

ISO/IEC JTC 1 "Information technology"

Secretariat: **ANSI**

Committee Manager: **Rajchel Lisa Mrs.**



SC 42 Business Plan 2021

Document type	Related content	Document date	Expected action
General document / Other		2021-10-04	COMMENT/REPLY by 2021-11-08

Description

This document is circulated for review and consideration at the November 2021 JTC 1 Plenary.

SC 42 Strategic Business Plan

Artificial Intelligence

Period Covered: November 2020 through September 2021

1 Executive Summary

Background and Overview

At the 32nd ISO/IEC JTC 1 Plenary in Vladivostok, Russia, Resolution 12 established SC 42 as a system integration entity for Artificial Intelligence subject to ISO TMB and IEC SMB approval. The resolution also appointed Mr. Wael William Diab (US) as Chair of the committee. ISO was assigned as the administrator of the committee. Ms. Heather Benko (ANSI) was appointed as the Committee Manager.

The inaugural meeting was held in Beijing, China, 18th – 20th April 2018, during which resolutions were adopted to address comments from the ISO TMB review. The resolutions and associated contributions were ratified by JTC 1 and provided to the ISO TMB and IEC SMB, who then completed the ratification and establishment of SC 42 in May of 2018. Specifically, a resolution (SC 42 N078 Beijing Resolution 2) for the inclusion of societal concerns in SC 42 program of work was passed. This resolution was approved by ISO TMB resolution 53/2018.¹

Further, a resolution (SC 42 N078 Beijing Resolution 1) to endorse the JTC 1 resolution (JTC 1 Vladivostok Resolution 13) to transfer the Big Data work program from JTC 1/WG 9 to SC 42 was passed. Based on the two resolutions and in consultation with the TMB Secretary, the JTC 1 Secretary transferred the Big Data program of work to SC 42 on May 7th 2018 and JTC 1/WG 9 was disbanded (SC 42 N088 and JTC 1 N13712).

The second, third and fourth plenary meetings were held in Sunnyvale, Dublin, and Tokyo. The fifth, sixth and seventh plenary meetings were held virtually in response to the global COVID-19 pandemic. At the end of the plenary meetings a number of projects were approved and an updated structure for the program of work was established to reflect the approvals.

The scope of SC 42 is:

Standardization in the area of Artificial Intelligence

- Serve as the focus and proponent for JTC 1's standardization program on Artificial Intelligence
- Provide guidance to JTC 1, IEC, and ISO committees developing Artificial Intelligence applications

Scope of the Business Plan

This business plan focuses on the output of the committee since the last version submitted in 2020.

For SC 42 current performance and highlight please refer to the dashboard in the annex.

¹ IEC indicated that no further action is needed on their part as the original approval included societal concerns

2 Chairman's Remarks

2.1 Market Requirements, Innovation

Fueled by technologies like AI, the digital transformation promises to change how we live, work and play for the better. Nonetheless, this transformation has also changed the landscape for standardization as the underlying technologies become ubiquitous in their use. For instance

- Emerging non-technical requirements such as ethical and societal considerations and the ability to design trustworthy systems are key aspects
- Stakeholder diversity has increased considerably (e.g. regulatory, social science, economic etc.)
- Early engagement by the various stakeholders has become the norm
- The application domains and associated use cases have increased dramatically
- Understanding uses, proving business cases and developing standards are now concurrent
- The “data ecosystem” is as important as hardware, software and operational technologies
- Enabling certification, 3rd party audit and increasing end-user confidence increasingly important

In response to the changing landscape and in an effort to address barriers to adoption while simultaneously dealing with emerging challenges, SC 42 has adopted a holistic ecosystem approach. This approach takes into account the context of use of the technology to develop technical requirements by looking at both technology capability and emerging non-technical trends and requirements. Moreover, the horizontal and foundational deliverables that SC 42 produces can bridge innovation communities such as application SDOs, research, and open-source communities. The diagram below summarizes SC 42's novel approach.

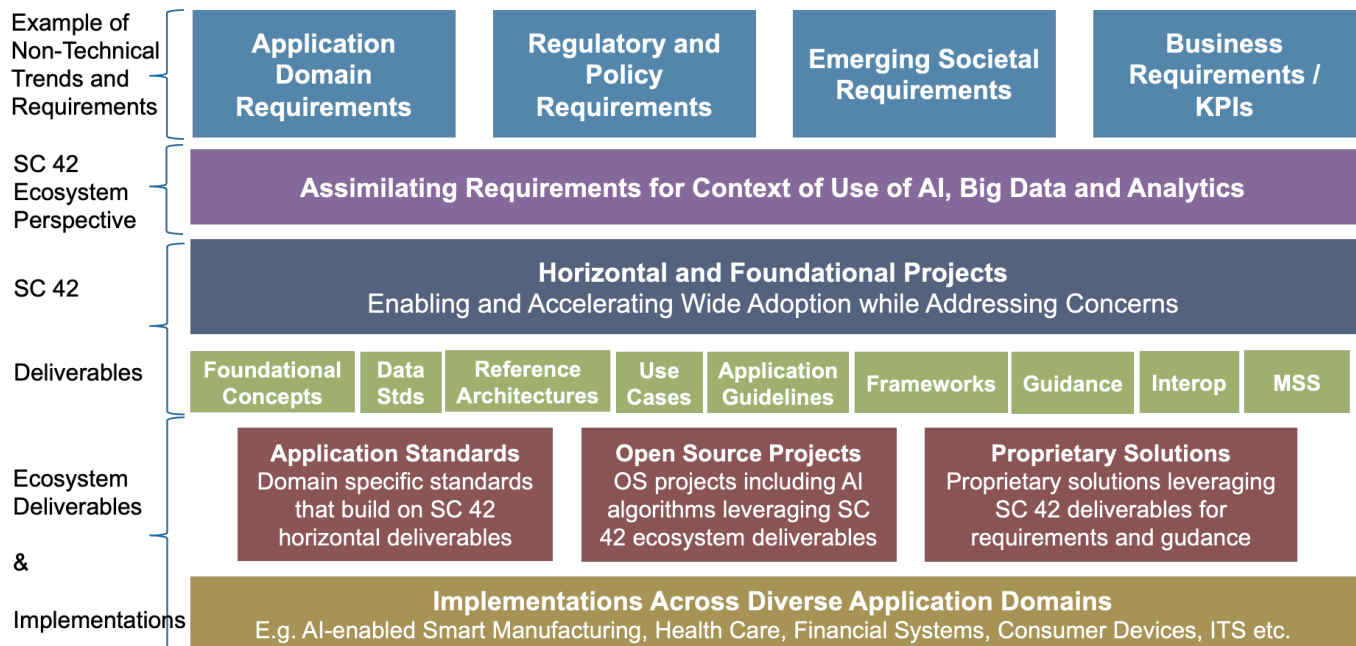


Figure 1: Bridging the Gap – An Ecosystem Approach

The promise of digital transformation coupled with the continued and rapid innovation in AI has also changed the dynamic of how AI systems are being deployed. Traditionally, AI had been focused on large-scale problems that were either too hard/complex to solve with traditional compute methods or were in specialized emerging areas. This is no longer the case. AI is one of the key enablers of the digital transformation driven by a demand for services and more intelligent analytics. Examples include:

- AI expert systems are helping healthcare professionals make better decisions for patients with proper trustworthiness measures designed into the system,
- AI deployment in the industrial manufacturing sector where it is driving higher efficiencies by allowing robots to work alongside human workers with the proper safety measures designed into the system,
- AI deployment in the financial ecosystem where it is enabling applications that range from asset mgmt that takes into account factors such as the clients risk to fraud detection that reduces false-positives
- Emerging applications are numerous and diverse e.g. consumer, retail, digital assistants, expert systems such as smart grid, marketing intelligence tools, enterprise etc.

