

# DAY ONE PROJECT

## Strengthening U.S. Engagement in International Standards Bodies

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## Summary

Technical standards underpin the functioning of digital devices central to everyday life. What might, at first glance, seem to be a wonky, technical process for figuring out things like how to ensure mobile devices can all connect to the same network,<sup>1</sup> has emerged as an arena of geopolitical competition. Standards confers first-mover advantages on the companies that propose them and economic benefits on countries,<sup>2,3</sup> and they implicate values like privacy.<sup>4</sup> China has aggressively sought to promote its technical standards by encouraging Chinese representatives to assume leadership roles in standards bodies, financially rewarding companies that propose technical standards,<sup>5</sup> coercing Chinese firms to vote as a bloc within standards bodies,<sup>6</sup> and working to shape the standards landscape to its advantage.<sup>7</sup>

In light of the growing recognition of the strategic importance of technical standards, the March 2020 report from the U.S. Cyberspace Solarium Commission (CSC) recommended that the United States “engage actively and effectively in forums setting international information and communications technology standards.”<sup>8</sup> In a similar vein, the FY2021 National Defense Authorization Act (NDAA) included a provision tasking the Departments of State and Commerce and the Federal Communications Commission (FCC) with considering how to advance U.S. representation in international standards bodies.<sup>9</sup> This paper expands on the CSC’s recommendation and proposes concrete actions to be taken in support of the aims outlined in the FY2021 NDAA. In brief, the U.S. federal government should:

- Direct and organize departments and agencies to better coordinate input to (and participation in) international standards bodies;
- Work with like-minded countries to advance technically sound standards proposals that preserve the free, open, and interoperable nature of the ICT ecosystem;

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<sup>1</sup> Abdelkafi, N.; Bolla, R.; Lanting C.J.M.; Rodriguez-Ascaso, A.; Thuns, M.; Wetterwald, M. (2018). Understanding ICT Standardization: Principles and Practice. ETSI, 8-9.

[https://www.etsi.org/images/files/Education/Understanding\\_ICT\\_Standardization\\_LoResWeb\\_20190416.pdf](https://www.etsi.org/images/files/Education/Understanding_ICT_Standardization_LoResWeb_20190416.pdf).

<sup>2</sup> Beattie, A. (2019). Technology: how the US, EU and China compete to set industry standards. *Financial Times*, July 24. <https://www.ft.com/content/0c91b884-92bb-11e9-aea1-2b1d33ac3271>.

<sup>3</sup> Blind, K.; Jungmittag, A.; Mangelsdorf, A. (2011). The Economic Benefits of Standardization. DIN German Institute for Standardization. 6, 16-17. <https://www.din.de/blob/89552/68849fab0eaaafb56c5a3ffee9959c5/economic-benefits-of-standardization-en-data.pdf>.

<sup>4</sup> Gorman, L. (2020). A Future Internet for Democracies: Contesting China’s Push for Dominance in 5G, 6G, and the Internet of Everything. German Marshall Fund of the United States, October 27: 22-23. <https://securingdemocracy.gmfus.org/future-internet/>.

<sup>5</sup> Pop, V.; Hua, S.; Michaels, D. (2021). From Lightbulbs to 5G, China Battles West for Control of Vital Technology Standards. *The Wall Street Journal*, February 8. <https://www.wsj.com/articles/from-lightbulbs-to-5g-china-battles-west-for-control-of-vital-technology-standards-11612722698>.

<sup>6</sup> Gorman, L. (2020). The U.S. Needs to Get in the Standards Game—With Like-Minded Democracies. *Lawfare*, April 2. <https://www.lawfareblog.com/us-needs-get-standards-game—minded-democracies>.

<sup>7</sup> de la Bruyère, E.; Picarsic, N. (2020). *China Standards 2035: Beijing’s Platform Geopolitics and ‘Standardization Work in 2020’*. Horizon Advisory, April: 11. <https://www.horizonadvisory.org/china-standards-2035-first-report>.

<sup>8</sup> United States Cyberspace Solarium Commission. (2020). *Final Report*. March: 50. [https://drive.google.com/file/d/1ryMCIL\\_dZ30QyjFqFkkf10MxIXGT4yv/view](https://drive.google.com/file/d/1ryMCIL_dZ30QyjFqFkkf10MxIXGT4yv/view).

<sup>9</sup> H.R. 6395 - National Defense Authorization Act for Fiscal Year 2021. §9202. <https://www.congress.gov/bill/116th-congress/house-bill/6395>.

- Facilitate a public-private partnership to encourage and support greater participation of U.S. companies in international standards bodies; and

Seek transparency reforms within international standards bodies and advocate for “cooling-off periods” that prevent former government officials (from any country) from taking on leadership roles in standards bodies for a specified period of time following government service.

## Challenge and Opportunity

### ***The role of standards in geopolitical competition***

Technical standards underpin the functioning of the ICT products that billions of people rely on daily. Such standards enable the interoperability of devices, ensuring that a phone produced in China can run apps developed in Germany on networks located in Israel.

