ITU-T Focus Group on metaverse (FG-MV)

4 April 2023

Shin-Gak KANG

Chairman of ITU-T FG-MV
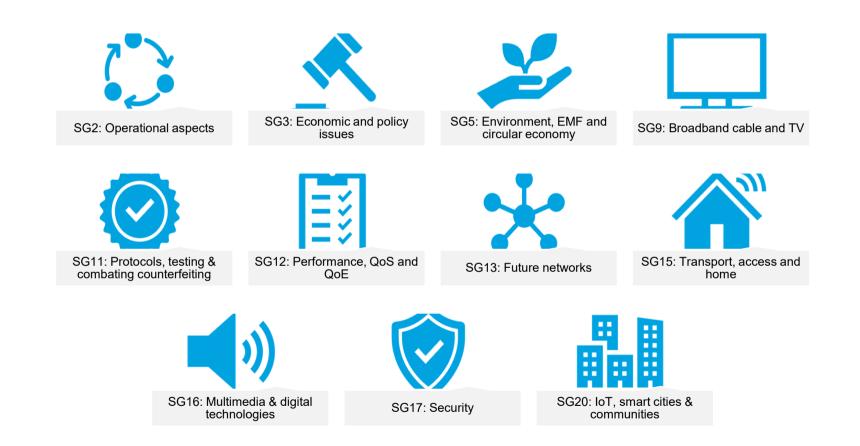(sgkang@etri.re.kr)

ITU – Who we are – Our Membership

UN agency for ICT
Information and communication technology

193
MEMBER STATES

800+
PRIVATE SECTOR

150+
ACADEMIA

ITU Radiocommunication **(ITU-R)**
Coordinating radio-frequency spectrum and **assigning** orbital slots for satellites

ITU Standardization **(ITU-T)**
Establishing global standards

ITU Development **(ITU-D)**
Bridging the digital divide

A unique platform for governments, private sector and academic institutions to build consensus on important and pressing ICT technical and regulatory issues facing our society today

ITU-T Study Groups 2022-2024

SG2: Operational aspects

SG3: Economic and policy issues

SG5: Environment, EMF and circular economy

SG9: Broadband cable and TV

SG11: Protocols, testing & combating counterfeiting

SG12: Performance, QoS and QoE

SG13: Future networks

SG15: Transport, access and home

SG16: Multimedia & digital technologies

SG17: Security

SG20: IoT, smart cities & communities

Focus Group of ITU-T

☐ Focus Groups are an **instrument to provide an additional working environment** for the quick development of standards in specific areas
  - ○ Acting **as an incubator** for an future emerging issues

☐ Participation in Focus Group
  - ○ **OPEN TO NON-ITU MEMBERS!**
  - ○ **Any individual** from a country that is a member of the ITU and who is willing to contribute actively to the work may participate in a Focus Group
  - ○ stimulate **open dialogue through open participation**

Differences between SGs and FGs in ITU-T

Focus Groups (FGs)	Study Groups (SGs)
▪ Open to non-members of the ITU from an ITU Member State	▪ Open to members of the ITU only
▪ Some Flexibility/independence concerning working methods, outputs, financing, administration…	▪ Limited flexibility concerning working methods, types of outputs, financing, administration…
▪ Outputs are non-normative	▪ Main outputs are ITU-T (normative) Recommendations or standards +
▪ Outputs (aka deliverables) can stand-alone or feed into the work of Study Groups	▪ Technical Papers, Supplements and other non-normative publications
▪ Defined lifetime (9-12 months initially with extension possible)	▪ Study Groups are created for an indefinite duration, and only WTSA (and in some cases TSAG) can create or disband SGs

