



Promoting “soft connectivity”: China’s standards-setting reforms and international ambitions

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Promoting “soft connectivity”: China’s standards-setting reforms and international ambitions

“China will work with all sides to promote ‘hard connectivity’ of infrastructure and ‘soft connectivity’ of rules and standards, [to] ensure unimpeded channels for trade and investment cooperation.”

Xi Jinping, Boao Forum for Asia, 2021¹

Introduction

The words recently pronounced by the General Secretary of the Chinese Communist Party (CCP) are not meaningless and underline an explicit national strategy aiming to give China a key role in setting international standards by seeking to integrate what is now officially described as “*Chinese wisdom in international standards*” (中国智慧融入国际标准)².

Although there is no public address by Xi Jinping on standardisation, certain statements are reported by Tian Shihong (田世宏), Director of the Standardisation Administration of China. In 2016, as the country had just initiated a reform of its standards-setting system, the General Secretary is reported to have called for “*promoting patenting of technology, standardisation of patents and industrialisation of standards*” and “*the internationalisation of Chinese standards*”, presenting them as “*strategic resources*” at the centre of international economic and scientific competition³.

Beyond the rhetoric and stated ambitions, some Chinese companies are experiencing real success. Huawei has become the symbol of China’s technological achievements. However, the company is equally the symbol of the nation’s ambitions in terms of setting standards. It is indeed highly active in international organisations, such as the International Telecommunication Union (ITU) study group on fixed and mobile network protocols, with

¹ China’s State Council Information Office, “Keynote speech by Chinese President Xi Jinping at the opening ceremony of the Boao Forum for Asia Annual Conference 2021”, 20 April 2021 – http://english.scio.gov.cn/featured/xigovernance/2021-04/20/content_77422814.htm.

² “Announcement of the first evolving standard for 5G underlines integration of Chinese wisdom into international standards” (5G首个演进标准宣布完成 中国智慧融入国际标准), *People’s Daily* (人民网), 4 July 2020 – <https://www.yidaiyilu.gov.cn/xwzx/gnxw/135414.htm>.

³ Tian Shihong (田世宏), “Creating a new deal for China’s standardisation cause – Study and implement Comrade Xi Jinping’s important remarks on standardisation work” (开创我国标准化事业新局面 – 学习贯彻习近平同志关于标准化工作的重要论述), *People’s Daily* (人民网), 6 September 2016 – <http://theory.people.com.cn/n1/2016/0906/c40531-28693273.html>.

almost a quarter of the members coming from the company⁴. Huawei also employs some 400 experts dedicated to developing new standards⁵.

As a direct consequence, it is now the number one applicant for standard-essential patents for 5G⁶. More importantly, Chinese media present Huawei as China’s first company to develop both products, technology, and standards, the three tiers considered essential for any industrial scale-up⁷. The Shenzhen-based group thus produces smartphones fitted with a chip using proprietary technology which meets the Polar Code standard proposed by Huawei and adopted by the standards organisation 3GPP.

China’s ambitions in setting international standards are covered by a considerable number of articles in the international press – both general and specialised –, particularly on what is too often wrongly presented as the China Standards 2035 strategy (中国标准2035), which is actually only a research programme that will be described later. The country’s growing participation in international standards bodies such as the International Organization for Standardization (ISO) or the International Electrotechnical Commission (IEC), chaired for the first time by a Chinese national, is also excessively considered as announcing forthcoming Chinese hegemony⁸, or as a symptom of China’s ambition to “*re-write international rules*”⁹. As Western political leaders try to identify long-term threats, it is important to distinguish China’s statements – and the concerns they are raising abroad – from the real risks.

China still lags behind its foreign competitors in the development of international standards. The country is responsible for only 1.8 % of current international standards, and although this is a significant increase from 0.7 % in the mid-2010s, the United States, the United Kingdom, Germany, France and Japan still account for 90-95 % of these standards¹⁰. The Chinese state media half-heartedly acknowledge that the country “*is still in a relatively weak position when it comes to the setting of international standards, although it is a major manufacturing power*”¹¹.

⁴ Maria Farrell, “Now Any Government Can Buy China’s Tools for Censoring the Internet”, *Medium*, 5 December 2019 – <https://onezero.medium.com/how-any-government-can-buy-chinas-tools-for-censoring-the-internet-18ed862b9138>.

⁵ “China becomes the world’s largest contributor to international standardisation in the last five years” (中国成为近五年来在国际标准化领域全球贡献最大国家), *CCTV*, 12 August 2020 – www.m.cnr.cn/news/20200812/t20200812_525202752.html.

⁶ Hideaki Ryugen and Hiroyuki Akiyama, “China leads the way on global standards for 5G and beyond”, *Nikkei*, 5 August 2020 – <https://www.ft.com/content/858d81bd-c42c-404d-b30d-0be32a097f1c>.

⁷ “You know ‘Made in China 2025’, but have you heard of ‘China Standard 2035’? It’s more important!” (知道“中国制造2025”，了解“中国标准2035”吗？这个更重要！), *kknews* (每日头条), 1 November 2018 – <https://kknews.cc/zh-sq/finance/3ze6vg8.html>.

⁸ Emmanuel Lincot and Emmanuel Veron, “Organisations internationales : le spectre d’une hégémonie chinoise se concrétise”, *The Conversation*, 21 April 2020 – <https://theconversation.com/organisations-internationales-le-spectre-dune-hegemonie-chinoise-se-concretise-136706>.

⁹ Naomi Wilson, “China Standards 2035 and the Plan for World Domination – Don’t Believe China’s Hype”, *CFR*, 3 June 2020 – <https://www.cfr.org/blog/china-standards-2035-and-plan-world-domination-dont-believe-chinas-hype>.

¹⁰ “China becomes the world’s largest contributor to international standardisation in the last five years” (中国成为近五年来在国际标准化领域全球贡献最大国家), *CCTV*, 12 August 2020 – http://m.cnr.cn/news/20200812/t20200812_525202752.html.

¹¹ Editorial, “Chinese standards going global an unavoidable trend”, *Global Times*, 28 April 2020 – <https://www.globaltimes.cn/content/1187060.shtml>.

Now, these technical standards are of vital importance since they make systems interoperable and useable. The economic stakes are therefore evident for companies which, thanks to the patents used by their competitors, receive significant royalties¹², but also because international standards serve as a reference point for determining technical barriers to trade¹³. Lastly, the ability to define international standards is both a mark and an instrument in the international power competition¹⁴.

