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China's National Standardization Development Outline: Policy Implications and Future Directions

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The Chinese National Standardization Development Outline (hereinafter “the Outline”) issued in October 2021 is China’s first long-term strategic outline on standardization. This essay seeks to explore developments in the international standardization policies of China, US, and EU, referring to insights of US and European think tanks on the Outline and China’s policy intentions.

1. Introduction

In recent years technical standards are seen as a source of profit and power, and therefore it is recognized in the context of international politics that national governments should take leadership to strategically win the international standardization competition. This recognition has led to changes in the actors, scope, purpose, and means of standards development¹. This essay will discuss these changes from the perspectives of China’s intentions surrounding the Chinese National Standardization Development Outline issued in October 2021 and insights of US and European think tanks.

Specifically, I will start by reviewing the background that led to the issuance of the Outline and how it is positioned in China’s overall policies. Next, I will try to read into China’s policy intentions by extracting the features of the Outline and examining what was actually described in it and what was not. Finally, I will analyze the insights and policy recommendations offered by leading US and European think tanks to examine developments in international standardization.

2. Chinese National Standardization Development Outline



2.1 Background and positioning of the Outline

On October 10, 2021, the National Standardization Development Outline² which set out China's standardization policies toward 2035 was announced by the Central Committee of the Communist Party of China and State Council.

With an aim to upgrade the strategic positioning of standardization activities, formulation of the Outline was proposed in the “Main Points of National Standardization 2020”³ issued by the National Standardization Management Committee in March 2020 based on the findings of a government-led research project called “China Standards 2035” conducted over a two-year period from 2018. Following this, the “Main Points of National Standardization 2021”⁴ issued in April 2021 announced that a China Standardization Development Plan and an action plan will be formulated in line with the 14th Five Year Plan.

Indeed, the positioning of standardization is in line with “The Outline of the People's Republic of China's 14th Five-Year Plan (2021-2025) for National Economic and Social Development and the Long-Range Objectives Through the Year 2035”⁵ (the 14th Five Year Plan) issued in March 2021. The term “standards” appeared 58 times in the 14th Five Year Plan following “science and technology” and “digital” which appeared 89 and 81 times, respectively⁶, with almost half of the 65 chapters referring to “standards.” In particular, Chapter 20 sets the goal of “building a market system of high standards” for a high-standards socialist market economy system and Chapter 13 refers to “standards” as a means to promote domestic and international dual circulation. The Outline is counted as one of the long-term policies along with “The Outline of Intellectual Property Power Construction (2021~2035)”⁷ issued in September the same year by the Central Committee of the Communist Party of China and State Council in line with the 14th Five Year Plan. It can be inferred, however, that there has been a strategic change in the Chinese government's policies from the fact that this was the first time a strategic outline on “standards” was issued, whereas the first issuance of a strategic outline on “intellectual property rights” dates back to 2008. We can also surmise that the formulation of the Standardization Development Outline required more collaboration and coordination among a wider range of government agencies from the fact that the press conference held by the State Council Information Office to announce the Outline saw the presence of the directors of various departments including Tian Shihong, the Vice Director of State Administration for Market Regulation and Chairman of Standardization Administration of China, Wang Song, the Supervisor of Department of Basic Research, Ministry of Science and Technology, Liu Duo, the Director of Department of Science and Technology, Ministry of Industry and Information Technology, Xiao Fang, the Director of Department of Agro-product Safety and Quality, Ministry of Agriculture and Rural Affairs, Zhou Qiang, the Director of Department of Market Construction, Ministry of Commerce, and Cui Gang, the Director of Department of Standard and Innovation, State Administration for Market Regulation, as compared to the press conference held for the “Outline of Intellectual Property Power Construction” where the attendants were mainly the



directors of legal departments such as the China National Intellectual Property Administration, the Supreme People's Court, the Ministry of Science and Technology, and the State Administration for Market Regulation.

2.2 Contents of the Outline

The Outline defines the objectives and missions of China's standardization development for 2025-2035, from various perspectives such as short-term and long-term, qualitative and quantitative, and domestic and international⁸. According to Tian Shihong, the Vice Director of State Administration for Market Regulation and Chairman of Standardization Administration of China⁹, while China's standardization is steadily improving in technical level and degree of internationalization, the Outline was established based on the recognition that challenges still remain in terms of "insufficient standard supply", "insufficient implementation and application", and "low level of internationalization of standards."

