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Spotlight

China celebrates World Standards Day in Guangxi

世界标准日主题活动在广西柳州举办

Special Report

The 19th Asian Games closes as an "unprecedented success"

杭州亚运会取得“史无前例的巨大成功”完美落幕

Dialogue

Probing into the value of standards in enterprises

共话标准对企业的价值

CHINA STANDARDIZATION PRESS

Leading Standards

for High-quality Development

—— 领跑标准助力高质量发展 ——

Operating Body for the Enterprise Standard Forerunner System
China National Institute of Standardization

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Celebrating World Standards Day in Autumn

October 14 is a big day for standardizers across the globe every year, as it is the World Standards Day (WSD) to spread the value and importance of standards and pay tribute to the collaborative efforts of thousands of experts worldwide who develop standards.

China regards the WSD as a good opportunity to raise the public's awareness about standards. In 2023, a themed event was held in Liuzhou city, South China's Guangxi Zhuang autonomous region, which played a crucial role in promoting the standardization cooperation between China and the ASEAN. At the event, more than 40 national standards on healthcare, green life and other aspects closely related to people's life were released, and 41 Chinese winners of the ISO Excellence Award and the IEC 1906 Award in 2023 were announced.

We will make great effort to increase the supply of standards for high-quality life and environment, and promote the soft connectivity of international rules and standards, said Tian Shihong, SAMR Vice Minister and SAC Administrator, at the event.

China Standardization Press also organized a high-end dialogue and invited five standards managers of renowned Chinese companies including Huawei, ZTE, Tencent, Haier and Lenovo, to introduce the standardization layout of each company and discuss the role of standards in the company.

Another big event draws the attention of many audiences in October is the 19th Asian Games held in Hangzhou city of East China's Zhejiang province, which is well known for its beautiful sceneries such as West Lake and rich cultural and historical heritages. You can find more details about this green, splendid event with a big success, and how standards boost the healthy development of e-sports in the SPECIAL REPORT column.

"I'm so glad I live in a world where there are Octobers," a quote of L. M. Montgomery in *Anne of Green Gables*. Let's embrace the beauty of autumn and appreciate the value of standards!

THE EDITORIAL COMMITTEE
OF CHINA STANDARDIZATION PRESS

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广告

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Urban Standardization Action Plan published

Recently, the Urban Standardization Action Plan was jointly released by Standardization Administration of China (SAC), Ministry of Industry and Information Technology, Ministry of Civil Affairs, Ministry of Ecology and Environment, Ministry of Housing and Urban-Rural Development, and Ministry of Emergency Management.

The plan aims to thoroughly implement the principles of the 20th CPC National Congress and the *National Standardization Development Outline*, and fully exert the supporting and leading role of standardization in urban development.

The plan envisages the establishment of the standards system for urban high-quality development by 2027, with more than 150 national and sectoral standards developed or revised in the fields of urban sustainable development, construction of new-type urbanization, smart cities, public services, urban governance, emergency management, green and low carbon, ecological environment, cultural service, infrastructure, etc.

By then, the provincial-ministerial cooperation on urban standardization will be carried out in more than 5 provinces, and over 30 typical cases of urban standardization will be released, which will further enhance the leading role of urban standardization in all respects. China will enhance its strength in urban standardization, by vigorously participating in the development of international standards for urban sustainable development and smart cities. Also, high-end forums will be held, and white papers on urban standardization will be periodically published, to promote cooperation and exchanges among cities. In addition, a joint working mechanism will be initially established, with platforms for coordination, experience sharing and international cooperation on urban standardization work, linking relevant ministerial, provincial and municipal departments.

The plan delineates 16 key tasks and corresponding measures, which cover various aspects of standards development for urban development, and include specific projects for pilots and cooperation.

The plan will lay a more solid foundation for achieving the high-quality development of cities, promote the application of standards in all aspects of cities, and support the modernization of urban governance system and capability with standardization work.

2023 Private Economy Standards Innovation Week kicks off in Hunan

The 2023 Private Economy Standards Innovation Conference was convened on October 19 in Changsha, Hunan province, with the opening ceremony of 2023 Private Economy Standards Innovation Week held.

The conference was hosted by the All-China Federation of Industry and Commerce (AFIC) and People's Government of Hunan Province. Other provinces or cities across the nation such as Tianjin, Shanghai, Shanxi, Jilin, Fujian, Sichuan and other regions will hold themed events echoing the annual Private Economy Standards Innovation Week.

An Lijia, Vice Chair of AFIC, announced the list of private enterprises on R&D investment and patent & invention, and the report on the innovation status of top 1,000 enterprises on the list of R&D investment. According to the report, these enterprises have four characteristics: the enhanced dominant role in the R&D investment, enhanced role for scientific research, more achievement application, as well as the improved innovation performance and trend.

SAMR will cooperate with other departments to jointly innovate the standardization in private economy, enhance the competitiveness of private enterprises, and promote the high-quality development of private economy. More efforts will be put into strengthening standards information services, cultivating standards innovation enterprises, promoting the harmonization between Chinese standards and international standards, said Xu Xinjian, Chief Inspector for Anti-monopoly, SAMR.

Two national standards for green manufacturing published

Green manufacturing is a modern production mode with low consumption, low emission, high efficiency and high benefits. Led by the concept and management requirements of green development, it takes many factors into account, such as industrial structure, energy and resource, ecological environment, health and safety, climate change, etc.

Two national standards, GB/T 28612-2023, *Green manufacturing—Terminology*, and GB/T 28616-2023, *Green manufacturing—Attributes*, were published recently and will come into effect on January 1, 2024.

The standards respectively specify the terms and definitions of green manufacturing, and the classification principles, system and related illustration of its attributes, which were proposed by the Ministry of Industry and Information Technology, and developed by SAC/TC 337, *Green manufacturing technology of equipment manufacturing industry*.

The two standards will serve the green development of emerging industries, promote decarbonization, pollution reduction, greenness, and economic growth, so as to reap economical, ecological and social benefits.

HIGHLIGHTS |

Tian Shihong meets with Mongolian Deputy Prime Minister S. Amarsaikhan

Tian Shihong, Vice Minister of SAMR and Administrator of SAC, met with S. Amarsaikhan, Deputy Prime Minister of Mongolia, in Beijing on October 8, 2023.

Both sides reviewed the foundation of China-Mongolia standardization cooperation, introduced the standardization policies and latest status quo of both countries, and exchanged views on further enhancing the mutual recognition of standards in key fields. They agreed to promote the signing of the new version of standardization cooperation document, deepen the mechanism of communication and cooperation, steadily drive the harmony between Chinese and Mongolian standards, and give full play to the technical supporting role of standardization in bilateral trade.

Tian Shihong attends the ISO Annual Meeting 2023

The ISO Annual Meeting 2023, themed "meeting global needs", was held in Brisbane, Australia on September 18-22, attracting over 600 representatives from 169 members, as well as international and regional organizations. Tian Shihong, Vice Minister of SAMR and Administrator of SAC, led the Chinese delegation to attend the meeting.

The ISO work items were reported to the representatives, who approved the updated ISO Strategy 2030 and ISO Statutes, and voted for the next vice president for policy and members of the council. Also, the Lawrence D. Eicher Award was announced during the meeting, which was given to a trailblazing subcommittee on AI.

The Chinese delegation attended all the sessions such as the ISO General Assembly, meetings of ISO Council, TMB, DEVCO, the Pacific Area Standards Congress Executive Committee (PASC EC), etc.

The Chinese delegation agreed on the future cooperation with the national standards bodies of Uzbekistan and Kazakhstan, and had talks with international and regional standards organizations including ISO, IEC, CEN/CENELEC and the GCC Standardization Organization, as well as national standards bodies of France, the U.K., Italy, Egypt, Iran, Zambia, etc. Through in-depth discussion, extensive consensus was reached on issues such as international standards proposals, standardization education, exchanges of personnel and information, the 28th Conference of the Parties to the UNFCCC (COP28), etc.

The 3rd China-ASEAN Standardization Cooperation Forum held in Guangxi

The 3rd China-ASEAN Standardization Cooperation Forum, themed "Institutional opening-up: Standards enhance connectivity along the Belt and Road to pursue industries development for shared benefits and win-win outcomes", was held in Liuzhou city, South China's Guangxi Zhuang autonomous region on October 12.

Jointly hosted by SAMR (SAC), People's Government of Guangxi, and the ASEAN Consultative Committee on Standards and Quality (ACCSQ), the forum was addressed by Tian Shihong, Vice Minister of SAMR and Administrator of SAC, and Miao Qingwang, Vice Chairman of Guangxi.

To fully harness the role of the Regional Comprehensive Economic Partnership (RCEP), China will seek dialogue and consultation with ASEAN countries, contribute to international standards through consultation and collaboration for shared benefits, promote cooperation on standards for climate change, circular economy, new power system, digital economy, agriculture, railway, electric vehicles, etc., and enhance the liberalization and facilitation of trade and investment, addressed Tian.

Standards are the cornerstone of regional trust, cooperation and innovation, said Konny Sagala, Chair of ACCSQ, who sought more cooperation between ASEAN and China to promote the facilitation of trade.

In-depth discussions were held for practical standardization cooperation in fields of electric vehicles, equipment manufacturing, special equipment, ecological forestry, etc. Also, the China-ASEAN Automotive Standardization Dialogue were officially upgraded to a multilateral cooperation mechanism of the China-ASEAN Free Trade Area Sub-committee on Standards, Technical Regulations and Conformity Assessment Procedure (ACFTA-SC STRAC) and the standard list was exchanged. The China-ASEAN Standardization Cooperation and Exchange Center, on behalf of China, signed documents on standardization cooperation with relevant organizations in ASEAN countries. The Liuzhou Initiative: Standards Enhance Connectivity to Jointly Promote the High-quality Development of Industries was released as well.

The event was attended by representatives from the ASEAN Secretariat, ACCSQ, consulates general of ASEAN countries in China, standards organizations of ASEAN countries, as well as domestic administrations for market regulation, colleges, research institutions and enterprises.

HIGHLIGHTS |

The first ISO Standardization Youth Star Competition convened in Shanghai

Directed by ISO Central Secretariat, the final of the Youth Star Competition 2023 was held in Shanghai on October 22, which was jointly hosted by Outstanding Contribution Award Fund on International Standardization, Shanghai Administration for Market Regulation, Fudan University, China National Institute of Standardization (CNIS), etc.

The competition was set up to promote standardization knowledge and education, cultivate standards awareness, and stimulate young students' passion for standardization work. Based on templates of national or international standards proposals, the participants develop project proposals and standards drafts.

During the Youth Star Competition 2023, 9 teams stood out from approximately 200 teams, and competed for the champions of three categories set by Huawei Technologies Co., Ltd., Contemporary Amperex Technology Co., Ltd. (CATL), and China Association for Engineering Construction Standardization respectively. The competition items included live presentation, presentation defense, answering question put forward by experts, which were evaluated by the judging panel consisting of representatives from enterprises, research institutions and international standardization organizations. The teams from Sichuan University of Science & Engineering, Chengdu University of Traditional Chinese Medicine, and Qingdao University won the champions of the three categories.

The subsequent conference was addressed by Zhang Xiaogang, former ISO President, Jin Li, President of Fudan University, Chen Yanfeng, Deputy Director-General of Shanghai Administration for Market Regulation, and Li Aixian, Vice President of CNIS. Rachel Miller, Project Manager of ISO Central Secretariat, Dr. Meng Xiangfeng from CATL, Dr. Wan Lei from Huawei, and Zhang Linzhen, President of Digital Building Management Sub-institute of China Institute of Building Standard Design & Research, shared their experience in the standardization field. Participating experts further discussed cutting-edge issues such as standards digitalization.

The Chinese expert committee of ISO/IEC JTC 1 and secretariat of ISO/IEC JTC 1/SC 43 set up

Hosted by China Electronics Standardization Institute (CESI), and organized by Hainan University, the inauguration ceremonies of the Chinese expert committee of ISO/IEC JTC 1, *Information technology*, and the secretariat of ISO/IEC JTC 1/SC 43, *Brain-computer interfaces*, were held in Haikou city, South China's Hainan province.

The meeting was attended by Luo Qingming, Academician of Chinese Academy of Sciences and President of Hainan University, Fan Shujian, Deputy Director-General of Science and Technology Department of Ministry of Industry and Information Technology, Xu Quanping, Second-class Researcher from Standards Innovative Management Department of SAMR, Yang Jianjun, Vice President of CESI, Wang Yu, Deputy Director of Industry and Information Technology Department of Hainan Province, Wang Jiarong, Second-class Inspector of Hainan Administration for Market Regulation, Yu Yuntao, Chair of ISO/IEC JTC 1/SC 43, as well as other leaders and guests.

Yang Jianjun introduced the contribution of CESI to international standardization work in the field of brain-computer interfaces and the progresses it has made, and expressed the confidence to further prompt international standardization work on information technology.

ISO/IEC JTC 1/SC 43 will gather strength of industry, academia, research and application, vigorously exerting the leading role of standardization in technological innovation, according to Fan Shujian.

During the meeting, experts shared their research achievements and breakthroughs, and made keynote speeches on the hot topics including the development and standardization of brain-computer intelligence, brain-computer collaboration and medical application, as well as development and standardization of brain-computer products.

Probing into the value of standards in enterprises

共话标准对企业的价值

Yu Xinli
President of China Association for Standardization

As the main entities of market activities and economic and social development, enterprises are a major driving force of technological innovation, and an important guarantee for improving people's livelihood.

Over the past years, steady progress has been made in enterprise standardization in China. By the end of May 2023, more than 420,000 enterprises have disclosed 2.8 million standards on the public service platform for enterprise standards information, covering 4.68 million kinds of products, according to Yu Xinli, President of China Association for Standardization.

To figure out the standardization layout of renowned Chinese enterprises and the role of standards in their development, China Standardization Press organized a high-end dialogue on standards, inviting You Fang, Tian Li, Dai Wei, Wang Binhou and Tao Hongzhi, standards managers from Huawei, ZTE, Tencent, Haier and Lenovo as guests.

During the event presided over by Yu Xinli, the standardization experts shared their insights on four topics including standardization system and mechanism, key standardization areas and standards, the value of standards, as well as difficulties in standardization work.

You Fang
Director of Industrial Standards Department, Huawei Technologies

• Standardization system and mechanism

Highly valuing standardization work, Huawei employs more than 600 full-time and part-time standardization personnel across the globe. Focusing on ICT infrastructure and intelligent terminals, the company makes its layout through six business units including terminals, intelligent vehicle solutions, connection, computing, Huawei Cloud and digital energy.

In each business unit, there is a standardization team working coordinately with the standardization team at the company level. As the standardization team at the company level, the Industrial Standards Department takes charge of standardization capacity building, which develops the overall standardization strategy, and focuses on cross-sectoral, forward-looking and strategic standards.

