



Journal Title: ITU News Plus+

Special Issue: Setting the standard: a snapshot report of the World Telecommunication Standardization Assembly

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Setting the Standard

A ***Snapshot
Report*** of the World Telecommunication
Standardization Assembly



wtsa16
TUNISIA



WTSA-16: Setting the standard

Chaesub Lee

Director, ITU Telecommunication Standardization Bureau

The years approaching 2020 will be pivotal in the development of the global information and communication technology (ICT) ecosystem. 5G systems are beginning to take shape. The Internet of Things (IoT) era is gathering pace. And new investment in ICTs will power smarter cities and communities.

International standards bring cohesion to this unceasing innovation – and ITU's standardization sector (ITU-T) supports key efforts to create a post-2020 environment where smart, trusted ICTs will be core to innovation in all industry sectors.

“WTSA-16 has refined ITU-T's strategic direction and structure to support the next phase of innovation.”

This is what has made the work of this year's quadrennial World Telecommunication Standardization Assembly 2016 (WTSA-16) – held in Hammamet, Tunisia from 25 October to 3 November – so important.

WTSA-16 has refined ITU-T's strategic direction and structure to support the next phase of innovation. It has also consolidated the progress we have achieved over the past four years.

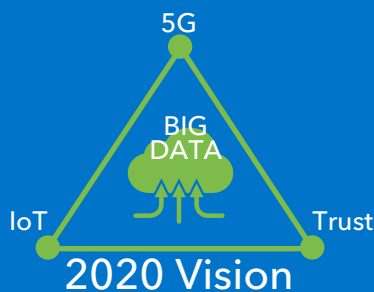
Building on our success

WTSA-16 builds off the momentum of the 2013-2016 study period.

G.fast is a new broadband standard capable of achieving up to 2 Gbit/s access speeds over traditional telephone wires, and ITU standards for 40-Gigabit-capable Fibre to the Home are the first to provide fibre-optic access speeds beyond 10 Gbit/s.

2020 vision and beyond

WTSA-16 has provided members with a standardization toolkit optimized to assist government and industry in achieving their ambitions for the year 2020 and beyond. The future of standardization will be driven by 5G, IoT and Trust as enablers supporting the UN Sustainable Development Goals.



Real-time standardization

Over 300 new ITU standards
released each year



Market-driven standards

Over 4000 active standards
in use

The revision of a key ITU standard underlying the ultra-high-speed Optical Transport Network has enabled optical transport at rates higher than 100 Gbit/s.

ITU has provided the platform for the next phase of innovation in video with the delivery of ITU H.265 'High Efficiency Video Coding', the successor to the Primetime Emmy award-winning ITU H.264 'Advanced Video Coding'. A new standard for high-quality 4G mobile voice communications helps operators to capitalize on new business opportunities such as VoLTE.

ITU members are engaged in a new standardization effort to realize smart, trusted IMT-2020 (5G) systems, and ITU is building on over 10 years of experience in IoT standardization to contribute to the development of smart cities.

We also have achieved considerable progress in our efforts to support the convergence of technologies and industry sectors, including new ITU standards in areas such as softwarization/virtualization of network functions, e-health, smart grid and intelligent transport systems.

ITU standardization work will also make an essential contribution to ensuring that technical developments are supported by policy frameworks.

An inclusive platform

WTSA-16 has provided ITU members with a standardization toolkit optimized to assist government and industry in achieving their ambitions for year 2020 and beyond. The principles underlying the ITU standardization process ensure that all voices are heard, that our standards efforts do not favour particular commercial interests, and that resulting standards have the support of the diverse set of stakeholders that comprise the ITU membership.

ITU-T has emerged from WTSA-16 in a stronger position to provide common platforms for ICT growth and innovation. I look forward to our continued collaboration to build a trusted ICT environment, one that will drive social and economic development in all regions of the world. ▲

Setting the Standard

A 'Snapshot Report'* of the World Telecommunication Standardization Assembly

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*Chaesub Lee,
Director, ITU Telecommunication Standardization Bureau*

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* This 'Snapshot Report' is intended only to recap some of the highlights of WTSA-16. It is not the official WTSA-16 report. For more information, view the [draft proceedings](#).