In this context, the present note aims to fill a gap in the English-language literature by drawing primarily on Chinese-language sources, whether official documents or press articles¹⁵. Analysing these sometimes technical documents is essential, because although many Chinese publications, such as the 14th Five-Year Plan (2021-2025) which refers to it 58 times, mention the country’s interest in standards-setting, it is vital to study specific documents¹⁶. The aim is to avoid as much as possible the confirmation bias produced by repeated cross-quotes among articles in English that do not necessarily present factual information, do not put China’s stated objectives or its participation in international organisations into perspective, and barely mention alternative forms of cooperation, particularly with the developing countries that are members of the Belt and Road Initiative.

1. The overhaul of China’s national standards system

Standardisation work is – as the German Institute for Standardisation (DIN) puts it – a “*self-administration task of industry*”. In theory, the state plays a secondary role. However, China’s approach to standardisation is much more focused on the participation of state actors in the standardisation process than it is in Western countries¹⁷. The Chinese standards system has the greatest degree of government involvement and direction in the world¹⁸. The document of the Standardisation Administration of China (SAC) presenting the objectives for 2021 clearly states that the standardisation process is “*government-led and business-oriented*” (推动构建政

¹² “Chinese Interests Take a Big Seat at the AI Governance Table”, *New America*, 28 June 2018 – <https://www.newamerica.org/cybersecurity-initiative/digichina/blog/chinese-interests-take-big-seat-ai-governance-table>.

¹³ Björn Fagersten and Tim Ruhlig, “China’s standard power and its geopolitical implications for Europe”, *Swedish Institute of International Affairs Brief*, No. 2, 2019 – <https://www.ui.se/globalassets/ui.se-eng/publications/ui-publications/2019/ui-brief-no.-2-2019.pdf>.

¹⁴ John Seaman, “China and the new geopolitics of technical standardization”, *Notes de l’IFRI*, IFRI Center for Asian Studies, Vol. 25, No. 3, January 2020 – https://www.ifri.org/sites/default/files/atoms/files/seaman_china_standardization_2020.pdf.

¹⁵ Searches have been done by selecting a series of keywords, such as “standards” (标准) and “Chinese standards” (中国标准), then combining them with the institutional players presented.

¹⁶ State Council of the People’s Republic of China, “Outline of the Fourteenth Five-Year Plan for National Economic and Social Development of the People’s Republic of China and Vision 2035” (中华人民共和国国民经济和社会发展第十四个五年规划和2035年远景目标纲要), 13 March 2021 – www.gov.cn/xinwen/2021-03/13/content_5592681.htm.

¹⁷ “Chinese Creative Drive: China Standards 2035”, *BDI*, 13 August 2020 – <https://english.bdi.eu/article/news/chinese-creative-drive-china-standards-2035/>.

¹⁸ Naomi Wilson, “‘China Model?’ Beijing’s Promotion of Alternative Global Norms and Standards”, Hearing, U.S. China Economic Security Review Commission, 13 March 2020 – https://www.uscc.gov/sites/default/files/2020-10/March_13_Hearing_and_April_27_Roundtable_Transcript.pdf.

府引导、企业主体)¹⁹. Without ever challenging the predominance of the government, this Chinese standards ecosystem nonetheless changed considerably at the end of the 2010s with the major reform initiated by the March 2015 “Reform plan for furthering standardisation work” (深化标准化工作改革方案).

A. A major reform of the standards and standardisation ecosystem

This reform was devised in three stages: a pilot phase (2015-2016), aimed in particular at auditing all existing standards and identifying the most competent institutional and private players; a transition to the new system (2017-2018) with the implementation of the new standardisation mechanism and system and the harmonisation of Chinese standards with international norms in consumer goods; and lastly, the finalisation of the system (2019-2020), leading to better coordination, greater international competitiveness and, above all, more international visibility, with the goal of improving “*the international influence of Chinese standards*” and making the country a “*global standards-setting power*” (世界标准强国)²⁰.

A new law on standardisation, which modernises and simplifies the previous system established almost thirty years ago, came into force on 1 January 2018 (figure 1). The former system provided for four categories of standards: national governmental, industry, local and enterprise standards. National, industry and local standards could be classed as mandatory or recommended, and enterprise standards as recommended only. Under the new system, standards refer to “technical requirements that need to be unified in agriculture, industry, services, social undertakings and other fields”, and standards include national standards, industry standards, local standards, social organization standards and enterprise standards (art. 2). Only national standards issued by the SAC – GB standards (国标) – are mandatory, and compliance with them grants access to the certification required to sell products on the Chinese market. Industry and local standards. There are also recommended national, industry and local standards.

Among the mandatory standards : standards for pharmaceuticals, food hygiene and veterinary medicine; safety and hygiene standards for products and the production, storage and transportation and utilization of products; standards for the safety of labour and hygiene standards and safety standards for transportation; quality, safety and sanitation standards for project construction and other standards for project construction that must be controlled by the state; standards for the discharge of pollutants concerning environmental protection and standards for environmental quality; etc²¹. For example, of the 38,347 national standards existing at the end of 2019, 2,131 were mandatory²².

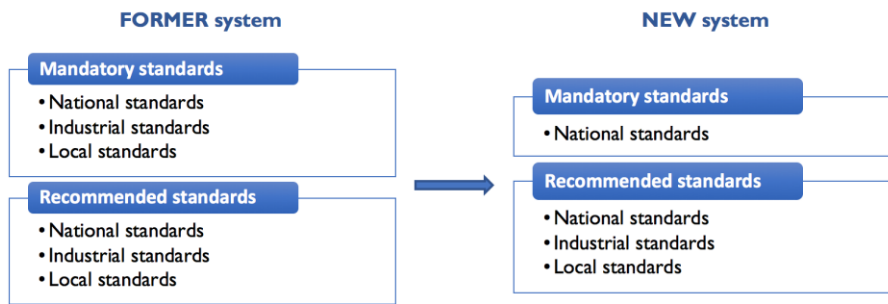
¹⁹ Standardisation Administration of China, “Notice of Standardisation Administration of China on Releasing ‘Main Points of National Standardisation Work in 2021’” (国家标准化管理委员会关于印发《2021年全国标准化工作要点》的通知), 9 April 2021 – www.sac.gov.cn/sxxgk/zcwj/202106/t20210602_347314.html.

²⁰ State Council of the People’s Republic of China, “State Council Notice on the release of a plan for furthering standardisation reform”, 11 March 2015 – http://www.gov.cn/zhengce/content/2015-03/26/content_9557.htm.

²¹ “Standardization Law of People’s Republic of China, translated by SESEC”, November 2017 – <https://www.sesec.eu/app/uploads/2018/01/Annex-I-China-Standardization-Law-20171104.pdf>.

²² State Administration for Market Regulation of the People’s Republic of China, “Annual Report on development of standardisation in China (2019)” (中国标准化发展年度报告(2019)), September 2020 – <http://www.samr.gov.cn/bzcx/sjdt/gzdt/202009/P020200910331877427036.pdf>.

