Policy Brief

Strengthening US-EU Cooperation on Technical Standards in an Era of Strategic Competition

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May 26, 2023



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1. Introduction: A Transatlantic Silver Lining

Transatlantic ties have had a rough go in recent months. After an unprecedented degree of alignment on Russia in the first half of 2022, including the quick and efficient rollout of a series of groundbreaking sanctions packages, the United States and Europe stepped back into dispute territory with the fallout from measures taken by Washington, notably some key provisions of the pathbreaking Inflation Reduction Act (IRA) passed last summer.

This has again strained transatlantic cooperation and affected the potential for US-EU alignment, particularly around China and technology and trade issues. Recent US actions have amplified the divide between "Atlanticists" and "strategic autonomists" and made it harder for Europe to follow in Washington's footsteps on, for example, export controls or outbound investment screening. Even though both issues are on the table, as European Commission President Ursula von der Leyen confirmed in her recent <u>China speech</u>, coordinated moves on these fronts could now be seen as bowing to US pressure in a context of perceived green-technology unilateralism.

Against this background, the December 2022 US-EU Trade and Technology Council (TTC) meeting can be seen as a missed opportunity. The TTC had, starting in September 2021, a productive and collaborative first year, but recently some of the most relevant transatlantic discussions have been happening outside the council's framework. These include negotiations on IRA interpretation and carve-outs, and on export controls on semiconductor technology.

International technical standards, however, is one key aspect of transatlantic cooperation that is moving forward on a strong footing, with significant implications. Over the past 18 months of TTC work, the two sides have managed to build a <u>solid foundation</u> for engagement on the topic, from increased information sharing to the identification of key sectors for collaboration to fruitful collective action on recent International Telecommunications Union (ITU) leadership elections. This happened despite longstanding disagreements on ways to approach international standards development, the role of "harmonized standards", for instance in the context of the EU's regulatory framework for artificial intelligence (AI), and US criticism of the EU's new standardization strategy.

Sometimes overlooked, collaboration on international technical standards is important in the current context of heightened technological competition. A highly technical workstream, international technical standards play a key role in defining future technological pathways. China's increasing involvement in global standard setting makes transatlantic cooperation in the field crucial and increases the need for a common, strategic approach. Without careful coordination, there is a risk that the current, broad-based pushback against China could spill into the standards sphere and impede the important work of global standards organizations. There is, therefore, a need to strike a balance between strategic competition and an interest-driven approach that can ultimately uphold the benefits of collaborative global standards development.

On the heels of the G7 summit in Hiroshima, and ahead of the next TTC meeting in Sweden on May 30-31,

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both of which have international technical standards on their agendas, we lay out the case for why and how the United States and the EU can build on achievements in this area to maintain constructive engagement and attain concrete, ambitious results. We begin by explaining why preserving global technical standards is crucial to economic competitiveness and strategic objectives on both sides of the Atlantic (Part 2) and explore China's increased involvement in the field (Part 3) before laying out six avenues for continued transatlantic cooperation on technical standards (Part 4).

2. Why It Matters:

The Benefits of International Technical Standards

Technical standards, as <u>defined</u> by the International Organization for Standardization (ISO), are documents that provide "requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose".¹ By defining such common specifications, technical standards, especially when set and observed internationally, facilitate the emergence of global common goods (e.g., the internet), permit the bridging of critical hard and soft infrastructure networks worldwide (e.g., in telecommunications), and improve product quality and safety for the benefit of all (e.g., for medical devices, financial services, or food safety). <u>Extant research</u>, while still limited in some respects, shows that global technical standards are particularly beneficial through their contribution to economic growth, cross-border trade, innovation, consumer experience, and key societal outcomes (Table 1).

| Area | Description |
|------------|--|
| Growth | Standards enable <u>economic growth</u> and development by providing for greater economies of scale through interoperability and beneficial network effects, particularly in areas in which products and services gain value as the number of users grows. <u>Empirically</u> , countries with higher standardization rates, such as Germany, France, or the United Kingdom, experience particularly high contributions of standards to growth. Growth is also enhanced by standards' benefits to trade, innovation, and consumer experience. |
| Trade | Global standards <u>foster</u> stronger trade activity by increasing interoperability of products and services across regions, thereby opening multiple international markets for firms. Such standards also allow firms to diversify suppliers and reduce costs by interacting with global supply chains, as opposed to shouldering the burden of vertical integration. Standards have historically affected more than 80% of global trade, while <u>studies</u> have demonstrated that the use of ISO standards facilitates investment and exports, particularly among developing economies. |
| Innovation | Standards serve as a <u>catalyst</u> for innovation. Researchers collaborate and communicate more efficiently from a common set of technical terms and processes. If <u>timed properly</u> , standards can also bring an innovation more quickly to market. By fostering <u>economies of scale</u> , standards contribute to valuable returns on investment that can be reinjected into research for future innovations. Finally, market scaling opportunities are an important factor driving such initial and subsequent investment. |

