brief

2/2019

China's standard power and its geopolitical implications for Europe

Björn Fägersten & Tim Rühlig

PUBLISHED BY THE SWEDISH INSTITUTE OF INTERNATIONAL AFFAIRS | UI.SE

brief

Björn Fägersten
Head of Programme and
Senior Research Fellow, UI

Tim Rühlig
Research Fellow, UI

Language editing: Andrew Mash
Cover photo: Shutterstock

Why Chinese standard power matters to Europe

As liberal norms of globalization – such as free trade and strong multilateral institutions – are increasingly contested, traditional concepts of geopolitical conflict and international relations as a competitive zero-sum game are making a comeback. From Donald Trump's 'America First' strategy and application of trade wars to Vladimir Putin's use of energy and trade in staging conflict, this trend implies that areas of international relations that have been viewed for decades through liberal and commercial lenses are becoming increasingly geopolitically charged.

One such area is that of technical standard setting. Technical standards are defined as voluntary specifications that should enable the interoperability of products and technologies. Technical standards can be very simple measures such as paper size. The widespread A4 format, for example, makes it easier to produce paper that works in printers around the world and across different manufacturers. However, most technical standards are much more complex than the size of a sheet of paper. In many cases, technical standards even contain patented technology and intellectual property rights (IPR). (This UI Brief does not discuss the issue of IPR infringement in the context of China's standardization policy since this is a complex subject worthy of a separate report.)

Technical standard setting might appear to be a consensual search for the technically most appropriate solution leading to absolute gains such as lower transaction costs, more efficient markets and subsequent economic growth. After all, the interoperability of products should facilitate economic growth and trade. In contemporary world affairs, however, technical standardization is more and more turning into a crucial arena for political and commercial conflict. The People's Republic of China (PRC) in particular has identified it as an important angle for promoting and projecting its growing international power, notably within its Belt and Road Initiative (BRI). China's prioritization of technical standardization is understandable because the stakes are high. Standards constitute the "recipe" for our modern technology since they define the basic characteristics of technology that guarantee interoperability. China's power to set standards and thereby advance its interests is based on three dimensions: (a) reform of its internal machinery for standard setting; (b) its influence on international standard setting institutions; and (c) its ambition to set standards on the ground through its massive foreign infrastructure investments.

For Europe, this advancement of Chinese standard-setting power has a considerable impact. The European Union (EU) and its leading economies – Germany in particular – traditionally punch above their economic weight in international technical standardization, although Europe's influence on technical standardization differs across economic sectors. In the two most important international standardization organizations – the International Standardization Organization (ISO) and the International Electrotechnical Committee (IEC) – the EU as either EU-28 or EU-27 holds far more leadership positions than any other major economic power, such as the United States, China, the BRICS (Brazil, Russia, India, China and South Africa) or, potentially, the United Kingdom after Brexit. The most important measure is the distribution of secretariat positions in the Technical Committees (TCs) of these two organizations because technical standards are drafted in these committees (see Figure 1). Technical standardization is yet another, often overlooked, dimension of the EU's enormous capability to project norms in the international arena. It is for

this reason that the EU is often referred to as a "regulatory superpower". Thus, China's growing footprint in international standardization and its ambition to use standards as a tool of influence along the great Eurasian landmass is of particular relevance for the EU. This relevance is further accentuated by the fact that the US – which also sees the geopolitical dimensions of standards – is pressuring Europe to take its side in its tech and trade war with China.

Technical standardization has never just been about finding the best technical solution to common challenges. Economic stakes have always played a crucial role. For the first time in history, however, states perceive standardization as a subject of strategic geopolitical importance. In Mongolia, President Battulga even ran his 2016 electoral campaign on the security implications of China's railway standards. It has also led leading social scientists to turn their attention to technical standards as a means of geopolitics.

