



SESEC IV

China Standardisation

Newsletter

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GENELEC



Seconded European Standardisation Expert in China
(SESEC)

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Takeaways

SESEC IV Published Report on Quantum Technology Standardization in China

To help overseas stakeholders have a better understanding of the state of QIT standardization in China, SESEC IV drafted the thematic report - "Quantum Technology Standardisation in China". The report summarizes the current QIT-related policies, key standardization players, and their standardization activities and achievements in China, which can be of particular interest for European stakeholders.

The Current State, Challenges and Future of China's Standardisation Work

Specifically, in terms of the establishment of standards system, China currently owns 39,222 national standards, of which 2,131 are mandatory standards and 37,091 are recommended; 42 ministries and commissions of the State Council have issued 72,430 industry standards, belonging to 71 categories.

The Publicity Video and English Version of GB/T 35273-2020 Released

The publicity video of the national standard GB/T 35273-2020 Information Security Technology—Personal Information Security Specification was released for the first time to facilitate the readers' understanding of the standard through visual and dynamic explanations. The English version of GB/T 35273-2020 was also released to facilitate access to the content of the standard by all relevant readers in China and abroad, as well as to accelerate the further promotion and implementation of the standard.

CCSA Establishes the 5G Healthcare Sub-Working Group

On 29 September 2020, the China Communications Standards Association (CCSA) officially established the 5G Healthcare Sub-Working Group. Based on the current and future development trends and application requirements of 5G healthcare technologies, the mission of the sub-working group is to complete the planning of the 5G healthcare management standards system, and to promote research and development work of relevant standards.

First oneM2M Hackathon in China

On 11 November 2020, the First oneM2M Hackathon in China was launched in Jinan, Shandong Province. The event was sponsored in the context of the InDiCo project by ETSI. As the first oneM2M hackathon held in China, the event will contribute to the promotion of the oneM2M standards, thus increasing its visibility and influence in China and paving the way for wider and deeper Europe-China cooperation on IoT international standards.

First China-led Financial Blockchain Standard Project Approved in ITU

During the meeting, the Financial Distributed Ledger Technology Application Guideline was approved. The standard was led by the Digital Currency Research Institute of China (DCRI) and was jointly initiated by the China Academy for Information and Communications (CAICT) and Huawei, among others. The approved Financial Distributed Ledger Technology Application Guideline is the first financial blockchain international standard project led by China.

"Technology Roadmap for Energy Saving and New Energy Vehicles 2.0"

Published: Over Half of Automobile Sales by 2025 will be NEVs

On 27 October 2020, the China Society of Automotive Engineers (China SAE) released the Technology Roadmap for Energy Saving and New Energy Vehicles 2.0 (hereinafter referred to as "Technology Roadmap 2.0") during its 2020 Annual Conference and Exhibition. Under the guidance of the Ministry of Industry and Information Technology (MIIT), the Technology Roadmap 2.0 was compiled by China SAE and experts in the field. The Technology Roadmap 2.0, which builds upon a first 1.0 version previously released in October 2016, aims to provide guidance and decision-making support to government, industry, and the scientific research community.



Horizontal Issues

1. SESEC IV Published Thematic Report on Quantum Technology Standardization in China

#Quantum Technology

Quantum Information Technology (QIT) is a new discipline that combines quantum physics and information technology. In view of its great potential to make breakthrough in classic technologies in terms of accuracy and sensitivity of information measurement, speed of operation processing, and security of information transmission, QIT has become one of the key highlights of the development of information and communication technology and the upgrading of the industry, and may exert great influence in the future economy development and industrial competition.

To help overseas stakeholders have a better understanding of the state of QIT standardization in China, SESEC IV drafted the thematic report - “Quantum Technology Standardisation in China”. The report summarizes the current QIT-related policies, key standardization players, and their standardization activities and achievements in China, which can be of particular interest for European stakeholders.

The full document can be read in the annex.

2. SESEC Roundtable on Personal Information Protection

#Roundtable#Personal Information Protection

On 16 October 2020, the Roundtable on Laws, Regulations and Standards on Personal Information Protection in China was successfully held by SESEC. Mr. HE Yanzhe, Director of the Cybersecurity Evaluation Center of the China Electronic Standardization Institute (CESI), was invited to introduce and interpret the latest developments in China’s personal information protection laws and regulations.

As one of the developers of the standards on personal information protection, Mr. HE particularly focused on the interpretation of the standard GB/T 35273-2020 Information Security Technology—Personal Information Security Specification. According to Mr. HE, the standards system of personal information protection in China is clearer than that of cybersecurity and data security: it is led by GB/T

35273 (first released in 2017, then amended in 2020), and complemented by other standards on various specific aspects, such as GB/T 37964-2019 Information Security Technology—Guide for De-identifying Personal Information, and 20194267-T-469 Information Security Technology—Basic Specification for Collecting Personal Information in Mobile Internet Applications.

In addition, Mr. HE explained the details of the amendment of GB/T 35273. The most important point is that end users can now freely choose several services and functions based on their own will. For instance, the new requirements for personal information controllers include:

The way or manner by which services and functions are closed or withdrawn, shall be as convenient as the

way or manner by which personal information subjects choose to use services and functions;

The personal information controller should not seek too frequently the consent of the subjects of personal information to use, close or withdraw from specific services and functions; in addition, the personal information controller shall not suspend nor reduce the quality of other business functions that the subject of personal information chooses to use independently.

The amendment of GB/T 35273 also introduced requirements for the use of personal biometric information and user portrait.

Because of limited office space, SESEC only invited Mr. HE and a small number of stakeholders to SESEC office, while the wider stakeholder audience was connected via online tools. Nonetheless, opportunities were provided to all online and offline participants to share key issues in different industries, e.g. China Standard 2035, CCC, and global cooperation in ICT. In the future, SESEC will continue to hold roundtables and online events thus facilitating exchange and sharing of all relevant stakeholders.

SESEC is looking forward to your participation in our future events!

3. SESEC organized online events on ICV, AI, Industrial Internet #Horizontal

From October to December 2020, SESEC held several online events on ICV, AI and Industrial Internet.

Background

Automobile technological innovation is an important carrier of Industrie 4.0. And automobile intelligence is an important part of urban intelligence, which has triggered new economic growth and effectively promoted new sharing economic development. ICV is defined as a part of Internet of Vehicles (IOV). IOV is a more comprehensive concept involving not only vehicles but also traffic, communications, public security, transport, infrastructure, etc. In China, several ministries and departments are working on the policies, regulations and technology road maps for IoV and ICV. MIIT is in the leading position on guiding and managing the IOV industry and on designing a standardization framework for its development.

In terms of AI, on 4 August 2020, SAC, CAC, NDRC, MOST, and MIIT jointly issued the Guidelines for the Establishment of the New Generation of Artificial Intelligence Standards System. And on 6 August 2020, the kick-off meeting and first plenary meeting of the Subcommittee 42 on Artificial Intelligence of SAC's National Technical Committee 28 on Information Technology (SAC/TC28 SC42), was held in Beijing.

And regarding industrial Internet, at present, a new round of scientific and technological revolution and industrial transformation is booming, and the digital, networked and intelligent development of the industrial economy has become the core content of the fourth Industrial Revolution. As an important cornerstone and key support of the Fourth Industrial Revolution, the Industrial Internet provides concrete ways to realize and advance it.

In order to provide a basic understanding of the development of these industries in China and their standards systems, Dr. Betty XU organized three online events to share the information gathered by SESEC, especially on standardisation.

If you need the presentations or recordings of SESEC recent events, please contact haley.wu@sesec.eu.

SESEC is looking forward to your participation in our future events!

4. SESEC Needs Your Suggestions!

#Survey

Thank you all for your support to SESEC in 2020. Hope you and your loved ones are safe and healthy in this difficult time. SESEC is a visibility project co-financed by five European partners: EC, EFTA, CEN, CENELEC and ETSI, which promotes EU-CN dialogue and cooperation in the area of standardization. At the end of 2020, we would like to invite you to participate in this SESEC IV stakeholder survey:

<https://www.surveymonkey.com/r/T2XZ36S>.

Please fill in the form on this Website. The closing date of the survey is 21 December 2020.

The stakeholder survey would help us to understand

- How the project has been achieving its objectives,
- How stakeholders' needs have been met,
- What can be improved during the rest of the project life, and
- What could be the focus for a possible new phase

We would be grateful if you could devote 10 minutes of your precious time to making the SESEC Project work better for you.

5. The Current State, Challenges and Future Development of China's Standardisation Work

#Standardisation

On 19 and 20 November 2020, the 17th China Standardisation Forum took place in Fuzhou, Fujian province, hosted by the China Association for Standardisation. During the conference, Li Zhiping, the Vice President of China National Institute of Standardisation (CNIS), shared the latest progress of China's standardisation work, including current challenges and thoughts for the future.