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| Consumer Experience | Standardization <u>benefits consumers</u> by enhancing product quality, minimizing costs, optimizing the variety of goods and services available, enabling the interoperability of products and processes that allow for greater consumer choice, and helping to solve classic market problems of consumer trust. |
|------------------------|---|
| Societal Benefits | Standards help to <u>ensure and improve</u> the <u>quality, safety, and efficiency</u> of products and processes, with important health and environmental implications. |

In summary, global technical standards help foster global economic growth, technological innovation, and market integration, and more generally improve our quality of life. But standards can also have <u>drawbacks</u>. If misdirected, they can <u>create barriers</u> to market entry and increase the risks of monopolization, or lead to premature technology selection and the <u>lock-in</u> of inferior technologies. Yet the process by which standards are developed and set helps to limit some of these risks by fostering transparency, openness, impartiality, and consensus, and favoring the effective-ness, relevance, and coherence of standards as a means of limiting distortions from adverse competition.

Standards also have a <u>crucial role</u> to play in the current environment of heightened geopolitical and technological competition. By supporting corporations' global reach and fostering interoperability across markets, international technical standards enable greater US and EU economic competitiveness. Leveraging global standards, American and European firms can more easily scale up their innovations, reduce costs, improve products, and, consequently, face global competition from a stronger foundation. Greater market scope also enables these firms to generate larger revenue streams, which can be reinvested in research and development (R&D) and innovative ventures.

These are long-held advantages of a global standards ecosystem, but they are especially crucial given increased global competition from Chinese firms. In fact, one <u>key competitive advantage</u> of Chinese companies is their preferential access to a massive home market, which enables significant economies of scale and price competitiveness. In select sectors, this has also allowed Chinese companies to invest in research and innovation much more than some of their Western peers do, thereby carving out leadership positions of their own. Foreign competitors can keep up and close the spending gap with Chinese competitors only by recreating or fostering similar scale, and by protecting and ensuring fair remuneration for their core intellectual property (IP).

Amid intense Chinese competition in third markets, international technical standards are also a guarantee of rationalized choice and diversity, and an enabler of continued, open competition. In fact, due to their global nature, cooperative international standards help decrease lock-in effects for users—or lock-out effects of global competition²—by making it easier to switch providers and move out of a given technological ecosystem. As the West and China compete head to head in third markets, global technical standards have the advantage of keeping the playing field open and allowing for repeat competition and second chances.³

Avoiding risky lock-in effects through global technical standards is key to bolstering Western economic resilience, too. In contributing to the rationalization and harmonization of production practices across borders, and by ensuring the interoperability of intermediate goods and inputs to production, global technical standards allow firms to more effectively divide, subcontract, and diversify the components of their production process. The economies of East

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Asia, in particular, have <u>greatly benefited</u> over the past decades from the interplay between standardization and supply chain globalization. Ultimately, these factors make supply chains more malleable and adjustable and, in turn, make reshoring, nearshoring, or onshoring decisions easier and cheaper.

Finally, global technical standards play an important role in confronting common challenges such as climate change or pandemics. International standard development organizations (SDOs) have the benefit of channeling international engineering and scientific efforts into a single forum, ensuring the concentration of high-quality research, and limiting wasteful and duplicative lines of work. These advantages are key to supporting the development of "common good" technologies with maximum effectiveness. For example, as the COVID-19 pandemic arose, regional and global standardization of personal protective equipment allowed for accelerated production capacity by granting firms certainty that their products had a broad user base. A fragmented standards development process, conversely, would have made it harder to develop products quickly, safely, cost effectively, and at scale.

3. The Challenge: **Rising Concerns on China, Around and Beyond Standards**

Despite their economic and strategic benefits, global technical standards and relevant organizations have <u>come</u> <u>under pressure</u> over the years. This has come, in part, from compatible yet different US and EU visions for the development and use of global standards. Both standards ecosystems are structured around private initiative, but the United States favors a more market-driven approach while the EU tends to rely on public-private partnerships and more hierarchical approaches. The transatlantic partners also regularly quarrel over the issue of the EU's "harmonized standards", which the United States sometimes perceives as barriers to trade but the EU considers a legitimate means of bolstering its single market. The EU's insistence, in its new <u>Standardization Strategy</u>, that primarily European actors should define harmonized standards, particularly regarding sectors with broad societal implications, <u>such as AI</u>, is bound to create further friction. But despite these fault lines, both partners have over the years maintained strong cooperation on international technical standards, and their firms have been able to collectively shape industry outcomes with limited government intervention.

