

ITU-T Study Group 16 Meeting Report and Recent Development in Standardization of Immersive Live Experience Technologies

Jiro Nagao

Abstract

The recent meeting of the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) Study Group (SG) 16 was held in October 2022, with the new management members. An SG vice-chairman and two Working Party chairmen were appointed from Japan. Regarding immersive live experience, four draft documents including one new work item were discussed, and the definition of the descriptor of haptic information was added to one of the documents during the meeting. In the meeting, a Correspondence Group on Metaverse was held and sent a liaison statement to the Telecommunication Standardization Advisory Group (TSAG) asking for TSAG's decision on whether to start a Focus Group on Metaverse. With the newly appointed director of the Telecommunication Standardization Bureau, Mr. Seizo Onoe, a positive cycle of technology development and dissemination is expected by incorporating industry into the standardization activities of ITU-T.

Keywords: ITU-T, Study Group (SG) 16, immersive live experience (ILE)

1. New Study Group 16 administration

The administrations of Study Groups (SGs) of the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) are renewed every four years. The Plenipotentiary Conference (PP)^{*1} decides the general policy for the whole ITU and World Telecommunication Standards Assembly (WTSA)^{*2} for ITU-T, including appointments of SG chairmen and vice-chairmen. The recent ITU-T SG16 meeting was held between October 17 and 28, 2022. The new SG16 administration under the chairman (re-appointed) was formed as it was the first meeting after WTSA. The chairman and vice-chairmen of SG16 are listed in **Table 1**. Mr. Yamamoto (OKI) from Japan was appointed as a vice-chairman.

The rapporteurs and associate rapporteurs who lead Questions (Q) and Working Party (WP) chairmen

were also appointed during the SG16 meeting. **Table 2** lists the WP chairmen. Mr. Yamamoto and Mr. Imanaka (National Institute of Information and Communications Technology (NICT)) from Japan were appointed as WP2 and WP3 co-chairmen, respectively. The rapporteurs and associate rapporteurs are listed in **Table 3**. Three rapporteurs (Q8 Mr. Imanaka, Q27 Mr. Yamamoto, Q26 and Q28 Mr. Kawamori (Keio University)) and two associate rapporteurs (Q8 the author, Q27 Mr. Shimizu (Mitsubishi Electric)) from Japan were appointed.

*1 PP: The highest policy-making body of ITU. It is held every four years. Delegates from about 190 member states gather.

*2 WTSA: WTSA is held every four years and defines the next period of study for ITU-T.

Table 1. Chairman and vice-chairmen of SG16.

	Name	Country
Chairman	Mr Zhong (Noah) LUO	China
Vice-chairman	Mr Ashok KUMAR	India
Vice-chairman	Mr Hideki YAMAMOTO	Japan
Vice-chairman	Mr Shin-Gak KANG	Korea (Rep. of)
Vice-chairman	Ms Sarra REBHI	Tunisia
Vice-chairman	Mr Charles Zoé BANGA	Central African Republic
Vice-chairman	Mr Per FRÖJDH	Sweden
Vice-chairman	Mr Justin RIDGE	United States
Vice-chairman	Mr Akmal SAVURBAEV	Uzbekistan

Table 2. WP chairmen (co-chairmen) of SG16.

WP	WP title	Chairmen (Country)	Questions
WP1	Infrastructure for multimedia systems	Shin-Gak KANG (Rep. of Korea) Marcelo MORENO (Brazil)	11, 13, 21, 22, 27
WP2	Multimedia digital services and human aspects	Mohannad EL-MEGHARBEL (Egypt) Hideki YAMAMOTO (Japan)	23, 24, 26, 28
WP3	Audiovisual technologies and intelligent immersive applications	Hideo IMANAKA (Japan) Yuan ZHANG (China)	5, 6, 8, 12

2. SG16 meeting topics

2.1 Immersive live experience

The Q8 of SG16 studies immersive live experience (ILE). NTT has been contributing actively to Q8 since the beginning of the Question. Five Recommendations (From ITU-T H.430.1 to H.430.5) have been published thus far. Study on interactive immersive services (IIS) started recently, and NTT proposed to start the draft Recommendation H.ILE-Haptic. Other topics are described below.

(1) H.430.3 V2 (Service scenario of ILE)

This draft Recommendation explains service scenarios and use cases of ILE. Transport of haptic information and IIS are considered to be added to the document. Descriptions of the relevant service scenarios were revised, and information on the related technologies provided by SG13 was added to the draft Recommendation during the meeting.

(2) H.IIS-Reqts (Requirements of IIS)

This document defines the requirements of IIS. Consent of the draft was proposed, but it was postponed because a relatively large revision was made to the draft including elaboration and change of sections.

(3) H.ILE-Haptic (Media transport protocols, sig-

nalling information of haptic transmission for ILE systems)

NTT proposed to start this draft Recommendation to add haptic transmission technology to ILE. The current Recommendations on ILE describe transport of video, audio, location, etc., but the draft aims to add the transmission technology of haptic information to achieve even higher sense of immersiveness. Stiffness and other information have been added to the draft along with the definition of the descriptor of haptic information during the meeting.