Chinese economy is now undergoing a transformation to high quality growth, which will be supported by advanced standards. The Outline is therefore regarded as a guideline for quality development of various industries and is said to have fundamental significance, guiding effect, and realistic leadership significance toward promoting and realizing domestic and international dual circulation, sustainable socio-economic development, and high-quality development¹⁰.



Table 1: Main points of the National Standardization Development Outline

By 2035

Build an internationally compatible, government-led, enterprise-oriented, and socially participatory standardization management system with Chinese characteristics.

Achieve “Four Transformations” by 2025

- Standard Supply: from government led to equal emphasis on government and market
- Standard Application: from industry and trade to the whole economy and society
- Standardized Work: from domestic driven to domestic and international mutual promotion
- Development of Standardization: from quantity and scale to quality and benefit

Numerical target

- Average Enactment Period of National Standard < 18 months
- Conversion Ratio of Global Standard > 85%
- 50 or more national technology standard innovation bases

Seven Key Missions

1. Promote the mutual development of standardization and science and technological innovation

- Research on standardization: AI, quantum information, biotechnologies
- Technology development and standardization on a simultaneous basis: next-generation IT, big data, block chain, healthcare, new energy, novel materials
- Promotion of standardization and industry transformation: marine vessels, high-speed railways, new energy vehicles, smart-connected cars, robotics
- Converting science and technology innovations into standards: development and improvement of safety standards for biomedical research, molecular breeding, driverless technologies
- Improvement of Standard Essential Patent system, strengthening of intellectual property protection in standard development process, and promotion of industrial application of innovations

2. Improve the level of industrial standardization

- Improvement of standards and promotion of digitalization: basic components/technologies/materials, smart manufacturing, service, food cold chain, logistics, e-commerce, wholesale/retail, real estates, finance
- Promotion of standardization in emerging industries: data resource property rights, security, platform economy and sharing economy
- Establishment of infrastructure standards: communication, industrial Internet

3. Improve the standardization guarantee for green development

- Establishment and improvement of standards: energy saving and renewable energy standards in relation to carbon peak and carbon neutral standards, CO₂ emission standards and carbon capture, utilization and storage
- Promotion of standardization: protection of the ecological system, climate change, natural resources, green agriculture, green finance, eco-tourism, green construction, green consumption

4. Accelerate the standardization process of urban and rural construction and social construction

- Promotion of standardization: smart agriculture, smart city, collection and utilization of administrative services and credit information, administrative management and social governance (data security and protection of personal information), public services (public safety, education, support for the elderly), life and health related fields (sports and media)

5. Improve the level of standardization and opening to the outside world

Active participation in the activities of the International Standardization Organization (ISO) and other specialized international standard developing organizations; collaboration with “Belt and Road” countries, BRICs, APEC, and other countries in the field of standardization; implementation of international standardization projects to engage in international standardization and promote the compatibility of Chinese standards with international standards

Source: Prepared by the author based on the “Interpretation by One Picture -- The National Standardization Development Outline” October 11, 2021, the State Administration for Market Regulation website

https://gkml.samr.gov.cn/nsjg/xwxc/202110/t20211011_335474.html (Last accessed on February 7, 2022)



2.3 Items considered in China Standards 2035 but excluded from the Outline

The China Standards 2035 project was comprised of four research groups respectively studying the following subjects: (1) Strategic Orientation and Objectives of Standardization (2) China Standardization System, Method and Evaluation (3) Strategy for Supporting High-quality Development Standardization System and (4) Strategy for Standardization Military-Civil Integration Development. The findings of each of these groups were incorporated into the “Main Points of National Standardization 2020” and the Outline. However, there are several items that were not referred to in the Outline despite being studied in the China Standards 2035 project and mentioned in the “Main Points of National Standardization 2020.”

Here are a couple of examples. First is the term “military-civil integration.” Although the “Main Points of National Standardization 2020” referred to improved generalization of military and civil standards and development of standard codes for dual-use supplies and equipment, the Outline does not include any mention of military-civil integration.