Specifically, in terms of the establishment of standards system, China currently owns 39,222 national standards, of which 2,131 are mandatory standards and 37,091 are recommended; 42 ministries and commissions of the State Council have issued 72,430 industry standards, belonging to 71 categories; 31 provinces, autonomous regions and municipalities have issued 47,567 local standards; 3,977 social organisations have published 19,280 association standards; while around 298,000 companies disclosed 298,000 self-declared enterprise standards.

In terms of the specific organisation of standardisation work, to date China established 545 national professional standardisation technical committees, 768 branches (Subcommittees), and 13 working groups. All together, these technical organisations have 51,885 members, of which 3,133 are from foreign enterprises, accounting for 6% of the total. In addition, the Chinese government has also established 277 standardisation research institutions, covering various industries.

In terms of participation in international standardisation activities, Chinese representatives serve or have served as standing members in all senior management organisations of ISO and IEC, as former ISO chairmen, IEC chairmen and ITU secretary-generals. In addition, 74 Chinese members serve or have served as chairmen and vice-chairmen of ISO and IEC technical committees, while 74 ISO and IEC technical committee secretariats are located in China. China has also led the formulation of 788 international standards, and has signed 97 bilateral

cooperation agreements with 54 countries and regions including leading actors such as the United Kingdom, the United States and Germany.

At present, China's standardisation work faces multiple challenges from both internal and external factors. Internal factors include, for instance, new internal demands, such as data resource management, cross-border transmission and security protection, as well as the need for more active participation in the formulation of international rules. External factors include, for instance, the impact caused by the risk of China-US technology decoupling and the global pandemic, which is reframing the global landscape.

Facing these new challenges, Li Zhiping pointed out two key priorities for China's future standardisation development:

Digital standardisation: it refers to accelerating the standardisation of digital technologies, namely AI, big data, and cloud computing. As for now, China's main bottlenecks in this area are related to the slow process of standards-formulation, imperfect standards system, uncoordinated standardisation work, and low contribution rate of international standards.

Digitalisation of standards: it refers to realising the machine-readable standards, achieving a more agile and flexible standards-formulation process and a more intelligent and convenient utilisation of standards, through the intelligent classification and digital expression of standard.

The concept of digitalisation of standards originated in Europe. China has fully recognised and adopted this concept, which reflects the positive results of EU-China standardisation exchanges and cooperation. At the same time, the concept also represents a new area for future cooperation with the EU, supporting both parties to promote the efficiency of the standardisation work.

Chinese news for reference: <https://mp.weixin.qq.com/s/20ad6sG1G9tfsgoc3uX68w>

6. Several Meetings on Intelligent Manufacturing Standardisation Held in Beijing

#Intelligent Manufacturing#Standardisation

On 11 September 2020, the National Intelligence Manufacturing Standardisation Coordination and Promotion Group, Expert Advisory Group, Administration Group, held the plenary meeting in Beijing.

During the meeting, the requests and needs of the Chinese government for standardisation work in the field of intelligent manufacturing were illustrated in detail by Tian Shihong, leader of the Coordination and Promotion Group and administrator of the Standardisation Administration of China (SAC), and by Xin Guobin, the vice minister of the Ministry of Industry and Information Technology. These are:

- Improve the system guarantee mechanism;
- Revise and modify the Guidelines for the Establishment of the National Intelligent Manufacturing Standards System;
- Accelerate research on standards;
- Further promote the application of standards;
- Formulate and optimise performance evaluation indicators for the development of intelligent manufacturing;

- Extend international cooperation.

You Zheng, the leader of the Expert Advisory Group, illustrated the Expert Advisory Group Work Report, which mainly summarises five major tasks undertaken by the group, specifically:

- Improvement of the organisation mechanisms of the Expert Advisory Group;
- Guiding of the revision of the Guidelines for the Establishment of the National Intelligent Manufacturing Standards System;
- Continuous support to intelligent manufacturing comprehensive standardisation projects.

You Zheng also pointed out that the Expert Advisory Group will continue to work on the basis of the Specifications on the National Intelligent Manufacturing Standardisation Group, specifically by providing advices to the Coordination and Promotion Group on the standardisation plan, system and policies in the field of intelligent manufacturing; by providing technical guidance to the Administrative Group; and by engaging in and promoting the research, formulation, divulgation, implementation and application of domestic and international standards in the field of intelligent manufacturing.

Zhao Bo, the leader of the Administrative Group and of the China Electronics Standardisation Institute (CESI), illustrated the Administrative Group Work Report, which mainly highlights four major achievements made by the group since 2016, including the establishment and optimisation of standardisation top-level planning; as well as the divulgation, implementation and promotion of standards. Zhao Bo also highlighted key existing challenges, and provided recommendations for the revision of the Guidelines for the Establishment of the National Intelligent Manufacturing Standards System and for the establishment of an intelligent manufacturing standards system specific for each industry sector.

In addition, during the meeting officials from SAMR/SAC announced the new composition of the National Intelligent Manufacturing Standardisation Coordination and Promotion Group, Expert Advisory Group and Administration Group, specifying their responsibilities and configuration. They also provided an overview of the following content:

- Working System of the National Intelligent Manufacturing Standardisation Expert Advisory Group (Revised Draft);
- Charter of the National Intelligent Manufacturing Standardisation Administrative Group (Revised Draft);
- Procedures for Intelligent Manufacturing Standardisation Projects (Revised Draft);
- Progress of the establishment of the intelligent manufacturing standards system for the shipbuilding industry, the building materials industry, and the petrochemical industry.

Finally, the officials also discussed on the Guidelines for the Establishment of the National Intelligent Manufacturing Standards System (2021 Edition) (Draft) and on the Work Plan for the Pilot Application of Intelligent Manufacturing Standards (Draft).

Background

<https://www.sesec.eu/sac-and-miit-reconstitutes-the-national-intelligent-manufacturing-standardisation-coordination-group-general-working-group-and-advisory-group/>

Original news:

https://mp.weixin.qq.com/s/NXEkHnhL6q2GsQFmoi_F6g

7 CEEIA: Progress Made in Association Standardisation for Electrotechnical Industry

#Association Standardisation #CEEIA

On 25 November 2020, the China Electrical Equipment Industry Association (CEEIA) held its annual council meeting. During the meeting, CEEIA's Secretariat provided a summary of the progress made in the development of association standards.

Specifically, in terms of organisational development, CEEIA has established 61 association standardisation technical committees, engaging in standardisation work in many emerging fields within the electrical equipment industry, including green savings, wind power electrical equipment, photovoltaic equipment, energy storage equipment, nuclear power electrical equipment, industrial robots electrical equipment, shore power facilities, military-civilian integration, etc. These TCs complement the government standard systems of the industry.

In terms of development of the standards system, grounded on the Administrative Rules on Association Standards, CEEIA revised, released and started to implement the CEEIA Association Standard Formulation Management Methods.

In terms of standardisation results, CEEIA has already published 230 standards, while other 170 standardisation projects are currently in progress. Specifically:

- In the field of power generation, CEEIA has completed and issued various standards such as "Technical Conditions for Nuclear Power Plants using the 10KV Three-phase Induction Motor", and "Security Level K3 10KV Motors Identification Outlines";
- In the field of power distribution, CEEIA has formulated and issued standards such as "General Technical Conditions for High-Voltage Power Supply and Shore Power Installations", and "Safety Guidelines for Low-Voltage DC Distribution Systems";
- In the field of energy conservation and environmental protection, CEEIA has formulated 12 green-design product evaluation technical specifications – aimed at supporting MIIT's green manufacturing project;
- In terms of certification, CEEIA has issued certification standards for new energy equipment, such as the "Design and Evaluation Guidelines for Key Structural Parts of Wind Turbine Generators".

As one of China's largest standardisation bodies in electrotechnical field, CEEIA's activities in developing association standards exert great influence in this field: in fact, many of CEEIA's association standards have been promoted as sector standards or national standards. In recent years, CEEIA has expanded the scope of its standardisation activities to also include many emerging industries and technology integration fields via its association standards. Therefore, CEEIA can represent a gateway for overseas stakeholders to learn about China's latest progress in electrical equipment standardisation. European stakeholders are advised to continuously monitor its activities.

Background:

CEEIA was founded in April 1997, after the merging of six national-level industry associations: China Power Generation Equipment, China Power Transmission and Transformation Equipment, China Electric Appliances,

China Electric Machinery, China Electrical Engineering Equipment, and China Industrial Boiler. It now acts as an effective bridge between the government and the electrical equipment industry.

Aside from developing association standards, CEEIA has been entrusted by SAC and the China Machinery Industry Federation to manage national and international standardisation activities within the electrical equipment industry. In addition,

- CEEIA now operates 80 national standardisation technical committees, sub-standard committees, and working groups in electrotechnical industry, mirroring 71 IEC/ISO counterparts;
- CEEIA has been entrusted by the National Energy Administration to manage standardisation work of electrical equipment in the energy field; it is now holding six national standardisation committees for energy industry;
- CEEIA is also responsible for organising security and risk assessment of electrotechnical products, evaluation of low-carbon technology and products in electrotechnical industry, quality and technical evaluation of wind power and other new energy products, as well as technical evaluation of electrotechnical products' eco-labels;
- CEEIA also undertakes the work of the secretariat of the Wind Power Standardisation Working Committee in Energy Industry and its Electrical Equipment Branch.