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Setting the Standard

A **Snapshot Report** of the World Telecommunication Standardization Assembly



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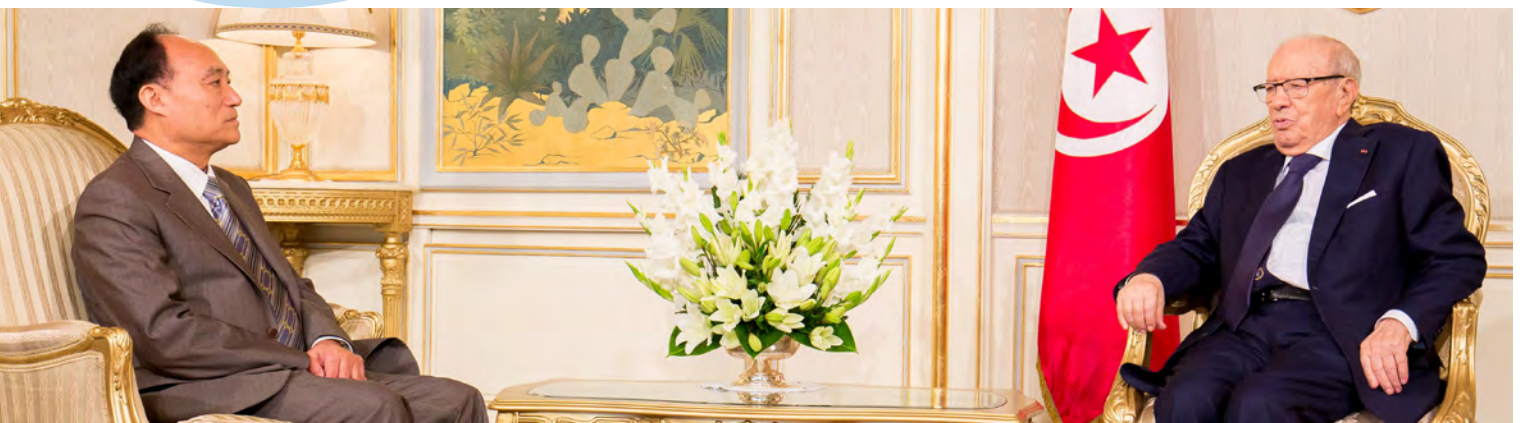
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Tunisia welcomes world ICT leaders to WTSA-16



Setting the agenda ...

At **WTSA-16**, ITU members met to refine the strategic direction, leadership and structure of ITU's standardization arm.

WTSA-16 fortified the inclusivity of ITU's standardization platform, helping to bridge the digital divide.

193

Member States

700+

industry players

130+

academic and research institutes

100+

meetings worldwide +5000 participants

1000+

virtual meetings +5000 virtual participants

20+

WTSA-16 regional preparatory meetings

... to build the digital economy

The future shape of the Internet of Things (IoT), smart cities, cybersecurity and 5G are all underpinned by the work done at **WTSA-16**.



\$6 trillion

The value generated by IoT technology by 2025

1.7Mb per second

Amount of data created by each person by 2020

237 million

Number of IoT wearables shipped by 2020

80% video

By 2020, the majority of Internet traffic will be video, enabled by ITU standards



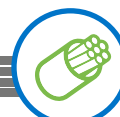
95x

Amount of international traffic carried over fibre networks built using ITU standards



250x

Broadband access speed over copper increased by 250x in past 17 years with ITU standards