A more immediate risk looming over today's collaborative international standards ecosystem relates to China's ambitions and increased participation in global standard setting. Technical standardization could get swept up in the broader pushback against China's economic and political practices, with potentially negative global economic spillovers.

Over the past decade, Beijing has come to <u>embrace the utility</u> of technical standardization in facilitating economic development and technological competitiveness, and has invested considerable resources in developing competency in the field, at home and abroad. Following a strategic reflection process known as "Standards 2035",

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China <u>published</u> a national standards strategy in October 2021 that called for the continued development of a domestic standards ecosystem while deepening engagement in international standards and associated groupings. Increased participation in international SDOs is part of this process, as are efforts to develop bilateral and regional cooperation with a growing list of partners in various technological fields.

China's increased engagement in international standardization groups was to be expected, and even welcomed, given the country's current central place in the global economy and technological landscape. However, it has triggered concerns from the United States and other advanced economies that standards groups could be vulnerable to manipulation in ways that would unduly benefit Chinese firms, allowing Beijing to alter global norms to suit its interests and values, and helping Beijing promote its own technological superiority at the expense of others.

Oft-cited examples of problematic Chinese behavior include <u>allegations</u> of coordinated voting, namely around Huawei's Polar Code proposal within the Third Generation Partnership Project (3GPP), the premier forum for developing future generations of telecom standards. This raised concerns that Chinese firms were being <u>compelled</u> to support standards proposals based on national industrial policy considerations instead of purely technical criteria.

Forum-shopping is another source of worry. Here, the case of the "New Internet Protocol" concept has become a lightning rod. After having failed to introduce the concept at the Internet Engineering Task Force (IETF), where today's internet protocol standards (TCP/IP) are developed, China took its proposal to the ITU, a multilateral body in which it could more effectively wield its diplomatic weight. That attempt also ultimately failed but <u>raised alarms</u> about China's behavior. One concern was that the proposal risked redefining the internet's core architecture in ways that would make it easier for repressive governments to exercise control. Another concern was China's efforts to move the entire system of internet governance out of bottom-up, multistakeholder forums, such as the IETF, and into more state-driven forums, such as the ITU, changing internet governance and risking a broader splintering of the global internet.⁴

China's intense efforts to secure key positions for its nationals or company representatives in international SDOs, as well as its tendency to flood standard organizations and working groups with proposals, have <u>raised additional</u> <u>concerns</u> that China could be attempting to game the system. While not every post or working group is crucial, leadership positions allow participants to define meeting agendas, draft group workplans, and orient technical discussions. Overloading the system with proposals also increases the odds that some of China's key standards are accepted.

More broadly, as concerns mount in Europe and the United States about China's divergent economic and political model, so too do worries that China could impose incompatible values, norms, and practices on the global economy through international standardization, perhaps by orienting discussions on the development of AI or by framing the technical development of concepts such as smart cities in ways that effectively support authoritarian governance models.

While <u>debates</u> on the <u>actual extent</u> of China's influence in SDOs and its ability to act in ways that disadvantage Western firms or put Western countries' security or broader interests at risk still <u>rage</u>, the global technical standard ecosystem is put under more intense scrutiny.

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Countries worldwide—and well beyond China—are updating their approach to global standardization efforts and integrating greater consideration of geopolitics; national, economic, and supply chain security; and national and regional competitiveness. The EU published in 2022 a <u>Standardization Strategy</u> that seeks to preserve and bolster Europe's position as a premier purveyor of global technical standards. The United States released its own <u>blueprint</u> in early May 2023.⁵ Meanwhile, Japan and South Korea, which are adopting more explicit strategies for <u>economic</u> <u>security</u>, maintain tight relationships between state policy and technical standardization. And India, amid China's increased activism, published in 2018 its first national standards strategy while also <u>attempting to strengthen</u> national standards in areas such as 5G. Standardization issues are, lastly, now high on the agenda of minilateral groupings including the TTC (including the newly inaugurated EU-India version), the G7, and the Quad.

Concerns about China's activism in SDOs are a key driver, though not the only one, behind these nascent efforts. In a context of intensifying global technological competition, nations feel the need to gear up, including through a greater role in international standard setting, to "win the technology race". And, in a context of growing concerns about China's economic and political model, some countries hope to take back control of institutions and processes long considered largely apolitical.

Many of these initiatives risk weakening existing institutions and practices. Relocating parts of the discussion on standard setting to new minilateral forums could hollow out and undermine the credibility of old ones. Efforts to de-risk from China through new or increased barriers to cross-border technology flows could end up limiting the ability of certain players to participate in international standard setting forums around sensitive technologies (as the Trump administration <u>unsuccessfully attempted</u> in 2019) and thereby make existing groupings less relevant to members. Seeking to limit Chinese influence in SDOs too drastically could also reduce the scaling benefits of global standardization efforts, deter broader American and European participation, and incentivize Chinese firms (and possibly other global players) to promote their own set of competing standards. Finally, injecting political or strategic considerations into technical discussions could dissuade leading engineers and technical experts, whose support has long ensured that standards reflect objective and optimal solutions to common technical problems, from contributing to those discussions.