Information Security

8. The Publicity Video and English Version of GB/T 35273-2020 Released # Personal Information Security#Standard

The China Cybersecurity Week 2020 celebrated the theme of "Personal Information Protection" on 20 September 2020. That day, the Special Taskforce on the Collection and Use of Personal Information by Apps Violating Laws and Regulations – established under TC260 – hosted a thematic event in Beijing titled "Personal Information Protection for Apps", during which the publicity video of the national standard GB/T 35273-2020 Information Security Technology—Personal Information Security Specification was released for the first time. The purpose of the video is to facilitate the readers' understanding of the content of the standard through visual and dynamic explanations. In addition, during the event the English version of GB/T 35273-2020 was also released, with the aim to facilitate access to the content of the standard by all relevant readers in China and abroad, as well as to accelerate the further promotion and implementation of the standard.

In the Internet era, while people enjoy the convenience and inclusiveness brought by big data, their personal information is inevitably being collected and used. Every transaction, browsing, communication, etc., could be recorded and analysed. Therefore, personal information has become an important resource pursued by many companies. While people expect their personal information to be collected and used lawfully, problems such as leakage, misuse, and excessive collection of personal information remain very frequent, hurting people's interests. The question of how to regulate the collection and use of personal information has always been the key focus of global data governance.

In December 2017, GB/T 35273-2017 Information Security Technology—Personal Information Security Specification was officially released. Proposed and organised by the National Information Security Standardisation Technical Committee (TC260), GB/T 35273-2017 is the first national standard indicating clear requirements for every step of personal information processing activities, including collection, use, storage, and sharing. The standard was later amended to incorporate best practices and experience from relevant laws, regulations, standards and technical specifications around the world in the field of personal information protection, and at the same time to include additional requirements addressing security risks. The amended version was released in March 2020 and took effect on 1 October 2020. The standard has also been recommended frequently by authorities, and it has now become the go-to guide for many companies seeking to develop a personal information protection compliance system.

The full text of the English version of GB/T 35273-2020 (Information Security Technology—Personal Information Security Specification) is available at: <https://www.tc260.org.cn/front/postDetail.html?id=20200918200432>.

9. Commercial Cryptography Application Standardisation Promotion Working Group to be Established by MIIT

#Commercial Cryptography

On 2 December 2020, MIIT began to solicit public opinions on the Plan for the Establishment of the " Commercial Cryptography Application Standardisation Promotion Working Group ". According to MIIT's notice, the aim of the Working Group will be to promote the standardisation of commercial cryptography and its applications in the information and communication technology industry. Specifically, the business scope of the Working Group will include:

- Carrying out research on the standardisation requirements of commercial cryptography and applications in the information and communication technology industry;
- Formulating standardisation plans, systems and policies; revising standards; and technical management;
- Organising and conducting standards experimental verification, publicity and implementation training;
- Promoting international standardisation work.

According to the personnel scheme drafted by MIIT, nearly all the directors or deputy directors of the Working Group will come from government agencies (MIIT and the State Cryptography Administration); its secretariat will be located within the China Academy of Industrial Internet/the Research Center of Cryptography Application of MIIT; while its member units will be research institutions, universities and large enterprises in China.

The China Academy of Industrial Internet is a public institution established on 1 November 2018 under MIIT. It is mainly responsible for planning and formulating development strategies and policies, and for conducting research on standards relating to industrial Internet. Moreover, the China Academy of Industrial Internet also contributes to the establishment of networks, platforms and security system, as well as to the promotion of international exchanges and cooperation.

In addition, in order to support the implementation of the Cryptography Law of the People's Republic of China, on 19 January 2020 MIIT also established the Cryptography Application Research Center, namely a deployment organisation located within the China Academy of Industrial Internet, aimed at promoting cryptography applications and innovation in the information and communication industry.

The efforts to establish the "Cryptography Commercialisation Promotion Standards Working Group" reflect the government-led approach underpinning China's cryptography standardisation work – together with a general lack of participation from foreign companies. The future collaboration in carrying out cryptography standardisation work between the Working Group and the Cryptography Standardisation Technical Committee (i.e. a major pillar of China's current cryptography standardisation work) will also need further observation.

Chinese news for reference:

https://www.miit.gov.cn/zwgk/wjgs/art/2020/art_54a6944561f64e628b8512b2bfcb719b.html



5G and Industrial Digitalisation

10. CCSA Establishes the 5G Healthcare Sub-Working Group #5G #CCSA

On 29 September 2020, the China Communications Standards Association (CCSA) officially established the 5G Healthcare Sub-Working Group. Based on the current and future development trends and application requirements of 5G healthcare technologies, the mission of the sub-working group is to complete the planning of the 5G healthcare management standards system, and to promote research and development work of relevant standards. Particular emphasis will be put especially on the formulation of fundamental standards, terminal standards, internet standards, and security standards for 5G healthcare, with the aim to provide support to the development of the intelligent healthcare industry and to the establishment of a healthcare service model and system with a full life cycle, bountiful application and complete structure.

Background

5G healthcare refers to leveraging the role of 5G mobile communication technology to (i) maximise the utilisation and impact of the limited medical human and equipment resources available; and at the same time (ii) expand the provision of digital, mobile and remote diagnosis, monitoring and treatment services by large hospitals. 5G healthcare can also increase the creativity of intelligent healthcare applications, save hospital operating costs, promote the sharing of medical resources at all levels, improve medical

efficiency and diagnosis, overcome the difficulties that many patients face in receiving adequate medical treatment, and contribute to poverty alleviation in remote areas.

To date, China still faces institutional barriers for the deep integration of 5G technology and healthcare application – for instance strict regulatory requirements for innovative medical devices, terminal device access, data format unification, and application data transmission. Furthermore, 5G healthcare has many application possibilities, each of them having widely different network requirements. Since no concrete specifications have been made so far to regulate 5G healthcare internet requirements, currently there is particular urgency to: (i) incorporate the application features of the healthcare industry; (ii) formulate, implement and apply the 5G standards system within the medical industry; (iii) standardise the 5G technical structure and content for the medical industry, meeting the demands of the industry; and (iv) continuously improve and optimise the standardisation of the technical system. The aim is to promote the coordinated development of technological innovation, product R&D, standards formulation, experimental verification, intellectual property disposal, and application.

<https://dy.163.com/article/FNS1B0U405149RFA.html>

11. Preliminary Results of the Implementation of China's 5G + Industrial Internet Policies

#5G#Industrial Internet

On 20 November 2020, the 2020 China 5G + Industrial Internet Conference took place in Wuhan, hosted by the Ministry of Industry and Information Technology (MIIT) and the Hubei Provincial Government. This is the first national conference since the release of the "5G+ Industrial Internet" policy. The aim of the conference was to provide a platform for sharing technical practices and results, exploring technology integration methods, exchanging typical application experiences, and cultivating more new models and business formats.

During the conference, numerous research results were released for the first time, including:

- 5G+ Industrial Internet Excellent Applications in 2020: it illustrates 29 typical applications of China's 5G+ Industrial Internet, which have been reviewed and selected this year by industry experts; these cover various fields, including smart factories, smart electricity, smart ports, smart mines, and smart steel. In addition, the document contains a number of pioneer 5G + Industrial Internet iconic applications, which aim at providing reference for more industries and enterprises to accelerate digital transformation and achieve high-quality development.
- China 5G+ Industrial Internet Development Report (2020): it is the first systematic presentation of the development trends of China's 5G+ Industrial Internet.
- 5G+ Industrial Internet Standardisation Research White Paper for the Coal Industry: it provides solid reference and guidance for technical research, standard development and service application, based on the application scenarios in the coal industry.
- Industrial Internet Industry Development and Investment Opportunities Research Report: it highlights that, in view of the rapid development of the industry and the intensive market competition, the Industrial Internet industry will present a richer format, not only pursuing the versatility of solutions, but also stimulating the segmentation of vertical industries. The report suggests that, in the near future, industrial software or industrial APP providers that have comparative advantage in the Industrial Internet industry chain and have a deep understanding of the industry will fully embrace such development opportunities, together with companies incubated by leading companies in the field, and industrial security companies – while at the same time stimulating other companies to follow.

Other research reports released during the conference include: the 2018-2019 Excellent Pilot Demonstration and Promotion Cases of Industrial Internet; the Industrial Internet Development Achievement Evaluation Report; and the Artificial Intelligence and Manufacturing Integration Development White Paper 2020.

During the conference, it was also highlighted that, to date, China has built nearly 700,000 5G base stations, more than 32,000 of which have been applied to the industrial internet. In addition, China has initiated more than 1,100 5G+ Industrial Internet projects in various industries, including aviation, machinery, automobile, steel, mining, ports, and energy.

