SESEC V

Report on SAC/SC42 Plenary Meeting 2025

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Seconded European Standardisation Expert in China

(SESEC)

Report on the SAC/SC42 Plenary Meeting 2025

1. Overview

From 8 July to 10 July 2025, the Artificial Intelligence Technical committee of the National Standardization Administration of China (SAC/TC28/SC42) convened its AI Standard Week in Beijing, with its plenary meeting being held on the first day of the event.

SAC/TC28/SC42 is an AI-dedicated national technical committee mirroring ISO/IEC JTC 1/SC42. Its secretariat is set within the China Electronics Standardization Institute (CESI). Its working scope involves the development of basic and generic standards, technology standards, risk management standards, trustworthiness standards, governance standards, products and applications standards.

The plenary meeting commenced by Mr. Fan Kefeng, Secretary General of the National Information Technology Standardization Technical Committee (SAC/TC28) and Vice President of CESI. He reported China's AI large models have achieved breakthroughs in multimodality, high cognition, and cost efficiency. AI agents now demonstrate capabilities like knowledge sharing and collaboration. Research in embodied intelligence has advanced AI's perception, decision-making, and physical interaction. Intelligent products have diversified, with AI solutions rapidly integrating across industries, becoming China's core engine for industrial modernization.

China has established a complete AI standard system framework, covering large models, software-hardware compatibility, computing infrastructure, and AI products/services. Currently, **83 national standards and 53 sector standards** have been published.

SAC/SC42 and CESI will focus on using standards to accelerate AI industrialization across entire industry chains. Priority will remain on large models, AI terminals, intelligent agents, and embodied intelligence, while increasingly supporting manufacturing upgrades and practical applications.

Standards will be tested in real-world environments and refined to meet industry needs. While large enterprises are expected to be early adopters of AI, small and medium enterprises will also be the targets in this real-world testing. Furthermore, SC42 will push for international adoption of its AI benchmarks, including AGI evaluation frameworks.

This year's plenary meeting comprised administrative reporting, organizational changes, and individual reports from each working group. This report extracts key takeaways from the SC42 plenary meeting. Each working group followed a consistent reporting style while incorporating subtle variations, as you may notice in the following sections.

2. SC 42 Organizational Changes

(1) New Working Groups

12 new working groups formed under SC42 in 2024. 10 working groups for industrial applications, 1 working group for AI testing benchmark research & development, and 1 working group focusing on regional development of AI industry. At present, SC42 consists of 27 working groups (shown in Figure 1)