In Huawei, the decision-making mechanism is also hierarchical. Each business unit has a standards strategy committee covering its own business scope, and the standards strategy committee at the company level establishes the subcommittees for cross-sectoral businesses such as mobile communication as well as audio and video.

The standardization teams at both levels are the main bodies of implementation, which can establish the cross-sectoral standardization working groups for specific tasks as needed.

• Key standardization areas and standards

The six business units of Huawei determine key standardization areas according to their own business strategies. By the end of 2022, Huawei had participated in nearly 800 organizations including standards organizations, industrial alliances and open source communities, assuming more than 450 key posts and submitting over 68,000 proposals.

The company has also invested much in cross-sectoral general technical standards, covering the areas such as artificial intelligence, audio and video, green and low-carbon development, and industrial digitalization.

• The value of standards in Huawei

It is hard to quantify the value of standards, especially economic benefits in enterprises.

First, the value of standards should reflect their original aspiration.

The application of standards will have a better foundation if their value is targeted at economic and social benefits. Understanding the ultimate value of standards, no more standards are developed merely for the sake of having standards. According to the *National Standardization Development Outline*, the development of standardization should be transformed from highlighting quantity and scale to pursuing quality and benefits. Staying true to the original aspiration, standards development helps meet industrial demands and facilitate high-quality standardization development.

Second, the value of standards is diversified, which is relevant to the development stages of enterprises, the industries where standards are applied, and the objects of standardization. Whether we develop standards or not and how many and what kinds of standards we develop fully depend on which development stage we are in and business demands of enterprises and industries, rather than a single indicator.

Third, the value of standardization is mainly in four aspects. 1) Expanding industrial space. Standardization builds industrial consensus, reduces procurement decision risks, and boosts business investment, which is beneficial to industries and related stakeholders. 2) Reducing the fragmentation of industries. At the initial period, there may be two or more competing standards simultaneously. Driven by the recognition of industries and customers, these standards are finally streamlined and integrated to one mainstream standard. 3) Setting quality thresholds. Standardization can guide the industrial competition landscape and promote the sound and sustainable development of industries. 4) Driving technical innovation. Within the standardization platform, various stakeholders coordinate with each other, which is conducive to technical innovation and optimization.

• Difficulties in standardization work

Nowadays, a major difficulty in standardization work is a lack of standardization talents, which is relevant to the characteristics of standardization work. First, standardization work requires talents to master both technologies and foreign language skills. Second, the high professionalization and practicality of standardization work come down to a long period of talent cultivation. Furthermore, it is hard to directly measure the improvement boosted by standardization in the economic benefits of enterprises.

It is a universal challenge for enterprises to attract, cultivate, motivate and retain standardization talents. Huawei is willing to train more standardization experts and contribute to the high-quality standardization development in China.

Tian Li
Deputy Director of Technical Planning Department, ZTE Corporation

• Standardization system and mechanism

The overall principles of standardization work in ZTE include integration of standards and market demands, integration of standards and product R&D, integration of standards and patents, internationalization of standards, highlight of advantageous competition areas, as well as peer cooperation and competition. These can be summarized as overall planning, systematic division of labor, leadership of experts, and overarching strategies.

With a hierarchical strategy, ZTE has established a three-layered work system. The top and core level is the standards strategy committee led by the chief technology officer. The intermediate level is the Technical Planning Department in charge of the unified planning and operation of standards in ZTE. At the bottom level, based on core businesses, there are special standards teams, the leaders and senior experts of which jointly set and optimize the strategic directions as well as the systems and mechanisms of ZTE for the high-quality development of businesses. Besides, there is a set of standardization procedures to improve the R&D efficiency.

• Key standardization areas and standards

At present, there are around 500 full-time standards personnel in ZTE, who have participated in more than 200 standards bodies globally, assuming over 150 leading posts. In terms of businesses, the standards work in ZTE is divided to two levels: practice level and governance level.

The practice level develops specific technical standards geared to specific products. ZTE roots in communication technologies, in particular wireless or wired terminal products for end-to-end communication. With years of efforts, the company has worked with industrial peers and changed from a follower to a leader in the area of standards development.

China has made great success in 5G technology, and realized the full coverage of the prospective study of 6G. Industrial alliances for promising technologies have been launched to promote the unified global landscape of 6G standards. In the wave of digital development, the positioning of ZTE has been further upgraded in recent years. To address the diverse demands of 5G in varied industries, we must apply the standardization means to avoid redundant and overlapping fundamental research among industries. ZTE is going to overcome this challenge right now.

Standardization of digital technology has some particularities. Besides traditional management specifications or technical standards, there are also de facto standards. These standards involve a great deal of data processing, model calculation, software code implementation, etc., which are available in the form of open source code in communities for iteration.

Standards and open source reinforce each other in the implementation of digital technology. Standards can help establish the common specifications for open source software, technologies and their interoperability, and open source can promote the development, verification and implementation of standards via open and transparent collaboration platforms. An organic combination of standards and open source pushes forward the innovative digital process.

The governance level focuses on enterprise social responsibilities and organizational governance. In a globally competitive enterprise like ZTE, social responsibilities are essential. The strategies suitable for national and international development should be developed. Products should meet the standards on carbon peak and neutrality, and focus on changes of production mode and efficiency brought by digital technology and transformation in order to achieve the global sustainable development goals.

In terms of organizational governance, with the development of digitalization and globalization, ZTE needs to deeply participate in some international organizations such as ITU to discuss topics including global telecommunication rules and organizational strategies.

• The value of standards in ZTE

Chinese President Xi Jinping has put forward that we should "contribute to high-tech innovation, promote high-level opening up, and lead high-quality development by means of high standards", which is applicable at national, industrial and enterprise levels.

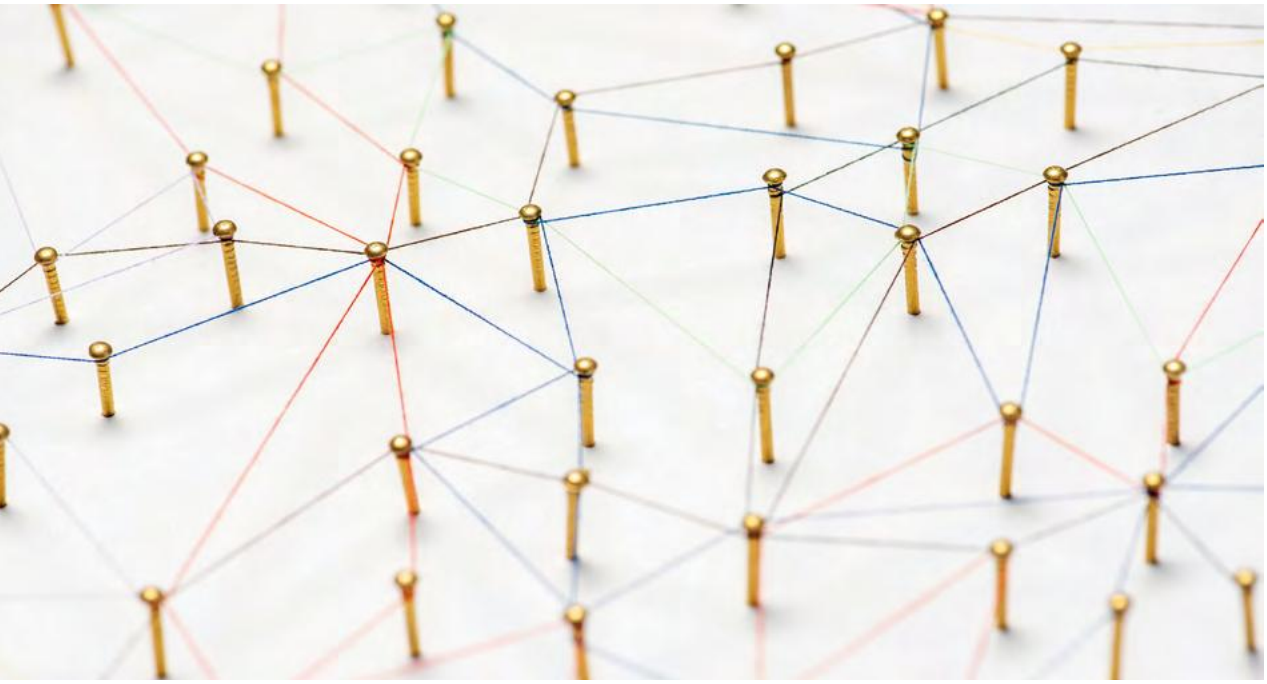
In terms of high-tech innovation, standards are in fact indicators, especially in communication industry. A mature standards organization is able to attract the wide participation of upstream and downstream enterprises. In most cases, standards are developed in the first place, then a consensus is reached through standards, and relevant products are put in place with proper market value. Discussions in standards organizations directly determine the technical routes of products and the period for their market reception.

In terms of high-level opening up and high-quality development, standards are the necessary condition for internationalized enterprises. Governance of standards across the globe in key areas, such as technologies, economy and trade, and security, is essential for the international operation of enterprises. Only by a deep probe into these areas, can we better elaborate on the value of standards.

• Difficulties in standardization work

First, the complex international situation poses a huge challenge to standardization work, particularly in the aspect of global governance. Upgrading and revising stale standards may require redefinition of the rules in standards organizations. For example, wireless communication technologies from 3G, 4G to 5G all go beyond existing rules. New rules suitable for a community with a shared future are upgraded to finally form a new landscape for mutual benefits. This is a big challenge from the perspectives of both industrial and social development.

Second, the extension of standards is quite large, and its boundary should be clarified. For instance, security used to refer to technology-based network security, but network security is now bounded by national security, which poses a great impact to enterprises, especially with the emergence of zero trust. Traditionally, network security requires point-to-point security measures. However, with the changes and complexities of network environment, sound security measures are needed in each node to realize the overall network security. Taking global governance as an example, with the reduced trust among countries, the globalization process of economy is slow and inefficient. But things are different since regional organizations and bilateral and multilateral mechanisms become more important, such as the Belt and Road Initiative. They define the boundary, within which security is ensured and the whole industrial chain is kept in a stable and controllable state.



Third, it is tough to develop really useful standards and improve the quality rather than quantity. In the information communication industry, there are various standards organizations, and some of them take the quantity of standards as the priority but put the quality at the second place. They pursue key performance indicators and standards projects approval, but do not consider whether standards will be put in place or have great influence on the industry. With the guidance of *National Standardization Development Outline* and a series of supporting national policies, it is expected that more standards benefiting both the industry and the public will be developed, and enterprises will play a key coordinating role in the process.

Fourth, it is a universal difficulty to cultivate standardization talents. Higher requirements are raised for standardization experts, who need to grasp both technologies and rules, and work in the front line for a long time. It is really hard to cultivate senior experts on campus, therefore some universities and enterprises have cooperated to cultivate professional talents with the integration of technologies and standards. Meanwhile, standardization talent ideas and activities also play a big role, such as the National Olympiad in Standardization. ZTE will continue to cultivate university students, and expect that more excellent youth make standards part of their daily routine. Standards or best practice on standardization education are expected to provide reference for the whole industry.

To sum up, standardization is in fact a journey without terminal. The essence of standards is to improve the efficiency of production and trade. As for enterprises, there is no shortcut to standards development. More efforts should be made in technical innovation, contributing to the shaping of new industrial landscape in China.

Dai Wei
Director of Standards Affairs Center, Tencent Group

• Standardization system and mechanism

As an internet company, Tencent has its own standards positioning in the following directions:

First, standards integrating regulation policies. Such standards, mainly national and sectoral standards, focus on policy compliance, governance of internet industry, and normalization of internet-based products and services. In recent years, there are growing standards demands in the areas such as data privacy, data security, key infrastructure protection and cyber security, which is challenging for standardization practitioners. We should deeply participate in the development of standards, serving as a bridge between regulation policies and their implementation. This will enable enterprises and competent administrative departments to jointly set suitable compliance criteria, exerting the role of standards in the orderly and sound development of internet-based products and services.

Second, standards for industrial technological development. With the fast development of industrial internet and continuous innovation of digital technology, there are increasing standards demands, especially in the field of integrating digital technology into traditional industries. Tencent has participated in the standards development of industry verticals including smart buildings, smart cities, smart transport, industrial internet, and smart finance. It has integrated digital technology with demands of industry verticals, giving play to the leading role of standardization in facilitating transformation and upgrading, industrial coordination, ecological connection, compatibility and adaption, business innovation, technological leadership, market promotion and industrial cultivation.

Third, standards and patents involved. Through the integration of standards and patents, we can prevent and withstand risks. Although Tencent has invested relatively less in hardware and network equipment, it has made in-depth technical research on multimedia-related fields. The risk prevention of standards and patents in these fields needs arduous work of standardization practitioners. They need to actively push forward standards development on multimedia and creation of patent pool, maintain related industrial development and technical innovation through the layout of standards and patents, so as to protect the independent intellectual property rights of Chinese enterprises.

Fourth, enterprise standards. In fact, enterprise standards can help meet the needs in technical coordination, open source coordination, efficiency improvement in production and research, ecological integration, supply chain management and other areas. Enterprise standards can also be integrated with tools and technologies, systematically embedded into each stage of production and operation in an enterprise.

Fifth, standards on social responsibilities. Tencent has also actively led the development of such standards. Advocating technologies for good, the company has actively driven the application and promotion of standardization work in this area, and developed more standards for public benefit in the areas such as the elderly-friendly design, information accessibility, minor protection, and carbon peak and neutrality. Through standardization in public welfare undertakings, Tencent is driving its technological development for good.

In a word, the standardization goal of Tencent is to promote the quality and efficiency improvement of internet-based products and services.

• Key standardization areas and standards

First, games and e-sports. With the national support, many cities are developing e-sports, which has become an event in the Asian Games 2023 in Hangzhou. Involving many technologies, e-sports needs standards to provide technical innovation requirements in the areas including event operation. With standards, we can better promote the operation of events, cultivation of e-sports talents, economic benefits, and development of the whole industrial chain. Due to the urgent standards demands, Tencent is working with various terminal enterprises, operators, communication enterprises and research institutes for standards development on games and e-sports.

Second, AI technologies. At present, various industries are investing more in the standards on AI technologies such as computer vision, big model, AI-generated content (AIGC) and industrial quality inspection. AI standards are a priority in Tencent. Hunyuan, a proprietary large language model of Tencent, serves the products such as Tencent Meeting and WeChat by AI assistant, and empowers industrial customers via Tencent Cloud.

Third, cloud computing. Cloud computing is a key area of standards work, because some scenarios of ToB/ToG have very specific standards demands for ecological integration, system R&D, system delivery, quality of service, new market cultivation and expansion, as well as the development process of technologies. Cloud computing is an important foundation of ToB/ToG standards, which is highly valued by industries, enterprises, universities and the government. Tencent has also put great efforts into the research on standards related to cloud computing, cloud native, digital twin and other technologies.

• The value of standards in Tencent

Since standardization is a systematic activity, the value of standards is reflected in the combination of many scenarios, and closely related to each link of the coordination among government, enterprises, universities and research institutions involved in standards development. Finally, the role of standards will be showed in the process of overall value release.