Both academic and policy literatures recognize the crucial role that standards play in trade and economic competitiveness.<sup>10-15</sup> At the firm-level, companies that successfully advocate for the adoption of their technical standards enjoy first-mover advantages and earn royalties from standards-essential patents.<sup>16-18</sup> For example, more than one-fifth of Qualcomm’s 2018 revenue was derived from patent-related technology licensing fees.<sup>19</sup> Similarly, in March 2021, Huawei announced the company’s intent to charge smartphone makers for using its 5G patents.<sup>20</sup> Because standards are enduring and patents last for decades, companies also reap the economic benefits of standards ownership for decades.<sup>21</sup>

<sup>10</sup> DeVaux, C.R. (2000). *A Review of U.S. Participation in the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC)*. National Institute of Standards and Technology (NIST), February: 6. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196.5673&rep=rep1&type=pdf>.

<sup>11</sup> Ernst, D.; Lee, H.; Kwak, J. (2014). Standards, innovation, and latecomer economic development: Conceptual issues and policy challenges. *Telecommunications Policy*, 38: 854-855. <https://doi.org/10.1016/j.telpol.2014.09.009>.

<sup>12</sup> Shapiro, C. (2001). Setting Compatibility Standards: Cooperation or Collusion? In *Expanding the Boundaries of Intellectual Property: Innovation Policy for the Knowledge Society*. Eds. Dreyfuss, R.; Zimmerman, D.L.; First, H. Oxford University Press. 88-89. <https://faculty.haas.berkeley.edu/shapiro/standards.pdf>.

<sup>13</sup> Lecraw, D.; (1984). Some Economic Effects of Standards. *Applied Economics*, 16(4): 509. <https://www.tandfonline.com/doi/abs/10.1080/00036848400000066>.

<sup>14</sup> Mattli, W.; Buthe, T. (2003). Setting International Standards: Technological Rationality or Primacy of Power? *World Politics*, 56(1): 32. <https://www.cambridge.org/core/journals/world-politics/article/abs/setting-international-standards-technological-rationality-or-primacy-of-power/950CCFEEFE34691BF6E2584141B0023A>.

<sup>15</sup> Tasse, G. (2015). The Impacts of Technical Standards on Global Trade and Economic Efficiency. University of Washington Economic Policy Research Center, December: 4. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2745477](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2745477).

<sup>16</sup> Egan, M. (2003). Setting Standards: Strategic Advantages in International Trade. *Business Strategy Review*, 13(1): 51. <https://onlinelibrary.wiley.com/doi/abs/10.1111/1467-8616.00202>.

<sup>17</sup> Beattie, A. (2020). Technology: how the US, EU and China compete.

<sup>18</sup> U.S.-China Business Council. (2020). *China in International Standards Setting*. February: 7. [https://www.uschina.org/sites/default/files/china\\_in\\_international\\_standards\\_setting.pdf](https://www.uschina.org/sites/default/files/china_in_international_standards_setting.pdf).

<sup>19</sup> Gorman, L. (2020). A Future Internet for Democracies. 26.

<sup>20</sup> Kharpal, A. (2021). Huawei to start charging royalties to smartphone makers using its patented 5G tech. CNBC, March 16. <https://www.cnbc.com/2021/03/16/huawei-to-charge-royalties-to-smartphone-makers-using-its-5g-tech-.html>.

<sup>21</sup> de la Bruyère, E.; Picarsic, N. (2020). China Standards 2035. 1.

# DAY ONE PROJECT

Differences in standards can impact product design and organization and can, in aggregate, “discourage competition and cross-border trade.”<sup>22</sup> There are also intangible benefits for both countries and companies that participate in international standards setting. A study by the National Institute of Standards and Technology (NIST) on U.S. participation in technical standards bodies suggests that standards participation:

- Expands the market base for U.S. exports;
- Strengthens the quality of international standards;
- Helps U.S. companies compete abroad;
- Benefits manufacturers by promoting “universal product or test method standards”<sup>23</sup>; and
- Supports the goal of universal global standards.<sup>24</sup>

At the country-level, standards help facilitate international trade and contribute to economic growth.<sup>25-27</sup> Highly industrialized countries like the United States, France, Germany, and the United Kingdom have historically been leaders in standards setting, reinforcing the strength of their domestic technology industries.<sup>28,29</sup>

Standards participation is also important for national security given the importance of economic linkages in achieving security goals. As others have pointed out, “America’s economic power underwrites its national security.”<sup>30</sup> These linkages go beyond the simple connection between economic power and military financing or the classic “guns versus butter”<sup>31</sup> tradeoff. They include the ability to “leverage market access for strategic ends”: that is, the ability to take advantage of dependencies on particular suppliers for goods.<sup>32</sup> Henry Farrell and Abraham Newman have coined the term “weaponized interdependence” to describe the capacity of states to leverage political authority over key economic or informational nodes in international networks for coercive power.<sup>33</sup> The Cyberspace Solarium Commission’s October 2020 white

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<sup>22</sup> Egan, M. (2003). *Setting Standards*. 52.

<sup>23</sup> DeVaux, C.R. (2000). *A Review of U.S. Participation*. 23.

<sup>24</sup> *Ibid.*

<sup>25</sup> Mattli, W.; Buthe, T. (2003). *Setting International Standards*. 2.

<sup>26</sup> Blind, K.; et al. *The Economic Benefits of Standardization*. 6, 16-17.

<sup>27</sup> Padilla, J.; Davies, J.; Boutin, A.; (2017). *The Economic Impact of Technology Standards*. *Compass Lexecon*, September: 30-31. [https://www.compasslexecon.com/wp-content/uploads/2018/04/CL\\_Economic\\_Impact\\_of\\_Technology\\_Standards\\_Report\\_FINAL.pdf](https://www.compasslexecon.com/wp-content/uploads/2018/04/CL_Economic_Impact_of_Technology_Standards_Report_FINAL.pdf).