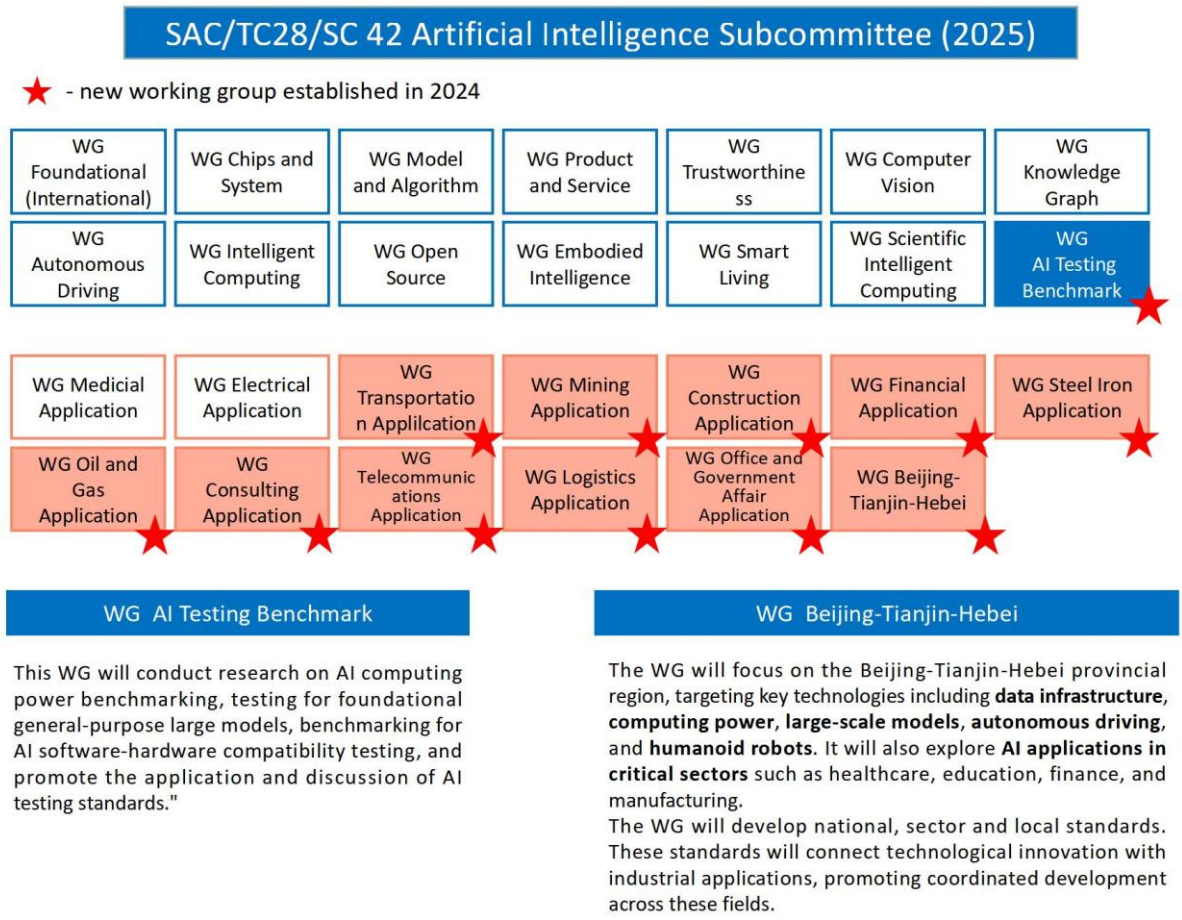

Figure 1. Updated organizational chart of SC42

Note:

- Blue: WGs focus on technology/research
- Orange: WGs focus on industrial applications
- White background: Established WGs
- Colored background: Newer WGs.

(2) Manpower Changes

Domestically, SC42 recruited 7 experts as new committee members in 2024. Currently, SC 42 has 62 expert members. At the enterprise membership level, SC 42 recruited 58 new members annually. Currently, SC42 has a total of 602 enterprise members.

Internationally, SC42 has been actively recruiting ISO/IEC JTC1/SC42 internationally registered standard experts. In 2024, SC42 recruited 23 new experts. Currently, SC42 has 106 ISO/IEC JTC1/SC42 internationally registered experts.

(3) SC42 Activities

In 2024, SC42 had nearly 50 meetings covering topics such as large models, hardware-software compatibility, embodied intelligence, trustworthiness and autonomous driving technologies. Alongside the usual work meetings,

SC42 organized two Standard Weeks in 2024. One was in April 2024 which focused on work reporting; the other one was in September 2024 which focused on publishing key achievements.

3. Individual Working Group Updates

(1) Fundamental (International) Working Group

To date, the group has adopted 2 key standards from ISO/IEC/JTC1/SC42, covering AI terminology and AI management systems. The group has led to the release of 6 international standards and submitted 2 international proposals.

During the meeting, the following standards in development were discussed:

- ***ISO/IEC TS Information Technology-Artificial Intelligence-Guidelines on addressing risks in generative AI systems***
- ***ISO/IEC AWI 25623 Artificial Intelligence-Machine learning model description framework***

Next Steps & Focus Areas：

1. Accelerating International Standard Adoption
   - Prioritize adopting applicable international standards
   - Strengthen compatibility between domestic and international standard systems
   - Improve alignment of China's key projects with global AI standardization efforts
2. Leading Global Standard Development
   - Advance pre-research for international standardization in **generative AI**, **machine learning**, and **knowledge-enhanced systems**
   - Drive conversion of Chinese standards into international standards
   - Increase China's ISO/IEC JTC1/SC42 proposal submissions
   - Take leadership roles in **AI governance**, **trustworthiness**, and **data standards**
3. Deepening International Engagement
   - Maintain active participation in ISO/IEC JTC1/SC42
   - Monitor AI developments at key organizations, including NIST (US), CEN/CENELEC (EU), ETSI, IEEE, BRICS
   - Host regular workshops on critical international standardization topics

(2) Knowledge Graph Working Group

To date, the group has released 3 national standards.