In terms of compliance, when developing or participating in the standards on compliance or policies, Tencent is also considering adapting to these standards so as to provide more specific, applicable and suitable schemes for the compliance of its products. Generally, the company absorbs and learns from external standards, and puts them in place according to national requirements. These standards become the benchmark and code of conduct of products and services such as various internet-based apps and Software Developer Kit (SDK). Based on these standards, Tencent carries out pilot, testing and application to ensure the sound development of its products and services. Therefore, standards become a key basis to evaluate each compliance indicator, and an important benchmark for technical innovation and business iteration.

In terms of justice, standards are gradually cited by judges as the basis of judicial decision. When there is no clear agreement in laws, standards can be used as a reference or supplement with prominent value. But standards for guidance should not serve as the basis of judicial decision, because their role is to provide guidance and suggestions only.

• Difficulties in standardization work

First, the time difference between technical iteration and standards development. For internet enterprises, standardization work may be more difficult. That is because the period of internet-based product update is very fast compared with that of standards development and implementation. Standards implementation needs at least three to six months, even one or two years, thus the period of its value presentation may be much longer. Therefore, higher requirements are raised for standardization practitioners. It is hard for an enterprise to keep the integration of standards with products and market.

Second, insufficient participation in association standards development. Tencent used to track relevant sectoral standards and national standards, which is beneficial for holding the bottom line of industrial governance and national requirements. Association standards have shorter procedure and faster speed of development, but their compliance requirements are stricter than those of national and sectoral standards. This poses a big challenge to industrial development and compliance management.

Third, the productivity improvement of standardization work. In each standard project, the efficiency improvement of businesses needs to be considered. Standards can be integrated into the existing tools and systems and mechanisms. In the future, taking advantages of AIGC, model training, deep learning and other means, an intelligent standards assistant will take shape, which can generate common templates of standards texts, let AI understand the rules and methods of standards drafting and the transformation from natural languages to standards language, and improve the retrieval, statistical and analytical capabilities of AI. In short, standardization work requires standardization practitioners to keep improving their work with the support of efficient information tools.

Wang Binhou
Director of Standards and Patents, Haier Group

• Standardization system and mechanism

As a representative of China's manufacturing industry, Haier has always focused on the key industrial chains and leading new industries, striving to become a leading technological enterprise across the globe. To support its overall strategy, the standardization strategy of Haier is to well make and lead the rules of the national household appliance industry, contributing Chinese wisdom to the world.

To be specific, in terms of system building and implementation, Haier has formed an innovative global collaboration mode integrating technologies, patents and standards based on its decades of mechanism innovation and business practice.

First, integrating technologies, patents and standards. In process organization, Haier integrates technical innovation, standards and patents, and makes the layout of standards and patents while planning the enterprise's technical route. In R&D and implementation, Haier carries out technical innovation and layout of patents and standards simultaneously. After completing a product scheme design, Haier makes the layout of patents and standards synchronously to decide whether we will develop international, national, sectoral or enterprise standards. When products are sold on the market, Haier develops product standards, which can greatly promote the sales of products.

Second, global collaboration mode. When technical innovation is achieved, how can we develop good standards? Based on Haier's experience, a global collaboration mode has taken shape. Relying on multiple R&D centers across the world, Haier has established the standards resource network covering the whole world. These R&D centers and industrial parks jointly participate in the international standardization activities of IEC and ISO and the national and regional standardization activities. When a standard proposal is submitted, the R&D centers negotiate with each other to collaborate globally, which has a remarkable effect on the development process of international standards. Organization structure is the most important supporting element of the mode. Haier is an organization composed of three layers, namely global standardization committees, R&D centers and the industry. The global standardization committee coordinates the R&D centers and the industry, developing the standardization work mechanism of Haier.

• Key standardization areas and standards

The standards in key fields also support Haier's strategy. Its business strategy is basically summarized as "one plus one". One business scope is smart home evolved from traditional household appliance service, and the other one is industrial network composed of industrial internet, smart cities and massive health, which is an emerging industry in the enterprise. The layout of standards is based on this mode.

For example, the biggest change in household appliance industry this year is the change in the way of interacting with users. The household appliances in early days were activated by buttons, but now many of them are switched to voice control. Such change leads to the development of voice control standards. A working group is established in IEC/TC 59 to develop such standards, which is jointly involved by the R&D centers of Haier located in China, the U.S. and Europe.

• The value of standards in Haier

The value of standards in Haier is summed up in the following three aspects.

First, ensuring market access compliance to support the globalization of enterprises. All products should be compliant before they enter the market. The foundation of compliance is standards and regulations. One of the responsibilities of Haier's Standardization Department is to track the dynamics of standards and regulations in countries where products are sold. The changes of standards and regulations should be closely followed to address in advance in the R&D process of products.

Second, improving the operation and quality efficiency. The essence of standards is unity for pursuing best order, which means quality and efficiency. This is mainly reflected by enterprise standards. In Haier, enterprise standards cover a wide range of aspects, including the unity of product standards, design specifications and materials. On this basis, quality will be improved, so will efficiency. Enterprise standards largely realize the optimum operation efficiency through unifying the behaviors within an enterprise to a great extent.

Third, promoting competition on the entire market. The market competition of enterprises is indeed the competition of technologies and brands. Standards play a supporting role in technologies and brands, which also serve as the carrier of technologies. The implementation and promotion of standards facilitate the popularity of relevant innovative technologies, which become golden brands and effectively raise the recognition of users. Besides, standards can drive the technical innovation within an enterprise, and can promote innovation and allocate R&D resources within an industry.

• Difficulties in standardization work

First, a lack of talent cultivation mechanism. There is a lack of mechanisms for the cultivation and reward of standardization talents, so it is difficult to attract and cultivate relevant talents. It is expected that the mechanism construction will be carried out at the national and industrial levels.

Second, a greater difficulty in the harmonization of international standards. One of the important reasons is cross-sectoral technical integration. For example, most of household appliance enterprises participate in the standards development in IEC, and the talents in relevant technical committees are from traditional household appliance enterprises. However, with the emergence of smart home integrating a great number of internet technologies, these talents fail to catch up with the cross-sectoral technological integration. Therefore, it is very difficult for relevant standards projects to get approval.

Third, great impact of digital technology on standards. In the digital era, every business needs to be digitalized. This is an important field that we should focus on and explore.

Tao Hongzhi
Chief Standards Officer
of Lenovo Group

• Standardization system and mechanism

The standardization system and mechanism in Lenovo are reflected in the following two aspects.

First, organizational structure. The main organizational structure in Lenovo is a multi-layer networked structure. There are more than 80 professional standardization personnel at the headquarters, dealing with a wide range of standards on management system, environmental, social and governance, and other areas. Standards are relevant to businesses and products in Lenovo. The business units need to participate in the determination of standards contents and the development process of these standards. Therefore, the technical personnel and quality control personnel are basically involved in standardization work. Geographic standardization personnel take charge of the standardization work related to major regions across the world and some special countries. Taking almost the same working mode with SAC, Lenovo has a specialized global leader or expert in each technical area, equivalent to a virtual technical committee, to track and develop standards, provide guidance, or make decisions.

Second, working mechanism. Lenovo has internationally standardized working procedures including the tasks and responsibilities of standardization talents at each level, standards application in products, ways to improve enterprise standards quality, and management methods. Meanwhile, the work procedures are supported by information technology management systems related to standardization database, product environment compliance, and other aspects. Lenovo completed the construction of above-mentioned systems as early as in 2000. With the rapid progress of informatization in China, Lenovo now has many management systems, in which the management of standards are digitalized.

• Key standardization areas and standards

First, market access. The most important standardization area in Lenovo is market access. For example, standards on security, electromagnetic compatibility, wireless access, and mandatory specifications of environmental protection are managed by the headquarters, which are the most fundamental standards. The changes in these standards have a big impact, especially under the circumstance of surging product types and rapid product

upgrading in Lenovo. If products fail to be upgraded in time or meet relevant standards, there will be a huge impact on the businesses.

Second, environmental, social and governance (ESG). The main customers of Lenovo are mostly Fortune Global 500 enterprises, government organizations, international organizations, and some big organizations. They highly value ESG, and basically have the access threshold for green procurement. Therefore, Lenovo has invested much in the area, focusing on energy efficiency, restriction of hazardous substances, waste electrical and electronic equipment, and carbon peak and neutrality.

Third, technologies. There are many standards on technologies such as Bluetooth, fast identity online (FIDO) and universal serial bus (USB), and some new technologies such as Matter, which are closely relevant to Lenovo products. The company has always closely followed and participated in the constant upgrading of these technologies.

Fourth, innovation capability. In Lenovo, innovation-oriented standards are basically led by its business divisions and research institute. The standardization personnel are actively involved in the development of standards related to technical innovation, such as big data, artificial intelligence, smart devices, Internet of Things and cloud computing (collectively known as BASIC). Since these technologies are highly relevant to its own businesses, Lenovo keeps an eye on and occasionally participates in the standardization activities in these areas based on its priorities.

• **The value of standards in Lenovo**

First, the value of standards on market access is beyond question. If Lenovo fails to meet the requirements of such standards, no one will buy its products, or if its products fail to keep up with the latest changes in standards, it may be eliminated from the market. Lenovo products have been sold to 186 countries in the world, of which the standards for market access are basically the lowest requirements for Lenovo to meet. To this end, the enterprise has established more than 40 laboratories, and put hundreds of related engineers and thousands of equipment into product testing and verification. This is how standards work in Lenovo.

Second, standards for innovation can facilitate the competition of new fields and products. Lenovo recognizes that first-class enterprises need to develop standards, but considers it in a different way. There is a big difference for enterprises to develop national standards compared with ISO and IEC standards. For instance, although Lenovo has been working on information technology for almost four decades, but it is still a late entrant compared with those time-honored companies such as IBM and HP. ISO/IEC JTC 1 is the technical body for most standards on information technology, whose secretariat is held by HP. Actually, HP has invested a lot in international standards development, while Apple has done a good job in enterprise standardization. If standards are integrated with products and technologies, it will become a big driving force of benefits for an enterprise.

• Difficulties in standardization work

In fact, the technical personnel in Lenovo are not very active in developing the standards for innovation. The reasons may be as follows:

First, standards development requires a long period, huge investment and complex management. Technical personnel tend to apply patents to complete their key performance indicators in the innovation field. At present, the biggest problem in Lenovo is that standards and patents are handled by two separate departments. Engineers and technical personnel pay close attention to patents, because the input is much less than that of standards. Standards need the coordination at various levels. Therefore, it is hard to motivate the technical personnel.

Second, standards for innovation generate few noticeable benefits in a short time. Taking IEEE SA-P3128 on evaluation of AI dialogue system capabilities as an example, we could not find suitable technical experts to assume the secretary and vice chair at first. It was not until the popularity of ChatGPT that everyone began to attach great importance to such standards.

Third, upgrading of standards is hard to keep up with the evolution of technologies. When the development of a standard is completed, the technology may have already been upgraded. At this time, the standard seems useless. Furthermore, the integration of standards and patents may take a lot of time and resources, but still has no significant effect. The benefits are not easy to be and even cannot be evaluated.

The talents of standards are rare, because being such a talent requires comprehensive capabilities. Lenovo once took five years to gather all its personnel for standards development at home and abroad in a department under its research institute, but found that the effect was far from satisfying. The reason is that we cannot develop standards without taking products and market into consideration. The research institute targets at the technologies and products ten years later, so it is tough to support the current businesses and market demands. Afterwards, Lenovo brought standards work into business divisions.

At present, Lenovo has three types of businesses: terminals including personal computer and mobile phone, information infrastructure such as network, data center and high-performance computing, and solutions. Lenovo once had a unified product group at the product level, but it does not have a top-level standardization department like the legal service department and human resource department. There are many standardization talents serving in legal service departments and focusing on policies at abroad. And the technical experts in China are mostly transferred from R&D department and research institutes, who preferred to work in technical teams as an affiliation to the quality management department. Therefore, this situation perplexes the standardization personnel and business departments in Haier.

编译/靳吉丽

(Edited and translated by Jin Jili based on the article in Chinese)

China celebrates World Standards Day in Guangxi

世界标准日主题活动在广西柳州举办

By Cao Xinxin
文/曹欣欣

The themed activity of World Standards Day 2023 was held in Liuzhou, South China's Guangxi Zhuang autonomous region on October 13, to raise the awareness about the importance of standards and recognize the contribution of standardizers. With the theme of "Shared Vision for a Better World", for the past years, World Standards Day has been dedicated to showcasing the importance of standards in achieving the Sustainable Development Goals (SDGs). This year's WSD focused on SDG 3 "Good Health and Well-Being", and China set its own theme as "Standards Shape Good Life".

The event attracted the representatives from international standardization organizations and domestic authorities. Shu Yinbiao, the 36th President of IEC, read the message of the WSD this year. Sergio Mujica, Secretary General of ISO, delivered a speech via video. Tian Shihong, Vice Minister of SAMR and Administrator of SAC, Sui Guohua, Vice Chairman of the People's Government of Guangxi Zhuang Autonomous Region, Qi Batu, Vice Chairman of the People's Government of Inner Mongolia Autonomous Region, and Xu Jinghe, Vice Administrator of National Medical Products Administration addressed the meeting.

Tian Shihong
Vice Minister of SAMR and Administrator of SAC

Tian Shihong said in the address, that Guangxi has vigorously implemented the standardization strategy in recent years, and used high standards to promote high-level of opening up and facilitate high-quality development, making outstanding achievements, in particular, playing a key role in promoting the cooperation on standardization between China and the Association of Southeast Asian Nations (ASEAN). The celebration of the WSD 2023 held in Guangxi aims to provide an opportunity for all participants to learn from Guangxi about standards international cooperation.

Chinese President Xi Jinping once said, "our intention and goal are to meet the people's increasing demands for a good life, make the development results improve life quality, and continuously increase people's senses of acquisition, happiness and safety." To follow President Xi's instructions, combined with the international theme of the WSD, the theme of the WSD in China is set as: Standards Shape Good Life. The aim is to mobilize the social forces to use standardization as a means to boost high-quality development, thus meeting people's needs for a good life.

To achieve the goal, we will solidify the foundation of quality and safety standards, make great effort to increase the supply of standards for high-quality life, enhance the standards for living environment, promote the soft connectivity of international rules and standards, and strengthen the cultivation of standardization talents, according to Tian.

More than 40 national standards on healthcare, green life and other aspects closely related to people's daily life were released at the event. Among which, standards for the sterilization of healthcare products and the light source of ultraviolet sterilization will help to regulate healthcare products and services; standards for technical condition of lifts, high-power charging system of electric vehicles, and others will safeguard passenger safety of trips; standards for smart cities, nanometre electric-optic display, etc. will vigorously promote the deep integration of real economy and digital economy; standards on desert photovoltaic power station, restrictions for overpackaging of fresh edible agricultural products, etc. will provide strong support for the green, low carbon transformation of production and living mode.