Thus, it is not surprising that IDC estimates that by 2021 75% of enterprise applications will use AI **with companies spending ~\$342B in 2021 on AI solutions**. The market is forecast to accelerate further in 2022 with 18.8% growth and remain on track to break the \$500 billion mark by 2024.²

The AI ecosystem continues to be ripe for standardization.

² <https://www.idc.com/getdoc.jsp?containerId=prUS48127321>

2.2 Accomplishments

Since its establishment, SC 42 has

- Resolved issues that were identified related to the program of work at the time of its creation. Specifically:
 - o Resolved issues around “societal concerns” which were reaffirmed by the ISO TMB and IEC SMB completing the approval for the establishment of SC 42
 - Ethics and societal concerns considered across the entire work program and tightly integrated into the various horizontal deliverables. In addition, a projects mapping considerations/requirements to the AI technical work is nearly complete
 - o Resolved issue of transfer of the Big Data work
- Identified, implemented and evolved the governance structure and program of work to address the AI ecosystem and various aspects of the data ecosystem for AI, Big Data and analytics
 - o 6 Working Groups that consist of 5 SC 42 WGs and 1 JWG administered by SC 42
- Grown its program of work year-over-year
 - o Foundational Big Data work is complete and published. Follow-on framework that builds on the foundational work for process management is nearing completion having entered DIS
 - o AI portfolio of approved work progressing well through the development stages
 - o Healthy pipeline of new work items identified by the NBs and WGs
 - a number of WGs road-mapping in their areas
 - advisory SC-level AGs on a variety of strategic topics resulted in expanding work program
 - o New projects initiated to address gaps in the program of work such as data quality series
 - o In response to the increasing importance of data issues, expanded the TORs of the Big Data WG to include all data aspects relative to Big Data, AI and analytics
 - o New projects with novel approaches to address emerging AI ecosystem needs like AI MSS, guidelines for AI applications, risk management, data quality series, ethical and societal etc.
 - o Increase in collaboration with other JTC 1 committee (e.g. SC 7, 27, 29, 32, 38, 39, 40, 41, 42) and more broadly on the application of AI within the ISO and IEC family (e.g. SMCC, ACOS, IEC 65A)
 - o Novel approaches to address AI-specific issues such as MSS to allow for 3rd party certification and audit and risk management to address the nature of the technology
- Established an ecosystem of collaboration and executed on its system integration mission
 - o Collaborated with the JTC 1 SIF team regarding systems integration accepting guidance and providing feedback based on lessons learned
 - o Engaged in emerging JTC 1 work through assigning representatives to the various AGs (e.g. JTC 1 AGs on trustworthiness, data usage, quantum computing, JETI etc.) of interest and cross-JTC 1 initiatives (e.g. PII, OSS, cross-collaboration). SC 42 participated in a total of 16 areas under JTC 1
 - o Built an extensive network of liaisons for collaboration with internal and external organizations reinforcing the SC 42 mission as a system integration entity. SC 42 has over 40 liaisons
 - o Use case ingest from all liaison partners including ISO and IEC TCs as well as external orgs
 - o Leveraged full collaboration toolset to provide guidance for AI applications to other committees ope including JWG, development of projects via liaison and dedicated AGs to support liaison work
- Conducted extensive outreach, this includes
 - o Development of an outreach deck, establishment of outreach AHG and training for ISO website
 - o Continuous outreach to ISO, IEC and JTC 1 committees interested in AI
 - o Press coverage with ISO and IEC communications staff as well as the JTC 1 press committee
 - Extensive and regular IEC press and multimedia coverage on program of work milestones
 - Strategic ISO coverage including 2019 fall ISOFocus edition on AI, article on MSS project and Big Data program of work
 - Participation in the ISO effort on 4th industrial revolution
 - Presentation to IEC YP (young professionals) 3 consecutive years
 - o Initiation of SC 42 Workshop Series on AI
 - o Representation at key industry events including AI track of GSC-22 and IEC-FDFA workshop
 - o Invitation to keynotes at SC 42 plenaries such as European Commission AI Policy lead, IEC SMB Chair, OECD AI policy lead, ISO TMB SMCC Chair and METI's Deputy-Director General
 - o Establishment of a keynote informational session during virtual plenaries
 - o SC 42 workshop series initiated
 - o Outreach to external organizations including GSO, EC, OECD, Consumers International, ITU etc.
 - o Engaged in key emerging ISO/IEC initiatives e.g. ISO SMCC, IEC SEG 10, IEC MSB AI WP feedback etc.

Since the last report, SC 42's key accomplishments and highlights include

- Publications
 - o **Big Data Foundational work completed**
 - o ISO/IEC 24030 **AI use cases** (>130 use cases)
 - o ISO/IEC 24028 **overview of trustworthiness in artificial intelligence**
 - o ISO/IEC 24029-1 **overview of the assessment of the robustness of neural networks**
 - o *Anticipated* publication of ISO/IEC 24027 **Bias in AI systems and AI aided decision making**
 - o *Anticipated* publication of ISO/IEC 24372 **Overview of computational approaches for AI**
- Growth by the numbers
 - o Projects: 24 active projects of which 6 new projects added to the work program in the last year
 - o Participation:
 - Successive yearly growth. 50 NBs (33P/17O) despite economic / COVID headwinds
 - ~150 people at physical. >250 people at virtual
- Growth in the diversity of the work program and ecosystem coverage
 - o New projects initiated in the following additional areas of the ecosystem
 - Data relative to AI, Big Data and Analytics
 - **Data quality** for analytics and ML series (ISO/IEC 5259) 4th part on measures
 - PWI on data lifecycle framework
 - AI Trustworthiness
 - **Explainability** of ML models and AI systems (ISO/IEC 6254)
 - **Quality evaluation guidelines** for AI systems (ISO/IEC 5471)
 - **Controllability** of automated artificial intelligence systems (ISO/IEC 8200)
 - Healthy pipeline of new ideas for additional projects
 - Roadmap planning at the WG level
 - Strategic new work consideration at the SC level via AGs
 - o A number of topic areas and potential new projects are under evaluation that include
 - AI Testing
 - Data Lifecycle Framework
 - AI Service Ecosystem
 - Verification and Validation Methods for AI Systems
 - Collaboration opportunities for sector specific extensions of the AI MSS
 - Proposal to set up an AG to identify gaps in the program of work
 - Road mapping AHGs started in a number of WGs
- Robust progress on existing work
 - o 4 ISs to DIS (22989, 23053, 24668, 38507) that include both foundational projects, process management framework for big data and governance implications of AI. Risk management IS (23894) expected to move to DIS
 - o 3 ISs to CD (42001, 25059, 24029-2) that include the AI MSS, SQuaRE quality model for AI systems and robustness of neural networks
 - o 1 TS to DTS (4213) on assessment of classification performance for machine learning models
 - o 3 TRs to DTR (24027, 24368, 24372) that include the bias, computational, ethics and societal concerns projects. All projects have successfully completed DTR and are in various stages of comment disposition and pre-publication
- Extensive outreach activities, media/comms coverage and collaborations (internal and external)
 - o Over a dozen IEC articles and multimedia engagements. Collaboration with the ISO Communications team on key articles such as AI MSS
 - **Thank you to the IEC (Antoinette, Mike, Gabriella and team) and ISO (Liz, Claire, Vivienne, Catherine, Barnaby, Roxanne and team) staff!**
 - o Over 40 liaisons
 - o New internal collaboration
 - JTC 1/SC 7 on AI Testing
 - Participation on IEC SMB ACOS re Collaborative Safety
 - Referred GOST-R medical AI proposal to collaboration group with various ISO and IEC committees represented and participated on it to distill out relevant projects
 - Discussions and support of biometrics AI effort driven by SC 37 and in collaboration with SC 27 and the EC
 - Initial discussions with JTC 1/SC 39 on sustainable AI
 - o Notable progress on existing initiatives and relationships