<sup>28</sup> France and the United Kingdom have both been ISO Council Members since the organization’s founding. See: Choi; D.C.; Puskar, E. (2014). *A Review of U.S.A. Participation in ISO and IEC*. NIST, June: 8. [https://www.nist.gov/system/files/nistir\\_8007-reviewofusparticip\\_isoiec-2014\\_0.pdf](https://www.nist.gov/system/files/nistir_8007-reviewofusparticip_isoiec-2014_0.pdf).

<sup>29</sup> For historical data, see DeVaux, C.R. (2000). *A Review of U.S. Participation*. 19, 22.

<sup>30</sup> McCormick, D.H.; Luftig, C.E.; Cunningham, J.M. (2020). *Economic Might, National Security, and the Future of American Statecraft*. *Texas National Security Review* 3(3). <https://tnsr.org/2020/05/economic-might-national-security-future-american-statecraft/>.

<sup>31</sup> See: Poast, P. (2019). *Beyond the Sinew of War: The Political Economy of Security as a Subfield*. *Annual Review of Political Science*, 22 (2019): 223–239. <https://www.annualreviews.org/doi/abs/10.1146/annurev-polisci-050317-070912>.

<sup>32</sup> Farrell, H.; Newman, A. (2019). *Weaponized Interdependence: How Global Economic Networks Shape State Coercion*. *International Security*, 44(1): 54. <https://direct.mit.edu/isec/article/44/1/42/12237/Weaponized-Interdependence-How-Global-Economic>.

<sup>33</sup> *Ibid.* 45.

# DAY ONE PROJECT

paper on supply-chain security highlighted these linkages in describing the risks posed by reliance on foreign countries for key raw materials, intermediate goods, and finished products in the ICT supply chain. In this context, such an “availability risk” means that crises or conflicts that rendered Pacific Ocean trading routes unusable would “starve the United States of critical components for everything from our consumer devices to our weapons systems.”<sup>34</sup> The mere existence of this risk “limits U.S. freedom of action in peacetime by constraining our willingness to act against adversaries upon whom we are dependent or against those, like China, that could hold critical shipping lanes at risk.”<sup>35</sup> In short, our nation’s ability to pursue strategic objectives is inextricably linked to economic competitiveness, and to the extent that standards participation benefits U.S. economic power, it benefits our national security interests.

Finally, standards participation provides an important avenue for countries to promote or discourage certain values. Though scientific in nature, standards significantly affect the values that are protected in technical designs.<sup>36</sup> China’s growing influence in standards bodies, for instance, threatens human rights and privacy in the ICT ecosystem.<sup>37</sup> In 2019, the *Financial Times* reported on efforts by Chinese technology firms to shape technical standards related to facial recognition and surveillance. *Times* reporters noted that Chinese-proposed standards drew criticism from human-rights groups for “crossing the line from technical specifications to policy recommendations, including outlining use cases and data requirements for facial recognition and other surveillance technologies.”<sup>38</sup>

Indeed, surveillance technologies have been fundamental to China’s repression of ethnic Muslim minorities in the Xinjiang region.<sup>39</sup> This alarming use case demonstrates the significant harms that can result from the implementation of emerging technologies, and emphasizes the importance of the participation of the United States and other liberal democracies in standards setting in order to protect human rights and related values.<sup>40</sup> China has also sought to export these technologies to other parts of the world—one report from the Brookings Institution shows that China has exported its surveillance and public safety tools to 80 countries since 2008 and suggests that China’s standards engagement “has helped it to quietly and quickly shape the global regulatory environment in its favor, a strategy that is likely to assist its companies in maintaining or increasing their access to markets worldwide.”<sup>41</sup> While countries could import Chinese technology that conforms to these proposed specifications regardless of the ITU’s

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<sup>34</sup> U.S. Cyberspace Solarium Commission. (2020). *Building a Trusted ICT Supply Chain*. October: 1. <https://drive.google.com/file/d/1efo96fPx5WkOxTiFFY1r5y3lFqdit00C/view>.

<sup>35</sup> Ibid.

<sup>36</sup> Gorman, L. (2020). *A Future Internet for Democracies*. 31-32.

<sup>37</sup> Ibid.

<sup>38</sup> Gross, A.; Murgia, M.; Yang, Y. (2019). Chinese tech groups shaping UN facial recognition standards. *Financial Times*, December 1. <https://www.ft.com/content/c3555a3c-0d3e-11ea-b2d6-9bf4d1957a67>.

<sup>39</sup> Buckley, C.; Mozur, P. (2019). How China Uses High-Tech Surveillance to Subdue Minorities. *The New York Times*, May 22. <https://www.nytimes.com/2019/05/22/world/asia/china-surveillance-xinjiang.html>.

<sup>40</sup> Gorman, L. (2020). *A Future Internet for Democracies*. 4.

<sup>41</sup> Greitens, S.C. (2020). Dealing with Demand for China’s Global Surveillance Exports. Brookings Institution, April: 2, 9. [https://www.brookings.edu/wp-content/uploads/2020/04/FP\\_20200428\\_china\\_surveillance\\_greitens\\_v3.pdf](https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200428_china_surveillance_greitens_v3.pdf).

adoption, the inclusion of such elements in internationally adopted standards helps them become the norm.