Second is the “Belt and Road.” Although the “Main Points of National Standardization 2020” clearly mentioned the need to “promote the soft connectivity of standards” in the Belt and Road Initiative (BRI), the Outline puts it as follows: “actively promote cooperation in the field of standards with the “Belt and Road” countries, strengthen standardization dialogues with BRICS and APEC countries, deepen cooperation on standardization with Northeast Asia, Asia-Pacific, Pan-American, Europe, and Africa, and develop a mutually beneficial win-win standardization partnership based on a win-win relationship.” Some say that China initially had the intention to develop a China-dominated international standard developing organization – dubbed the “BRI Regional Standards Forum”¹¹. This raised a sense of alert among the Western world as China’s step to establish a new Chinese-led international standardization organization.

2.4 Features of the Outline

The following two concepts can be identified as the distinct features throughout the Outline: “expansion of roles” in that the Outline recognizes wider roles for standards to play and “openness” that allows for active market participation and competition.

- “Expansion of roles” - recognizing wider roles of standards

According to Wu Hequan, a former Vice President of Chinese Academy of Engineering and Chairman of China Standardization Special Committee, “the Outline contributed to significantly boosting the strategic positioning of standards, which can be regarded as a milestones in our national standardization activities.”¹² The Outline sets out that standardization plays a fundamental and leading role not only in industry and trade



but also in promoting the modernization of the national governance system and governance capabilities, and thereby significantly contributes to the improvement of the country's comprehensive competitiveness, promotes high-quality economic and social development, and plays a greater role in building a new national development pattern.

- “Openness” - allowing for active market participation and competition

According to Tian Shihong, the Vice Director of State Administration for Market Regulation and Chairman of Standardization Administration of China, the Outline “seeks to shift away from the conventional ‘government-led’ standard development and move to standard development based on ‘cooperation between government and market.’” It should be noted here that the ‘market’ includes foreign companies. The Outline encourages the participation of foreign-invested enterprises in the formulation of standards.¹³ Among various patterns of standard development by the market, the Outline emphasizes the importance of ‘association standards’ formulated by private associations to meet market needs. Zhao Xiangeng, a former Vice President of Chinese Academy of Engineering and Vice Chairman of the Environmental Protection and Resources Conservation Committee, National People’s Congress points out, “It is most likely that the internationalization of Chinese standards will progress through association standards and Chinese standards will be able to wield greater influence on global standards through association standards.”¹⁴ He also gave a numerical target to “integrate 85% of China’s domestic standards with international standards.”

3. Western views on the Chinese National Standardization Development Outline

How do the US and European countries view China’s National Standardization Development Outline? How will they respond to the Outline? Although official responses to the Outline have not been announced by the Western governments, the following section analyzes the views expressed by leading think tanks and economic associations. The analysis will look into the three main elements of: 1. Evaluation of the Outline — particularly evaluation of “expansion of roles” and “openness” as the two distinct features; 2. Recognition of the risks that may arise from the Outline; 3. Policy responses to the Outline.

First, we will look into a report published by a leading US think tank, the Carnegie Endowment for International Peace¹⁵ the same month the Outline was issued:

1. Evaluation of the Outline

With regard to the “expansion of roles” seen in the Outline, the report points out, “Elsewhere in the world,



standards are seen as serving an important but narrow purpose: increasing interoperability, comparability, and compatibility between products...In China, standards are often seen as a lever for upgrading the country's industrial base. The Chinese government's plan focuses heavily on creating standards for emerging industries such as intelligent manufacturing, describing them as a tool to promote industry optimization and upgrading." "This reform process has continued under the banner of China Standards 2035, a research project led by the Standardization Administration of China. But those recommendations encountered fierce resistance within China's bureaucracy, particularly from other ministries and local standardization bureaus that saw the plan as stripping them of their standards-setting power." The Outline is described as "the central government's attempt to provide clear guidance... on how it should approach standards at home and abroad," which shows that the authors see the "expansion of roles" as the government's attempt to centralize governance in standardization development.

With regard to the "openness" of the Outline, the authors say that although the Outline may seem as opening the way for greater industry involvement in the development of standards, "this greater role for industry actors should be seen not as a shift away from the state, but rather as a way of bolstering the capabilities of the state-centered standards system," and that the Outline "reflects an abiding belief within the Chinese government that economic and technological progress requires constant (and often mandated) upgrading of production capacities... It is a national requirement and not a matter of company decisions." As for the target of aligning 85 percent of China's domestic standards with international standards, as specified in the Outline, the authors assert that "Little weight should be put on that specific number—because what counts as an international standard and what counts as alignment can be easily manipulated."