The United States and the EU, therefore, need to strike a careful balance between the clear economic and strategic case for preserving a high degree of global cooperation in most technical standardization fields and the need to manage and de-risk relations with China. This imperative requires a careful strategy, one that effectively integrates the technical nature of today's standards development ecosystem, and the benefits derived from it, into the growing pressures of strategic competition that impact global technical standards.

4. Moving Forward: Leveraging Global Standards in an Era of Strategic Competition

Upholding a mostly collaborative global standards development ecosystem is key to preserving the economic and strategic benefits that come with open, global, and interoperable markets and products, and to leveling the playing field with Chinese firms in key technological domains. Countries, including China, will undoubtedly seek to exert increasing pressure on the global standardization process. But rather than turning away from global standards to look inward or isolate potential adversaries, state, industry, and civil society actors should intensify their participation in that process, in part to assuage concerns about current or future undue influence. Six recommendations to help strike that balance are:

1. Focus attention and resources on the most sensitive industries and technologies

Technical standards affect, to some degree, <u>almost every product or process</u> in our daily lives and national economies, from the size and shape of electric sockets to charging cables and keyboards to the protocols for transmitting information next door or across the globe. Recognizing this range and diversity when seeking to address rising concerns around certain technical standards is crucial. The vast majority of today's global technical standards, such as those for milking machines or crane design, sit well outside the realm of national security or strategic considerations. The United States and the EU should, therefore, ensure that they preserve the multistakeholder standardization processes that govern nonstrategic products and technologies, even those with a high degree of Chinese participation.

Avoiding costly overreactions and focusing limited resources on the fields and technical standards that have more strategic significance is essential, and five criteria matter most for determining priority sectors and technologies:

- **Lock-in potential.** Standards that govern technologies with high lock-in potential are the hardest to correct or influence once set. Technologies with high switching costs, requiring high capital expenditures (e.g., tele coms hardware or energy infrastructure), or displaying strong gravitational network effects that require major shifts in user behavior (e.g., cloud computing or blockchain) tend to fall into this category.
- **Cross-industry relevance.** Some standards have strong multiplier effects, defining industries or technologies that have a high degree of importance to products, processes, and markets beyond their own. These include internet protocols, telecoms, cloud computing, and AI.
- **National security relevance.** Some sectors, and associated standardization efforts, will require special scrutiny precisely given their direct implication for national security. These sectors include encryption, quantum technologies and data security, and standards governing critical infrastructure, soft and hard.
- **Ethical implications.** Standardization in certain sectors and technologies can also have ethical implications that should not be ignored. These sectors and technologies include data management and security, Al algorithms, and Al-based technologies for facial recognition or language detection.



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Regulatory relevance. Relatively few standards are developed or adopted specifically for compliance with governmental regulations, but they may be critically important. The EU has already set out more stringent procedures to develop AI standards that will conform with the bloc's AI Act, for instance.

Increased scrutiny of, and investment in, global technical standard organizations as described below should target technical fields that respond to one or several of the aforementioned criteria and leave other areas relatively untouched.

2. Monitor China's actions to respond more effectively

Better understanding and assessment of China's actions and their associated risks is key to responding effectively to the concerns they raise and designing and implementing appropriate solutions that serve American and European interests.

China's participation in international standards development has expanded quickly over the last decade, from an increasingly broad-based contribution to standards proposals to filling top-level leadership roles. This activism, however, has yet to translate into a dominant position. For the most part, the United States and Western Europe still benefit from their <u>outsized participation</u> in many established standardization forums, with the notable exception of the ITU. There is also little evidence that China has successfully rewritten the rules of existing standardization organizations to its advantage.

But this could change. The <u>political importance</u> given to technical standardization in China, driven at the highest levels by the State Council and the Central Committee of the Communist Party, mean that the country will continue to invest heavily in international standards development. This will improve Beijing's technical and institutional competencies, including its ability to shape standards development. As Sino-Western tensions deepen, the political pressure on Chinese actors to lead standard setting will grow.

This requires the US and the EU to undertake increased efforts to monitor, understand, and rationally assess Chinese activity in the field of technical standardization, in China and abroad. This is especially true in four broad areas:

China's domestic standardization ecosystem and strategic thinking. China's domestic architecture for developing standards is evolving, and Beijing has set its sights on key strategic industries of the future. Monitoring China's internal discussions on the direction and goals of technical standardization will be important to determine the risks of its approach. Closely following the uptake of international standards for the Chinese market and the ability for foreign-invested enterprises to effectively participate in standardization work in China will be a gauge of China's willingness to participate in truly global standardization. Assessing the ability of China-based industry associations to gain international relevance, such as that of the IETF, the Institute of Electrical and Electronics Engineers (IEEE), and the European Telecommunications Standards Institute (ETSI), will be crucial since these associations could serve as vehicles for China to create a more central role for itself in the global standards ecosystem beyond traditional SDOs.