64x

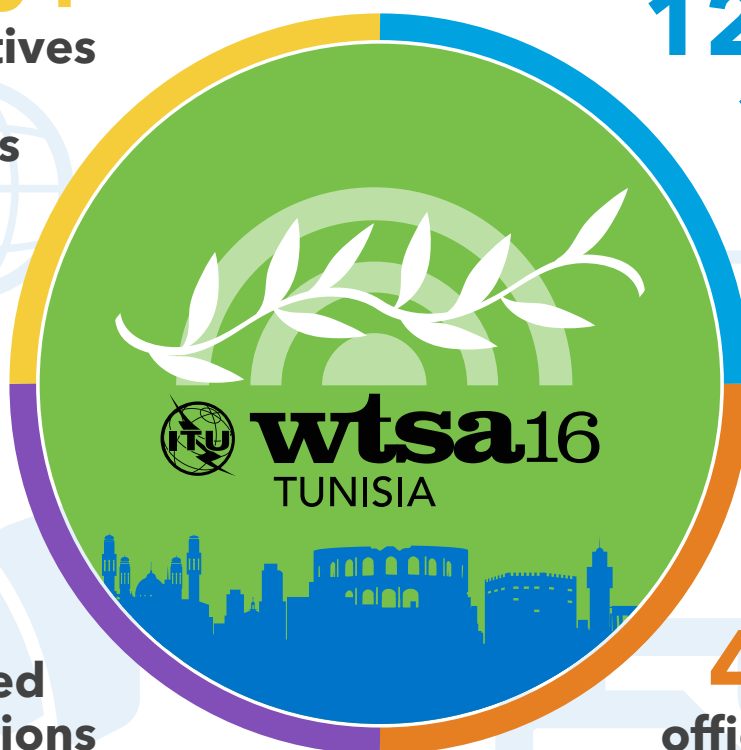
Broadband access speed over fibre increased by 64x in past 15 years with ITU standards

WTSA-16 by the numbers

700+
representatives
92 countries

12 chairs
113
vice-chairs

16 new
resolutions
31 revised
resolutions
6 suppressed resolutions
5 new standards



The
assembly
considered
427
official meeting
documents,
including **211**
individual input
proposals.

Standards to power the 5G era

During the World Telecommunication Standardization Assembly 2016 (WTSA-16), more than 700 delegates from 92 countries gathered for nearly two weeks in Hammamet, Tunisia to take key decisions regarding the structure, working methods, and leadership of ITU's standardization sector (ITU-T).

"As we approach 2020, one of the most important areas of ITU work will be the international standardization of 5G systems," said ITU Secretary General Houlin Zhao in the opening ceremony, presaging the discussions to come. "ITU is supporting industry in their work to build a 5G environment where all of us will have affordable, reliable access to ICTs (information and communication technologies)."

Indeed, ITU membership called during WTSA-16 for ITU-T to expand its study of the wireline networking innovations required to achieve the ambitious performance targets of smart 5G systems. The call came in parallel with ITU members' reaffirmation of the importance of ITU's standardization work to drive the coordinated development of the Internet of Things (IoT) and smart cities and communities.

“WTSA-16 has achieved a range of victories for international collaboration.”

Moktar Mnakri,
Chairman of WTSA-16

CxO Meeting

Several informative events were held on the sidelines of WTSA-16, including the first **ITU CxO Meeting** in the Arab and Africa Regions, which brought together more than two dozen high-level executives ('CxOs') from companies such as Tunisie Telecom, Alibaba, KT, Huawei, Sofitel, Ericsson, Orange, and Deutsche Telekom. Participants at the invitation-only event discussed new dynamics ushered in by the rise of over-the-top (OTT) business models, as well how best to accelerate the deployment of innovative broadband access solutions such as giga-band through a combination of LTE, WiFi and ITU G.fast technology.

The conclusions of the CxO meeting will feed into ongoing discussions in ITU on the promotion of OTT innovation, possible regulatory approaches to OTT, and incentives for infrastructure investment and the protection of privacy and personal data. ■



Global Standards Symposium

ITU's third [Global Standards Symposium](#) (GSS) brought together a diverse range of industry players such as Deutsche Telekom, Google, Huawei, Alibaba, and Symantec as well as representatives from government, civil society and standards development organizations.

The sessions of this event focused on the following topics:

- Regulatory principles for security, privacy and trust
- How industry meets end-users' expectations of security, privacy and trust
- Standards bodies' approach to security, privacy and trust

Panelists and participants discussed the challenges and opportunities of aligning on international standards. "You can all go back to your home countries and provide leadership," said David Francis, the European Cyber Security Officer for Huawei Technologies, expressing the spirit of GSS. "That's important."

Read [our blog post](#) for more insight and thought leadership shared by experts during GSS. ■

“Cyber security is a shared problem and requires a collaborative approach.”

