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Naomi Wilson
Senior Director for Policy, Asia at the Information Technology Industry Council

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"A 'China Model?' Beijing's Promotion of Alternative Global Norms and Standards"

Introduction

The Information Technology Industry Council (ITI) represents over 70 of the world's leading information and communications technology (ICT) companies. We are the premier advocate and thought leader around the world for the ICT industry. ITI's membership comprises companies from all corners of the technology sector, including hardware, software, digital services, semiconductor, network equipment, and internet, as well as "technology-enabled" companies that rely on ICT to transform their businesses. We engage with governments and associations around the globe to share information and work collaboratively to develop effective policy approaches that enhance cybersecurity, protect privacy, and enable businesses to thrive in an ever-changing and dynamic global market.

Standardization Systems: China, the U.S., and Europe

The standards development processes in the United States, Europe, and China are all based in the premise of bringing stakeholders and technical experts together to develop standards that are most appropriate for the current technology and market needs. However, the systems differ primarily in terms of openness and the degree of government direction. Generally speaking, China's system has the greatest degree of government involvement and direction and is the least open to foreign participants, while the U.S. system is based in the principles of industry-led, consensus-driven, voluntary, and open standards development.

The European Union's model is distinct from that of the United States in that standards development participation tends to be more exclusive to EU-based participants, particularly when those standards are to be used to provide the de facto means of demonstrating compliance with mandatory regulatory requirements. In those cases, the government may mandate one or more of three European standards organizations (ESOs) to develop European regional standards that would provide a means of means of meeting certain regulatory objectives, allowing regulators choose from a broader array of global, industry-driven standards. In other instances, the EU will develop regional standards on the basis of a subset of international standards, rather than mandating the creation of entirely new standards.

China's standards system has undergone substantial changes and improvements in the past decade, for example with enactment of a new standards law in 2017. The system has become more open but remains challenging for foreign participants. Foreign participation in certain technical committees is limited in many important areas, excluding them from full participation including decision making and approval levels. Where access is more open, China's rapid pace of drafting and approving standards does not typically allow for substantive deliberation. This process adds to the impact of China's policies

for indigenous innovation, that often leads to "China-unique" standards that are based on the specifications already in use by Chinese companies – providing Chinese companies with a clear competitive advantage, especially where China's standards are mandatory or strongly recommended for market entry. While Chinese companies continue to distribute their products and services in the market, foreign companies often need to modify their products and services (which typically implement global technical standards) before entering the market. This not only creates market access barriers, but it also impedes interoperability of products and services across markets.

The Role of Standards in Regulation

The relationship between standards and regulation marks another key difference among the three systems. In the U.S. and European models, regulations are typically developed in areas of government interest such as health, safety, and consumer protection. Standards are used differently to inform specific elements of certain regulatory requirements and are effectively rendered mandatory by their reference in regulation.

In the United States, regulators follow Office of Management and Budget (OMB) guidance[1] in choosing from a broad range of global standards that they may use to underpin regulatory requirements through a practice known as "incorporation by reference." Notably, U.S. regulators can determine that more than one standard satisfies a corresponding regulatory requirement, and such standards do not need to be developed in the United States or by a governmental or intergovernmental body.

In the EU, the European Commission accords a "presumption of conformity" to a single, European regional standard – a "harmonized standard" – that corresponds with a regulatory requirement or set of regulatory requirements. A company can then build to that standard to benefit from this presumption, or otherwise demonstrate compliance through the more onerous means of working with a designated testing body. Compliance with the standards remains voluntary, but use of these "harmonized standards" is often seen as easiest way to show conformance with legislation/regulation. The European Commission's preference for certain standards developed by specific European bodies to fulfill regulatory requirements is sometimes viewed by industry as overly-directive and may deter companies from using standards that they believe are better suited to implementing regulatory requirements. This may be especially true in cases where the government is not familiar enough with the technology to determine all of the most appropriate standards or simply cannot keep up with the rapid pace of development of new and relevant standards.