Representatives from Liuzhou government, a standardization service provider, a standardization technical committee, and a famous medical instrument company shared their experience on standardization practice and cases.

At the event, 41 Chinese winners of the ISO Excellence Award and the IEC 1906 Award in 2023 were announced.

Chinese winners of the ISO Excellence Award in 2023

Number	Name	Affiliation
1	**Sha Qingyun** **沙庆云**	Ansteel Group Co., Ltd. 鞍钢集团有限公司
2	**Liu Shu** **刘曙**	Industrial Products and Raw Materials Testing Technology Center of Shanghai Customs 上海海关工业品与原材料检测技术中心
3	**Gao Yan** **高严**	China ENFI Engineering Co., Ltd. 中国恩菲工程技术有限公司
4	**Yan Chengming** **颜丞铭**	China Metallurgical Information and Standardization Institute 冶金工业信息标准研究院
5	**Li Gang** **李刚**	Shanghai Nuclear Engineering Research & Design Institute Co., Ltd. 上海核工程研究设计院有限公司
6	**Yan Aijun** **闫爱军**	Xi'an Thermal Power Research Institute Co., Ltd., China Huaneng Group 中国华能西安热工研究院有限公司
7	**Li Xianjun** **李献军**	State Nuclear Baoti Zirconium Industry Co., Ltd. 国核宝钛锆业股份公司
8	**Yu Bing** **于冰**	China Academy of Railway Science Co., Ltd. 中国铁道科学研究院集团有限公司
9	**Zhou Kaizhu** **周开著**	Panzhihua New Steel & Vanadium Co., Ltd., Pangang Group 攀钢集团攀枝花钢钒有限公司
10	**Li Jun** **李军**	Xinxing Ductile Iron Pipes Co., Ltd. 新兴铸管股份有限公司
11	**Shi Li** **师莉**	Shougang Group Co., Ltd. 首钢集团有限公司
12	**Yu Keyong** **于克勇**	Tianjin Goldsun Wire Rope Co., Ltd. 天津高盛钢丝绳有限公司
13	**Leng Mingjian** **冷明鉴**	China Metallurgical Information and Standardization Institute 冶金工业信息标准研究院
14	**Lu Ping** **陆萍**	Guizhou Steel Rope Group Co., Ltd. 贵州钢绳股份有限公司
15	**Wang Jingwei** **王京伟**	Guizhou Steel Rope Group Co., Ltd. 贵州钢绳股份有限公司
16	**Jiang Riqin** **蒋日勤**	Jiangsu Xingda Steel Tyre Cord Co., Ltd. 江苏兴达钢帘线股份有限公司
17	**Lu Chunsheng** **卢春生**	China Metallurgical Information and Standardization Institute 冶金工业信息标准研究院
18	**Gao Yifei** **高怡斐**	NCS Testing Technology Co., Ltd. 钢研纳克检测技术股份有限公司
19	**Li Jiabiao** **李家彪**	Second Institute of Oceanography, Ministry of Natural Resources 自然资源部第二海洋研究所
20	**Wu Wenwei** **吴文伟**	China Ship Scientific Research Center 中国船舶科学研究院

Chinese winners of the IEC 1906 Award in 2023

Number	Name	Affiliation
1	**Bie Chaohong** **别朝红**	Xi'an Jiaotong University 西安交通大学
2	**Zhang Zhigang** **张志刚**	BOE Technology Group Co., Ltd. 京东方科技集团股份有限公司
3	**Chen Jiangbo** **陈江波**	China Electric Power Research Institute 中国电力科学研究院有限公司
4	**Cui Ying** **崔莹**	China Electronics Standardization Institute 中国电子技术标准化研究院
5	**Wang Tianzhen** **王天真**	Shanghai Maritime University 上海海事大学
6	**Bi Daowei** **毕道伟**	Shanghai Nuclear Engineering Research & Design Institute Co., Ltd. 上海核工程研究设计院股份有限公司
7	**Liu Jie** **刘洁**	Tianjin Research Institute of Electric Science Co., Ltd. 天津电气科学研究院有限公司
8	**Shang Aimin** **尚爱民**	China Railway Signal & Communication Cable Group Co., Ltd. 通号电缆集团有限公司
9	**Wang Wei** **汪蔚**	Hebei Institute of Semiconductors 河北半导体研究所
10	**Deng Shixiong** **邓世雄**	Hebei Institute of Semiconductors 河北半导体研究所
11	**Yuan Gao** **袁告**	Suzhou Shengyi Technology Co., Ltd. 苏州生益科技有限公司
12	**Qin Xiaohui** **秦晓辉**	China Electric Power Research Institute 中国电力科学研究院有限公司
13	**Wang Xuanyuan** **王宣元**	Jibei Electric Power Co., Ltd., State Grid 国网冀北电力有限公司
14	**Xu Fang** **徐芳**	Haier Group 海尔集团
15	**Zhong Hua** **钟华**	Beko Electric Appliance Co., Ltd. 倍科电器有限公司
16	**Ge Ying** **葛鹰**	Guangdong Shengyi Technology Co., Ltd. 广东生益科技股份有限公司
17	**Gou Ruifeng** **苟锐锋**	Xi'an XD Power Systems Co., Ltd. 西安西电电力系统有限公司
18	**Zhang Nannan** **张楠楠**	Hisense Visual Technology Co., Ltd. 海信视像科技股份有限公司
19	**Xu Jigang** **许继刚**	Engineering Research Institute, China Energy Engineering Co., Ltd. 中国能源建设集团有限公司工程研究院
20	**Zhang Yu** **张宇**	Electric Power Science Institute, State Grid Shanghai Municipal Electric Power Company 国网上海市电力公司电力科学研究院
21	**Yuan Jun** **袁骏**	State Grid Corporation of China 国家电网有限公司

Sharing standardization practices from business, sector and city

来自企业、行业和城市的标准化实践案例

By Cao Xinxin
文/曹欣欣

At the WSD 2023 celebration event, four representatives from the government, companies and research institute shared their understanding of and experience on how standards boost the development of a business, an industry or even a city. Here, you can find their stories.

Taking the standardization development path with Liuzhou's characteristics

Zhang Zhuang
Mayor of Liuzhou People's Government

Liuzhou is the biggest industrial city in Guangxi, which has traditional industries such as automobile, iron & steel and machinery, strategic and emerging industries like new energy, smart equipment manufacturing and biological medicine, as well as characteristic products like Liuzhou river snail rice noodles and oil tea. Liuzhou is also a city that values, respects and pursues standards.

In recent years, Guangxi has taken standardization as a means to facilitate high-quality development, implemented the *National Standardization Development Outline* in an all-round way and put the standardization strategy in place, effectively boosting the development of competitive industries. Granted the titles such as the national demonstration city of quality, and the pilot city with intellectual property power, Liuzhou has embarked on the path of standardization development with its own characteristics.

First of all, Liuzhou has put great effort to standards development with the strong support of relevant systems and mechanisms. Standards Technology and Intellectual Property Research Center of Liuzhou has been established to carry out the national special action on promoting standards comparison and compliance. Local enterprises have participated in the development and revision of 3 international standards, 301 national standards, 171 local standards and 171 association standards, and actively taken part in the standards "forerunner" action.

Second, Liuzhou has used standards to fully motivate the vigor of industrial development. High standards are used to support the transformation and upgrading of time-honored brands and the development of new brands. The

standardization technical committee of Liuzhou's river snail rice noodles industry has been established to apply the whole industry chain standards system that includes 6 subsystems and 564 standards. The Industrial Park of Liuzhou River Snail Rice Noodles was approved to carry out the national standardization pilot project of consumer products.

Third, Liuzhou has focused on improving standards and expanding communication and cooperation. It has enhanced the communication and cooperation with ASEAN countries, established the China-ASEAN Automobile Standards and Regulations Research Center in Indonesia. The first standardization college in Guangxi has also been set up to cultivate standardization talents for industries.

Wang Haidong
President of China Standards Press

Providing standards knowledge services with media's advantage

The mission of China Standards Press is to disseminate standards knowledge and provide services for all sectors of the society. As the theme of this year's WSD in China is "Standards Shape Good Life", I want to share my understanding about how to disseminate standards knowledge to help people live a good life.

First, a good life needs standards knowledge services. Standards knowledge is the great wisdom of human being, and also the achievement of the progress of human civilization. Its main function is to guide the production and life of the society, thereby helping people live a better life. It also plays a big role in boosting technical innovation, maintaining market order, safeguarding product quality and facilitating trade and communication. So we need to improve services to provide better services for users.

Second, the Press should play a main role in offering good standards knowledge services. To improve our services, the Press has undergone the transition from a traditional book publishing company to a modern standards knowledge service provider in the past two years, by enriching the form and carrier of services, developing the data service platform of Chinese standards, and reforming the service concepts.

Last but not least, the Press should give full play to its media advantage. For enterprise customers, we have developed the standards knowledge service system composed of more than 1.9 million standards texts. For sectors, we have established a database with standards themes to meet the personalized needs. For standards drafters, we have developed the online standards drafting system, which can help drafters to inquire information efficiently and conveniently during the drafting process. For personal customers, we have published some 10,000 books about standards and made nearly 1,000 videos for standards explanation.

Standardization safeguards food in the future

Guo Xinguang
Vice President of China National Research Institute of Food & Fermentation Industries

China National Research Institute of Food & Fermentation Industries is the earliest institute in China that has engaged in standardization work. It now holds the secretariats of 7 national standardization technical committees and 4 international standardization technical committees, most of which are related to the food area.

The concept of "future food" was put forward in the national strategy recently. Then, what is the difference in production mode between traditional food and future food? Most of the traditional food is directly extracted from the raw materia l. Vegetable oil is extracted from soybeans and meat products are processed from animals. However, future food, like protein substitutes and functional food, is no longer produced in that way but made by the application of biological synthetic technology.

To develop standards for future food, we have collaborated with other technical committees covering the whole industrial chain from the upstream food production, the midstream production of microbial preparation to the downstream design and application. Together, we discuss how to develop and improve standards on future food.

Taking a recently published standard for functional food as an example, you can see from the standard text that, the principal part of the food processed by the traditional extraction method and biological synthetic method is the same, which ensures that it is the same kind of product just made by two different production methods. But the content of the main part is different in the two processes. The goal of the food product is more accurate when using the biological synthetic method, however, the traditional production mode may not be so precise. As a result, the standard has different requirements for the two kinds of products. We hope that we can deliver a concept to consumers in this way: future food is certified. There is no essential difference between the traditional food and the food made by biological technology. The supervision on the food industry has been strengthened to protect the rights of consumers, more importantly, to improve consumers' confidence.

Future food will change the way of producing traditional food, the supply of food companies and embrace more efficient, low carbon production mode. In the next few years, a great number of new types of food will emerge with many demands for standards. We hope that with the efforts of the technical committee, we can safeguard the food industry and help people to live a better life.

Feng Xiaoyu
General Manager of Shanghai MicroPort Endovascular MedTech (Group) Co., Ltd.

What can standardization director bring to a company?

Shanghai MicroPort Endovascular MedTech (Group) Co., Ltd. (Endovastec) is a new and high-tech company that focuses on the R&D, manufacturing, sales and services of aortic and peripheral vascular intervention devices.

To actively respond to the *Guidelines on Promoting and Implementing the Enterprise Standardization Director System* released by Shanghai Administration for Market Regulation in 2022, Endovastec has established the position of standardization director to strengthen standardization work in an all-round way.

Standardization director is a senior executive to participate in the decision making of the company, thus making standards empower the development of the company or even the industry.

So, what can standardization director bring to a company? First, it helps to realize the efficient conversion of technical results. Standardization director promotes and raises the awareness on standardization early from the R&D phase, and helps to integrate standardization concepts with technical results timely. It also collaborates with providers and standardizes technological processes and quality control requirements to dramatically increase the purchase efficiency and improve the product quality.

Second, it helps realize the high-quality development of a company within the supply chain. With the expansion of its businesses, it is crucial to well manage its suppliers. Standardization director can coordinate the resources and behaviors of relevant suppliers to ensure the quality and safety of products.

Last but not least, it promotes the internationalization of a company. To enter the international market, a company needs a team composed of technical experts and standardization experts. Standardization director can build a team with members who are familiar with both international rules and professional technologies, and lead the team to participate in the development of international standards, laying a solid foundation for getting into the global market.

Global standards bodies celebrate World Standards Day

全球标准机构庆祝世界标准日

Standards bodies across the globe celebrated the World Standards Day and showed their efforts in standardization.

South Africa Bureau of Standards

"In order to meet the Sustainable Development Goals (SDGs), the role of standardization is more relevant than ever. Setting clear guidelines, through the development of standards and collaboration with stakeholders will provide real world solutions that can collectively contribute to the achievement of SDGs," said Sadhvir Bissoon, Acting CEO of the South African Bureau of Standards.

South Africa develops, maintains and promotes national standard, through the South African Bureau of Standards (SABS), who is a member of ISO and IEC. National Standards, or SANS, are developed through consensus. During the financial year, which ended in March 2023, SABS published 404 SANS, convened more than 200 technical committee meetings, provided effective oversight over 2500 technical committee members, and participated in the various global associations of national bodies.

"The development and maintenance of standards is a rigorous and process-driven field, that relies on collaboration and consensus from all sectors of society and business. World Standards Day is an opportunity for the SABS to recognize the dedication and active participation of our technical experts in South Africa who are members of SABS technical committees and contribute to the critical work of developing national and international standards," said Bissoon.

GCC Standardization Organization

هيئة التقييس الخليجية
GCC Standardization Organization

The GCC Standardization Organization for the Cooperation Council for the Arab States of the Gulf (GSO) joined similar bodies and organizations in the countries of the world in celebrating the 53rd World Standards Day.

Saud bin Nasser Al-Khusaibi, President of GSO, indicated that the celebration this year comes under the theme "Standards and Sustainable Development Goals, our shared vision for a better world" was chosen for the third time to emphasize the importance of standards and their connection to sustainable development goals, and to emphasize the pivotal role of sustainable development in meeting the needs of present days.

He explained that GSO, in cooperation with the national standardization bodies of member states and its partners from relevant international and regional organizations, work to develop and adopt many international standards in the fields of health care and quality of life. GSO has issued up to date about 27,000 Gulf standards and technical regulations for various sectors, products and services, including those relating to health care and quality of life.

At the conclusion of his speech, Al-Khusaibi praised the great efforts exerted by the international, regional, and national organizations in the field of standardization.

Standardization community in the U.S.

Members of the broader U.S. standardization community came together for the U.S. Celebration of World Standards Day, attending an exhibition and reception to recognize the tremendous impact that voluntary codes and standards have on society's public health, safety, and security.

Each year, the American National Standards Institute (ANSI) and the National Institute of Standards and Technology (NIST) co-chair the event. ASTM International served as the 2023 administrating organization.