- Solicited joint formal joint feedback via CIB from SC 42 and SC 65A ISO/IEC 5469
- Contributed AI and Big Data section to the ISO SMCC Paper being submitted to TMB
- Collaboration with JTC 1 subcommittees working on new AI related initiatives via liaison including SC 27, SC 38 and SC 41 Supported JTC 1 leadership on engagement with SMB re SEG 10 recommendations to ensure no overlap with SC 42 deliverables and complementary approach
- Detailed analysis and feedback to OECD on SC 42 program of work relative to the OECD framework highlighting areas of mutual collaboration
- Detailed input the EC Multistakeholder Rolling plan
- o Engagement in strategic ISO and IEC activities. Examples include
 - ISO SMCC, IEC ACOS, IEC SEG 10, ISO, IEC and JTC 1 Workshops, IEC YP, JTC 1 AGs, JTC 1 EC multi-stakeholder feedback, ISO/IEC medical AI coordination group
- o Presence at industry keynotes, panels and key events
- Meeting hosts planned through 2024

The membership of the committee has experienced a healthy and steady growth every year since its inception. SC 42 has 33 P-members and 17 O-members. In addition, the attendance at physical plenaries is ~150 attendees and over 250 attendees at virtual plenaries.

The committee's leadership team that consists of the committee chair and committee manager, the subgroup convenors and secretariats, and the editors, has worked proactively to implement the agreed upon work program.

2.3 Opportunities and Challenges

The last business plan readout for SC 42 identified a number of challenges. In this section, the challenges identified from 2020 are reviewed, an overview of challenges for the upcoming year is presented along with opportunities and plans. Note that due to continued unique COVID-19 situation, the challenges from the past cycle are again divided into ones that were identified in the last report and these unique challenges.

Key challenges identified in the 2020 business plan successfully resolved

- 2020 challenge: Balancing the expansion of the work program and executing on existing projects efficiently
 - Resolution: Interest in SC 42's work continues to be high. Continued enhancement of process for discussing new work, development of officer templates, training, quality controls for proposals and identification of cross-project issues. More of the SC 42 WGs are doing structured road-mapping. AGs setup to look at strategic areas. New AG for gap analysis and landscaping being discussed
- 2020 challenge: Broader engagement with ISO and IEC application focused committees
 - Resolution: Full collaboration toolset being used (liaison to JWG). New projects and initiatives underway (e.g. AI testing, ACOS collaborative safety, medical AI). Enhanced outreach to committees with interest in AI. New liaisons. SC 42 workshops series to be kicked off with emphasis on application. Portfolio of work to enable ISO and IEC TCs to build on SC 42's work for AI applications (e.g. MSS sector specific extension, application guidelines etc.)
- 2020 challenge: Opportunity to engage additional interest categories such as consumer segments, academic/research and other interest areas
 - Resolution: Targeted outreach through a variety of mechanisms like targeted workshops and articles in targeted publications (e.g. RAPS). Leveraging liaison partners to expand to targeted audiences (e.g. OT experts in ISO and IEC committees; policy experts in OECD; regulatory in EC)
- 2020 challenge: Addressing emerging AI-specific needs and challenges with international standards
 - Resolution: AI brings new challenges that are different from traditional IT systems (e.g. outcomes dependent on training; bias) that are key to successful adoption. Moreover, there is a need to link these requirements to technical requirements that can be verified. SC 42 has adopted a number of novel approaches such as MSS, application guidelines, linking ethical requirements to portfolio etc.

Unique unplanned challenges last year

- COVID implications on our work program, meetings and call fatigue / overlap
 - Resolution: Continued with 2 week format and closely working with hosts relative to pandemic concerns. In addition, enhanced process through which SC 42 meeting slots are reserved by the WGs to ensure balance

Challenges looking forward

The challenges identified and addressed over the past cycle may continue to persist as the committee and program of work continues to grow, SC 42 recognizes that some of these challenges like continuing to expand stakeholder diversity, collaboration and balancing high quality efficient output with growth of the program are not one time issues and may evolve as the committee work grows.

In addition, COVID and/or economic headwinds may also persist. SC 42 will continue with the approaches highlighted above that have worked and do a regular assessment throughout the year to refine as needed. The uncertainty due to COVID cannot be predicted, however, approaches like the virtual meeting footprint and coordination of SC 42 calls across WGs can help address / lessen the impact.

SC 42 thus far has been fortunate to have high interest in its work with a flow of new project proposals. Nonetheless, this does create a few unique challenges

- Scaling: As the program of work continues to grow, training new editors and ensuring quality across all the deliverables while maintaining efficient execution presents its own set of challenges
- Identifying gaps in the work program especially relative to emerging areas not already covered in the existing work program / WGs

Future Planning

Looking forward, the scope of the artificial intelligence committee and its focus on the entire ecosystems for AI and related data issued for AI, Big Data and analytics, offers a lot of opportunity for continued expansion of the work program, membership and collaboration. As this is an area of tremendous interest, the time is ideal to continue to act on these areas. The operational challenges were discussed above. From a strategic point of view, it is also important to continue to look at ways to enhance the program and its deliverables. In addition, as interest continues to pickup across ISO and IEC TCs looking to build AI application standards, complementing the portfolio of horizontal standards with outreach guidance on how to leverage the SC 42 deliverables and scale it becomes of increasing importance. Finally, complementing the outreach initiatives with SC 42 hosted workshops can amplify the outreach and help identify gaps in the program of work.

2.4 Resources

SC 42 has decided on a meeting cadence of two plenaries per year. In addition, all face-to-face meetings of its subgroups are during the plenary week. The current resources and structure sufficiently address the program of work of SC 42.

During the COVID-19 crisis, SC 42 has developed a two-week virtual plenary footprint that balances progression of work with a reasonable call schedule while minimizing any overlapping calls. The minimizing of overlapping calls has also been extended to the regular calls in between plenary meetings.

Moreover, as artificial intelligence and associated data topics relating to AI, analytics and Big Data have a number of application areas and due to the system integration nature of the committee, SC 42 will continue try to leverage as much as possible the resource of other JTC 1, ISO and IEC entities as well as SDO's through cooperative work.

2.5 Competition and Cooperation

SC 42 collaborates with a number of committees and organizations that are both internal as well as external. For a complete current list of liaisons, please refer to the ISO website: <https://www.iso.org/committee/6794475.html>.

Approved External Liaisons

Category A

- EC – European Commission
 - SC 42 liaison officer
 - Ray Walshe (Ireland)
- ETUC – European Trade Union Confederation euRobotics AISBL
- Big Data Value Association (BDVA)
 - SC 42 liaison officers
 - Abdellatif Benjelloun Touimi (U.K.)
 - Ray Walshe (Ireland)
 - BDVA liaison officers
 - Ana Garcia Robles
 - Abdellatif Benjelloun Touimi
- Partnership on AI (PAI)
 - SC 42 liaison officer
 - Tarek Besold (Germany)
 - PAI liaison officers
 - Terah Lyons
 - Peter Eckersley
 - Steven Adler

- OECD – Organisation for Economic Co-operation and Development
 - OECD liaison officers
 - Karine Perset
 - Luis Aranda
 - SC 42 liaison officer
 - Rohit Israni (US)
- Consumers International Small Business Standards (SBS)
- Open Geospatial Consortium (OGC)
 - OGC liaison officers
 - George Percivall
 - Ingo Simonis
- ITU
 - SC 42 liaison officer
 - Yoav Evenstein (Israel)
 - ITU liaison officers
 - Reinhard Scholl
 - Bilel Jamoussi