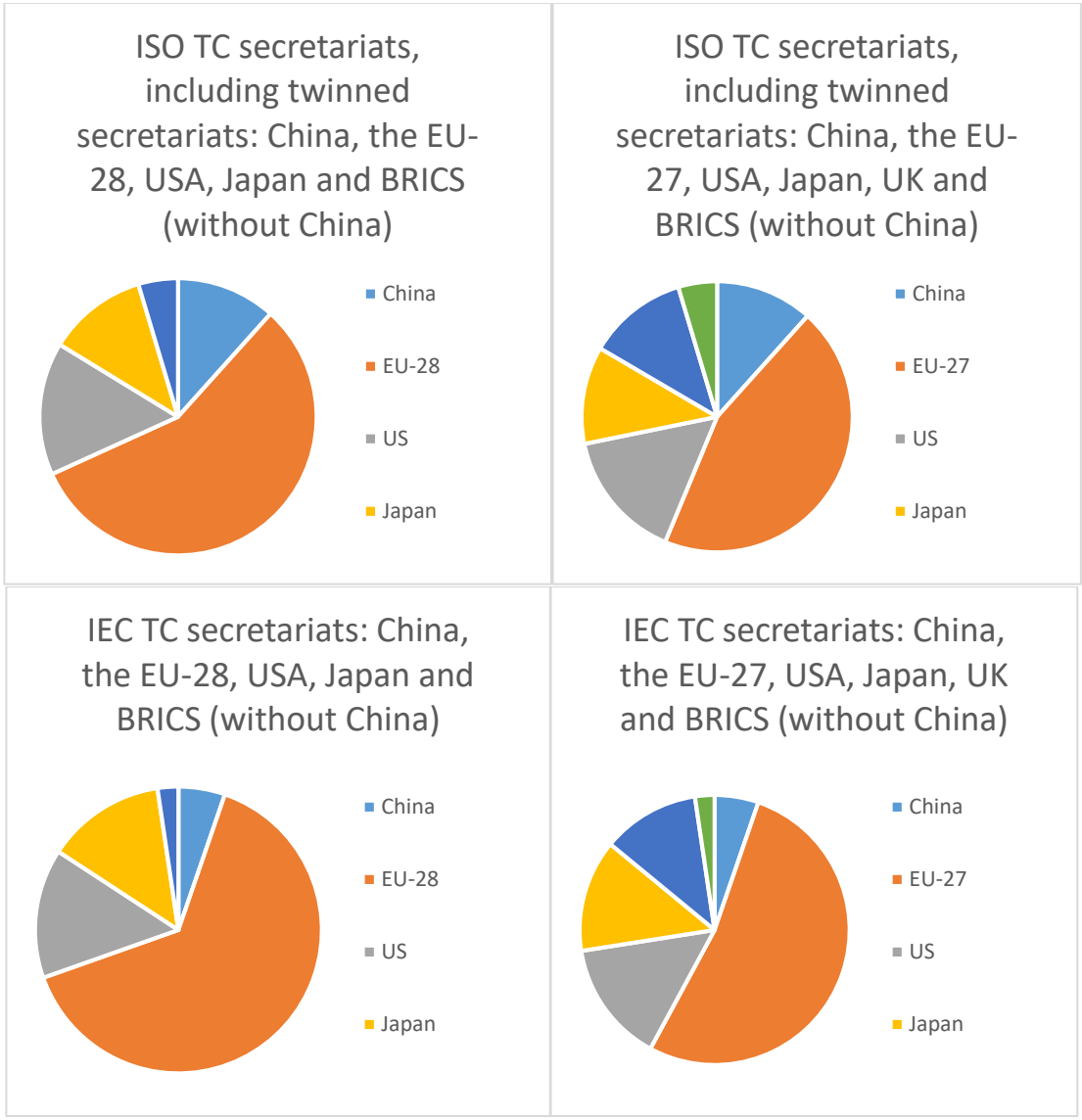

Figure 1: The EU's share of TC secretariats in ISO and IEC compared to other major economic powers

In sum, an analysis of China's standard power and its implications for Europe is key to understanding Europe's options and room for maneuver in current world affairs. This policy brief assesses the three tenets of Chinese standard power – the internal machinery, its influence within international standardization institutions and its "bottom-up" approach to setting standards through foreign direct investment (FDI) – and discusses what this means for Europe and what the EU could do about it.

Understanding China's domestic standardization reform

For many years, China mainly used technical standardization as a protectionist measure to enable the development of its infant industries. While on paper technical standards are voluntary, they carry enormous force. Technical standards are necessary for interoperability and meeting them is very often a requirement to be able to export products to a given market. Furthermore, the technical standards published by the International Standardization Organization (ISO) and the International Electrotechnical Committee (IEC), the two main international standardization agencies (see box 2), while also voluntary, are relevant under World Trade Organization law, which treats international technical standards as an important reference point when determining technical barriers to trade. Rhetorically, the PRC has justified the multitude of domestic technical standards in addition to international technical standards as a means of improving the quality of Chinese products. Over the course of the past five years, however, China has changed its policy. Domestic reform is currently under way. This section introduces the main aspects of the reform and demonstrates how it fits into the general trends and needs of current Chinese economic policymaking. What is particularly important is that China's general economic policy and its recent standardization reform aim to strike a balance between encouraging technological innovation by private companies and preserving party-state control.

The standardization reform is in several phases and is set to be fully implemented by the end of 2020. It comprises the following core elements:

- China's standardization system will continue to consist of two pillars: one state-run and the other market-driven. The reform addresses both pillars.
    - In the government-run pillar, the institutional structure was streamlined under the new State Administration for Market Regulation (SAMR) of which the Standards Administration of China (SAC), which represents the PRC in international institutions, is part.
    - In the government-run pillar, the number of categories of standards has been reduced from six to four. Former mandatory standards (sectoral and local mandatory standards) have either been repealed or transformed into voluntary standards.
    - In the market-driven pillar, private actors are actively encouraged to work together in associations to produce their own technical standards.
- China has launched "China Standards 2035", a scheme of research on technical standardization and the formation

of a strategic standardization vision under the guidance of the SAC.
- The legal basis for most of these changes is the new Standardization Law of China, which took effect on 1 January 2018.

Western observers have mostly welcomed the reforms, which constitute a partial convergence with Western practices. At the same time, however, technical standardization is carried out very differently in the USA and Europe. European standardization is characterized by harmonization and a clear hierarchy of standard setting organizations. For instance, if European standards contradict national standards, the latter are automatically invalidated. The US model, however, relies on competitive standardization. The market is supposed to determine which standards prevail over others. The Chinese model is sometimes thought to incorporate the European and the US system in its dual structure of government-issued and market-driven standards. In essence, however, the government-issued standards are very different from the European approach while the encouragement of private associations to issue competing technical standards looks much more similar to the US model. Crucially, however, it is important to understand the new standardization policy as serving and mirroring the specific characteristics and needs of China's state-permeated political economy.