- ***GB/T 42131-2022 Artificial intelligence—Technical framework of knowledge graph***
- ***GB/T 45628-2025 Artificial intelligence—Knowledge graph—Knowledge exchange protocol***
- ***GB/T 45923.2-2025 Artificial intelligence—Knowledge graph application platform—Part 2: Performance requirements and testing method***

Additionally, under the IEEE framework, the 2807 series of standards have been established, covering:

- Knowledge Graph Architecture (2022)
- Technical Requirements (2024)

- Application guidelines for industries such as finance, power, and technology

The following standards are under development at the current stage:

- *Artificial Intelligence—Knowledge Acquisition and Annotation Requirements for Carbon Verification Knowledge Graphs*
- *Artificial Intelligence—Knowledge Modeling Requirements for Carbon Verification Knowledge Graphs*
- *Artificial Intelligence—Technical Guidelines for Industrial Knowledge Graph Construction*
- *Graph Retrieval-Augmented Generation Technology and Testing Evaluation Specifications*
- *Artificial Intelligence—Knowledge Engineering—Capability Maturity Model for Intelligent Assistants*
- *Artificial Intelligence—Knowledge Engineering—Capability Maturity Model for Knowledge Asset Governance*
- *Artificial Intelligence—Knowledge Engineering—Quality Assessment of Knowledge Assets*

Next Steps & Focus Areas:

1. Developing Draft Standards, including:
   - *Artificial Intelligence—Knowledge Graph Application Systems—Part 1: Functional Requirements*
   - *Artificial Intelligence—Integration of Knowledge Graphs and Large Models—Part 1: Technical Framework*
2. Revising and Releasing Practical *Case Studies on the Integration of Knowledge Graphs and Large Models*
3. Conducting the first round of testing and evaluation for knowledge graph and large model integration systems, based on published national standards
4. Supporting the conversion and development of domestic standards into international standards (ISO/IEC) and IEEE standards

(3) Model and Algorithm Working Group

The working group has released 8 national standards covering areas such as deep learning algorithms, neural network representation and model compression, and large models. Notably, 3 published general-purpose large language model standards have addressed industry challenges, including inconsistent terminology, incomplete evaluation metrics, and difficulties in quantifying service capabilities.

The following standards are under development at the current stage:

- *Artificial intelligence—Large-scale model—Selection and application guidelines*
- *Artificial intelligence—Large-scale model—Part 4: Computer vision large-scale models*
- *Artificial intelligence—Large-scale model—Part 5: Multi-modal large-scale models*
- *Artificial intelligence—Specification for end-cloud collaborative model systems*
- *Artificial intelligence—Large-scale model—Part 6: Code large-scale models*
- *Artificial intelligence—Large-scale model—Part 7: Speech large-scale models*
- *Artificial intelligence—Technical specification for on-device large model inference engines*
- *Artificial intelligence—Technical specification for large-scale language model inference and deployment systems*
- *Artificial intelligence—General technical requirements of retrieval-augmented generation*
- *Artificial intelligence—Evaluation metrics and method for retrieval-augmented generation system*
- *Artificial intelligence—Large language model alignment capability evaluation*

Next steps & Focus Areas:

1. Standard Development

- Advance general-purpose large-scale model standards for vision, multi-modal systems, code generation, and speech processing
- Develop industry-specific large model standards for government services, finance, education, steel, energy, and power sectors
- Evaluation Capability Enhancement

2 Upgrade testing infrastructure through iterative improvement of large-scale model test datasets and enhanced testing platform for large-scale models
- Expand evaluation capabilities for intelligent agents and embodied AI
- Establish industry-specific large-scale model test datasets and industry-tailored evaluation methodologies

(4) Embodied Intelligence Working Group

The group focuses on the development of standards in areas including embodied intelligence systems, embodied intelligence data, embodied large models, and embodied intelligence classification.