2. Risk recognition

The report describes the risk of China forcing its own standards on the rest of the world as, "On the direct side, the Chinese document calls for advancing standards alignment within countries that are participating in the Belt and Road Initiative and for ramping up standards-related dialogues with members of the BRIC grouping and the Asia-Pacific Economic Cooperation forum... But perhaps more impactful than these direct calls will be the overall surge in Chinese standards-setting activities." The Outline will create incentives for government agencies to use all possible means to promote standardization and for representatives from Chinese companies to become a much more active presence in international standards-setting venues by engaging in distortionary practices.

3. Policy response

Then, how should the US respond? The report warns that "heavy-handed interventions seeking to exclude researchers or companies from China would backfire, given their credentials and affiliations, and such attempts could potentially upend ongoing work at crucial standards-setting bodies." The authors further state



that instead, the US policymakers should engage with international standards developing organizations (SDOs) to understand exactly where distortionary practices are happening. Methods to combating these practices include pushing SDOs to tighten their internal voting procedures or to pursue proactive domestic policies, such as support for companies to participate in international standards setting.

Although it was before the Outline was released, another leading US think tank, Asia Society Policy Institute (ASPI) also published a report¹⁶ on China's policy to step up participation in international standards setting. This report suggests that China's ambition to become a "cyber great power" is increasing its influence on international technology standards development and driving the Belt and Road Initiative (BRI) and Digital Silk Road (DSR). The report sees China's standardization policy as a "state-centric approach" that views "technological progress not only in terms of strengthening the country's economy and military, but as a political goal," and analyzes that in its external messages, "Beijing frames its engagement in international standards setting as a mutually beneficial "win-win" to promote a common future in cyberspace. However, in the Party-State's internal messaging, standards development is framed as a zero-sum contest and an instrument of national power needed to dominate future technology."

Nevertheless, it is neither desirable nor possible for the US to exclude China from the international standards setting process. The report therefore recommends that the US should maintain its market-centered approach to standardization and establish a shared baseline of priorities with like-minded partners by increasing government-to-government and government-industry coordination, while engaging, bilaterally and multilaterally with China. Specific policies include identifying and supporting the core strategic technologies through the Day One Project¹⁷ conducted by the Federation of American Scientists. In the long term, the Build Back Better World (B3W) and new Quad infrastructure partnership may be able to provide emerging economies and partners with real alternatives to the options offered by China.

Many similar recommendations for dealing with China's international standardization policies come from within the US. For example, the Atlantic Council, a think tank that has provided many key members for the US Government,¹⁸ also proposed that US policy "should not focus on pushing out the Chinese or otherwise managing the structure and processes of standards bodies; rather, Washington would do better to support the US technology sector and ensure that new technologies emerging from the United States are of the highest quality, since well-engineered products are the most likely to be selected for global use." This is because government-led approaches will not produce the best results or translate into increased representation in SDOs. Specific policy suggestions include "increased and strategic investment in the private sector's innovation and technology efforts and the creation of a US strategic technology office, responsible for the relationship between the public and private sectors with respect to technology standards."

Next, I will analyze a report¹⁹ published in December 2021 by the European Union Chamber of



Commerce in China (an organization established to support and represent the interests of companies from the EU) as an example of views coming from the EU.

1. Evaluation of the Outline

The report points out that while China's state-centric standardization policies are distinct from that of EU which adopts a policy of privately-driven standards setting, China's standardization reform is progressing with the publication of the Outline. The report recognizes this progress by saying "In some respects, the reform has provided more opportunities for European firms to shape standard setting in the PRC."

2. Risk recognition

On the other hand, a sense of crisis is also expressed in the report. "China's rapidly growing footprint in international technical standardization is of particular significance given that its approach to standardization is distinct from European and international practice. This is one of several factors that is leading to increased politicization of technical standardization, which has raised the risk of bifurcation, fragmentation and decoupling of standards internationally" in addition to "EU's dwindling influence in standardization." "The question is whether China will ultimately integrate into the present international standard system or reflect its power through direct technical standardization, but these two approaches are not mutually exclusive. China may try to integrate into the international standard system and use technical standardization at the same time. While the Outline refers to the importance of the international standards developing organizations (SDOs), China may concurrently pursue a different direction than SDOs."

