CTO MEETING COMMUNIQUÉ
11 October 2015
Budapest, Hungary

14 information and communication technology (ICT) leaders and the strategic management of the ITU Telecommunication Standardization Sector (ITU-T) met for the seventh annual Chief Technology Officers' (CTO) meeting in Budapest, Hungary, 11 October 2015.

Addressing the meeting, ITU Secretary General Houlin Zhao expressed his gratitude to participants for their ongoing commitment to the work of ITU. Citing recent engagements at the United Nations General Assembly, he informed the CTOs of the importance of standards as seen by heads of states and governments around the world. He also highlighted the crucial role of SMEs, entrepreneurs, innovation hubs and accelerator programs within the global ICT ecosystem – a key theme at ITU Telecom World 2015.

5G systems, service interoperability in fixed-mobile hybrid environments including the Internet of Things (IoT), trusted information infrastructure, and open-source solutions were key topics in the discussions and were identified as areas of particular strategic importance to the participants.

International Mobile Telecommunications for 2020 and beyond (IMT-2020), or 5G, is expected to provide a future-proofed basis for communications from year 2020 onwards. Virtualization will play a key role in 5G networks, giving networks the flexibility to adapt to changes in service requirements. CTOs highlighted that 5G will require an evolution of the concepts and architectures of core networks, and welcomed the efforts of the ITU-T Focus Group on IMT-2020 to collect stakeholders' views on how ITU-T standardization will contribute to this evolution. CTOs stressed that the coordination of various standards bodies' contributions to 5G standardization will be essential in building the integrated fixed-mobile hybrid networks to support the 5G era, and CTOs encouraged ITU to be proactive in enabling this coordination.

CTOs welcomed the recent agreement of the TSB Director's Ad Hoc Group on IPR to study possible approaches to the management of intellectual property rights for 5G standards, and the interplay between IPR and open-source solutions in a standardization context. In view of recent changes to the patent policy of the IEEE Standards Association, CTOs stressed the benefits of a harmonized IPR approach for 5G, pointing to the common patent policy for ITU-T/ITU-R/ISO/IEC.

ITU Secretary General Houlin Zhao highlighted the role to be played by ICTs in shifting the world onto a sustainable and resilient development path. The meeting identified smart cities, IoT applications and 5G systems as key technological developments to assist in achieving the 17 **Sustainable Development Goals** adopted by world leaders in September.

Service interoperability in fixed-mobile hybrid environments, including IoT, is becoming a high priority to industry. This interoperability is important not only to support a wide variety of service types but also to enhance the quality of services, particularly in view of their provision over hybrid fixed-mobile smart broadband infrastructures. Today broadband services are available over fixed and mobile platforms, together allowing people to enjoy multimedia content and various applications. However, bi-directional, real-time, high-quality voice and video

communications remain within a limited region at most. CTOs recognized that expanding access to high-quality, bi-directional services will provide great benefit to ICT users and society at large. Participants identified high-quality voice telephony as a challenging but attractive opportunity for network operators and invited ITU-T to facilitate the roll out of high-quality voice and video services through standards, testing and interoperability. CTOs encouraged ITU-T to initiate studies – including studies on accessibility, data formats, and control and management aspects – with the goal of enabling the global interoperability of such high-quality services, inviting contributions to these studies from operators and related industry experts as well as relevant SDOs.

In addition, CTOs noted that it will be important to overcome interoperability challenges in the IoT space, including with respect to service aspects of IoT. Acknowledging that IoT platforms are being developed in segments, according to the needs of each vertical industry, CTOs encouraged ITU-T to focus its IoT standardization work on enabling interoperability among different IoT segments.

Strengthening trust in telecommunications systems and ICTs will be essential in granting users the confidence to expand the scope of their interactions within the Information Society. CTOs noted that trust should be considered as a key component of the core design principles of future ICT infrastructure. CTOs welcomed ITU-T's establishment of a Correspondence Group on Trust and voiced support for the group's ongoing development of a technical report on trust provisioning in ICT infrastructure. CTOs encouraged ITU-T to determine use cases for trust provisioning (e.g., in IoT, cloud computing, Big Data), considering the new business models emerging as part of the 'sharing economy'. Following this analysis of use cases, ITU-T intends to develop a framework for trust provisioning, specifying its requirements and architectures in relation to relevant standards. In addition to offering support for the development of this framework, CTOs highlighted that collaboration between standards bodies will be crucial in stimulating standardization activities on trust.

Open-source software implementing virtualized infrastructure components plays an increasingly important role in the network. The convergence of ICTs gave rise to innovations such as network function virtualization (NFV) and software-defined networking (SDN), and CTOs were of the view that collaboration between the standardization and open-source communities will provide further impetus to ICT convergence. CTOs encouraged ITU-T to study how it might accommodate the open-source community, beginning with an analysis of open-source activities underway to identify the communities with which ITU-T could build collaboration in areas such as NFV, SDN, cloud computing, IoT and video coding. CTOs suggested that open-source implementations of certain high-profile ITU-T Recommendations might augment their influence, breadth of application and ease of deployment.

Participants welcomed the initiative to establish a Standardization Strategy Function in ITU-T open to non-members in order to increase agility and to engage with SMEs.

The CTO meeting supported the maintenance and expansion of ITU-T efforts to address the disparity between the standardization capacities of developed and developing countries, and to promote technically and economically viable solutions. It was suggested that the topics discussed by CTO meetings could be the subjects of future ITU workshops, to build capacity and to identify standardization needs of developing countries.

Looking ahead, the CTOs were briefed on the preparations of the World Telecommunication Standardization Assembly 2016 (WTSA-16) and encouraged to

submit contributions regarding working methods and work programme. ITU is calling for nominations for leadership positions and welcomes nominations of women candidates.

The participating organizations were:

China Mobile Ltd., China; Cisco Systems, United States; Ericsson, Sweden; Fujitsu Ltd., Japan; Huawei Technologies Co. Ltd., China; KT Corporation, Korea; Mitsubishi Electric Corporation, Japan; National Institute of Information and Communications Technology, Japan; NEC Corporation, Japan; Nokia Networks, Finland; NTT DOCOMO, Inc., Japan; Tunisie Télécom, Tunisia; Türk Telekom, Turkey; ITU