Figure no. 1: CHANGE IN CHINA’S STANDARDISATION SYSTEM FOLLOWING THE 2018 LAW

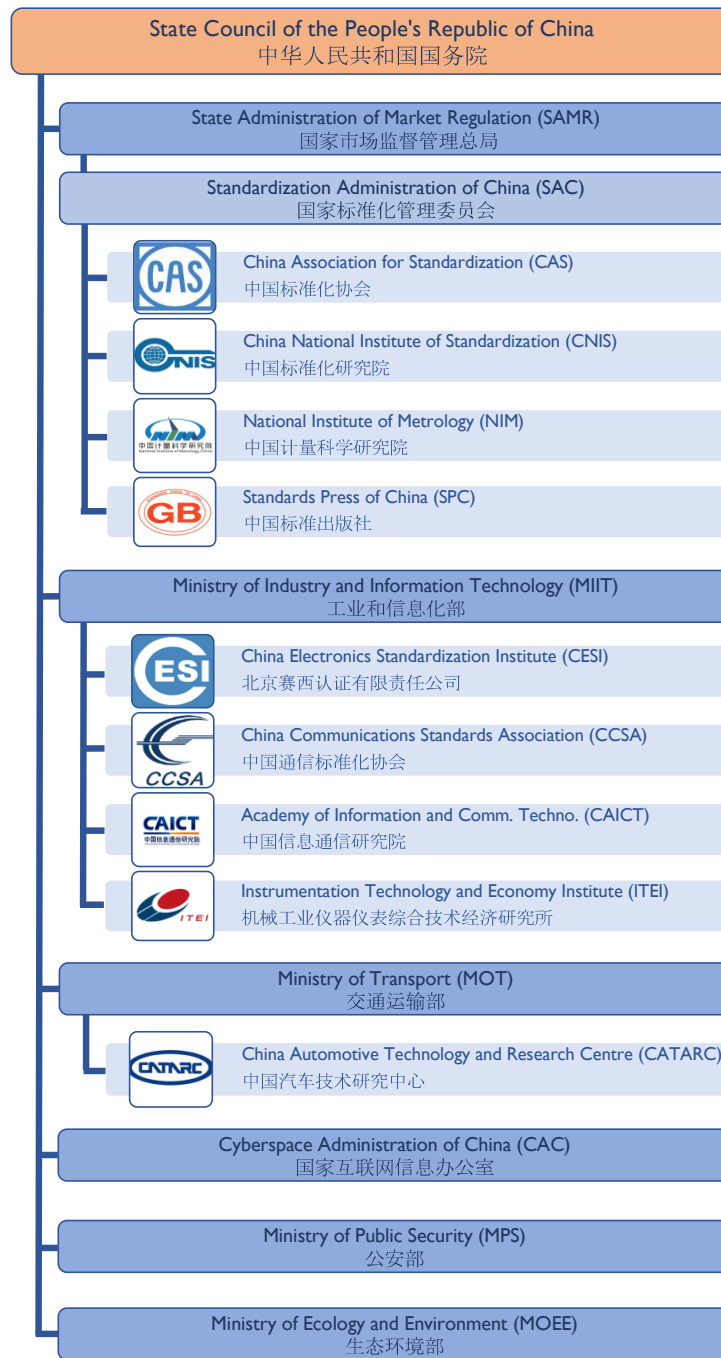


B. A handful of government players as key actors

The institutional players also changed in spring 2018, all placed under the aegis of the State Council (figure 2). The State Administration for Market Regulation (SAMR – 国家市场监督管理总局) was created to streamline regulation and improve coordination in anti-monopoly measures, intellectual property rights, supervision of the safety of medicines and/or issuance of commercial licences. This new ministerial-level Chinese market regulation authority stemmed from the merger of several governmental bodies; it supervises the Standardisation Administration of China (SAC – 中国国家标准化管理委员会).

The SAC is the principal standardisation institution in China. It develops and implements laws and regulations on national standards-setting, particularly mandatory national standards. It is also responsible for developing recommended national standards, registering industry and local standards, and participating in the activities of international standards organisations. Many research centres are part of it, including the Chinese Association for Standardisation (CAS – 中国标准化协会) and the China National Institute for Standardisation (CNIS – 中国标准化研究院). It also sends Chinese representatives to international standards organisations.

Figure no. 2: MAIN INSTITUTIONAL STANDARDISATION PLAYERS IN CHINA



Another institutional player, which is often underestimated but nonetheless plays a central role, is the Ministry of Industry and Information Technology (MIIT). It issues and implements standardisation policies for the ICT sector, which is a priority in China, proposes new mandatory national standards, specifies communication standards for 5G licences, and guides the work of China’s major digital standards organisations. The China Electronics Standardisation Institute (CESI – 北京赛西认证有限责任公司) and the China Communications Standards Association (CCSA – 中国通信标准化协会) are two important institutions attached to it. In a more secondary role, the Cyberspace Administration of China (CAC – 国家互联网信息办公室) issues policies on information dissemination on Internet and cybersecurity, while the

Ministry of Public Security (MPS) focuses more on network security. Both institutions develop standards for cybersecurity.

C. *China Standards 2035 and the focus on emerging technologies*

The Chinese authorities also continue to work on adapting the national standardisation strategy, particularly at the international level. The Chinese and international media have recently reported extensively on the China Standards 2035 research programme (中国标准2035), often comparing it with the Made in China 2025 (中国制造2025) strategy, a major industrial plan aimed at boosting China’s economic competitiveness by investing in emerging technologies and by reducing dependence on foreign companies and technologies. Many present it as “a ten-year public policy plan supposed to set certain guidelines for the Chinese economy”²³, or even as a plan designed to enable China to impose its international standards in new technologies²⁴. That is not the case.

In January 2018, the SAC and the Chinese Academy of Engineering launched a major two-year study on the national standardisation strategy. It was not a strategy as such, although the project was complementary to the Made in China 2025 project, as the industrial scale-up was to take place in three tiers: production, technologies and standards²⁵. The project was led by Tian Shihong (田世宏), Deputy Director of the SAMR and Director of the SAC, and Zhao Xiangeng (赵宪庚), former president of the Chinese Academy of Engineering Physics, emphasising the governmental oversight of this research. The project ended on January 14, 2020, and was succeeded by a new one entitled “Research into the national standards-setting development strategy” (国家标准化发展战略研究), whose results have yet to be made public.

This research confirmed the directions already taken in 2015, particularly the emphasis placed on the need for China to focus on setting standards in emerging technologies, these being areas in which the country has “advantages in terms of market, technology and application”, to quote the Chinese media²⁶. The Chinese researchers insist, for instance, on standards relating to data governance²⁷, artificial intelligence²⁸, or, more broadly, digital technology – areas in which China’s technology gap is lesser. This emphasis is logical and consistent with the country’s innovation efforts.