In today's globally interconnected world, collaboration furthers our shared goals. The standardization system has the greatest impact when all stakeholders work together—from the public and private sector; to national and international representatives; to consumers, industry, governments, academia, and non-governmental organizations. Together, we can achieve more through standardization, developing solutions to the complex global challenges of sustainability, safety, security and climate change…and leaving a better, more resilient, and more equitable world for the next generation.

"Standardization is all about cooperation," said Joe Bhatia, ANSI president and CEO, in his closing remarks. "Events such as the U.S. Celebration of World Standards Day nurture those relationships—keeping them alive and strong—and reinforcing our ability to come together and create solutions to build a better world."

(Source: SABS, GCC Standardization Organization, ANSI)

The 19th Asian Games closes as an "unprecedented success"

杭州亚运会取得"史无前例的巨大成功"完美落幕

By Olive Liu
文/刘宏博

After 16 days of fierce competition, 12,000 athletes from 45 countries and regions shared unforgettable moments at the closing ceremony in Hangzhou, the Heaven City praised by famous traveller Marco Polo more than 700 years ago, marking the third Asian Games that China has hosted after Beijing 1990 and Guangzhou 2010 Asian Games a complete success.

19th Asian Games
Hangzhou 2022

The "firsts" of the event

On many fronts, this Asian Games has brought lots of "firsts" to the spectators:

- it introduced Liangzhu civilization, UNESCO world heritage site dating back over 5,000 years, for the first time through its emblems and other culture designs;

- the Asian Games cauldron was lit for the first time by a real torchbearer and a digital "giant" formed by thousands of light dots representing the 105,791,208 online digital torchbearers who attended the online torch relay in more than 40 countries and regions;

- double 3D wire technology was first applied. Together with naked-eye 3D technology, AR digital enhancement, and super large IMAX screen, it enabled dancers to "ride" the tides and hover above the ground in the opening ceremony;

- skateboarding, breakdancing, and e-sports were introduced as metal sports for the first time.

Although it was postponed for one year due to the global pandemic, the event has provided a safe place for athletes and officials, and an opportunity for people around the world to understand more about Asia and its people, especially the young.

The 19th Asian Games has witnessed a record number of athletes—1,000 more athletes than the last time in Indonesia in 2018—attending 40 major sports, 61 disciplines, and a total of 481 events, making it the most challenging one in terms of athlete numbers, organization and management. However, with meticulous efforts of all participants and the help of cutting-edge technologies, Hangzhou has passed the test and delivered fruitful outcomes.

A green, splendid event with high tech

Sticking to the spirit of hosting a "green, smart, economical, and ethical" sports event, Hangzhou has mobilized the whole city to implement carbon neutral target by building carbon neutral forests in over 26 parks, and developed a series of green and environmental protection standards, covering specifications on green building, healthy building, and indoor environment control. Among which, a technical guidance on indoor air contamination control was applied in the Asian Games venues, and it was the first time that such standards were used in large comprehensive sports venues in China. A total of 198 teenagers of 66 teams from 15 high schools across Zhejiang province rallied 2 years earlier in the 2021 Zhejiang Youth Standardized Olympiad to compete and write green standards for the Asian Games venues. The standards they made might not be applicable this time, but the experience of studying and brainstorming about green and low-carbon venues, ecological conservation, post-game venue operation and management has put promising seeds in their hearts, and would eventually make the young people a strong force in the cause of green development in China.

The economical principle was integrated in the whole construction process of venues. Among 57 Asian and Para Games venues, only 12 are new buildings, accounting for 21%; the rest are all remodeled and converted from existing buildings. The reutilization of old buildings was carried out following successful examples set by the 2022 Olympic Winter Games in Beijing, reflecting China's profound understanding on the way towards green, zero-waste, economic, and eco-friendly event hosting.

"Heart to heart, @Future", a warm yet interesting slogan for the games showcased the character of Hangzhou—a city of smart technology. During the 16 days, intelligent technology can be seen almost everywhere: smart street lights around the venues providing illumination and 5G signal at the same time; drones departing from driver-less vehicles to deliver packages on preprogrammed commands; visualized digital venue operation and maintenance layouts displayed upon one tap of the finger; 4K even 8K ultra high-definition technology and VR devices providing vivid immersive experience for spectators sitting even in the farthest corner. Technology here is for good and for the people. Thousands of audiences became part of the opening ceremony through AR and AI interactions, leaving their images in the digital records forever. The digital and reality integration in practice enhanced efficiency and experience of the games, and attracted a board range of sponsors and spectators to join in derivative activities, thus raising the commercial value of the Asian Games to a higher level.

Liangzhu ruins of ancient city with a history of 4300-5300 years, located in the suburb of Hangzhou city.

Jade cong, found in Liangzhu ruins, is a typical ritual ware in the Liangzhou culture, which is a symbol of power and wealth.

Full of cultural elements

Hangzhou thrives within a cultural legacy that spans thousands of years, creating a truly magnificent and illustrious heritage. Seven years ago, the G20 Summit helped the world take a fresh look at the paradise city of Hangzhou; and now, the 19th Asian Games made the world start to love this picturesque city for its combination of traditional splendors and cutting-edge technical prowess. Fuyang archery venue brought the image in the *Dwelling in the Fuchun Mountains*, a legendary painting made 700 years ago, to us by installing and controlling 34,000 rotating louvers upon its outer wall; one venue of Hangzhou Olympic Sports Center was built into the shape of jade cong, a jade artifact used in rituals in the late Neolithic period in the Liangzhu culture. Athletes from diverse regions and ethnic backgrounds were able to compete in events that are not covered by the Olympic Games, including dragon boat racing, Wushu, kabaddi, a popular contact sport on the Indian subcontinent, jujitsu, cricket, and kurash, one form of wrestling popular among central Asian people and many other events, and at the same time they were fully aware that even athletes from smaller countries are able to put medals in their pockets and bring pride to their mother nations.

Great economic and social benefits

The Asian Games coincided with Chinese Mid-autumn Festival and National Day holiday, which brought enormous number of spectators across China to Hangzhou to watch the games, or simply to enjoy the vibrant atmosphere of the city. As the largest sports event held after the lift of epidemic control restrictions, the 19th Asian Games got a ticket revenue of over 600 million yuan ($82 million), seat occupancy rate exceeding 90% for popular events, and a total revenue from market development reaching 5.3 billion yuan ($728 million). According to Meituan-Dianping data, during the holidays, service orders and consumption in Zhejiang province increased by 195% compared to 2019; restaurant orders surged by 443%, and sports and fitness service orders grew by 762%. The Games drove the development of sports, tourism, and entertainment, but also boosted relevant manufacturing industries behind the sports. Asian Games memorabilia, sports outfits and equipment saw a phenomenal growth in online sales during the event.

Inspiration for future

It brought people not only a splendid banquet of cultural, sports, and technical enjoyment, but also inspirations on many aspects for the future development. People see potential trends in the near future by the glimpse at cutting-edge technologies applied in the event, realize an increasing regional economic, trade and people-to-people connectivity after viewing the solidarity displayed among athletes, and grasp new opportunities in related business, including environment, construction, culture, and tourism.

Visionary leaders in sports truly see the value of this event. Thomas Bach, President of International Olympic Committee, gave high credit to the event organizers for setting "new standards with regards to the sustainable organization of such great Games, carbon emission, zero waste policies and many other efforts" in an interview on September 22. He had complete confidence in this event that "we will see a great number of new sports, an organization that is making use of all the digital expertise of China and Hangzhou, Games organized in a sustainable way with a reduction of the carbon footprint and extensive waste management, and over all they will be Games that the athletes enjoy". At the closing ceremony, Raja Randhir Singh, acting president of Olympic Council of Asia (OCA) praised this Asian Games as "an unprecedented success".

Upholding the motto of the Olympic Council of Asia (OCA) of "Ever Onward", the grand event brought more new games, more energy, and more innovative creations to the people, helping us to take a broader path of shared development and expanded openness. Just as Gao Zhidan, president of organizing committee and Chinese Olympic Committee, said, "the Qiantang River continually flows into the sea, and the light of Asia will continue to shine brightly in the future. The Asian Games flame is about to be extinguished, but its spirit will live on", so will the marvelous story of the diligent and courageous people on this promising land.

Olive Liu is a freelance writer based in Shenzhen, Guangdong province, China.

Standards promote healthy development of e-sports

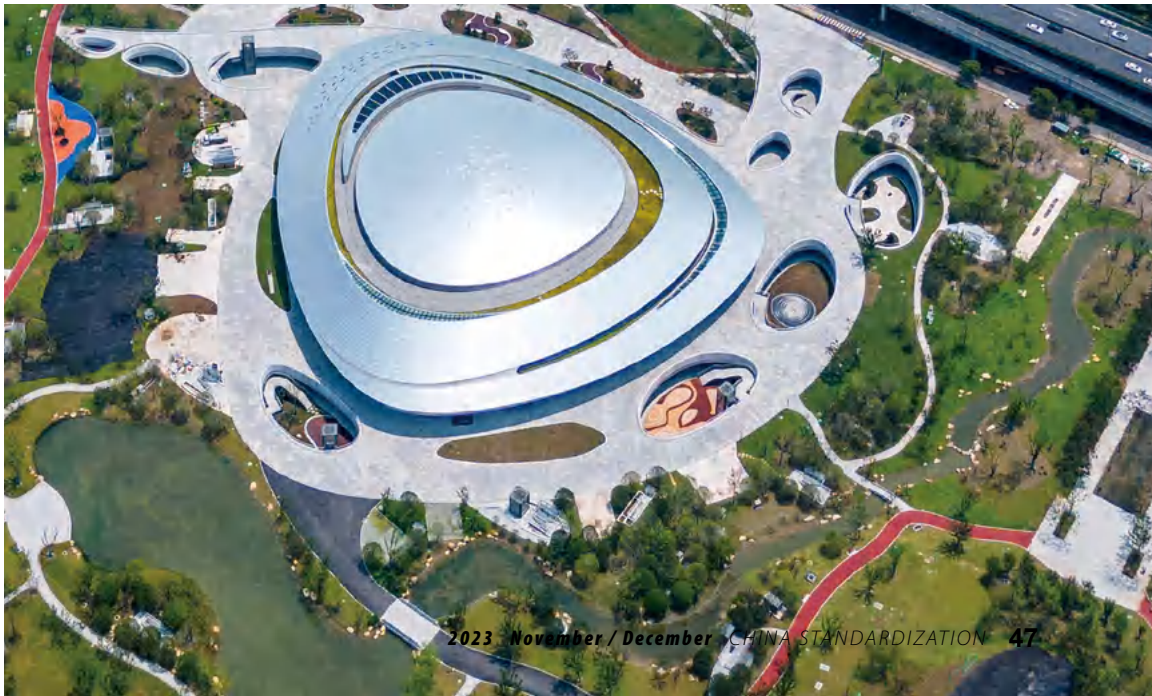
标准助力电子竞技健康发展

By Olive Liu
文/刘宏博

It would be many children and teenagers' wildest dream to visit and play in an "alien starship". Now this fantasy may become true as the China Hangzhou E-sports Center drew public's attention in the 19th Asian Games as the first standard stadium for e-sports competitions in China. Built in a shape of "interstellar vortex", the gaming center covered about 80,000 m^2, boasting a seating capacity of 4,500, a world-class stage effect, and a sensory feast for e-sports lovers. The venue will continue to host e-sports contests in various sizes in the future.

Many spectators of the 19th Asian Games might feel surprised to see the sci-fi and futuristic games competing during the Asian Games attracting so much attention, because video and computer games were still considered as "electronic heroin" that hinder teenagers in their study and cause family disputes not very long time ago.

However, time has changed.



China Hangzhou E-sports Center

A booming industry

Since 2003, e-gaming has been recognized as official sports program by the nation. Young people with "gaming-addiction" became official athletes and started to represent China in contests and compete with gamers from other nations in various e-sports events. Top e-sports clubs are aligning themselves with standard sports leagues. The Asian Games, the Commonwealth Games, and Southeast Asian Games, held e-sports contests as medal winning events, indicating a first step of transferring the event sponsors from game producers and e-sports clubs to official regional or national sports committees.

Fast economic development has led to a strong focus on digitalization and emerging technologies. The forms of electronic games have extended, too. Games today are designed compatible to various platforms and terminals, such as mobile phones, tablets, PCs, and many other gaming devices. As the result, a rapid growth in e-sports industry has been seen in the past 20 years. Along with the surging infiltration rate of mobile phone, computer, as well as the fast development of streaming technology, China's e-sports industry has grown into the world largest one. In 2022, it generated a total revenue of 144.5 billion yuan ($21.5 billion), doubled the figure in 2017. In the first half year of 2023, the number of Chinese e-game users reached 487 million.

Roaming the streets of big cities in China like Shanghai, Beijing, Guangzhou, Chengdu, Hangzhou and Shenzhen, one can see young people gathering around drink shops, sitting rock-still and in total silence with only their fingers busy tapping phone screens. After a few minutes, they suddenly turn back alive and start heated discussion about wins and losses in the game they've just played. Such a scene happens almost every day. According to the iResearch report, 47% of the e-game users are younger than 25 in China. About 39.4% of the users spent 1-3 hours playing video games every week, and 30.5% spent 3-6 hours per week, according to the statistics of iiMedia.cn in January 2022. In fact, sitting together and teaming up to play mobile games has become the most popular social activity among the Generation Z today, since the games they play are normally five-on-five games demanding cooperation and team strategy to destroy the enemy base. Arena of Valor (known as Honor of Kings in China), Dota, and League of Legends in the 19th Asian Games are typical games with such similar rules.

Time to change the stereotype

In face of the soaring development of the e-gaming industry and the super influence among young people, one couldn't help but wonder about several critical questions: are the games safe? After all, back in the wild growing stage, some popular e-games are notorious for their violent contents and mercantilism orientations; what would the parents say if their beloved kids decide to join the e-sports camp and become professional e-sports athletes? And what would the public feel when they hear the news about children rewarding game hosts a large amount of money while watching game livestreaming on their parents' phones? It is quite normal to feel concerned about e-sports and electronic games; in fact, such concerns lie in human nature and would slow themselves when people are confronted with something new. They felt the same way when cars and TV sets were introduced to the world decades ago. How did people cope with that back then? They evolved. While developing new things, they set restrictions and guidance to lead the development of new stuff into a better and healthier future benefiting the majority. During this process, standards have played a critical role, and today they will continue to serve as one of the most important shapers of the future.

As a sports event with its roots firmly set in the vast game players, e-sports is a bottom-to-top project. In its early days of growing, e-sports is not very different from e-gaming, only with better players and better team cooperation and strategy. The contests were usually determined by game producers and commercial clubs; one character update by the game company would completely change the ecosystem of the game, and possibly make one athlete's efforts devoted to the character futile. The industry needs standards, and e-sports must evolve from the daily electronic gaming that we know.