The conference received a congratulatory message from President Xi Jinping, symbolising the importance that China attaches to the '5G+Industrial Internet' as a core area driving the country's technological development and

industrial upgrading. The rapid development of '5G+Industrial Internet' is also expected to generate new standardisation demands, and European stakeholders should place emphasis on this matter.

Background:

The Chinese government believes that Industrial Internet is vital for the fourth industrial revolution, and 5G is the key direction for the evolution and upgrading of new generation information and communication technologies. Both 5G and Industrial Internet have gained important momentum for the realisation of China's digital transformation of the economy and society. The fusion and innovative development of 5G and the Industrial Internet will lead to the transformation and upgrading of the manufacturing industry – from single and partial IT application, to digital, interconnected and intelligent ones; at the same time, it will also generate more market for 5G, thus providing strong support to the China to become a high-quality manufacturing actor and to enhance its strength in cyberspace.

In this context, in November 2019 MIIT released the 5G+ Industrial Internet 512 Project Promotion Plan: aimed at promoting the development of 5G+ Industrial Internet, the Plan outlines that, by 2022, five industrial public service platforms, innovative carriers and public service capabilities will be built; ten key industries for the pilot application of 5G+Industrial Internet will be selected; and at least 20 typical industrial application scenarios will be created – which will represent the benchmark and model projects for the "5G+Industrial Internet" intranet construction and transformation. A few months later, specifically in March 2020, MIIT further issued the "Notice on Promoting and Speeding up the Development of Industrial Internet", which details the work requirements and promotion measures of the 5G + Industrial Internet in 2020.

With the support of these policies, to date, 1,100 '5G+Industrial Internet' projects have been launched, which will usher the infrastructure transformation, technological iteration and industrial upgrading. According to the "China 5G+Industrial Internet Development Report (2020)" released at the conference, nearly 20 provinces and cities have already formulated or introduced supporting policies for the 5G+Industrial Internet.

Chinese news for reference: <http://www.xincainet.com/index.php/news/view?id=249963>



Internet of Things

12. First oneM2M Hackathon in China

#oneM2M

On 11 November 2020, the First oneM2M Hackathon in China was launched in Jinan, Shandong Province. The event was sponsored in the context of the InDiCo project by European Telecommunication Standards Institute (ETSI), the Qilu University of Technology (Shandong Academy of Sciences), and the China Communications Standards Association (CCSA); the main organisers were the Shandong Computer Science Center (National Supercomputing Center in Jinan), the Shandong New Generation Standardisation Institute, and the Shandong Association of IoT. Leaders, experts, scholars and hundreds of contestants from the European and Chinese IoT industry and standardisation community participated in the IoT and oneM2M Standards Workshop as the key event for the first day.



SDO leaders and government officers made opening remarks, including Luis J. ROMERO, Director General of ETSI; Yang Zemin, Secretary General of CCSA; Yang Meihong, Director of the Shandong Computer Science Center (National Supercomputing Center in Jinan), and Xu Yong, Senior ombudsman of Jinan Administration of Market Regulation, congratulating the event and expressing their appreciation for the development of China IoT industry and standards.



Technical experts from both the China and European standardisation communities shared their expertise and insights on the development of IoT technology, industry and ecosystem in EU and China, the challenges they face, along with the strengths, use cases and key technical features of the oneM2M standards. These experts included:

- Enrico SCARRONE, Steering Committee Chair at oneM2M;
- Dale SEED, oneM2M System Design & Security Chair;
- Wei Zhou, oneM2M System Design & Security Vice Chair;
- Roland HECHWARTNER, chairperson of the Technical Plenary (TP);
- Laurent VELEZ, oneM2M Technical Officer;
- Arif HAMIDULLAH, GCF Office Head of Certification for IoT& Verticals;
- Christophe COLINET from EUROCITIES;
- Guanqun SU, SDIoT Secretary-general; and
- Yonghua LI from the Beijing University of Posts and Telecommunications.

Dr Betty Xu, director of the Seconded European Standardisation Expert in China (SESEC) project, attended the workshop. During her presentation, Dr Xu introduced ETSI's recent progress in IoT standardisation; she also provided an overview of the standardisation system in Europe and gave an update of the implementation of the China-Europe cooperation on standardisation. Acting as a bridge and facilitator of cooperation between Europe and China in the field of standardisation, SESEC project provided strong coordinating and logistical support for the



event.

As follow up to the event, in the following two days hundreds of contestants will participate in tutorials from the oneM2M experts, develop their own oneM2M applications, and compete for various awards and prizes.

As the first oneM2M hackathon held in China, the event will, on the one hand, contribute to the promotion of the oneM2M standards, thus increasing its visibility and influence in China and paving the way for wider and deeper Europe-China cooperation on IoT international standards; on the other hand, it will provide opportunities for more China shareholders to participate in international IoT standardisation activities, and facilitate their uptake of oneM2M technology and standards.



Background:

OneM2M is a global partnership project launched in 2012 by eight of the world's leading ICT standards development organisations, namely: ARIB (Japan), ATIS (United States), CCSA (China), ETSI (Europe), TIA (USA),

TSDSI (India), TTA (Korea) and TTC (Japan). The aim is to create a global technical standard for interoperability concerning the architecture, API specifications, security and enrolment solutions for Machine-to-Machine and IoT technologies – based on the requirements discussed and agreed by its members. The produced standardised specifications will be expected to enable an ecosystem that effectively supports a wide range of applications and services such as smart cities, smart grid, connected vehicles, home automation, public safety, and health.

In this context, the oneM2M hackathon event is an international competition that ETSI established, with the aim to promote the oneM2M standard across the globe and further facilitate the development of a unified IoT international standard.

13. China's Increasing its Role and Participation in IOT International Standardisation Activities

#IoT

From 9 to 20 November 2020, the eighth plenary meeting and working group meeting of ISO/IEC JTC 1/SC 41 (Sub-Committee on Internet of Things and Related Technologies, hereinafter referred to as "SC 41") was held online. The meeting was organised by CESI, who also invited to attend various Chinese IOT standardisation research institutions, universities, and enterprises.

The main topics under discussion included the change of the name of SC 41, the adjustment of its working scope, the standardisation projects currently under implementation, as well as new project proposals. The following conclusions emerged from the meeting:

1. The name of SC 41 is changed from "Internet of Things and Related Technologies" to "Internet of Things and Digital Twin". Digital twin is also added in SC 41's working scope.
2. Establishment of a dedicated Digital Twin Working Group (WG 6), which was assigned two international standards: (i) ISO/IEC 5618 "Digital Twin Concepts and Terminology", and ISO/IEC 5719 "Digital Twin Use Cases" – both proposed by China. The Chinese delegation recommended WEI Sha to hold the role of convener of WG 6.
3. Establishment of a dedicated Digital Twin Strategy Advisory Group (AG).
4. Recognition and recommendation for approval of three new standardisation projects proposed by Chinese experts, namely: (i) "Internet of Things —Interoperability Testing Method and Testing Process"; (ii) "Internet of Things —the Candidate Model of IoT Device Interoperability"; and "Internet of Things—General Gateway Configuration Data Specification and Connection Protocol".

Background:

In recent years, China's IoT standardisation bodies, represented by CESI, have been exerting increasing influence within ISO/IEC JTC1. For instance:

- In 2009, China took a key role in establishing the Sensor Network Working Group (WG 7) and the Internet of Things Working Group (WG 10);
- In 2013, three China-led national standards were released, including "Information Technology Sensor Network: Sensor Network Reference Architecture (SNRA) Part 2: Vocabulary and Terminology";

- In 2016, China promoted the establishment of ISO/IEC JTC1/Internet of Things and Related Technology Subcommittee (SC 41);
- In 2017, six Chinese experts served as the conveners of working groups or research groups of ISO/IEC JTC1/SC41;
- In 2018, the China-led international standard "Internet of Things Reference System Architecture" was released. China also served as the convener of a research group established for the integration of the Internet of Things and blockchain;
- In 2019, China promoted the establishment of a research group for personnel positioning management systems, and served as convener. At the same time, the China-led proposal "Internet of Things---Real-time Internet of Things Framework" was approved;
- In 2020, two China-led international standards were released, including "Internet of Things---Edge Computing". Furthermore, Chinese experts served as liaison officers from ISO/IEC JTC1/SC41 to IEC SyC COMM.

According to the 2020 IoT Standards Innovation Development Forum, which was held in Beijing on 24 November 2020, among the 26 international standards issued by ISO/IEC JTC1/SC41, China has led the formulation of 8; among the 18 standardisation and research projects currently under development, China is leading 10. All these developments indicate that, within the ISO/IEC JTC1 platform, China has significantly strengthened its IOT standardisation efforts, and as such has gained a certain degree of influence and leadership.