China's engagement in international SDOs. Attention should also focus on China's engagement in global standard setting organization such as the ISO, the ITU, the International Electrotechnical Commission (IEC), and relevant <u>sector-specific bodies</u>, such as 3GPP, the Joint Electron Device Engineering Council (JEDEC), the World Wide Web Consortium (W3C), and the Car Connectivity Consortium, to assess China's positioning and detect concerning behavior. This effort should include a continued tracking of several types of actions: China's attempts and ability to secure key positions, with a particular focus on institutional leadership roles and technical committee and study group chairmanship positions; strategic use of specific working groups, for instance by leveraging leadership roles to align group work programs with Beijing's broader political or industrial goals; the level of concentration of Chinese participants by sector (to see, in particular, if it exceeds China's global market share for that sector) and the extent to which contributions focus on specific technical areas (to observe the concentration of activity around specific technical domains); any evidence or sign of concerted voting behavior among Chinese players; patterns across different organizations to detect forum shopping; and attempts to retool SDO governance and/or undermine their institutional checks and balances.

- **Pre-standardization work.** China's participation in pre-standardization work or in scientific exchanges that identify and discuss key technical concepts and questions, such as the ITU's <u>AI for Good Global Summit</u>, should be seen as testing grounds for future standards questions. Attention should be paid to coalition-building efforts that rally broad-based support for competing value-based concepts, such as algorithmic bias aimed, for instance, at removing offensive or politically sensitive ideas from language recognition algorithms, or standards in sectors that have potentially impactful lock-in effects, such as those for smart cities.
- **China's influence over de facto regional, international, and sector-specific standards.** Not all standards are globally defined within a single, open, and international SDO. Some standards are developed regionally or de facto through market adoption trends. China's ability to influence technical standards beyond established SDOs, therefore, must also be more closely monitored and assessed. China's market dominance in certain geographies or sectors that allow it to impose its standards, including in broad domains such as smart cities, blockchain, or EV charging infrastructure, and in specific technologies, such as facial recognition, deserves the greatest attention.

These monitoring efforts require participation of a broad range of actors, including government agencies (each with its own area of technical competence), trade associations, corporate actors, civil society, the research and technical engineering community, and SDOs themselves. This broad community of stakeholders should benefit from sufficient, dedicated support. In that regard, recent actions by the US Congress to require the NIST to gather <u>stakeholder input</u> on a <u>study</u> of China's involvement in global technical standards is laudable. Efforts must also be made to ensure that such studies are conducted objectively and updated regularly. Information-sharing platforms, such as those established through the TTC, should be developed among partners and allies to ensure available resources are pooled, monitoring efforts shared, and concrete, aligned action is taken when necessary.

3. Invest more in global technical standards

China's ability to gain influence in international standardization processes is in many instances <u>as much</u> the result of limited US and EU involvement as it is of increased Chinese participation. Global standardization has not been a

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priority for the United States and the EU in the past decade, and this facilitated changing institutional balances of power. One simple solution to addressing concerns from China's increased activism in SDOs is for the transatlantic partners to refocus resources on the issue and invest more in global standardization efforts.

The ITU is a prime example of the need for this. <u>As of mid-2022</u>, the number of Chinese participants in the ITU Telecommunication Standardization Sector (ITU-T), having increased sixfold in a decade, exceeded those from the United States (95 to 83). China's increased involvement was expected given its strategy of standardization engagement and its economic importance, especially in information and communication technology (ICT) sectors. More alarming, China's contributions to study groups of the ITU-T grew from 28% of the 2012 total to 53% in 2021.⁶ Contributions from US participants in 2021 accounted for 8% of the total and never exceeded 13% in the last decade.

Aware of the trend, the United States, the EU, and their international partners have begun reengaging with the ITU, including through efforts to secure the 2022 election of Doreen Bogdon-Martin, a US national, as secretary general. Industry engagement, however, remains less robust given this UN organization's political and bureaucratic nature and a perception that technical discussions are best held elsewhere. This lack of interest has allowed Chinese participants to dominate a process that can be consequential, particularly for setting standards and shaping regulatory frameworks adopted by economies across the Global South. The ITU remains an exception to China's ability to develop a strong footprint. Despite significant engagement in more private-sector-driven organizations, such as the ISO and the IEC, China's level of success in those forums has been much less remarkable. Yet a lack of US and European and US engagement means China can ultimately dominate certain standards forums merely by remaining involved with them.