Category C

- None

Approved Internal Liaisons from SC 42

- JTC 1/SC 7 – Software and systems engineering
 - SC 42 Officers: Yuchang Chen (Japan) and Adam Leon Smith (UK)
- JTC 1/SC 27 – IT security techniques
 - SC 42 Officers: Peter Deussen (Germany), Sun Yan (China)
- JTC 1/SC 29 – Coding of audio, picture, multimedia and hypermedia information
 - SC 42 Officers: Wo Chang (United States) and Abdellatif Benjelloun Touimi (UK)
- JTC 1/SC 32 – Data management and interchange
 - SC 42 Officers: Wo Chang (US) and Guang Liang (China)
- JTC 1/SC 34 – Document description and processing languages
- JTC 1/SC 36 – Information technology for learning, education and training
 - SC 42 Officer: Bruce Peoples (United States)
- JTC 1/SC 37 – Biometrics
 - SC 42 Officers: Brianna Brownell (Canada), Frank Rudzicz (Canada)
- JTC 1/SC 38 – Cloud computing and distributed platforms
 - SC 42 Officers: Peter Deussen (Germany), David Filip (Ireland)
- JTC 1/SC 39 – Sustainability for and by Information Technology
 - SC 42 Officer: Yoav Evenstein (Israel)
- JTC 1/SC 40 – IT Service Management and IT Governance
 - SC 42 Officer: Geoff Clarke (Australia)
- JTC 1/SC 41 – Internet of things and related technologies
 - SC 42 Officer: Wei Wei (Germany)
- JTC 1 (WG 11) – Smart cities
 - SC 42 Officer: Tangli Liu (China)
- ISO CASCO
- ISO/TC 22/SC 32 – Electrical and electronic components and general system aspects
- ISO/TC 37 – Language and terminology
 - SC 42 Officer: David Filip (Ireland)
- ISO/TC 37/SC 3 – Management of terminology resources
 - SC 42 Officer: David Filip (Ireland)
- ISO/TC 69 – Applications of statistical methods
 - SC 42 Officer: Radouane Oudrhiri (United Kingdom)
- ISO/TC 204 – Intelligent Transport Systems
 - SC 42 Officer: Wael William Diab (Chair)
- ISO/TC 215 – Health informatics
 - SC 42 Officer: Paolo Alcini (Italy)
- ISO/TC 262 – Risk management
 - SC 42 Officer: Pat Baird (United States)
- ISO/TC 299 – Robotics
 - SC 42 Officer: David Dubois (Canada)
- ISO/TC 307 – Blockchain and distributed ledger technologies
 - SC 42 Officer: Li Bin (China), Dapeng Zhang (China)

- ISO/TC 309 – Governance of organizations
 - SC 42 Officer: Victoria Hailey (Canada)
- IEC SyC Smart Cities
 - SC 42 Officer: Tangli Liu (China)
- IEC/SyC SM – Smart Manufacturing
 - SC 42 Officer: Wael William Diab (SC 42 Chair)
- IEC SyC AAL – Active Assisted Living
 - SC 42 Officer: David Martin (United States)
- IEC/TC 62 – Electrical equipment in medical practice
- IEC TC 65 – Industrial – Process measurement, control and automation
 - SC 42 Officers: Wael William Diab (SC 42 Chair), Wei Wei (Germany) and Rudy Belliardi (TC 65 Secretary)
- IEC/TC 65/SC 65A – System Aspects
 - SC 42 Officer: Takashi Egawa (Japan)

Approved Internal Liaisons to SC 42

- JTC 1 (WG 11) – Smart Cities
 - Officer: Howard Choe
- JTC 1/SC 7 – Software and systems engineering
 - Officers: Stuart Reid (United Kingdom) and Shuji Kinoshita (Japan)
- JTC 1/SC 24 – Computer graphics, image processing and environmental data representation
- JTC 1/SC 27 – Information security, cybersecurity and privacy protection
- JTC 1/SC 29 – Coding of audio, picture, multimedia and hypermedia information
- JTC 1/SC 32 – Data management and interchange
 - Officers: Dawson Liu and Jan Michels
- JTC 1/SC 34 – Document description and processing languages
- JTC 1/SC 36 – Information technology for learning, education and training
 - Officer: Jon Mason (Australia)
- JTC 1/SC 37 – Biometrics
 - Officer: Markku Metsämäki (Finland)
- JTC 1/SC 38 – Cloud computing and distributed platforms
 - Officer: Toshiro Suzuki (Japan)
- JTC 1/SC 40 – IT Service Management and IT Governance
 - Officer: Terry Landers (Ireland)
- JTC 1/SC 41 – Internet of things and related technologies
 - Officers: Osten Franberg (Sweden) and Luke Fay (United States)
- ISO CASCO
- ISO/PC 317 – Consumer protection: privacy by design for consumer goods and services
 - Officer: Jacqueline Zoest (United Kingdom)
- ISO/TC 20 – Aircraft and space vehicles
 - Officer: Karim Benmeziane (France)
- ISO/TC 20/SC 16 – Unmanned aircraft
- ISO/TC 37 – Language and terminology
 - Officer: David Filip (Ireland)
- ISO/TC 37/SC 3 – Management of terminology resources
- ISO/TC 42 – Photography
 - Officer: Scott Foshee (United States)
- ISO/TC 69 – Applications of statistical methods
 - Officer: Radouane Oudhiri (United Kingdom)
- ISO/TC 211 – Geographic information/Geomatics
 - Officers: Chris Body (Australia), Jean Brodeur (Canada) and Liping Di (United States)
- ISO/TC 215 – Health infomatics
 - Officer: Paolo Alcini (Italy)
- ISO/TC 262 – Risk management
- ISO/TC 269 – Railway applications
- ISO/TC 307 – Blockchain and distributed ledger technologies
 - Officer: Janna Lingenfelder (Germany)
- ISO/TC 309 – Governance of organizations
 - Officer: Michael Kayser
- IEC SyC AAL
 - Officer: Ulrike Haltrich
- IEC SyC SM
 - Officer: Alexander McMillan

- IEC TC 62 – Electrical equipment in medical practice
- IEC TC 62/SC 62C – Equipment for radiotherapy, nuclear medicine and radiation dosimetry
- IEC TC 65 – Industrial – Process measurement, control and automation
 - Officers: Wael William Diab (SC 42 Chair) and Rudy Belliardi (TC 65 Secretary)
- IEC TC 65/SC 65A – System aspects

It is anticipated that the liaison partnerships will continue to grow over the next year.

3 Work Program

Structure

SC 42 set its initial structure at the inaugural plenary meeting and updated at subsequent plenaries. SC 42 has and will continue to utilize AGs and ad-hoc groups as needed.

A summary³ of the current structure appears in the table below

SC 42 Subgroup	Title	Notes
SC 42/WG 1	Foundational standards	Formed at the 1 st plenary
SC 42/WG 2	Data	Formed at 2 nd plenary Updated at 5 th
SC 42/WG 3	Trustworthiness	Formed at the 2 nd plenary
SC 42/WG 4	Use cases and applications	Formed at the 2 nd plenary
SC 42/WG 5	Computational approaches and computational characteristics of AI systems	Formed at the 3 rd plenary
SC 42/SC 40 JWG 1	Governance implications of AI	Confirmed by JTC 1 Resolution – November 2018

SC 42 will continue to evaluate its structure in response to the work program.

Membership

As of this report, SC 42 has 33 P-members and 17 O-members. For a complete current list of membership, please refer to the ISO website: <https://www.iso.org/committee/6794475.html>.