The most crucial component of the domestic reform is in relation to the two pillars of technical standardization. Fundamentally, the two pillars of China's standardization system represent an inherent contradiction in Chinese economic policymaking. On the one hand, shrinking growth rates require the PRC to unleash the innovative potential of the private sector. In the field of technical standardization, this has led the party-state authorities to encourage private sector actors to issue market-driven technical standards. On the other hand, the Chinese Communist Party is unwilling to give up its control over the country's economy and its aims for government oversight. This includes control over technical standardization. Thus, China has not limited its technical standardization system to private sector standard-setting as in Europe and the USA, but retains a second government-run pillar. Both streams contain several categories of standards (see Figure 2):

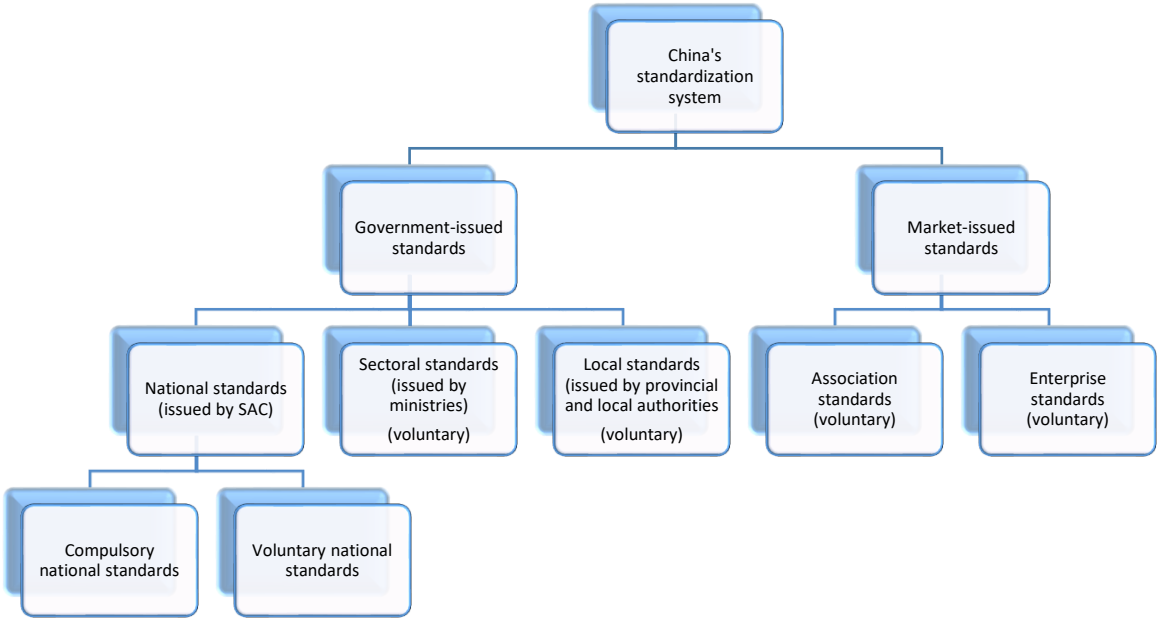

Figure 2: China's standardization system, Source: SAC

The government-issued column is a legacy of China's planned economy, as is the state-permeated character of the Chinese economy more generally. In recent years, the distinction between private and public enterprises has become more and more blurred, with increasing state influence. Essentially, the difference between private and state-owned enterprises is becoming artificial and increasingly meaningless. Most crucially, the economy is regarded as serving the party-state rather than the other way around. The Chinese party-state still appears unwilling to reduce its control to any significant degree. This also reflects the widespread and deep-rooted understanding of the party-state's guiding role in China's economy. Private sector voluntary self-regulation does not have a strong tradition in China. Instead, the predominant idea of the relationship between public and private actors is that the latter can utilize unregulated spaces to make profits for as long as the party-state chooses not to intervene.

Another crucial characteristic of the government-issued pillar of standardization is that it includes not only national and sectoral standards issued by national ministries, but also technical standards at the subnational level. These technical standards are set by provincial and local state authorities, which hold enormous power in China. Again, local standardization represents a broader trend of a fragmented regulatory landscape in China, with a multitude of local laws and regulations as well as different local interpretations of national rules. Essentially, China is a fragmented state. The economic laws and regulations that the Chinese authorities aim to adopt reflect local conditions in different parts of the country. Technical standards are just one example of this.

The encouragement of market-driven standards is a sign of China's attempts to implement gradual economic reform more generally. The country's leadership is aware that falling growth rates make it necessary

to encourage market-driven innovation and competition, not least in order to move up the value chain. Thus, the encouragement of market standards also reflects an intention to increase the quality of Chinese products. Absurdly, however, this has created a market for technical standards and led to the creation of associations that profit from issuing standards and thus haven active self-interest in quantity.

China has not spelled out any hierarchy between different kinds of voluntary technical standards either within the government track or between the two pillars. This follows a general pattern of overlapping, vague and competing laws and regulations in China, which enables it to handle the great diversity of geographical localities and sectors throughout the country. It also mirrors the fragmented and decentralized character of the Chinese party-state, which allows for the development of "local" practices and close alliances between local authorities and local businesses. Particularly in less developed provinces, protectionist intentions also continue to be highly influential.

Box 1: Terminological differences between China and Europe

Europeans trying to understand China's standardization system need to know that China sometimes uses different terminology. Two of the most crucial examples are:
- Mandatory standards are not the standards of European terminology but government regulations. Mandatory standards, however, raise concerns over IPR infringement because all mandatory standards must be free of charge according to Chinese law. Even though the Chinese authorities continue to emphasize that they will not disclose any information that is subject to protected intellectual property, Europeans remain highly skeptical.
- Enterprise standards are not like standards in Europe but product specifications. European companies' product specifications, however, are not listed in a national register like those in the PRC. This helps the Chinese authorities to monitor economic developments in China – in both local and international companies.

In short, the standardization reform is an expression of Chinese attempts to square the circle by introducing economic liberalization without loosening party-state control. The diversity of interests and the fragmented character of the Chinese party-state mean that the PRC has no interest in adopting the hierarchical European model of standardization.

China's international standardization within international standardization organizations

In addition to its domestic reform, China has massively stepped up its international technical standardization efforts. Under its "China 2025" technology development scheme (and similar schemes that will soon replace the "Made in China 2025" plan), China is massively investing in research and development (R&D) to acquire the expertise that will help the country to contribute to international technical standardization on a regular basis. This will be necessary in order to remain a member of the technical committees, sub-committees and working groups of the ISO and the IEC. The size of China's market as well as the size of its companies helps it to increase its impact on technical standardization still further.