Establishment of ITU-T FG-MV

□ ITU-T SG 16 (Multimedia and related digital technologies)
- ○ The necessity of standardization work on multimedia related metaverse issues was discussed at the SG 16 meeting in January 2022
  - Correspondence Group on Metaverse (**CG-Metaverse**) was established with ToR
    - Co-Chairman : Shin-Gak KANG (ETRI/Korea)
      Kepeng LI (Tencent/China)
  - ToR of CG-Metaverse
    - carry out the preliminary standardization analysis to help SG16 effectively make decision on appropriate standardization issues and work method in the next SG16 meeting
    - to discuss technical aspects leading to a SG16 analysis of future standardization directions, potential work items and future coordination needs
- ○ **CG-Metaverse** discussed standardization issues and the need for FG establishment through three e-meetings
  - First (06 July 2022), Second (10 August 2022), Third (8 September 2022)

Establishment of ITU-T FG-MV

☐ ITU-T SG 16 (Multimedia and related digital technologies)
- ○ **Decided to establish a Focus Group** through discussions on metaverse standardization issues and working methods at the SG 16 meeting in October 2022
- ○ **Proposed to ITU-T TSAG for approval** of establishment of FG-MV
  - TSAG: Telecommunication Standardization Advisory Group

☐ ITU-T TSAG meeting (December 2022)
- ○ **Decided to establish** the Focus Group on metaverse **(FG-MV) under TSAG, unanimously**
  - Scope of the FG-MV covers more than a single Study Group of ITU-T
  - Most of the ITU-T SGs expressed their interest and willingness to participate in FG-MV
- ○ Access link for ITU-T FG-MV
  - https://www.itu.int/en/ITU-T/focusgroups/mv/Pages/default.aspx

ToR of ITU-T FG-MV

☐ **Objectives**

- ○ To study terminology, concepts, vision and ecosystem.
- ○ To identify and study the enabling technologies, their evolution and key tasks for standardization purposes,
  - ● including multimedia, network optimization, connectivity, interoperability of services and applications, security, protection of personally identifiable information, quality (including bandwidth), digital assets (e.g., digital currencies), IoT, accessibility, digital twin and environmental sustainability.
- ○ To study and gather information to develop a pre-standardization roadmap.
- ○ To build a community of experts and practitioners to unify the concepts, develop common understandings, so that it be benefiting the global community.
- ○ To identify stakeholders with whom ITU-T could collaborate and establish liaisons and relationships.
- ○ To stimulate international collaboration, to share knowledge and best practices, and to explore the opportunities and challenges related to interoperability.
- ○ To provide a platform to share findings and for dialogue on economic, policy and regulatory implications of metaverse related to telecommunication/ICT.

ToR of ITU-T FG-MV

☐ **Specific tasks and deliverables**

○ To develop deliverables related to working definitions and terminology, use cases, and requirements.

○ To develop deliverables with guidelines and collection of best practices, including a gap analysis and a pre-standardization roadmap.

○ To develop deliverables related to technical frameworks, and architecture, taking into consideration security requirements and approaches, PII protection and design principles to meet accessibility requirements.

○ To organize and participate in workshops to share and collect knowledge and experience from a wide range of expert community and stakeholders.

○ Upon completion of its lifetime, to provide the final report and a complete set of deliverables to TSAG.

Management team of ITU-T FG-MV

☐ Chairman: Shin-Gak KANG (ETRI, Republic of Korea)

☐ Vice-chairmen
- ○ Mr Andrey Ribeiro Perez NUNES (ANATEL, BRAZIL)
- ○ Mr Hideo IMANAKA (NICT, JAPAN)
- ○ Mr Per FROJDH (LM Ericsson, SWEDEN)
- ○ Ms Shane HE (Nokia, FINLAND)
- ○ Mr Vincent AFFLECK (DCMS, UK)
- ○ Mr Yuntao WANG (CAICT, CHINA)
- ○ Mr Leonidas ANTHOPOULOS (University of Thessaly, Greece)
- ○ Mr Manuel BARREIRO (Aston Group, Mexico)
- ○ Ms Cristina MARTINEZ (European Commission)
- ○ Ms Stella KIPSAITA (Communications Authority, Kenya)
- ○ Ms Natalia BAYONA (World Tourism Organization (UNWTO))