33 Participating Members

- [Australia](#) (SA)
- [Austria](#) (ASI)
- [Belgium](#) (NBN)
- [Canada](#) (SCC)
- [China](#) (SAC)
- Congo, The Democratic Republic of the (OCC)
- Côte d'Ivoire (CODINORM)
- Cyprus (CYS)
- [Denmark](#) (DS)
- [Finland](#) (SFS)
- [France](#) (AFNOR)
- [Germany](#) (DIN)
- [India](#) (BIS)
- [Ireland](#) (NSAI)
- [Israel](#) (SII)
- [Italy](#) (UNI)
- [Japan](#) (JISC)
- Kazakhstan (KAZMEMST)
- Kenya (KEBS)
- [Korea, Republic of](#) (KATS)
- [Luxembourg](#) (ILNAS)
- Malta (MCCAA)
- [Netherlands](#) (NEN)
- Norway (SN)
- [Russian Federation](#) (GOST R)
- Saudi Arabia (SASO)

³ For simplicity and brevity, the SC 42 working groups are listed. AGs and AHGs are not listed here. For a complete list please refer to the ISO committee website: <https://www.iso.org/committee/6794475.html>.

- Singapore (SSC)
- [Spain](#) (UNE)
- [Sweden](#) (SIS)
- [Switzerland](#) (SNV)
- United Arab Emirates (MolAT-STR)
- [United Kingdom](#) (BSI)
- [United States](#) (ANSI)

17 Observing Members

- Argentina (IRAM)
- Benin (ANM)
- Brazil (ABNT)
- Hong Kong Special Administrative Region of China (ITCHKSAR)
- [Hungary](#) (MSZT)
- Indonesia (BSN)
- Lithuania (LST)
- [Mexico](#) (DGN)
- [New Zealand](#) (NZSO)
- North Macedonia (ISRSM)
- [Philippines](#) (BPS)
- [Poland](#) (PKN)
- [Portugal](#) (IPQ)
- Romania (ASRO)
- South Africa (SABS)
- Uganda (UNBS)
- Ukraine (DSTU)

Summary of Current SC 42 Officers and Editors

Officers

Position	Officer Name	Originating National Body
SC 42 Chair	Wael William Diab	USA (ANSI)
SC 42 Committee Manager	Heather Benko	USA (ANSI)
SC 42/WG 1 Convenor	Paul Cotton	Canada (SCC)
SC 42/WG 2 Convenor	Wo Chang	USA (ANSI)
SC 42/WG 3 Convenor	David Filip	Ireland (NSAI)
SC 42/WG 3 Secretary	Aditya Mohan	Ireland (NSAI)
SC 42/WG 4 Convenor	Fumihito Maruyama	Japan (JISC)
SC 42/WG 4 Secretary	Nobuhito Hosokawa	Japan (JISC)
SC 42/WG 5 Convenor	Tangli Liu	China (SAC)
SC 42/WG 5 Secretary	Ning Sun	China (SAC)
SC 42/JWG 1 Convenor	Yonosuke Harada	Japan (JISC)
SC 42/JWG 1 Co-Convenor	Gyeong-Min Kim	Republic of Korea (KATS)

Editors

- ISO/IEC 22989: Wei Wei (Germany)
- ISO/IEC 23053: Milan Patel (United Kingdom)
- ISO/IEC 42001: Marta Janczarski (Canada)
- ISO/IEC 24668: Gautam Banerjee (India)
- ISO/IEC 5259-1: Suwook Ha (Korea)
- ISO/IEC 5259-2: Kyoung-Sook Kim (Japan)
- ISO/IEC 5259-3: Matthias Eicher (Germany)
- ISO/IEC 5259-4: Wanzhong Ma (China)
- ISO/IEC PWI Data life cycle framework: Colin Crone (United Kingdom)
- ISO/IEC TR 24027: Adam Leon Smith (UK)⁴
- ISO/IEC 24029-2: Arnault Ioualalen (France)
- ISO/IEC 23894: Peter Deussen (Germany)
- ISO/IEC TR 24368: Viveka Bonde (Sweden)
- ISO/IEC TR 5469: Takashi Egawa (Japan)
- ISO/IEC 25059: Adam Leon Smith (United Kingdom)
- ISO/IEC TS 6254 Jaeho Lee (Korea)

⁴ Project editor changed at the 3rd plenary due to original editor stepping down for other responsibilities

- ISO/IEC TS 5471 Olivier Blais (France)
- ISO/IEC TS 8200 Xiaoqi Cao (China)
- ISO/IEC 5338: Yuchang Cheng (Japan)
- ISO/IEC 5339: Shrinkat Bhat (India)
- ISO/IEC TR 24372: Wanzhong Ma (China)
- ISO/IEC TS 4213: Lingzhong Meng (China), Michael Thieme (United States)
- ISO/IEC 5392: Ruiqi Li (China)
- ISO/IEC 38507: Peter Brown (United Kingdom)

3.1 Working Group 1 – Foundational standards (Current)

SC 42 established Working Group 1 on foundational standards at its inaugural plenary meeting.

The working group (SC 42/WG 1) took on the two currently approved projects:

- ISO/IEC 22989 Artificial Intelligence Concepts and Terminology
- ISO/IEC 23053 Framework for Artificial Intelligence Systems Using Machine Learning

At the second plenary meeting, SC 42 assigned the following TOR to WG 1:

- Development of foundational standards for Artificial Intelligence

In addition to the assigned projects, this WG is tasked with studying and incorporating material presented on lifecycle, which will be included in the existing two projects.

On August 26th 2020, SC 42 completed approval of the AI management system standard, ISO/IEC 42001 registered the project and assigned it to WG 1.

- ISO/IEC 42001 Information technology – Artificial intelligence -- Management system

Officers

- Convenor: Paul Cotton (Canada) was appointed as Convenor of SC 42/WG 1. 2018-04-20 to present
- Project editors:
 - o ISO/IEC 22989: Wei Wei (Germany). 2018-04-20 to present
 - o ISO/IEC 23053: Milan Patel (United Kingdom). 2018-04-20 to present

ISO/IEC 42001: Marta Jenczarski (Canada). 2020-08-26 to present

3.2 Working Group 2 –Data (Current)

SC 42 established Working Group 2 on big data at its second plenary meeting. The working group (SC 42/WG 2) took on the five existing big data projects:

- ISO/IEC 20546 Information technology -- Big data -- Overview and vocabulary
- ISO/IEC TR 20547-1 Information technology -- Big data reference architecture -- Part 1: Framework and application process
- ISO/IEC TR 20547-2 Information technology -- Big data reference architecture -- Part 2: Use cases and derived requirements
- ISO/IEC 20547-3 Information technology -- Big data reference architecture -- Part 3: Reference architecture
- ISO/IEC TR 20547-5 Information technology -- Big data reference architecture -- Part 5: Standards roadmap

At the second plenary meeting, SC 42 assigned the following title and TOR to WG 2:

- Title: Big Data
- TOR: Standardization in the area of Big Data

At the fifth plenary meeting, SC 42 expanded the scope of WG 2 updating its title and TOR:

- Title: Data
- Standardization in relation to data in the context of artificial intelligence, big data, and data analytics

On August 14th 2019, SC 42 completed approval of ISO/IEC 24668 registered the project and assigned it to WG 2.

- ISO/IEC 24668 Information technology – Artificial intelligence – Process management framework for big data analytics

On July 31st 2020, SC 42 completed approval of 3 parts of the AI data quality series, ISO/IEC 5259, registered the projects and assigned them to WG 2.

- ISO/IEC 5259-1 Data quality for analytics and ML -- Part 1: Overview, terminology, and examples
- ISO/IEC 5259-3 Data quality for analytics and ML -- Part 3: Data quality management requirements and guidelines
- ISO/IEC 5259-4 Data quality for analytics and ML -- Part 4: Data quality process framework

On January 1st 2021, SC 42 completed approval a 4th part of the AI data quality series, ISO/IEC 5259, registered the project and assigned it to WG 2.

- ISO/IEC 5259-2 Data quality for analytics and ML -- Part 2: Data quality measures

At the seventh plenary, SC 42 approved and assigned a preliminary work item (PWI) on data life cycle and assigned it to WG 2.