Finally, the Chinese party-state's comprehensive control helps the PRC to speak with one voice in international standardization organizations.

China has been given more and more leadership positions on councils, technical management boards, technical committees, sub-committees and working groups in the leading international standardization institutions such as the ISO, the IEC, the International Telecommunications Union (ITU) and the Third Generation Partnership Project (3GPP). The last ISO president was Chinese and the IEC's president-elect is a Chinese representative. The PRC also regularly hosts standardization meetings, volunteers to serve in standardization secretariats and submits work items proposing the establishment of new technical standards.

Box 2: Technical standardization organizations

Technical standardization organizations exist locally, at the European level and internationally. At all three levels, technical standardization is usually divided into three sections with separate institutions: general technical standards, electro-technical standards and telecommunications standards.

International level:

- General standards are published by the International Standardization Organization (ISO)
- Electrotechnical standards are worked out in the International Electrotechnical Committee (IEC)
- The basic framework for international standards in the field of telecommunications is set by the International Telecommunications Union (ITU) and further specified by other institutions, most prominently the Third Generation Partnership Project (3GPP)

The European standardization system is characterized by the same tripartite structure:

- General standards are devised by the European Committee for Standardization (CEN). CEN is a member of the ISO.
- The European Committee for Electrotechnical Standardization (CENELEC, or the CLC) is responsible for electrotechnical standards.
- Technical standardization in the field of telecommunications is carried out by the European Telecommunications Standards Institute (ETSI).

The Chinese standardization agencies are:

- The Standardization Administration of China (SAC), which issues both general and electrotechnical standards in China and represents the PRC in both the ISO and the IEC.
- Technical standards in the field of telecommunications are worked out by several Chinese institutions, such as the Cyber Administration of China (CAC) and the China Communications Standards Association under the Ministry of Industry and Information Technology (MIIT).

On the one hand, Chinese influence in international standardization organizations has increased tremendously. Figure 3 demonstrates the growing influence of China in ISO Technical Committee secretariats, Sub-Technical Committee secretariats and Working Group secretariats.

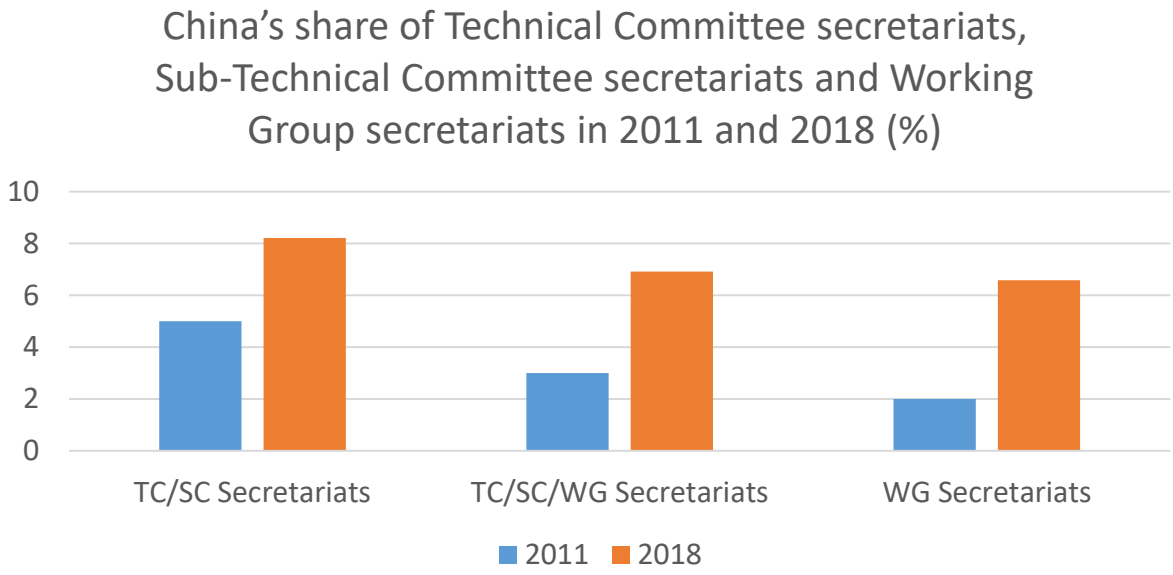

Figure 3: China's participation in ISO, 2011 and 2018, source: DIN

Through this increase, China has gained enormous influence in the ISO and the IEC. As Figures 4, 5, and 6 show, however, China remains one among several countries with a strong hold on international standardization institutions. In the ISO, China has gained influence at a similar level to France, the UK and Japan, outperforming other developed countries such as Sweden, Italy, Spain, Poland, Canada and Australia, as well as all other emerging economies. Germany and the US still hold more secretariat positions but China is present in a similar number of technical committees. Finally, China is more active than all the other emerging economies.

China's influence is far lower in the IEC compared to the ISO. The PRC outperforms all emerging economies and some developed countries such as Canada, Australia, Poland, Spain and Sweden. However, a number of developed countries hold more secretariats of IEC Technical Committees, notably Germany, the US, Japan, France, the United Kingdom and Italy. In terms of active participation in IEC Technical Committees, however, only Germany, the US, Japan and the United Kingdom are roughly equal with China (see figures 4, 5, and 6).

