

# The Silent Struggle: How Technical Standards Shape Global Tech Power

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*Hello, I'm Ylli Bajraktari, CEO of the Special Competitive Studies Project. In this edition of our newsletter, SCSP's Ananmay Agarwal discusses the importance of technical standards and why the United States must act to counter China's increasing influence in international standards setting.*

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The battle for technological leadership between the United States and the People's Republic of China is not limited to competition in R&D and innovation; it is also a race to shape the rules that will determine the future of technology globally. At the heart of this race is the development of technical standards. Often-overlooked, standards are critical protocols that specify how technologies interact and integrate across borders by supporting interoperability, performance, and safety for technologies.

Standards are not just technical specifications; they shape the future of industries, affect global supply chains, and can embed and propagate values such as openness, privacy, trust, and security — or in China's case, state control, surveillance, and curbed freedoms. While standards are inherently voluntary and developed through consensus, they often become *de facto* mandatory when widely adopted by industry leaders or incorporated into domestic laws or regulations. This widespread adoption can set industry norms that are difficult to deviate from without losing market access.

On the global stage, international standards development organizations (SDOs), such as the International Telecommunication Union (ITU), International Organization for Standardization (ISO), and the International Electrotechnical Commission (IEC) facilitate the standardization process through consensus. International standards, while not legally binding, still wield significant influence. Companies and countries that adhere to international standards benefit from enhanced interoperability, reduced technical barriers to trade, and increased market access, effectively setting industry norms. As China makes an aggressive push to dominate standard setting globally, the United States must lead in technical standards to ensure that artificial intelligence (AI) and other emerging technologies embody American values and safeguard U.S. interests.

## **The U.S. Model: Private Sector Leadership and Innovation**

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At the core of the U.S. standards-setting system is a unique, industry-led approach where agencies first look to the private sector before imposing standards. Legislation such as the National Institute for Standards and Technology Act and the National Technology Transfer and Advancement Act of 1995 impress upon agencies to develop consensus standards before engaging SDOs or developing standards directly. The Office of Management and Budget's (OMB) Circular A-119 provides agencies guidance on standards development practices, requiring the development of voluntary consensus standards to the greatest extent possible. This private-sector led model, enshrined in both law and policy, has ensured efficiency, collaboration, and reduced duplication of efforts. Internationally, it has seen success in standards for technologies such as WiFi and the USB, which have become universal due to their interoperability and effectiveness.

Complementing this bottom-up approach are several government agencies that facilitate and support standards development. The National Institute of Standards and Technology (NIST) coordinates federal efforts in developing standards while providing technical expertise, as the OMB oversees compliance with federal standards policy. Other federal agencies adopt and implement standards relevant to their own sectors. Additionally, the American National

Standards Institute (ANSI) serves as a key interlocutor between the private sector and federal government on standards development.

## **China's Strategy: Government-Led, Aiming for Global Dominance**

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Unlike the United States, China's approach to being a global standards setting leader is centralized, coordinating domestic standards-setting with its global ambitions. Driving this process are the State Administration for Market Regulation (SAMR), which oversees the standards process, and the Standardization Administration of China (SAC), which is responsible for coordinating and implementing standards and participating in international SDOs. This top-down approach aligns standardization with industrial policies such as Made in China 2025, and prioritizes critical sectors such as AI, autonomous platforms, robotics, and telecommunications. China's quest for influencing standards globally permeates its 'Standards 2035' project, which is underpinned by the 2021 standards strategy and its implementation plan released in 2022. Seeking to ensure a balance between state and market-driven standards by 2025, the standards strategy links technological development with broader growth objectives. In May 2024, China's Central Cyberspace Affairs Commission also unveiled a three-year action plan to strengthen research and develop standards in AI, microelectronics, computing power, quantum technology, and brain computer interfaces.

Consistent with its standards strategy, China has ramped up its participation in international SDOs. The results of its strategy are reflected in China's influence on 5G standards setting, which has heavily shaped the development of 5G technology worldwide and allowed Chinese companies such as Huawei and ZTE to dominate the global 5G infrastructure market. Additionally, China is also pushing for the adoption of its 5G standards in developing countries through the Belt and Road Initiative (BRI), deepening their dependencies on Chinese technologies and supply chains. In September 2024, the ITU approved three 6G standards developed by the Chinese Academy of Sciences (CAS) and China Telecom, which relate to how advanced telecommunications interact with AI and virtual reality technologies.

By influencing standards early, China is positioning itself to embed its own technologies and protocols into global standards, giving its companies a competitive edge and ensuring Chinese products are interoperable across global markets. A proliferation in Chinese-led standards could give Beijing significant leverage in global supply chains and networks, thereby enabling espionage, data theft, and strategic dependencies. Beyond jeopardizing national security, the United States risks falling behind in critical technological battlegrounds, with U.S. companies facing barriers in markets where Chinese standards prevail.

## **Why the United States Must Lead**

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The first Trump Administration saw the successful development of U.S. standards on emerging technologies such as post-quantum cryptography and pushed for leadership in AI standards through the American AI Initiative and Executive Order 13859. Recognizing this, the White House issued in May 2023 the U.S. National Strategy for Critical and Emerging Technology, and its implementation roadmap in July 2024. Envisaging standards as vital tools in responding to China, the strategy and the implementation roadmap reiterate support for private sector leadership, while emphasizing pre-standardization activities to align R&D with future standards, workforce development, and enhanced allied cooperation and participation in international SDOs. As part of the implementation roadmap, NIST in October 2024 announced a \$15 million award to global standards organization ASTM International to establish a standardization center of excellence to support U.S. engagement in international standardization for critical and emerging technologies.

When the second Trump Administration takes office, it will be important to lead in standards setting while bolstering the private sector model to unlock the full power of innovation. To effectively commercialize emerging technologies, federal agencies should prioritize collaboration with industry to develop and promote standards in critical technology areas. The United States should also strengthen coordination with allies and partners in international standards bodies by emphasizing key actions such as prioritizing R&D spending,

increasing participation from federal agencies and technical experts, and hosting collaborative engagements domestically. Akin to the Blue Dot Network, the United States should offer competing standards to ensure developing countries are not locked into China's standards. Furthermore, the United States should ensure trade agreements and export control regulations enhance interoperability with allies and partners, as demonstrated by the Department of Commerce's Bureau of Industry and Security in a July 2024 interim final rule clarifying that U.S. companies can participate in the international standards development process without being hindered by export control regulations.

The race for standards-setting is about more than just technology — it's about the future of global governance, national security, and economic power. By strengthening alliances, enhancing public-private collaboration in strategic areas, and promoting transparent standards, the United States can safeguard its technological leadership and foster a global technological environment that supports innovation, security, and shared prosperity. The United States must act now to ensure that it shapes that future, not China.

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