²³ “Géopolitique – ‘China Standards 2035’, là où la mondialisation rencontre la géopolitique”, *Crédit Agricole – Études économiques*, 10 March 2021 – <https://etudes-economiques.credit-agricole.com/Publication/2021-Mars/Geopolitique-China-Standards-2035-la-ou-la-mondialisation-rencontre-la-geopolitique>.

²⁴ Natacha Trehan, “L’Europe est-elle prête pour la prochaine guerre des normes avec la Chine ?”, *Les Échos*, 23 October 2020 – <https://www.lesechos.fr/idees-debats/cercle/opinion-leurope-est-elle-prete-pour-la-prochaine-guerre-des-normes-avec-la-chine-1258538>.

²⁵ Alexander Chipman Koty, “What is the China Standards 2035 Plan and How Will it Impact Emerging Industries?”, *China Briefing*, 2 July 2020 – <https://www.china-briefing.com/news/what-is-china-standards-2035-plan-how-will-it-impact-emerging-technologies-what-is-link-made-in-china-2025-goals/>.

²⁶ “You know ‘Made in China 2025’, but have you heard of ‘China Standard 2035’? It’s more important!”, *op. cit.*

²⁷ Wang Changyang (王常阳), “US academics suggest America issues new international rules for the digital era” (美学者建议美国为数字时代制定新国际规则), *Renmin Zixun* (人民资讯), 15 May 2021 – <https://baijiahao.baidu.com/s?id=1699823479692005102&wfr=spider&for=pc>.

²⁸ Li Qiaoyi, “China should have role in setting global AI standards”, *Global Times*, 26 April 2018 – <https://www.globaltimes.cn/content/1099847.shtml>.

The framework document for 2016-2020, corresponding to the 13th five-year plan, emphasises next-generation information technologies but not exhaustively: *“integrated circuits, high performance electronic components, semiconductors, new displays, smart devices, satellite navigation, operating systems, man-machine interaction, distributed storage, Internet of Things, cloud computing, big data, smart cities, digital home, e-commerce, e-government, next-generation mobile communications, ultra-broadband communications, personal data protection, network security audits, etc.”*²⁹. The most recent document on the topic, the notice of the SAC on priorities for 2021³⁰, partly reproduces this list but states that the areas are diverse, ranging from basic components to composite materials, from semiconductors to construction materials, from consumer goods to foodstuffs, and from space infrastructure to Internet of Things (IoT).

2. Great international ambitions, yet limited results

China’s international ambitions in standards are not recent. In 1989 already, Article 4 of the standardisation law encouraged China to actively adopt international standards but also to carry more weight in their development. This objective is repeated in the new version of the law enacted in 2019. Article 8 explicitly stipulates that *“the government encourages participation in international standards-setting activities, involvement in international cooperation and exchanges with regard to standards, the adoption of international standards in the Chinese context and harmonisation of Chinese and foreign standards”*. The 2015 State Council circular is equally explicit:

- ➔ *“Strive to hold more leadership positions in technical bodies of international standards organisations;*
- ➔ *Promote mutual recognition of standards with the main countries trading with China;*
- ➔ *Promote the internationalisation of standards in worthwhile and characteristic areas;*
- ➔ *Promote Chinese standards in combination with overseas project contracts, equipment exports, and foreign construction aid”*³¹.

These ambitions have become very visible in international organisations, particularly since China joined the leadership board of ISO in 2008 and IEC in 2011. One significant development has been the appointment of several Chinese officials to head these standards organisations: Zhao Houlin (赵厚麟) at the International Telecommunication Union (ITU) in 2015, Zhang

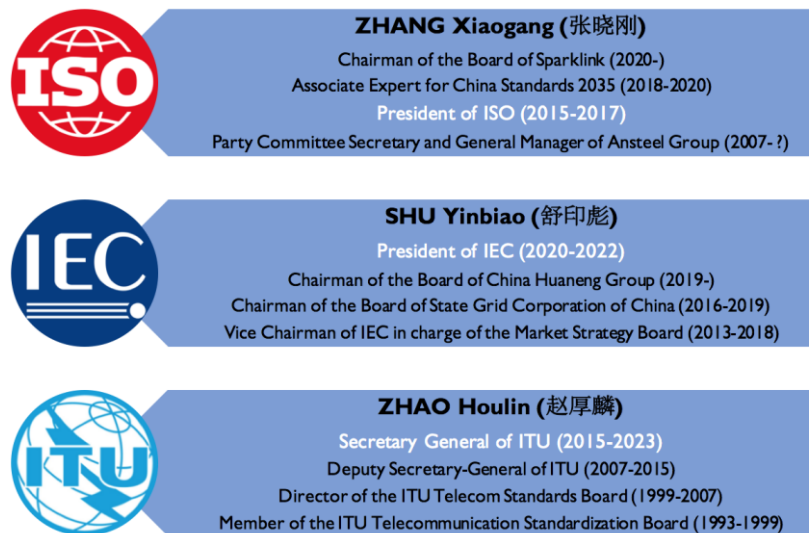
²⁹ State Council of the People’s Republic of China, “Circular of the State Council General Office on the release of the development plan for national standardisation system construction (2016-2020)” (国务院办公厅关于印发国家标准化体系建设发展规划(2016-2020年)的通知), 17 December 2015 – www.gov.cn/zhengce/content/2015-12/30/content_10523.htm.

³⁰ Standardisation Administration of China, “Notice of Standardisation Administration of China on Releasing ‘Main Points of National Standardisation Work in 2021’”, 9 April 2021 – http://www.sac.gov.cn/sxxgk/zcwj/202106/t20210602_347314.html.

³¹ State Council of the People’s Republic of China, “State Council Notice on the release of a plan for furthering standardisation reform”, 11 March 2015 – http://www.gov.cn/zhengce/content/2015-03/26/content_9557.htm.

Xiaogang (张晓刚) at ISO in 2015 and, more recently, Shu Yinbiao (舒印彪) at IEC in 2020 (figure 3). More broadly, China’s strategy is based on a dual multilateral and multi-bilateral approach with three objectives: (1) boost China’s influence and participation in international organisations, (2) increase the setting and adoption of international standards proposed by China and (3) encourage Belt and Road Initiative (BRI) participating countries to adopt Chinese standards.

Figure no. 3: CHINESE OFFICIALS AT THE TOP OF INTERNATIONAL STANDARDS ORGANISATIONS



A. *Greater participation in international organisations*

China has been consolidating its presence in international standards organisations ever since. In 3GPP, the international coalition working on 5G, Chinese industry and institutional representatives held 10 of the 57 president and vice-president positions in 2018³², and Chinese voting rights, which are proportionate to participation, reached 110 votes in 2020 compared to 53 for the United States³³. Above all, China joined the group of countries that stand out for their considerable responsibility in technical committees: Germany, the United States, France, the United Kingdom and Japan. These positions are particularly coveted due to the influence they give their holders regarding agendas, choice of topics addressed, speaking time, etc.