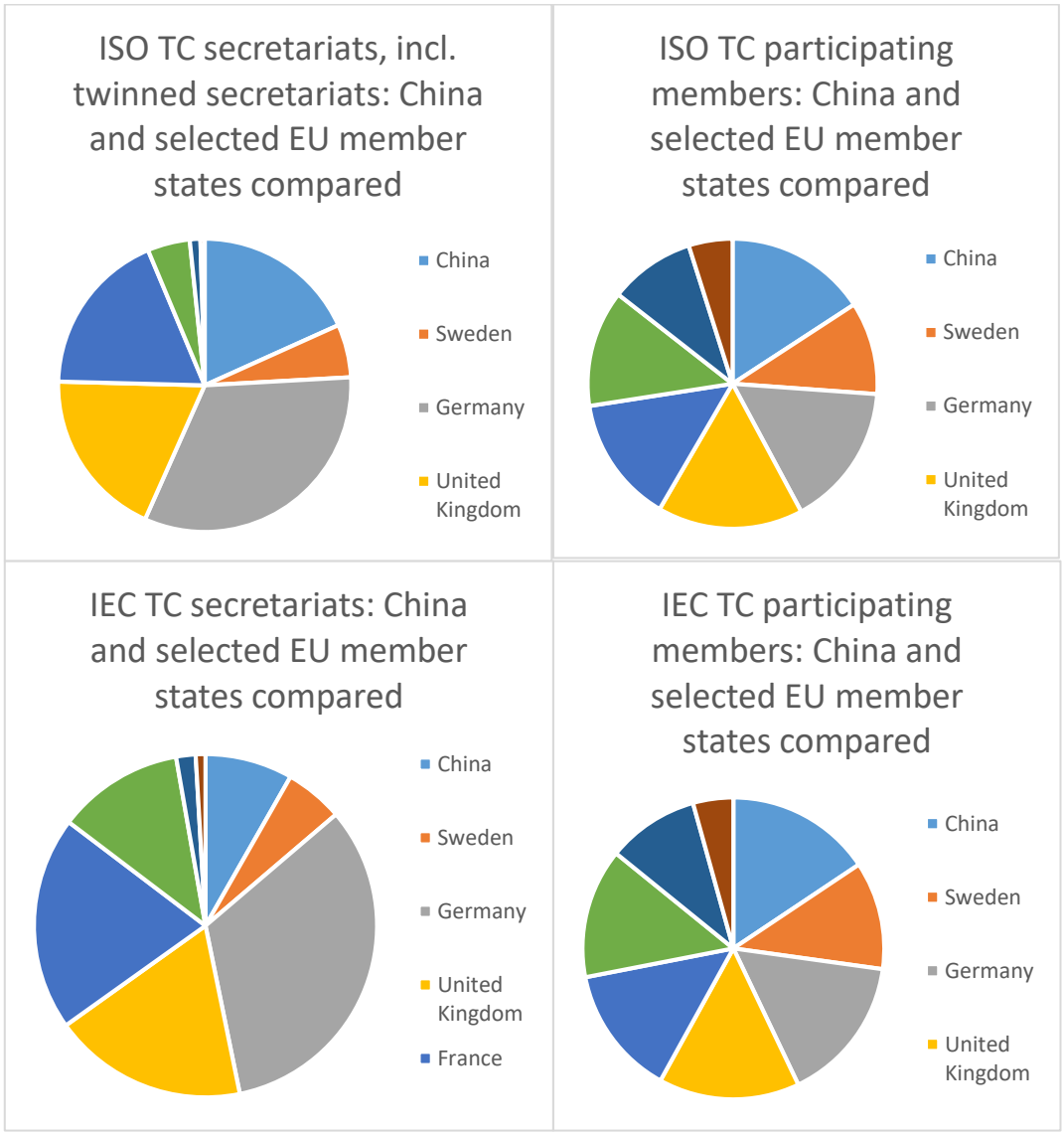

Figure 4: TC secretariats and TC participating members of ISO and IEC as of 2019: selected EU countries and China compared
Sources: ISO, IEC

