

# Proposing Metrics and Industry Engagement through standardization activities at TTC

April 19th, 2024

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Telecommunication and Technology  
Committee

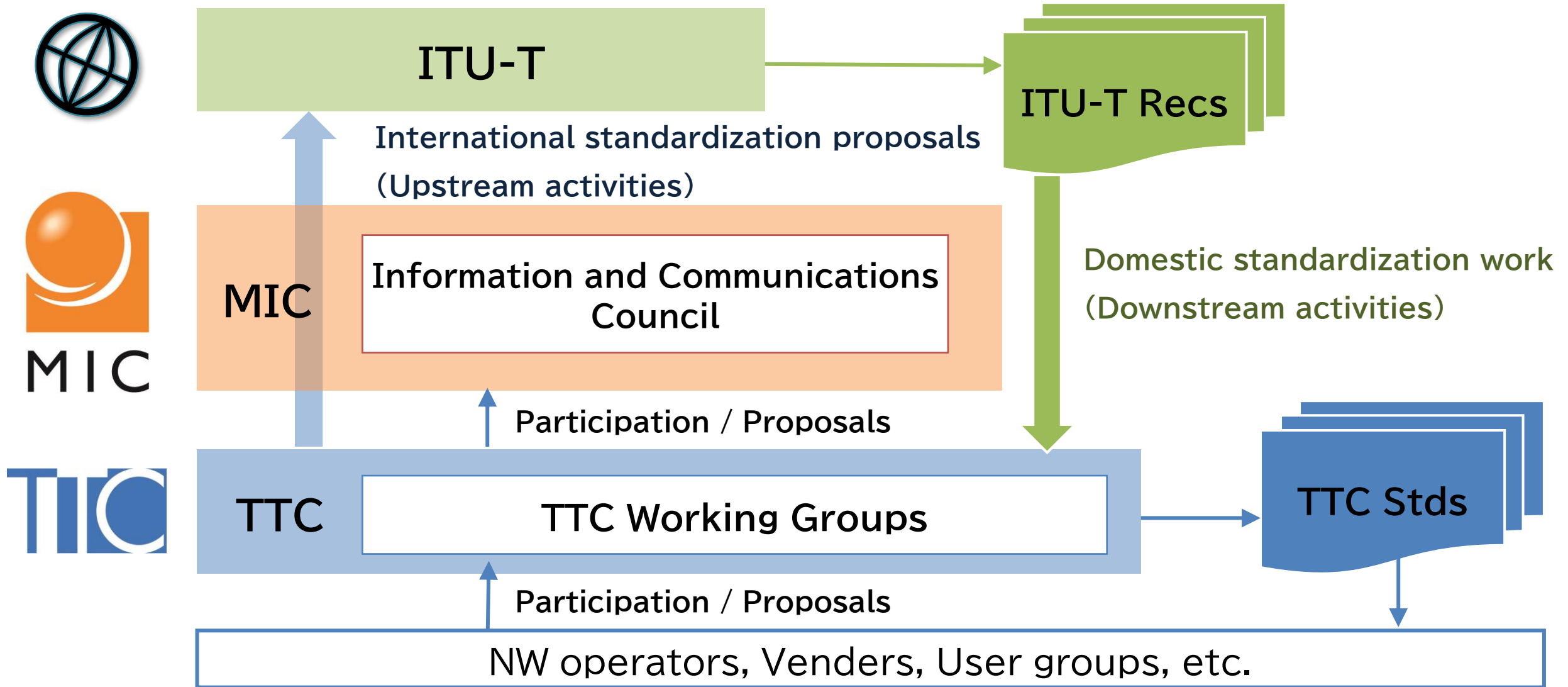


## The Telecommunication Technology Committee (TTC)

- SDO (Standards Development Organizations) in Japan
- Qualified by the ITU-T as defined in the recommendations A.5 and A.6 that can refer to ITU-T recommendations as a standard
- Private Nonprofit
- Established in October 1985
- Located in Shiba kouen, Minato-ku, Tokyo 105-0011, Japan