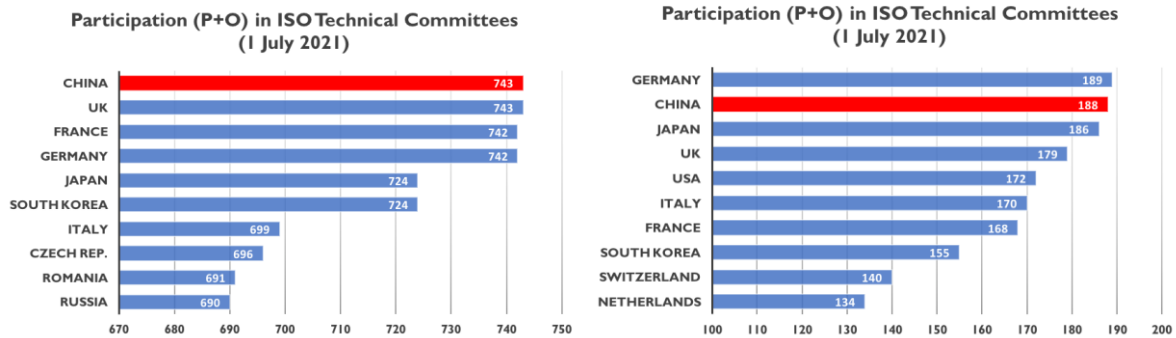
To assess China’s influence, many articles base their evaluation on the country’s participation in ISO and IEC technical committees (as participating member and observer). With this criterion, China is today the first or second-ranking country (figure 4). It is also engaged in a considerable catch-up process: China takes part in approximately 250 ISO technical committees more than 15 years ago, vs. only 50 more for the United Kingdom. From 2011 to

³² Newley Purnell and Woo Stu, “China’s Huawei Is Determined to Lead the Way on 5G Despite U.S. Concerns”, *Wall Street Journal*, 30 March 2018 – <https://www.wsj.com/articles/washington-woes-aside-huawei-is-determined-to-lead-the-way-on-5g-1522402201>.

³³ “China in International Standards Setting”, The U.S.-China Business Council, February 2020 – https://www.uschina.org/sites/default/files/china_in_international_standards_setting.pdf.

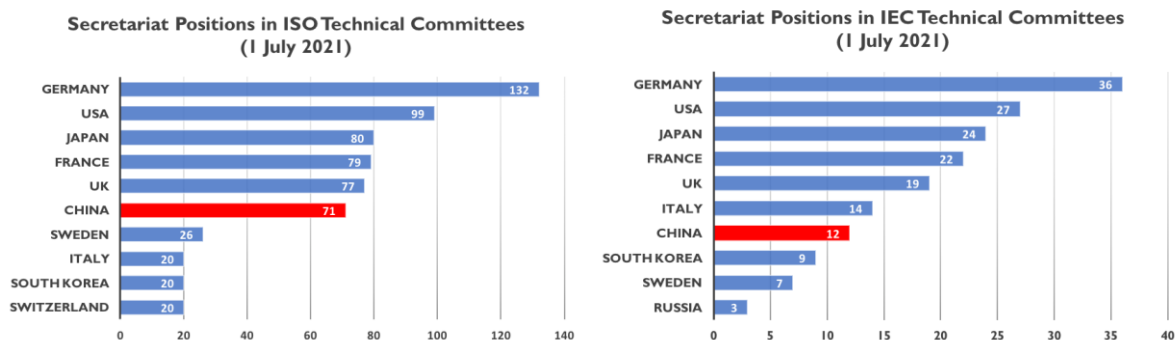
2020, the number of Chinese-held secretariat positions in ISO technical committees or sub-committees increased by 73 %.

Figure no. 4: PARTICIPATION IN ISO AND IEC TECHNICAL COMMITTEES



Based on this criterion, China is now in the lead, and on a par with the United Kingdom, in ISO, and at the same level as Germany and ahead of Japan in IEC. However, this is a partial criterion, as it does not take account of either the number of technical committee secretariat positions held by the different countries, or the difference between active participation (P) and observation (O) in those committees. For example, the Czech Republic ranks 8th in terms of participation (P+O) but it does not head up any technical committee and only actively participates in 200 such committees.

Figure no. 5: DISTRIBUTION OF SECRETARIAT POSITIONS IN ISO AND IEC TECHNICAL COMMITTEES



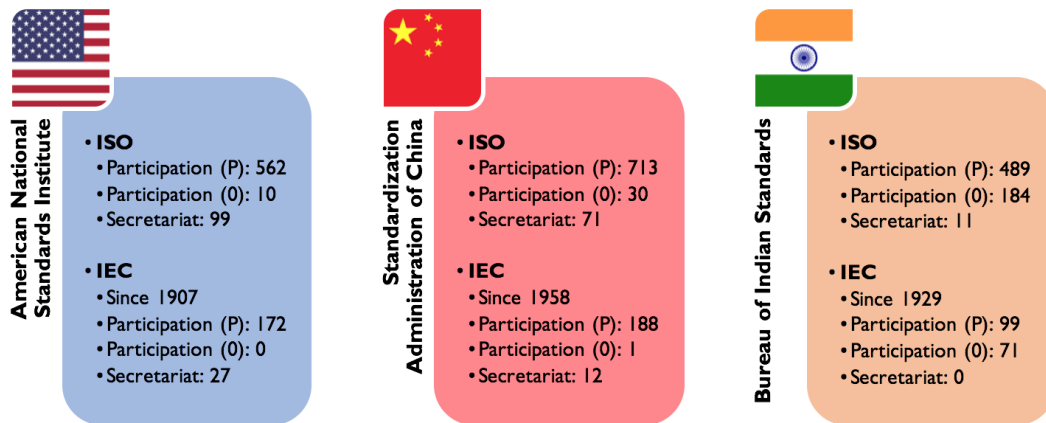
If the number of secretariats allocated to the various countries is taken into account, China ranks only in 6th and 7th positions (figure 5). Despite the rise in its responsibilities in IEC in 2020, it holds only 5 % of secretariat positions and 4 % of technical committee chairs³⁴, behind Italy. This is therefore a far cry from Chinese hegemony in international organisations. Moreover, China has still not attained a position commensurate with its economic weight. Out of the nine technical committees created at ISO in 2020, only one (ISO/TC 333) was proposed

³⁴ “Baromètre international 2021: Position française dans la normalisation internationale”, AFNOR, 2021.

and is led by China, compared to three for France (ISO/TC 310, ISO/TC 330 and ISO/TC 331). European and US businesses are, therefore, still the most influential participants due to their leadership and their technical expertise, in-depth knowledge of standards-setting processes and rules, the quality of their contributions and their continuous participation over time³⁵.