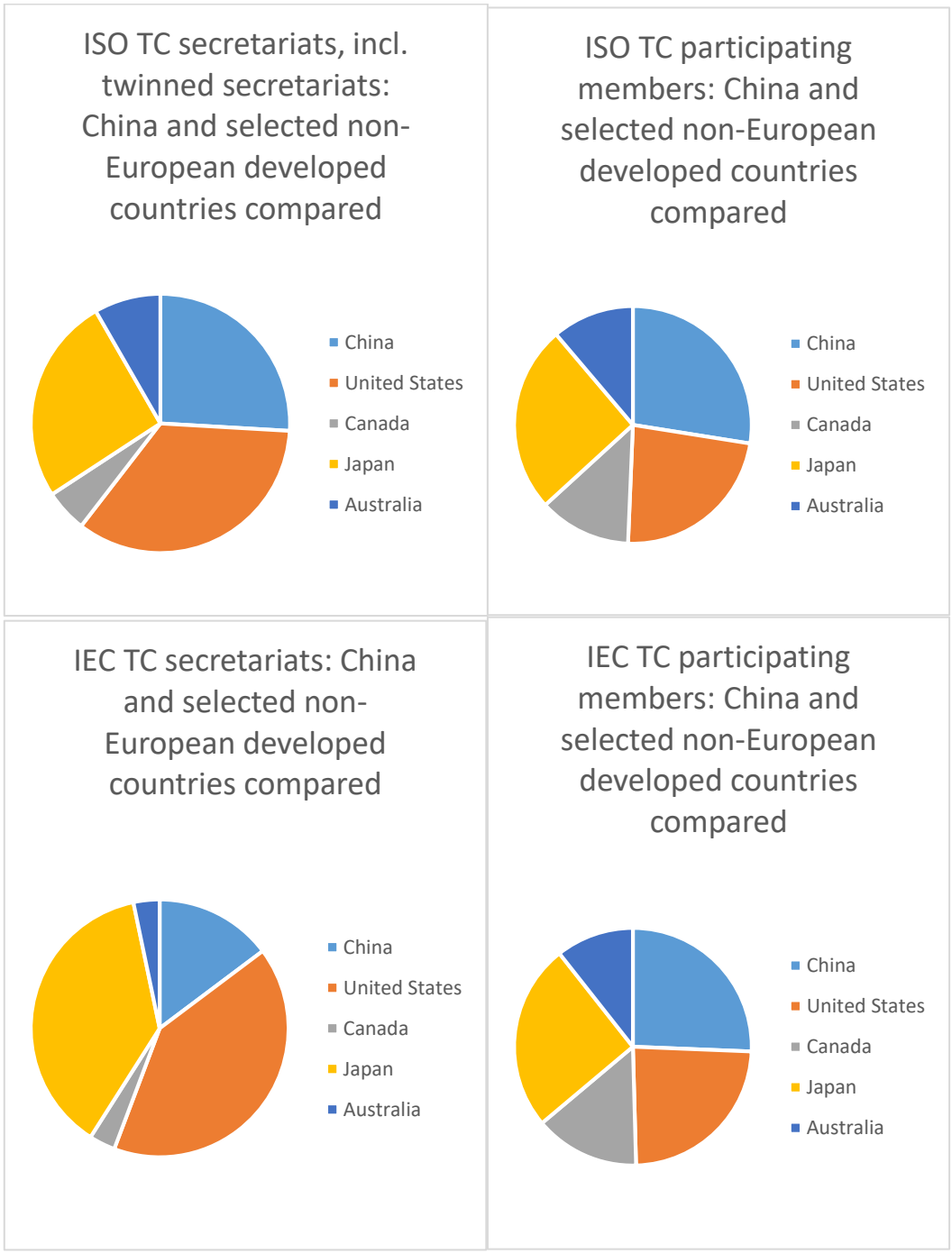

Figure 5: TC secretariats and TC participating members of ISO and IEC as of 2019, selected non-European developed countries and China compared
Sources: ISO, IEC

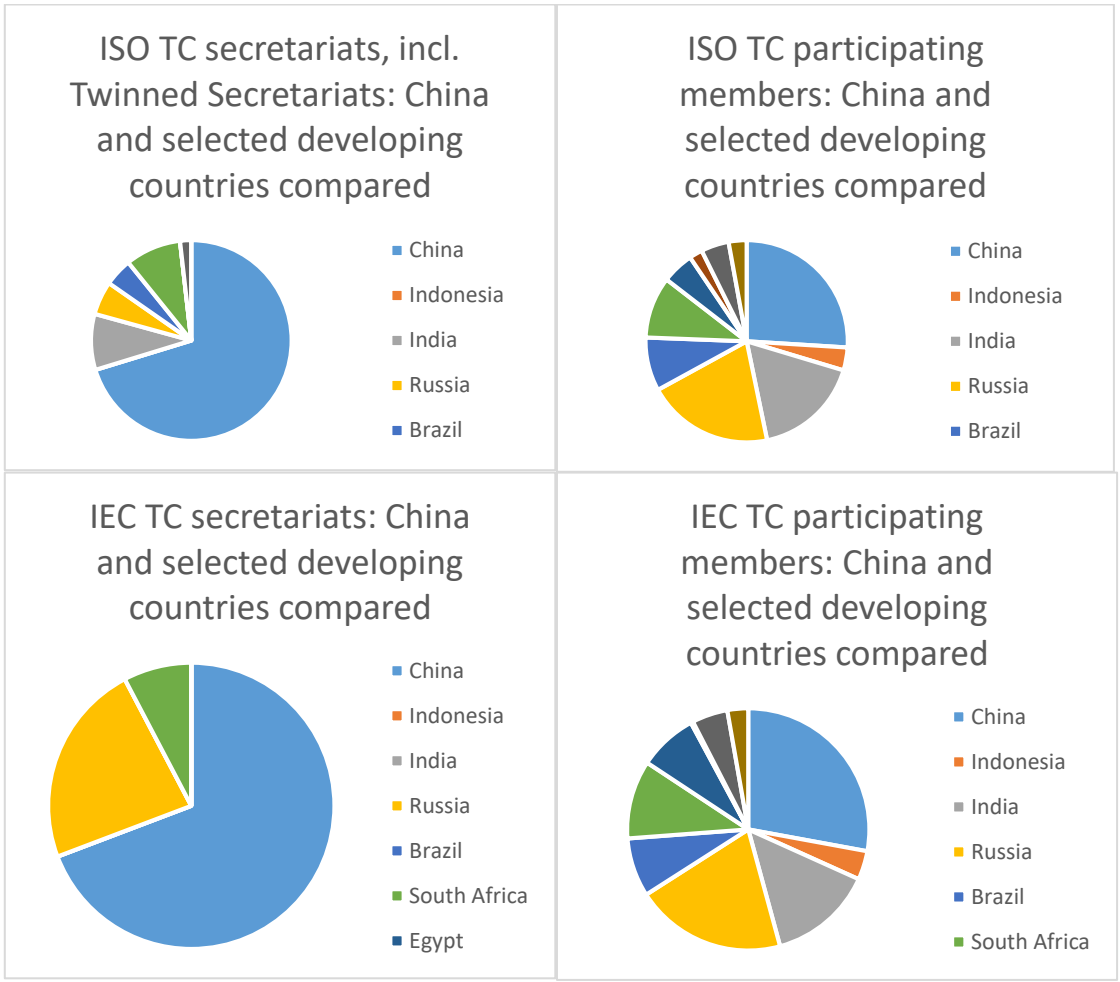

Figure 6: TC secretariats and TC participating members of ISO and IEC as of 2019: selected developing countries and China compared
Sources: ISO, IEC