Fostering greater US and EU participation in SDOs, starting with the ITU, is a simple yet crucial avenue for addressing current concerns. Investing more and with greater efficiency in global standardization work will involve several parallel lines of effort. These are:

- Educating key stakeholders. The United States and the EU should dedicate resources to making policymakers, lawmakers, businesses, and civil society actors aware of technical standardization issues, including the merits of collaborative global technical standards development, the risks associated with excessive influence from any given player, and the processes and governance of associated institutions. his could be done through regular briefings by area experts, industry stakeholders, or policymakers with responsibility for standardization issues, coupled with events and forums aimed at boosting dialogue and dentifying and clarifying common misperceptions. Raising awareness of positive spillovers from standardization will help garner broad-based support for further investment in the process.
 - Facilitating greater participation from US and EU stakeholders in SDOs. Since participation in standardizations forums is costly, increased public support and financing for standard setting or development activities would help foster greater engagement. Many tools, including tax credits, travel subsidies, and grant programs for standardization, could be made more readily available for this purpose. A one-stop transatlantic portal for such funding schemes would help pool and simplify access to these tools. Such efforts should seek to increase multistakeholder participation and benefit a wide range of companies and contributors. Smaller firms are often less involved in SDOs due to a lack of funding or awareness of the



associated benefits. In areas in which political values and ethical concerns are most relevant, such as AI, civil society participation should be encouraged to raise the profile of standardization as a public good. Training a future generation of standards professionals. Further investment and involvement in SDOs will provide the greatest pay off if participants are technically equipped and highly motivated. Standardization remains an underdeveloped professional field with few clear career paths and training or education programs, and little professional recognition. Yet it takes a culture of standardization to foster greater participation and contributions. China has made concerted efforts to inform and teach standardization processes to a generation of civil servants and industry players. A similar approach would make sense in the United States, the EU, and like-minded nations. Creating and funding standardization-relevant programs at key universities, particularly within engineering and business programs, offering fellowships at SDOs, and promoting careers in standardization in the corporate, civil-society, and public-administration sectors, would put standardization competencies to good use and ensure a healthy return on investment in SDOs. Building stronger links with the Global South. The United States and the EU should seek to promote global standardization activities and uptake in third markets, especially those of the Global South. The value of global standardization should be promoted as broadly as possible since the benefits of standards increase with the scale of their deployment. The Global South, where China has focused considerable attention, should be increasingly integrated as a partner in the process, including through joint training programs, dedicated university exchanges, closer partnerships among national standards bodies, and awarenessraising campaigns should be components of this endeavor. Europe's Global Gateway initiative, the US-led Indo-Pacific Economic Framework, or the G7-endorsed Partnership for Global Infrastructure and Investment (PGII) are natural vehicles for such efforts. Negotiations on bilateral and regional trade agreements should also seek to maintain a vibrant global standards ecosystem (involving especially the six principles laid out in the World Trade Organization's (WTO) Technical Barriers to Trade Agreement, described below).

4. Strengthen governance of international SDOs

As global technical standards increasingly become a strategic consideration for many great and middle powers, the standardization process risks being skewed toward political rather than technical goals. Maintaining a collaborative, constructive, and scientifically driven environment for international technical standards development requires alleviating concerns that major powers can game the system and instilling a degree of trust in SDOs that allows greater participation of private industry and civil society with limited political involvement. SDOs must seek greater resilience to political pressure while remaining relevant enough to continue attracting talent into the standardization process. Recommendations for meeting these goals include:

Accounting for the heterogeneity of SDO models. SDOs come in many shapes and sizes, each with its own set of constraints, strengths, and weaknesses. More than 200 groups develop standards in the telecommunications sector alone. Recent scholarship has highlighted the inherent tensions between, for instance, leadership-driven and membership-driven models for SDO policymaking, and top-down versus bottom-up approaches.⁷ There are, of course, significant differences among organizations in their governance of issues such as voting rules (majority versus consensus), decision-making bodies (general assemblies, executive boards, or working groups), eligible participants (from formal members to openness

to any interested party), transparency of process, and participant duties. These differences require case-bycase assessments of resilience and technical relevance that go beyond the scope of this report, but some cases can nonetheless be highlighted and broad direction for optimal governance can be given, as explained in the next three points.