However, in just 15 years, China has succeeded in joining a small group of Western countries that have been in these international organisations for decades. In this respect, China stands out from all other developing countries, notably India, which, despite now being the world’s seventh-largest economy, only leads a very small number of ISO and IEC technical committees, *i.e.*, 11 in total compared with 83 for China and 126 for the United States (figure 6).

Figure no. 6: COMPARISON OF ISO AND IEC PARTICIPATION AND SECRETARIAT POSITIONS OF THE UNITED STATES, CHINA AND INDIA



Furthermore, China may seek to act as a voice for developing countries and thus facilitate future nominations to lead technical committees and the adoption of the standards it proposes. Among the 88 members of the IEC, and particularly the 27 Associate Members, many countries included in the BRI are recent members: Ivory Coast and Bangladesh (2018), Ghana (2019), Uganda and Ethiopia (2020). This is particularly important because many developing countries are not able to take part in all the organisations responsible for setting standards. Therefore, in this context, China might seek to develop its role as an intermediary, thereby facilitating the adoption of its standards and increasing its influence with these developing countries³⁶.

B. An international standards-setting power in the making

This increased participation naturally results in a rise in the number of international standards proposed by China and adopted. In March 2021, the SAC published its annual report on developing standardisation in China for 2020, stating that the nation had led the development and revision of 185 international standards, including 121 in ISO, 55 in IEC and nine jointly in

³⁵ Naomi Wilson, “A ‘China Model?’ Beijing’s Promotion of Alternative Global Norms and Standards”, *op. cit.*

³⁶ Maria Farrell, “Now Any Government Can Buy China’s Tools for Censoring the Internet”, *op. cit.*

ISO and IEC³⁷. The IEC’s president specified that the total number of ISO and IEC international standards adopted following a Chinese proposal had reached 788, increasing fourfold in the space of seven years, over 8,000 Chinese experts were directly or indirectly involved in IEC work and consequently, the country had become the most active in terms of contributing to international standards³⁸.

Former ISO president, Zhang Xiaogang, made the same remark, reporting that China is currently responsible for 1.8 % of existing international standards, compared to 0.7 % in the mid-2010s³⁹. Finally, some companies stand out, for example Huawei, as mentioned in the introduction, but also China Mobile. The Chinese mobile operator played a central role in the adoption of the R16 standard in 3GPP by submitting over 3,000 technical proposals, *i.e.*, more than 30 % of the total number, and securing the adoption of 15 technical standards⁴⁰.

However, this increased Chinese participation comes with legitimate concerns on the part of the United States and Europe. These include: potential abuse of dominant position whereby the Chinese authorities could promote proposals without consensus or block certain proposals for economic or political purposes; pressure from Chinese political authorities in voting even if the proposed standards are contrary to worldwide standards optimisation; and a multiplication of low-quality proposals in order to achieve the quantitative targets set by Beijing, slowing down the overall functioning of these organisations and taking time away from considering serious proposals⁴¹. For example, China submitted 830 technical documents to ITU on wired communications specifications, which is more than all the documents submitted by South Korea, the United States and Japan combined⁴². It is indeed crucial for technical solutions proposed to have added value for the industry in question. Therefore, aggressive participation by China without giving industrial concerns appropriate consideration will not necessarily lead to success.

In spite of this participation, and particularly the country’s membership to the WTO in 2001, China also continues to prefer national standards that are contrary to the Organisation’s commitments on technical barriers to trade, or allows foreign companies a shorter time than recommended by WTO (60 days) to conduct a public and international assessment of the standards it has proposed⁴³. The adoption rate of ISO and IEC international standards in China

³⁷ “China’s Contributions to International Standards in 2020”, SESEC, 12 March 2021 – <https://sesec.eu/2021/news-events/news/chinas-contributions-to-international-standards-in-2020/>.

³⁸ “The level of standardisation in China has increased significantly” (我国标准化建设水平显著提升), *Economic Daily* (经济日报), 10 December 2020 – <https://www.yidaiyilu.gov.cn/xwzx/gnxw/157870.htm>.

³⁹ “China becomes the world’s largest contributor to international standardisation in the last five years” (中国成为近五年在国际标准化领域全球贡献最大国家), CCTV, 12 August 2020 – http://m.cnr.cn/news/20200812/t20200812_525202752.html.

⁴⁰ “Announcement of the first evolving standard for 5G underlines integration of Chinese wisdom into international standards” (5G首个演进标准宣布完成 中国智慧融入国际标准), *People’s Daily* (人民网), 4 July 2020 – <https://www.yidaiyilu.gov.cn/xwzx/gnxw/135414.htm>.

⁴¹ “China in International Standards Setting”, *op. cit.*

⁴² Hideaki Ryugen and Hiroyuki Akiyama, “China leads the way on global standards for 5G and beyond”, *op. cit.*

⁴³ Naomi Wilson, “A ‘China Model?’ Beijing’s Promotion of Alternative Global Norms and Standards”, *op. cit.*

therefore continues to decline, from a low level in 2010 (35 %) to an even lower one in 2019 (24 %)⁴⁴.

In the context of China-EU negotiations for the adoption of the Comprehensive Agreement on Investment (CAI), which has been suspended until further notice by the European Parliament, Article III.2.7 on standards-setting aims to “*allow participation of European enterprises in the development of standards in China on terms no less favourable than those accorded to Chinese companies, including the publication of standardisation working groups and technical committees and their members*”⁴⁵.

3. BRI as an instrument to promote Chinese standards to developing countries

China is also deploying its standards-setting efforts in the context of the Belt and Road Initiative (BRI – 一带一路) launched by Chinese President Xi Jinping in autumn 2013, and through one of its components, the “Digital Silk Road” (DSR – 数字丝绸之路), introduced in 2015 by an official government White paper. According to the Chinese State Council, the aim is to use the “*soft connectivity*” (软联通) of standards to create a “*hard mechanism*” (硬机制) of cooperation and “*interconnection*” (互联互通)⁴⁶.

In March 2015, the Ministry of Foreign Affairs, the Ministry of Trade and the National Development and Reform Commission (NDRC – 国家发展和改革委员会) issued a joint document entitled “*Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road*” (推动共建丝绸之路经济带和21世纪海上丝绸之路的愿景与行动), which underlines the need to reinforce the interconnection of technical standards along the new silk roads⁴⁷. To achieve this goal, the NDRC published an “*Action Plan*” in October 2015, defining several priority tasks for the 2015-2017 period, including:

- ➔ strengthen mutual cooperation in standardisation with BRI participating countries, including Mongolia, Russia, Central and Southeast Asian countries, India and the Gulf Cooperation Council countries;
- ➔ promote the joint development of international standards in the fields of energy, rail, shipping, civil aviation, new information technologies, and other emerging industries;
- ➔ organise the translation of the standards into different foreign languages;

⁴⁴ Gerhard Steiger and Steffen Donath, “New standardization strategy China Standards 2035”, ETMM, 25 August 2020 – <https://www.etmm-online.com/new-standardization-strategy-china-standards-2035-a-958253/>.