- PWI entitled Information technology – Artificial intelligence – Data life cycle framework

Completion and publication of foundational Big Data work

- ISO/IEC 20546 was completed and reached publication in 2019
- ISO/IEC 20547 series were completed and published
 - o ISO/IEC 20547-1 in 2020
 - o ISO/IEC 20547-2 in 2018
 - o ISO/IEC 20547-3 in 2020
 - o ISO/IEC 20547-5 in 2018

Officers

- Convenor: Wo Chang (United States) was appointed as Convenor of SC 42/WG 2. 2018-10-12 to present
- Project editors:
 - o ISO/IEC 20546 David Boyd (United States). 2018-10-12 to publication
 - o ISO/IEC 20547-1 David Boyd (United States). 2019-01-14 to publication
 - o ISO/IEC 20547-2 Ray Walshe (Ireland). 2018-10-12 to publication
 - o ISO/IEC 20547-3 Ray Walshe (Ireland). 2018-10-12 to publication
 - o ISO/IEC 20547-5 David Boyd (United States). 2018-10-12 to publication
 - o ISO/IEC 24668 Gautam Banerjee (India). 2019-08-14 to present
 - o ISO/IEC 5259-1 Suwook Ha (Korea). 2020-07-31 to present
 - o ISO/IEC 5259-2 Kyoung-Sook Kim (Japan) 2021-01-01 to present
 - o ISO/IEC 5259-3 Matthias Eicher (Germany) 2020-07-31 to present
 - o ISO/IEC 5259-4 Wanzhong Ma (China) 2020-07-31 to present
 - o ISO/IEC PWI Data life cycle framework Colin Crone (United Kingdom). 2021-05-07 to present

3.3 Working Group 3 – Trustworthiness (Current)

SC 42 established Working Group 3 on trustworthiness at its second plenary meeting. The working group (SC 42/WG 3) took on the three newly approved trustworthiness projects:

- ISO/IEC TR 24027 Information technology -- Artificial Intelligence (AI) -- Bias in AI systems and AI aided decision making
- ISO/IEC TR 24028 Information technology -- Artificial Intelligence (AI) -- Overview of trustworthiness in Artificial Intelligence
- ISO/IEC TR 24029-1 Artificial Intelligence (AI) -- Assessment of the robustness of neural networks -- Part 1: Overview

At the second plenary meeting, SC 42 assigned the following TOR to WG 3:

- Standardization in the area of AI Trustworthiness

At the second plenary meeting, SC 42 authorized the initiation of a NP ballot, which was subsequently approved on February 13th 2019, and assigned to WG 3, on risk management:

- ISO/IEC 23894 Information technology -- Artificial Intelligence -- Risk Management

At the third plenary meeting, SC 42 approved and assigned to WG 3 a new project on AI ethical and societal concerns:

- ISO/IEC 24368 Information technology -- Artificial Intelligence -- Overview of Ethical and Societal Concerns

On June 11th 2020, SC 42 completed approval of the second part of the robustness of neural network series, ISO/IEC 24029-2, registered the project and assigned it to WG 3.

- ISO/IEC 24029-2 Assessment of the Robustness of Neural Networks Part 2: Formal methods methodology

At the fifth plenary meeting, SC 42 approved and assigned to WG 3 a new project on AI ethical and societal concerns. This project is being developed in collaboration with IEC TC 65/SC 65A via liaison:

- ISO/IEC TR 5469 Artificial intelligence -- Functional safety and AI systems

On May 18th 2020, SC 42 completed approval of ISO/IEC 25059 registered the project and assigned it to WG 3.

- ISO/IEC 25059 Software engineering -- Systems and software Quality Requirements and Evaluation (SQuaRE) -- Quality Model for AI systems

On February 11th 2021, SC 42 completed approval of ISO/IEC 6254 registered the project and assigned it to WG 3.

- ISO/IEC TS 6254 Information technology -- Artificial intelligence -- Objectives and approaches for explainability of ML models and AI systems

On May 11th 2021, SC 42 completed approval of ISO/IEC 5471 registered the project and assigned it to WG 3.

- ISO/IEC TS 5471 Artificial intelligence -- Quality evaluation guidelines for AI systems

On August 11th 2021, SC 42 completed approval of ISO/IEC 8200 registered the project and assigned it to WG 3.

- ISO/IEC TS 8200 Information technology -- Artificial intelligence -- Controllability of automated artificial intelligence systems

Completion and publication of work

- ISO/IEC 24028 was completed and reached publication in 2020
- ISO/IEC 24029-1 was completed and reached publication in 2021

Officers

- Convenor: David Filip (Ireland) was appointed as Convenor of SC 42/WG 3. 2018-10-12 to present
- Secretariat: Aditya Mohan (Ireland)
 - Previously: Barry Smith (Ireland), Coleen Naden (Ireland)
- Project editors:
 - ISO/IEC TR 24027 Adam Leon Smith (UK). 2019-04-12 to present
 - ISO/IEC TR 24028:2020 Orit Levin (United States). 2018-10-12 to publication
 - ISO/IEC TR 24029-1:2021 Arnault Ioualalen (France). 2018-10-12 to publication
 - ISO/IEC TR 24029-2 Arnault Ioualalen (France). 2020-06-11 to present
 - ISO/IEC 23894 Peter Deussen (Germany). 2018-02-13 to present
 - ISO/IEC TR 24368 Viveka Bonde (Sweden). 2020-06 to present
 - Phase 1 – Mikael Hjalmarson (Sweden). 2019-04-12 to 2020-06
 - ISO/IEC TR 5469 Takashi Egawa (Japan). 2020-04-20 to present
 - ISO/IEC 25059 Adam Leon Smith (United Kingdom). 2020-05-18 to present
 - ISO/IEC TS 6254 Jaeho Lee (Korea). 2021-02-11 to present
 - ISO/IEC TS 5471 Olivier Blais (France). 2021-05-11 to present
 - ISO/IEC TS 8200 Xiaoqi Cao (China). 2021-08-11 to present

In addition to the assigned projects, this WG was tasked with remainder of the TORs from SG 2 for study.

3.4 Working Group 4 – Use cases and applications (Current)

SC 42 established Working Group 4 on use cases and applications at its second plenary meeting. The working group (SC 42/WG 4) took on one newly approved project:

- ISO/IEC TR 24030 Information technology -- Artificial Intelligence (AI) -- Use cases

At the second plenary meeting, SC 42 assigned the following TOR to WG 4:

- Use cases and applications for AI Standardization

On August 19th 2020, SC 42 completed approval of ISO/IEC 5338 and ISO/IEC 5339 registered the projects and assigned them to WG 4.

- ISO/IEC 5338 Information technology -- Artificial intelligence -- AI system life cycle processes
- ISO/IEC 5339 Information technology -- Artificial intelligence -- Guidelines for AI applications

Completion and publication of work

- ISO/IEC 24030 was completed and reached publication in 2021

Officers

- Convenor: Fumihiro Murayama (Japan) was appointed as Convenor of SC 42/WG 4. 2018-10-12 to present
- Secretariat: Nobuhiro Hosokawa (Japan) was appointed as Secretariat of SC 42/WG 4. 2018-10-12 to present
- Project editors:
 - ISO/IEC TR 24030 Yuchang Cheng (Japan). 2018-10-12 to publication
 - ISO/IEC 5338 Yuchang Cheng (Japan). 2020-08-19 to present

- o ISO/IEC 5339 Shrikant Bhat (India). 2020-01-19 to present

In addition to the assigned projects, this WG was tasked with remainder of the TORs from SG 3 for study.

