 2015, all countries should have a national broadband plan or strategy or include broadband in their universal access/service definitions.
2. Making broadband affordable. By 2015, entry-level broadband services should be made affordable in developing countries through adequate regulation and market forces (for example, such services should cost less than 5 per cent of average monthly income).
3. Connecting homes to broadband. By 2015, 40 per cent of households in developing countries should have Internet access.
4. Getting people online. By 2015, Internet user penetration should reach 60 per cent worldwide, 50 per cent in developing countries and 15 per cent in least developed countries.

ITU agreed to undertake responsibility for measuring each country's progress towards these targets, and to produce an annual broadband report with rankings of nations worldwide in terms of broadband policy, affordability and uptake. "These targets are ambitious but achievable, given the political will and commitment on the part of governments, working in partnership with the private sector," said ITU Secretary-General Dr Hamadoun I. Touré, who is co-Vice Chair of the Broadband Commission for Digital Development alongside UNESCO Director-General Irina Bokova. The Commission is co-chaired by President Paul Kagame of Rwanda and Carlos Slim Helú, Chairman and CEO of Telmex and América Movíl.

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Broadband Leadership Summit

Broadband for the global good

The Broadband Leadership Summit at ITU Telecom World 2011 took place on 24–25 October. The Summit, which was co-hosted by ITU Telecom and the Broadband Commission for Digital Development, brought together more than 330 senior policy-makers, Heads of State, industry leaders, academics and thought leaders. The Summit focused on the role of broadband as critical modern infrastructure driving economic growth, trade and productivity.

Rwanda's Prime Minister Pierre Damien Habumuremyi said that new broadband-enabled services and applications offer a wealth of new opportunities, especially for developing countries.

Australia's Minister for Broadband, Communications and the Digital Economy Senator Stephen Conroy agreed, stressing that "Broadband is the critical infrastructure of the 21st century and is of fundamental importance to development." Senator Conroy cited Australia's experience in building a national broadband network (NBN) as a significant investment in its broadband future to ensure that 100 per cent of Australians have universal access to speeds of at least 12 Megabits per second.

The Russian Federation's Minister of Telecom and Mass Communications Igor Shchegolev explained how his country was aiming to get broadband to rural areas via a satellite network that would deliver Internet at rates that are comparable with urban areas. "The Russian Federation is one of the biggest territories in the world with low population density and we need to give opportunities to Russian businesses everywhere," said Mr Shchegolev.

India's Minister for Communications and Information Technology Kapil Sibal agreed that government support was critical. The success of a recent project to give tablet computers to

100 000 schoolchildren in India was possible only because of public investment. Minister Sibal said that we need the collaboration of public and private sectors to bring wireless services and affordable, accessible systems to remote and rural areas. "Unless we lower the cost, we will not bridge the divide," Mr Sibal added. "In India we have a tablet available now for just USD 35 and we have an opportunity to put that into the hands of children everywhere." The "Aakash", as the tablet is known, is manufactured in Hyderabad and runs on an Android 2.2 operating system.

Participants also emphasized that education is vital to bridging the digital divide. There is a need in emerging markets to enable skilled people to work with the Internet, both in universities and in rural areas, not simply using it for e-mail, but also to encourage innovation by exploiting the resources of human intelligence throughout the world. "Grey matter is not the preserve of any community or nation and children all around the world need to be given the opportunity to develop," said Gabon's Minister for Communication, the Post and the Digital Economy Paul Ndong Nguema. He described Gabon's three-year plan for a national cyberstrategy, *Digital Gabon,* which aims to expand broadband services on the basis of high-bandwidth infrastructure (to boost e-learning, telemedicine and videoconferencing), in combination with tax-exempt special economic zones to attract investment.

Senegal's Minister of State Alassane Dialy Ndiaye noted that broadband is not only empowering people individually, it is also transforming traditional social and economic activities through concepts such as e-learning and telemedicine.

For the Director General of the World Intellectual Property Organization (WIPO) Francis Gurry, broadband is the key to redressing the balance for developing countries which have traditionally been content-rich but distribution-poor. "But in order to realize the worldwide market for digital content to the full, the legal and administrative models currently in place must be adjusted to fit the new global digital marketplace," warned Mr Gurry.

Growth will put heavy demand on infrastructure

The challenges posed by the growth of broadband were also debated. Operators everywhere are under tremendous pressure to build out reliable, fast and affordable networks, according to Ericsson's Chief Executive Officer Hans Vestberg, who told delegates that we must rethink communications now that we have become a truly networked society. "It took 100 years to reach one billion fixed connections and just 20 years to hit five billion

mobile connections," said Mr Vestberg. "Three times as many people will have access to the Internet over the next five years and by 2020 there will be 50 billion connected devices."

In less than ten years, connected devices could outnumber connected people by ten to one. Emerging new, networked technologies will be about distributing intelligence throughout the network and embedding it in the connected device, making it a two-way interactive communications device, rather than a one-way receptor. Cisco's Executive Vice-President and Chief Globalization Officer Wim Elfrink said that to foster such innovation requires an enabling environment on the part of regulators. "You need to think outside the box when talking about smart societies. Regulators need to think about unleashing that creativity rather than being Big Brother."

As well as the need for innovation, the session on *Financing the Industry in Challenging Times* emphasized that we cannot ignore the need for investment. The Global Alliance for Improved Nutrition's Jay Naidoo said that the Broadband Leadership Summit had brought out the potential of ICT to foster development, but where was the money going to come from to drive that potential?

Tonga's Prime Minister Lord Tu'ivakano agreed that the challenge of securing finance was acute, especially in small developing countries like his own. "We should not shy away from investing in ICT but there is a belief that ICT should be self-funding," said Lord Tu'ivakano. "In countries such as my own, the governments simply do not have the resources to support major projects."

While Tonga was looking to the World Bank for a USD 37 million loan to finance a submarine cable connection, Nigeria's Minister for Communication Technology Omobola Johnson said the anticipated investment required to achieve Nigeria's goals was in the region of USD 20 billion. Ms Johnson cited Nigeria's experience in attracting investment in ICT thanks to its strong policies, liberalized market and sound economic regulation. A good, consistent policy framework is a vital prerequisite for the development of any country's ICT sector, and regulators must act to ensure that policy is implemented, she stressed.

While the Deputy Chairman of Hutchison Whampoa (Europe), Christian Salbaing, noted that the cost of providing infrastructure is going down — 3G was cheaper than 2G, and 4G would cut costs even further — Colombia's Minister of Information Technologies and Communications, Diego Molano Vega, said that providing access to affordable broadband services still remains a major challenge for people at the bottom of the purchasing pyramid.

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Session on Social Media for Social Change

Chairman of Grupo Carso Carlos Slim Helú noted that mobile penetration is reaching 100 per cent in the Americas, while the number of fixed lines is decreasing, so the younger generation is most likely to use their mobile to access broadband services.

Financing was also on the agenda at the session *Megabits and MDGs.* According to Burundi's President Pierre Nkurunziza, public-private partnerships should play an important role in the funding of broadband infrastructure. The President said that his government is working in partnership with the World Bank to build a backbone system in Burundi in order to provide all the country's inhabitants with high-speed broadband access.

Social media as an agent for change

Social networks are not only a means of communication for the exchange of thoughts and ideas, but they have also become an engine of revolution, progress and transformation, according to panellists at the Broadband Leadership Summit session *Social Media for Social Change.* UNESCO's Janis Karklins suggested that the same principles of freedom of expression which apply to traditional media should apply to social media. ictQatar's Secretary-General Hessa Al Jaber said that Internet rights should encompass a much wider vision with the broad objective not only of upholding basic human rights, but also preserving a healthy environment for the Internet and its users, one where the Internet can grow and fulfil its full potential, and that ultimately, no one can control what people write on the Internet.

Malaysia's Minister of Information, Communications and Culture Dato' Seri Utama Rais Yatim noted that the events of the Arab spring had demonstrated a clear role for social media as a harbinger of social change. ITU Special Envoy to the Broadband Commission and Finland's former Minister of Communications Suvi Lindén observed that social media are changing the process of decision-making through greater transparency.

UNAIDS Executive Director Michel Sidibé drew attention to UNAIDS' new *Crowdsourcing* initiative — a new social networking service seeking to engage 100 000 young people as actors of change to help implement a broad strategy to fight AIDS. He stressed that democratizing the issue and involving youth through social networks would go some way towards meeting the Millennium Development Goals — particularly Goal No. 6 on HIV.

The changing role of government was highlighted at the Summit session on *Our Global Online Village.* Tanzania's Vice-President Mohamed Gharib Bilal suggested that governments have a responsibility to create demand and promote innovative

services for broadband infrastructure. Indonesia's Minister of Communication and Information Technology Tifatul Sembiring agreed, noting that the Government of Indonesia has taken an innovative approach in promoting broadband by creating lead users at the national public administration and enabling public services over broadband. Azerbaijan's Minister of Communications and Information Technologies Ali Abbasov proposed that governments should have a special responsibility to track certain types of information (such as child pornography). The United States Coordinator for International Communications and Information Policy, Ambassador Philip Verveer, called for governments to make the case for broadband by bridging the access gap and by engaging in public-private initiatives.

Broadband Challenge recognizes communication as "a human need and a right"

The Summit closed with the Broadband Commission endorsing a Broadband Challenge that recognizes communication as "a human need and a right", and that calls on governments and private industry to work together to develop the innovative policy frameworks, business models and financing arrangements needed to facilitate growth in access to broadband worldwide. It urges governments to avoid limiting market entry and taxing ICT services unnecessarily to enable broadband markets to realize their full growth potential, and encourages governments to promote coordinated international standards for interoperability and to address the availability of adequate radio-frequency spectrum.

Forum highlights

High-level dialogue ends in Manifesto for Change

Engage, Collaborate, Connect!

The first forum session of Telecom World, the *Pathway to a Connected World,* set the tone for the new style of the event — with multimedia, and interactive panels connected live to a global audience. Joining the delegates and audience in Geneva were thousands of children and young people connecting through metacentres around the world, plus those watching the live stream or asking real-time questions through an active Twitter feed.

Questions on the roll-out of infrastructure in rural areas focused on bringing costs down as low as possible for end users. The Chairman of China Mobile Wang Jianzhou outlined how costs can be reduced through high volume and large-scale deployments, and pledged to work hard to lower costs as a part of China Mobile's social responsibility.

As handheld devices grow ever more sophisticated and demand for content-rich services such as mobile video increases, mobile data traffic is likely to continue growing at an explosive rate. The Time-Division Long-Term Evolution (TD-LTE) spectrum workshop looked at the potential of TD-LTE technology to move to the next stage of wireless communication.

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China is now in the process of TD-LTE testing. China Mobile's trial of TD-LTE has gone "smoothly" so far, according to Chairman Wang, and the company is now preparing to scale up roll-out. International collaboration and cooperation will be essential for global TD-LTE. Underlining the need for cooperation, Mr Wang explained how his dream was for "one device that could be used around the world," and how he believed that this would come true in a 4G era.

Chief technical officers outline the need for standardization

A meeting of 21 chief technical officers from leading companies in the ICT industry urged ITU to accelerate technical standardization work in the field of e-health. They stressed that reliable, interoperable standards are key to providing patients and health professionals with the means to use remote consultation services, advanced ICT-based diagnostic procedures and electronic health information services. ITU Secretary-General Dr Hamadoun I. Touré agreed: "E-health will bring cutting-edge medical advice to people living in remote, underserved areas, and will revolutionize access to health services in the developing world. ITU is working actively with all parties to create the frameworks for these technologies to be rolled out on a solid bedrock of broadband deployment."