First meeting of ITU-T FG-MV

☐ The first meeting of FG-MV was held from **8–9 March 2023** in **Riyadh**, Kingdom of Saudi Arabia
  ○ The meeting was attended by more than 650 participants
  ○ A total of 58 input documents were submitted and discussed
  ○ **Major results** of the first FG-MV meeting
    ● Five FG-MV vice-chairmen have been officially additionally appointed
    ● Approval of FG-MV structure: 8 Working Groups, 10 Task Groups
    ● Chairmen and Vice-Chairmen for the WGs and TGs have been appointed
    ● Agreed to start work on development of 18 documents (initial work items)
    ● Future FG-MV meetings plan

☐ preceded by the **first ITU Forum on Embracing the metaverse**
  ○ co-organized by ITU and the National Cybersecurity Authority (NCA) of the Kingdom of Saudi Arabia, held on 7 March 2023
  ○ The Forum was attended by more than 600 participants

Structure of ITU-T FG-MV

FG	**metaverse**
	TG-collaboration
WG 1	General
	TG-terminology & definitions
	TG-gap analysis
WG 2	Applications & Services
	TG-media coding
WG 3	Architecture & Infrastructure
WG 4	Virtual/Real World Integration
WG 5	Interoperability

WG 6	Security, Data & Personally Identifiable Information (PII) Protection
	TG-child online protection
	TG-cybersecurity
	TG-building confidence and security in the metaverse
	TG-issues on trustworthiness related to the metaverse
WG 7	Economic, regulatory & competition aspects
WG 8	Sustainability, Accessibility & Inclusion
	TG-sustainability
	TG-accessibility & inclusion

* **Task Groups (TGs)** can be formed under either FG or WG for intensive discussions and developing deliverables on **specific sub-areas or topics**. [FG's decision]

Structure of ITU-T FG-MV

FG	metaverse
	TG-collaboration [Chairman: Ms Cristina MARTINEZ (European Commission) Vice-chairman: Ms Stella KIPSAITA (Communications Authority, Kenya)]
WG 1	General [Chairman: Mr Leonidas ANTHOPOULOS (University of Thessaly, Greece) Vice-chairman: Mr Younghwan CHOI (ETRI, Korea)]
	TG-terminology & definitions [Chairman: Ms Xiaomi AN (Renmin University, China)]
	TG-gap analysis [Chairman: Mr Leonidas ANTHOPOULOS (University of Thessaly, Greece)]
WG 2	Applications & Services [Chairman: -Mr Yuntao WANG (CAICT, China) Vice-chairman: Mr Ismael ARRIBAS (Spain), Mr James Kunle OLORUNDARE (Nigeria)]
	TG-media coding [Co-chairmen: Mr Zekun WANG, (China Telecom), Mr Marcelo MORENO, (Fraunhofer IIS, Germany)]
WG 3	Architecture & Infrastructure [Chairman: Mr Hideki YAMAMOTO (OKI, Japan) Vice-chairman: Ms Yuan ZHANG (China Telecom, China), Mr Wilmer AZURZA NEYRA (Ministry of Transport and Communications of the Administration, Peru)]
WG 4	Virtual/Real World Integration [Chairman: Ms Shane HE (Nokia, Finland)]
WG 5	Interoperability [Chairman: Mr Hideo IMANAKA (NICT, Japan) Vice-chairman: Mr Wook HYUN (ETRI, Korea)]

Structure of ITU-T FG-MV

WG 6	<mark>Security, Data & Personally Identifiable Information (PII) Protection</mark>
	      [Chairman: Mr Vincent AFFLECK, (UK)
	       Vice-chairmen: Ms Naying HU (CAICT, China), Ms Radia FUNNA (Build n Blaze)]

	TG-child online protection [Chairman: Mr Muhammad KHURRAM (King Saud University, Kingdom of Saudi Arabia)]
	TG-cybersecurity [TBC]
	TG-building confidence and security in the metaverse [TBC]
	TG-issues on trustworthiness related to the metaverse [TBC]