⁴⁵ European Commission, “EU-China Comprehensive Agreement on Investment”, January 2021 – https://trade.ec.europa.eu/doclib/docs/2021/january/tradoc_159344.pdf.

⁴⁶ State Council of the People’s Republic of China, “Action Plan on Belt and Road Standard Connectivity (2018-2020)” (标准联通共建“一带一路”行动计划 (2018-2020 年)), 2017 – http://www.srcic.com/upload/newsletter/16/pdf_zh/5bfd0ba90de69.pdf.

⁴⁷ “Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road” (推动共建丝绸之路经济带和21世纪海上丝绸之路的愿景与行动), *People’s Daily* (人民网), 29 March 2015 – <http://politics.people.com.cn/n/2015/0329/c1001-26765454.html>.

- ➔ implement a policy of standardisation in agriculture with ASEAN countries;
- ➔ strengthen international exchanges between standardisation experts within the framework of the BRI;
- ➔ strengthen programmes for training standardisation experts;
- ➔ conduct pilot projects between Chinese and foreign cities, etc.

The “Action Plan” defined by the NDRC forms the basis of China’s standardisation policy for BRI participating countries. Therefore, the Chinese State Council’s circular on the release of the “development plan for building the national standardisation system (2016-2020)” (国务院办公厅关于印发国家标准化体系建设发展规划（2016-2020年）的通知), published in December 2017, draws a lot from the NDRC document. It states that China aims to “*strengthen mutual recognition of standards*” with BRI participating countries, and “*forward mutual cooperation in standardisation and encourage the development of standards*” in Russia, Mongolia, ASEAN, Central Asian, and Persian Gulf countries, *inter alia*. With a view to achieving this, it stresses the need to train professionals in international standardisation who understand the technologies and rules, through international training and exchange programmes with developing countries⁴⁸. Similarly, in 2018, again drawing from the NDRC “Action Plan”, the Chinese Ministry of Industry and Information Technologies (MIIT) published a “Notice of Implementation of Industrial Communication Industry Standardization to Serve the construction of One Belt, One Road” (工业通信业标准化工作服务于“一带一路”建设的实施意见), aiming to create more than 80 new international standards and systematically translate them into a number of foreign languages⁴⁹.

In 2017, the leading group for the promotion of BRI published an “Action Plan on Belt and Road Standard Connectivity” for the 2018-2020 period (标准联通共建“一带一路”行动计划（2018-2020年）)⁵⁰. The plan proposes “*expanding and extending channels of cooperation in standard setting*”, thereby illustrating the gradual geographic expansion of the BRI, particularly to Western Asia and the Arab countries⁵¹. It also announced the creation of the Qingdao International Standardisation Forum (青岛国际标准化论坛), first held in 2017 and again in 2019. The third Forum event, which will take place on 27 and 28 July 2021, should bring together all ISO and ICE presidents and general secretaries, and the Director of the ITU Standardisation Bureau. Finally, the document emphasises the need to reinforce exchanges between standardisation experts, technical staff exchange visits and staff training in BRI participating countries.

⁴⁸ State Council of the People’s Republic of China, “Circular of the State Council General Office on the release of the development plan for national standardisation system construction (2016-2020)” (国务院办公厅关于印发国家标准化体系建设发展规划（2016-2020年）的通知), 17 December 2015 – http://www.gov.cn/zhengce/content/2015-12/30/content_10523.htm.

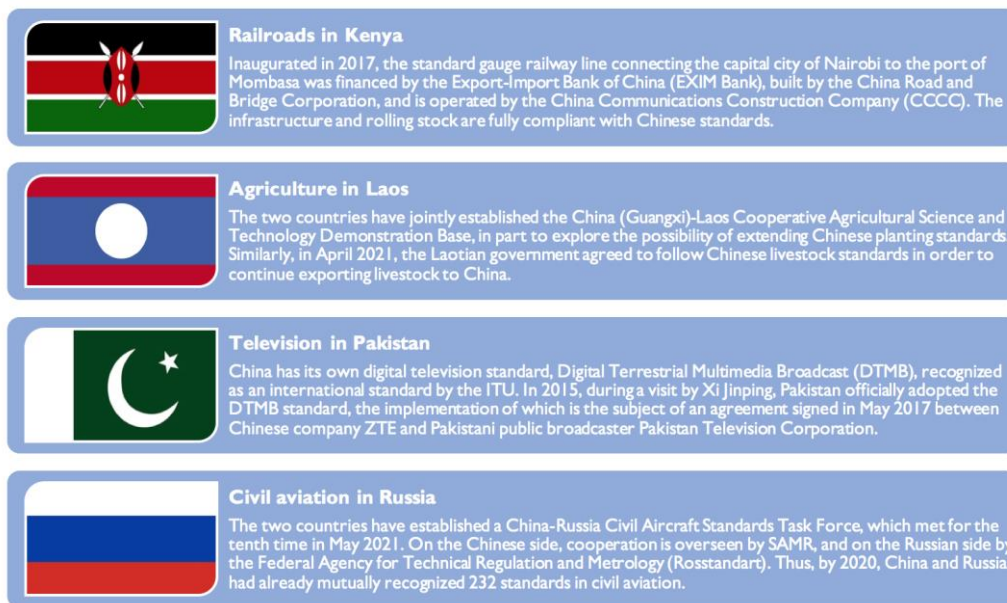
⁴⁹ China Electronics Standardization Association (中国电子工业标准化技术协会), “Publication of the 10 main standardisation events in the electronics and information industry in 2018” (2018年度电子信息产业标准化十大事件发), 2019 – https://www.cesa.cn/CesaNH/tdh_new/sdsj-2019.html.

⁵⁰ State Council of the People’s Republic of China, “Action Plan on Belt and Road Standard Connectivity (2018-2020)” (标准联通共建“一带一路”行动计划 (2018-2020年)), 2017 – http://www.srcic.com/upload/newsletter/16/pdf_zh/5bfd0ba90de69.pdf.

⁵¹ David Sacks, “Countries in China’s Belt and Road Initiative: Who’s In and Who’s Out”, Council on Foreign Relations, 24 March 2021 – <https://www.cfr.org/blog/countries-chinas-belt-and-road-initiative-whos-and-whos-out>.