The Chinese commercial market is more regulated than EU or U.S. markets, and standards are often used to implement specific regulatory requirements, most notably for security-related regulations. In some cases, Chinese standards are developed and implemented prior to finalization of a regulation, causing significant confusion among industry regarding how to implement a given standard – or whether it should be classified as a "standard" at all.

China's Standards Development System: Relevant Agencies and Organizations

As part of a larger government reorganization in 2018, including implementation of the 2017 revision to the Standardization Law, China reorganized several government agencies and offices to align standards-

[1] OMB A-119. https://www.govinfo.gov/content/pkg/FR-2016-01-27/pdf/FR-2016-01-27.pdf

related work with quality control and other market supervision offices, placing the Standardization Administration of China (SAC) under the new State Administration of Market Regulation (SAMR).

Historically, most standards in China are developed in technical committees and subcommittees that are housed under SAMR, SAC, and the Ministry of Industry and Information Technology (MIIT). Below are key technical committees for the high-tech sector.

- SAMR/SAC
    - National Technical Committee on Information Technology (TC260)
    - National Technical Committee on Communications (TC485)
    - China National Institute of Standardization (CNIS)
    - China Association for Standardization (CAS)
- MIIT
    - China Communications Standards Association (CCSA)
    - China Electronic Standards Institute (CESI). Both CCSA and CESI participate in the TC260 and TC485.

These groups can have a broad purview, often fulfilling dual roles as expert standards developers and playing a part in the governance of standards and regulation. For example, CESI is responsible for technical research and standards development, while also providing product and organizational certifications based on those standards. MIIT is the primary regulator for ICT. As such, it drafts technology regulations that often prescribe the creation of standards.

With the implementation of the 2017 revision to the standards law, "social organizations" have been authorized to develop standards, which is already resulting in growth in Chinese standards activity. While there are a few hundred technical committees, there are expected to be thousands of social organizations. Social organizations are loosely modeled on U.S. standards consortia, but do not rely on the same U.S. model of accrediting bodies to ensure rules-based procedures and processes.

Chinese Reform Efforts

As part of reform efforts stemming from the amended Standardization Law, the Chinese government has been working to reduce the overall number of mandatory standards, increase voluntary standards (especially for "social organization" industry developed technical standards) as well as streamline and clarify the process of standards development. The Standardization Law encourages Chinese authorities and firms to participate in international standards activities, which industry and other governments have long encouraged China to do.

China's 2019 Foreign Investment Law attempts to address foreign industry concerns regarding equal participation. The Law establishes that technical committees responsible for standards shall be open to participation of foreign entities. This is a notable response to foreign industry criticism that the Chinese system had been closed, or that companies had been prohibited from participating in only organizations relevant to their work and staff bandwidth; thus, if a company could not participate in the full suite of standards development activities within a technical committee, including reviewing hundreds of pages of technical specifications in Mandarin Chinese at a single meeting, they were not welcome to participate at all. As with all laws, the proof will only be seen in the implementation, but it is nevertheless an important step for China to recognize and codify the need for equal participation.

Though China claims it has increased the rate of adoption of international standards, China often adopts international standards with substantial modifications, such as mandating use of only China approved methods of encryption, including the TCM[2] [3] and the ZUC[4]. This requires companies to adapt products and services to the Chinese market, creating interoperability and potential cybersecurity concerns when the national algorithms/standards developments are not open to global expert peer reviews. Estimates indicate that only about a third of Chinese national standards from SAC are adopted from international standards, and the extent to which these are incorporated over time continues to decrease. [5]

Chinese Benchmarks for Success

Chinese policymakers have repeatedly stated that the amended Standardization Law is part of an overall push to introduce better quality control, transparency for consumers, and make the standards system more responsive to the needs of the market. However, a technical standard document is not necessarily helpful in assessing "quality control," especially if the target audience is consumers. The conflation of "quality control" laws and regulations and the interoperability and market appropriateness objectives of technical standards is most clearly seen in China's launch of the "Pioneer" (also called "Top Runner") standards system.