# Standards Development Activity in TTC



[Notes] MIC: Ministry of Internal Affairs and Communications in Japan

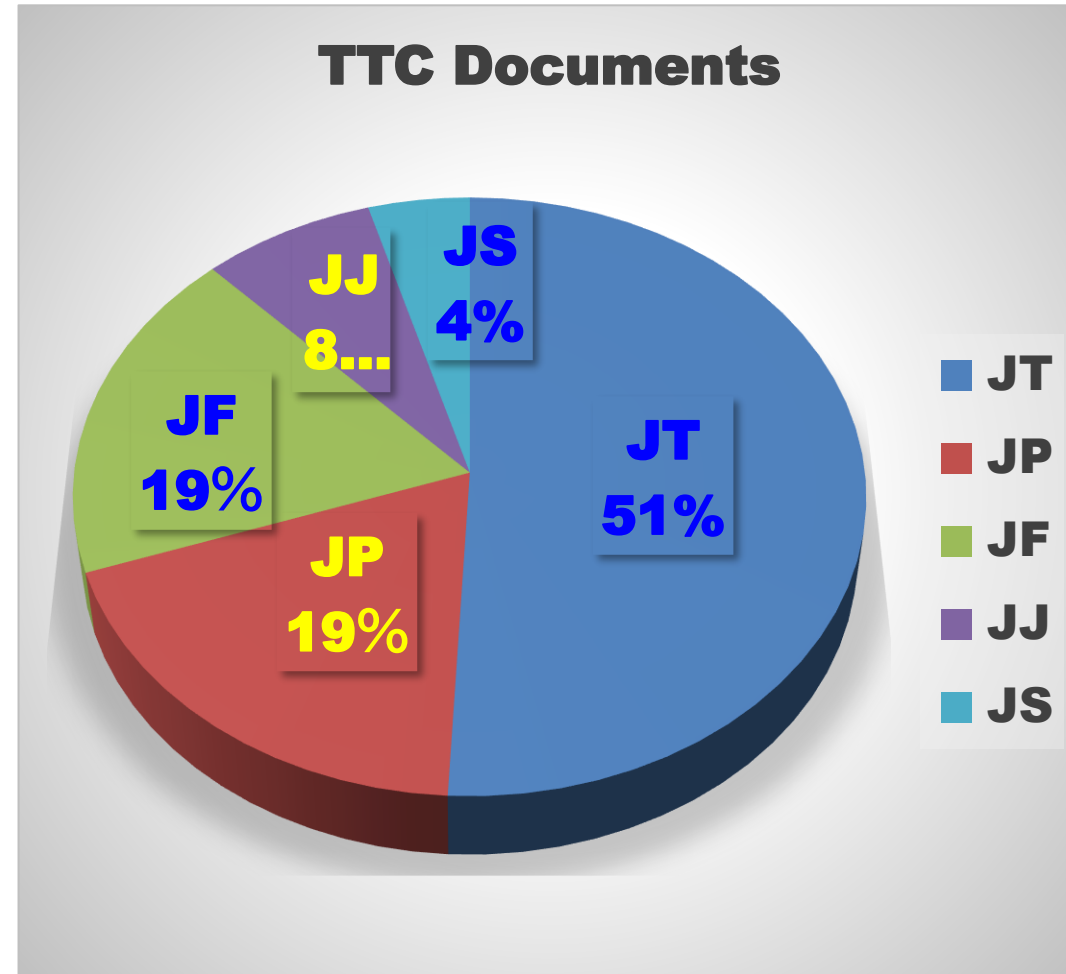
# Categories of TTC Documents

Category	Description	Relationship
JT	TTC Standards based on ITU-T Recommendations	ITU-T
JP	TTC Standards based on deliverables developed by regional SDOs or partnership projects	3GPP, 3GPP2
JF	TTC Standards based on the de-facto standards/deliverables developed by <u>fora</u>	IETF, IEEE, etc.
JJ	TTC Standards developed originally by Japan/TTC	Japan/TTC original
JS	TTC Standards based on ISO Standards	ISO
TS	Technical Specification	3GPP, 3GPP2, etc.
TR	Technical Report	3GPP, 3GPP2, etc.

# Total number of TTC documents (2023.3)

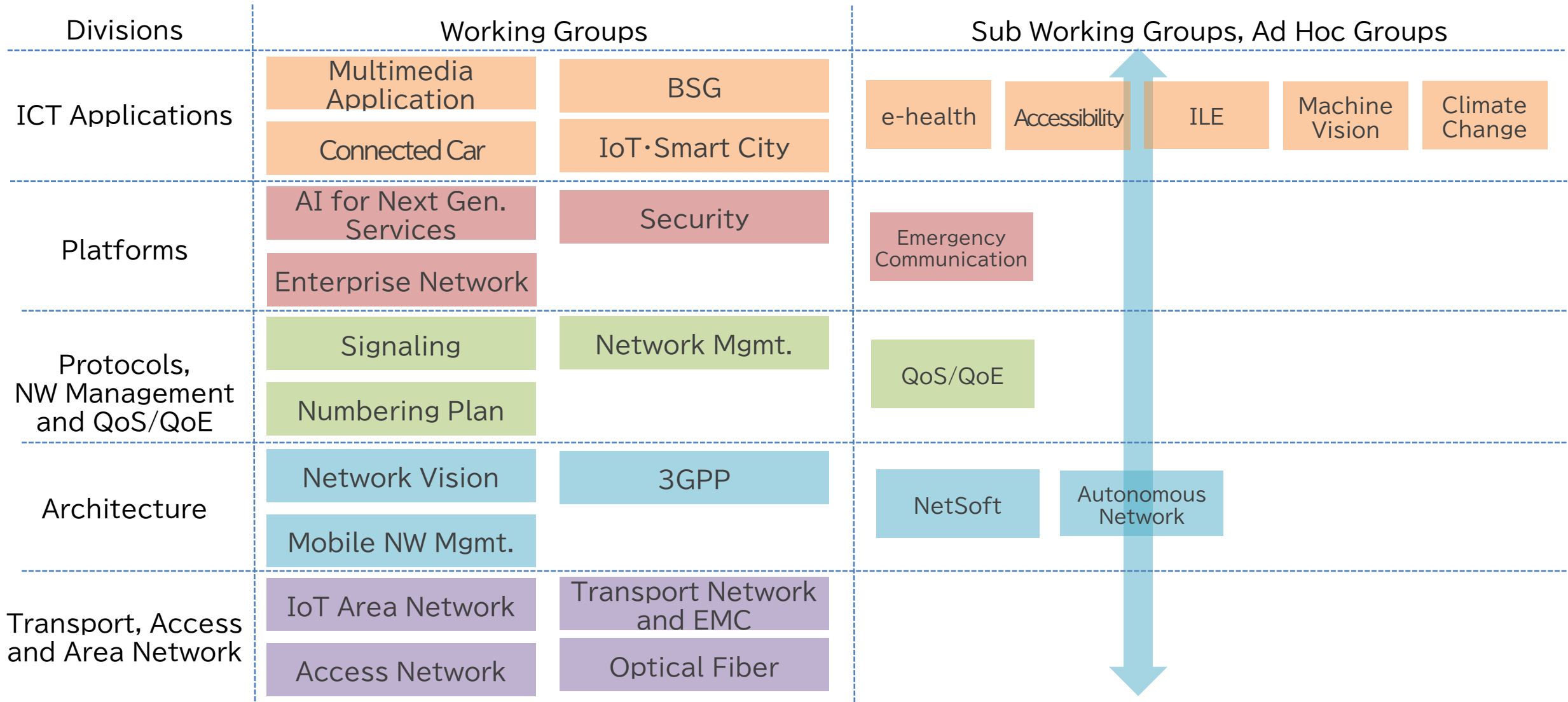
Category	No.	Increase from last year
JT	471	+5
JP	173	0
JF	168	+1
JJ	70	+0
JS	41	0
TS	17,190	+1412
TR	691	+71