In the context of the BRI, the implementation of the Chinese government’s various standardisation objectives since 2015 has led to the creation of a sub-forum dedicated to policy coordination at the first “Belt and Road Forum on International Cooperation” (一带一路国际合作高峰论坛), held in Beijing in May 2017. At this event, 12 countries (Russia, Belarus, Serbia, Mongolia, Cambodia, Malaysia, Kazakhstan, Ethiopia, Greece, Switzerland, Turkey and the Philippines) signed a document with China entitled “Joint Initiative on Strengthening Cooperation on Standards to Facilitate the Construction of One Belt, One Road” (关于加强标准合作, 助推 “一带一路” 建设联合倡议)⁵². It includes a number of agreements aimed at promoting standards in the field of science, technology and trade.

Figure no. 7: EXAMPLES OF COOPERATION BETWEEN CHINA AND BRI PARTICIPATING COUNTRIES



These efforts continued at the second Forum on International Cooperation in April 2019 in Beijing, attended by the Canadian President of the International Organization for Standardization (ISO), John Walter. In his speech, he stressed that “*international standards are the cornerstone for joint construction of the BRI*”⁵³. The report of the sub-forum dedicated to standardisation issues states that China has implemented standards projects in the field of cement with Mongolia, metallurgy with Papua New Guinea, and agriculture with Vietnam, Laos, Cambodia and Myanmar. In addition, China has initiated a series of “Study Classes for Food and Agricultural Standard Setters in Developing Countries”, in which 235 students from 31 countries or regions have participated. A dedicated national standards information

⁵² Ye Xiaonan (叶晓楠) and Zhang Shuai (张帅), “Reinforcing Chinese standards to promote standard connectivity along the Silk Roads” (中国标准加快走向世界推动“一带一路”标准联通), *People’s Daily* (人民网), 3 July 2017 – <https://www.yidaiyilu.gov.cn/xwzx/gnxw/17881.htm>.

⁵³ “Furthering Strategic Alignment to Achieve Complementary Advantages – Report from the Second Belt and Road International Cooperation Summit Forum Sub-Forum” (深化战略对接 实现优势互补—来自第二届“一带一路”国际合作高峰论坛分论坛的报道), *People’s Daily* (人民网), 26 April 2019 – <http://world.people.com.cn/n1/2019/0426/c1002-31050776.html>.

platform for BRI countries has also been announced to provide easier access to Chinese standards for 35 countries and five international and regional standards organisations.

Furthermore, in a September 2020 report, the SAMR states that China and Russia have mutually recognised 232 civil aviation standards, and China is cooperating with Brazil on construction equipment standards. The Chinese Ministry of the Environment has also launched a digital platform to publish environmental standards, already recognised by Russia, Kazakhstan, and Thailand. The country is also running more and more training sessions with developing countries on standardisation issues, as announced in the latest Chinese White Paper on international aid⁵⁴.

Lastly, international exchanges have been promoted through the BRI University Alliance for Standardisation Education and Research (“一带一路”标准化教育与研究大学联盟), founded in 2018 under the aegis of the National Institute of Metrology of China (中国计量学院), located in Hangzhou, Zhejiang. In 2019, this alliance comprised 105 universities, representing 30 different countries⁵⁵. China has also created twelve research centres dedicated to standardisation with various countries and regions⁵⁶, which should promote international cooperation and bilateral and multilateral exchanges among standardisation experts (figure 8).

Figure no. 8: NEWLY CREATED REGIONAL STANDARDISATION RESEARCH CENTRES



⁵⁴ China’s State Council Information Office, “White paper: China’s International Development Cooperation in the New Era”, 10 January 2021 – http://english.scio.gov.cn/whitepapers/2021-01/10/content_77099782_5.htm.

⁵⁵ State Council of the People’s Republic of China, “Strengthening exchanges and cooperation to continuously enhance the capacity of standardisation to serve the construction of ‘One Belt, One Road’”, (加强交流合作 不断提升标准化服务“一带一路”建设的能力), 11 September 2019 – <http://www.scio.gov.cn/xwfbh/xwfbh/wqfbh/39595/41645/zy41649/Document/1664162/1664162.htm>.

⁵⁶ State Administration for Market Regulation of the People’s Republic of China, “Annual report on the development of standardisation in China (2019)” (中国标准化发展年度报告(2019)), September 2020 – <http://www.samr.gov.cn/bzcx/sjdt/gzdt/202009/P020200910331877427036.pdf>.

In total, according to a State Council document of September 2019, China had signed 92 standardisation cooperation agreements with national and international organisations in 52 countries or regions⁵⁷. However, China’s growing ability to set international standards should be put into perspective. The multi-bilateral cooperation agreements in standards-setting signed by China in the context of the BRI concern a relatively small number of areas and are above all intended for developing countries.

However, while Western analysts are focusing on new technologies, China’s ability to secure adoption of its standards in developing countries will be material in giving Chinese companies a competitive edge because they see these economies as key growth drivers, especially as relations with developed economies are liable to further deteriorate in the near future.

Conclusion

China has a unique standardisation system in which the state, rather than companies, including private ones, plays a predominant role. And this specific situation will continue due to the nature of the Chinese political system. There is a need for strong coordination between all the Chinese players, and a major risk lies in the primacy of the government’s interests over those companies.

While China’s ambitions in standardisation are clearly stated and assumed, the results are often overestimated abroad. China has succeeded in achieving real influence in international standards organisations. While its increased participation in international organisations is given extensive media coverage, China’s efforts *vis-à-vis* emerging countries, through the BRI, are considerable and should be paid more attention. In this regard, China is fully aligned with its political and economic strategy to strengthen trade and coordination with emerging countries.

One aspect that remains more difficult to analyse, as the technical documents are not accessible, is the role of standardisation in dual-use goods and civil-military integration. This latter area is explicitly mentioned in Article 23 of the 2018 law, and the China Standards 2035 research programme included the development of civil-military integration in standardisation and the promotion of harmonised standards as one of its research areas. In addition, the media welcome certain advances such as the 36 new national standards for integrated circuits adopted in 2018 and presented as related to civil-military integration⁵⁸. As scientific and technical cooperation with China comes under increasing scrutiny, it would be worthwhile reflecting on how this Chinese standards-setting effort could also become a security issue.

⁵⁷ State Council of the People’s Republic of China, “Strengthening exchanges and cooperation to continuously enhance the capacity of standardisation to serve the construction of ‘One Belt, One Road’” (加强交流合作 不断提升标准化服务“一带一路”建设的能力), 11 September 2019 – <http://www.scio.gov.cn/xwfbh/xwfbh/wqfbh/39595/41645/zy41649/Document/1664162/1664162.htm>.

⁵⁸ China Electronics Standardization Association, “Publication of the 10 main standardisation events in the electronics and information industry in 2018” (2018年度电子信息产业标准化十大事件发布), 2019 – https://www.cesa.cn/CesaNH/tdh_new/sdsj-2019.html.