- Address the ITU's relevance and effectiveness deficit. Forums whose governance models have raised the most concern should draw priority attention from policymakers and concerned stakeholders. Chief among them is the ITU. Its status as a UN organization gives it broad diplomatic appeal and legitimacy, particularly in the Global South, but it suffers from a legitimacy crisis among technical experts. Industry participants often point to the institution's bureaucratic, state-oriented nature as a brake on effective standards development that hinders its attractiveness among technologically advanced but competition-driven and resource-conscious industry players. At the same time, purportedly lax rules for proposing and adopting work items and contributions have raised questions about the technical rigor of its standards development process. Moreover, China's status in the organization is that of a developing country, which bestows benefits. Costs for Chinese participants, for example, are roughly half those of participants from advanced economies. The ITU needs to consider ways to make itself more attractive to private-sector talent to ensure that the best technical standards triumph and to restore confidence in its political resiliency.
- **Strengthen the resilience of SDOs more broadly.** With the exception of the ITU and a few other technical organizations in the UN system, SDOs, whether international groups such as the ISO and the IEC, engineering societies such as the IEEE, or industry- or sector-specific consortia such as the IETF or the 3GPP, are driven by private-sector initiative. Such organizations are nevertheless not immune to internal or external attempts to game the system. Industry players are often drawn to such institutions because membership conditions or ease of process facilitates their participation, but these must be balanced against growing geopolitical distrust and the need to build confidence in the resilience of the standards development process. Past governance models, such as 3GPP's reliance on "gentlemen's agreements" for some of its decision-making, need reform in light of new geopolitical realities. Establishing more formal processes, even if they are more burdensome, can help limit nefarious behavior such as bloc voting or undue influence on agenda-setting. To preserve the trust of national governments, SDOs need a better balance between technical relevance and political resilience. One way to create this is through stress tests, such as table-top or red-team exercises to observe how SDO processes and broader governing architectures hold up under the pressure of fictional but realistic scenarios designed to circumvent decision-making safeguards.
- **Double down on governance principles that work.** Any review of SDO governance must acknowledge that procedural principles set out in WTO rules on technical barriers to trade⁸ and other legal or administrative frameworks in the EU (Regulations 1025/2012 and 2022/2480) or the United States (Circular A-119) already offer effective solutions to China-related concerns. These are not panaceas, but they provide effective bases for moderating influence. They promote transparency of process, openness of participation, consensus in and impartiality of decision-making, underline the voluntary nature of standards, call for ensuring fair access to standards (namely concerning royalties), and give priority to effectiveness and relevance of the adopted standards. These principles stem from decades of trial and error. They have grown out of an anti-trust mindset, are designed to guard against monopolistic behavior, or have been drafted within a broader framework of trade liberalization that aims to limit market distortions and ensure inclusivity and fair competition. They are, in essence, designed to limit the vagaries of corporate influence and

monopolistic behavior, and, crucially, tailored to moderate adverse or excessive influence of individual participants, whether large industries or proactive state actors such as China.

5. Leverage strength in numbers among partners

Part of the concern around China's increased participation in global technical standardization forums is that the country employs a clear state-guided strategy rather than a commercially or technically driven approach. China can, therefore, align domestic stakeholders' behavior with national goals. This, in turn, can create a longer-term, strategic disadvantage for other countries and their firms that lack a similar, top-down standardization strategy or the means to pursue it.

One way to alleviate this concern is to ensure that, while politics and governments stay away from SDO technical work and governance (through the steps described above), the United States, the EU, and like-minded partners conduct constructive, political-level exchanges on standards and associated strategies. Minilaterals such as the TTC, the G7, or the Quad, are particularly well suited for this purpose given their small number of compatible participants and mainly political and strategic mandate.

Standards cooperation at the minilateral level should seek to achieve seven broad goals:

- First, **to foster a healthy discussion of noneconomic considerations for standards**, ranging from their effects on national security and resilience to their overlap with ethics and values. This effort should ensure that crucial non-technical aspects of standardization are addressed without hindering SDOs' highly technical standardization processes.
- Second, to foster discussions on strengthening and aligning respective IP systems that spur innovation at greater scale on each side of and across the Atlantic. This effort might include discussions on preserving US and EU competitiveness in standard-essential patents, limiting subsidized Chinese patent fillings, or countering China's increased use of anti-suit injunctions.
- Third, to align pre-standardization research prioritization and strategies among like-minded nations.
 Pre-standardization forums, such as the UK-based <u>AI Standards Hub</u>, allow for exchanges of ideas and concepts among experts to help identify key questions and collaboratively explore potential pathways toward technical solutions. Minilaterals can help foster collaboration at this early stage, with potential positive spillover in the standardization process.
- Fourth, **to align standardization strategies for key technologies such as telecommunications, green technologies, cybersecurity, encryption, or AI** to reflect on the trajectory of emerging technologies and multilaterally define desirable paths. The TTC already does this for AI development.
- Fifth, **to establish multilateral monitoring and early-warning mechanisms for problematic behavior in SDOs** (not only from Chinese stakeholders). Some coordination on this issue already occurs between the United States and the EU, including within the TTC. Wider collaboration could include other like-minded nations such as Canada, Japan, and the United Kingdom, perhaps within the G7, and Australia, India, and South Korea.
- Sixth, **to develop a common approach to engaging in global SDOs, including for disputed elections to key leadership positions**. This is, again, already happening to some extent at the transatlantic level and was <u>a</u>

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<u>factor</u> in the ITU elections of September 2022. Such efforts could be expanded to include more partners or institutions.