3. Policy response

The report recommends that in response to China's state-centric approach and politicization of technical standardization, "EU should continue to cooperate with China to maintain its privately-driven model and advocate a non-political approach to standardization." Specifically speaking, European governments are recommended to "Facilitate a strategic dialogue within the EU; Engage in strategic coordination with like-minded partners; Invest in standardization research (including a deep dive into strategic sector standardization such as in AI, and a comprehensive analysis of technical standardization in Chinese-financed BRI projects); Reform and strategically use Horizon Europe, EU's key funding program for research and innovation; Incorporate and incentivize the adoption of international standards in all financing vehicles; and Insist on transparency and the acknowledgement of fundamental values (such as human rights) as benchmarks for standards."

The report also recommends Europe to cooperate with the National Standardization Management Committee and encourage China to consider adopting Europe's standardization model, pointing out that "China has voiced interest in concluding agreements with the ISO and the IEC, resembling the European



Vienna and Frankfurt agreements that strengthen international standards. The EU has rich experience and expertise in this regard and should uphold its offer to facilitate Chinese efforts.” It is considered important that EU Member States engage in high-level bilateral dialogues with China to “explore the potential of common interests in technical standard cooperation in specific sectors, with a focus on concrete deliverables.” “One ongoing example is EU-China collaboration on green investment taxonomy standard setting.” The report also notes that EU should request that “improved access of foreign-invested enterprises to Chinese standardization is guaranteed by law.”

Dr. Tim Rühlig who authored this report published by the European Chamber also stated in a DigiChina Forum report²⁰ published in December 2021 by Stanford University that “China’s standardization power is not illegitimate as such, and it is not going to go away any time soon. The United States, the European Union, and their like-minded partners need to . . . walk a fine line between preserving the privately driven approach that has made us strong and not falling victim to China’s political strategies.”

4. Conclusion

So far, this essay has analyzed China’s intentions surrounding its National Standardization Development Outline issued in October 2021 and insights on the Outline offered by US and European think tanks.

The Outline generally describes China’s attempt to structurally reform the process by which standards are developed, used, and managed. This domestic structural reform is designed to lead to high-quality development and international relationships desirable for China, and therefore features “expansion of roles” of standards and “openness” that allows for more active market participation and competition than before.

As a result of recognizing that standards have a potential to become a source of international power and positioning them on a wider perspective as the linchpin of social governance and industrial policies, discussions surrounding standards converge on the state as the main actor. In fact, standardization policies need to become government led as they require increased financial expenditure to enhance related agencies and functions. The “openness” can be seen in that the Outline refers to cooperation between government and market, compatibility with international standards, participation of foreign-invested enterprises in Chinese standards setting, and collaboration between other states and international organizations. These show that China in a sense has paid some consideration to the expectations of the international community.

As a matter of fact, China’s rapid development since its “reform and opening-up” was a product of strong government leadership combined with the policy to open-up to the outside world. Achieving high-quality domestic development by adopting a standardization approach that is government-led but at the same time



compatible with international standards can have the effect of raising the cost of decoupling China. If competing countries drop out in the process as a result of market competition, that can also be justified in the international context. ... This seems to be China's intention that can be deduced from the Outline.

I suppose it is safe to say that the US and the EU share a sense of crisis about China's standardization policies. The fact that the government's involvement in standardization has been strengthened in China is considered to lead to increased risks of politicization of opposing interests, decoupling and decrease of the influence of US and EU.

The responses that US and EU are expected to take can be summarized into the following four points: (1) Differentiate with China in terms of values such as human rights and market driven approach; (2) Develop new forms of collaborative relationships (e.g. QUAD) with like-minded partners beyond conventional alliance relationships; (3) Tighten international rules; and (4) Enhance discovery and development of core strategic technologies at home, while also maintaining relationship with China.

If China's standardization policies are aimed at "high-quality development" as advocated in the Outline, the Chinese government is thought to engage in long-term, strategic intervention with standardization activities. In that case, it can hardly be expected that the raised vigilance of Western countries against China's standardization policies will be relaxed in the short to medium term. How can we ease the prolonged political tensions surrounding standards and seek more flexible coexistence? As indicated in the Outline, many management standards in areas such as quality, environment, and safety are included among the standards that need to be improved toward the "high-quality development" that China aspires. Perhaps the clues to our question can only be found through reiterating international cooperation on the working level in these specific areas where standards and regulations need to be tightened rather than relaxed, and where solidarity is more necessary than fragmentation.