On the other hand, China has not gained as much influence as it has sought. The PRC is aiming to gain "first mover advantage" in technical standardization, by suggesting new areas of work for new technical standards and by commercializing innovative technology as early as possible. Most Chinese proposals for new work items are rejected outright however at a very early stage. In fact, many proposals are of a very low quality and China is sometimes even unable to outline the problem that it is supposed to be tackling with a proposed new standard. This raises questions about China's strategic intentions. It is possible to identify four essential motives:

- *Institutional influence*: Generally speaking, China finds itself in the position of a "latecomer" to international institutions. When the PRC claims that it has a "right to speak", it is underlining that international standardization organizations have not only been founded by, but also remain mainly shaped by Western standardization agencies. Stepping up its contributions and commitments helps China to influence institutions that it has not created itself.
- *Economic gain*: Influencing international standardization

organizations provides economic rewards. In the 21st century, most crucial technical standards are patented technology. Companies that hold standard-essential patents (SEPs) not only save enormous switching costs when adapting their products to international standards that guarantee interoperability, but can also profit from selling or licensing their technology. China is aiming to increase its share of SEPs, particularly in strategic economic sectors. Increased Chinese influence in international standardization organizations helps to establish standards where Chinese companies hold SEPs. This will provide them with royalties and reduce their adaptation costs to Western technologies that had previously been accepted as industry standards.

- *Great power status*: An increased Chinese presence in international standardization organizations not only gives China a seat at the table but helps to improve its international reputation as a great power with access to advanced technology. Given the PRC's limited soft power compared to both the USA and Europe, this aspect should not be underestimated.
- *Individual officials' career interests*: The high proportion of low-quality submissions, most of which are rejected at a very early stage, reflects China's mostly quantitative approach to standardization. Standardization strategies usually involve precise figures on how many work items the respective administrations are supposed to submit. The officials and Chinese Communist Party cadres responsible for economic policymaking and technical standardization aim to fulfil their quota, which leads to a flood of new work item proposals. Achieving their quota helps them to promote their own career interests within the party-state; failing to submit a certain amount of new work item proposals for new standards could harm their professional future.

China's international standardizations efforts along the BRI

In parallel with China's growing footprint in international standardization organizations, the PRC has adopted a strategy of internationalizing its domestic standards along the BRI. The BRI is China's core foreign policy strategy and essentially consists of massive investment in digital and physical infrastructure in Asia, Africa and Europe. Even though the details of China's standardization strategy along the BRI remain unclear, the quantitative benchmarks have become public.

China has incorporated vague and general clauses on standardization into a number of Memorandums of Understanding with partner countries along the BRI. In an attempt to internationalize domestic standards along the BRI, the PRC has translated more than 500 domestic standards into English. From projects associated with the memorandums and a list of more than 500 translated standards, it becomes apparent that infrastructure, information and communications technology (ICT), machine construction and mobility, such as self-driving vehicles and smart cities, are core sectors in which China aims to internationalize its domestic standards along the Belt and Road. Chinese standardization efforts are multi-scale and involve both public sector actors and industry. This implies that both government-issued and market-driven association standards will be adopted internationally, particularly in the fields of

infrastructure, materials and transport. According to information provided by the SAC, the technical standards internationalized through the BRI will not contradict ISO and IEC standards. However, such claims will need to be verified. Two rationales seem to inspire the Chinese strategy.

First, at a time when Chinese efforts to increase its footprint in established international standardization organizations, while significant, have been less success than the Chinese leadership had hoped, the PRC is developing a unilateral strategy as an alternative. There are rumors that China is considering establishing an "Asian Standardization Organization", which would be available to Asian BRI partner countries first before being opened up to non-Asian states. Such an institution would put the future of existing international standardization organizations in question. China might also adopt a similar strategy to when it founded the Asia Infrastructure Investment Bank (AIIB) to rival the Bretton Woods Institutions in which Western countries remain dominant. The AIIB functions in a very similar way to existing multilateral development banks but with a strong Chinese presence.

The main intention behind internationalizing domestic Chinese technical standards along the route of the BRI, however, is that technical standards adopted by global international standardization organizations help to create a level playing field for all companies. The internationalization of domestic Chinese standards outside of international institutions puts Chinese companies in a favorable position. In many infrastructure projects, only Chinese companies will be able to meet the technical criteria if Chinese technical standards have been incorporated into tenders or national standards in third countries along the BRI. European companies, by contrast, will instead follow the technical standards of global institutions and would not precisely fulfill the technical standards that China aims to institutionalize on a bilateral basis in the BRI countries.

In short, internationalization of Chinese technical standards within the BRI on a bilateral basis and outside of multilateral institutions is both an alternative strategy for when the PRC fails to get its way in established international institutions and a means to provide Chinese companies with a competitive advantage in BRI countries. At the same time, however, the Chinese approach is rather short-sighted since it takes the pressure off Chinese companies to deliver quality products that comply with global standards.

Policy Recommendations for Europe

For a long time, European policymakers hardly noticed the increasing strategic importance of technical standardization. It was treated purely as a non-political issue that did not require the engagement of European policymakers, but should instead be left to technical experts in European standardization organizations. However, Europe needs to understand the strategic implications of technical standardization. It is a matter of fact that both China and the US approach technical standardization from a geopolitical viewpoint.