[Note] As of March 2023



[Note] This graph does not include TS or TR.

# TTC Working Groups



# Responding to ITU-T Study Groups

As of April 2024

L: Lead Working Group

X: Working Group to respond to questions in the SG and to make proposals for the SG

R: Related Working Group

			TTC Working Groups															TTC Advisory Groups				
			Transport, Access and Area Network				Architecture			Protocols, NW Management and QoS/QoE			Platforms			ICT Applications				Global Collaboration	Technology Research	
			Transport Networks and EMC	Access Network	Optical Fiber	IoT Area Network	Network Vision	3GPP	Mobile Network Management	Signalling	Network Management	Numbering Plan	AI for Next Gen. Services	Security	Enterprise Network	Multimedia Application	Connected Car	BSG	IoT - Smart City			
ITU-T Study Groups	SG2	Operational aspects of service provision and telecommunication management									L											
	SG5(EMC)	EMF, environment, climate action, sustainable digitalization and circular economy	L			R																
	SG5(Climate Change)	EMF, environment, climate action, sustainable digitalization and circular economy																	L			
	SG11	Signalling requirements, protocols, test specifications and combating counterfeit telecommunication/ICT devices						R	R	L				R	R	R						
	SG12	Performance, QoS and QoE					X				L					R	R					
	SG13	Future networks and emerging network technologies				R	L	R	R	R				R		R						
	SG15	Networks, technologies and infrastructures for transport, access and home	L	X	X	R																
	SG16	Multimedia and related digital technologies				R										L	X					
	SG17	Security				R								L		R	R					
	SG20	IoT and smart cities and communities				R	R				R		R	R		R	R	R	L			
	TSAG	Standardization Strategy, Management and coordination of Study Groups																			L	

# Responding to ITU-T Focus Groups

As of April 2024

L: Lead Working Group

X: Working Group to respond to questions in the FG and to make proposals for the FG

R: Related Working Group

			TTC Working Groups														TTC Advisory Groups					
			Transport, Access and Area Network				Architecture			Protocols, NW Management and QoS/QoE			Platforms			ICT Applications						
			Transport Networks and EMC	Access Network	Optical Fiber	IoT Area Network	Network Vision	3GPP	Mobile Network Management	Signalling	Network Management	Numbering Plan	AI for Next Gen. Services	Security	Enterprise Network	Multimedia Application	Connected Car	BSG	IoT · Smart City	Global Collaboration	Technology Research	
ITU-T Focus Groups	FG-TBFxG	Testbeds Federations for IMT-2020 and beyond											R									
	FG-AI4A	AI and IoT for Digital Agriculture																		L		
	FG-AI4NDM	AI for Natural Disaster Management																				
	FG-AN	Autonomous Networks					L															
	FG-AI4H	Artificial Intelligence for Health																			L	
	FG-MV	Metaverse																				R
	FG-CD	Cost models for affordable data services																				



# Responding to ITU-T Joint Coordination Activities

As of April 2024

L: Lead Working Group

X: Working Group to respond to questions in the JCA  
and to make proposals for the JCA

R: Related Working Group

			TTC Working Groups														TTC Advisory Groups				
			Transport, Access and Area Network				Architecture			Protocols, NW Management and QoS/QoE			Platforms			ICT Applications					
			Transport Networks and EMC	Access Network	Optical Fiber	IoT Area Network	Network Vision	3GPP	Mobile Network Management	Signalling	Network Management	Numbering Plan	AI for Next Gen. Services	Security	Enterprise Network	Multimedia Application	Connected Car	BSG	IoT · Smart City	Global Collaboration	Technology Research
ITU-T Joint Coordination Activities	JCA-QKDN	Quantum Key Distribution Network									R										
	JCA-ML	Machine Learning																			
	JCA-DCC	Digital COVID-19 Certificates											X		X					L	
	JCA IMT-2020	IMT-2020(SG13)					L														
	JCA MMeS	Multimedia aspects of e-services(SG16)													L						
	JCA IoT and SC&C	Internet of Things and Smart Cities & Communities(SG20)																	L		
	JCA AHF	Accessibility and Human Factors(TSAG)													R					L	
	JCA IdM	Identity Management(SG17)												L							
	JCA COP	Child Online Protection(SG17)												L							