Chinese news for reference: <https://mp.weixin.qq.com/s/vcv2X7F0qbtdh1hyQDDp0g>

14. SAC and MIIT releases Two National Standards on the Integration of Informatisation and Industrialisation

#Informatisation

On 29 September 2020, SAC and MIIT released two national standards: (i) GB/T 23004-2020---Reference architecture for the integration of informatisation and industrialisation ecosystems (hereinafter referred to as Reference Architecture standard); and GB/T 23005-2020---Integration of informatisation and industrialisation management systems—Consulting service guidance (hereinafter referred to as Guidance standard).

The Reference Architecture standard outlines three analytical views (organisation ecology, value network, information physical space), four elements (data, technology, business procedure, organisation structure), and three development phases (digitalisation, networking, intelligence). All together, these constitute a solid framework of theories and approaches for improving the comprehensive awareness of the integration between informatisation and industrialisation and for systematically promoting the deep integration.

The Guidance standard outlines the principles and targets of management systems and consulting services for the integration of informatisation and industrialisation; as well as the capability requirements, guidelines and public supervision mechanisms for consulting services. All together, these provide general guidance and implementation recommendations for all relevant organisations and personnel to standardise their consulting services.

Both standards are in the serial standards for the integration of informatisation and industrialisation. As such, they should be used together with GB/T 23000-2017---Integration of informatisation and industrialisation

management systems—Fundamentals and vocabulary, and with GB/T 23001-2017---Integration of informatisation and industrialisation management systems—Requirements. These will provide support to all relevant companies to complete strategic transformation, management optimisation, technology integration, data application, and core competitiveness enhancement.

The serial standards for the integration of informatisation and industrialisation management systems, represents China's first set of management system standards that have been independently formulated, implemented on a large scale, and successfully promoted internationally. It falls under the centralised management of the National Technical Committee on the Management of the Integration of Informatisation and Industrialisation (SAC/TC573). To date, 28,655 companies across China have implemented the standards of the integration management systems, and more than 2,000 organisations have launched standard consulting services for the integration management systems.

Background

‘Integration of informatisation and industrialisation’ (lianghuarong he) refers to the wide application of electronic information technology in every industrial production segment. Informatisation has become a key but regular method for industrial companies for their management and operation activities. Informatisation and industrialisation processes are no longer separate: instead of unilaterally promoting one or the other, now the two processes have become inseparable and intertwined in all aspects, such as technology and product management. This also contributes to the emergence of new domains like industrial electronics, industrial software, industrial information services, and many others.

The integration of informatisation and industrialisation focuses mostly on four aspects: technology, products, business, and industry. This is to say that, the integration of informatisation and industrialisation paves the way for technological integration, product integration, business integration, and industrial derivation. Specifically:

Technological integration refers to the integration of industrial technology and information technology, which can generate new technologies and thus spur innovation. For example, the integration of automobile manufacturing technology with electronic technology generated automobile electronics technology; the integration of industry with computer control technology generated industrial control technology; etc.

Industrial integration refers to the embedment of electronic information technologies or products within other products, which can lead to an increase of the technical and added value of the product. For example, with the numerical control system, an ordinary machine tool becomes a numerically-controlled machine tool; with intelligent technologies, conventional home appliances become intelligent home appliances; a plane model with control chips can be remotely controlled; etc.

Business integration refers to the application of information technology within every production process and segment, for instance enterprises’ R&D/design, manufacturing, operations and management, marketing, etc. This can stimulate enterprises to innovate their business and upgrade management. For example, the computer-based management approach significantly increased management efficiency by transforming the conventional manual ledger; the application of information technology further improved the automatisisation and smartification of production, which too increased efficiency; internet marketing has already become a new key marketing trend, which led to the expansion of the target consumer base and to the reduction of overall marketing costs.

Industrial derivation refers to the creation of new industries and new commercial activities, such as: industrial electronics – which includes mechanical electronics, automobile electronics, shipment electronics, avionics and so on; industrial software – which includes industrial design software, industrial control software and so on;

industrial information service – which includes industrial enterprises B2B e-commerce, industrial raw materials, large-scale trade of finished products, industrial enterprises informatisation counselling, and so on.

https://www.sohu.com/a/424112074_120789484



Big Data

15. ITEI Advises on the Development of China's Industrial Big Data Standards

#Big Data #Standards

Standards are at the core of the development of industrial big data. Organisations and major manufacturing countries have been enhancing research and development of industrial big data standards, which led to the formulation of numerous big data standards. China, along with the international community, provided active contribution to the planning and layout of the industrial big data standardisation.

Major international organisations involved in big data and industrial big data standard research are: ISO/TC184 (Automation systems and integration); IEC/TC65 (Industrial-process measurement, control and automation); ISO/IEC JTC1; the Organisation for Economic Cooperation and Development (OECD); as well as United States Government-Industry Data Exchange Program (GIDEP) and the United Kingdom Engineering Sciences Data Unit (ESDU). All these organisations have formulated international standards covering big data terminology, referential structural models, and use cases.

China has established SAC/TC28, SAC/TCI59 and SAC/TC124 as the respective counterparts of ISO/IEC JTC1, ISO/TC184 and IEC/TC65; it has also established various organisations, such as the China Communications Industry Association on Big Data (CCIABD) and the Industrial Big Data Alliance (IBDA). All these organisations have actively engaged in the research and release of industrial big data standards systems, industrial products metadata, application referential structure, data collection specifications, data description standards, as well as a series of standards based on the needs for digitalisation and network of production and manufacturing, covering digital workshops, smart factory, connectivity, and information security.

To date, numerous industrial big data standards have been released both domestically and globally. Nonetheless, Shi Zhenshan, deputy director of the Instrumentation Technology & Economy Institute (ITEI, which acts as the secretariat of SAC/TC124), pointed out that industrial big data standards both at home and abroad are still largely insufficient to fully cope with the digitalisation of the manufacturing industry. In addition, coordination between Chinese industrial big data standards and international ones still proves challenging, in view of persisting differences and gaps in terms of:

- Understanding of the concept of industrial big data, and inconsistent terminology;
- Laws and regulations on the industrial data management;
- Maturity of industrial big data-related technologies, e.g. data collection, analysis, equipment integration and connectivity;
- Schedule of technology promotion and application.

Shi Zhenshan made a thorough analysis of the constraints that are affecting the development of domestic and foreign industrial big data standards, suggesting in particular that China's industrial big data standards should:

- Firstly, strengthen data-related legislation and governance systems. Standards are the basis of laws and regulations, and at the same time complement them. In turn, the formulation and implementation of many standards usually is grounded on domestic laws and regulations, and at the same time also need to be coordinated with the relevant international standards and treaties. Within the context of globalisation, industrial big data are entangled with industrial security, data privacy and even ideology – which makes and coordination efforts challenging, as each country has its own management process regarding data security, industrial data application and intellectual property. In fact, the slow progress of international standardisation in the field of industrial big data is partly due to the many differences existing among the laws and regulations of all countries involved. As this issue requires a long-term approach and perspective in order to be solved, in the meantime China should, based on its internal needs, improve relevant legislation on industrial big data authentic rights, data transactions and sharing; it should improve industrial data security protection mechanisms, specify responsibilities and rights in the collection, storage, management and transaction of industrial data; and define the rights of data property, data operation and profit distribution. In sum, China will need to build a path and system that suit its standardisation development and needs, at the same time making continuous efforts for improvement and normalisation.
- Secondly, China should seek to establish solid standards foundations, at the same time leading through application and developing in a coordinated manner. Relevant actors need, in particular, to prioritise research and formulation of standards targeting industrial big data terminology, referential structure, and metadata category and identification. Emphasis should also be put on the formulation of product big data template and sorting techniques, on the establishment of a product big data standards system with clear attributes and traceability, and on the refining of industrial big data processing applications such as exchanges integration, whole-process modeling and analytic algorithms. Furthermore, data application standards should be formulated through pilot application and verification, before being then replicated and promoted on a wider scope. Finally, coordination between data collection, edge computing, platform security and other standards should be enhanced. In sum, as industrial big data-related technologies cover a wide range of databases, edge computing, deep learning, cloud computing, internet technologies, business passwords, etc. – all of which are evolving very rapidly –, China needs to test the maturity of these technologies in order to assess the feasibility of their application in the industry. Hence, the formulation of industrial big data standards should be closely coordinated with the development of relevant technologies, thus demarcating the agenda of industrial big data standardisation development.
- Thirdly, China should stimulate the vitality of enterprises in industrial data application. Research and formulation of international standards is usually a bottom-up process powered by industry actors; on the contrary, domestic big data standardisation is mostly top-down and depends on the allocation of tasks from higher levels. Government could use incentives to promote the industrial big data standards system and the contribution of enterprises. China's manufacturing industry is mainly comprised of small and medium-sized companies (SMEs). Currently, typical industrial big data application is mainly conducted by enterprises with rich experience in digitalisation and informationisation, as application can enhance their quality, efficiency and productivity. SMEs with weaker development foundations face difficulties in achieving the digital transformation while solving their rigid development needs – and this is a key problem to be urgently solved for the development of China's industrial big data standardisation.