As another example, China's efforts to shape nascent 6G standards involve plans to "rework the technical foundations of the existing Internet" in a way that would "facilitate top-down Internet control, authoritarian shut-downs through its creation of Internet 'islands,' and so-called 'shut-up commands' that could silence activists, journalists, or anyone who runs afoul of the government."<sup>42</sup> Other countries must push back on these efforts, proposing alternative standards that enable continued progress in ICT while preserving the openness and transparency of the internet.

### ***Structure and leadership of major international standards bodies<sup>43</sup>***

The International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), and the International Telecommunication Union (ITU) are the three largest international standards bodies.<sup>44, 45</sup> These bodies are collectively responsible for the vast majority of internationally agreed-upon technical standards. ISO and IEC have a cooperative relationship that aims to prevent duplication of efforts, whereby IEC assumes responsibility for standards related to the electrical and electronic engineering fields and ISO assumes responsibility for everything else.<sup>46</sup> The two bodies account for more than 85% of adopted international standards.<sup>47</sup>

Each international standards body has its own unique structure, but in general, standards bodies are composed of technical committees, subcommittees, and working groups led by secretariats, chairs, and vice chairs.<sup>48</sup> At ISO and IEC, technical committees and subcommittees are

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<sup>42</sup> Gorman, L. (2020). A Future Internet for Democracies. 32.

<sup>43</sup> This paper focuses primarily on three formal international standards bodies, but standards are also set through market forces as the widespread adoption of a particular technology creates a *de facto* standard. (See, for example, Heires, M. (2008). The International Organization for Standardization. *New Political Economy*, 13(3): 358. <https://www.tandfonline.com/doi/abs/10.1080/13563460802302693>.) The focus is such for two reasons: 1) U.S. government action is more appropriately scoped to these bodies than to standards activities that rely on broader economic factors affecting the competitiveness of U.S. firms, and 2) The World Trade Organization's agreement concerning technical barriers to trade emphasizes the importance of adopting relevant standards developed by international standardizing bodies. The WTO defines "international body or system" as a "Body or system whose membership is open to the relevant bodies of at least all [WTO] Members." Further research should address whether and how U.S. policy should and can affect the *de facto* uptake of standards through market forces.

<sup>44</sup> DeVaux, C.R. (2000). A Review of U.S. Participation. 6.

<sup>45</sup> Though these are the three largest international bodies, standards are also set through a wide variety of smaller, industry-led consortia like the Institute for Electrical and Electronics Engineers (IEEE), the World Wide Web Consortium (W3C), and Internet Engineering Task Force (IETF). This paper focuses on the three largest organizations for the sake of brevity and because membership at each of these organizations is composed of states themselves or national standards bodies/committees, as opposed to the direct participation of individuals, companies, or industry consortia. 3GPP is called out specifically in this paper, despite the fact that its members are industry consortia, because of the relationship between the body and the ITU's work on 5G standards.

<sup>46</sup> Ibid. 10.

<sup>47</sup> Ding, J. (2020). Balancing Standards: U.S. and Chinese Strategies for Developing Technical Standards in AI. National Bureau of Asian Research, July 1. <https://www.nbr.org/publication/balancing-standards-u-s-and-chinese-strategies-for-developing-technical-standards-in-ai/>.

<sup>48</sup> Rühlig, T.N. (2020). *Technical standardisation, China and the future international order: A European perspective*. Heinrich Böll Stiftung, February: 9. <https://eu.boell.org/sites/default/files/2020-03/HBS-Techn Stand-A4 web-030320-1.pdf>.

# DAY ONE PROJECT

administratively supported by a member body designated as the secretariat. The secretariat appoints a Secretary who is “required to be neutral and to dissociate him/herself from his/her national positions.”<sup>49</sup> The Secretary works closely with the appointed Chair of the committee, who helps steer the committee toward consensus and also “must remain neutral and cannot therefore continue to be a national representative in the committee s/he is chairing.”<sup>50</sup> Committees and subcommittees create working groups and appoint convenors to focus on specific tasks.<sup>51</sup> At the ITU, study groups, led by appointed chairs and vice chairs, drive standardization work. Study groups receive administrative assistance from employees of the ITU Telecommunication Standardization Bureau.<sup>52,53</sup>

A 2014 NIST study on U.S. participation in international standards bodies noted that “[i]n theory, a secretariat should act in a purely international capacity, divesting itself of a national point of view.”<sup>54</sup> But academic studies of multilateral institutions suggest that, in practice, country representation in leadership structures and organization staff benefits those countries’ outcomes in such bodies.<sup>55-57</sup> Though a robust, rules-based system can prevent overt abuse of leadership roles, as one report by the U.S.-China Business Council put it, “Those in a leadership capacity are able to influence the agenda, how conversations are structured, and how time is allocated.”<sup>58</sup>

One illustration of the potential for misconduct is Houlin Zhao, a Chinese national who as Secretary-General of the ITU has used his leadership role as an international civil servant to advocate for Chinese companies and policy. Observers have written that “[i]t is extraordinary for an international civil servant to shill blatantly for a company from his home country the way Zhao is doing for Huawei, or to so boldly endorse initiatives of his home country the way Zhao has championed China’s Belt and Road Initiative. It is even rarer when those statements involve official responsibilities.”<sup>59</sup> Zhao previously served two terms as the Director of the ITU’s Telecommunication Standardization Bureau,<sup>60</sup> and according to the *Financial Times* has been

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<sup>49</sup> International Organization for Standardization (2018). *My ISO job: What delegates and experts need to know*. 14. [https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/my\\_iso\\_job.pdf](https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/my_iso_job.pdf).