Regarding climate change adaption, and following recent events in Japan, the meeting identified two crucial areas for further work in disaster relief: a system allowing individuals to notify a victim's friends, family or employer; and a guidance mechanism to help victims reach safety.

Digital cities

Nearly 1000 of the 10 000 ITU Telecom World 2011 students joined at some point on day two to challenge, provoke and ask questions of the expert panels in Palexpo, Geneva. Opening a day of debate on how connected technologies can shape the future of urban living for the good of city-dwellers the world over, the *Digital Cities Conference* began by examining what is meant by a smart city, and how public, private and civil society sectors need to work together to foster its development.

Turning the digital dreams of today into reality, not just in the developed world but also in the developing world, is clearly dependent on one critical element, ubiquitous broadband access. "I believe we will succeed in making cities better to live in because we have the power of ICT on our side," said ITU Deputy Secretary-General Houlin Zhao.

A new role for social media

A session entitled *The Perfect Storm* looked at how recent events — such as political uprisings in Egypt and the Middle East, and natural disasters such as the earthquake and tsunami that hit Japan in March 2011 — prove that social media channels can be a genuine and powerful force for good. Egypt's Minister of Communications and Information Technology Mohamed Abdel Kader Mohamed Salem described how people turned to social media sites such as Facebook and Twitter during the uprising. "The regime did not understand social media until it was too late," said Dr Salem. "The regime tried to cut the communication means on the Internet and this was the straw that broke the camel's back." According to Dr Salem, the number of Facebook users in Egypt has increased from 6 million to 10 million in six months, and all of the government ministers are now using Facebook.

In Japan, events were somewhat different. In March the world witnessed a chain reaction from the earthquake, tsunami, nuclear meltdowns and power outages that brought chaos to the economic powerhouse. About 400 base stations or nodes were sucked away by the tsunami, meaning there was a time when even social media could not work. "Social media played a key

role sharing updates quickly and enabled collaboration," said Satoshi Miura, Chief Executive Officer of Japanese carrier NTT. "But we also saw information being distorted. There was good and bad, and we were also confronted by limitations of social media. It was hard to find information due to the fact that there was too much information."

Making mobile broadband affordable

Panellists discussed one of the key themes of the event, the delivery of affordable broadband connectivity on the move. According to the Director of the ITU Telecommunication Development Bureau Brahima Sanou, affordability is improving. Recent ITU findings show that the cost of connecting to the Internet fell by 52 per cent between 2008 and 2010. "But the prices for mobile broadband are still more than the average income in some 33 countries worldwide. How can we make it more affordable and how do we create incentives for investment?" asked Mr Sanou.

ZTE's Principal Business Consultant Christopher Mulley pointed out that telecommunication equipment providers have a major role to play in lowering the cost of mobile broadband. "We are developing technology and equipment that enable mobile network operators to reduce total cost of ownership in their networks," said Mr Mulley. According to O3b's Executive Vice-President John Finney, his company aims to connect "the other three billion" via the use of satellite communications where fibre is simply too expensive or challenging to deploy. "We are aiming to slash the price of satellite connections around the world where fibre fears to tread," said Mr Finney.

Etisalat's Group Chief Technology Officer Amaru Chavez Pujol highlighted the importance of spectrum efficiency, stating that it is essential for operators to examine new technologies to make the most cost-effective use of available spectrum, given the high costs of network investment.

Megafon's Technology Director Oleg Nikolaenko described a new project in the Russian Federation to deliver mobile network services across a 2000-km rural road connecting the east and west of the country. The EUR 100 million investment in the project was 50 per cent funded by the government, showing that private-public partnership initiatives are a key part of the financial mix.

GSMA's Chief Government and Regulatory Affairs Officer Tom Phillips highlighted how much of a problem tax can be. In some countries, it accounts for up to 60 per cent of the cost of connectivity. Recognizing that radio spectrum is an important sovereign

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Ministerial round table on ICT and climate change

asset, he warned against trying to derive so much revenue out of spectrum that it would make investment unattractive.

Citing a recent report from Cisco, which says that IP traffic will grow at a compound annual growth rate of 32 per cent from 2010 to 2015, Cisco's Vice-President for global technology policy Robert Pepper said more spectrum is needed to cater to this growing data demand.

The final challenge to overcome in the uptake of mobile broadband was that of awareness, argued Openmedia Group's Chairman Ernest Ndukwe. "We need to raise awareness about how important broadband is," he said. "Those messages need to get to the leaders, especially in developing countries. There is still a debate about where the money will come from, either subsidized, tax breaks or incentives."

Ministerial round table on ICT and climate change

At a ministerial round table on climate change, ITU Deputy Secretary-General Houlin Zhao highlighted the crucial role of ICT in reducing, monitoring, and responding to the effects of climate change, noting that "Business as usual is no longer an option if we want to ensure the right approach for our planet," and that ICT need to be part of the solution.

The round table brought together ministers from countries across the world including Egypt's Minister of Communications and Information Technology Mohamed Abdel Kader Mohamed Salem; Serbia's State Secretary for Digital Agenda Jasna Matiæ, Ministry of Culture, Media and Information Society; Uganda's Minister of Information and Communications Technology Ruhakana Rugunda; Niger's Minister of Communication and New Information Technologies Salifou Labo Bouché; and Chairman of the Kenya Communications Commission Philip Okundi.

A clear message from the session was that developed countries must face the consequences of their actions. Developing countries, noted Mr Rugunda, and Ms Matiæ, did not contribute to the cause of greenhouse gas emissions, but are being forced to deal with their unwanted consequences. Minister Rugunda called for international action to put pressure on the developed world to come and help, because the developed world is "squarely responsible for the highest proportion of greenhouse gas emissions, while developing countries face the floods, hunger and starvation".

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The spectrum challenge

Radio-frequency spectrum is a precious and vital resource. Every wireless technology depends on it and governments continue to allocate this valuable commodity in response to the competing needs of different users. But space in the airwaves is getting increasingly scarce. A panel including Alcatel-Lucent, RIM and Qualcomm addressed core challenges relating to the scarcity of spectrum, noting the need to ascertain exactly who is using what, and whether spectrum is being efficiently used. A questioner asked how developing countries that lack infrastructure could balance the time and energy it takes to allocate spectrum with the cost of building up the infrastructure needed to meet expected data requirements. The panel pointed to sharing infrastructure as a solution. Alcatel-Lucent's Gabrielle Gauthey cited examples of rural areas where no duplicate networks exist and where stakeholders are increasingly agreeing to share costs, access and even spectrum. "Do we need four or five operators to build parallel networks? Surely it is better to just build one network and offer competition on services to help cut costs," asked Marc Furrer, President of the Swiss Federal Communications Commission.

Building a safe and secure cyberworld

Following an impassioned speech by Dr Touré on child online protection, and the importance of parental guidance and education of children, a ministerial round table focused on how to build a safe and secure cyberworld. Ministers shared best practices and experiences of how they were tackling specific cybercrime threats in core areas such as child online protection, economic fraud and cyberterrorism. Côte d'Ivoire's Minister of Post and New Information and Communication Technologies Bruno Nabagné Koné noted the need for laws to enforce user identification in cybercafés and over mobile networks. Mr Nabagné outlined how cybercrime is "basically a monetary crime, which endangers the image of a country, so the fight has become a priority issue for governments".

Participants praised ITU's Global Cybersecurity Agenda and the work it undertakes in fighting cybercrime. The role of the International Multilateral Partnership Against Cyber Threats (IMPACT), the executing arm of ITU in the area of cybersecurity, is to "translate ideas into action". Areas of focus over the past 12 months have included developing mechanisms and tools to help mitigate threats, and promoting collaboration among stakeholders.

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Cloud computing and the Internet of Things

Two sessions on the final day looked to the future in assessing the impact of cloud computing and the Internet of Things. For Microsoft's Corporate Vice-President, Technology Strategy and Policy, and Extreme Computing Group Daniel Reed cloud computing and broadband access enable an unprecedented "democratization of access", where new applications and services that we cannot yet imagine will allow "the world's digital knowledge base to be projected into the palm of anyone's hand by virtue of the scale and access to cloud computing".

VMWare's Chief Cloud Technologist for Europe, Middle East and Africa Joe Baguely highlighted unprecedented business agility as the defining benefit of cloud computing. Using services on the cloud is like being driven in a taxi that can at any given moment respond to changes in demand by expanding to the size of a bus, without any loss of quality of service for the original passenger. This "scalability at will" enables cloud computing models to cope with next-generation data of a complexity and scale never before envisaged.

Panellists discussed how the Internet of Things will enable forms of collaboration and communication between people and things, and between objects hitherto unknown or unimagined. The Chairman of the Board at telecommunications standards organization ETSI Jonas Sundborg said that the key to the success of the Internet of Things will be interoperability.

Manifesto for change

The culmination of the Telecom World 2011 event was a global Manifesto for Change that recognizes the importance of broadband for socio-economic development. Compiled with the help of event partner Ernst & Young, the manifesto draws on input from delegates and online participants. ITU will now be encouraging world leaders to put in place the necessary legal and regulatory frameworks to help the private sector implement this change.

Innovation on the show floor

Innovation was the byword of ITU Telecom World 2011, with showcases by event partners including Alcatel-Lucent, AT&T, China Mobile, China Potevio, Cisco, Datang, Du, Ericsson, Etisalat, Fiberhome, Fujitsu, Huawei, Intel, NTT Group, NTT DoCoMo, Qtel, Rohde & Schwarz, RIM, Satorys, Swisscom, Telkom SA, Turk Telecom, TDIA and ZTE.

"Innovation, by definition, is the future of our industry — and seeing some of the exciting ideas being worked on by the Young and Digital Innovators attending ITU Telecom World 2011 this year has shown how innovation is now truly global," said Sheikh Abdullah Bin Mohammed Bin Al Thani, Chairman of Qatar Telecom.

New players from established and emerging markets were also showcased in the many national pavilions, including those of Algeria, Angola, Argentina, Azerbaijan, Belarus, Burundi, China, Czech Republic, Djibouti, Ghana, Switzerland, Japan, Kenya, Korea, Malawi, Malaysia, Namibia, Nigeria, Poland, Qatar, Russian Federation, Rwanda, South Africa, Spain, Tanzania, Thailand, Uganda and Zambia.

Although the focus of Telecom World has moved towards debates and forums, the original concept of acting as a showcase for industry technology lives on and Telecom World 2011 revealed some highly innovative technologies.

ZTE Corporation unveiled the world's first cloud-based security service specifically designed for digital government applications. U-Safety provides end-to-end security services for

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governments, covering for example calls, video monitoring and videoconferencing. These services are designed to help governments prevent or promptly respond to a variety of disasters and emergencies.

IP-based communications firm Horizon Globex announced the launch of its smartphone app which enables mobile VoIP from only 2 kbit/s compared to around 8 kbit/s from other services. The Horizon Call app operates over EDGE, 3G, LTE, Wi-Fi and WiMAX networks and is initially available for the iPhone.

Telecommunication equipment company Huawei unveiled its telepresence system, ViewPoint TP3106. In line with the company's promise of offering new technologies to enterprises, ViewPoint TP3106 enables global organizations to communicate more effectively over long distances through true-to-life live videoconferencing.