3.5 Working Group 5 – Computational approaches and computational characteristics of AI systems (Current)

SC 42 established Working Group 5 on computational approaches and computational characteristics of AI systems at its third plenary meeting. The working group (SC 42/WG 5) took on one newly approved project:

- ISO/IEC TR 24372: Information technology -- Artificial Intelligence (AI) -- Overview of computational approaches for AI systems

At the third plenary meeting, SC 42 assigned the following TOR to WG 5:

- Standardization in the area of computational approaches and computational characteristics of AI systems

On July 1st 2020, SC 42 completed approval of ISO/IEC 4213 registered the project and assigned it to WG 5.

- ISO/IEC TS 4213 Artificial intelligence – Assessment of machine learning classification performance

On August 24th 2020, SC 42 completed approval of ISO/IEC 5392 registered the project and assigned it to WG 5.

- ISO/IEC 5392 Information technology -- Artificial intelligence -- Reference architecture of knowledge engineering

Officers

- Convenor: Tangli Liu (China) was appointed as Convenor of SC 42/WG 5. 2019-04-12 to present
- Secretariat: Ning Sun (China)
 - o Previously: Qun Zhang (China)
- Project editors:
 - o ISO/IEC TR 24372 Wanzhong Ma (China). 2019-04-12 to present
 - o ISO/IEC TS 4213 Michael Theime (United States) and Lingzhong Meng (China).
 - o ISO/IEC 5392 Ruiqi Li (China). 2020-08-24 to present

3.6 Joint Working Group 1 – Governance Implications of AI

SC 42 recommended the establishment of a joint working group with SC 40, with the administrative lead held by SC 42, to JTC 1 on the governance implications of AI at its second plenary meeting. JTC 1 subsequently affirmed the SC 42 recommendation at its November 2018 plenary. The working group (SC 42/JWG 1) took on one newly approved project:

- ISO/IEC NP 38507: Information technology -- Governance of IT -- Governance implications of the use of artificial intelligence by organizations

The following TOR was assigned to JWG 1:

- Governance Implications of AI

Officers

- Convenor: Yonosuke Harada (Japan, SC 42)
 - o Previously: Janna Lingenfelder (Germany, SC 42) was appointed as Convenor of SC 42/JWG 1. 2018-11-09 (SC 42 resolution 2018-10-12)
- Co-Convenor: Gyeung-min Kim (Republic of Korea, SC 40) was appointed as Co-Convenor of SC 42/JWG 1. 2018-11-09 to present
- Secretariat:
 - o Previously: Katharina Sehnert (Germany, SC 42), Subhi Mahmoud (Germany, SC 42)
- Project editors:
 - o ISO/IEC 38507 Peter Brown (UK) 2018-11-09 to present (SC 42 resolution 2018-10-12)

3.7 Published Projects

Big Data

- ISO/IEC 20546:2019 Information technology -- Big Data -- Overview and Vocabulary
 - Publication date: 2019-02
 - Description: This document provides a set of terms and definitions needed to promote improved communication and understanding of this area. It provides a terminological foundation for big data-related standards. This document provides a conceptual overview of the field of big data, its relationship to other technical areas and standards efforts, and the concepts ascribed to big data that are not new to big data.
- ISO/IEC TR 20547-1:2020 Information technology -- Big data reference architecture -- Part 1: Framework and application process

- Publication date: 2020-08
- Description: This document describes the framework of the big data reference architecture and the process for how a user of the document can apply it to their particular problem domain.
- ISO/IEC TR 20547-2:2018 Information technology -- Big data reference architecture -- Part 2: Use cases and derived requirements
 - Publication date: 2018-01
 - Description: ISO/IEC TR 20547-2:2018 provides examples of big data use cases with application domains and technical considerations derived from the contributed use cases.
- ISO/IEC 20547-3:2020 - Information technology -- Big data reference architecture -- Part 3: Reference architecture
 - Publication date: 2020-03
 - Description: This document specifies the big data reference architecture (BDRA). The reference architecture includes concepts and architectural views.
- ISO/IEC TR 20547-5:2018 Information technology -- Big data reference architecture -- Part 5: Standards roadmap
 - Publication date: 2018-02
 - Description: ISO/IEC TR 20547-5:2018 describes big data relevant standards, both in existence and under development, along with priorities for future big data standards development based on gap analysis. ISO/IEC TR 20547-2:2018 : Information technology -- Big data reference architecture -- Part 2: Use cases and derived requirements
 - Status: 60.60

Artificial intelligence

- ISO/IEC TR 24030:2021 Information technology -- Artificial Intelligence -- Use cases
 - Publication date: 2021-05
 - Description: This document provides a collection of representative use cases of AI applications in a variety of domains.
- ISO/IEC TR 24029-1:2021 Artificial Intelligence -- Assessment of the robustness of neural networks -- Part 1: Overview
 - Publication date: 2021-03
 - Description: This document provides background about existing methods to assess the robustness of neural networks.
- ISO/IEC TR 24028:2020 - Information technology — Artificial intelligence — Overview of trustworthiness in artificial intelligence
 - Publication date: 2020-05
 - Description: This document surveys topics related to trustworthiness in AI systems, including the following:
 - approaches to establish trust in AI systems through transparency, explainability, controllability, etc.;
 - engineering pitfalls and typical associated threats and risks to AI systems, along with possible mitigation techniques and methods; and
 - approaches to assess and achieve availability, resiliency, reliability, accuracy, safety, security and privacy of AI systems.

SC 42 Strategic Business Plan

Artificial Intelligence

Annex: Additional Links and Information

Committee Information Online

The following committee information is updated regularly and is available on ISO's website, ISO Online.

Click on the links below to find the following information:

- [About \(Secretariat, Secretary, Chair, Date of creation, Scope, etc.\)](#)
- [Contact details](#)
- [Structure \(Subcommittees and working groups\)](#)
- [Liaisons](#)
- [Meetings](#)
- [Work program \(published standards and standards under development\)](#)

ISO, IEC and JTC 1 Related Information and Websites

- SC 42
 - [Committee](#) website
 - [History](#) website
- Press Coverage Related to SC 42 Overview and Program of Work
 - [RAPS Article](#) Enabling the digital transformation of industry: The roles of AI, big data, analytics, and related data ecosystem (June 1st 2021)
 - [IEC news](#) IEC and ISO artificial intelligence committee broadens standards work programme (May 17th 2021)
 - [IEC e-tech](#) IEC and ISO publish over 130 emerging AI use cases (May 17th 2021)
 - [IEC news](#) IEC/ISO standards committee for artificial intelligence begins spring plenary (Apr 30th 2021)
 - [IEC e-tech](#) New standard to enhance trustworthiness of artificial intelligence systems (March 15th 2021)
 - [ISO news](#) article on Getting Big on Data (Nov 5th 2020)
 - [IEC e-tech](#) article on International standards committee for AI ecosystem expands into new areas (Sep 15th 2020)
 - [IEC e-tech](#) article on IEC and ISO publish TR which provides overview of big data framework and reference architecture (Aug 24th 2020)
 - [IEC e-tech](#) article on Achieving trustworthy AI with standards (June 8th 2020)
 - [ISO news](#) SC 42 virtual plenary as an example of standards innovation during COVID-19 (May 15th, 2020)
 - [IEC news](#) announcing the key outcomes of the 5th plenary and added focus on data ecosystem (May 7th, 2020)
 - [IEC e-tech](#) article on SC 42's holistic ecosystem approach to AI standardization (Feb 2020)
 - [IEC e-tech](#) article on New IEC and ISO Standard will enable big data adoption across industry sectors (Feb 15th 2020)
 - [IEC e-tech](#) article on IEC and ISO AI committee (SC 42) expands programme of work (Jan 2020)
 - [ISO focus](#) Nov/Dec 2019 magazine on AI and the SC 42 program of work (November 2019)
 - [ISO focus](#) landing page for edition including links to download PDF (above in English) in various languages and individual articles
 - [IEC news](#) AI standards help accelerate digitalization of smart manufacturing (Dec 2019)
 - [IEC news](#) announcing the key outcomes of the 4th plenary (Nov 11th, 2019)
 - [IEC e-tech](#) article on Establishing trustworthiness is vital in our human-machine world (July 15th 2019)
 - [IEC e-tech](#) article on Artificial intelligence and big data: a paradigm shift in healthcare (May 15th 2019)
 - [IEC news](#) announcing the key outcomes of the 3rd plenary (April 23rd, 2019)
 - [IEC news](#) announcing the start of the 3rd plenary (April 9th 2019)
 - [ISO news](#) article (18th October 2018)
 - [JTC 1 press committee](#) article (30th May 2018)
- Press Coverage Related to SC 42 Formation