<sup>50</sup> Ibid.

<sup>51</sup> Ibid. 13, 15.

<sup>52</sup> International Telecommunication Union (ITU). (n.d.). Standards development. <https://www.itu.int/en/ITU-T/about/Pages/development.aspx>.

<sup>53</sup> ITU. (n.d.). FAQs: What is the difference between ITU-T and TSB? <https://www.itu.int/net/ITU-T/info/answers.aspx?Fp=faqs.aspx&Qn=24&ewm=False>.

<sup>54</sup> Choi; D.C.; Puskar, E. (2014). *A Review of U.S.A. Participation in ISO and IEC*. 11.

<sup>55</sup> Novosad, P.; Werker, E. (2014). Who Runs the International System? Power and the Staffing of the United Nations Secretariat – Working Paper 376. Center for Global Development, September 3. <https://www.cgdev.org/publication/who-runs-international-system-power-and-staff-united-nations-secretariat-working>.

<sup>56</sup> Gehring, K.; Schneider, S.A. (2018). Towards the Greater Good? EU Commissioners’ Nationality and Budget Allocation in the European Union. *American Economic Journal: Economic Policy*, 10(1): 214–239. <https://www.aeaweb.org/articles?id=10.1257/pol.20160038>.

<sup>57</sup> Heires, M. (2008). The International Organization for Standardization. 361.

<sup>58</sup> U.S.-China Business Council. (2020). China in International Standards Setting. 2.

<sup>59</sup> Schaefer, B.D.; Cheng, D.; Kitchen, K. (2020). Chinese Leadership Corrupts Another U.N. Organization. Heritage Foundation, May 11. <https://www.heritage.org/global-politics/commentary/chinese-leadership-corrupts-another-un-organization>.

<sup>60</sup> ITU. (n.d.). Biography of Houlin Zhao, ITU Secretary-General. <https://www.itu.int/en/osg/Pages/biography-zhao.aspx>.

quoted in Chinese media as “prais[ing] the role of the country’s telecoms companies in setting new industry standards.”<sup>61</sup>

### ***China’s growing influence in standards bodies***

Over the past several years, China has invested heavily in standards development. Experts Emily de la Bruyère and Nathan Picarsic put it bluntly: “Beijing sees standards as the key to control over the international order.”<sup>62</sup> In 2015, Beijing released its Standardization Reform Plan and Five-Year Plan for Standardization, both of which prioritize promoting Chinese technical specifications and securing Chinese leadership in standards bodies.<sup>63</sup> China’s recently published “Main Points on Standardization Work in 2020”<sup>64</sup> outlines the country’s aims in this area, i.e., “that Beijing will use its roles in ISO and the International Electrotechnical Commission (IEC) to ensure ‘Chinese practices’ and ‘Chinese solutions’ are adopted globally; that Beijing uses its influence over developing countries to influence them; and that, more broadly, it leverage cooperative mechanisms with individual countries and their multilateral organizations to extend its reach.”<sup>65</sup>

It is crucial to note that the problem with China’s growing influence in standards bodies is not China *per se*, but rather (i) the *means* by which China has pursued its influence, and (ii) the follow-on effects for the nature of the international standardization system, the protection of liberal values in technical design, and the competitiveness of U.S. firms. Tim Nicholas Rühlig has commented that “[t]echnical standards have never been as apolitical as they were treated.”<sup>66</sup> The 1990s, for instance, saw coordinated, government-led standards-development activities in European countries. U.S. firms criticized international standards development as unresponsive to the interests of companies and countries outside of this bloc. Both industry and government actors expressed interest in standards reform to aid American companies,<sup>67</sup> and some companies ultimately created coalitions to counter Europe’s government-led standardization activities.<sup>68</sup> But throughout this period, approaches to standards development still emphasized the importance of technically sound proposals. Standards development also remained predominantly driven by market participants rather than governments.

Increased Chinese participation in standards bodies would be less of a concern for the United States if China were committed to advancing technically sound, market-driven proposals, but China’s prioritization of standards developed by Chinese firms has not always aligned with market-driven efforts. As one example, China took years to develop its own national 3G standard

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<sup>61</sup> Kyngé, J.; Liu, N. (2020). From AI to facial recognition: how China is setting the rules in new tech. *Financial Times*, October 7. <https://www.ft.com/content/188d86df-6e82-47eb-a134-2e1e45c777b6>.

<sup>62</sup> de la Bruyère, E.; Picarsic, N. (2020). *China Standards 2035*. 1.

<sup>63</sup> U.S.-China Business Council. (2020). *China in International Standards Setting*. 2.

<sup>64</sup> Full text translation is available at: de la Bruyère, E.; Picarsic, N. (2020). *China Standards 2035*.

<sup>65</sup> de la Bruyère, E.; Picarsic, N. (2020). *China Standards 2035*. 11.

<sup>66</sup> Rühlig, T.N. (2020). *Technical standardisation*. 27.

<sup>67</sup> Egan, M. (2003). *Setting Standards*. 61.