(4) H.IIS-FA (Functional architecture of IIS system)

This is a new work item consented to start during the meeting. High-level architecture of IIS and functional architecture are expected to be studied. Details will be discussed in future meetings.

2.2 Metaverse

Correspondence Group (CG) on Metaverse had been held in the previous SG16 meeting (January 2022). Focus Group (FG)*³ on Metaverse was proposed from Japan in this meeting (October 2022).

*3 FG: A group created by ITU-T to augment the SG work program or when the issue is not covered within an existing SG. Non-ITU member can join FGs.

Table 3. Questions, rapporteurs and associate rapporteurs (* indicate rapporteurs).

Question (WP), Question title	Name	Country
Q1 (SG16 Plenary) Multimedia and digital services coordination	*Sarrah REBHI	Tunisia
Q5 (WP3) Artificial intelligence-enabled multimedia applications	*Yuntao WANG	China
	Qing LIU	China
	Yuwei WANG	China
Q6 (WP3) Visual, audio and signal coding	*Gary SULLIVAN	USA
	Thomas WIEGAND	Germany
	Yan YE	China
Q8 (WP3) Immersive live experience systems and services	*Hideo IMANAKA	Japan
	Hoerim CHOI	Korea (Rep. of)
	Jiro NAGAO	Japan
Q11 (WP1) Multimedia systems, terminals, gateways and data conferencing	*Patrick LUTHI	Switzerland
Q12 (WP3) Intelligent visual systems and services	*Yuan ZHANG	China
	Haitao ZHANG	China
Q13 (WP1) Content delivery, multimedia application platforms and end systems for IP-based television services including digital signage	*Marcelo MORENO	Brazil
	Chuanyang MIAO	China
Q21 (WP1) Multimedia framework, applications and services	*Liang WANG	China
	Nijingnan ZHANG	China
Q22 (WP1) Multimedia aspects of distributed ledger technologies and e-services	*Kai WEI	China
	Liangliang ZHANG	China
Q23 (WP2) Digital culture-related systems and services	*Hong (Norman) CHEN	China
	Shizhong XU	China
Q24 (WP2) Human factors for intelligent user interfaces and services	*Miran CHOI	Korea (Rep. of)
	Done-Sik YOO	Korea (Rep. of)
Q26 (WP2) Accessibility to multimedia systems and services	*Masahito KAWAMORI	Japan
	Mohannad EL-MEGHARBEL	Egypt
Q27 (WP1) Vehicular multimedia communications, systems, networks, and applications	*Hideki YAMAMOTO	Japan
	Hongki CHA	Korea (Rep. of)
	Naoki SHIMIZU	Japan
Q28 (WP2) Multimedia framework for digital health applications	*Masahito KAWAMORI	Japan

The CG was also held in this meeting, and issues, such as whether to start the FG, the parent group of the FG, name of the FG, were sent to the Telecommunication Standardization Advisory Group (TSAG)^{*4}.

3. Future prospect

In PP-22 [1] held from 26 September to 14 October 2022, Mr. Onoe from Japan (then NTT chief standardization strategy officer) was elected as the next director of the Telecommunication Standardization Bureau at ITU-T. He started his post in January 2023. This appointment is expected to stimulate the telecommunication standardization activities in Japan, resulting in more active discussion in SG16. NTT

plans to continue contributing to the work items such as H.ILE-Haptic. Not only the standardization communities but also the market is interested in the metaverse. Collaboration between the industry, who implements technologies, and ITU-T, who deploys technology standards worldwide, is expected to create a positive cycle of technology development and dissemination.

Reference

- [1] PP-22, <https://pp22.itu.int/en/>

^{*4} TSAG: The advisory body to SGs in administration and operation of ITU-T. TSAG meets during the years when WTSA is not held.

**Jiro Nagao**

Senior Manager, Standardization Office, Research and Development Planning Department, NTT Corporation.

He received a Ph.D. in information science from Nagoya University, Aichi, in 2007. He joined NTT the same year. From 2007 to 2011, he was engaged in research and development of image processing and content distribution technology. From 2012 to 2017, he worked for NTT Communications, serving as the technical leader of commercial video streaming services. From 2017 to 2021, he was engaged in research and development of immersive media and presentation technology at NTT Service Evolution Laboratories. Since 2019, he has contributed to the international standardization efforts on ILE of ITU-T SG16. He served as an editor of ITU-T H.430.4 (ex H.ILE-MMT) and H.430.5 (ex H.ILE-PE) from 2019 to 2020. He received the ITU Association of Japan Encouragement Award in 2021. He is currently an associate rapporteur of ITU-T SG16 Q8 (Immersive Live Experience, since 2022) and the leader of ILE Sub Working Group of the Telecommunication Technology Committee (since 2020). He is a member of the Institute of Electrical and Electronics Engineers (IEEE), the Institute of Electronics, Information and Communication Engineers (IEICE), and the Japanese Society of Medical Imaging Technology (JAMIT).