David Francis
Huawei

ITU members also encouraged ITU-T to increase digital financial inclusion; promote affordable mobile roaming tariffs; and strengthen consumer protection and ICT service quality. Members have in addition called for ITU standardization to support the use of cloud computing to record event data from aircraft, vehicles and other connected machinery.

These directives have given further impetus to ITU standardization work aimed at supporting government, industry and academia in achieving their priorities for year 2020 and beyond. The conference, which takes place every four years, saw lively deliberation on a wide range of standardization topics critical to the next phase of innovation for ICTs.

The Assembly also elected the teams that will lead ITU-T's expert groups. Another key focus of WTSA is to review ITU-T's mechanisms for collaboration with other standards bodies and the many vertical sectors applying ICTs as enabling technologies.

"WTSA-16 has achieved a range of victories for international collaboration," said Moktar Mnakri, Chairman of WTSA-16. "The diverse membership of ITU-T has reached a series of agreements to assist all regions of the world in their efforts to share in the social and economic benefits that will be accelerated by ICTs in coming years."

"I would like to commend Tunisia for the visionary role that it continues to play in promoting the use of ICTs to drive sustainable development," said ITU Secretary-General Houlin Zhao. "The country's hosting of WTSA-16 has made valuable contributions to ITU's work to broker consensus on policy and technical questions crucial to the development of the global ICT ecosystem. The discussions of WTSA have provided ample evidence of the importance of ITU standardization work in driving global connectivity and innovation."

"The deliberations of WTSA-16 have demonstrated the great spirit of collaboration for which ITU membership is well known," said Chaesub Lee, Director of ITU-T.

"Our members have worked tirelessly to reach agreement on the future shape of ITU-T, ensuring that it is fit for purpose to deliver standards capable of providing an equitable basis for ICT innovation worldwide. ITU-T has emerged from WTSA-16 in a strong position to support the development of the trusted ICT infrastructure essential to the success of 5G systems, the Internet of Things and Smart Sustainable Cities."

Alongside adopting 16 new WTSA Resolutions and revising 31, the Assembly also revised two of the A series ITU-T Recommendations that guide ITU-T's work, and in addition approved five ITU standards on subjects including international mobile roaming and Internet Exchange Points.

60th anniversary talks

ITU's Telecommunication Standardization Sector (ITU-T) celebrated its 60th anniversary during the first week of WTSA-16 by looking forward, not back.

ITU-T seized the opportunity to hold talks on two key fast-moving trends that are having a massive impact on the world of information and

communication technology:

- **digital financial services (DFS)** and
- **artificial intelligence (AI).**

The talks – moderated by renowned AI and Fintech expert Stephen Ibaraki – offered a platform to discuss the opportunities and challenges involved in both fast-tracking the adoption of digital financial services and how to standardize cutting-edge AI technologies in order to boost innovation. ■

**Learn
more**

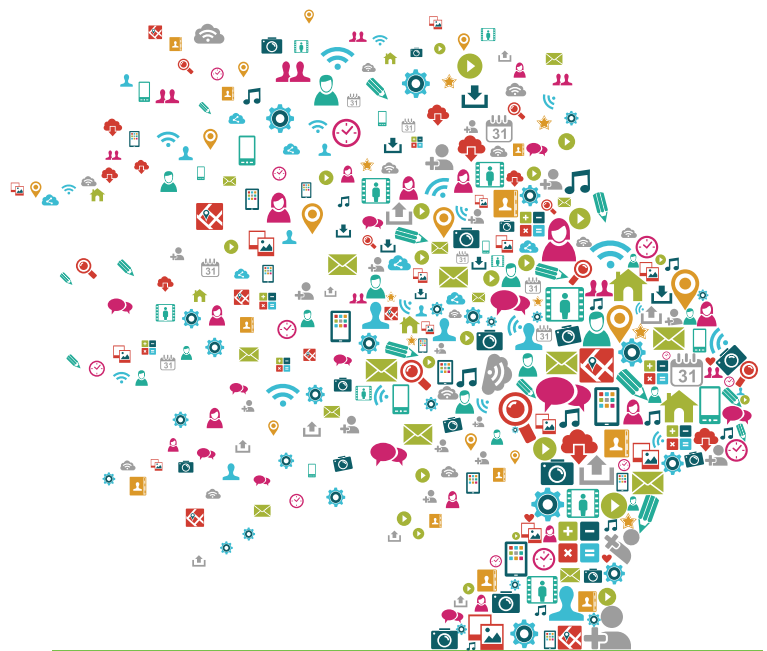
Read some of the insights from top leaders from companies such as IBM Watson, Safaricom and Tunisia Post.