<sup>68</sup> *Ibid.* 61-62. Egan highlights two transatlantic efforts that aimed to resolve some of these tensions: (1) A bilateral agreement to share information regarding ongoing standards development activities to give insight to developments that might affect companies and (2) A bilateral agreement that provides for mutual recognition of standards conformity testing and certification.



# DAY ONE PROJECT

took years even though prevailing 3G standards had long since “proven to be commercially viable.”<sup>69</sup> This single-minded focus on Chinese-driven standards slowed innovation and cost Chinese telecom carriers significant market share.<sup>70</sup>

Moreover, the Chinese government has distorted standards-development processes by providing financial rewards to Chinese companies that propose technical standards and whose representatives obtain leadership roles in standards bodies.<sup>71</sup> These financial incentives—worth up to approximately \$155,000 annually<sup>72</sup>—encourage quantity over quality.<sup>73</sup> The result is that international standards bodies are flooded with low-quality standards proposals that distract attention from technically sound ones.<sup>74</sup> For massive global firms like Huawei, \$155,000 is a pittance, but for smaller companies seeking to gain a toehold in standards development, the sum can be meaningful.

An illustrative example of China’s pursuit of dominance in international standards setting is the ongoing development of standards for the suite of technologies known as 5G. Since 2015, 5G standards have been the focus of the 3<sup>rd</sup> Generation Partnership Project (3GPP), a multi-stakeholder body that comprises telecommunications-standards organizations from China, Europe, India, Japan, Korea, and the United States<sup>75</sup> and has market partners from across the globe.<sup>76</sup> Technical specifications developed via 3GPP form the basis of standards proposals considered by the ITU.<sup>77</sup> China has been an active and influential participant in the 3GPP. According to the data firm Iplytics, Huawei alone is responsible for nearly 23% of approved 3GPP technical contributions.<sup>78</sup> This is more than three times the share of the leading U.S. company, Qualcomm, which has submitted just under 7% of approved 3GPP technical contributions.<sup>79</sup> Chinese companies participating as 3GPP voting members also outnumber those of the United States by two to one (110 to 53).<sup>80</sup>

Especially concerning are reports that the Chinese government has coerced Chinese firms participating in industry-led standards bodies like 3GPP to vote as a bloc in support of Chinese

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<sup>69</sup> Ma, J.D. (2018). From Windfalls to Pitfalls: Qualcomm’s China Conundrum. Macro Polo, November 14.

<https://macropolo.org/analysis/from-windfalls-to-pitfalls-qualcomms-china-conundrum/>.

<sup>70</sup> Ibid.

<sup>71</sup> McGeachy, H. (2019). US-China technology competition: Impacting a rules-based order. United States Studies Centre, May 2: 7.

<https://www.usssc.edu.au/analysis/us-china-technology-competition-impacting-a-rules-based-order>.

<sup>72</sup> Pop, V.; et al. (2021). From Lightbulbs to 5G.

<sup>73</sup> Kamensky, J. (2020). China’s Participation in International Standards Setting: Benefits and Concerns for US Industry. *China Business Review*, February 7. <https://www.chinabusinessreview.com/chinas-participation-in-international-standards-setting-benefits-and-concerns-for-us-industry/>.

<sup>74</sup> Ibid.

<sup>75</sup> Hart, M.; Link, J. (2020). There Is a Solution to the Huawei Challenge. Center for American Progress, October 14.

<https://www.americanprogress.org/issues/security/reports/2020/10/14/491476/solution-huawei-challenge/>.

<sup>76</sup> 3<sup>rd</sup> Generation Partnership Project. (n.d.). Partners. <https://www.3gpp.org/about-3gpp/partners>.

<sup>77</sup> See, for example: ITU. (2020). ITU complete evaluation for global affirmation of IMT-2020 technologies.

<https://www.itu.int/en/mediacentre/Pages/pr26-2020-evaluation-global-affirmation-imt-2020-5g.aspx>.

<sup>78</sup> Iplytics. (2021). *Who is leading the 5G patent race?* February: 7. [https://www.iplytics.com/wp-content/uploads/2021/02/Who-Leads-the-5G-Patent-Race\\_February-2021.pdf](https://www.iplytics.com/wp-content/uploads/2021/02/Who-Leads-the-5G-Patent-Race_February-2021.pdf).

<sup>79</sup> Ibid.

<sup>80</sup> U.S.-China Business Council. (2020). *China in International Standards Setting*. 3.

# DAY ONE PROJECT

proposals.<sup>81</sup> This is not and should not be the norm in standards-setting. The World Trade Organization (WTO)'s Standards-Setting Due Process principles emphasize the importance of impartiality, stating that "standards-setting processes should not favor certain interests."<sup>82</sup> In multistakeholder bodies like 3GPP, standards are supposed to be set through consensus-driven processes that stress the technical soundness of proposals.<sup>83</sup> In one notable and oft-cited example related to 5G standards, the Chinese firm Lenovo faced national backlash, and later released what amounted to a public apology,<sup>84</sup> for its decision to back a Qualcomm proposal over a proposal sponsored by Huawei.<sup>85</sup> Lenovo ultimately reversed course and supported the Huawei proposal.<sup>86</sup>

Chinese dominance at 3GPP also raises flags about Huawei's expanding reach in global 5G networks.<sup>87</sup> As explained above, standards have important implications for the economic competitiveness of firms. Huawei's success at having its standards adopted globally confers first-mover advantages upon the company and enables Huawei to consolidate its influence in 5G deployment. The standards-essential patents held by Huawei will ultimately deliver enormous economic benefits. In many ways, Huawei has become the avatar of U.S. concerns about Beijing's influence over the companies building the backbone of the 5G network and the potential for "back doors" that would enable the Chinese government to surveil the network and potentially sever or disrupt access during a crisis.<sup>88</sup> To the extent that standards participation helps Huawei consolidate its leadership in the deployment of 5G, policymakers concerned about Huawei and its relationships to the Chinese Communist Party should take note.