And Adeya, the Swiss mobile security company, announced that its Adeya for Voice and Adeya for Data encryption solutions are ready for the new generation of BlackBerry smartphones. The security community has known for years that mobile communications are at risk but what has changed recently is the ease with which such hacking can take place. Adeya is a software solution that provides an end-to-end security layer, ensuring voice and data privacy using the proven public encryption standard, AES-256. "We strongly believe in open standards, not proprietary algorithms, because they are rigorously tested by the security community. AES-256 is shown not to be breakable in practical use," said the founder and Chief Technical Officer Leo Bolchanine.

Announcements

Burkina Faso's President Blaise Compaoré has been appointed Chairman of the International Advisory Board (IAB) of the International Multilateral Partnership Against Cyber Threats (IMPACT), which serves as the executing arm of ITU in the area of cybersecurity. "I am delighted to welcome President Compaoré, an active and high-profile advocate of a more global approach to cybersecurity, into the ITU-IMPACT fold," said Dr Touré. "It is only with a truly coordinated international approach that we will win against the growing tide of malicious hackers and cybercriminals."

WSIS Awards

At a separate ceremony, ITU recognized the commitment of WSIS Stakeholders towards strengthening the implementation of activities related to the outcomes of the World Summit on the Information Society (WSIS) by honouring countries that have contributed to the ITU's WSIS Fund in Trust. Certificates of recognition were awarded to United Arab Emirates, the Sultanate of Oman, Paraguay, Zimbabwe, Belgium-Liege, Mexico and Tanzania. The contribution of private-sector partners to the WSIS process — in particular Intel — was also recognized during this ceremony.

ITU Deputy Secretary-General Houlin Zhao (centre) with recipients of the WSIS Awards

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Recognition for innovators

The winners of ITU's IPTV App Challenge were announced at Telecom World 2011 by Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau. The corporate app category award was given to Discover Japan from NHK Enterprise (Japan). The app offers users an introduction to the best of Japanese culture, both ancient and modern.

The award for best individual/small business app split the vote, with joint winners being 7 Days Gallery and Dengue Combat. 7 Days Gallery, by Alève Mine and Eric Bréchemier, is a digital space to promote new artists and designers. It showcases seven pieces of artwork from each artist or designer, presenting a different collection each day of the week. After browsing the collection of art works, users can also find information about the artists or designers.

Dengue Combat is an interactive television programme to promote awareness and knowledge to combat dengue fever. IPTV users are informed by watching a video programme about dengue fever. They can also find the nearest medical care facility by providing their postal code, and verify their knowledge of this disease by participating in a quiz.

Focus on youth

Telecom World 2011 introduced another catalyst for innovation through a competition offering prizes of CHF 8500 seed funding to help winners turn their project concepts into reality. The Young Innovator and Digital Innovator competition brought 45 finalists from 22 countries to Geneva for training in how to pitch their innovative projects to potential investors. The winners, who were voted for by delegates in Geneva and around the world via online polls, were:

Young Innovator category

- Sanniti Pimpley (India) with a project to screen content on-board buses to help urban youth learn while on the way to work by bus.
- Fab-Ukozor Somto (Nigeria) with the MS2C (Mobile Skills to Cash) texting service that matches nongovernmental organizations, private companies and public sector opportunities to text-messaged skill sets of citizens seeking work.
- Richard Seshie (Ghana) co-founder of Gas'Yo!, a project that helps make delivery of gas more efficient in the last mile of distribution, thanks to mobile apps.

Digital Innovator category

- Jian Min Sim (Singapore), whose project involves developing a mobile app that gives volunteers the information they need to stay safe and informed.
- Hasjra Bibi Cassim (South Africa) for Showmemobi, a mobile app that shares South African stories through film and helps lift people out of unemployment.
- Andrew Benson (Sierra Leone), for Digital Hope, a service that uses digital tools to empower amputees to sell their own home-made goods.

"Youth are the future, and nowhere is this more true than in our fast-changing industry, where innovation is being driven by a new generation of 'digital natives' for whom ICT are a natural and intrinsic part of the world," said Dr Touré. "I have no doubt that many of the 45 young innovators ITU has hosted at Telecom World 2011 will go on to big things, and help further reshape our digital world in ways my generation cannot even imagine."

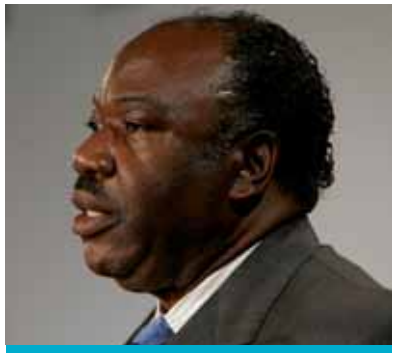
Key event statistics

Over 6500 top-level participants onsite including Heads of State and Government, ministers, city mayors, industry CEOs and technology gurus, along with thousands of participants from around the world interacting in real-time via webcasts and Twitter streams

- *332 global leaders participating in the Broadband Leadership Summit*
- *34 of the world's major ICT names participating in the event as key partners*
- *251 influential speakers from 64 countries taking part in the multi-streamed conference agenda*
- *237 companies from 41 countries on the show floor*
- *324 accredited media from around the world, including major global broadcasters, news agencies, national newspapers and ICT press*
- *10 000 students from schools across the globe, sharing their work with 150 000 of their classmates across five continents.*

Speakers at the official opening ceremony of ITU Telecom World 2011

Dr Hamadoun I. Touré
ITU Secretary-General



Ali Bongo Ondimba
Gabon's President

Commodore Josaia Voreqe Bainimarama
Fiji's Prime Minister

Igor Shchegolev
Russian Federation's Minister of Telecom and Mass Communications

Doris Leuthard
Switzerland's Head of the Federal Department of Environment, Transport, Energy and Communications

Sheikh Abdullah Bin Mohammed Bin Saud Al Thani
Chairman of Qatar Telecom

Wang Jianzhou
Chairman of China Mobile

Partial view of the audience at the opening ceremony

Opera Singer Christina Mi

Youssou N'Dour

The world's regulators respond to a changing market environment

The Colombian highland city of Armenia played host to the 11th ITU Global Symposium for Regulators on 21–23 September 2011, held under the theme "Smart Regulation for a Broadband World". Known as Miracle City (Ciudad Milagro) for its rapid urban growth and development, Armenia City has risen from the rubble of the devastating earthquake of 1999, and from a period of economic and social adversity.

"Smart regulation is precisely what we need," said Colombian President Juan Manuel Santos, noting that information and communication technologies (ICT) — and broadband in particular — contribute to the productive infrastructure of a nation.

"Broadband is the most powerful tool we have to accelerate progress towards meeting the Millennium Development Goals, and to drive social and economic progress on a global scale," ITU Secretary-General Dr Hamadoun I. Touré added. "But we need to see broadband Internet prices coming down below 10 per cent or even 5 per cent of monthly income before we can expect to have everyone online," Dr Touré underlined.

Governor Julio Cesar López of Quindío Province welcomed participants to the coffee producing heartland of Colombia, known for its green landscapes. "This international symposium is an important event for the country and for Quindío, a region which has invested well in technology for connectivity," he said.

Thanks to the Government of Colombia's "Digital Life" policy, Quindío is the most advanced region in the country in the use of ICT, boasting 100 per cent mobile coverage, along with Internet connectivity in 276 educational institutions in urban and rural areas. Special attention is accorded to accessibility for people with disabilities.

Opening the symposium, Colombia's Minister of Information and Communication Technology, Diego Molano, said that holding the event in Colombia recognized the efforts the country had

made to ensure that ICT "will reach all citizens and become an effective tool to reduce poverty, create employment and achieve prosperity." In terms of mobile coverage, for example, Colombia has seen mobile subscriptions increase from 3.2 million (8 per cent of the population) in 2001 to 43.4 million (93.7 per cent of the population) in 2010.

Brahima Sanou
Director of the ITU Telecommunication Development Bureau

> *"Over the years, we have seen how regulatory reform plays an essential role in creating an environment where new technologies can flourish and be shared by all."*

The symposium was chaired by Cristhian Lizcano Ortíz, Executive Director of Colombia's Communications Regulatory Commission. "The holding of GSR in Colombia is a major landmark for the country and is recognition of its achievements in the regulatory field," he said.

"Over the years, we have seen how regulatory reform plays an essential role in creating an environment where new technologies can flourish and be shared by all," said Brahima Sanou, Director of the ITU Telecommunication Development Bureau (BDT). "The development of robust and flexible regulatory frameworks can help developing countries leapfrog technologies and make the best use of new developments in ICT".

In the run-up to the symposium, regulators and policy-makers shared views with the private sector at the ITU Global Industry Leaders' Forum, held on 20 September under the chairmanship of Orlando Ayala, Corporate Vice President of Microsoft Corporation. "Public-private partnerships are increasingly important to foster the technological development of countries, not only to create an infrastructure that allows them to be more efficient and productive, but also to promote higher levels of education and to foster increased economic development," Mr Ayala said.

The regulators participating in the 2011 Global Symposium for Regulators recognized that there is no single, comprehensive blueprint for best practice, but agreed that learning from countries' experiences is possible. Based on a series of discussion papers commissioned for the symposium (see the September and November 2011 issues of *ITU News*), exchanges of views during the symposium, and contributions from Algeria, Belarus, Colombia, Côte d'Ivoire, Ecuador, Egypt, Jordan, Lebanon, Malawi, Paraguay, Peru, Portugal, Rwanda, Switzerland, Thailand and the United States, the regulators discussed and endorsed a set of regulatory best practice guidelines to advance the deployment of broadband, encourage innovation and enable digital inclusion for all. The main points covered in the guidelines are highlighted on pages 37–41).

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Best practice guidelines

on regulatory approaches to advance the deployment of broadband, encourage innovation and enable digital inclusion for all

Funding of broadband infrastructure

Public-private partnerships

The regulators recognize that the private sector will play the central role in developing broadband, but that supportive policy and good governance are essential for broadband deployment and take-up to succeed. When broadband deployment does not offer sufficient returns for private investment, public funds can be mobilized through public-private partnerships.

Where public funds are invested in broadband infrastructure, regulators can employ open access arrangements (unbundling) to maximize the economic benefits across as broad a base of users and suppliers as possible. The sale or lease of infrastructure facilities developed with public support should be implemented in a transparent and non-discriminatory manner, to avoid distorting the market.

When combined with a regulatory framework that eliminates barriers to new entrants (both domestic and international), market-based schemes are the most effective way to promote the deployment of backbone and access networks alike. Where such schemes also cover other infrastructure — such as electricity, water supply and transport — deployment costs can be reduced, generating greater incentives for private investment.

Universal service

The regulators believe that defining universal service to include broadband Internet access can help bridge the looming digital divide. Blanket access to essential broadband services can be chosen as part of a country's universal service programme.

Universal service should be defined in a technologically neutral manner, by defining services rather than networks or technologies. And universal service programmes could be financed by revenues raised from the activities of a wide range of market players, as well as from alternative sources. Smart subsidies can be used to avoid distorting the market while furthering universal service goals. Where a universal access or universal service fund exists, it could be modernized to serve as a:

- facilitator of the market, piloting innovative rural services and applications, and creating demand for advanced ICT connectivity and services (through financing broadband access for schools and hospitals, and direct subsidies to users);
- funding mechanism for bringing broadband networks into rural and high-cost areas, by providing support both at the retail end (for example, shared access), and at the wholesale end (for example, through subsidizing intermediary network facilities such as backbones, wireless towers and other passive infrastructure).