Released in July 2018, the *Pioneer system* focuses on the public disclosure of "enterprise standards," a concept unique to China, and seeks to award disclosure of technical information in certain high-tech or key industries.[6] Outside of China, the term "enterprise standards" as a corporate term of art, means internal, business-sensitive, requirements. Thus, the notion of disclosing "enterprise standards" is quite precarious to non-Chinese companies. While the Chinese government has acknowledged in meetings that the focus is only on quality control, not internal company practices, they have been reluctant to clarify the Chinese meaning of "enterprise standards" in law or other guidance. While disclosure of so-called "enterprise standards" is voluntary, the Standardization Law and the *Pioneer system* incentivize and reward companies for disclosing their enterprise standards on an online public platform.

The Pioneer system was created primarily with the goal of developing and increasing the quality of products in specific sectors that have been problematic in China, particularly healthcare and commercial household goods. While the system has only targeted Chinese enterprises thus far, it adds confusion and worrisome precedent to an already complex topic. The Pioneer system demonstrates China's preference to use standards as a regulatory tool first and a market facilitating tool second. This is largely driven by the Chinese view that the government should be liable for issues with implementing standards, rather than individual companies.

Chinese policymakers also tend to value the quantity of standards over quality as a measure of success. This drives Chinese presence in international standards and production of both domestic standards and international standards proposals. While Chinese participation in international standards bodies is by and large a good thing, the number of submissions is not a valuable metric in standards work, where

[2] Center for Strategic & International Studies. "How Chinese Cybersecurity Standards Impact Doing Business in China," (August 2018). https://csis-prod.s3.amazonaws.com/s3fs-public/publication/180802_Chinese_Cybersecurity.pdf?EqyEvuhZiedaLDFDQ.7pG4W1IGb8bUGF

[3] Dell Technologies. "Trusted Platform Module (TPM) Overview." https://www.dell.com/support/article/en-au/sln55441/trusted-platform-module-tpm-overview?lang=en

[4] U.S. Trade Representative. "2019 Report to Congress on China's Commitments to the WTO," p86. https://ustr.gov/sites/default/files/2018-USTR-Report-to-Congress-on-China%27s-WTO-Compliance.pdf

[5] U.S.-China Business Council. "Standards Setting in China – Challenges and Best Practices," (2019) https://www.uschina.org/reports/standards-setting-china-challenges-and-best-practices

[6] U.S.-China Business Council.

contributions are adopted based on technical merit to meet the objectives of the standard, and success is ultimately determined by the level of adoption in the market.

In the last three years, China has emphasized standards development for autonomous vehicles (AV), which rely on both artificial intelligence (AI) and 5G capability and are linked closely to development of IoT and connected devices policies and standards. While Chinese standards bodies have generated a bulk of research and many standards in this area, China is not set to be the market leader. In KPMG's 2019 assessment of AV readiness, the U.S. takes fourth place, while China trails behind in the 20th place.[7] U.S. industry does, of course, participate in research and standards development efforts internationally. However, U.S. policy and infrastructure help to foster innovation in AVs by letting industry properly test the technology to determine what is most effective, and then develop the standards rather than the other way around. The success is not in the number of standards, but in the product and the policy informing widely adopted standards.

China in International Standards Development and Organizations

As standards development activity has increased in China over the past two decades, industry and government stakeholders around the globe have encouraged Chinese stakeholders to increase their participation in established international standards development bodies, rather than staying home and developing unique domestic standards. After many years of Western technical experts and policymakers urging China to join international standards development efforts, China is now involved in most of the major international SDOs.