The United States, its European allies, and Japan retain a significant but declining proportion of leadership positions in the ISO and the IEC. China has increased its leadership by 53% at the ISO between 2012 and 2020 (from 45 secretariats, including twinned secretariats, which are held by two countries, to 69).<sup>89,90</sup> During the same period, it increased its leadership roles at the IEC by 83% (from 6 to 11).<sup>91,92</sup> The ITU is currently led by a Chinese national (Houlin Zhou, mentioned

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<sup>81</sup> Lewis, J. (2020). Can Telephones Race? 5G and the Evolution of Telecom. Center for Strategic and International Studies, June: 6. <https://www.csis.org/analysis/can-telephones-race-5g-and-evolution-telecom>.

<sup>82</sup> U.S.-China Business Council. (2020). China in International Standards Setting. 4.

<sup>83</sup> Duesterberg, T.J. (2020). The Multitier Battle Against Chinese 5G Dominance. Hudson Institute, July 1. <https://www.hudson.org/research/16196-the-multitier-battle-against-chinese-5-g-dominance>.

<sup>84</sup> Levy, S. (2020). Huawei, 5G, and the Man Who Conquered Noise. *WIRED*, November 1. <https://www.wired.com/story/huawei-5g-polar-codes-data-breakthrough/>.

<sup>85</sup> Gorman, L. (2020). The U.S. Needs to Get in the Standards Game.

<sup>86</sup> *Ibid.*

<sup>87</sup> The policy concerns associated with Huawei's role in the deployment of 5G networks across the globe are beyond the scope of this paper. For a primer on the subject, see: Taylor, E. (2019). Who's Afraid of Huawei? Understanding the 5G Security Concerns. Chatham House, September 9. <https://www.chathamhouse.org/2019/09/whos-afraid-huawei-understanding-5g-security-concerns>.

<sup>88</sup> McCabe, D. (2020). F.C.C. Designates Huawei and ZTE as National Security Threats. *New York Times*, June 30. <https://www.nytimes.com/2020/06/30/technology/fcc-huawei-zte-national-security.html>.

<sup>89</sup> Choi; D.C.; Puskar, E. (2014). A Review of U.S.A. Participation. 11.

<sup>90</sup> International Organization for Standardization. (n.d.). SAC: China. <https://www.iso.org/member/1635.html>.

<sup>91</sup> Choi; D.C.; Puskar, E. (2014). A Review of U.S.A. Participation. 18.

<sup>92</sup> International Electrotechnical Commission. (n.d.). China.

[https://www.iec.ch/dyn/www/f?p=103:34:16961101486071:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1003,25](https://www.iec.ch/dyn/www/f?p=103:34:16961101486071:::FSP_ORG_ID,FSP_LANG_ID:1003,25).

above), and the ISO was led by a Chinese representative from 2015 to 2017.<sup>93</sup> As of 2018, China ranked third (in a tie with Germany) in terms of technical-committee participation at the ISO: far ahead of the United States, which ranked sixteenth.<sup>94</sup> (France and the United Kingdom ranked first and second, respectively.<sup>95</sup>) China chairs twice as many ITU-Telecommunications Standardization Sector (ITU-T) focus groups as does the United States.<sup>96,97</sup>

### ***U.S. engagement in international standards bodies and opportunity for action***

The United States' approach to standards participation is decentralized and largely industry-driven. U.S. national standards are developed through more than 400 nongovernmental organizations, with the federal government playing a minor consultative role.<sup>98</sup> Much of U.S. engagement in international standards bodies is conducted through the American National Standards Institute (ANSI).<sup>99</sup> The ITU, as a multilateral institution, is a notable exception. U.S. engagement in the ITU is coordinated through the State Department.<sup>100</sup>

Our nation's approach to standards participation worked in the past. In 2011, the United States ranked second in terms of secretariat roles held at ISO (15.9%) and first in convenor roles held for ISO working groups (20.2%).<sup>101</sup> China ranked sixth and eleventh respectively in these measures of leadership at the time.<sup>102</sup> The United Kingdom, France, Germany, and Japan rounded out the top five countries holding secretariat and convenor roles at ISO in 2011.<sup>103</sup> In the same year, the United States ranked fourth in secretariat roles and second in chairperson roles (12.8% and 16.6%, respectively) held at IEC. The United Kingdom, France, Germany, Italy, and Japan again occupied the several remaining slots in the top five of the IEC leadership standings.<sup>104</sup>

Today, U.S. engagement in international standards bodies is decidedly more mixed. As of 2018, U.S. representation (if not direct leadership) at the ISO and the IEC remained strong. At both the ISO and the IEC, the United States held 14% of secretariats in both bodies—second only to Germany.<sup>105</sup> However, the United States' efforts at the ITU have been lackluster. A 2018 report

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<sup>93</sup> Pop, V.; Hua, S.; Michaels, D. (2021). From Lightbulbs to 5G.