WG 7	<mark>Economic, regulatory & competition aspects</mark>
	      [Co-Chairmen: Mr Andrey PEREZ (Anatel, Brazil), Mr Okan GERAY (Digital Dubai, UAE)
	      Vice-chairmen: Mr Ahmed SAID (Egypt)]

WG 8	<mark>Sustainability, Accessibility & Inclusion</mark>
	      [Co-Chairmen: Ms Nevine TEWFIK (Egypt), TBC
	      Vice-chairmen: Mr Manuel BARREIRO (Aston Group, Mexico), Ms Christina Yan ZHANG,
	         (The Metaverse Institute), Mr Khaled KOUBAA, (Medeverse)]

	TG-sustainability [Chairman: Ms Shuguang QI (CAICT, China)]
	TG-accessibility & inclusion [Chairman: TBC]

List of initial work items

☐ Agreed to start work on **development of 18 documents** at the first FG-MV meeting in March 2023

○ The work items will be more expanded in future meetings of FG-MV

Type	Title of work items
Template	Use case template
TR	Gap analysis on metaverse standardization
TS	Metaverse overview
TS	Vocabulary for Metaverse
TR	An analysis of definitions
TS	Use case on power metaverse
TS	Guidelines for metaverse application in energy power
TS	Use case and requirements for virtual and real fusion coding in metaverse application

List of initial work items

Type	Title of work items
TR	Requirements and challenge associated with network infrastructure to enable the metaverse
TS	Requirements and functional architecture of IoT- based metaverse service
TS	Reference architecture of industrial metaverse
TS	Setting the framework for an ICT architecture to enable the metaverse
TS	Use cases and requirements for the metaverse based on digital twins enabling integration of virtual and physical worlds
TS	Use cases and requirements for metaverse cross-platform interoperability
TS	Interoperability and migration of identity of things across metaverses
TS	Requirements and framework for digital identity system
TS	Data management and security for things across metaverses
TR	Risks, threats and potential harms in the metaverse
TS	Guidance on green and low carbon development of Metaverse

FG-MV mailing lists

Description	Mailing list name
General mailing list for the FG on metaverse (FG-MV)	fgmv@lists.itu.int
Topic Group - Collaboration	fgmv-tg-collaboration@lists.itu.int
Working Group 1 - General	fgmv-wg1@lists.itu.int
Working Group 2 - Applications & Services	fgmv-wg2@lists.itu.int
Working Group 3 - Architecture & Infrastructure	fgmv-wg3@lists.itu.int
Working Group 4 - Virtual/Real World Integration	fgmv-wg4@lists.itu.int
Working Group 5 - Interoperability	fgmv-wg5@lists.itu.int
Working Group 6 - Security, Data & Personally Identifiable Information (PII) Protection	fgmv-wg6@lists.itu.int
Working Group 7- Economic, Regulatory & Competition Aspects	fgmv-wg7@lists.itu.int
Working Group 8 - Sustainability, Accessibility & Inclusion	fgmv-wg8@lists.itu.int

* Please see step-by-step guide on how to subscribe to the mailing lists available:
- https://www.itu.int/en/ITU-T/focusgroups/mv/Pages/reg.aspx

Future Meetings Plan (tentative)

☐ FG-MV WGs meeting, 9-11 May 2023, Geneva and Virtual
  ○ Most of WGs/TGs will hold one more Virtual Meetings before 2nd FG-MV meeting

☐ 2nd meeting of FG-MV, June/July 2023, China

☐ 3rd meeting of FG-MV, 6-8 September 2023, Geneva

☐ Special Session on FG-MV, 12-13 September 2023, Arusha, Tanzania

☐ Special Session on FG-MV, 18-19 October 2023, Riga, Latvia

☐ 4th meeting of FG-MV, 4-7 December 2023, Geneva [or Mexico]

Thank you !