

## Technical Trends in ISO/IEC Joint Technical Committee 1

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### Abstract

The International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) Joint Technical Committee (JTC) 1 is an organization established by ISO and IEC and is responsible for international standardization in the field of information technology. This article introduces the activities being addressed by subgroups directly under JTC 1, which were identified in Resolutions from recent ISO/IEC JTC 1 Plenaries.

*Keywords: ISO/IEC JTC 1, Plenary, Advisory Group*

### 1. Introduction

The International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) Joint Technical Committee (JTC) 1 [1] was established by ISO [2] and IEC [3] and is responsible for the international standardization of information technology. Formerly, ISO/Technical Committee (TC) 97 (established in 1960) and IEC/TC 53 (established in 1961) independently promoted standardization activities in the information-technology field, resulting in the duplication of certain technical fields between these organizations [4]. JTC 1 was established in 1987 to solve this problem. The secretariat of JTC 1 is the American National Standards Institute (ANSI). As of September 2023, JTC 1 comprises 40 P-members (active participants) and 62 O-members (observers).

The Plenary is JTC 1's highest decision-making meeting, and the main agenda is as follows:

- Establishment and/or disbandment of Subcommittees (SCs), Working Groups (WGs), and Advisory Groups (AGs) under JTC 1
- Appointment of JTC 1 Officers
- Revision of operational rules
- Reports on SC activities

### 2. Organization of ISO/IEC JTC 1

The organization of JTC 1 is shown in **Fig. 1**. The development of standards is carried out by 23 SCs and 5 WGs directly under JTC 1. Discussions on management issues, such as the review of Directives, and on technology issues, such as examination of issues with a view to development of future standards, are carried out by AGs under JTC 1. JTC 1 has established liaisons with organizations other than JTC 1, including IEC/TC 65 (Industrial-process measurement, control, and automation), IEC/TC 100 (Audio, video, and multimedia systems and equipment), ISO/TC 215 (Health informatics), ISO/TC 307 (Blockchain and distributed ledger technologies), ITU-T (International Telecommunication Union - Telecommunication Standardization Sector), and Ecma International.

Japan has been in a significant position regarding the management of JTC 1 as follows:

- P-members in all 23 SCs and 5 WGs directly under JTC 1
- Chairs of SC 2 (Character code), SC 23 (Digital storage media), SC 28 (Office equipment) and Committee Managers of SC 2, SC 23, SC 28, SC 29 (Media encoding), SC 34 (Document description and processing language)
- Approximately 90 Project Editors (as of the end of March 2023)

