# Global Standardization Activities

# Report on 21st Global Standards Collaboration (GSC-21)

## Hideyuki Iwata

### Abstract

The 21st Global Standards Collaboration (GSC-21) was held in Vienna, Austria, on September 26 and 27, 2017. Its purpose is to enable standards developing organizations (SDOs) to share information about the activities of the respective organizations and to accelerate standardization activities by avoiding duplication. Seventy-six delegates from 11 SDOs attended the meeting and discussed two strategic topics: artificial intelligence and smart cities.

*Keywords: Global Standards Collaboration, artificial intelligence, smart cities*

## 1. Overview

The 21st Global Standards Collaboration (GSC-21) was held at the European Office of the Institute of Electrical and Electronics Engineers (IEEE) in Vienna, Austria, on September 26 and 27, 2017. The meeting was attended by 76 delegates from 11 standards developing organizations (SDOs): ARIB (Association of Radio Industries and Businesses) of Japan, ATIS (Alliance for Telecommunications Industry Solutions) of the USA, ETSI (European Telecommunications Standards Institute), IEC (International Electrotechnical Commission), IEEE-SA (IEEE Standards Association), ISO (International Organization for Standardization), ITU (International Telecommunication Union), TIA (Telecommunications Industry Association) of the USA, TSDSI (Telecommunications Standards Development Society, India), TTA (Telecommunications Technology Association) of Korea, and TTC (The Telecommunication Technology Committee) of Japan (**Photo 1**). Delegates reported on the latest activities and high-priority standardization issues of the respective organizations and discussed the two strategic topics of artificial intelligence (AI) and smart cities. They also deliberated on WRC (World Radiocommunication Conference)-19 Agenda Item 1.12.

## 2. Activity progress reports from SDOs

The 11 SDOs reported on their latest activities and high-priority standardization issues. Issues where duplication was found were fifth-generation mobile communications networks (5G), SDN/NFV (software-defined networking and network functions virtualization), Internet of Things (IoT), connected cards, security, open source software, blockchain, AI, and smart cities. The last two issues were strategic topics picked for discussion during this meeting.

## 3. Discussions on strategic topics

A brief description of each discussion topic is given in this section.

### 3.1 Communication technologies and artificial intelligence in autonomous systems

IEEE-SA served as the facilitator for discussions on AI, and eight SDOs reported on their activities.
(1) ATIS Initiatives in Support of Artificial Intelligence and Autonomous Systems (ATIS)

ATIS explained its 2017 White Paper on cybersecurity of connected cars. The paper addresses connecting paths via clouds, as well as security requirements. ATIS collaborates with Auto-ISAC (Automotive Information Sharing and Analysis Center).
(2) Overview of Communications Technologies for

Photo 1.   Participants of GSC-21.

Autonomous and Connected Vehicles (TTA)

TTA is also applying AI to connected cars. It presented the activities of the 3GPP (3rd Generation Partnership Project) concerning Cellular V2X, in which cars communicate with other vehicles and with road infrastructure devices such as traffic signals and road signs directly rather than via clouds. In the future, this technology will lead to automated driving.

(3)  ETSI Issues on Artificial Intelligence (ETSI)

ETSI described the action programs and impacts of introducing AI to various fields: radio access technology; vehicle connectivity; IMT2020; access; x-haul and core network technologies; and network management and control. In February 2017, ETSI ISG-ENI (Industry Specification Group on Experiential Networked Intelligence) began studying applications of AI to network operations, including 5G network operation.

(4)  Overview of JTC 1 Activities in the Area of Artificial Intelligence (IEC)

The ISO/IEC Joint Technical Committee 1 (JTC 1) explained the evolution and definition of AI technology. One year ago, JAG (JTC 1 Advisory Group) formed a temporary group named JETI (JTC 1 on Emerging Technology and Innovations). It also called for rapid standardization of AI and autonomous systems (AS) and began studying them in JTC 1/SC 7 (subcommittee 7: software and systems engineering), SC 34 (document description and processing languages), SC 40 (IT (information technology) man-

agement and IT governance) and Working Group (WG) 9 (big data).

(5)  IEEE-SA Initiatives in Artificial Intelligence and Autonomous Systems (IEEE-SA)

IEEE-SA reported that in 2015 it launched a project called Global Initiatives of Ethical Considerations in Artificial Intelligence and Autonomous Systems, and that it was studying applications of AI and AS based on ethics and policy.

(6)  Communications Technology and Artificial Intelligence (ISO)

ISO presented its analysis of opportunities and challenges that exist in applying AI to research and development of aviation/space and defense. It explained issues relating to the application of AI such as data quality (specified in ISO 8000), data collection using IoT technology, and the use of blockchain to ensure data security.

(7)  AI for Good Global Summit (ITU)

ITU outlined the "AI for GOOD" Global Summit held in June 2017. It was hosted by ITU and the XPRIZE Foundation and sponsored by 20 United Nations organizations. The summit participants discussed how to develop AI that is secure, ethical, and fair in all social aspects.