# Top 10 TTC Standards Download (2017.4-2024.1)

	Document Number	Number of Downloads	Document Name	Latest enactment date	Working Group
1	JJ-90.30	20370	Common interconnection interface Between IMS operator's networks	2018/8/29	Signaling
2	TR-1079	19509	Technical report of optical access technologies applying 5G mobile fronthaul	2019/5/30	Access network
3	JT-Y1731	15007	OAM functions and mechanisms for Ethernet based networks	2010/2/24	Transmission network and EMC
4	JT-Q931	13139	ISDN User-Network Interface Layer 3 Specification for Basic Call Control	1999/4/22	Signaling
5	JT-G709	10887	Interfaces for the Optical Transport Network (OTN)	2011/3/1	Transmission network and EMC
6	TR-1007	10142	Technical Report on Session Initiation Protocol (SIP)	2003/3/14	Signaling
7	JT-T30	9488	Procedures for Document Facsimile Transmission In the GSTN	2008/5/29	Multimedia application
8	JT-G707	9457	Network Node Interface for the Synchronous Digital Hierarchy (SDH)	2006/11/27	Information Transfer
9	JJ-21.10	8845	Analog Interface for PBX and Key Telephone Terminal Equipments	1989/04/28	Enterprise Network
10	TS-1023	8745	Common Interface Specification between Digital radio communication system and Command system for fire and ambulance service	2020/4/20	Enterprise Network

# Standard Documentation Use Cases

- **Top1: 20,370 Download**

**Common interconnection interface Between IMS operator's networks (JJ-90.30)**

This document is used to facilitate the transition of the national communications network from the PSTN network to the IP network.

- **Top2: 19,509 Download**

**Technical report of optical access technologies applying 5G mobile fronthaul (TR1079)**

This document was referenced to study the use of PON: Passive Optical Network in 5th generation mobile communication systems and contributed to the realization of efficient network facility design.

# Download Japanese translation of ITU-T recommendations (2017.4-2024.1)

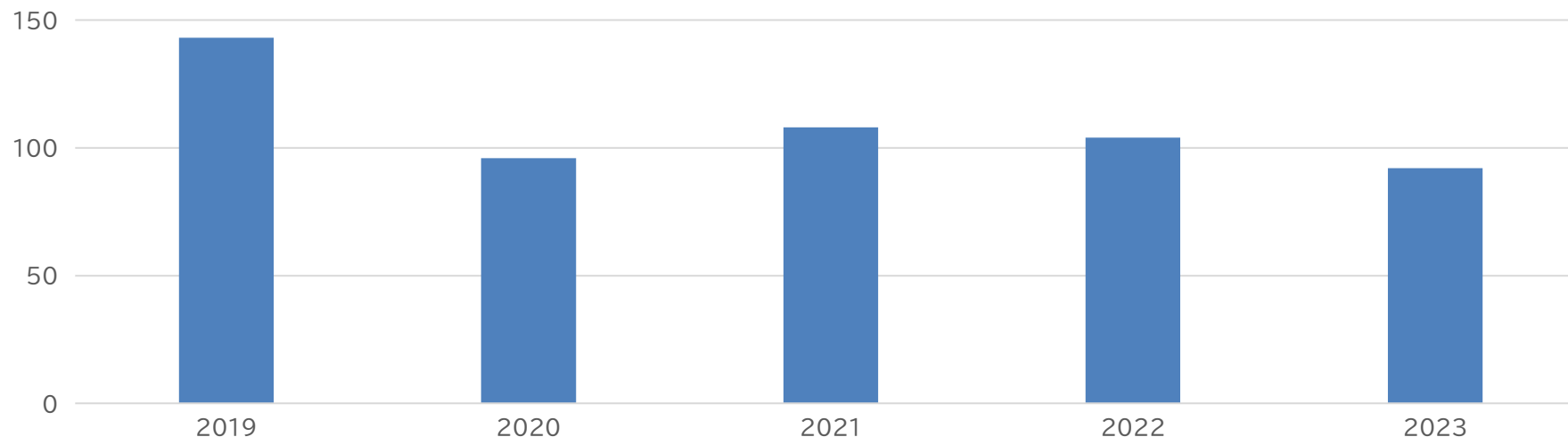
	Document Number	Number of Downloads	Document Name	Latest Establishment Date	Working Group
1(3)	JT-Y1731	15007	OAM functions and mechanisms for Ethernet based networks	2010/2/24	Transmission network and EMC
2(4)	JT-Q931	13139	ISDN User-Network Interface Layer 3 Specification for Basic Call Control	2019/5/30	Signaling
3(5)	JT-G709	10887	Interfaces for the Optical Transport Network (OTN)	2011/3/1	Transmission network and EMC
4(7)	JT-T30	9488	Procedures for Document Facsimile Transmission In the GSTN	2008/5/29	Multimedia application
5(8)	JT-G707	9457	Network Node Interface for the Synchronous Digital Hierarchy (SDH)	2006/11/27	Information Transfer
6(11)	JT-G652	6849	Characteristics of a single-mode optical fibre and cable	2018/5/24	Network management
7(14)	JT-I430	7107	ISDN Basic User-Network Interface Layer 1 - Specification	2000/2/1	Transmission Network and EMC