Incentives for private investment

There are several ways for policy-makers and regulators to provide incentives for the private sector to invest in ICT. These include adopting enabling policies, simplifying licensing regimes, making more spectrum available, reducing regulatory obligations, and offering tax incentives.

National policy

The regulators see the need for a consistent and overarching policy to foster broadband development across all sectors and to liberalize the broadband market. This will also entail a review of existing legal and regulatory frameworks in order to reduce barriers that hinder broadband roll-out and use.

In drafting national plans, policies and strategies for the ICT sector in general or for broadband in particular, the use of inclusive and wide-ranging public consultations will ensure that the monumental investments ahead are based on the collective decisions of government, industry and society. The establishment of a coordinating body encompassing the public authorities, investors and users, as well as a wider range of stakeholders, can serve as a platform for developing a common understanding, vision and strategy. Another way of nurturing a positive relationship with all stakeholders is by creating policy incubators to crowd-source and brainstorm ideas for taking broadband to the next level.

Licensing

In order to facilitate entry into the broadband market and increase competition, a unified licensing framework can be introduced to cover all services. Reducing licensing fees and administrative requirements enables ICT operators to start their activities rapidly. Provisional licences could be delivered free of charge (or for a fee that only covers administrative costs) for a trial period, before the delivery of the definitive licence.

Spectrum for mobile broadband

With the rising demand for more powerful, ubiquitous and seamless broadband services, the distribution of spectrum for broadband wireless services becomes a cornerstone of future growth of the digital economy. When considering national goals, economic realities and market pressures, regulators and

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ITU Secretary-General Dr Hamadoun I. Touré with schoolchildren in Colombia

policy-makers need to ensure that spectrum is used in the most efficient manner.

The regulators recognize that an incentive-based, market-driven approach to making more spectrum available for mobile broadband services is preferable because it enables inter-platform competition and spurs innovation. New types of spectrum auctions could be designed to extend access to broadband in unserved and underserved areas. These might include voluntary incentive auctions, reverse auctions, and offering all broadband spectrum bands in a single auction.

Allowing the flexible use of spectrum, including spectrum re-farming and secondary markets for spectrum, is key to ensuring that — with market maturity and change — spectrum moves to more productive uses, including mobile broadband. Leveraging the "digital dividend" spectrum allows the footprint of mobile broadband access to be extended, while television "white spaces" could be made available for unlicensed use enabling more powerful broadband services.

Removal of barriers to broadband

Countries with policies and regulations that remove barriers to the building of broadband infrastructure, especially where governments are making efforts to stimulate demand, will be in the vanguard of the digital economy. Reducing regulatory burdens and minimizing regulatory interventions will lower the cost of laying infrastructure, providing services to end users, and stimulating new applications and digital content. Regulatory imperatives embedded in formal instruments that cannot be revised in a timely manner to address evolving circumstances will inhibit broadband growth, particularly when they affect technology choice or the operational activities associated with broadband deployment and use.

As well as following the best practice guidelines drawn up by the Global Symposium for Regulators in 2008, regulators could act to:

- facilitate the granting of the proper permissions to build infrastructure, especially where the access network requires rights of way for fibre-to-the-home deployment as well as to accommodate the delivery of broadband multiple-play services;

- adopt rules or promote policies and incentives that encourage infrastructure sharing, particularly the sharing of towers, ducts and other support facilities;
- encourage the establishment of national Internet exchange points that enable local Internet service providers to exchange Internet traffic at the local, national or regional levels, thus lowering the cost of content delivery and optimizing bandwidth use, especially for advanced multimedia services;
- facilitate the establishment of virtual landing points for submarine cables — a virtual landing point would be required to supply bandwidth at high capacity to all licensed operators in the country under standard market best practice terms and conditions, such as open access, and non-discriminatory and transparent pricing.

Tax incentives

Regulators and policy-makers need to cooperate to reduce taxes on services, devices and equipment. This, in turn, will increase penetration levels and the demand for broadband services.

Targeted fiscal incentives to providers of fixed or mobile broadband networks, services and equipment can stimulate a robust and competitive broadband marketplace. Such incentives might include: relief from spectrum fees in specific areas of interest; preferential import duty on equipment and materials; exemption from value-added tax on imported equipment and material that is manufactured or sold locally; and tax deductions for research and development of applications and digital content.

Stimulating innovation

Applications, services and digital content

The regulators believe that the wide diffusion of e-government and e-finance applications and services will considerably raise consumer demand for broadband.

Electronic applications such as e-procurement, e-payment, document tracking and workflow management can improve government business processes while increasing citizen participation in the country's socio-economic development.

Applications such as e-health, e-agriculture, and e-education help governments achieve critical national goals, provided that there is confidence in the use of ICT. Policy-makers and regulators have a role in the broadband ecosystem to create an environment in which dynamic digital content creation, dissemination and adoption can thrive. As a first step, a thorough and forward-looking review of the regulatory framework of the ICT sector is essential to identify the changes that are needed to permit new and emerging services and applications, such as m-banking and social networks.

Investment in research and development

The growth of the broadband economy depends on innovation and on ensuring the right to access, use and create digital content. The regulators believe that private investment in research and development should be encouraged by all possible means. In addition, where money is available, public investment should be channelled to research and development. For instance, a universal service fund could partially finance research and development.

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Partial view of delegates at the symposium

Governments can encourage innovation to address specific challenges, notably to spur the provision of local content in local languages. Governments can also foster innovation by establishing technical training centres and encouraging students to innovate. Equally important in terms of local social and economic development is the creation and maintenance of ICT innovation incubators and business development centres that provide hi-tech hosting, training and advice to small and medium-size enterprises, and offer funding and other assistance to start-up ICT companies.

Enforcing intellectual property rights

It is essential to protect intellectual property, as this empowers researchers and inventors to lead the way to a smart and innovative digital economy. Innovation can be encouraged through intellectual property regimes that balance monopoly use of inventions with building a rich public domain of intellectual materials.

Ensuring that there is a balanced, proportionate and robust mechanism for content owners to address copyright infringement provides a stable and solid basis for innovation and creation. Designing rules and procedures for copyright enforcement, while fully protecting consumer privacy, means finding a way to both stimulate and protect all the different stakeholders in the digital economy.

Expanding digital literacy

In an open, competitive and digital global economy, digital literacy has become an essential personal and professional asset. Countries with high levels of digital literacy are more innovative and productive, and are capturing a greater share of the world's trade, investment and jobs.

Regulators and policy-makers have a role to play in promoting a first-class training system in all countries to provide creative human resources. Investment in all forms of education, and particularly in ICT education, is crucial. Sufficient and sustainable funding should be provided to universities, computer laboratories and other public research institutions, leveraging international partnerships when possible and advantageous.

ITU Secretary-General Dr Hamadoun I. Touré presenting Fabio Bigi with the ITU Silver Medal and certificate in recognition of his leadership as Acting Chairman during the final week of the 2011 session of the Council

Council 2011

Strategies for ICT development

Role and composition of the Council

The ITU Council in its new composition of 48 Member States (up from 46) elected at the Plenipotentiary Conference in Guadalajara, Mexico, in October 2010, held its annual session in Geneva from 11 to 21 October 2011.

Ambitious operational plans were agreed to implement the strategic plan of the Union for the years 2012 to 2015, at a time when, according to ITU Secretary-General Dr Hamadoun I. Touré, information and communication technologies (ICT) are implicitly involved in every sector of the global economy.

"We have seen the most extraordinary growth in subscriptions, Internet users, and of course data traffic, which is doubling year on year, and reached one zettabyte for the first time in 2010," said Dr Touré in his State of the Union Address. "A zettabyte of data, that's a trillion gigabytes! And that may be the hottest issue we have to address in terms of ICT development in the coming years: how to create the new digital highways needed to accommodate the massive increase in traffic."

Key decisions taken at the Council included the convening of a World Telecommunication/Information and Communication Technology Policy Forum for 2013; the setting up of a Council Working group on International Internet-related Public Policy Issues; and the approval of a model host country agreement for ITU Telecom Events. A new external auditor and members of the new Independent Management Advisory Committee were also appointed.

Leadership of the Council, which rotates among the world's regions, this year fell to the Americas, with Mexico's Fernando Borjón, who served as Vice-Chairman in 2010, elected Chairman. "We are here to focus on strategies to facilitate the work of ITU in shaping the global agenda for information and communication technologies," said Mr Borjón, who chaired the plenary

meetings during the first week. The Dean of the Council, Fabio Bigi (Italy), served as Acting Chairman of the Plenary during the second week, assisted by Council Vice-Chairman, Turkey's Ahmet Cavusoglu.

Budget for 2012–2013

Alongside its focus on the strategic plan for 2012–2015, the Council also debated the budget for the next two years through its Standing Committee on Administration and Management chaired by Blanca González of Spain, working alongside Vice-Chairmen C. Greenway (Australia) and Marcin Krasuski (Poland).

The Council adopted a balanced budget for the Union for 2012–2013. It approved the budget at CHF 323'534'000 for the biennium, comprising CHF 166'584'000 for 2012 and CHF 156'950'000 for 2013.

The Secretary-General is authorized to adjust the appropriations in relation to increases in salary scales, pension contributions and allowances, including post adjustments, applicable to Geneva, as adopted by the United Nations common system and with regard to fluctuations in the exchange rate between the United States dollar and the Swiss franc in so far as this affects the staff costs for those staff members on United Nations scales. This authorization comes with the caveat that the Reserve Account must be kept at a level above 6 per cent of total annual expenditure, as prescribed in Decision 5 (Rev. Guadalajara, 2010).

The Council welcomed the increased contribution to the budget by the Russian Federation, which raised the number of its contributory units from 10 to 15. The value of each contributory unit, which ITU Member States provide on a voluntary basis, is CHF 318 000. The Russian Federation has also contributed CHF 5 million towards the refurbishment of ITU's main conference hall, now named after Alexander Stepanovich Popov (1859–1906), the Russian physicist who first demonstrated the practical application of electromagnetic waves.

Announcing this increase, Andrey Mukhanov, Director General of the Department of International Cooperation of the Russian Federation, speaking on behalf of the Minister of Telecom and Mass Communications, Igor Shchegolev, cited the significant work of ITU in coordinating telecommunication development worldwide. "Without telecommunications we can no longer lead a normal life," Mr Mukhanov said. "We therefore wish to develop, strengthen and enhance the role of ITU in the future as the leading international organization in information and communication technologies."

Thanking the Russian Federation — and in particular the Russian Minister for Telecom and Mass Communications — Dr Touré said "This year's Council Session has been successful under the watchful gaze of Alexander Popov, in the newly refurbished Popov Room."

ITU role relating to the outcomes of the World Summit on the Information Society (WSIS)

Under Resolution 1332 adopted by the Council, the Secretary-General will regularly update the road maps for ITU's activities within its mandate of WSIS implementation up to 2015 and present them to the Council via the Council Working Group on the World Summit on the Information Society.

Through the Sector study groups, the Secretary-General and the Directors of the Bureaux are to elaborate a working definition of the term "ICT" and submit this to the Council for possible transmission to the Plenipotentiary Conference in 2014.

Member States and Sector Members are encouraged to participate actively in WSIS-related activities. They may make voluntary contributions to the WSIS Trust Fund to support the implementation of WSIS outcomes, and contribute information on their own activities to the public WSIS stocktaking database maintained by ITU.

Given the consensus in the United Nations Chief Executives Board that ITU should lead the review on the implementation of the WSIS outcomes, ITU needs a clear mandate. Professor Minkin, Chairman of the Council Working Group on WSIS, presented a draft resolution calling on Member States to assist ITU

in leading the WSIS process, and proposing a high-level meeting in 2014 to review the WSIS outcomes.