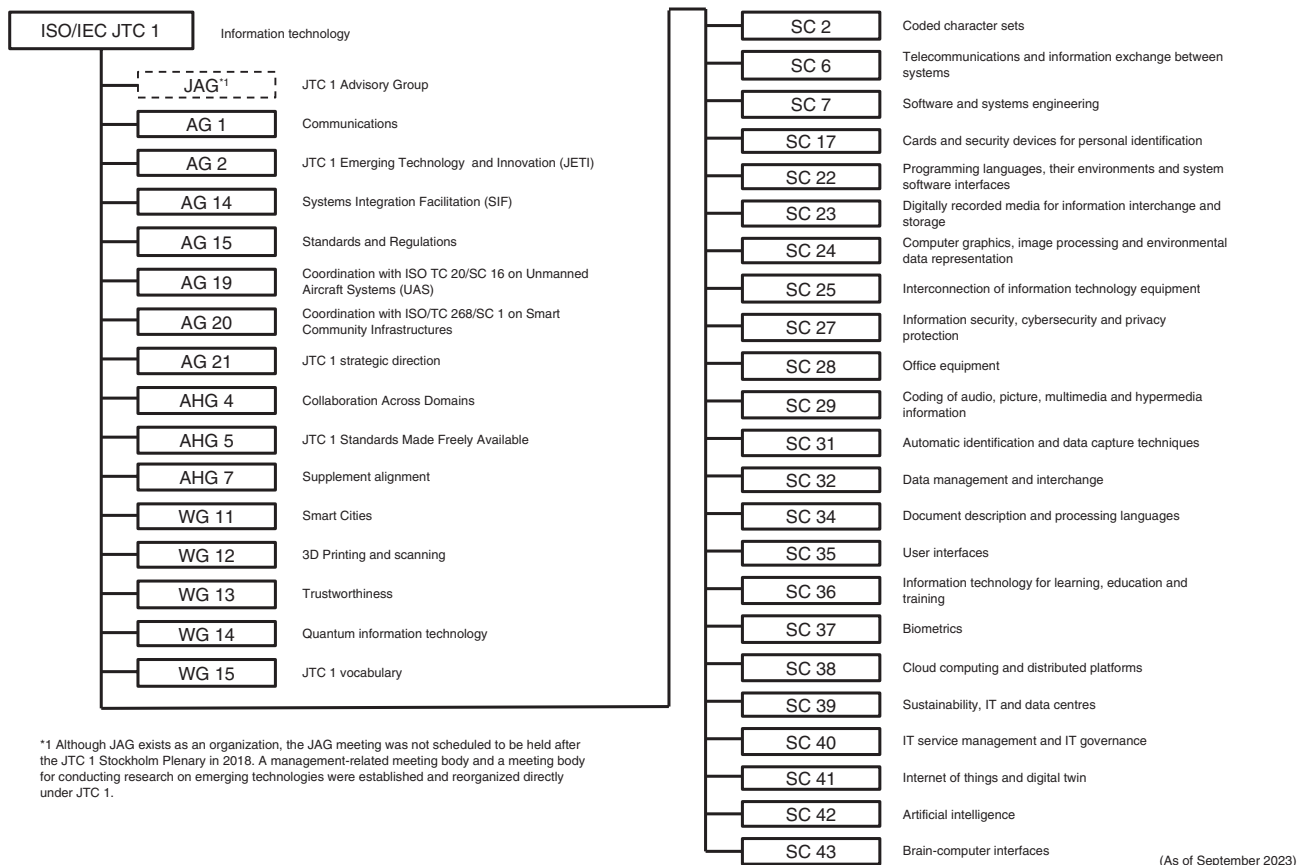


Fig. 1. Organization of ISO/IEC JTC 1.

- Hosts of JTC 1 Plenary (4 times)

JTC 1 Plenary has been held twice a year (spring and fall) since 2019. The two most recent JTC 1 Plenaries were held in Tokyo (Japan) in November 2022 and in Paestum (Italy) in May 2023, both in the format of “face-to-face mode with some remote participants”<sup>\*1</sup>. At both Plenaries, Japan has greatly contributed to steering JTC 1 by proposals through more than a dozen contributions, participation in the Drafting Committee and hosting Tokyo Plenary<sup>\*2</sup>, which was the first face-to-face JTC 1 Plenary during the COVID-19 pandemic.

The following sections introduce several trends in JTC 1 subgroups and activities for JTC 1 in the Japanese National Body (NB)<sup>\*3</sup>.

### 3. Latest trends in JTC 1 subgroups

#### 3.1 SC on information technology for smart cities

In JTC 1, WG 11 addresses standardization items related to information technology for smart cities. To

coordinate activities related to smart community infrastructure between ISO TC 268/SC 1 (Smart community infrastructures) and JTC 1, AG 20 was established according to the Resolution of the JTC 1 virtual Plenary in May 2022. At the JTC 1 Paestum Plenary in May 2023, Chinese NB submitted a contribution describing that a new SC should be established for smart cities, which was addressed by WG

<sup>\*1</sup> “Face-to-face mode with some remote participants” is the name of a meeting format that uses both face-to-face and virtual modes, as defined in Standing Document (SD) N 19 (Meetings) of ISO/IEC JTC 1. Although this SD defines a similar meeting format “hybrid mode,” there are differences between these two formats, such as the maximum meeting hours per day and whether remote participants have the right to pause the meetings when they lose remote connectivity.

<sup>\*2</sup> When preparing to host JTC 1 Plenary in Okayama (Japan) in November 2020, the format of the Plenary changed to virtual due to the COVID-19 pandemic. Japan therefore re-invited the Plenary in November 2022.

