ANNUAL REPORT 2022

ICT STANDARDS CONSULTATIVE COMMITTEE (NSAI TC 2)

NSAI

Contents

1 Chairperson's Statement

Following the fully virtual world that existed for standards meetings in 2021, thankfully later in 2022 saw the standards community return to some mixed-mode and face-to-face meetings. This development was welcomed by all involved, though most also agreed that there will be a continuing role to play for virtual meetings at some level.

In the realm of Information & Communications Technology (ICT) standardisation, 2022 saw an increasing focus on identifying standardisation needs for emerging technologies, such as quantum technology, smart cities & communities, and AI. And, to ensure the established home for information technology standardisation is fit for purpose in that regard, ISO/IEC JTC 1 established an Advisory Group (AG 21) on 'Strategic Direction' – it is tasked with, over the next year, coming up with recommendations on 1) optimum structure 2) governance and operations, and 3) systems integration and collaboration that will ensure continuing relevance and future success for JTC 1.

Closer to home saw the publication of the long-awaited European Standardisation Strategy (ESS) by the European Commission. Central to the strategy is the establishment of the High-Level Forum (HLF). The HLF will advise the Commission on standards-related needs and activities required in support of the various policy and regulatory initiatives, including on the content of the Annual Union Work Programme on European Standardisation. DETE will represent Ireland on the HLF, with the NSAI CEO appointed as an alternate, and NSAI will also be represented on the HLF 'sherpa' sub-groups covering green, digital, and resilience priority areas. It is expected that NSAI TC 2 "ICTSCC" will play a role in advising and informing NSAI and DETE on ICT standards aspects. The ESS also has a pillar on standards education, and ICTSCC should consider how it may play a role in that regard across the stakeholder base in Ireland.

As we look forward, one thing is for certain – ICT is playing an increasingly important role in the transformation of the way we do business and conduct our lives. With the dawning of the metaverse and the rapid uptake of developments like generative-AI, it is even more important that we continue to drive the development and application of the standards needed to ensure a workplace and society we all deserve and need.

2 Summary of developments in 2022

2.1 Introduction

The presence of NSAI experts in key standardization areas was again to the fore through their leadership positions in committees and working groups, as project editors and in key liaison roles including between ISO/IEC JTC 1 and the European Commission.

At home we expanded our engagement with stakeholders and with new experts joining our work, while continuing to liaise with key stakeholders to ensure that public policy acknowledges and appropriately references European and International ICT standards.

Several of our subcommittees also reported new and renewed participation by members. ICTSCC also saw first time engagement from stakeholders and experts in the areas of Quantum Technologies and in Programming Languages.

2.2 Key areas of engagement

As in 2021 our key areas of participation spanned European and International standards engagement in the following areas, which also included NSAI experts holding key leadership roles in a number of committees and working groups:

- Artificial Intelligence
- Blockchain
- Cloud Computing
- Information Security, Cybersecurity and Privacy Protection
- Electronic Invoicing
- Internet of Things & Digital Twin
- IT and Data Governance
- IT Professionalism and Digital Competences
- Coding of Audio, Picture, Multimedia and Hypermedia Information.

2.3 Standards for future and emerging ICT

The ICT sector continues to be characterized by waves of innovation both for discrete technologies and novel combinations of existing technologies, as we have seen in IoT.

The ISO/IEC JTC 1 *Emerging technology and Innovation* (JETI) group conducts an annual strategic review which identifies and prioritizes potential areas for future standardisation (see Table 1) and conducts a deeper dive on more immediate technology areas of interest which are explored through publication of Technology Trend Reports (TTR). Currently a TTR on *Intelligent Computing* is under development and is expected to be published in 2023.

No.	Key Technology 2022	Category
1	**Data-Intensive Computation***	Future Computing
2	**Data privacy**	Security & Privacy
3	**Autonomous Vehicles**	Vehicles & Mobility
4	**Open Source***	Software Development
5	**Intelligent computing**	Future Computing
6	**Cloud-native platforms***	Future Computing
7	**Distributed Cloud**	Future Computing
8	**Metaverse***	Virtual Worlds
9	**Edge Cloud**	Future Computing
10	**Quantum Computing***	Future Computing
11	**Green Tech**	Environment/Climate change
12	**Empowering AI on the Edge**	Future Computing
13	**Autonomic Systems**	Automation, AI/ML/Deep Learning
14	**Self-driving cars**	Vehicles & Mobility
15	**5G/6G**	Connectivity
16	**AI Engineering***	Automation, AI/ML/Deep Learning
17	**Web3***	Virtual Worlds
18	**NFT (Non-Fungible Token)***	Virtual Worlds
19	**Intelligent Digital Workspace**	Post-Pandemics (Covid-19)
20	**Remote Education/Learning**	Post-Pandemics (Covid-19)
21	**AI as a Service**	Automation, AI/ML/Deep Learning
22	**Privacy-Enhancing Computation***	Future Computing
23	**5G edge cloud**	Future Computing
24	**Datafication***	Data
25	**Real-Time Streaming**	Digital Media