# Number of ITU-T recommendations submit by TTC Working Groups

Number of proposals submitted							
TTC Working Group / Sub Working Group		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total
Multimedia Applications	SG16	13	19	16	10	8	66
Connected Car	SG16	7	6	5	3	1	22
IoT Smart City	SG20	5	2	1	0	2	10
ICT and Climate Change SWG	SG5	3	1	2	1	1	8
Security	SG17	10	7	18	25	25	85
Network management	SG12	3	0	3	5	3	14
Numbering Plan	SG20	3	1	1	2	8	15
Signaling	SG11	5	1	4	3	12	25
Network Vision	SG13	22	18	5	9	5	59
Transmission network and EMC SWG	SG5,SG15	39	21	31	23	9	123
Access Network	SG15	8	4	5	4	2	23
Optical Fiber	SG15	19	6	14	17	23	79

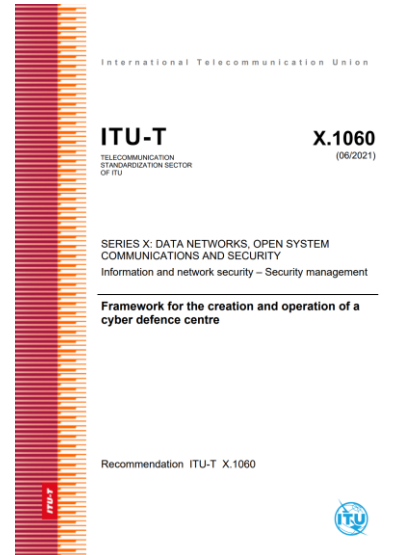
# Upstream activities to ITU-T SG in TTC

As of January 2023, 95 submissions were received. Security Working Groups received the most submissions.



TOP	2019	2020	2021	2022	January 2023
1	Transmission network and EMC (39)	Transmission network and EMC (21)	Transmission network and EMC(31)	Security (22)	Security (25)
2	Optical Fiber (19)	Multimedia applications (19)	Security (18)	Transmission network and EMC (18)	Optical Fiber (23)
3	Network Vision(15)	Network Vision(18)	Multimedia applications (16)	Multimedia applications (10)	Signaling (12)
4	Multimedia applications (13)	International collaboration AG (10)	Optical Fiber (14)	Optical Fiber (19)	Transmission network and EMC (9)

# From TTC standards to ITU-T recommendations (Security: X.1060)



X.1060: Framework for the creation and operation of a cyber defence centre

TTC標準  
Standard

JT-X1060

サイバーディフェンスセンターを  
構築・運用するためのフレームワーク  
Framework for the creation and operation of a cyber defence centre

第11版

2022年4月11日制定

一般社団法人

情報通信技術委員会

THE TELECOMMUNICATION TECHNOLOGY COMMITTEE



JT-X1060: A framework for building and operating cyber defense centers

# Proposing indicators of the contribution of standardization activities in regional SDOs to industry

## 1) Number of downloads of national standard documents developed by regional SDO

- ✓ Many standard documents contribute to the stable development of Japanese communication networks.
- ✓ The number of downloads of standard documents is useful for measuring the spread and impact of standards.

## 2) Number of downloads of translated documents of ITU recommendations

- ✓ Translated documents of ITU recommendation promote the regional dissemination of international standards and expand the areas where standards can have a practical impact on industry.
- ✓ The number of downloads of standard documents is useful for measuring the spread and impact of standards.

## 3) Number of recommendations submitted to ITU-T

- ✓ Industry involvement is essential for international standardization activities.
- ✓ The number of recommendations submitted to ITU-T can be an indicator of the level of industry involvement through regional SDO



# Activities of the Interindustry Innovation Working Party

Currently, the following working parties (WPs) are active:

**High-Definition Medical Imaging Data Application Working Party (Ongoing):** Held five meetings in FY2022

- ◆ Its goal is to standardize color information related to high-definition medical images, including 8K endoscopy, with the aim of submitting proposals to ITU-T.
- ◆ Participants from the Medical Innovation Consortium, endoscopy and imaging-related companies, and broadcasting professionals engage in discussions, and the outcomes are proposed to ITU-T.

**BHQ (Brain Healthcare Quotient) Working Party (Ongoing):** Held four meetings in FY2022

- ◆ It focuses on information exchange, research, surveys, experimentation, and deployment of BHQ, a unit developed based on MRI images of the brain to represent brain health.
- ◆ The collaboration includes BHQ Consortium member companies from consumer electronics, food, medical devices, and household goods industries, contributing to ITU-T SG16's study of use cases for a brain information platform.