Standards come out to play a role

Since 2017, relevant social associations, game producers, and authorities developed series of e-sports standards, covering basic standards, technical standards, content grade scale, general standards for contests, education requirement for e-sports athletes, media report standards, safety requirements of e-sports, and defined the scope and technical requirements for e-sports companies and relevant organizations, so as to ensure a comprehensive and reasonable realization of e-sports consumers' expectations and sustainable development of the e-sports industry. For example, in 2022, Shanghai E-sports Association and Shanghai Institute of Quality Inspection and Technical Research released serial standards on e-sports venues, including T/SESA 0003-2002, *Construction standard for e-sports venues*, specifies the hardware and software necessary for e-sports and provides a grading standard for comprehensive venues (four grades from A to D) and dedicated e-sports venues (three levels from A to C). The "interstellar vortex" of the 19th Asian Games, Hangzhou E-sports Center, is qualified as level A e-sports venue. Shanghai also released local standard DB 31/1327-2021, *Operation and service specifications in e-sports venues*, which specifies requirements for e-sports event sponsors and hosts, such as their qualification and capability of risk evaluation, contest arrangement, venue construction, ticket management, technical contingency measures, and catering and entertainment services.

With the industry's development, more detailed and targeted standards were released, too. Standards for e-sports talents, athletes, referees, coaches, sparring partner, game operators, commentators, data analyst, tactical analyst, and even e-sports program directors were published one after another in the recent 5 years. Among them, the *National vocational skill standard for e-sports players* issued by Ministry of Human Resources and Social Security in 2021 drew wide attention. People might ask: does it mean from now on every game lover or player can find his/her career in the e-sports industry? It is not that easy. The standard sets a clear bar for players by giving detailed requirements for work content, scope of activity, and education level for professional gamers. According to Wang Song, Executive Director of People's E-sports Operation Center, the release of this standard indicated the end of the wild growth of e-sports and the start of a new stage, an orderly development, or E-sport 2.0, as well as further acceptance and acknowledgement of e-sports by the government and the public.

In the torch relay of the 19th Asian Games, one lad drew people's attention for his torchbearer role, and his 50-meter jogging with the torch raised loud cheers on the Huya livestreaming platform. Peng Yunfei (game ID: Fly), top livestreaming host, professional e-sports player of QGhappy team, eight times championship winner of King Pro League (KPL), and Guinness World Record Holder for winning the most MVP titles in KPL, served as the No. 4 torchbearer in the torch relay in Lishui station. He was also one of the first group of e-sports athletes who obtained the Level 3 certificate in occupational skill level test organized by Ministry of Human Resources and Social Security. The once drop-out high school student being a torch bearer means a lot for the general public: by standard educating and training, game talents from all backgrounds are able to take a board, scientific, and sustainable path towards social recognition, honor, and healthy development. With the guidance of standards, a sound e-sports talent nurturing system is on the way. More universities, vocational schools, and associate colleges are encouraged to train qualified e-sports talents with dedicated programs.

Standards regulate the venues and talent building of e-sports, and also help e-sports events operate in a more independent, standard manner. This Asian Games helped coordinate rules, gaming models, and referee criteria of varied games at different levels in different countries and regions based on Asian Games project specifications. We were presented a better trained team of commentators, games in versions suitable for spectators of all age, and more mature teams made by e-sports athletes capable to pass strict, demanding, and intensified training not only on gaming skills, but on physical and psychological building. It is also the first time that anti-doping management is included in the athletes' training, which was welcomed by athletes and coaches. For them, learning anti-doping lessons and following national standards is an important step for the e-sports as a whole to align with formal sports events.

Thomas Bach, President of International Olympic Committee, announced the establishment of the E-sports Commission two months ago, indicating IOC's recognition of the huge potential of e-sports to engage new audiences and complement the traditional Olympic sports. However, IOC still has reservation today even after launching Olympic Virtual Series in 2021. E-sports' forms, contents, and values still hold a distance with those of the Olympic Games, but as an attempt of cross-over of the gaming industry and the sports industry, e-sports has made impressive achievements. On its journey of evolving into a healthier and more influential sports, e-sports will need the full assistance of standards. There will be more and detailed standards guiding e-sports' future development.

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EU Industry Days 2023: the power of standardization to support business growth

The EU Industry Days are Europe's flagship annual event focusing on key industrial policy discussions, connecting industrial frontrunners, and boosting the knowledge base of European industry. This year's edition took place in Malaga from October 4 to 6, providing an opportunity to companies, entrepreneurs, organizations, national ministries, regional authorities and other industrial stakeholders to organize their own sessions as part of the official programme.

As part of the event, on October 5, CEN, CENELEC and Orgalim (the organization representing technology industries in Europe) co-hosted the panel "Harnessing the Power of Standardization for Business Success".

Moderated by Giovanni Collot of CEN and CENELEC, the session saw Patrick Cox, CEO of the TRE-E Consortium, and Albert Casas, Asia Pacific, Middle East and Africa Area Manager at Unex, share their insights on the merits of embracing standards and their transformative impact in driving business growth. The discussion underscored the universal relevance of standards, emphasizing their role as a common language that drives technological progress.

During the event, the panelists also shared their practical experiences on the benefits of standardization for business, together with the first-hand challenges their companies faced in dealing with standards and standardization. They stressed the value of standards in building trust, guaranteeing interoperability, and providing access to the global market. They also reminded the important of engaging the industry in the development of standards, in order for them to be effective and useful.

Among the challenges discussed, participants noted that standards development very often is still slow, and that it should evolve with the necessary fluidity to adapt to the industry. Also the need to simplify bureaucracy and administration was raised as one point that will facilitate the interaction between industry and standardization.

Finally, a few words were also dedicated to the role of education to train and reskill the next standardization professionals, responding to the increasingly strategic role of standards in many industries.

(Source: CEN/CENELEC)

Blowing in the wind

Wind turbine capacity has greatly increased over time. In 1985, typical turbines had a rated capacity of 0.05 megawatt (MW). The most recent offshore turbines now produce 15 to 16 MW of electricity each.

Offshore wind capability has been growing for the last 10 years and wind turbines have become considerably bigger, with blades of the tallest windmills reaching diameters of up to 250 meters. These big installations need room, and offshore becomes a solution. The power of the wind is also much stronger offshore and generates more electricity than inland windfarms.

A new trend is the installation of floating offshore wind turbines. Unlike conventional offshore turbines, they do not require fixing to the ground below the sea and can be built further away from the land. Another important trend for the wind industry has been the focus on the life extension, decommissioning and recycling of wind turbines.

"Wind has become a mature and multi-billion industry, which is having to meet new challenges. One of them is the life cycle of wind turbines. Originally wind turbine blades were made of epoxy resin and other materials which are difficult to recycle. IEC Technical Committee 88, which prepares standards for wind energy generation systems, is developing two technical specifications, IEC TS 61400-28 and IEC TS 61400-28-2 which deal with through-life management, life extension and recycling. IECRE is working hand in hand with the technical committee, and we are about to produce operational documents in relation to these new technical specifications. The idea is to assess whether some wind turbines which have in theory reached their life-end can still operate for a few years. Life-extension of the turbines not only offers a financial gain to the operator but also fits in with a circular economy approach, which is better for the planet," says Alistair Mackinnon, Chair of IECRE, the IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications.

(Source: IEC)

IEEE CertifAIEd Training Webinar

November 13-16, virtual

IEEE CertifAIEd™ is a certification program for assessing ethics of Autonomous Intelligent Systems (AIS) to help protect, differentiate, and grow product adoption. The resulting certificate and mark demonstrates the organization's effort to deliver a solution with a more trustworthy AIS experience to their users.

Through certification guidance, assessment and independent verification, IEEE CertifAIEd offers the ability to scale responsible innovation implementations, thereby helping to increase the quality of AIS, the associated trust with key stakeholders, and realizing associated benefits.

IEEE Authorized Assessors help guide organizations through a thorough review and examination of their AIS to determine its ethical risk and reward profile and conformance with relevant ethical criteria. For more information on the event website: **https://engagestandards.ieee.org/ieeecertifaied.html?_gl=1*vppoxq*_ga*MTA4OTA4MzQzMi4xNjkyMTczMzUx*_ga_XDL2ME6570*MTY5Njk5MDYwOC41LjEuMTY5Njk5MDYxNC41NC4wLjA.**

ASEAN Critical and Emerging Technologies Digital Summit and Masterclass

November 22 and 29, virtual

Hosted by Standards Australia with the support of the Australian Government's Department of Foreign Affairs and Trade (DFAT), the ASEAN Critical and Emerging Technologies Digital Summit and Masterclass is a two-day virtual event, bringing together leading Critical and Emerging Technologies (CET) experts with ASEAN-based standards developers, policymakers, industry, and business professionals, as well as future leaders to reinforce the importance of the adoption and development of standards with the advancement of CET across South-East Asia.

This event is designed as a fully virtual event, to welcome participants from across the region and around the world with an interest in CET standards.

For more information on the event website: **https://www.standards.org.au/engagement-events/events/digital-summit-integration-of-international-standards-in-cet-across-south-east-asia**

2023 PSIS workshop

December 12, virtual

CEN and CENELEC, together with the European Commission's Joint Research Centre (JRC), carry out an annual "foresight on standardization" initiative named Putting Science into Standards (PSIS). The 2023 PSIS workshop will focus on circular technologies for construction.

The construction sector is one of the priority areas addressed by the Circular Economy Action Plan of the European Green Deal. The sector is responsible for over 35% of the EU's total waste generation, with construction and demolition waste being one of the most significant waste streams. The uptake of circular economy in the construction sector is influenced by policies scattered in areas ranging from the Waste Framework Directive to the Construction Products Regulation and product standards, with a consequent need for effective coordination.

This PSIS workshop will bring stakeholders from research, scientific and standardization communities together with policy makers to exchange views on standardization needs for implementing circular technologies in the construction sector.

For more information on the event website: **https://www.cencenelec.eu/get-involved/research-and-innovation/cen-and-cenelec-activities/putting-science-into-standards**

World Radiocommunication Conference 2023

November 20-December 15, Dubai, UAE

World Radiocommunication Conference 2023 (WRC-23) will take place in the United Arab Emirates from November 20 to December 15, 2023, preceded by the Radiocommunication Assembly 2023 (RA-23) from November 13-17.

This booklet is available in the six languages of the Union and provides an easy access to the WRC-23 agenda, as well as to the pertinent resolutions referenced therein.

For more information on the event website: **https://www.itu.int/wrc-23/#**

CNIS experts attend the 5th plenary meeting of ISO/TC 323

ISO/TC 323 on circular economy held the 5th plenary meeting in hybrid forms recently, assembling over 100 experts from more than 40 countries including France, the U.S., Germany, China, Japan, etc. Two experts from the Branch of Resource and Environment Research, CNIS, attended the meeting virtually.

During the meeting, the attendees listened to the report of the secretariat, progress reports of each working group, liaison reports, future work plan and priorities, etc. The attendees also carried the resolution on the designation of convenors of working groups, and time and form of the next meeting.

The committee will release 4 international standards—ISO 59004, ISO 59010, ISO 59020 and ISO 59040, to technically support the development of circular economy across the globe. Among which, ISO 59040 on product cyclicity data sheet was developed with the joint efforts of China and Luxemburg, and CNIS experts have made great contribution to it. As the domestic technical counterpart of ISO/TC 323, the Branch of Resource and Environment Research is gathering renowned experts in circular economy to establish a think tank supporting China's standardization work in this field.

CNIS gathers experts to attend the 9th plenary meeting of ISO/TC 275

China is one of the countries with the most urban population in the world. In 2020, the scale of sewage treatment in China exceeded 200 million tons per day, resulting in over 60 million ton sludge per year (counted by 80% moisture content).

In recent years, China's environmental protection enterprises and research institutions have made great progress in sludge treatment and safe disposal, which have improved technological levels, and accumulated valuable engineering experience.

ISO/TC 275, *Sludge recovery, recycling treatment and disposal*, convened the 9th plenary meeting in hybrid forms on October 12, which was attended by over 20 representatives from France, China, Austria, Canada, Finland, Germany, Italy, Japan, etc.

CNIS, the domestic technical counterpart of ISO/TC 275, organized seven Chinese experts to attend the meeting virtually. The attendees discussed the current standards projects and future plans of 8 working groups on terminology, characterization methods, anaerobic digestion, land application, thermal processes, thickening and dewatering, inorganics and nutrients recovery, as well as communication and management of public awareness.

CNIS hosts the 2nd National Industrial Data and Knowledge Innovation Management Standardization Conference

Jointly hosted by CNIS, Management Committee of Guangzhou Development District and People's Government of Huangpu District in Guangzhou, the 2nd National Industrial Data and Knowledge Innovation Management Standardization Conference was held on October 26-27 in Guangzhou, South China's Guangdong province.

Themed "Enhancing data and knowledge management, promoting in-depth integration of technological innovation, standardization, intellectual property and industrialization", the conference was hosted by Jiang Jiadong, Vice President of CNIS and other representatives. Approximately 200 representatives from universities, research institutions, manufacturing enterprises, software developers, etc., attended the conference.

Industrial data is the core element of intelligent manufacturing, knowledge management is an effective tool of innovative development, and innovation management is an important content of high-quality development, stressed Liu Dashan, a director from Standards Technical Management Department of SAMR. Further efforts will be made to exert the role of the standardization of industrial data and knowledge innovation management, reinforce the implementation of standardization, deepen the integration of standards and businesses, and promote international cooperation in standardization.

The conference offers a platform for the promotion of standardization work and relevant policies, academic discussion, and communication on industrial development, which benefits policymakers, industry practitioners and the research community. It is shown that the exchange of standardization of industrial data and knowledge management is of theoretical and practical significance to deepen the integration of informationization and industrialization, strengthen the technological innovative capability of enterprises, drive the industrial digitalization and intelligence reform, and promote the high-quality development of the manufacturing industry.

Discussion on the research hotspot of international forensic science standardization —Based on the analysis of bibliometrics method

国际司法鉴定标准化研究热点探讨——基于文献计量学方法的分析

By Zhang Xiaochun[1], Yu Haixing[1,2], Shi Gefei[1], He Xiaodan[1,*]
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Abstract: In order to study the development of forensic science standardization, this paper, based on the bibliometric method, analyzes the paper database of forensic science standardization. The research shows that the quantity and quality of papers have a stable growth tendency and the hotspot in the field of forensic science is the technical innovation and multidisciplinary research. The standardization construction of forensic science in China is in the forefront of the world in terms of scientific research investment, but there is still a gap in organizational capacity and influence, which is reflected in the lack of international cooperation. China should strengthen the standardization of forensic science and explore new development modes constantly.
Keywords: forensic science, standardization, bibliometrics, multidisciplinary

1. Introduction

With the development of the global standardization and the increasing efforts of the International Standardization Organization (ISO), standardization has become an important part of the development of forensic science[1-3]. In 2021, the 45 member states of ISO/TC 272 held the 27th~39th international standardization work conferences on forensic science, which further improve a series of forensic science standardization procedures from the scene to the laboratory testing[4-5]. At the same time, many organizations have carried out a large number of standardization research, aiming to build a more general forensic science standards system to ensure the reliability, scientificity and accuracy, so as to adapt to the development of standard globalization.[1-3]

Bibliometrics is a science of data analyzing with mathematical and statistical methods, which can help researchers identify the topic content and research hotspots in this field[6-8]. At present, some scholars have applied bibliometrics to many branches of forensic science, but there is still no research on the standardization of forensic science from a macro perspective[7,8]. Therefore, it is of great significance to analyze the multidisciplinary forensic science, and grasp the development process, theme context and frontier trend of forensic science standardization.