A series of informative side events was also held in conjunction with WTSA-16, including:

- The first **CxO Meeting** in the Arab and Africa Regions, which assembled high-level executives from companies such as Tunisie Télécom, Alibaba, KT, Huawei, Sofetel, Ericsson, Orange, and Deutsche Telekom.
- ITU's third **Global Standards Symposium (GSS)**, which gathered ICT thought leaders to discuss industry and regulatory approaches to issues surrounding security, privacy and trust.
- The **CCITT/ITU-T 60th Anniversary Talks**, which hosted high-profile speakers to explore the role of standards in supporting innovation in Artificial Intelligence and Digital Financial Services.
- The first meeting of the **ITU Women in Standardization Expert Group (WISE)**, which brought together leading women in the ICT field to discuss ways to close the ICT gender gap.
- A special event focused on the **accessibility of ICTs to persons with disabilities**, highlighting ITU's latest initiatives to mainstream ICT accessibility in the development of technical standards.

The decisions of WTSA-16 have shaped ITU-T into a form optimized to provide government, industry and academia with common technical platforms to assist their pursuit of the United Nations' Sustainable Development Goals. ▲



WISE

ITU's first-ever **Women in Standardization Expert Group (WISE)** event brought together delegates and ITU staff attending the WTSA-16 to learn, connect and celebrate the continued efforts towards gender equality in leadership positions.

The event consisted of a workshop on practical skills to overcome gender differences in negotiations, followed by a lively panel discussion highlighting the experiences of leading women from the information and communication technology (ICT) and standardization fields.

The women panelists from all regions of the world told the audience how they achieved success in a male-dominated ICT field – and how girls and young women could do the same.

WISE is part of the **EQUALS** movement, a joint ITU and UN Women campaign to achieve digital gender equality by 2030. Follow the conversation at **#beEQUALS**. ■



New Resolutions

ITU members approved 16 new Resolutions at WTSA-16 on topics ranging from 5G systems to mobile roaming, IoT and smart cities, open source, and cloud-based event data technology.

Overviews of some of the directives found in the new Resolutions are provided below. (For more detailed information, please visit the [WTSA-16 webpage](#) to view the draft proceedings in each of the six official UN languages.)

1 Interconnection of 4G, IMT-2020 networks and beyond

- broker the international agreement of a framework for the interconnection of LTE-based networks to enable VoLTE/ViLTE 'roaming'
- support interoperable, high-quality voice and video communications through 4G, 5G and beyond

2 Enhancing ITU-T standardization activities related to non-radio aspects of international mobile telecommunications

- match innovations in radio transmission with innovations in underlying backbone networks
- study the wireline networking innovation necessary to achieve performance targets of 5G systems
- align this work with related studies in ITU-R, ensuring that the fixed and wireless elements of 5G systems work in harmony

3 Enhancing the standardization of Internet of Things and Smart Cities and Communities for global development

- ensure IoT technologies and applications assist the achievement of the UN Sustainable Development Goals
- develop standards to drive the coordinated development of IoT technologies and applications
- provide a reliable foundation for smarter cities and communities
- run pilot projects and peer-learning initiatives to establish best practices in smart urban development

4 ITU-T studies for combating counterfeit telecommunication/ICT devices

- explore means to combat counterfeiting
- protect government, industry and consumers from harm caused by the practice
- develop the necessary standards and support ICT stakeholders to increase their capabilities

5

Combating mobile telecommunication device theft

- explore all applicable solutions to the challenge of mobile device theft
- develop technical solutions to assist in counteracting the duplication of device identifiers
- prevent lost or stolen devices from accessing the network
- provide a platform for associated international collaboration