**Healthcare and Medical IoT (Established in February 2023):** Held its inaugural meeting on March 17th

- ◆ It was established in February 2023 as a discussion forum for healthcare-related topics.
- ◆ The WP facilitates information exchange and research on interoperability requirements and implementations related to ECHONET and Continua Health Guidelines.

**Metaverse Standardization Promotion Liaison Committee (Established in February 2023):** Held two meetings on March 2nd and March 22nd

- ◆ It was established in February 2023 as a platform for discussions related to the metaverse.
- ◆ The committee aims to gather information from various standardization organizations, promote information sharing, conduct preliminary reviews of proposals from Japan, and advance the standardization and adoption of the metaverse in the future, including sharing information about ITU-T FG metaverse meetings.

# From TTC Standards to ITU-T Recommendations (Infrastructure Monitoring)



IoT Area NW Working Group



Interindustry Innovation Centers

IoT Smart City Working Group

Bridge Monitoring WP

TTC標準 Standard

JJ-301  
橋梁モニタ  
加速度センサ  
及び低消費電力無線

An information model for bridge infrastructure and its operation in low communication

2017年5月

一般社団法人  
情報通信技術委員会  
THE TELECOMMUNICATIONS TECHNOLOGY COMMITTEE

JJ-300.30

TTC技術レポート Technical Report

TR

橋梁モニタ  
低消費電力無線

Guidelines of Low Power for Bridge Infra

2017年

一般社団法人  
情報通信技術委員会  
THE TELECOMMUNICATIONS TECHNOLOGY COMMITTEE



TR-1074

Infrastructure Monitoring Information Model Standardization Guidelines

TTC技術レポート Technical Report

TR-1103

IoTを活用した  
路/斜面等のモニタリング参考事例

9 cases for local municipality utilization for monitoring

第1.1  
2023年10月

一般社団法人  
情報通信技術委員会  
THE TELECOMMUNICATIONS TECHNOLOGY COMMITTEE



TTC技術レポート Technical Report

TR-1081

インフラモニタリング  
情報モデルのユースケース

Use Cases of Infrastructure Monitoring Information Model

第1.0版  
2020年2月4日制定

一般社団法人  
情報通信技術委員会  
THE TELECOMMUNICATIONS TECHNOLOGY COMMITTEE

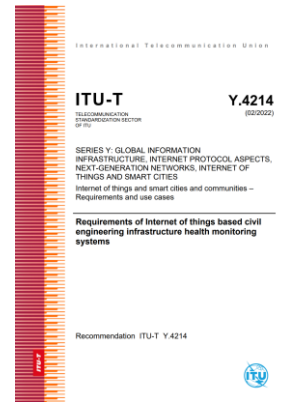


TR-1081

Infrastructure Monitoring Information Model Use Case

TR-1066

Guidelines for Social Infrastructure Monitoring Systems



# Cross-industry and technology activities(1): Machine Vision

- JIIA (Japan Industrial Imaging Association) established the International Standards Promotion Committee in 2021.
- Machine Vision SWG was established in cooperation with JIIA in order to respond to the diversification of international standardization activities centering on communications technology and machine vision technology.

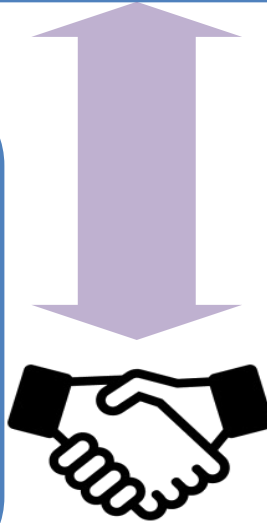


## ITU-T SG16: Multimedia

Q5/16 : Artificial intelligence-enabled multimedia applications  
Q21/16 : Multimedia framework, applications and service

JIIA

International Standards  
Promotion Committee



TTC

Multimedia Applications  
Working Group  
/ Machine Vision SWG



# Cross-industry and technology activities(2): Automotive industry

Promotion of cooperation with related organizations mainly through the Connected Car Working Group

2020.1

Study Group Security Issues Related to Autonomous Driving  
ITS Information and Communication System Promotion  
Conference, 5GMF, Society of Automotive Engineers of Japan

2018.6

Meeting with JasPar to exchange views on security issues

2018.3

Conclusion of Memorandum on Cooperation with JasPar (Japan Automotive  
Software Platform and Architecture)

2017.6

Meeting with ISO TC204 (ITS) WG18 (Cooperative System)