(8)  Standardization Perspectives for Augmental Robotics (TSDSI)

TSDSI presented the concept, challenges, and standardization issues concerning augmental robotics. It is studying a codec for expressing tactile sense and

feeling (IEEE P.1918.1) and time-sensitive networking (IEEE 802.1 WG) targeted at use in security-sensitive businesses. It holds particularly high hopes for application of AI to remote medicine because 60% of the Indian population does not have access to basic medical care.

### 3.2 Smart cities

(1)  ATIS Initiatives in Support of Smart Cities (ATIS)

ATIS published the ATIS Smart Cities Technology Roadmap in May 2017. The roadmap presents issues that ATIS identified in four technical fields: access, platforms, applications, and infrastructure. Issues in the access field include cloud data, context awareness, next-generation position detection, and privacy and security management. Platform issues include AI, machine learning, data collection platforms and data exchange, and augmented reality (AR) platforms. Issues relating to applications include AR/VR (virtual reality) content and content cooperation. Infrastructure issues identified were resilience through distribution, facility management, and emergency responses.

(2)  Smart City, Achieving Better Life (CCSA)

CCSA reported on smart city projects implemented by Huawei: public services, including sewage and waste treatment, in Dubai; efficient administration of local government in Guangzhou; remote medicine in Kenya; Wi-Fi service in a stadium in Amsterdam; smart tourism in Dunhuang; and a high-speed Wi-Fi network at Newcastle University, UK.

(3)  ETSI Strategy on Smart City Standards (ETSI)

ETSI pointed out that technical studies on smart cities are advancing and that standardization reduces the risks faced by individual cities in selecting the technologies that they need. It presented its smart city initiatives and emphasized the need for understanding context in using data, as well as the importance of security, privacy, and trust.

(4)  IEC - Using a Systems Approach to Develop Smart City Standards (IEC)

Since a smart city involves complex, large-scale infrastructure, it is important to ensure interoperability. It is necessary to adopt a systems approach in developing smart city standards. IEC formed IEC SyC (Systems Committee) in 2017 and has been working on standardization of smart energy, active assisted living, and low-voltage direct current for implementing smart cities.

(5)  IEEE Smart Cities (IEEE-SA)

Various IEEE standards were discussed. These included standards related to 5G and two smart city-related standards: IEEE802.11ax (high efficiency WLAN (wide local area network)) and IEEE P1931.1 (ROOF: real-time onsite operations facilitation), which is aimed at ensuring IoT interoperability and security in local environments such as houses or other buildings.

(6)  ISO Smart and Sustainable Cities Development (ISO)

ISO described standardization activities for ISO/ TC 268 (sustainable cities and communities), specifically, a standard concerning city-level issues, and activities for JTC 1 WG11 (information technology for smart cities), specifically, a standard concerning machine-level issues. It also referred to cooperation between SC 41 (IoT) and SC 27 (security).

(7)  ITU Smart Sustainable Cities and Communities Initiatives: Towards a Smart Global Vision (ITU)

ITU-T's smart city activities are undertaken by U4SSC (United for Smart Sustainable Cities), in which a number of international organizations are participating. U4SSC studied key performance indicators for using information and communication technology (ICT) to achieve smart sustainability and investigated shared knowledge and future directions.

(8)  Building the Smart City Together (TIA)

The collaboration between NIST (National Institute of Standards and Technology) and Cybercity Framework, IES-City Framework, US Ignite (an advanced-wireless nonprofit consortium), and FirstNet was reported.

(9)  India's SMART Cities Initiative and the Role of Standardization (TSDSI)

Critical urban issues facing India are transportation, energy, and sewage. It was stated that the definition of a smart city is that it is backed by relevant standards, that it is secure, reliable, and harmonized, and that ICT and IoT are essential to its implementation.

(10) Sustainable Development of IoT-Enabled Smart Cities in South Korea (TTA)

TTA learned from failures of its past projects that sustainability and interoperability are important, and it believes that it is necessary to expand the horizontal platform of oneM2M and to ensure interoperability via standard interfaces. TTA's current activities included a certification service for oneM2M specifications and interworking with other platforms such as FIWARE.

## 4. Future plan

The 22nd meeting will be hosted by ISO/IEC in Switzerland in March 2019.

## Trademark notes

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**Hideyuki Iwata**

Senior Research Engineer, Supervisor, Research and Development Planning Department, NTT.

He received a Ph.D. in electrical engineering from Yamagata University in 2011. From 1993 to 2000, he conducted research on high-density and aerial optical fiber cables at NTT Access Network Service Systems Laboratories. Since 2000, he has been responsible for standardization strategy planning for NTT research and development. He has been a delegate of International Electrotechnical Commission (IEC) SC 86A (optical fiber and cable) since 1998 and of the ITU-T Telecommunication Standardization Advisory Group since 2003. He is a vice-chair of the Expert Group on Bridging the Standardization Gap in the Asia-Pacific Telecommunity Standardization Program Forum. In 2004, he received an award from the IEC Activities Promotion Committee of Japan for his contributions to standardization work in IEC.