This study is based on the bibliometric method of Web of Science (WoS) database from 2000-2021, in order to provide reference information for standards development and research work of forensic science.

2. Materials and methods

2.1 Data collection

The data were collected from the Web of Science (WoS) database, including Science Citation Index Expanded (SCIE) and Social Sciences Citation Index (SSCI), with the time range set from 2000.01 to 2021.12. Documents were collected with retrieval TS=(forensic) AND TS=(standard or guide or guideline) AND PY=2000-2021 and exported TXT files. Statistical information includes publication years, paper types, journal information, countries/regions and keywords.

2.2 Analysis

Python 3.9.2 was used to process and clean information such as country/region and keywords in the literature data obtained in Section 2.1. The processed data were analyzed by Microsoft Office Excel 2019 and Gephi 0.9.2 software. The Betweenness Centrality (BC) and Eigenvector Centrality (EC) of each data was calculated using Gephi 0.9.2. And python 3.9.2 was used to draw the time series heat maps of the top 20 keywords in frequency. Gephi 0.9.2 software was used to analyze the co-occurrence relationship of keywords and cluster them. BC and EC of keywords were calculated, and the co-occurrence network diagram was drawn by ForceAtlas2 composition algorithm.

3. Results

3.1 Years and types of publication

The main subjects of this study were 6258 papers on standardization of forensic science from 1230 journals included in WoS from 2000 to 2021. The number of documents showed an increasing trend over the years (Figure 1), the lowest in 2000 (n=65) and the highest in 2021 (n=707). During the 22 years on average 284.45 ± 181.73 articles were published annually. Among the 6258 papers, the largest proportion was Article (n=5285, 84.45%, 240.2/year), followed by Review (n=453, 7.24%, 20.59/year).

3.2 Sources

The WoS published from 2000 to 2021 included 6258 papers of forensic science standardization, which came from 1230 journals. There were 20 journals with more than 50 papers (Figure 2), with 3221 papers, accounting for 51.47% of the total papers. The highest publication volume was journal Forensic Science International (n=652) came from Ireland, accounting for 10.42% of the total publications. It was followed by Journal of Forensic Sciences (n=614), coming from USA, accounting for 9.81% of the total publications.

According to JCR information for the top 20 journals, the average impact factor (IF) was 2.5955 ± 1.5283 (median 2.2935, lower quartile 1.5545, upper quartile 3.3505). The highest IF was *Analytical Chemistry* (IF: 6.986, 5 year IF: 6.755, Q1) and the lowest was *Rechtsmedizin* (IF: 0.517, 5 year IF: 0.515, Q4). In terms of the journals citation index (JCI), the highest JCI was the *Forensic Science International-Genetics* (JCI: 1.75, total citation: 6013). The lowest JCI was *Forensic Science Medicine and Pathology* (JCI: 0.59, total citation: 1501) and *Digital Investigation* (JCI: 0.59, total ctiation:1346). The highest total citation was *Analytical Chemistry* (n=156738) and the lowest was *Rechtsmedizin* (n=407).

3.3 Countries/Regions

Excluding papers without specified countries/regions, authors of other papers from 119 countries/regions have a frequency of 8621 (average 72.45). The top 10 countries/regions with high frequency: USA (n=1751), England (n=655), Germany (n=652), China (n=456) and Australia (n=444). European countries and America, led by USA, are in the dominant position in this field, followed by China and other countries in Asia and Australia.

Countries/regions cooperation group according to conditions (cooperation frequency≥2 and individual frequency≥10) is divided into 3 groups, USA collaboration group (24 countries/regions, total frequency 5980), China collaboration group (22 countries/regions, total frequency 1758) and Spain collaboration group (10 countries/regions, total frequency 700). These 3 countries/regions (n=56) accounted for 47.06% of all countries/regions, and the frequency of publication accounted for 97.88% of the total frequency.

The collaboration of the 3 countries/regions cooperation groups is shown in Figure 3. There are 13 countries/regions with EC≥0.900, USA (1.000), England (0.986), Italy (0.975), Germany (0.965), Spain (0.961), Netherlands (0.929), Portugal (0.925), Austria (0.917), Switzerland (0.917), Belgium (0.914), China (0.907), Sweden (0.907), Denmark (0.900). The top 10 countries in BC were USA (86.850), England (69.370), Italy (35.090), Spain (34.912), Germany (33.040), Switzerland

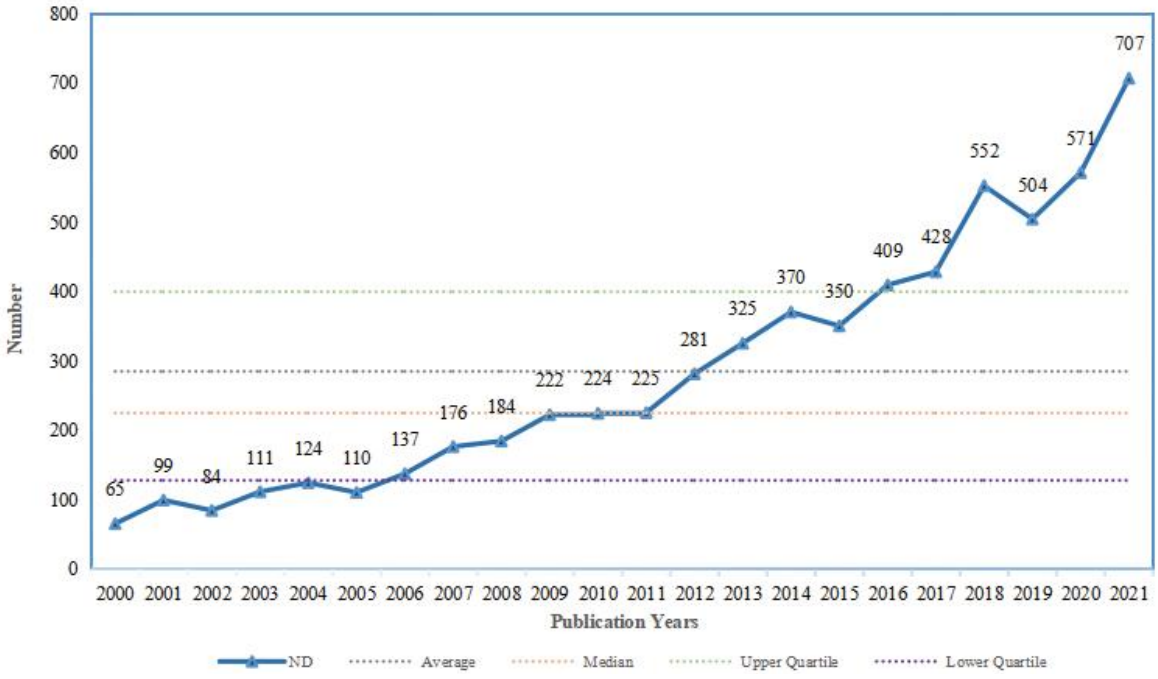


Figure 1: Publication trends

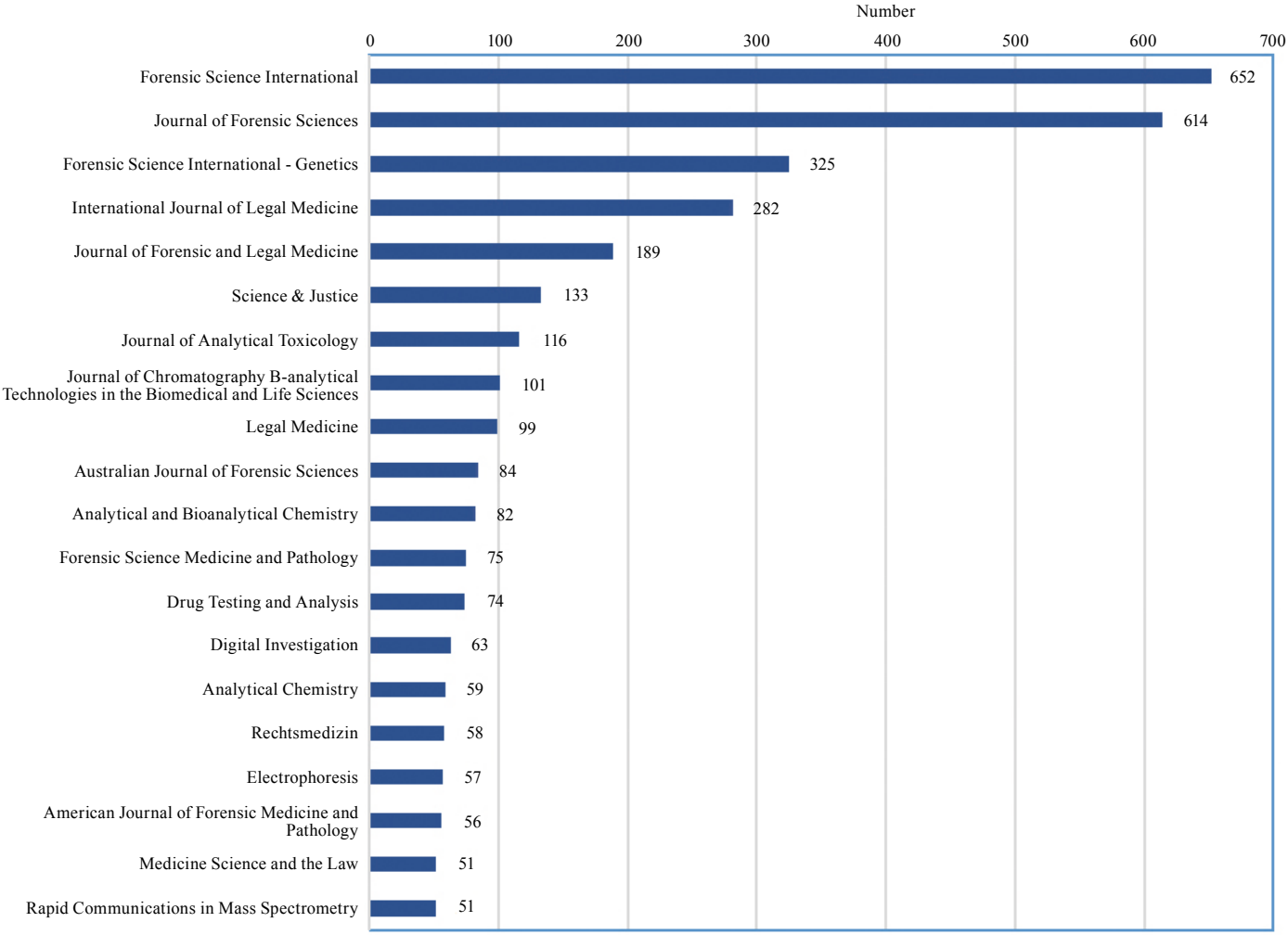


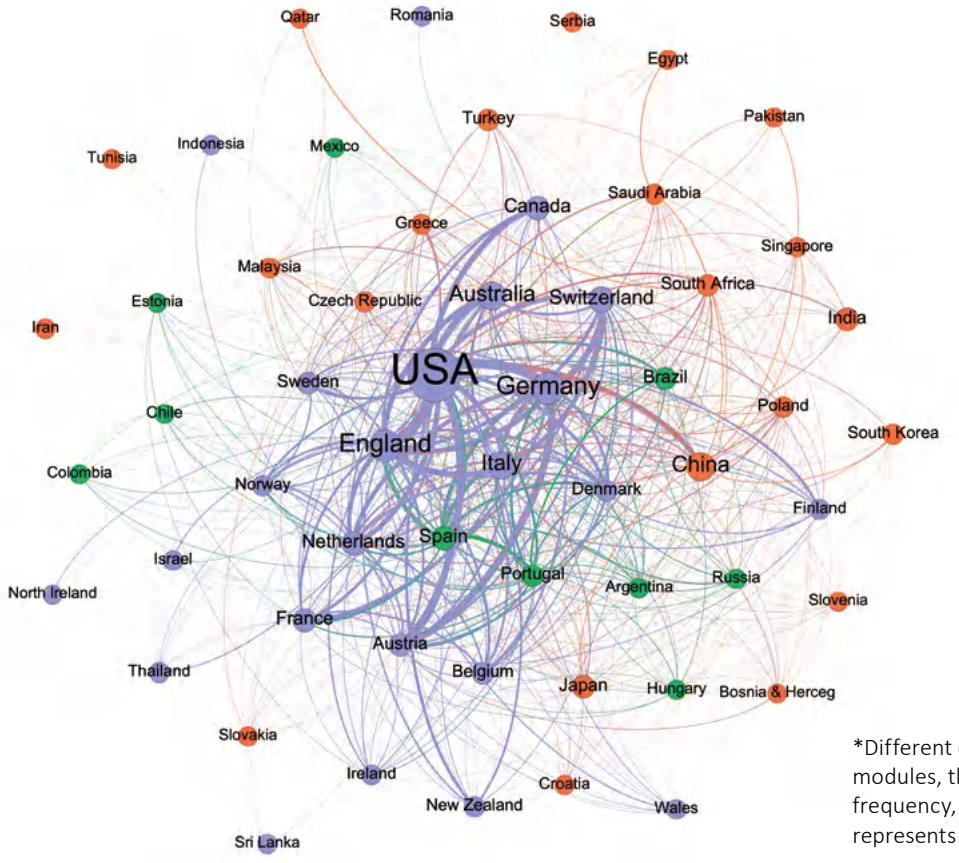
Figure 2: Journal sources of articles

(32.637), Canada (31.382), France (30.210), Sweden (28.719), and Australia (27.921). In addition, China ranked 4th in terms of publication frequency, but China still has a large space for development in international cooperation with China's BC ranking 18th and EC ranking 11th.

3.4 Keywords

A total of 5358 papers contained keywords, accounting for 85.62% of all papers (900 papers without keywords). After deleting, replacing and merging the keywords, we screened 131 keywords with frequency≥10, and further analyzed the temporal hotspot dynamics of the top 20 keywords. As can be seen from Figure 4, the keywords with steady growth of frequency in the past decade is forensic anthropology (n=289), which is a hot field of forensic science standardization in the past decade. In addition, STR (n=202), autopsy (n=124), forensics (n=121), and validation (n=118) were followed. In addition, the keywords from scratch in the past 22 years is NGS (Next-generation sequencing), which is a DNA sequencing technology developed based on PCR and gene chips, and has appeared in papers since 2014.