- [IEC e-tech](#) article (17th May 2018). Additional circulations
 - ISO [retweeted](#) the article (September 2018)
 - [Published](#) on ANSI (US National Body) website
 - [Published](#) on UNE (Spain National Body) website (September 2018)
 - [Published](#) on ILNAS (Luxemburg National Body) website (27th April 2018)
 - Note: not a direct reprint but used the photo
 - [Published](#) on Robotics Automation and News [Magazine](#)
 - [ANSI news](#) article on the formation of SC 42 (16th January 2018)
 - Introduction of SC 42 in the IEC MSB [White Paper](#) on Artificial Intelligence
- Press Coverage Related to SC 42 Participation at Key Industry and International Events
 - IEC Medium Publications
 - [IEC blog](#) on Webinar on regulations and artificial intelligence technologies (Dec 10th 2020)
 - [IEC blog](#) on AI standards on the agenda at IOT Solutions World Congress (Dec 8th 2020)
 - [IEC blog](#) on IEC and ISO present AI standardization work during event by European Commission (Oct 28th 2020)
 - [IEC blog](#) on Trustworthiness is key to services and products using AI and IoT technologies (Mar 3rd, 2020)
 - [IEC blog](#) on AI standards on the agenda at IOT Solutions World Congress (Nov 21st 2019)
 - [IEC blog](#) on AI and IoT industry leaders to consider a digital trust framework at Berlin forum (May 15th 2019)
 - Global Standards Collaboration (GSC-22) 2019 Session on Artificial Intelligence
 - [ISO news](#) on Standards cooperation is key to making AI and smart cities a reality (April 4th 2019)
 - [IEC blog](#) on 22nd Global Standards Collaboration meeting discusses need for standards to accelerate AI technology innovation and adoption (April 3rd 2019)
 - JTC 1 Info
 - [JTC 1 info article](#) on IEC and ISO present on the AI Ecosystem Standardization Program at the European Commission Workshop (Oct 16th 2020)
 - Industrial Internet Consortium (IIC)
 - [IIC blog](#) on from IEC on Standards for AI on the Agenda at IoT Solutions World Congress
 - IoT Solutions World Congress (IoTSWC)
 - [IoTSWC promotion](#) of the IEC blog on AI standards on the agenda at IOT Solutions World Congress
- Other media coverage
 - Twitter
 - ISO (@[isostandards](#))
 - [Tweet Chat](#) on standards on Artificial Intelligence with Chair of SC 42 (25th October). Hashtags: #ISOchat #Standards4AI
 - IEC (@[IECStandards](#))
 - [Article](#) on New international standard will help organization boards and executive managers ask and answer key questions about AI technologies (12th February 2019)
 - Article on International standards play a key role in addressing the ethical, technical, safety and security aspects (6th February 2019)
 - [Article and video](#) on Standardization can help eliminate data bias in AI (4th February 2019)
 - [Article and video](#) on Chair of SC 42 explains the growing influence of AI in Smart Manufacturing (4th February 2019)
 - [Article](#) on Chair of SC 42 will lead a session at the CEN/CENELEC workshop on Trustworthy Artificial Intelligence (10th Aug 2018)
 - IEC Medium Publications
 - [IEC blog](#) on New IEC and ISO Standard will enable big data adoption across industry sectors (Mar 30th, 2020)
 - [IEC blog](#) on Important questions around AI technologies in smart manufacturing (Jan 8th, 2020)
 - [IEC blog](#) on New IEC and ISO Standard will enable big data adoption across industry sectors (Mar 30th, 2020)
 - [IEC blog](#) on Trustworthiness is key to services and products using AI and IoT technologies (Mar 3rd, 2020)
 - [IEC blog](#) on How standards help people trust AI (Jan 15th, 2020)
 - [IEC blog](#) on Important questions around AI technologies in smart manufacturing (Jan 8th, 2020)
 - [IEC blog](#) on Establishing trustworthiness is vital in our human-machine world (Sep 9th 2019)
 - [IEC blog](#) on The need for Big Data Standards (April 24th 2019)

- [IEC blog](#) on New international standard will offer risk management framework for AI (March 18th 2019)
- [IEC blog](#) on Helping organization boards and executives ask and answer key questions about AI technologies (Feb 12th 2019)
- [IEC e-tech](#) article on AI in healthcare: keeping data safe and building trust (January 25th 2019)
- [IEC blog](#) on Making AI safe (January 23rd 2019)
- [IEC e-tech](#) article on Healthcare needs doctors and machines (December 10th, 2018)
- [IEC e-tech](#) article on Eliminating data bias from machine learning systems (November 13th 2018)
- [IEC e-tech](#) article on Smart homes are getting smarter (November 6th 2018)
- [IEC e-tech](#) article on Machine learning is not a synonym for AI (October 17th 2018)
- [IEC e-tech](#) article on Rethinking the healthcare ecosystem (reference to SC 42)
- [IEC e-tech](#) article on Standards development organizations play key role in enabling remote daily life
- Publications referencing SC 42 work
 - [ILNAS white paper](#) on AI and technical standardization
 - [IEC e-tech](#) article on How Standards Australia contributes to the global artificial intelligence ecosystem (Jan 20th 2021)
- ISO Multimedia
 - ISO [video interview](#) with Chair of SC 42 on Standards and Artificial Intelligence (November 14th 2018)
 - Artificial Intelligence and the role of International Standards in the implementation of this technology
 - ISO [video interview](#) with Chair of SC 42 on Standards and Artificial Intelligence Continued (November 14th 2018)
 - Artificial Intelligence and easing the mind of end-users including AI trustworthiness, ethics and societal concerns
- IEC Multimedia
 - IEC [video interview](#) with Chair of SC 42 on How can we ensure AI is safe for Healthcare? (April 6th 2019)
 - IEC [video interview](#) with Chair of SC 42 on Is it too early to use machine learning for cybersecurity? (April 5th 2019)
 - IEC [video interview](#) with Chair of SC 42 on To what extent is AI ready for standardization? (April 5th 2019)
 - IEC [video interview](#) with Chair of SC 42 on What are some of the challenges you see with AI? (March 26th 2019)
 - IEC [video interview](#) with Chair of SC 42 on How to Define Artificial Intelligence (March 26th 2019)
 - IEC [video interview](#) with Chair of SC 42 on Why do we need standards for AI? (March 26th 2019)
 - IEC [video interview](#) with Chair of SC 42 on Artificial Intelligence (February 4th 2019)
 - The growing influence of AI in Smart Manufacturing and the important role of standards
 - IEC [video interview](#) with Chair of SC 42 on Artificial Intelligence (February 4th 2019)
 - Standardization can help eliminate data bias in AI

SC 42 Strategic Business Plan Artificial Intelligence

Revision History

The following is the history of this document

- Initial version created by Wael William Diab (SC 42 Chair)
- Initial version reviewed and amended by Heather Benko (SC 42 Committee Manager)
- Submitted to SC 42 for review at the third plenary
- Concurrently submitted to JTC 1 for the November 2020 plenary based on the earlier deadlines and to SC 42 for review at its October plenary
- Concurrently submitted to JTC 1 for the November 2021 plenary based on the earlier deadlines and to SC 42 for review at its October plenary