2017.3

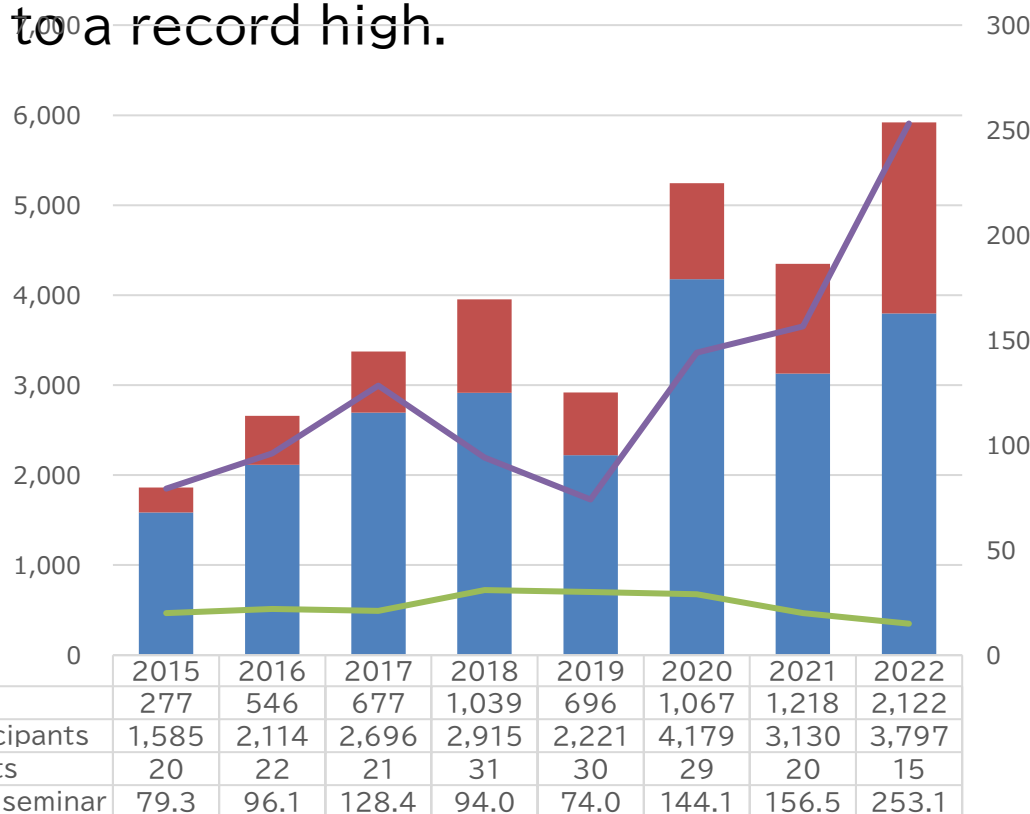
Conclusion of Memorandum of Understanding on Cooperative Relations with Society  
of Automotive Engineers of Japan

2016.8

First meeting with Society of Automotive Engineers of Japan (introduction of mutual activities)

# TTC Workshop in FY2022

- As of February 2023, a total of 15 workshops were held in fiscal 2022. 18 workshops are scheduled to be held by the end of March.
- The largest number of participants was 772. The number of participants was 544 last year. The total number of participants and the number of participants per workshop increased to a record high.

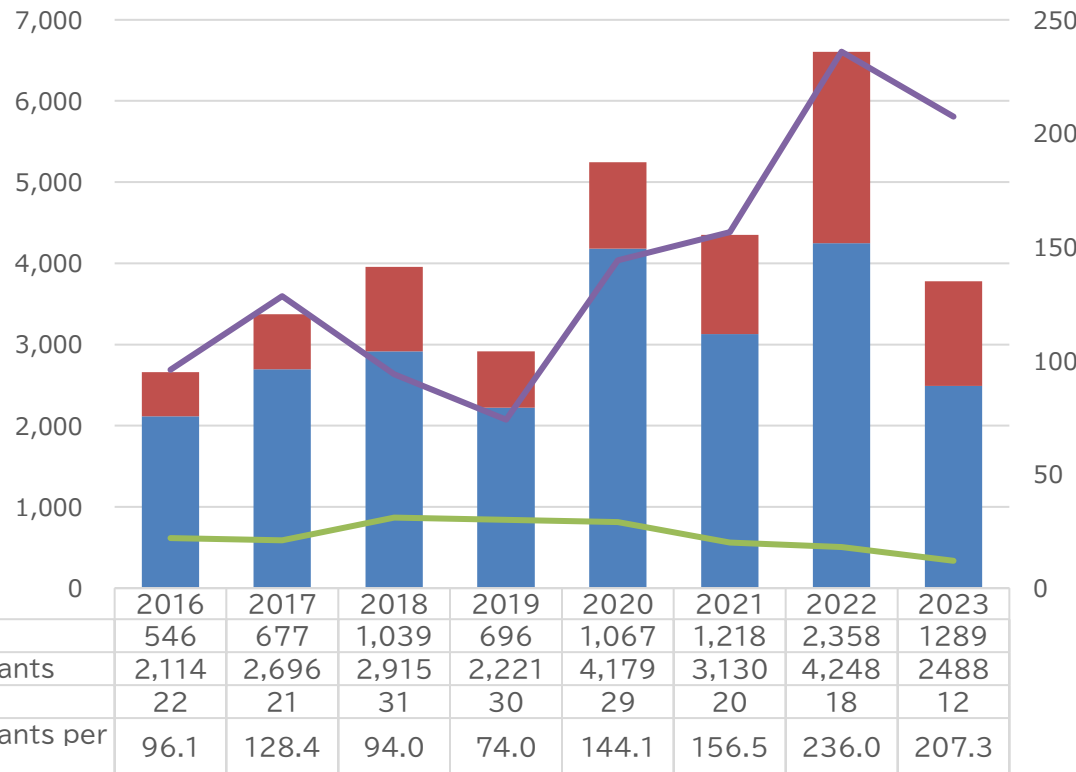


Top 3 workshops Ranked by Number of Participants in Fiscal 2022

	workshop	Number of Participants
1	TTC/IOWN Global Forum Joint Online workshop "Today's IOWN Spinning with Global Partners" (2022/6/10)	772 people
2	NICT (Quantum Security Base)/TTC/Quantum ICT Forum co-organized Joint Symposium on Quantum Security 2022 "Quantum Industry for the Future" (2022/10/25)	594 people
3	IPSJ/TTC joint online workshop "Brain Information/BMI and Future Machine Interface" (2023/1/18)	591 people

# TTC Workshop in FY2023

- As of January 2024, a total of 12 workshops were held in fiscal 2023. 15 workshops are scheduled to be held by the end of March.
- The largest number of participants was 508.