*Newly selected technology items for 2022

Table 1 – 2022 JETI's Top 25 Priority Technologies

3 ICT Standards Consultative Committee – Operational Overview

NSAI TC 2 engages in a broad range of standardization activities through its participation in those European and International standards committees listed in Table 2.

Committee Name	Committee Title
ISO/IEC JTC 1	Information Technology
ISO TC 307	Blockchain and distributed ledger technology
CEN TC 225	AIDC Technologies
CEN TC 428	Digital Competence and ICT Professionalism
CEN TC 434	Electronic Invoicing
CEN TC 440	Electronic Public Procurement
CEN/CLC JTC 13	Cybersecurity and Data Protection
CEN/CLC JTC 19	Blockchain and distributed ledger technologies
CEN/CLC JTC 21	Artificial Intelligence
*CEN/CLC JTC 22	Quantum Technologies

*New in 2022

Table 2 - European and International Committees mirrored by NSAI ICTSCC

Internationally, ISO/IEC JTC 1 is a joint technical committee of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), the scope of which is to develop, maintain and promote standards in the fields of information technology (IT) and information and communications technology (ICT). JTC 1 is a global standards development environment where experts come together to develop worldwide ICT standards for business and consumer applications. JTC 1 also supports the standards process for integrating diverse and complex ICT technologies. These standards rely upon the core infrastructure technologies developed by JTC 1 centers of expertise complemented by specifications developed in other organizations.
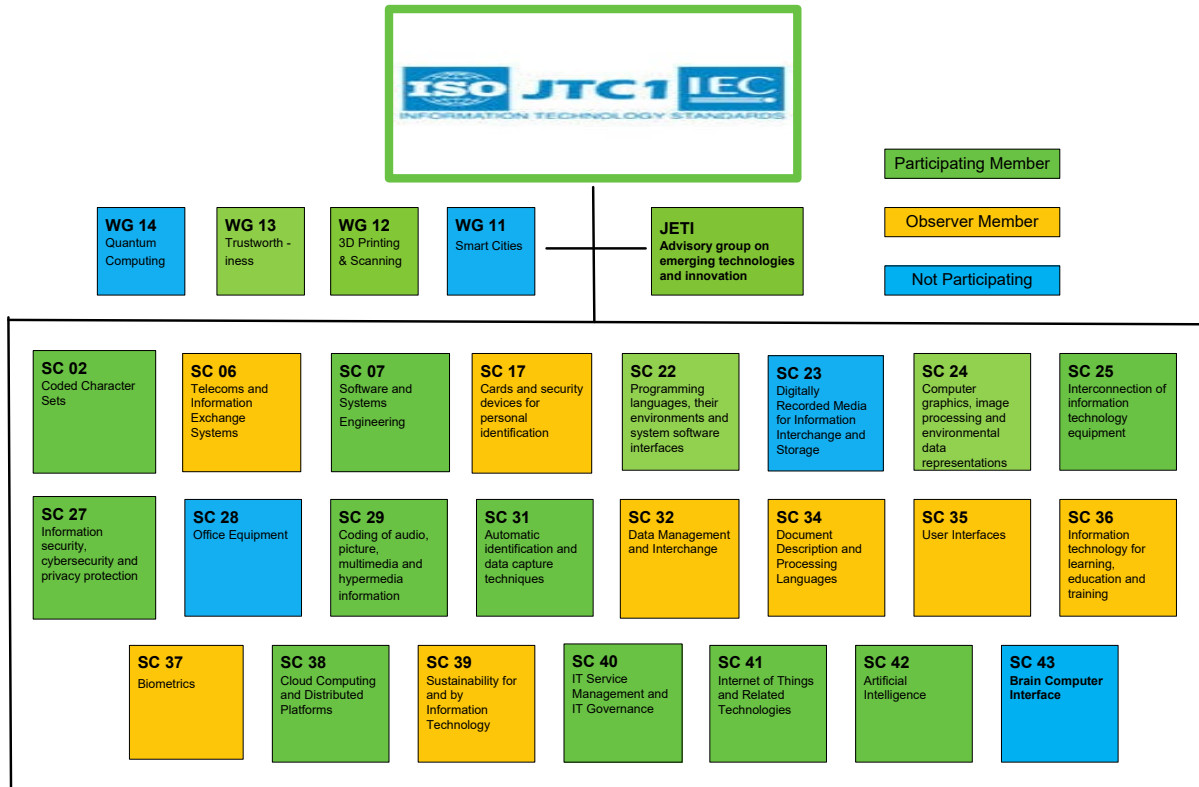
Since its formation in 1987, 3,407 ISO/IEC standards have been developed and published by committees of JTC 1, which comprises some 4,500 technical experts from around the world. Currently there are 23 active sub-committees of JTC 1, covering the topics set out in Figure 1. The most recent of these JTC 1 subcommittees, established in 2022, was SC 43 "Brain – Computer Interfaces", under the leadership of China.