After redrafting and discussion, the Council approved the holding by ITU of a high-level event on the overall review of the implementation of WSIS outcomes (WSIS+10) in conjunction with the World Telecommunication Development Conference in 2014 (Council Resolution 1334). Egypt offered to host this event.

Resolution 1334 instructs the Secretary-General to pursue inclusive coordination with all stakeholders, in line with WSIS principles. Under the terms of this resolution, the Secretary-General will propose to the United Nations Chief Executives Board that ITU should play a leading managerial role in the review process. The Secretary-General will launch a campaign to mobilize extra resources for that activity.

Through the United Nations Group on the Information Society (UNGIS), the Secretary-General will develop a draft action plan for a preparatory process that is intergovernmental and inclusive of all stakeholders. The Secretary-General will report annually to the Council on progress.

The Council Working Group on the World Summit on the Information Society will review ITU's preparatory activities in the context of convening the high-level event, and will monitor the activities of the Secretary-General and the Directors of the Bureaux under Resolution 1334.

Council Working Group on international Internet-related public policy issues (Resolution 1336)

The Council decided on the terms of reference of the new Council Working Group on international Internet-related public policy issues. In its work, the group will rely on open consultation with all stakeholders, in accordance with Resolutions 102 and 140 (Rev. Guadalajara 2010) on "ITU's role with regard to international public policy issues pertaining to the Internet and the management of Internet resources, including domain names and addresses", and on "ITU's role in implementing the outcomes of the World Summit on the Information Society."

Sweden, supported by Canada, Australia, Mexico and the United States, placed on record a statement reflecting the view that "as the Internet continues to evolve we are faced with the challenge of finding the right balance in the global Internet governance structures that takes full account of the interests of all stakeholders from all around the world. It is our firm belief that a full multistakeholder involvement in the dedicated group would empower the work of the group."

Fifth World Telecommunication/Information and Communication Technology Policy Forum

The Council decided to convene a Fifth World Telecommunication /Information and Communication Technology Policy Forum in Geneva in conjunction with the WSIS Forum 2013 (Decision 562). This Forum will last three days and will discuss all the issues raised in: Resolution 101 (Rev. Guadalajara, 2010) on Internet Protocol-based networks; Resolution 102 (Rev. Guadalajara, 2010) as described above; and Resolution 133 (Rev. Guadalajara, 2010) on the role of administrations of Member States in the management of internationalized (multilingual) domain names.

The Secretary-General will encourage ITU Member States, Sector Members and other interested parties, to make voluntary contributions to help defray the costs of the Policy Forum and facilitate attendance of least developed countries.

As in the past, the World Telecommunication/ICT Policy Forum will not produce prescriptive regulatory outcomes, but will prepare reports and adopt opinions by consensus. The Council agreed to add CHF 300 000 in the 2012–2013 budget to partially cover the expenses of the Fifth Forum in 2013.

World Telecommunication Standardization Assembly 2012 and World Conference on International Telecommunications 2012 to be held in Dubai, United Arab Emirates

The Council decided that, subject to the approval of a majority of ITU Member States, the World Telecommunication Standardization Assembly (WTSA-12) will be held in Dubai, United Arab Emirates, from 20 to 29 November 2012 back-to-back with the World Conference on International Telecommunications (WCIT-12) also to be held in Dubai, from 3 to 14 December 2012 (Resolution 1335).

The Secretary-General will convey this Resolution to concerned international and regional organizations. WTSA-12 will be preceded by a Global Standards Symposium, on 19 November.

World Radiocommunication Conference in 2015

On the proposal of the United States, the Council agreed to hold a World Radiocommunication Conference in 2015 (WRC-15). Because of the culmination of various radiocommunication-related activities in 2015 (such as broadband and digital dividend), the United States further proposed that WRC-15 should be held in the fourth quarter of 2015, so that its results would be immediately implemented. That proposal was accepted.

Resolution 806 (WRC-07), which establishes a "Preliminary agenda for the 2015 World Radiocommunication Conference," will almost certainly be revised and extended at WRC-12.

ITU's role as supervisory authority of the future international registration system for space assets under the Draft Space Protocol

The Secretary-General stated that the Space Protocol would be a landmark, and ITU's role as supervisory authority would have no financial impact because it would be financed out of fees from international registration.

Concerns were raised about the scope of supervisory authority and the obligations involved, such as enforcement, litigation, liability, dispute resolution, financial implications, accountability and responsibility. A diplomatic conference in Berlin in February 2012 is expected to clarify some of these issues.

There was also a discussion about ITU's role and the role of the Secretary-General at the conference in Berlin. The Council authorized the Secretary-General to attend the Berlin conference as an observer, while agreeing that the matter of whether or not ITU

could become the Supervisory Authority should not be prejudged. The Secretary-General will report back to Council 2012, which will consider the matter further in the light of the output of the diplomatic conference, taking into account the financial, juridical and technical implications.

Empowerment of women and girls

Recognizing the importance of implementing gender equality measures, including Millennium Development Goal 3 on promoting gender equality in education, the Council adopted Resolution 1327 on the empowerment of women and girls. The Council considered that ITU should take the lead on such matters for the ICT industry.

The Council decided that the theme for the 2012 World Telecommunication and Information Society Day will be "Women and Girls in ICT".

All Member States are invited to establish a "Girls in ICT Day" on the fourth Thursday of April every year, with open days in ICT research facilities, companies, university departments and ICT-related institutions.

Climate change

Council members expressed support for ITU's objectives and achievements in the area of climate change and protection of the environment, and welcomed the progress made by ITU's Telecommunication Standardization Sector (ITU–T) in developing common methodologies to measure the carbon footprint of the ICT sector.

The Secretary-General invited Member States to continue pressing for full recognition of the role of ICT in mitigating and adapting to the effects of climate change, first at the 17th Conference of the Parties (COP 17) to the United Nations Framework Convention on Climate Change (UNFCCC), in Durban, South Africa, in November-December 2011, and the United Nations Conference on Sustainable Development (Rio+20), that will be held in Rio de Janeiro, Brazil, in June 2012.

Cybersecurity

The Council noted the work of ITU with the United Nations Office on Drugs and Crime (UNODC) and saw this relationship as an important framework for assisting at the global level in the fight against cybercrime.

With regard to the International Multilateral Partnership Against Cyber Threats (IMPACT) the Council was informed that ITU and IMPACT have a non-exclusive relationship, which operates on a cost-recovery basis within the ITU Financial Regulations. The Council was also informed that a meeting to discuss preventing illicit use of information and communication technologies, in response to Resolution 174 (Guadalajara, 2010), is planned during WSIS Forum 2012.

Child online protection

The Council agreed that more needs to be done about child online protection and, following a proposal by Ghana, agreed that a programme should be drawn up for side events during 2012 World Telecommunication and Information Society Day.

Connect the World

The Council expressed broad support for continued implementation of the Connect the World initiative, which aims to mobilize the necessary financial, human and technical resources to implement the outcomes of the World Telecommunication Development Conference and the World Summit on the Information Society.

The Council stressed the importance of measuring progress towards the attainment of the objectives set by the Connect the World regional summits.

Information and Communication Development Fund

Since its creation, the Information and Communication Development Fund has fully or partially financed 88 development


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projects in four areas: capacity building; infrastructure development; application of new technologies; and countries with special needs.

Following endorsement by the Committee on Administration and Management, the Council approved the transfer of CHF 1 million from the Exhibition Working Capital Fund to the Information and Communication Development Fund.

Next Plenipotentiary Conference

According to Decision 560 approved by the Council, the next Plenipotentiary Conference will take place in Busan, Republic of Korea, from 20 October to 7 November 2014, subject to the approval of a majority of ITU Member States.

South Sudan receives a warm welcome from the Council

South Sudan, the world's youngest nation, became ITU's 193rd Member State on 3 October 2011. South Sudan's Minister of Telecommunications and Postal Services Madut Biar Yel conveyed greetings to the Council from South Sudan's President Salva Kiir Mayardit, who had pledged his undivided commitment to ITU and its wider family of nations. Mr Biar Yel shared with the Council "the joy and radiance on the faces of the people of South Sudan" on the occasion of the launch of the new country code "+211" assigned by ITU — just two hours after the country's formal recognition as a United Nations Member State on 14 July 2011.

Speaking of the country's ICT development challenges, Mr Biar Yel stated: "From day one, whereas most post-conflict States talk of rebuilding, in our case we started from scratch, and whereas information technology is moving faster than we can facilitate, my Government has put in a budget which may not cover more because of the many priorities to address. Under these circumstances, we consider emergency support, in areas including, but not limited to: national broadband backbone development, rural connectivity, e-government and emergency communication services, cybersecurity, legislative and regulatory strengthening, spectrum management, technical assistance, institutional and human capacity building."

The Secretary-General said "We are delighted to be able to welcome South Sudan as an ITU Member State so soon after it attained full nationhood." Dr Touré described how all three Sectors and the General Secretariat were working as one ITU to help South Sudan in its efforts to develop its ICT sector.

Guiding principles for the creation, management and termination of Council working groups

It became clear at the Plenipotentiary Conference in Guadalajara that the growing number of Council Working Groups was putting considerable strain on Member States' resources. Based on a joint proposal by the United Arab Emirates and Saudi Arabia to clarify the conditions for creating, managing and terminating groups, the Council adopted Resolution 1333, which says, among other things, that:

- The terms of reference of Council Working Groups need to be clearly defined to avoid any duplication of tasks.
- Council Working Group meetings need to be conducted in an efficient and cost-effective manner within the limits of the budget allocated by the Council and should not normally exceed two clusters per year.
- As far as possible, groups should conduct their work by electronic means.
- Groups should be terminated when they have completed tasks under their mandate, where there is duplication of effort, where merger is possible with another group or where there are insufficient resources.

Council Working Group on Financial and Human Resources

A new Council Working Group on Financial and Human Resources was set up to provide a focal point for the discussion of financial and human resource matters between Council sessions, particularly those which require the review and possible modification of the ITU Financial Regulations and Financial Rules or the Staff Regulations and Staff Rules.

The new group will examine the provisions of the Financial Regulations and Financial Rules, with a view to ensuring their conformity with the basic instruments of the Union, the decisions of the Plenipotentiary Conference and the Council, as well as the evolving needs of ITU. Among other tasks, it will also review the recommendations of the External Auditor, as presented annually to the Council, taking into account Resolution 94 (Rev. Guadalajara, 2010) concerning the auditing of the accounts of the Union, and the terms of reference of the External audit function outlined in Article 28 and Annex 1 of the Financial Regulations.

In particular, the new group will maintain close contact with ITU management and the Staff Council, with a view to identifying issues of common concern that require the Council's opinions and guidance.

Appointment of members to the Independent Management Advisory Committee

The Chairman of the Independent Management Advisory Committee (IMAC) Selection Panel, Peter Higgins (Australia), described the process followed by the panel to assess the applications received for IMAC membership, and gave details of the five independent experts proposed to the Council for appointment as members of IMAC. The panel also transmitted to ITU the names of a pool of suitably qualified candidates to fill any vacancies that might arise during the term of IMAC.

Mr Higgins explained that a transparent selection process had been conducted in accordance with Resolution 162 (Guadalajara, 2010).The Council approved Decision 565, appointing the following five independent experts to serve as members of IMAC: Emilie Beate Degen, Germany; Abdessalam El Harouchy, Morocco; Andrei Korotkov, Russian Federation; Graham Miller, United Kingdom; and Thomas Repasch, United States.