¹ Keiti (Huiting) Wei, "China's Standards Development Strategy and Foreign Policy", Institute for Future Initiatives Security Studies Unit FY2020 SSU-Working Paper No. 3, The University of Tokyo, March 31, 2021.

² "National Standardization Development Outline", State Council, 2021.

https://cset.georgetown.edu/wp-content/uploads/t0406_standardization_outline_EN.pdf (Last accessed on February 7, 2022)

³ The Outline of the National Standardization Strategy was said to be compiled based on the research findings of "China Standards 2035", "Circular of National Standardization Administration on the Notice for Points of National Standardization Work Plan of 2020", National Standardization Administration, [2020] vol.8, http://www.gov.cn:8080/zhengce/zhengceku/2020-03/24/content_5494968.htm (Last accessed on February 7, 2022)

⁴ "Circular of National Standardization Administration on the Notice for Points of National Standardization Work Plan of 2021", National Standardization Administration, [2021] vol.7,



http://www.sac.gov.cn/sxxgk/zcwj/202106/t20210602_347314.html (Last accessed on February 7, 2022)

⁵ “Outline of the People’s Republic of China’s 14th Five-Year Plan (2021-2025) for National Economic and Social Development and the Long-Range Objectives Through the Year 2035”, March 13, 2021, www.gov.cn http://www.gov.cn/xinwen/2021-03/13/content_5592681.htm (Last accessed on February 7, 2022)

⁶ As a reference, the term “party” appeared 54 times.

⁷ “The Outline of Intellectual Property Power Construction (2021-2035)”, State Council, September 22, 2021, www.gov.cn http://www.gov.cn/zhengce/2021-09/22/content_5638714.htm (Last accessed on February 7, 2022)

⁸ “Implement the Standardization Outline and Improve High-Quality Development -- The State Council Information Office Held a Press Conference to Introduce Relevant Situations of Implementing the National Standardization Development Outline”, *Standardization of Engineering Construction*, vol.12 of 2021, 2021, p.10-21

⁹ *Standardization of Engineering Construction*, vol.12 of 2021, the above-mentioned news, and “Tian Shihong ’ Interpretation on the National Standardization Development Outline -- How to Open up a New Journey of Standardization Development in the New Era”, *Practical Laws and Regulations*, October 11, 2021, pp. 22-24

¹⁰ Guo Jingjing, “The National Standardization Development Outline Describes a New Blueprint of High-Quality Development”, *STANDARD LIVING*, vol.664, 2021, pp. 12-15

¹¹ Tim Rühlig, “The Shape of Things to Come: The Race to Control Technical Standardization”, European Union Chamber, December 2021.

¹² “The Third Round Table Meeting on the Reform and Development of China Standardization and Symposium on Implementing the National Standardization Development Outline -- a Collection of Expert Opinions”, *China Standardization*, vol.11 of 2021 (part 1), 2021, pp.25-32

¹³ *Standardization of Engineering Construction*], Statement by Zhou Qiang, the Director of Department of Market Construction, Ministry of Commerce, in the article mentioned above, Vol. 12, 2021.

¹⁴ *China Standardization*, the article mentioned above, Vol. 11, 2021

¹⁵ Matt Sheehan, Marjory Blumenthal and Michael R. Nelson, “Three Takeaways From China’s New Standards Strategy,” Carnegie Endowment for International Peace, October 28, 2021.

¹⁶ Daniel R. Russel and Blake H. Berger, “Stacking the Deck: China’s Influence in International Technology Standards Setting,” Asia Society Policy Institute (ASPI), 2021.

¹⁷ The Day One Project website: <https://www.dayoneproject.org/> (Last accessed on February 7, 2022)

¹⁸ Giulia Neahe, David A. Bray, Julian Mueller-Kaler and Benjamin Schatz, “STANDARDIZING THE FUTURE, How Can the United States Navigate the Geopolitics of International Technology Standards?” Atlantic Council, October 2021.

¹⁹ Rühlig (2021), mentioned above

²⁰ Patrick Lozada, Tim Rühlig and Helen Toner, “Chinese Involvement in International Technical Standards: A DigiChina Forum, What’s the big deal, and what isn’t, with Chinese standards efforts,” Stanford University, December 6, 2021.