Membership of an ISO/IEC committee is qualified as being an observer or a participating member. Figure 1 identifies those JTC 1 subcommittees where NSAI experts are actively engaged as participating members together with those subcommittees where our experts have observer status.

European standardization work represents a very important activity as many standards projects have been supported by or are directly mandated by the European Commission to facilitate the implementation of policy and legislative instruments. 2022 also saw the presentation of the Commission's new standardization strategy which establishes 5 key sets of actions including:

- Priority setting and speed,
- Good governance,
- European leadership in global standards,
- Support innovation,
- Education and skills.

To achieve its strategy the Commission has also made provision for a Commission-appointed Chief Standardisation Officer and a new organizational structure which includes a High-Level Forum on European Standardization to assist the Commission in anticipating upcoming standardisation priorities.

Fig 1 - ISO/IEC JTC 1 Working Groups & Subcommittees (including NSAI participation)

4 Structure and Membership

NSAI TC 2 comprises a plenary group and 16 subcommittees which mirror the engagement of NSAI registered experts in European and International standards. Table 3 details the current structure and organization of NSAI/TC 2.

Technical Committee	Committee Name	Mirroring	Chairperson	Membership
TC 2	ICT Standards Consultative Committee	ISO/IEC JTC 1	Mr. Brian McAuliffe / HP Inc.	18
*TC2/WG 1	Quantum Technologies – Advisory Group	CEN/CLC JTC 22	Dr. Deirdre Kilbride	1
TC 0/SC2	Software Engineering	JTC 1/SC 07	Dr. Paul Clarke / DCU	6
TC 0/SC 3	Telecommunications, media encoding and green IT	JTC 1/SC 06	Mr. Peter Lonergan /	2
TC 0/SC 4	Codes, character sets, and internationalization	JTC 1/SC 2	Dr. Michael Everson / Evertype	2
TC 0/SC 06	Generic cabling systems	JTC 1/SC 25	Mr. Matias Peluffo / Commscope	2
TC 2/SC 8	Biometrics	JTC 1/SC 17 & 37 / CEN TC	Dr. Michael Pierce / Daon	1

Technical Committee	Committee Name	Mirroring	Chairperson	Membership
TC 2/ SC 9	Automatic Identification and Datacapture Techniques	JTC 1 SC 31 / CEN TC 225	_	3
TC 2/SC 10	Information security, cybersecurity, privacy and data protection	JTC 1/SC 27 / CEN-CLC JTC	Mr. Terry Landers / Microsoft(rtd)	20
TC 2/SC 11	Cloud Computing and Distributed Platforms	JTC 1/SC 38	Ms. Ruth Lennon / ATU	10
TC 2/SC 12	eProcurement	CEN TC's 434 & 440	Mr. Edmund Gray/ Tubbercurry Software	16
TC 2/ SC 13	ICT Professionalism and Digital Competances	CEN TC 428 / JTC 1/SC 36	Ms. Mary Cleary / Irish Computer Society	12
TC 2/SC 14	Document description and processing languages	JTC 1/SC 34	Mr. Eamonn Neylon / Signalarc	3
TC 2/SC 15	IT Service Management and IT Governance	JTC 1/SC 40	Mr. Brian McAuliffe / HP Inc.	6
TC 2/ SC 16	Blockchain and electronic distributed ledger technologies	ISO TC 307 / CEN-CLC JTC 19	Mr. Vikas Sahni / National College of Ireland	25
TC 2 / SC 17	Internet of Things and Digital Twin	JTC 1/SC 41	Mr. Ray Walshe / DCU	17
TC 2 / SC 18	Artificial Intelligence	JTC 1/SC 42 / CEN-CLC JTC 21	Dr. David Filip /Huawei	41
TC 2 / SC 19	Coding of audio, picture, multimedia and hypermedia information	JTC 1/SC 29	Dr. Flaithrí Neff / TUS	16
*TC 2 / SC 20	Programming languages, their environment and system software interfaces	JTC 1/SC 22	Mr. Jonathan O'Connor	5