Persistent Problems with China-Unique Standards

Following WTO accession in 2001, China was required to conduct significant review of its many domestic standards with a view to either adopting international standards or otherwise revising existing standards to bring them in line with international standards. However, China still continues to favor "China-unique" standards, which contravene World Trade Organization (WTO) commitments on Technical Barriers to Trade (TBT). The WTO TBT Agreement stipulates avoidance of unnecessary obstacles to trade, including through use and development of international standards. At a broader level, WTO rules mandate non-discrimination and national treatment as concerns standards, technical regulations and product testing, and institutes requirements for transparency and notification of standards and measure that deviate from international norms or stand to have an impact on trade.[8] In addition to concerns about openness to participation, China's public notification of standards and other measures is often shorter than the length recommended by the WTO TBT Agreement for adequate stakeholder consultation (60 days). Moreover, numerous Chinese standards that are categorized as "recommended," are often treated by the Chinese government as mandatory or de facto mandatory.

There are several examples where China has promoted standards of its own as alternatives to or deviations from widely adopted international standards. This has not only resulted in market access barriers for non-Chinese industry, but also often proved harmful to Chinese companies. Two key examples were China's security standard for WiFi (WAPI) and its 3G standard (TD-SCDMA), both of

[7] KPMG. "2019 Autonomous Vehicles Readiness Index." https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/2019-autonomous-vehicles-readiness-index.pdf

[8] World Trade Organization. "Technical information on Technical Barriers to Trade." https://www.wto.org/english/tratop_e/tbt_e/tbt_info_e.htm

which were found to be incompatible with global technologies, leading significant difficulties in adopting the standard across the Chinese market.[9] China's insistence on promoting TD-SCDMA slowed its ability to move toward developing and deploying 4G technologies, and China has subsequently moved towards involvement in international standards development for 5G.

Concerns with Chinese Participation in International Bodies

The international standards community has largely viewed increased Chinese engagement in international standardization activities as a positive development. However, it has also raised some concerns, as the Chinese government and companies learn the ropes and protocols of international standards development. While industry believes that most SDOs have well-established processes and rules that safeguard against undue influence or manipulation, China's tactics have sometimes created frustration among participants. For example, the Chinese government's efforts to incentivize contributions in international bodies has resulted in numerous low-quality Chinese contributions. Because of the incentive structure, Chinese stakeholders have sometimes provided irrelevant contributions or divided a single contribution into numerous pieces in order to earn rewards from the government. While SDO protocols and processes are designed to eliminate bad proposals in favor of good ones, an overwhelming number of submissions can of course cause frustration among participants and make the process less efficient.

While increased Chinese participation and government involvement has created some procedural challenges, it has not created undue influence or tipped the competitive scales in favor of the Chinese. In fact, U.S. and multinational companies are still largely regarded as the most influential participants in ICT-related standards bodies – based on their technical leadership and expertise, deep understanding of standards processes and rules, quality of contributions, and consistent participation over time. The greatest number of accepted contributions in widely adopted standards continue to come from non-Chinese companies. Where Chinese companies are technology leaders, their contributions to standards bodies are considered high quality and provide value to the ICT sector writ large by helping to ensure that technical standards are best suited for the current technology and consumers.

Policymakers often raise concerns with the Third-Generation Partnership Project (3GPP), which focuses on developing technical specifications for telecommunications, including 5G, and has significant participation by Chinese technology companies. 3GPP has hundreds of members representing the partnership economies and functions under comprehensive rules and procedures that provide protections against dominance and ensure fairness for all participants. It has an engineering culture where technical contributions are often supported by substantial R&D investments focused on telecommunications standardization and are discussed and debated based on technical merit.

While the ICT community benefits from Chinese companies sharing the fruits of their R&D and expertise, concerns have been raised regarding China's participation in 3GPP, including: large numbers of participants, large numbers of contributions which can dominate meeting agendas, meetings held by CCSA to review Chinese proposals and to coordinate positions, and cases of perceived undue influence from certain individual participating companies, etc. Enforcing established 3GPP rules and procedures, such as voter qualification rules, has significantly reduced issues. Some working groups have instituted new rules to limit contributions to one per company, per agenda item. The tech sector believes these

[9] U.S. Trade Representative

issues to be manageable, though appropriate oversight from governance bodies is key. For U.S. companies, the Alliance for Telecommunication Industry Solutions (ATIS) is responsible for representing industry in assessing potential concerns and proposing a response.