Date and duration of the 2012 Session of the Council

The Council decided that it will hold its next session for a period of seven and a half working days from 4 July (afternoon) to 13 July 2012 (Decision 561).

Dubai, United Arab Emirates

United Arab Emirates raises its Telecom profile

Dubai to host ITU Telecom World 2012

On 25 October, during the launch of ITU Telecom World 2011, the Chairman of the ITU Telecom Board Dr Reza Jafari announced the successful bid of Dubai to host ITU Telecom World 2012. Mohammad Al Qamzi, Chairman of the Telecommunications Regulatory Authority of the United Arab Emirates, thanked the ITU Telecom Board, ITU Secretary-General Dr Hamadoun Touré and the ITU Member States for the confidence which they had shown by choosing the country to host the next ITU Telecom World event. The country is now home to operators serving over 100 million customers across Asia, the Middle East and Africa. "The global position of the United Arab Emirates as a major gateway for three continents, with trade and transit routes reaching west, east, north and south, has ICT as its heart," said Mr Al Qamzi.

The United Arab Emirates continues to expand its participation in regional and international information and communication technology (ICT) events. A high-level delegation represented the country from 24 to 27 October at ITU Telecom World 2011 in Geneva. Headed by Mr Al Qamzi, the delegation also included the United Arab Emirates Ambassador in Geneva Obaid Al Zaabi and the Director-General of the Telecommunications Regulatory Authority Mohammad Al Ghanim, as well as high-level representatives from Emirates Telecommunications Corporation (Etisalat) led by Chief Executive Officer Ahmed Abdulkarim Julfar, and from Emirates Integrated Telecommunications Company (Du) led by Chief Executive Officer Osman Sultan.

"We seek — through our international participation — to strengthen our interaction with those working in

the ICT sector, in order to acquire new expertise and examine what can be copied and implemented in our local sector, thus raising the standard of the services provided and achieving total satisfaction and a safe environment for users," said Mr Al Qamzi.

"LeaderSpace"

An entire area named "LeaderSpace" was set aside at ITU Telecom World 2011 for Heads of State and Government, heads of the United Nations agencies, chief executive officers of leading companies, experts and innovators taking part in the conference. This area was sponsored by the United Arab Emirates through the Telecommunications Regulatory Authority, along with Etisalat and Du, and the hospitality offered at LeaderSpace was appreciated by ICT leaders, who were pleased to relax in an oasis of calm amid the bustle of the event.

"ICT Discovery"

An ICT museum recently built at ITU headquarters in Geneva was officially inaugurated on 25 October 2011. The new museum, called ICT Discovery, will be open to the general public in early 2012. The aim of the museum is to inform visitors about the latest exciting developments in ICT and about ITU's role in helping to "Connect the World". The museum will focus on the past, present and future impact of ICT on human lives around the world.

The United Arab Emirates is a Founding Partner of the museum, and the United Arab Emirates Ambassador in Geneva joined the ITU Secretary-General and other high-level officials, ministers and the elected officials of the Union for the inauguration. The ITU Secretary-General expressed his appreciation for the support and cooperation of the United Arab Emirates in bringing the ICT Discovery museum into existence. The Chairman of the Telecommunications Regulatory Authority reaffirmed the support of the United Arab Emirates to ITU's activities.

WSIS Forum Award

At a WSIS Forum Award ceremony on 26 October 2011, ITU Deputy Secretary-General Houlin Zhao expressed appreciation for the support of all those who had contributed to the success of the WSIS Forums organized by ITU. Mr Zhao in particular honoured the Telecommunications Regulatory Authority of the United Arab Emirates for its support and commitment during WSIS Forum 2011. He presented a certificate of appreciation to the Telecommunications Regulatory Authority.

The Director-General of the Telecommunications Regulatory Authority reiterated the strong commitment of the United Arab Emirates to the WSIS goals and objectives. In the United Arab Emirates, the National WSIS Committee is working actively to achieve these goals. The experience gained through working on national initiatives is being shared internationally through publications such as the United Arab Emirates WSIS report, copies of which were distributed at WSIS Forum 2011.

ITU/V. Martin

From left to right: François Rancy, Director of the ITU Radiocommunication Bureau; Houlin Zhao, Deputy Secretary-General of ITU; Professor Toshio Obi, Waseda University and ITU Special Envoy for Academia; Dr Hamadoun I. Touré, Secretary-General of ITU; Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau; and Brahima Sanou, Director of the ITU Telecommunication Development Bureau

How academia will bring a fresh new voice to ITU

Professor Toshio Obi
Waseda University, President of the International Academy of CIO, ITU Special Envoy for Academia, and member of the ITU Telecom Programme Advisory Committee

It is my honour to introduce "Academia", a new section of *ITU News* that will put a spotlight on the activities and success stories of academic institutions participating in the work of the three ITU Sectors (Radiocommunication, Standardization, and Development). This participation has been made possible, for a four-year trial period, by Resolution 169 of the ITU Plenipotentiary Conference held in Guadalajara, Mexico, in October 2010. Resolution 169 allows academia, universities and their associated research establishments to participate in the work of any or all three Sectors until the next Plenipotentiary Conference, to be held in 2014.

Academic communities throughout the world work on the science and technology central to ITU's mandate. In partnership with the private sector (including telecommunication operators and equipment manufacturers) and government, academia is helping to shape, develop and catalyse the future of telecommunications through work on emerging technologies and standards.

Here we suggest several ways of promoting Academic membership of ITU in order to increase the number of academia in the Union over the next four years. This will strengthen the information and communication technology (ICT) community globally and be a major step forward in broadening ITU's membership base.

I am extremely proud that Waseda University in Tokyo — my own university — was one of the first 12 academic institutions admitted in January 2011 to participate in the activities of the ITU Sectors. At the ceremony announcing the start of Academic membership in ITU on 14 January 2011, I was named as an ITU

Special Envoy for Academia. Since then, I have been working to fulfil this role in every corner of the globe.

Academic institutions such as universities now have the opportunity to play an active part in the ongoing activities of the ITU Sectors, and to influence emerging new technologies and standards as well as policy. Active participation in ITU events — including meetings, seminars and workshops — will engage academia in the wider concerns of ICT policy, business activities, and the regulatory arena beyond technical and commercial concerns.

My personal idea is to have a programme for Academia, with activities that could include:

- publishing contributions by Academic Members on progress in science and technology related to telecommunications and ICT;
- inviting Academic Members to participate in workshops, seminars and conferences on priority areas including cybersecurity, emerging technologies (such as cloud computing and broadband), ICT for development, digital inclusion, and disaster reduction through the use of ICT;
- establishing an ICT global university to provide education and training for chief information officers and chief technology officers;
- encouraging Academic Members to participate in, and contribute expertise to, ITU TELECOM academic sessions;
- organizing research teams to contribute, in an advisory role, to ITU's areas of work;
- involving Academic Members, in partnership with industry and government, in solving critical global problems;
- developing global common courseware and curricula for ICT education;
- building an international team of academics as a neutral body to evaluate and monitor major activities to be implemented under government ICT strategies and plans.

There will be many opportunities for academia to contribute to ITU's efforts. For example, we might consider engaging a consortium of Academic Members — including the top ICT universities — to focus on challenges and opportunities in creating the information society of the future. We might recommend that Academic Members undertake activities to strengthen human resources development in the ICT sector, and to foster innovation, research and development in ICT. Academic Members could also play consulting and advisory roles, for example by constituting a centre of excellence in ICT community development.

We professors and researchers who are working in institutions that have already joined ITU as Academic Members have appreciated the easy access we have enjoyed to ITU's statistical data and study group reports. I am sure that the demand for access to such information will increase in the future, as Academia understands the benefits of its ITU membership.

To encourage academic institutions to join in ITU work, we need to find financial support, especially for those institutions in developing countries, to cover their ITU annual membership costs. In this regard, I personally expect that member governments will promote ITU Academic membership by providing funds to cover the membership costs for universities that apply. Local business groups and companies should offer grants to encourage the universities in their neighbourhoods to join ITU. And global companies and foundations should provide grants to academic institutions applying for ITU membership. I also expect that ITU will work closely with international academic ICT associations, such as the Institute of Electrical and Electronics Engineers (IEEE) and the International Academy of CIO.

My sincere wish is that all universities working on telecommunications, ICT and related fields will opt for ITU Academic membership. By joining ITU, they will be able not only to enjoy the benefits of ITU activities, but also to contribute their expertise — as Waseda University does.

ITU/V. Martin

From left to right: François Rancy, Director of the ITU Radiocommunication Bureau; Houlin Zhao, Deputy Secretary-General of ITU; Professor David P. Mellor OBE, Chairman of the United Kingdom Telecommunications Academy, and ITU Special Envoy for Academia; Dr Hamadoun I. Touré, Secretary-General of ITU; Malcolm Johnson, Director of the ITU Telecommunication Standardization Bureau; and Brahima Sanou, Director of the ITU Telecommunication Development Bureau

The challenge of access

Professor David P. Mellor OBE
Chairman of the United Kingdom Telecommunications Academy, and ITU Special Envoy for Academia

On 21 July 2008 ITU, the United Kingdom Telecommunications Academy (UKTA) and the Open University of Tanzania (OUT) signed a Memorandum of Understanding to facilitate the transfer of knowledge from the United Kingdom to Africa.

Working with the Faculty of Law at OUT, UKTA professors designed and developed a Master of Laws (LLM) in Information Technology and Telecommunications Law to be delivered ideally as an e-LLM. The programme was put together by Professor Lloyd (Director of UKTA) who since 1991 had been supporting a similar programme at the University of Strathclyde in Scotland.

The OUT students are expected to undertake four modules, each with a rating of 30 credits, followed by a Dissertation which gives a further 60 credits, making a total of 180 credits. Professors Lloyd, Clark and I have developed six modules for OUT covering the following topics: Legal Aspects of Information Security, Legal Management of Contracts, Telecommunications Policy and Regulation, Intellectual Property Law for Information Technology, Legal Implications of eCommerce and Telecommunications Law.

During the final stages of the development of the programme, in February 2009, I delivered a seminar in Morogoro (Tanzania) covering the content of the Telecommunications Policy and Regulation module to test the challenges students face when studying in Africa.

As a prerequisite to joining the LLM programme, all students are expected to have a laptop computer. On the teaching side, UKTA professors are expected to provide most of the information needed to undertake the study in a soft format. The experience gained during the study weekend in Morogoro led to the

conclusion that each module of the LLM would be supported by 35 hours of face-to-face lectures. During these sessions, the UKTA professors would provide students with essential study materials to allow them, over the following eight weeks, to prepare a 6000-word essay to answer a question posed as a measurable end-of-module assignment.

The assignments are submitted on-line by the students to UKTA. But prior to forwarding an assignment to the module leader for marking, the UKTA secretariat sends it to "Turnitin" for a plagiarism check. This is necessary to ensure that the work is associated with the author rather than a third party. Most students in Africa are computer literate, and the quality of students' work is comparable to that in United Kingdom universities. But because of the lack of available textbooks to support research, some students do tend to copy and paste from the Internet, and occasionally fail to check the validity of the source material. Increasingly, thanks to ITU and others, UKTA is able to provide a considerable amount of soft supporting reading materials, and very few papers are plagiarized from other students' and authors' works.

Although UKTA professors have found access speeds via the Internet in Africa to be slower than in Europe, it is proving to be possible to work very effectively on text-based documents, provided that any supporting PowerPoint slides have been transferred to the students during classroom sessions.