Background:

Industrial big data is the general term for the entire life cycle data of industrial products and services, including: data generated from and utilised by industrial enterprises during R&D, design, manufacturing, operations and maintenance processes; as well as data generated from and utilised by industrial Internet platforms. As the fourth industrial revolution deepens, industrial big data has gradually become one of the most valuable strategic resources for industrial development, and a key production factor that contributes to the digitalisation and smartification of the manufacturing industry. Major countries and leading companies around the world are increasing their efforts on industrial big data and actively developing new data-driven industrial development models.

The Chinese government has vigorously promoted the development of the industrial big data, through the introduction of top-level policy documents like the Action Plan on Promoting Big Data Development, and the Guiding Opinions on Deepening the “Internet + Advanced Manufacturing Industry” to Develop the Industrial Internet: both documents clearly reflect the idea and efforts to promote the development and application of industrial big data.

Such efforts continued in 2020. The Communist Party of China (CPC) Central Committee and the State Council in April released the Guideline on Improving the Market-Based Allocation Mechanisms of Production Factors, clearly pointing out that China fully supports the construction of standardised data development and utilisation scenarios in industries and other fields, and the increase of the value of data resources. In May, the Ministry of Industry and Information Technology (MIIT) unveiled the Guiding Opinions on the Development of Industrial Big Data, which clearly states that China should strengthen the construction of the industrial big data standards system, and expedite research and formulation of key standards, including e.g. data quality, governance and security.

<http://m.xinhua08.com/share.php?url=http://thinktank.xinhua08.com/a/20200904/1953990.shtml>



Blockchain

16. First China-led Financial Blockchain Standard Project Approved in ITU

#Blockchain#ITU

The plenary meeting of the International Telecommunication Union - Telecommunication Standardisation Sector (ITU-T) Study Group 16 was held online from 22 June to 3 July 2020.

During the meeting, the Financial Distributed Ledger Technology Application Guideline was approved. The standard was led by the Digital Currency Research Institute of China (DCRI) and was jointly initiated by the China Academy for Information and Communications (CAICT) and Huawei, among others.

Currently, major countries and international organisations are accelerating the technological innovation and application of blockchain. China is not an exception: various efforts have been made to speed up and promote the innovation and development of the blockchain technology and industry. In particular within the finance sector, blockchain technology has already been widely adopted in trade finance, bill exchanging, supply chain finance, deposit certificate, reconciliation, asset securitization and others.

For a long time, DCRI has proactively undertaken work in the field of legal digital currency and blockchain standardisation. Leveraging on the core role of the SAC/TC180 (Finance)/Legal Digital Currency Standards Working Group, it researched and formulated the standards for the distributed ledger technology and other financial technologies, in with the aim to standardise the technology and application of the distributed ledger.

The approved Financial Distributed Ledger Technology Application Guideline is the first financial blockchain international standard project led by China. China looks forward to using this standard as a framework to:

- Contribute to the planning and layout of the financial blockchain international standards system;
- Create sub-standards such as reference frames, risk control, security and privacy protection, and financial blockchain business specifications in various fields;
- Submit more China-led financial blockchain standards to ITU-T;
- Make more contributions to the formulation of international rules.

<https://www.cfstc.org/jinbiaowei/2929436/2976999/index.html>

17. Three Blockchain National Standards under Formulation

#Blockchain#Standards

On 25 November 2020, two important meetings were held in Nanchang, Jiangxi province, for three national standards in the field of blockchain: (i) the National Standards Consultation Meeting for the standard "Reference Architecture for Information Technology---Blockchain and Distributed Ledger Technology"; and (ii)

the kick-off meeting for the standards "Smart Contract Implementation Specification for Information Technology---Blockchain and Distributed Ledger Technology" and "Storage Application Guidelines on Information Technology----Blockchain and Distributed Accounting Technology".

The standard "Reference Architecture" is the fundamental standard for the blockchain industry. Specifically, it stipulates the major participants and core functional components of the blockchain, and describes in detail its ecosystem; the standard is expected to facilitate consensus on the blockchain industry, and to represent an important guideline and reference for industry actors when choosing, developing and commercialising blockchain technologies.

The standard "Smart Contract Implementation Specification" aims at unifying and standardising the implementation processes for the establishment, triggering, operation and evaluation of smart contracts, at the same time improving their consistency and normativity. The standard "Guide to the Application of Deposit Certificate" aims to guide the establishment, implementation, protection and improvement of the blockchain storage system, at the same time standardising the design, development, deployment, testing, operation and maintenance of blockchain storage applications.

These three national standardisation projects were managed and formulated by SAC/TC28 (Information Technology); in this context, a key role was played by CESI, which acts as TC28 secretariat. In fact, CESI is currently one of the fundamental pillars for the formulation of China's blockchain standards, with many initiatives already completed in this area: it has already formulated the "White Paper on Blockchain Technology and Application Development"; it has outlined the framework of the blockchain standards system; and it has launched and regularly organises the "China Blockchain Technology and Industrial Development Forum". At the same time, CESI has also facilitated the formulation of a number of local blockchain standards and of a dozen of blockchain association standards – mainly through the Development Forum and the China Electronics Standardisation Association (CESA). As a result, CESI's association standardisation efforts often represent a key technology source for formulation of government standards for blockchain.

Finally, CESI also actively participates in international standardisation work in the field of blockchain, mainly through ISO and ISEE. In particular, CESI's in-depth cooperation model with IEEE might represent a useful reference for the development of EU-China blockchain standardisation exchanges and cooperation.

Chinese news for reference:

https://mp.weixin.qq.com/s/Z5uuDnlprA92I1zMI_TvaQ



Smart City

18. SAC/TC28 sets up the Smart City Standardisation Working Group #Smart City

On 17 September 2020, the SAC/TC28 Smart City Standardisation Working Group held its first and inaugural meeting in Beijing.

During the meeting, Dai Hong, the leader of the Working Group and former inspector of the State Administration for Market Regulation's Product Quality Security Supervision and Management Department, outlined for main objectives and requirements for the working group:

- Complete, as soon as possible, the formulation of the framework of the standards system, as well as short- and long-term standardisation plans;
- Adhere to the principle of openness, by actively involving local governments, the public and private sectors, and other relevant parties;
- Closely monitor international developments and trends, and design of an international standardisation strategy;
- Carry out work in strict adherence to the regulations approved during the first inaugural meeting.

The meeting reviewed various procedural documents, including the regulations of the working group, the administrative methods for the thematic groups and panels, and the 2020 work plan. The participants exchanged views and discussed in particular on the organisation mechanisms of the working group, as well as its key research areas and methodologies. The working group will next focus on the establishment of standards system and mechanisms, specifically through the launch of fundamental research, the development of national standards, participation in international standardisation activities, as well as standards implementation and promotion.

To date, China has achieved significant progress in the standardisation of smart city, including the establishment of:

- The National Smart City Standardisation Coordination and Promotion Group, Administration Group and Expert Advisory Group, whose objectives are to propel the work of China smart city standardisation and the formulation of the basic general standards;
- SAC/TC28, focusing on information technology;
- SAC/TC426, focusing on construction;
- SAC/TC268, focusing on transportation;
- CCSA, focusing on communication technology;
- And other organisations and institutions such as CNIS, which contributed to the formulation of smart city standards from various perspectives, e.g. sustainable development.

Among these standardisation organisations, TC28 has been the longest and biggest source of smart city standards. The establishment of the Smart City Standards Working Group under TC28, therefore, can be seen as another step taken by China to further strengthen and centralise standardisation work in the field of smart city.

https://mp.weixin.qq.com/s/1aYT_wa-epCgircqWdbO5g



Energy Efficiency and Environment

19. “Technology Roadmap for Energy Saving and New Energy Vehicles 2.0” Published: Over Half of Automobile Sales by 2025 will be NEVs #Energy Saving#NEV

On 27 October 2020, the China Society of Automotive Engineers (China SAE) released the Technology Roadmap for Energy Saving and New Energy Vehicles 2.0 (hereinafter referred to as "Technology Roadmap 2.0") during its 2020 Annual Conference and Exhibition. Under the guidance of the Ministry of Industry and Information Technology (MIIT), the Technology Roadmap 2.0 was compiled by China SAE and experts in the field. The Technology Roadmap 2.0, which builds upon a first 1.0 version previously released in October 2016, aims to provide guidance and decision-making support to government, industry, and the scientific research community.