*New in 2022

Table 3 - ICTSCC Structure and Organization
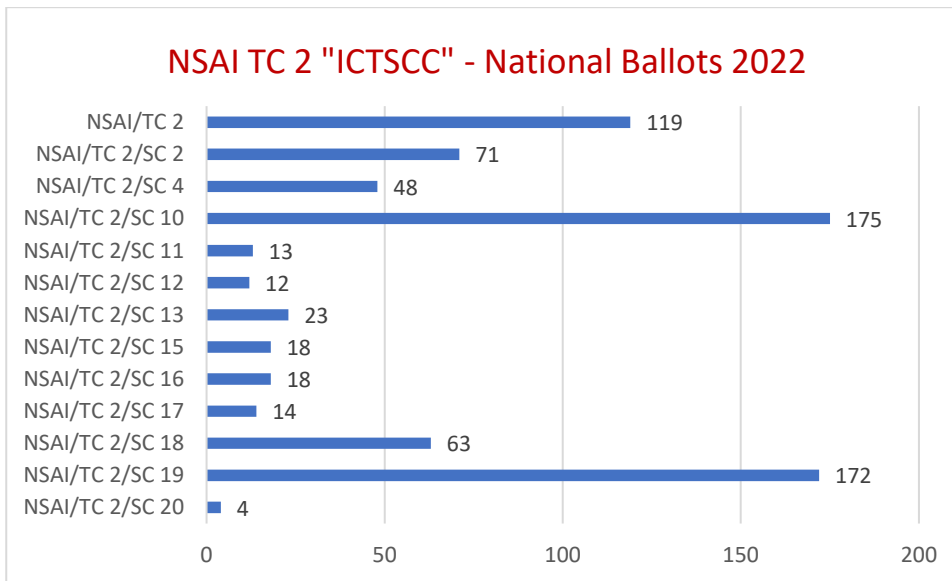
5 ICTSCC Summary of Activities - 2022

5.1 Meetings

Meetings of NSAI TC 2 generally mirror the plenary meeting schedule of ISO/IEC JTC 1 which holds spring and autumn plenary sessions. In 2022 NSAI TC 2 held 2 formal meeting in April and November and 2 virtual meetings as debrief sessions outlining our participation at the JTC 1 plenaries.

As with TC 2, subcommittees generally meet at least twice a year while individual experts may attend project meetings on a monthly basis.

5.2 Ballots on European and International Standards

An important obligation on the membership of committees is engagement in the standards balloting process. While our national experts are active in this process, NSAI also utilizes a default voting policy to ensure all ballots are appropriately addressed. Figure 2 identifies the ballot activity in for those NSAI committees which maintain a participating membership of a related CEN/CLC and JTC 1 committee.

Figure 2 – European and International Ballots presented to NSAI national mirror committees.

6 Work programme for 2023

Our work programme for 2023 includes a review of the operations of NSAI TC 2, including the identification of key areas of standardization for enhanced engagement. As well as maintaining our current ICT standards coverage, we plan to consider the following areas through engagement with national stakeholders.

- Quantum Computing.
- Metaverse.

7 Stakeholder engagement

We aim to broaden and deepen our stakeholder network, including the promotion of the use of standards in national policy, regulation and procurement together with the recruitment of new expert participation in our committees. Our key stakeholders include.

- Government departments, agencies, and authorities, including the IDA, EI and the National Cyber Security Centre.
- Industry bodies including IBEC, IRDG, Blockchain Ireland, Cyber Ireland.
- Research and Academic Institutions, including the Lero, Adapt and Empower SFI Centres.
- Professional bodies, including the Irish Computer Society and the Institute of Public Administration.