Power outages are a major problem in many parts of Africa, therefore regular backing up of work is essential when students are undertaking research. Power outages have been experienced even when teaching takes place in major hotels. But since all students have a laptop with at least two hours of battery back-up it is possible for tutors to deliver PowerPoint lectures, as long as the tutor and students are able to see the slides on their laptops as the lecture proceeds. I must say that the African students are extremely tolerant of power outages and readily accept any solutions the tutors propose in order to continue studying.

It has been found from experience over the past two years that costs to OUT and the students can be reduced by doing back-to-back delivery of the face-to-face modules. I cannot imagine what a professor would say if asked to deliver 70 hours of lectures over eight consecutive days in the United Kingdom! At OUT, UKTA delivers back-to-back pairings of modules covered by the same professor. These paired modules are: Legal Management of Contracts and Telecommunications Policy and Regulation (Professor Mellor); Intellectual Property Law for Information Technology and Legal Implications of eCommerce (Professor Clark); and Legal Aspects of Information Security and Telecommunications Law (Professor Lloyd). This schedule results in only three international airfares for the whole programme to be delivered.

The back-to-back pairing gives students many study options: from concentrating their studies into only two intensive weekends to spreading the study and cost over up to two years. OUT offers students many payment options. Each module (including the Dissertation) costs USD 1000. There is also flexibility in the courses offered. For example, a commercial lawyer interested only in eCommerce and Legal Management of Contracts can obtain a Post Graduate Certificate for passing those two subject assignments for a total of USD 2000. Some exceptional students have undertaken and passed all six OUT Modules and a Dissertation in 12 months. This is a major achievement considering that most students are in full-time employment while undertaking their studies.

Blended learning is the term UKTA uses to describe this study methodology. In the Tanzanian environment, blended learning seems to work well. Indeed, UKTA believes that a much wider audience exists for this programme, and we have already tested our ideas with the Association of African Communications Lawyers (AACL).

Since retiring from the University of Strathclyde, Professor Lloyd has been working with the University of Southampton Law

School where — within iLaws — he already has a number of students studying a truly online e-LLM. Recently, I prepared a module for UKTA which is to be used on the e-LLM at the University of Southampton, and I have been testing how such content can be used in Africa.

Given the European access speed, it is feasible for all lectures and supporting materials to be hosted on a Virtual Classroom at the University of Southampton. This would only work in Tanzania in areas of good connectivity. So what can be done? Over the past year both Professor Lloyd and I have been recording as MP3 files all supporting lectures for specific modules at OUT, and it is proposed by UKTA that from September 2012 students will be able to undertake at least the modules on Legal Management of Contracts and Telecommunications Policy and Regulation without attending face-to-face sessions associated with these topics. Each module will have a compact disc with all the associated materials preloaded onto it. Initially, the September study session will be an induction followed by a single face-to-face module. Assignments will be marked in the same way as they are at the moment, and plagiarism checking will continue. In due course, as connectivity speeds in Africa continue to increase in rural areas, all course content will be hosted on the OUT website.

The ideas being developed by UKTA and OUT will be reported in the Academia section of ITU News. For further information on UKTA activities, feel free to visit our website at www.ukta.co.uk

Opening ceremony (from left to right): Eun-Ju Kim, Regional Director of ITU's Regional Office for Asia and the Pacific; Pavel Filip, Moldova's Minister of Information Technology and Communications; and Orozobek Kaiykov, Head of ITU Area Office for the CIS

Broadband forums in Moldova — a modern tradition

Broadband is the basis of the information society and part of the essential infrastructure for overall socio-economic development. In just three years Moldova has established a tradition of broadband forums that have helped many countries move ahead.

The most recent forum, the ITU Cross-Regional Seminar on Broadband Access (fixed, wireless including mobile) for the Commonwealth of Independent States (CIS), Europe and Asia-Pacific regions, was held in Chisinau from 4 to 6 October 2011. This time round, ITU raised the event to a new level by broadening its framework to encompass not only the countries of the CIS and Europe, but also those of Asia-Pacific. More than 120 participants representing 28 countries from these regions exchanged experiences on the introduction of broadband communication technologies in their countries.

Addressing the seminar, the Regional Director of ITU's Regional Office for Asia and the Pacific Eun-Ju Kim observed that Moldova came 57th out of the 152 countries included in the ranking, moving up seven places since the previous year, according to the report "Measuring the information society 2011", which ranks countries in terms of their use of information and communication technologies (ICT), and which features the latest ICT Development Index and ICT Price Basket. Among the countries of the CIS region, Moldova takes third place after the Russian Federation and the Republic of Belarus. Ms Kim was speaking on behalf of the ITU Regional Office for Asia and the Pacific, which was also addressed by the Head of ITU's Area Office for the CIS, Orozobek Kaiykov.

Sharing experience

All of the CIS countries are aware that broadband communication is becoming a driving force of the economy, and are energetically deploying broadband. But each country has its own approach and its own experience. The geopolitical, geographic

and territorial specificities of any given country will determine its broadband implementation and development choices. For example, smaller countries prefer to develop broadband using optical fibre; wireless access is the solution adopted by medium-sized and mountainous countries; while large countries, such as the Russian Federation and Kazakhstan, prefer to develop satellite broadband communication, because covering such extensive territories using only optical fibre or wireless communication is impracticable.

The Russian Federation is at the forefront among the CIS countries in providing broadband access. To accommodate the varied nature of its territory, it is simultaneously implementing fixed, wireless and satellite technologies as it forges ahead towards the day when all of its inhabitants will be able to use broadband communication in all areas of daily life.

An example of the way in which broadband communication can change the lives of thousands of people is to be found in the experience of the Kyrgyz Republic, which has been a pioneer in implementing the project "Interactive multimedia digital broadcasting networks in countries with mountainous terrain". This project seeks to use innovations in the ICT sphere to meet the needs of education and development, particularly in developing countries, making knowledge available at all times and in all places, irrespective of the social position or place of abode of either the teacher or the learner.

The project was carried out by ITU, in partnership with the Administration of the Kyrgyz Republic, within the framework of the corresponding CIS regional initiative adopted by WTDC-06 in Doha, Qatar. Thanks to broadband communication, all Kyrgyz children now have the opportunity to study, and thereby change their lives for the better. The Kyrgyz Republic's first "peace lesson" was conducted on 29 August 2011 by ITU Secretary-General, Dr Hamadoun I. Touré, and the President of the Kyrgyz Republic, Ms Roza Otunbaeva. Participants at the 2011 Cross-Regional Seminar on Broadband Access recognized this project as an outstanding example of how the new technologies can meet the needs of humankind.

The Moldova forums serve as an information platform for replicating success stories, such as the Kyrgyz experience, in other countries. Positive experiences of implementing and using broadband communication should be made widely known, because such knowledge generates confidence in the successful outcome of technology initiatives. This is what makes the regular holding of forums so important to the global community of telecommunication specialists.

The broadband divide

The broadband divide is unfolding based not just on speed of service, but also on differences in network capacity and quality of service. Some countries are struggling with limited bandwidth, low quality connections and interrupted services. In Mongolia, more than 90 per cent of all fixed-broadband connections offer speeds of less than 2 Mbit/s. In contrast, in the Republic of Korea, there are no such slow speeds. The Asia-Pacific region has achieved considerable growth in broadband with the world's highest number of mobile broadband subscriptions. But by the end of 2010 penetration rates had reached just 7.1 per cent for mobile broadband and 5.7 per cent for fixed broadband.

According to Ms Kim, leading countries in the Asia-Pacific region, such as Singapore, the Republic of Korea and Australia, have succeeded in rolling out broadband networks and integrating them into their economic and social fabric mainly through "the vision of leaders, followed by early and consistent prioritization of broadband at every level of policy-making, equipped with an enabling regulatory environment."

AFP/Imaginechina

Programme of the 2011 Cross-Regional Seminar

The programme of the 2011 Cross-Regional Seminar included sessions on the following topics: introduction to wireless broadband technology; broadband programmes and system implementation; broadband solutions for rural and remote areas; wireless broadband standards and technology; regulatory aspects of wireless broadband; broadband wireless access planning and implementation; fixed-mobile convergence; and transition to IMT, IMT-Advanced and satellite broadband wireless access systems.

Mr Kaiykov presented the regional initiatives being pursued in the CIS. Forum participants were informed about: the possibility of establishing a virtual ITU laboratory for the remote testing of equipment and of new technologies and services; the project for the establishment by CIS administrations of a videoconferencing network for exchanging experience; and the possibility of creating an electronic funds transfer system in the CIS countries.

These and other CIS regional initiatives sparked keen interest among the forum participants, and for good reason. Discussions on broadband access used to focus primarily on the technical and technological aspects. This forum showcased the immense potential of broadband implementation for vital areas of human life, including education, medicine and management.

Moldova's ICT story

With its multi-ethnic and multicultural population, Moldova is a meeting point between western and eastern Europe, and the natural home for broadband forums.

In 2000, following the signing of the Okinawa Charter on the Global Information Society by the G8 leaders, Moldova set its sights on constructing an information society, and ICT has since become a strategic sector of the country's economy. By maintaining the stable and dynamic development of this sector, Moldova hopes to escape the effects of the global economic crisis. Most of the development indices are showing a positive trend, with the overall volume of ICT sales having risen from USD 360 million in 2006 to USD 530 million in 2010. Annual revenue for the sector amounted to more than 9 per cent of GDP. Investment plays a key part in the development of the ICT sector in Moldova, accounting for more than 13 per cent of total investment.

Moldova's improved ranking is unquestionably the result of the commitment shown by the Moldovan Administration over the past ten years, and of course its close cooperation with ITU and the ITU Area Office for the CIS countries. Thanks to this cooperation, a pilot project to create public broadband Internet access points in rural Moldova has been developed and implemented in a total of 25 communities, and as a result some

90 000 inhabitants now have access to broadband Internet. ITU and the Moldovan Administration are also jointly planning to launch a pilot project to connect educational establishments to the broadband Internet.

Looking back and looking ahead

The broadband forum is becoming more relevant, interesting and popular each year. ITU Secretary-General Dr Hamadoun Touré has been a driving force in generating this interest and in promoting the concept of broadband communication worldwide. ITU and the Broadband Commission for Digital Development are vigorously advocating the adoption of specific measures and policy decisions with respect to broadband communication, so that all the countries of the world can enjoy the benefits of this new technology. Broadband will open up opportunities for providing high-quality education, for putting scientific and technological knowledge into effect, and for strengthening social cohesion, fostering cultural diversity and facilitating dialogue between cultures, thereby strengthening our fragile peace.

On his first visit to Moldova in 2009, during the opening of the first Forum on Broadband Access for the countries of the CIS and Europe, Dr Touré observed that "Over the past ten years we have borne witness to the rapid development of mobile communications, whereas the forthcoming decade will be the era of broadband access." Looking to the future, Dr Touré continued by saying "Broadband is the next tipping point, the next truly transformational technology. It can generate jobs, drive growth and productivity, and underpin long-term economic competitiveness. It is also the most powerful tool that we have at our disposal in our race to meet the Millennium Development Goals".

Delegates at the ITU Cross-Regional Seminar on Broadband Access (fixed, wireless including mobile) for the Commonwealth of Independent States (CIS), Europe and Asia-Pacific regions in Chisinau

Connect a School, Connect a Community

Customized models in the Asia-Pacific region

"Connect a School, Connect a Community" is a public-private partnership launched by ITU during ITU Telecom World 2009 to promote broadband Internet connectivity for schools in developing countries around the world. Why focus on schools? Because connected schools not only bring young people into the digital society, but also can serve as community centres bringing information and communication technologies (ICT) to disadvantaged and vulnerable groups, including women and girls.