During the meeting, the following standards in development were discussed:

National Standards (GB):

- *Artificial intelligence -Technical specification for embodied intelligence system*
- *Artificial intelligence -Technical requirements for embodied intelligence data generation platform*
- *Artificial intelligence - Specifications for embodied intelligence data quality*
- *Artificial intelligence -Technical requirements for embodied large model system*
- *Artificial intelligence - Intelligent grading of embodied intelligence*

Sector Standards:

- *Artificial intelligence key technologies - Specification for embodied intelligence data acquisition*
- *Artificial intelligence key technologies - Technical requirements for embodied intelligence data generation systems*

Association Standards:

- *Artificial intelligence - Application framework and interface requirements for embodied agents*
- *Technical requirements for bipedal industrial robot operation data collection*
- *Performance requirements and testing methods for bipedal industrial robots*

Next Steps & Focus Areas:

1 Priority Standard Development
- Accelerate completion and release of current draft standards
- Initiate pre-research and development for new standards covering swarm control for embodied intelligence, embodied intelligent agents, and industry-specific applications

2 Evaluation Capability Expansion
- Develop testing and assessment frameworks for embodied intelligence data quality evaluation, performance benchmark of embodied large models, and intelligence classification verification

3 Global Collaboration Initiatives
- Present China’s embodied intelligence research at ISO/IEC JTC1 SC42 forums
- Drive international standard development in embodied intelligence

Existing issues:

Embodied intelligence currently faces challenges in the lack of data, insufficient capability of present models, and the shortage of computing power.

Regarding the standards that are under discussion/formulation, most of them still stay in a rather preliminary stage as attending experts still have concerns and questions regarding some basic elements, such as scope and definition. The present draft under discussion may go through quite a few changes in future discussions

(5) Trustworthy AI Working Group

The group has developed 14 trustworthy AI standards and 1 white paper on trustworthy AI.

The following standards have been published:

National Standards

- ***GB/T 45225-2025Artificial intelligence—Deep learning algorithms evaluation***

Association Standards

- *Artificial Intelligence—Trustworthy Machine Learning Framework*
- *Artificial Intelligence—Trustworthy Machine Learning Model*

Standards in Development

- *20252081-Z-469 Artificial Intelligence—Trustworthy Datasets*
- *2025039-Z-469 Artificial intelligence—Large language model alignment capability evaluation*

Next Steps & Focus Areas:

1 Global Standards Engagement
   - Monitor international trustworthy AI standardization developments through active participation in ISO/IEC JTC1 SC42, IEEE standards committees, and EU standardization initiatives
   - Drive the completion and publication of the China-led international standard, *ISO/IEC AWI TS 25568 Information technology – Artificial intelligence - Risk mitigation guidelines for generative AI systems*

2 Standards Development Pipeline
   - Advance scheduled development of *Artificial intelligence - Trustworthiness - Part 1: General rules*, *Artificial intelligence- Cross-domain Data Computing System Technical Specifications*, and *Artificial intelligence - Privacy-Preserving Computation General Framework* – the standard project has been approved as a national standard guideline (GB/Z)

3 Implementation Acceleration
   - Promote adoption of published standards including ***GB/T 45225-2025 Artificial intelligence—Deep learning algorithms evaluation*** and ***20231740-T-469 Artificial intelligence — Risk management capability assessment***
   - Execute trustworthy AI standards through conformance testing programs, best practice case studies, and industry training initiatives

Other key takeaways at the WG meeting:

A popular opinion within the WG stated that the optimization of the AI trustworthiness/trust governance may be achieved by i) a legal system that stipulates the boundary, and ii) a sustainable ecology formed by the self-discipline of the sector and collaboration of various stakeholders.

The possibility of shifting trustworthiness governance from following the administrative supervision requirements to actively constructing a trustworthy mechanism is also discussed at the meeting.

Specifically for *Artificial intelligence - Privacy-Preserving Computation General Framework* – the standard project has been approved as a national standard guideline (GB/Z), and it aims to mitigate challenges of AI, personal information protection and data element circulation, and privacy protection.