<sup>\*3</sup> NB: ISO uses the term MB (Member Body), and IEC uses NC (National Committee). As ISO/IEC JTC 1 is common to both organizations, it is called NB.

Table 1. Examples of WG/AG/AHG under ISO/IEC JTC 1.

Theme	Quantum Information Technology (JTC 1/WG 14)	JTC 1 Strategic Direction (JTC 1/AG 21)	Collaboration Across Domains (JTC 1/AHG 4)
ToR	<ol style="list-style-type: none"> <li>1. Serve as a focus of and proponent for JTC 1's standardization program on Quantum Information Technology. Identify gaps and opportunities in Quantum Information Technology standardization;</li> <li>2. Develop and maintain a list of existing Quantum Information Technology standards produced and standards development projects underway in ISO/TCs, IEC/TCs, JTC 1 and other organizations;</li> <li>3. Develop deliverables in the area of Quantum Information Technology;</li> <li>4. As a systems integration entity, maintain relationships with other ISO and IEC TCs and other organizations that are involved in Quantum Technology standardization.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify stakeholders, assess market and technology evolution;</li> <li>2. Perform a Strengths/Weaknesses/Opportunities/Threats (SWOT) analysis of JTC 1, including reference to ICT standardization outside of JTC 1;</li> <li>3. Assess JTC 1 Subcommittee activity (critical mass, technological maturity);</li> <li>4. Assess intensity of collaborative work (within JTC 1, with ISO and IEC TCs and with external SDOs);</li> <li>5. Prepare recommendations including <ul style="list-style-type: none"> <li>• JTC 1 governance and operations</li> <li>• JTC 1 system work and collaborations</li> <li>• Optimal structure</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Review ITTF's draft revision of SD 15 (JTC 1 N16195), as well as the US comments on the ITTF draft (JTC 1 N16247), and propose any further changes that might be necessary by the 1st deadline (18 September 2023) for the November 2023 JTC 1 Plenary.</li> </ol>

(As of September 2023)

Source: Approved Resolutions of the 14-18 November 2022 JTC 1 Plenary in Tokyo (ISO/IEC JTC 1 N 16159) and Resolutions of the 8-12 May 2023 JTC 1 Plenary in Paestum, Italy (ISO/IEC JTC 1 N 16364)

SDO: standards developing organization  
ITTF: Information Technology Task Force  
SD: standing document

11. During the Plenary, there was a great deal of discussion resulting in no consensus, and the decision was scheduled on approval of Resolutions on the last day. Japanese NB expressed its opposition because of concerns that the scope of the new SC would overlap with that of other organizations related to smart cities. As a result of the vote, the establishment of the 44th SC was approved by a majority of the P-members present at the Plenary. This new SC will be chaired by Heng Qian (China), Convenor of WG 11, and WG 11 will disband when the new SC is inaugurated. Note that this new SC has been approved by the JTC 1 level at the time of writing this manuscript and it will be inaugurated after approval by the votes of the management boards of ISO and IEC (ISO Technical Management Board and IEC Standardization Management Board).

### 3.2 WG on quantum information technology

The standardization activities of quantum information technology at JTC 1 are initiated by the Study Group (SG) on quantum computing, approved at JTC 1 Stockholm Plenary in November 2018. Taking over its activities as SG, WG 14 was established according to Resolution of JTC 1 virtual Plenary in June 2020, starting the development of standards on quantum

computing. At the JTC 1 Tokyo Plenary in November 2022, Preliminary Work Item (PWI) on quantum simulation was approved, and its structure was discussed. It was agreed to expand the activities of the existing WG 14 because it would be inefficient to establish a single WG specific to quantum simulation. The title of WG 14 was renamed from “Quantum computing” to “Quantum information technology,” and its Terms of Reference (ToR) was also changed to support a wider range of quantum information technologies. This WG is chaired by Hong Yang (China) and its ToR is indicated in **Table 1**.

### 3.3 AG on JTC 1 strategic direction

AG 21 was established in response to a contribution submitted by Canadian NB to the JTC 1 Tokyo Plenary in November 2022. The purpose of this contribution is to determine JTC 1's optimal structure, because JTC 1 has not reviewed its structure, governance, or mode of operation in the light of its current mission for more than 20 years although there have been major changes in not only the information and communication technology (ICT) market and technical landscape but also in the way ICT is used in our global society. This AG is chaired by Norbert Bensalem (France) and its ToR is indicated in Table 1.