In the Asia-Pacific region, the idea has grown into an effort to bring broadband to as many schools and communities as possible, especially in rural areas. Although some of the countries rank high in the ICT Development Index, published by ITU in September 2011, there are wide differences in ranking within the region. This article describes two different models for connecting schools and communities, which might be of interest to other countries.

Sri Lanka: Public-private-people's partnership

The majority of rural and disadvantaged people still remain outside the information society, despite the target set by the

World Summit on the Information Society to connect all villages, schools, hospitals and public centres by 2015. The high cost of infrastructure, complexities in service provision, and unknown demand for broadband services hamper a natural diffusion of broadband connectivity in rural and remote areas. To provide connectivity to underserved people, in particular in rural communities, requires focused efforts.

Youth Forum alumni from ITU Telecom events have gone on to launch initiatives in their home countries, so that their communities can join the digital age. In Sri Lanka, for example, alumnus Sedara Hettige Supun Maduranga has championed the cause of connecting schools and communities, leading to ITU's project in Akuressa province. As a final year undergraduate at the University of Sri Jayawardenapura, Mr Maduranga received an ITU Youth Forum Fellowship and represented Sri Lanka at ITU Telecom Asia 2008, held in Bangkok, Thailand.

The Akuressa project has succeeded not only in bringing broadband connectivity to rural schools in that province, but also in fostering partnerships in Sri Lanka as a catalyst for further projects in the region. The project has provided computers and broadband access to 25 rural schools, none of which previously had any ICT. This project demonstrates that the challenges of funding, implementation and sustainability can be overcome by creating a broad and sustainable public-private-people's partnership.

ITU, the Telecommunications Regulatory Commission of Sri Lanka, and the local education authorities are all public sector partners of the Akuressa project. During the inauguration of the project on 3 May 2011, these partners made a commitment to monitor its progress and extend its scope into other regions. Two local telecommunication operators (providing Internet connections) and Intel Corporation (training teachers) also joined as private partners. Most importantly, teachers, local nongovernmental organizations and community members also participated in the implementation of the project. This multi-stakeholder partnership not only widened the funding pool, but also allowed participants to contribute creative ideas that led to effective implementation.

Impact on schools and communities

The Akuressa project is not only about the hardware and software needed to connect schools, but also more broadly about human resources development. Providing computers and Internet connectivity to rural schools fosters ICT literacy among students and enhances the quality of teaching. Computers with broadband access can serve as an effective platform for digital educational content, and ICT can be used to reduce the administrative burden on teachers. The new ICT facilities will enable teachers to teach their students more efficiently and creatively.

Enhancing ICT awareness

The project is already attracting more investment in connecting schools within Sri Lanka. Its success has enhanced the awareness of the Ministry of Education on the use of ICT in schools. Recently, the Education Minister quadrupled investment in connecting the project schools. And the school principals have also sought ways to increase their ICT facilities. For instance, one of the schools has already raised funds from local donors, making it possible to set up a computer laboratory.

Fostering future partnerships

ITU and the Telecommunications Regulatory Commission of Sri Lanka are now jointly looking for partners and donor agencies to pool their resources to replicate the success of the Akuressa project on a larger scale in other provinces of Sri Lanka. The first evaluation of the project is planned for the end of 2011, and the lessons learned will be used as a basis for bigger projects in other parts of Sri Lanka. In particular, efforts will be made to connect

schools and communities in the northern provinces of Sri Lanka, where people still remain unconnected both because of 30 years of conflict and because of the difficult terrain.

Viet Nam: The service provider driven initiative

Although the first international connection in Viet Nam started operating in December 1997, Internet user penetration was still very low in 2002, at less than 0.25 per cent. Internet access was dominated by dial-up, which provided very narrow bandwidth (mainly at 64 kbit/s), with high access tariffs. The Information Technology Department of the Ministry of Education and Training considered that it would take until 2030 to realize the dream of connecting all schools.

Getting all schools connected

In January 2008, telecommunication operator Viettel made a commitment to the Ministry of Education and Training to offer broadband connections free of charge for an unlimited time to all schools and educational institutions. The beneficiaries include kindergartens, primary, secondary and high schools, public education centres, training centres, district educational departments and offices, and vocational training centres. The commitment covers providing — free of charge — Internet connection equipment including asymmetric digital subscriber line (ADSL) modems, and laying cables, as well as connecting — free of charge — all educational and training departments via fibre-optic leased lines with a speed of 4 Mbit/s.

Viettel also offered to reduce the price for the 256 kbit/s international connection, and decrease by 70 per cent the connection charges of the fibre-optic leased line to universities. Finally, Viettel offered Internet connections via its third generation (3G) mobile network with a speed of 1 Mbit/s totally free of charge (including connection equipment and monthly charges) for all schools in rural and remote areas.

By December 2010, Viettel had provided free Internet connections to 29 559 educational premises, including all schools. Among these educational premises, 72 per cent got broadband connections with a bandwidth of at least 1 Mbit/s. Viettel expects to invest an estimated USD 24 million in infrastructure building and connections during the three years of project implementation, with an additional annual operational expense of around USD 4 million.

Investing in the future

Early access to ICT is the fastest way to spread knowledge, especially when teachers and students are the primary beneficiaries. Also, connecting the unconnected will give low-income groups a helping hand by offering access to knowledge and information, which will eventually lead to jobs and incomes. This will, in turn, transform information "have-nots" into potential customers.

Project benefits

The Ministry of Education and Training has confirmed that Viettel's project has reduced Internet tariffs by as much as 80 per cent in the past three years, creating valuable opportunities for households, and providing people throughout Viet Nam with access to the Internet. The Ministry also attributes the boom in the use of ICT applications in Viet Nam's educational network to the extensive expansion of infrastructure under Viettel's project.

Viettel's project is being implemented through fibre-optic infrastructure, which is expected to promote broadband development and cheap prices, offering the possibility of providing television. The project will benefit not only schools, but also the whole community.

Expanding the project by adding ICT applications

Getting all schools connected to the Internet marks the beginning of a new and larger project. Viettel and the Ministry of Education and Training signed another agreement in December 2010 to use the deployed infrastructure to enhance e-education. Various ICT applications, such as e-books, e-schools and e-learning, will be created for the schools of tomorrow.

Dr Hamadoun I. Touré
Secretary-General of ITU

Houlin Zhao
Deputy Secretary-General of ITU

Malcolm Johnson
Director of the ITU Telecommunication Standardization Bureau

François Rancy
Director of the ITU Radiocommunication Bureau

Brahima Sanou
Director of the ITU Telecommunication Development Bureau

Emergency satellite communications platform to bolster global response to disasters

ITU and the Government of the Grand-Duchy of Luxembourg have agreed to cooperate on strengthening emergency telecommunications and rapid response in the event of natural disasters. ITU and Luxembourg are members of the Emergency Telecommunications Cluster (ETC), comprising of United Nations agencies and other humanitarian partners.

The Government of Luxembourg has developed a nomadic satellite-based telecommunication system — "emergency.lu" — aimed at assisting humanitarian agencies to respond to communities affected by natural disasters, conflicts or protracted crises. This platform will be available as a global public good to the international humanitarian community as of 1 January 2012, with Luxembourg funding its development, implementation, operation and maintenance to the tune of EUR 17.2 million.

Under the umbrella of the "ITU Framework for Cooperation in Emergencies" (IFCE), ITU will encourage its 193 Member States to use the emergency.lu platform and facilitate the rapid deployment of emergency telecommunication systems in the event of a sudden-onset disaster, or a longer-term deployment in chronic or recurrent humanitarian contexts or as part of a preparedness strategy in developing countries. ITU will negotiate appropriate regulatory and legal frameworks with administrations, particularly Telecommunication Regulatory Authorities, to assist in the deployment. IFCE is an ITU communications initiative to assist the humanitarian community in disaster response. IFCE and emergency.lu will be jointly and individually deployed within two hours of notification using every possible means, including custom-fitted aircraft, depending on the nature and magnitude of the disaster.

ITU Secretary-General Hamadoun Touré said that the initiative of the Government of Luxembourg was a timely and significant step in serving the humanitarian community and the victims of disasters worldwide. "By placing emergency.lu at the disposal of the international humanitarian community as a global public good, the Government of Luxembourg has provided an invaluable asset to humankind in an effort to save lives — and ITU will take all measures to facilitate its deployment," Dr Touré said.

The agreement was signed in New York on 6 December 2011 by Marie-Josée Jacobs, Minister for Development Cooperation and Humanitarian Affairs, Luxembourg, and Brahima Sanou, Director of the ITU Telecommunication Development Bureau. "The launch of a collaborative and coordinated communication system to serve the humanitarian community is an important step in saving lives," said Mr Sanou. He also announced that ITU will soon be launching a Smart Sustainable Model that will ensure that resources set aside for disaster risk reduction and management are also used for sustainable development.

Official Visits

During October (end), November and December 2011, courtesy visits were made to ITU Secretary-General Dr Hamadoun I. Touré by the following ministers, ambassadors to the United Nations Office and other international organizations in Geneva, and other important guests.

October (end)

François Roux, Ambassador of Belgium

Malloum Bamanga Abbas, Ambassador of Chad

Hashem Ahmed Al-Hashemi, State of Qatar representative at the ITU

Abdelrahman Mohamed Abdalla Dhirar, Ambassador of Sudan

November

Romain Abilé Houéhou (Benin), Coordinator of the African ICT Consumers Network (AICN)

Paul Martin, Vice Principal and Executive Dean of the University of the West of Scotland

Richard Butler, former ITU Secretary-General (1983–1989)

Luc-Joseph Okio, Ambassador of the Republic of the Congo and current Chairman of the African Group in Geneva

Alpha Dramé, Secretary-General of Apprenticeship Without Borders (ASF) and Diana Comnos, Chief of Programmes at ASF

Péter Sztáray, Hungary's Deputy State Secretary for Security Policy (Political Director)

All photos are by P.M. Virot/ITU.

Mayi Antillón Guerrero, Costa Rica's Minister of Economy, Industry and Trade

Andrea Rigono, Director-General of the Global Cyber Security Center (Italy) after signing a Memorandum of Understanding between ITU and the Center

December

Gennadiy Mikhailovich Gatilov, Russian Federation's Deputy Minister of Foreign Affairs with Houlin Zhao, Deputy Secretary-General of ITU in front of the Popov Room at ITU

Hamid Fazeli, President of the Iranian Space Agency

Jasna Matiæ, Serbia's State Secretary for Digital Agenda

Nasser M. Al Qarni, International Affairs Executive, Regulatory Affairs Sector, STC, Saudi Arabia

All photos are by P.M. Virot/ITU.

Meeting with the Secretary-General

Valery Loshchinin (centre), outgoing Ambassador of the Russian Federation pictured here after being presented with an ITU Certificate and Medal by Dr Touré in the presence of (from left to right): Brahima Sanou, Director of the ITU Telecommunication Development Bureau; Houlin Zhao, Deputy Secretary-General of ITU; and François Rancy, Director of the ITU Radiocommunication Bureau

Elissa Golberg, Ambassador of Canada

Roberto Masotti, Vice President of Telecom Italia (Italy)

Peter Gooderham, Ambassador of the United Kingdom

James Manzou, Ambassador of Zimbabwe

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