(6) Chip and System Working Group

The Chip and System Group focuses on the development and implementation of standards related to AI system hardware and supporting software components.

To date, this working group has developed and published 5 national standards:

- ***GB/T 42018-2022 Information technology - Artificial Intelligence - Platform computing resource specification***
- ***GB/T 45087-2025 Artificial intelligence—Performance testing methods for server systems***
- ***GB/T 45280-2025 Artificial intelligence—Unified interfaces for heterogeneous artificial intelligence accelerating units***
- ***GB/T 45401.1-2025 Artificial intelligence—Scheduling and cooperation for computing devices—Part 1: Virtualization and scheduling***
- ***GB/T 45401.2-2025 Artificial intelligence—Scheduling and cooperation for computing devices—Part 2: Framework for distributed computing***

4 association standards have been published:

- *T/CESA 1169-2021 Information technology - Artificial intelligence - Specification for performance benchmarking for server systems*
- *T/CESA 1228.1-2022 Artificial intelligence - Computation scheduling and cooperation - Part 1: Technical specification for virtualization and scheduling systems*
- *T/CESA 1228.2-2022 Artificial intelligence - Computation scheduling and cooperation— Part 2: Distributed computing technical requirements*
- *T/CESA 1303-2023 Artificial Intelligence - Unified Interface for Heterogeneous Acceleration Processors*

1 international standard is published:

- *ISO/IEC 17903 AWI TR Information technology - Artificial Intelligence - Overview of machine learning computing devices*.

4 national standards are under development:

- ***20230715-T-469 Artificial intelligence — Operator interface —Part 1: Basic mathematical classes***
- ***20230716-T-469 Artificial intelligence —Operator interface —Part 2: Neural network classes***

- ***20252035-Z-469 Artificial intelligence – Technical requirements for Large-Scale Model Integrated Machine***
- ***20252034-Z-469 Artificial Intelligence - Functional Specification of Heterogeneous AI Chip Collaborative Training in Intelligent Computing Cluster***

Next Steps & Focus Areas:

1. Standards Development

Promote top-level design & implementation plan for chip and system standardization. Enhance conversion of applied technologies into standards. Strengthen industry leadership through standards

2. Evaluation Capacity Building

Constantly upgrade the AISBench evaluation toolkit by expanding assessment capabilities in key cutting-edge areas including operators, all-in-one large model systems, heterogeneous hybrid training, and super-node computing.

(7) **Intelligent Computing Working Group**

The Intelligent Computing Working Group focuses on the computing power demands of artificial intelligence, prioritizing the development and implementation of standards in key areas such as AI computing acceleration technologies and products, intelligent computing infrastructure, and computing power scheduling and management platforms.

Currently, 5 national standards and 1 sector standard are under development. These standards cover 4 areas: compiler interface, heterogeneous AI computing cluster, computing center and communication library:

- *20231747-T-469 Artificial Intelligence – Interfaces of deep learning compiler*
- *20231745-T-469 Artificial Intelligence – Computing centers – Computing capacity assessment*
- *20252034-Z-469 Artificial Intelligence – Functional Specification of Heterogeneous AI Chip Collaborative Training in Intelligent Computing Cluster*
- *2025001837 Artificial Intelligence – Unified Communication Interface Specification*
- *2023004239 Artificial Intelligence – Deep Learning Compiler Technical Specification*
- *2025-0260T-SJ Artificial Intelligence – Critical and foundational technologies – Technical requirements for computing center management platforms*

During the working group meeting in the next few days, there were many controversies over standard names and whether certain technical specifications should be included. These standards will undergo more rounds of technical discussion in the future before they are finalized.

Next steps & Focus Areas:

1. Establish an intelligent computing standard system covering chip collaboration, compilation optimization, and all-in-one deployment, clarifying technical architecture and protocol uniformity requirements.

2. Increase efforts to translate relevant applications into standards, promote the implementation of standard clauses in application scenarios, strengthen the guiding role of standards in the industry, and foster collaborative innovation in the ecosystem.