The Technology Roadmap 2.0 integrates new technological developments and addresses shortcomings emerged after the first 1.0 version, and clearly indicates the path of auto technological development towards low-carbon, information-oriented and smartification. In this context, the Technology Roadmap 2.0 outlines six major goals to be achieved by China’s auto industry development by 2035:

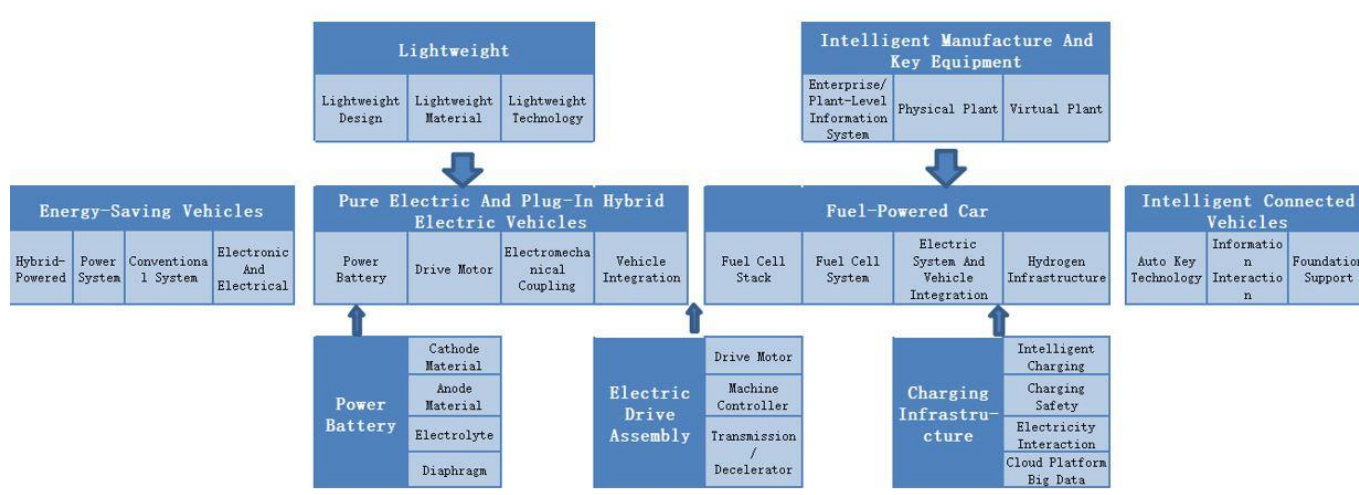
- The carbon emissions of China's auto industry will reach the peak in 2028, ahead of the national carbon emission reduction commitment. By 2035, the total carbon emissions will drop by more than 20% compared to its peak levels;
- New energy vehicles (NEV) will gradually become the mainstream product, guiding the transformation of the entire auto industry towards electrification;
- Intelligent connected vehicle technologies will be mature and widely applied;
- Key core technologies will be significantly improved, an intelligent mobility system comprising travel, energy and urban development will be established;
- The technological innovation system will be improved, and will obtain the original innovation capabilities to lead the world.

The Technology Roadmap 2.0 clearly emphasises the electricity-driven development strategy: it estimates that by 2035, the annual sales of electric vehicles will account for more than 95% of all NEV sales in China, the number of fuel cell car ownership will reach 1 million, while energy-saving vehicles will be largely converted to hybrid vehicles, contributing to the transformation towards electrification of the entire auto industry.

In addition, the Technology Roadmap 2.0 puts forward the plan for the construction of China’s intelligent connected auto technology systems and a new industrial ecology. It also mentions that, by 2035, various

connected autonomous vehicles will be widely utilised in China, and that deep integration will be achieved among intelligent connected vehicles and smart energy, intelligent transportation and smart cities.

The Technology Roadmap 2.0 further upgraded the research framework of the Overall Technology Roadmap + Technology Roadmap for Key Areas, by expanding the research layout from the previous "1+7" model to "1+9": '1' refers to the Overall Technology Roadmap, while '9' refers to energy-saving vehicles, pure electric and plug-in hybrid electric vehicles, hydrogen-powered battery vehicles, intelligent connected vehicles, automotive power batteries, NEV electric drive integrated systems, charging infrastructure, lightweight automobile, and automotive intelligent manufacturing and key equipment.



The nine major technology development orientation outlined by the Technology Roadmap 2.0 (1+9)

Background:

The Technology Roadmap for Energy Saving and New Energy Vehicles plays a key role in supporting relevant government technological and industrial plans, and in contributing to technological innovation and resource clustering. In the previous years, the National Manufacturing Strategy Advisory Committee and MIIT entrusted China SAE to work, together with more than 500 experts from the fields of automobile, energy, materials, and communication, on the development of a technology roadmap – which was completed and issued in October 2016. However, since the release of the Technology Roadmap 1.0, the entire automotive industry continued to face numerous internal and external changes, constantly evolving with time. In this context, and with the objective to support China's 2021-2035 NEV plan and the auto-related components of the 14th Five-year Plan (2021-2025), China SAE gathered more than a thousand experts to work on an updated version of the Technology Roadmap; after extensive research and nearly one hundred expert seminars and review meetings, the framework and content of the new Technology Roadmap 2.0 was completed and now published.

Annex-SESEC IV Report: Latest Progress of QIT Standardisation in China

Preamble

Quantum Information Technology (QIT) is a new discipline that combines quantum physics and information technology. It mainly consists of three parts: quantum measurement, quantum computing, and quantum communication – which, respectively, match the acquisition, processing, and transmission of information. In view of its great potential to make breakthrough in classic technologies in terms of information measurement accuracy and sensitivity, operation processing speed, and transmission security capabilities, QIT has become one of the key highlights of the development and industrial upgrading of information and communication technology, and may exert great influence in the future economy development and industrial competition.

In this context, major countries around the world have formulated strategic action plans, introduced industrial policies, increased R&D investment, and carried out related standardisation work in the field of QIT. China views frontier technologies as the strategic high-ground for national competitiveness, and therefore attaches great importance to the development of QIT. Starting from various aspects such as national policies, project implementation, and standardisation, China comprehensively promotes the development of QIT.

1. Policies and regulations

As early as May 2015, in the industrial plan Made in China 2025, China proposed to “actively promote the development of quantum computing, neural network, and other technologies and equipment”. Around one year later, in the 13th Five-year Plan for Science, Technology and Innovation, China urged the development of new generation information technologies, including quantum computing, and indicated the research and development of quantum communications and quantum computers as one of the S&T Megaprojects to be completed by 2030.

In July 2017, the State Council released the Development Plan for a New Generation of Artificial Intelligence, which listed quantum information and quantum computing as one of the important pillars of the ‘forward-looking strategy’ of the New Generation Artificial Intelligence Megaproject.

In November 2017, the National Development and Reform Commission released the Notice on Organising and Implementing the 2018 Construction Project on the New Generation of Information Infrastructure, and initiated a public tender for the project ‘National Wide Area Quantum Secure Communication Backbone Network Construction – Phase I’. Based on the quantum scientific experimental satellites Jing-Hu (Beijing-Shanghai) Trunk Line and QUESS, the project aims to (i) build a city-range network in key areas, including the Beijing-Tianjin-Hebei and the Yangtze River Economic Belt regions; (ii) build satellite earth stations in several regions to form a quantum secure communication backbone ring network; and to (iii) build a quantum secure communication network operation service system to promote its application in fields of information communication, government affairs, finance, electricity and others.

In addition to these efforts, the Ministry of Science and Technology, the Chinese Academy of Sciences, and the Ministry of Industry and Information Technology, actively support research and development of quantum technology through various funding instruments and projects, such as the National Natural Science Foundation of

China, National Key R&D Projects, Strategic Research Projects, and Application Evaluation and Industrial Research Projects.

At the local level, Beijing released the Overall Plan for Strengthening the Construction of National Science, Technology and Innovation Centre in September 2016 – which clearly positions quantum computing and quantum communication at the core of Beijing efforts to lead scientific research in frontier sciences in China. In August 2020, the State Council approved the Overall Plan on China (Anhui) Pilot Free Trade Zone, which will support quantum computing and quantum communication as key priority industries for Anhui Province.

With the support of policies and national projects, the development of China's quantum technology and industry has achieved remarkable results. According to statistics, in recent years, the number of publications and patent applications in the fields of quantum computing, communication and measurement, has increased steadily, allowing China to reach the top ranks in the world. In this context, China's quantum technology standardisation work is coherently unfolding in a very fast manner, gradually increasing its influence around the globe.

2. China's standardisation work in QIT

The major Chinese standardisation organisations for QIT include: China Communications Standards Association (CCSA), China Electronics Standardisation Institute (CESI), National Quantum Computing and Measurement Standardisation Technical Committee (SAC/578), and the Cryptography Standardisation Technical Committee (CSTC). This section illustrates in detail China's standardisation development in the field of quantum communication, computing, and measurement.

2.1 Quantum communication

CCSA is leading the standardisation work of China's quantum communication. In June 2017, CCSA established a Special Task Group ST7 (Quantum Communication and Information Technology), which in turn has established two working groups: the Quantum Communication Working Group (WG1), and the Quantum Information Processing Working Group (WG2). Together, the two WGs conduct research on quantum communication technology, network, quantum computing technology related to quantum communication, and key devices for general quantum information.

In terms of standards, CCSA/ST7 has established a basic framework for the quantum communication standards system. Specifically, it has approved projects in quantum communication definitions, application scenarios and requirements, network structure, equipment technical requirements, QKD security, and test and evaluation methods. A total of 25 standardisation projects have been initiated, including two for national standards: (i) Quantum Communication Terms and Definitions; and (ii) Quantum Secure Communication Application Scenarios and Requirements.