6

Open source in ITU-T

- study the merits of enabling open-source projects in relation to ITU standardization work
- expert groups to continue collaborating with open-source communities
- collaborate with open-source communities to provide training in relation to open-source work

7

Promoting the use of ICTs to bridge the financial-inclusion gap

- bring life-changing basic financial services to the over 2 billion adults worldwide without access to a bank account
- develop standards and guidelines targeting interoperability, digitization of payments, consumer protection, quality of service, big data and security of digital financial transactions
- provide platform for peer-learning among the diverse set of interests leveraging ICTs to increase financial inclusion

International mobile roaming

- ensure operators see fair return from investments that enable their customers to roam
- ensure end users pay a fair price for roaming services
- promote international cooperation for affordable mobile roaming rates
- encourage competition in roaming markets

Enhancing access to electronic repository of information on numbering plans published by ITU-T

- enhance the electronic repository of numbering plans, recognizing that this function of ITU-T is essential to the reliability of ICT networks and services

Studies concerning the protection of users of telecommunication/ICT services

- develop standards and guidelines to protect users of ICT services
- ensure services are of appropriate quality - and are affordable
- ensure levels of security necessary to instill confidence in users

Standardization work in ITU-T for cloud-based event data technology

- develop standards on the use of cloud computing to record event data from aircraft, cars and other connected machinery
- organize events to collect associated requirements and technical input from as many stakeholders as possible

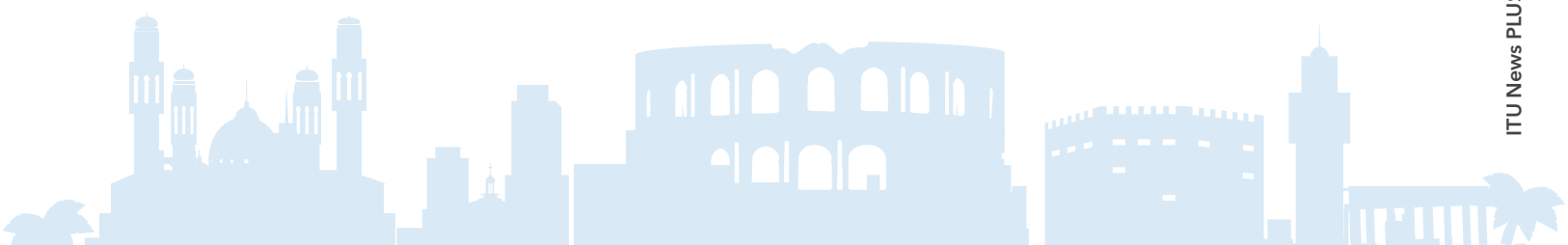
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9

10

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12



12

Facilitating the implementation of the Smart Africa Manifesto

- contribute technical expertise in support of the Smart Africa Manifesto - the foundation of the Smart Africa Initiative - which aims to place ICT at the centre of African countries' social and economic development agendas; improve access to ICTs; improve accountability, efficiency and openness using ICT; put the private sector first; and leverage ICT to promote sustainable development

13

ITU-T initiatives to raise awareness on best practices and policies related to service quality

- match ITU-T standardization work on the assessment of ICT performance, quality of service (QoS) and quality of experience (QoE) with the development of more comprehensive guidelines to regulators, assisting them in their efforts to define strategies and testing methodologies to monitor and measure QoS and QoE

14

Evaluation of the implementation of resolutions of the WTSA

- strengthen the assessment and reporting of the response to WTSA Resolutions
- reporting essential to strategic reviews of ITU-T activities

15

Strengthening and diversifying ITU-T resources

- investigating possible measures to generate additional revenue for ITU-T
- explore revenue generation from international numbering resources and conformance and interoperability testing