### 3.4 Ad Hoc Group on collaboration across domains

Ad Hoc Group (AHG) 4 was established in response to a Japanese NB's contribution for JTC 1 virtual Plenary in May 2021. The purpose of this contribution is to propose a restructure of WGs addressing application-layer areas, including the restructuring of WG 11 and WG 12. Although the Plenary could not reach a consensus, it decided to continue this discussion by establishing an AHG. Several proposals were contributed by AHG 4 to JTC 1 Plenaries, including monitoring of liaison activities, long-term plan for across-domain activities and transfer of AHG 4 to AG, which were not adopted as Resolutions. This AHG is chaired by Jacqui Taylor (UK) and its ToR is indicated in Table 1.

## 4. Activities in Japanese NB

In Japan, SCs under JTC 1 and WGs/AGs/AHG directly under JTC 1 are mainly operated by Information Technology Standards Commission of Japan (ITSCJ)\*<sup>4</sup> [5]. Each mirror subcommittee for WG 11 through WG 15 directly under JTC 1 has been established in ITSCJ to share the status of deliberations and address international ballots. Since 2018, JTC 1

Subgroup Subcommittee has been active in ITSCJ, which comprehensively addresses the issues that the AGs are required to participate in as NB. JTC 1 Subgroup Subcommittee shares deliberations of each AG and discusses how to deal with AGs. This Subcommittee also addresses standardization items for SC 43 (Brain-computer interfaces).

In addition, Subcommittee for Directives is active in ITSCJ, as Japanese companies and organizations other than the members of the subcommittee mentioned above are highly interested in ISO/IEC Directives.

## 5. Future Plenaries

The upcoming Plenaries will be held in Berlin (Germany) in November 2023 and Australia (city to be determined) in May 2024.

## References

- [1] JTC 1, <https://jtc1info.org/>
- [2] ISO, <https://www.iso.org/home.html>
- [3] IEC, <https://www.iec.ch/homepage>
- [4] Information Processing Society of Japan (IPJSJ), "60-year History," 2020 (in Japanese), <https://www.ipsj.or.jp/60anv/60nenshi/>
- [5] IPSJ/ITSCJ, <https://itscj.ipsj.or.jp/english/index.html>



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He received a B.E. and M.E. in electronic engineering from Osaka University in 1994 and 1996. He joined NTT in 1996, where he has been engaged in research and development (R&D) of smart card systems, in security design of information and communication systems, in standardization activities including ISO/IEC JTC 1 and JIS (Japan Industrial Standard), and in risk management for NTT R&D's information and communication systems.

He received the FY 2011 Industrial Standardization Award from the Ministry of Economy, Trade and Industry for his outstanding contributions to activities regarding ISO/IEC SC 17/WG 8 (contactless cards). He is a member of the board of directors of ITSCJ and Vice Chairperson of Task Force for wireless card systems in the Association of Radio Industries and Business of Japan. He served as Chair of the November 2022 JTC 1 Tokyo meeting preparatory committee.

He has been registered as a Professional Engineer, Japan (P.E.Jp) in electrical and electronics engineering since 2011 and in engineering management since 2015. He has been registered as an APEC Engineer (Electrical) and International Professional Engineer (IntPE) since 2015. He is a member of the Institute of Electronics, Information and Communication Engineers, the Japan Society of Applied Physics, the Information Processing Society of Japan, and the Institution of Professional Engineers, Japan.

\*<sup>4</sup> SC 17, SC 28, SC 35/WG 1 (Keyboards, methods and devices related to input and its feedback), SC 35/WG 2 (Graphical user interface and interaction), SC 35/WG 4 (User interfaces for mobile and wearable devices) and SC 35/WG 6 (User interfaces accessibility) are operated by the Japan Business Machine and Information System Industries Association (JBMA). SC 25/WG 3 (Customer premises cabling), WGs under SC 31 and SC 39 are operated by Japan Electronics and Information Technology Industries Association (JEITA).