Top 3 workshops Ranked by Number of Participants in Fiscal 2023

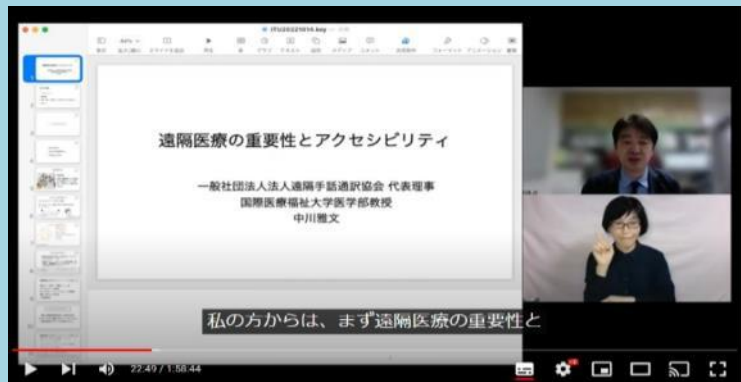
	workshop	Number of Participants
1	TTC workshop "3 GPP Rel-17 NW Slice Workshop" (2023/7/3, 5)	508 people
2	TTC workshop "Impact of 3GPP 5G on Society and Industry: Local 5G, IIoT, NW Slice, Broadcasting and Communications Fusion, and Non-Terrestrial Network (NTN) Usage" (2024/1/16)	366 people
3	IPSSJ/TTC Joint workshop "Frontlines of Standardization for GX (Green Transformation) and Future Prospects" (2024/1/19)	272 people

# Number of participants in workshops on TTC emerging technologies

Emerging technologies	Number of participants (Members)	Number of Participants (Not a member)	Total number of participants	workshop title	Co-organized	Date
Metaverse	106	336	442	Metaverse standardization trends and latest examples	ITSCJ	2024/2/7
QKD	101	216	317	Toward the convergence of network architecture, high-performance computing, and information security	Quantum ICT Forum	2023/11/9
IOWN	435	331	766	Today's IOWN Spinning with Global Partners	IOWN Global Forum	2022/6/10
GX	125	263	388	Standardization for GX	IPSJ	2024/1/19

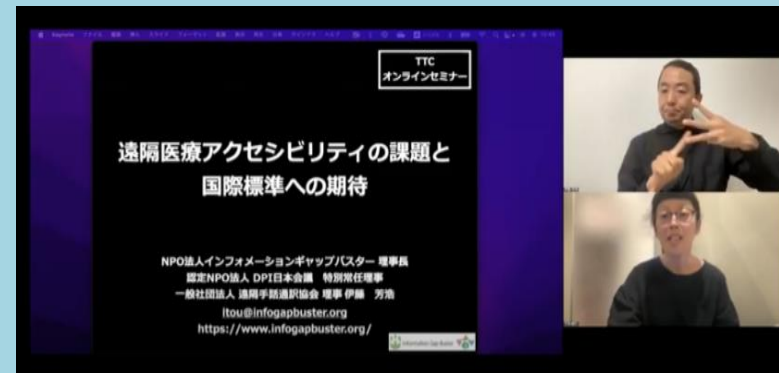
# Initiatives to improve accessibility

- TTC Online Workshop "Latest Standard Technology Trends in Accessibility of Telemedicine" held on October 14, 2022.
- The workshop discussed the accessibility of telemedicine through a remote sign language interpreter.
- The workshop was attended by 129 participants. In response to the content, participants expressed hope that the workshop using sign language interpretation would continue.



Speaker  
(speech)

Sign language  
interpreter  
(sign language)



Speaker  
(sign language)

Sign language  
interpreter  
(speech)

Video lecture with Japanese subtitles

Guide display

Panel discussion





# Industry Engagement Initiatives at TTC

## 1) Promotion of standardization activities in emerging technologies

Implementation of the following by holding workshops on emerging technologies

- Extraction of standardization issues on emerging technologies
- Avoiding overlapping activities by identifying relevant companies, universities, government organizations, and SDOs
- Understanding expectations for standardization and commercialization of emerging technologies through analysis of workshop participants
- Need for cross-industry consensus building

## 2) Establishment of organizations and support for activities to address emerging technology issues

Provision of systems tailored to objectives and support for promotion of activities

## 4) Promotion of diversity of activists and attracting new participants

Promotion of standardization activities that incorporate various opinions and reflect diverse values

Thank you for your attention

TTC website:  
<https://www.ttc.or.jp/>

TTC専務理事 岩田秀行のつぶやき

Iwattar



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