This requires Europe to consider an appropriate response. In fact, technical standardization is making its way on to the agenda in Brussels. The increasing technological confrontation between the USA and China, which is currently making headlines around the debate on whether to exclude Chinese vendors, most prominently Huawei and ZTE, from the rollout of 5G infrastructure, has increased the general awareness of technological competition and technical standardization. The EU has made

technical standardization one of its priorities in a 2018 communication on a connectivity strategy with Asia that is widely perceived as the EU's reaction to China's BRI. Under the coordination of the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG Grow), various DGs, such as DG Trade, DG Connect and DG Transport, as well as the European External Action Service, are working on the subject. Technical standardization is also on the agenda of some Members of the European Parliament, heavily influencing the European Parliament's China policy, and is a subject of analysis for the European Parliamentary Research Service.

All these are positive steps that need to continue under the new European Commission and the new European Parliament that will take office in mid-2019. A step in the right direction could be the creation of a new EU Commissioner for geopolitics in the next legislative term. While such a Commissioner would not address technical standards specifically, he or she could help to reframe economic issues, including technical standards, in terms of the geopolitical implications they have in a world or increasing tensions between the USA and China.

In addition, more EU member states should make technical standardization a priority. They should not leave the subject to private sector technical standardization bodies, but work closely with them to develop a strategic European approach to the subject. At the moment, only a small number of countries pay particular attention to the subject, most prominently Germany. One positive sign is that in June 2019, the Romanian Presidency of the European Council will host a high-level meeting on technical standardization in Bucharest in the presence of the Romanian Minister of Commerce, the EU Commissioner for Internal Market, Industry, Entrepreneurship and SMEs, and all the presidents of the major European standardization organizations.

With regard to China's domestic standardization reform, European standardization organizations, most prominently the European standardization organizations CEN and CENELEC (see Box 2), aim to promote the European model of hierarchical and clear-cut standardization in which competing standards do not exist. At this point in China's development, this European model simply does not serve China's priorities. The party-state wants the ability to control technical standardization, unleash the innovative potential of the private sector and retain flexibility at the local level to find appropriate solutions for diverging contexts. Europe's standardization model, by contrast, is exclusively private sector and strictly hierarchical with the European level taking precedence over the national, which does not allow for local specifications. Hence, Europe should be realistic enough not to expect China to adopt the European standardization model in the coming years. However, once China's economic development is more advanced not only in the coastal areas, but throughout the country, leaving the PRC with less diverse local conditions, the European model should become the most efficient for China too. Europe should express understanding for China's current conditions and aim to promote steps toward the introduction of the European model in the medium term. In this context, Europe is competing with the USA for influence over the medium-term future of China's approach to technical standardization – the US system being a solely competitive market-driven system without a hierarchical standardization system. In the short run, China will and should stick to its more diverse approach that meets the need to find a broad range of

appropriate solutions to the different local conditions across the country, by not adopting the hierarchical European system but also avoiding the US model.

Europe rightly welcomes China's active and constructive engagement with the ISO and the IEC. The PRC has developed into one of the world's leading economies. The international standardization system would only lose relevance if China were not properly represented there. Europe should cooperate with and help China wherever necessary to improve the effectiveness of Chinese initiatives within the ISO and the IEC. Most crucially, the EU needs to prevent China from effectively stepping outside of the ISO/IEC system by founding an alternative institution, which would undermine the existing ones. However, Europe also needs to insist that China complies with the rules of the existing multilateral institutions. Chinese attempts to internationalize domestic standards outside existing institutions along the BRI are a major concern for the EU. In response to such efforts, Europe should adopt a dual strategy.

First, Europe should reach out to China to highlight the obvious benefits of remaining in the existing institutional framework. If the Chinese party-state encourages China's companies to comply with global standards it will increase its global competitiveness and the quality of its exported products. In the long run, this policy will be much more profitable for China than its current course of promoting Chinese standards in BRI countries that provide a competitive advantage for Chinese companies in the short term. In sum, the EU should aim to make a case against short-term protectionism for the sake of long-term competitiveness.

Second, Europe needs to substantiate its connectivity strategy towards Asia. China announced the BRI in 2013; six years later, the EU has a connectivity strategy without a budget. The EU's connectivity strategy is a constructive document but it is not yet clear whether it will remain a well-intended paper tiger or be turned into substantial investment in infrastructure in the Eurasian region. Only implementation will make Europe into a reliable alternative to the BRI. If the EU decides to make serious efforts to invest in its connectivity strategy, it is likely to be pushing at an open door. China's BRI has been well received because it addresses real needs in the region, but it is also being met by increasing skepticism. In Greece, for example, China's investment in the port of Piraeus has come with a massive cut in salaries, leaving many Greek workers dissatisfied. In another prominent example, Sri Lanka has found itself in a "debt trap", leading to a 99-year lease of the deep-sea Hambantota port to China Merchants Port Holdings.

European infrastructure projects have a fair chance of competing with Chinese offers and can provide and alternative in the region – not least in the field of technical standardization, which China often embeds into its major infrastructure projects. Overall, there is significant room for cooperation on technical standardization between the EU and China. In December 2018, the PRC released its latest White Paper on China-EU relations. It explicitly asks for greater cooperation in the field of technical standardization. Europe should not dismiss this call. Instead, it should take the opportunity to further promote its own approach to domestic standardization, help integrate China into the international standardization system and make a case against the unilateral internationalization of Chinese standards along the BRI. This will require Europe to treat the issue of technical standardization as one of strategic importance.

brief

About UI

Established in 1938, the Swedish Institute of International Affairs (UI) is an independent research institute on foreign affairs and international relations. Any views expressed in this publication are those of the author. They should not be interpreted as reflecting the views of the Swedish Institute of International Affairs. All manuscripts are reviewed by at least two other experts in the field.

The Swedish Institute of International Affairs
Visiting Address: Drottning Kristinas väg 37, Stockholm
Postal Address: Box 27 035, 102 51 Stockholm
Phone: +46 8 511 768 00
www.ui.se info@ui.se Twitter: @UISweden @ResearchUI