3. Constantly update evaluation tools, expanding testing capabilities in key cutting-edge areas such as large-model all-in-one machines and heterogeneous hybrid training.

(8) Standard Seminar and Joint Technical Meeting on AI empowering new industrialization

This seminar emerged from a collaborative initiative by 15 AI/industry technical committees. The initiative focuses on integrating AI into the critical sectors. Aligned with this year's Standard Week's, the seminar took place on 9 July as part of the Standard Week program. Currently, these 15 technical committees are working on three approved projects of national technical guidelines (GB/Z):

- ***Artificial intelligence —System architecture of industrial foundation model***
- ***Artificial intelligence —Technical requirements of industrial foundation models***
- ***Artificial intelligence —Reference architecture of Industrial foundation model agent***

Key takeaways at the seminar:

Challenges for the development and the standard formulation of industrial foundation models:

- Difficult collaboration of cross-scenario and cross-state models
- High precision and reliability requirements if industrial applications
- Task requirements from different sectors and scenarios vary from each other for a unified lifecycle management.
- Present developing level of industrial foundation models does not fit in with the complicated requirements for multi-process connections, which requires an in-depth task connection capability and the ability to have long-term memory.
- Higher real-time working state for models from on-site industrial activities.

During the discussion of the drafts of the three aforementioned standards/technical guidelines, a few participants provided multiple feedback that shall largely change the present contents, including but not limited in: draft name, definition of key terms, working scope and the structure etc.

Next Steps & Focus Areas:

The drafts shall be modified based on the feedback collected, and as all three projects are for national technical guidelines, the drafting period shall be much less than that for a national standard.

The working group will continue relevant formulation work, and based on public information, these three documents are planned to be finished within 9 months, meaning a draft for public comments may be issued within this year, and they are expected to be published in Q1 of 2026.

4. Conclusions

China has made notable progress in AI standardization, establishing a structured framework that addresses key technical and industrial applications. The development of 83 national and 53 industry standards, along with active participation in international bodies like ISO/IEC JTC1/SC42, reflects a systematic approach to shaping AI governance. Areas such as **large-scale models**, **software-hardware compatibility**, **embodied intelligence, AI evaluation benchmarking, and AI industrial application** have received particular attention.

SAC/SC42'S standardization strategy reflects China's focus on building an AI-powered society, with priority given to achieving full AI industrialization across critical infrastructure sectors. While ethical use of AI remains as part of its agenda, this year's plenary meeting reiterated on parallel acceleration in R&D and real-world testing.

China's AI standardization efforts are projected to experience significant expansion, with numerous standard projects either launching or reaching completion in the coming period. This accelerated development timeline is expected to substantially increase the total volume of AI standards while simultaneously reducing the time required for the maturation of China's AI standardization system.

Introduction of SESEC Project

The Seconded European Standardisation Expert in China (SESEC) is a visibility project co-financed by the European Commission (EC), the European Free Trade Association (EFTA) secretariat and the three European Standardisation Organizations (CEN, CENELEC and ETSI). Since 2006, there has been four SESEC projects in China, SESEC I (2006-2009). SESEC II (2009- 2012), SESEC III (2014-2017), SESEC IV (2018- 2022) and SESEC V (2022-2025). Dr. Betty XU is nominated as the SESEC expert and will spend the next 36 months on promoting EU-China standardisation information exchange and EU-China standardisation cooperation.

The SESEC project supports the strategic objectives of the European Union, EFTA and the European Standardisation Organizations (ESOs). The purpose of SESEC project is to:

- Promote European and international standards in China;
- Improve contacts with different levels of the Chinese administration, industry and standardisation bodies;
- Improve the visibility and understanding of the European Standardisation System (ESS) in China;
- Gather regulatory and standardisation intelligence.

The following areas have been identified as sectorial project priorities by the SESEC project partners: Internet of Things (IoT) & Machine-to-Machine(M2M) communication, communication networks & services, cybersecurity & digital identity, Smart Cities (including transport, power grids & metering), electrical & electronic products, general product safety, medical devices, cosmetics, energy management & environmental protection (including eco-design & labeling, as well as environmental performance of buildings).