16

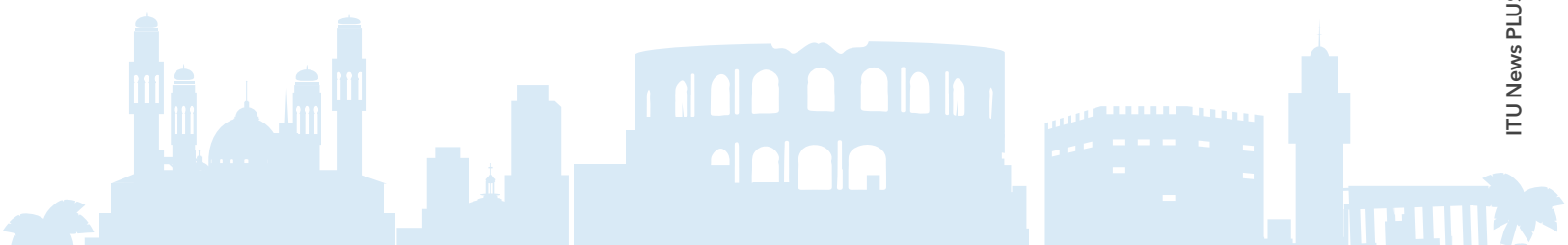
Participation of ITU-T in the periodic review and revision of the International Telecommunication Regulations

- contribute expertise to the periodic review of the International Telecommunication Regulations, an international treaty intended to "facilitate global interconnection and interoperability"

Revised and Suppressed Resolutions

In addition to the 16 new Resolutions passed at WTSA-16, ITU members also revised 31 Resolutions on topics ranging from cyber-security, spam and e-health to the responsible management of electromagnetic fields and the need to bridge the standardization gap between developed and developing countries. Two of the A series ITU-T Recommendations that guide ITU standardization work were also revised. In addition, members suppressed six Resolutions deemed to have achieved their objectives. (For more detailed information, please visit the [WTSA-16 webpage](#) to view the draft proceedings in each of the six official UN languages.) ▲

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Standards approved

ITU members also approved five standards at WTSA-16 on subjects including international mobile roaming and Internet Exchange Points.

ITU-T D.52

"Establishing and connecting regional Internet Exchange Points (IXPs) to reduce costs of international Internet

connectivity" will guide regional collaboration to establish central hubs (IXPs) that enable local Internet traffic to be routed locally, saving international bandwidth and reducing the costs of international Internet connectivity.

ITU-T D.53

"International aspects of Universal Service" offers guidelines to increase compliance with Universal Service policies as well

as the extent to which they achieve their goal of delivering a minimum level of ICT services to every inhabitant of a country.

ITU-T D.271

"Charging and accounting principles for Next-Generation Network (NGN)" (revised) sets

out the general principles and conditions applicable to the use of packet-based networks to transport packets between standards-based interfaces and the services that they support.

"Methodological principles for determining international mobile roaming rates" proposes

a possible approach to the reduction of excessive roaming rates, highlighting the need to encourage competition in the roaming market, educate consumers and consider appropriate regulatory actions such as the introduction of caps on roaming rates.

ITU-T D.97

"Principles for market definition and identification of operators with significant market power"

proposes principles and guidelines to assist countries in defining and identifying significant market power and assess whether or not, and the degree to which, this power has been abused by international telecommunications companies. ▲

ITU-T D.261

Video insights



Several ICT thought leaders from the private and public sectors shared insights on the sidelines of WTSA-16. Below is a small sample:

“ In terms of a regulatory perspective, we must act now if we want to examine how to get a more secure IoT future. Things like quantum computing and quantum cryptography ... are going to require standardization. ”

Click to see video

Jaya Baloo
CIS Officer, KPN,
speaking at the
Global Standards
Symposium
at WTSA-16



“ Everyone’s going to be impacted by the proliferation of [artificial intelligence]. The impact is going to be faster than what people had originally anticipated. ”

Click to see video

Stephen Ibaraki
Social entrepreneur, futurist, and
moderator of
the ITU-T’s 60th
anniversary talks
at WTSA-16



“ In Kenya, we had an understanding regulator who basically said to us: ‘We think [the M-Pesa mobile money product] has some huge potential, so we are going to have a light-touch regulation.’ ”

Click to see video

Ronald Webb
Director of
Financial Services,
Safaricom



“ It is critical that the ITU remains technology neutral. ”

Click to see video

Kwame Baah-Acheamfuor
Chairman of
ITU-T Study
Group 12 and
Committee 4



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