Recommended U.S. Response

Foster, don't impede, U.S. industry participation in international bodies

Given concerns with respect to China's technological and economic ambitions, industry has seen a proliferation of U.S. policies and bills with significant implications for standards participation and competitiveness. For example, May 2019 updates to the U.S. Entity List, managed by the Department of Commerce, and the inclusion of standards in the associated Temporary General License and Advisory Opinion had significant unintended – and negative consequences – for industry. As written, the guidance inadvertently prevents participation of U.S. companies in ICT-related standards bodies in which a listed entity also participates. This has led to the unfortunate consequences of decreasing U.S. company participation in key standards bodies and ceding ground to Huawei and other Chinese companies.

- Policy should seek appropriate engagement with industry in formulating tech policies to ensure that the policy will achieve its objective and not unintentionally undermine U.S. competitiveness and leadership.

Visa Processing for Foreign Attendees

Holding standards meeting in the United States supports U.S. standards leadership. Foreign participants in standards meetings sometimes experience long delays in receiving visas to travel to the United States or do not receive them in time to travel. This sometimes precludes key standards' drafters from participating in meetings held in the United States or dissuades organizations from hosting meetings in the U.S. at all.

- Respecting the U.S. visa adjudication and security screening processes, it would be advantageous for industry to have a point of contact within the State Department – or direction regarding the process – to provide a list of anticipated participants in standards meetings and facilitate timely processing, to the extent possible.

Counter Country-Unique Standards

Countries creating their own unique standards (instead of adopting or developing international standards in appropriate fora) is a significant problem for U.S. companies, as country-unique standards create barriers to market access and prevent interoperability of products and services globally. Though not exclusive to China (as we note above, even the EU tends to base its regulatory requirements on Europe-specific regional standards), China's creation of unique standards – because of the market size and influence – has significant impact on the region and can potentially drive international standards in favor of Chinese standards.

- The U.S. government should coordinate with like-minded countries to encourage use of international standards and encourage countries to bring their contributions and efforts to international standards bodies, where U.S. companies and other stakeholders can influence the direction of the standards.

- The U.S. government should also continue to use international trade policy to expand the acceptance of rules that foster reliance on international standards rather than country- or region-specific alternatives.

Leadership Positions in International Standards Bodies

While chairmanships and other leadership positions are not necessarily indicative of influence, they are important avenues to protect the integrity of the international standards system and processes. It is valuable to have increased coordination and information sharing among U.S. participants in leadership roles, including U.S. government representatives substantively engaged in the standards system.

- Annually convene U.S. representatives that hold positions (chairs, conveners, secretaries) in international standardization bodies and interested U.S. government representatives to meet and share information. The meeting could be hosted by the NIST Director and include panels to collaborate and discuss best practices and issues of concern.

Consistent U.S. Government Participation

Consistent and sustained engagement in standards bodies is exceptionally important to long-term value and success. U.S. government staff often find it difficult to receive consistent funding for participation and travel or to be able to undertake a leadership role that may require a multi-year commitment.

- Establish consistent U.S. government standards participation as a U.S. priority related to maintaining U.S. technological competitiveness and innovation.
- To the extent possible, establish multi-year funding lines for U.S. government staff to participate in standards bodies and streamline process for sustained participation of designated staff.

Conclusion

Effective international standards development relies on a consensus-based, global system to develop standards that facilitate interoperability, open markets, and increase the benefits of economies of scale. It is a competitive and cooperative process in which no country or company can succeed by acting alone, and therefore does not lend itself to definitive "winners" or "losers." Global experts collaborate and compete, independent of nationality or company, because their companies recognize the strategic advantages of the model. In the United States, competing technical contributions to standardization activities fuel collaboration and innovation to produce high-quality standards.

Ultimately, the market decides what technology, products, and services will be the most successful. Standards simply ensure that technology that the market deems most appropriate for the consumer operates effectively across companies and markets. Ensuring that China – and other countries – recognize these benefits and continue to support and participate in the process will benefit companies, countries, and consumers alike.