In terms of research, so far CCSA/ST7 has completed six reports, including, among others: (i) Research on Quantum Random Number Preparation and Detection Technology; and (ii) Research on Quantum Key Distribution Security. In addition, the white paper Quantum Secure Communication Technology has also been completed and released: it clarifies the concepts of quantum secure communication, introduces the application scenarios, its security and the actual security research outcome of its core QKD technology, the structure and its key technology for building a quantum secure communication network, the future domestic and international development of the industry, and the current standardisation progress and development. The white paper also outlines a set of key challenges that the development of quantum secure communication is likely to face, together with relevant solutions and recommendations.

Finally, considering the fact that QKD technology is closely connected with the generation, management and utilisation of passwords, the China Cryptography Standardisation Technical Committee (CSTC) has also launched research on cryptography industry standards, such as QKD technical specifications and evaluation systems.

2.2 Quantum computing

In January 2019, SAC established the National Quantum Computing and Measurement Standardisation Technical Committee (SAC/TC578), whose secretariat is located within the Jinan Institute of Quantum Technology. TC578's current standardisation work includes:

- One national standard project: Quantum Computing Terms and Definitions.
- Four research projects. (i) Quantum Computing Development Future and Standardisation Requirements; (ii) Quantum Computing Application Scenarios; (iii) Quantum Cloud Computing Technology Application Development and Evaluation; and (iv) Quantum Programming Language in the NISQ Era.

CESI is another pillar in quantum computing standardisation. Under SAC/TC28 (Information Technology)/SC42 (Internet of Things), CESI supported the establishment of SG2 (Advanced Computing Research Group), with the aim to categorise and conduct research on the standardisation requirements of advanced computing technology systems. SG2 is currently collecting research proposals for standardisation and has completed the quantum computing technical report: Status and Trends of Superconducting Quantum Computing.

Furthermore, CESI also closely follows the progress of ISO/IEC JTC1/WG14 (Quantum Computing Standard Working Group): in June 2020, it established a technical counterpart in China, to be in charge of submitting China's quantum computing standardisation proposals to ISO/IEC JTC1; the counterpart group is currently working on several projects, to promote the international standard project Terms and Vocabulary of Information Technology Quantum Computing, and to categorise the technological development and industrial performance of quantum computing in order to compile and maintain two key reports: (i) the Quantum Computing Research Report, and the (ii) Quantum Computing ICT Standardisation Demand Report.

2.3 Quantum measurement

To date, China has not yet launched any standardisation project in the field of quantum measurement.

3. International standardisation of quantum technology and China's participation

Internationally, the quantum technology standards system and various standardisation research projects are currently under progress – thanks to the activities of many SDOs such as ETSI, ITU-T, IEEE, IETF, ISO/IEC, EU Qflagship, NIST, and others. Specifically:

- ETSI established the ISG-QKD standard group, and released nine technical specifications including term definitions, system devices, application interfaces, safety certifications, deployment parameters, etc.; while three other specifications are currently under development.
- ISO/IEC JTC1 established the Quantum Computing Research Group (SG2) and the Advisory Group (AG), which released reports on quantum computing research and technology trends. Moreover, its Information Security Subcommittee (SC27) also launched a QKD security standard project.
- IEEE launched three research projects, including the definition of quantum technology terms, quantum technology computing performance indicators, and software-defined quantum communication protocols.

- IETF established the Quantum Internet Research Group (QIRG) to carry out preliminary research on quantum Internet routing, resource distribution, connection establishment, interoperability and security.
- ITU-T/Future Network Research Group (SG13) has carried out research projects on the basic framework of QKD network, functional structure, password management, and software-defined control. The Cyber Security Research Group (SG17) has completed research on QKD network security requirements, password management security requirements, credible nodes security requirements, and encryption function requirements and others.

China is actively participating in the international standardisation work of quantum technology, focusing its activities especially on the ISO/IEC JTC1 and ITU platforms:

- Within the activities of ISO/IEC JTC1, China not only led the establishment of the ISO/IEC JTC1/WG14 Quantum Computing Standard Working Group, took the responsibility of the convenor, and approved an international standard project Information Technology Quantum Computing Terms and Vocabulary; in addition, China also got approved its international standard project proposal QKD Security Requirements and Evaluation Methods in ISO/IEC JTC1/SC27 Information Security Subcommittee, and actively participated in the research work of ISO/IEC JTC1/SG2 and ISO/IEC JTC1/AG.
- In ITU, China actively participated in the work of ITU-T/SG13 and ITU-T/SG17, and served as the editor of several standards. China also promoted the establishment of the Focus Group of Quantum Information Technology for Network (FG-QIT4N) in ITU-T, aimed at carrying out standardisation pre-research on the QKD network, QIN and other related areas.

4. Conclusions

As a frontier technology, QIT is highly valued in China, and the Chinese government issued many policies and launched several research projects to foster its development. To date, China's QIT research has already achieved considerable results.

However, compared with the rapid progress of other technologies, the standardisation of QIT in China is still in its infancy. Current challenges relate in particular to: lack of systematic R&D planning; insufficient support and coordination from government policy; as well as major progress gaps and disparities among the three main areas of quantum communication, computing and measurement – with the former two advancing relatively rapidly, contrarily to the latter.

China's QIT standardisation is still largely dominated by two giants – CCSA and CESI, focusing respectively on quantum communication and quantum computing. In particular, CESI is inclined to participate directly in the work of ISO/IEC JTC1 and promote Chinese proposals through this platform, while CCSA is more engaged in local standardisation research and development. In contrast to these two bodies, the National Standardisation Technical Committee (SAC/TC578), which in theory should too exert international influence, has not carried out many substantial work in standardisation.

For European stakeholders, therefore, cultivating and maintaining communication and dialogue with CESI and CCSA is a key channel to ensure a comprehensive understanding of the progress of China's QIT standardisation.

Introduction of SESEC Project



The Seconded European Standardization 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 Standardization Organizations (CEN, CENELEC and ETSI). Since 2006, there has been three SESEC projects in China, SESEC I (2006-2009), SESEC II (2009- 2012) and SESEC III (2014-2017). In April 2018, SESEC IV was officially launched in Beijing, China. Dr. Betty XU was nominated as the SESEC expert and will spend the next 36 months on promoting EU-China standardization information exchange and EU-China standardization cooperation.

The SESEC project supports the strategic objectives of the European Union, EFTA and the European Standardization 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 standardization bodies;**
- **Improve the visibility and understanding of the European Standardization System (ESS) in China;**
- **Gather regulatory and standardization 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 & labelling, as well as environmental performance of buildings).

SESEC IV China Standardization and Technical Regulation Bimonthly Newsletter

SESEC IV China Standardization and Technical Regulation Bimonthly Newsletter is the gathering of China regulatory and standardization intelligence. Most information of the Monthly Newsletter was summarized from China news media or websites. Some of them were the first-hand information from TC meetings, forums/workshops, or meetings/dialogues with China government authorities in certain areas.

In this Bimonthly Newsletter

In this Bimonthly Newsletter, some news articles were abstracted from Chinese government organizations. All new published standards, implementation or management regulations and notice are summarized; original document and English version are available.

Abbreviations

SAMR	State Administration for Market Regulation	国家市场监督管理总局
CAS	China Association	中国标准化协会
CCC	China Compulsory Certification	中国强制认证
CCSA	China Communication Standardization Association	中国通信标准化协会
CEC	China Electricity Council	中国电力企业联合会
CEEIA	China Electrical Equipment Industrial Association	中国电器工业协会
CELC	China Energy Labeling Center	中国能效标识中心
CESI	China Electronic Standardization Institute	中国电子标准化研究所
CMDSA	Center for Medical Device Standardization Administration	医疗器械标准管理中心
CNCA	Certification and Accreditation Administration of China	中国国家认证认可监督管理委员会
CNIS	China National Institute of Standardization	中国国家标准化研究院
CNREC	China National Renewable Energy Center	中国国家可再生能源中心
EPPEI	Electric Power Planning and Engineering Institute	电力规划设计总院
IEC	International Electrotechnical Commission	国际电工委员会
ITEI	Instrumentation Technology and Economy Institute	机械工业仪器仪表综合技术与经济研究所
MEE	Ministry of Ecology and Environment	中国生态环境部
MIIT	Ministry of Industry and Information Technology of People's Republic of China	中国工业和信息化部
MoH	Ministry of Health	卫生部
MoHURD	Ministry of Housing and Urban-Rural Development	住房与建设部
MOT	Ministry of Transport	中国交通运输部
MOST	Ministry of Science and Technology	中国科学技术部
NDRC	National development and reform commission People's Republic of China	中国国家发改委
NIFDC	National Institute of Food and Drug Control	中国食品药品检定研究院
SAC	Standardization Administration of China	国家标准化管理委员
SGCC	State Grid Corporation of China	国家电网
TC	Technical Committee for Standard Development	标准化技术委员会