Seventh, **to manage multilateral disagreements on standards constructively**, including US concerns about the EU's quest for digital sovereignty and possible efforts to leverage technical standards and use harmonized standards rules to limit the reach of US-headquartered firms, or EU concerns about a perceived overrepresentation of US companies in certain key SDOs.

6. Solve peripheral issues through targeted, effective tools beyond standards

Much of the unease about China's increased participation in SDOs stems from concerns that go well beyond the question of the country's influence over global technical standardization work. These concerns include unfair advantages for Chinese firms in their home market, state support for their international endeavors, and their ability to tweak the global playing field (including through their influencing of global technical standards). Chinese firms are present in key standardization forums because they could capture over time, sometimes with heavy state support, significant global market shares in a wide array of critical industries.

Most of these wider concerns, however, cannot be addressed through a reconsideration of existing SDOs and international standardization processes. Tackling concerns about unfair Chinese competition across various sectors often requires more far-reaching tools. Some already exist and are at play. These include WTO anti-dumping and anti-subsidies cases, EU foreign subsidy and international procurement instruments, unilateral US tariff barriers against unfair competitors, and industrial policies of many advanced economies. Other tools are under discussion or negotiation, with the intent and potential to address the much larger question of China's industrial policies that unfairly benefit the country's corporate players. If prioritized, these tools might also contribute to solving some of the issues associated with China's participation in SDOs by relevelling the playing field within and beyond these forums.

In considering these policy responses, and tailoring reactions to national security, resilience, and competitiveness concerns, American and European policymakers should learn lessons from the standardization field and prioritize preserving as much scale as possible for their companies. Maintaining global standards is one way of doing this. Other policy steps, such as open industrial policy designs and trade negotiations, are another. Indeed, scaling opportunities may be the most important competitive advantage for Western companies in the current environment.

Endnotes

- For the purpose of this report, international technical standards are defined as technical standards developed or set within open international forums such as the ITU, ISO, or 3GPP. These standards are voluntary by definition, and governments may or may not adopt them when specifying consumer, worker, environmental, or financial safety requirements for products and services sold in their domestic markets.
- Here, the fragmented world of 2G and 3G telecoms from the mid-1980s to the mid-2000s is a prime example, while another is competing video standards (PAL, NTSC, and SECAM) prior to the rise of digital video broadcasting.
- 3. One example is China's global rail exports. China's adoption and use of the most commonly held gauge standard (the "standard gauge") has meant that Chinese rail firms, as they expanded globally in the late 2010s, were unable to permanently lock-in recipient countries for the procurement of future rolling stock since competitors from Europe and Canada, for instance, used the same standard. Instead, local tendering authorities could quickly and seamlessly procure alternatives from other companies as complaints about the quality of Chinese rail products grew. Global technical standards create an effective foundation for long-term competition, providing users with an opportunity to move away from problematic or unsatisfactory providers, especially in industries with high potential lock-in effects, such as smart power grids and telecommunications infrastructure, and in sectors in which interoperability is crucial.
- 4. The concern is now that this broader goal may still be pursued through the aggregation of smaller, stepby-step proposals, notably by approaching individual countries with a modified version of the current IPv6 standard, known as IPv6+.
- 5. The US strategy was released as this paper was entering into final copy editing and thus was unable to be considered in the analysis.
- 6. According to the report, the term "contributions" in the ITU-T is "synonymous with submissions, and is used to refer to virtually any kind of item a study group might formally consider, including new technical recommendations, revisions to existing standards, term definitions, corrections and amendments, proposed evaluation metrics, comments on proposals, and all other such items". (CIRA 2022, p. 21)
- 7. Leadership-driven models favor stronger secretariats with hierarchical leadership supported by in-house staff, which lend themselves to a more top-down governance, whereas policymaking and decision-making in membership-driven models is shaped more directly by the members themselves in a bottom-up process, either through consensus in general assemblies or via representative boards.
- The WTO's rules for international standards and technical barriers to trade (TBT) were designed to respect the needs of states to use technical standards to define regulation in a way that does not unnecessarily harm trade.

Acknowledgments

The authors wish to express their gratitude to the many anonymous interviewees from a broad range of fields who provided their perspectives and insights, and, in particular, thank InterDigital and Qualcomm for their support and availability for repeated exchanges and interviews. The authors also thank Andrew Small and Peter Chase of GMF for their excellent guidance and editorial assistance. The views and analyses expressed herein ultimately remain those of the authors.



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