For further clustering analysis of keywords, which frequency≥10, the relationship of keywords is shown in Figure 5. According to the total frequency of the word group, keywords were divided into 7 groups: STR group (n=30, 1298 times), forensic anthropology group (n=27, 832 times), mass spectrometry group (n=24, 476 times), digital forensics group (n=14, 351 times), autopsy group (n=14, 314 times), forensic psychiatry group (n=11, 280 times), forensic odontology group (n=11, 239 times). These keywords groups correspond to forensic genetics, forensic anthropology, forensic toxicology,



*Different colors represent different modules, the size of points represents frequency, and the thickness of lines represents the tightness of cooperation.

Figure 3: Collaborative network of countries/regions in standardization of forensic science from 2000 to 2021

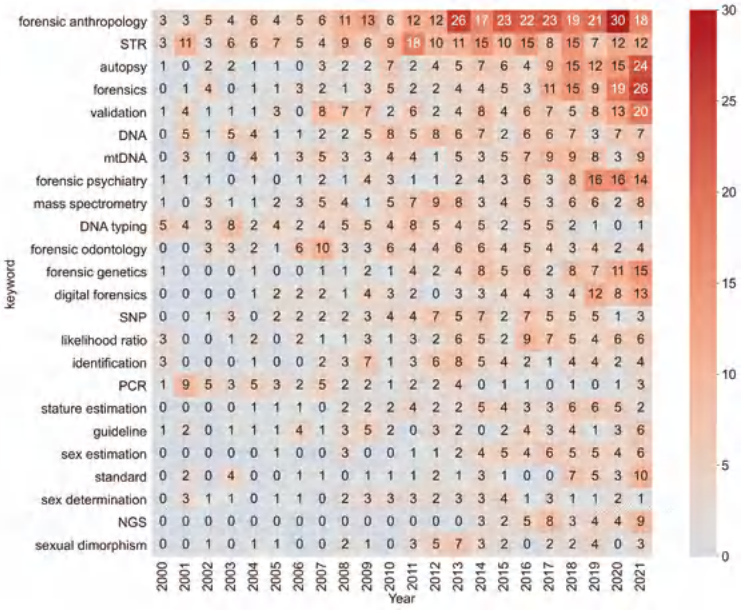


Figure 4: Temporal thermal situation of keywords in the field of forensic science standardization from 2000 to 2021

digital forensics, forensic pathology, forensic psychiatry and forensic odontology. There were 7 of the top 10 EC values of keywords belong to the STR group, including DNA (1.000), validation (0.852), STR (0.844), forensics (0.809), forensic genetics (0.691), DNA typing (0.685), likelihood ratio (0.637). It can be seen that forensic genetics is a high-tech research field in nearly 20 years, mainly involving DNA identification. At the same time, forensic anthropology is the keyword with the largest BC value (1678.789), which has a close relationship with forensic psychiatry, forensic genetics, forensic odontology and other important disciplines, indicating that forensic anthropology plays a very important core role among various disciplines.

4. Discussion

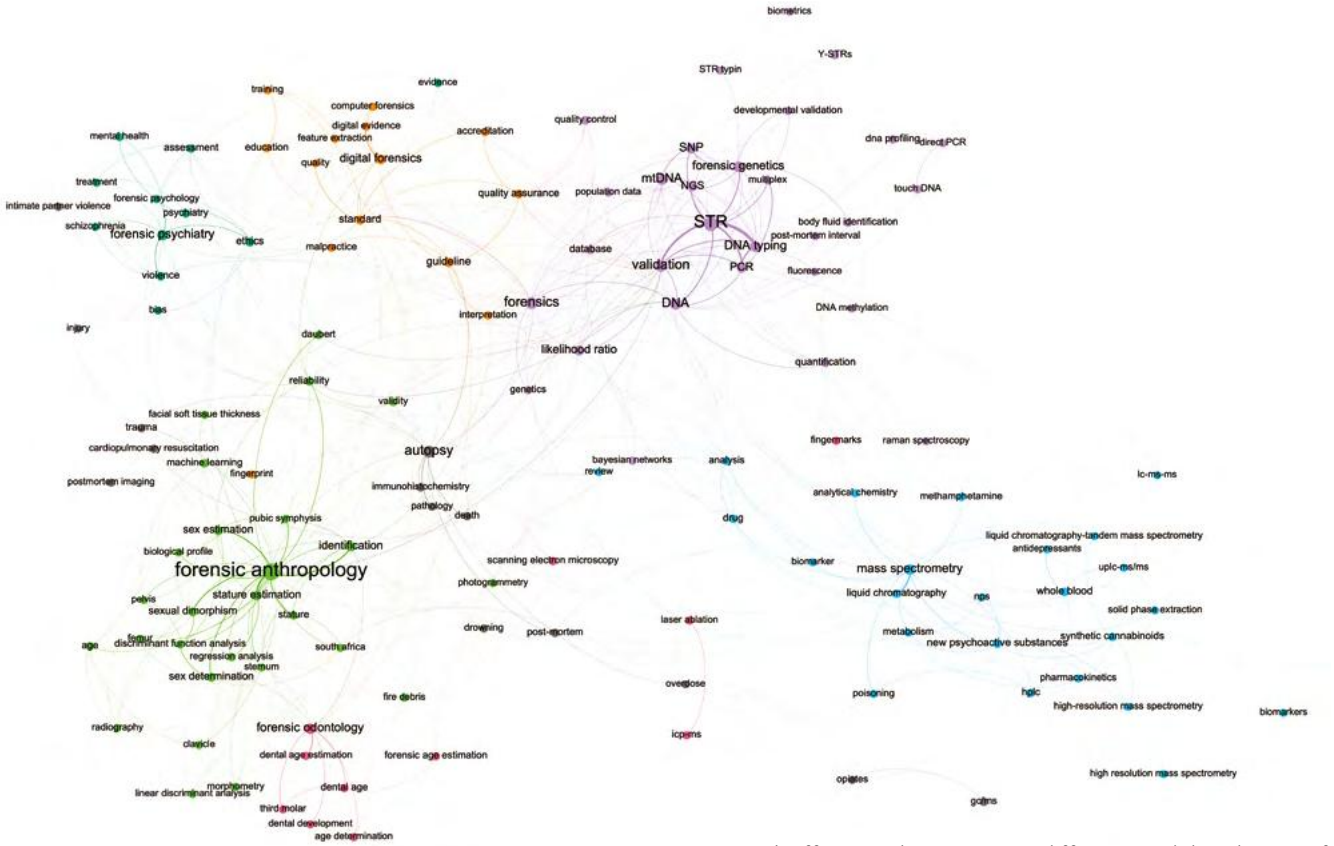
The subjects of this study were the papers of forensic science standardization included in WoS published from 2000 to 2021, including 6258 documents from 1230 journals. The number of changes

over the years showed the overall trend of increasing year by year. It can be seen that the requirements and construction of the standardization of forensic science in countries are gradually strengthened, and standardization has become the key planning direction in the field of forensic science in the future.

In terms of countries/regions, USA topped the list with 1751 (27.98%), and promoted the standardization cooperation of European countries and America. In addition to developed countries, China and Australia are also in a state of rapid development and attach great importance to the theory, technology, operation and quality of forensic science, which drives the standardization research in neighboring countries and plays a leading role in the scientific and technological development.

In terms of keywords, it can be seen that forensic science involves a wide range of fields. The standardization of forensic science focused on forensic genetics, forensic anthropology, forensic toxicology, digital forensics, forensic pathology, forensic psychiatry and forensic odontology, etc. The research of keywords in each professional direction of forensic science has reference value for discipline construction. Through the analysis of research hotspots and evolution trends in key fields, it provides valuable reference information for researchers in various fields, and can trace the discipline process and clarify the direction of scientific research development according to visual information, so as to enhance the innovation ability of disciplines from the source.

To sum up, the analysis of the statistical results can be carried out from three aspects: time dimension, spatial latitude, theory and practice. First of all, during the 22-year period, the documents showed an overall trend of increasing year by year, and the field of forensic science showed more attention to standardization year by year. The reasons for the growth mainly include the development of science and technology, social needs, international cooperation and globalization. Secondly, in terms of international cooperation, countries/regions contacts are particularly important, which affects the scientific and technological exchanges between



*Different colors represent different modules, the size of points represents frequency, and the thickness of lines represents the tightness of cooperation.

Figure 5: Collaborative network of keywords in standardization of forensic science from 2000 to 2021

organizations and authors. Many factors (geography, politics, language, culture, science and technology, etc.) lead to the regional concentration of international cooperation, such as Europe, North America, Asia and Latin America. In order to further strengthen the construction of international standardization of forensic science and play a leading role in the global standardization ecosystem, it is necessary to take the lead of key standardization organizations (such as ISO/TC 272, OSAC, ENFSI, etc.), to incline international efforts to developing countries and narrow the gap between countries. Finally, theory and practice are inseparable; we should promote the transformation of theory into practice, because practice drives the development and progress of theoretical research, and constantly meet the needs of the international community for forensic science. At the same time, researchers should analyze the development trend of forensic science standardization in statistics, bibliometrics and other disciplines, break the disciplinary barriers, clarify the development path, strengthen professional cooperation, and promote the development of forensic science from speed to quality. Researchers should formulate a forensic science standardization strategy in line with the development of science and technology by combining various factors such as keywords and hot research fields.

5. Conclusion

Standards are the crux of the progress of civilization and important guarantee for international cooperation among countries. Under the background of globalization development, we should pay attention to promote the popularization of standardization and strengthen standardization cooperation between countries. Forensic science standardization has been developing rapidly in recent years, and the research on the development characteristics of various disciplines is helpful to promote the construction of international security system. In the face of the inevitable and severe international environment, we should make use of the digital platform to strengthen the international communication and cooperation, break down the barriers, and explore the road for the development of international forensic science standardization. CS

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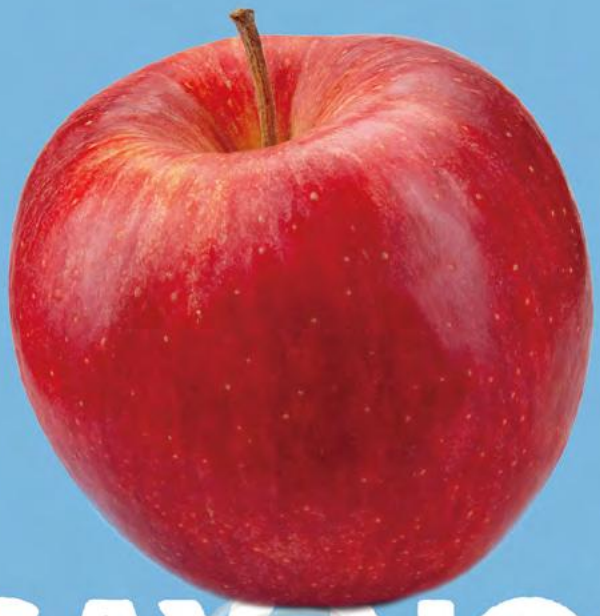

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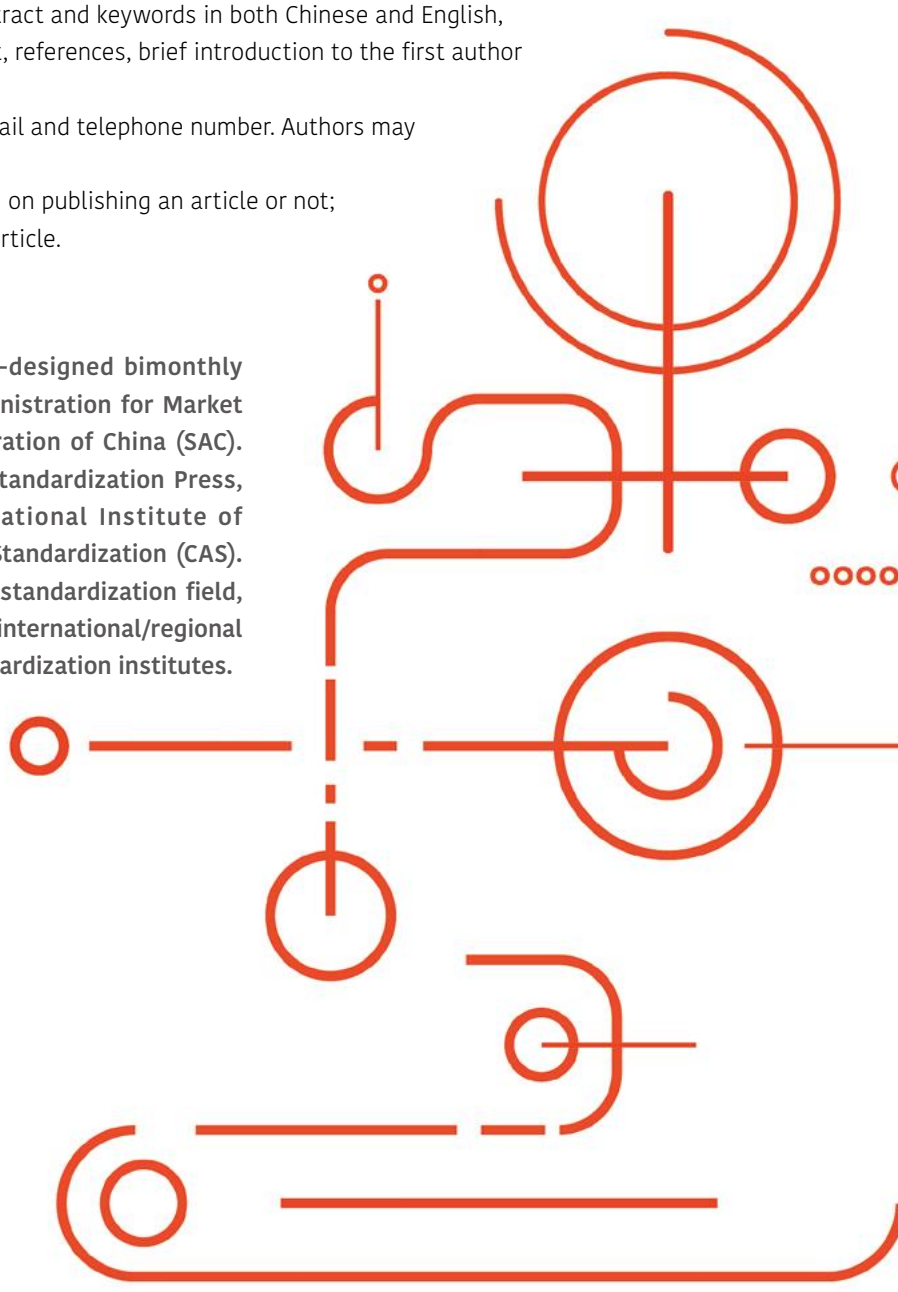

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