<sup>94</sup> Chen, J.; et al. (2018). *China's Internet of Things*. U.S.-China Economic and Security Review Commission, October: 56. [https://www.uscc.gov/sites/default/files/Research/SOSi\\_China's Internet of Things.pdf](https://www.uscc.gov/sites/default/files/Research/SOSi_China's%20Internet%20of%20Things.pdf).

<sup>95</sup> Ibid.

<sup>96</sup> Gorman, L. (2020). A Future Internet for Democracies. 26–27.

<sup>97</sup> Focus groups are organized to quickly develop standards recommendations for specific topics not covered through existing study groups, which are the primary vehicle through which the ITU-T develops its telecommunications standards. See: ITU. (n.d.). ITU-T Focus Groups. <https://www.itu.int/en/ITU-T/focusgroups/Pages/default.aspx>.

<sup>98</sup> Hui, L.; Cargill, C.F. (2017). *Setting Standards for Industry: Comparing the Emerging Chinese Standardization System and the Current US System*. East-West Center: 4.

<https://www.eastwestcenter.org/system/tdf/private/ps075.pdf?file=1&type=node&id=36156>.

<sup>99</sup> DeVaux, C.R. (2000). A Review of U.S. Participation. 3.

<sup>100</sup> Ibid. 6.

<sup>101</sup> Choi; D.C.; Puskar, E. (2014). A Review of U.S.A. Participation. 12.

<sup>102</sup> Ibid.

<sup>103</sup> Ibid.

<sup>104</sup> Ibid. 18.

<sup>105</sup> Seaman, J. (2020). China and the New Geopolitics of Technical Standardization. French Institute of International Relations, January: 22. <https://www.ifri.org/en/publications/notes-de-lifri/china-and-new-geopolitics-technical-standardization>.

# DAY ONE PROJECT

by the U.S.-China Economic and Security Review Commission noted “the absence of many U.S. stakeholders in important standards groups” and “lower U.S. enthusiasm for the ITU as a standards-setting venue.”<sup>106</sup>

Given the strength of the American ICT industry, there is no reason why the United States cannot reclaim and retain a strong presence in all three major international standards bodies. Our nation’s historical investment in research and development<sup>107</sup> has spurred American innovation and competitiveness across the ICT ecosystem. As the economy becomes increasingly digitized, American companies can and should continue to lead on ICT standards.

### ***The importance of partner and allied nations***

Though competition between the United States and China has loomed over much of the conversation regarding international standards, the rest of the world cannot be overlooked. The United Kingdom, Germany, France, and Japan still wield enormous influence in standards bodies and would likely be hard-pressed to cede their historical leadership. In addition, standards development is not meant to be a unilateral exercise. Standards ought to be developed through a consensus-driven process that favors technically sound proposals. Robust participation from many countries is important for generating new ideas and selecting the best ones.

The success of international partners at standards bodies matters to the United States for economic and ideological reasons. On the economic front, the United States needs trustworthy partners in the technology supply chain.<sup>108</sup> To the extent that standards affect the competitiveness of European and Japanese technology firms, they are crucial to the United States’ ability to purchase secure intermediate ICT goods and finished products. In 5G, for example, the United States lacks a national champion and relies on European companies like Nokia and Ericsson as competitors to Huawei.<sup>109</sup> On the ideological front, democratic allies can help advocate for technically sound standards proposals that protect values like privacy and uphold a rules-based order of international standardization.

Diplomatic efforts to coordinate and share information with like-minded countries are needed to ensure mutual understanding of the strategic importance of strong representation in international fora from those who share visions of a free, open, interoperable technology ecosystem.<sup>110</sup> Such diplomacy can focus on lessons learned, useful collaborative mechanisms, and opportunities to improve attendance in multilateral and multistakeholder bodies.<sup>111</sup>

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<sup>106</sup> Chen, J.; et al. (2018). China’s Internet of Things. 58.

<sup>107</sup> Henry-Nickie, M.; Frimpong, K.; Sun, H. (2019). Trends in the Information Technology sector. Brookings, March 29. <https://www.brookings.edu/research/trends-in-the-information-technology-sector/>.

<sup>108</sup> For more on the technology supply chain, see: U.S. Cyberspace Solarium Commission. (2020). *Building a Trusted ICT Supply Chain*.

<sup>109</sup> U.S. Cyberspace Solarium Commission. (2020). *Building a Trusted ICT Supply Chain*. 4.

<sup>110</sup> Gorman, L. (2020). A Future Internet for Democracies. 4.

<sup>111</sup> Hogan, M.; Newton, E. [Eds.]. (2015). *Interagency Report on Strategic U.S. Government Engagement in International Standardization to Achieve U.S. Objectives for Cybersecurity*. International Cybersecurity Standardization Working Group of the National Security Council’s Cyber Interagency Policy Committee, December: 15. <https://nvlpubs.nist.gov/nistpubs/ir/2015/NIST.IR.8074v1.pdf>.

One partner worth calling out because of its unique status and relationship to China is Taiwan. Taiwan has been—and will likely remain—an important strategic partner to the United States in technology supply chains due to the country’s historical leadership in electronics manufacturing. The semiconductor industry is dominant in Taiwan, accounting for 29.1% of all the country’s exports in 2017.<sup>112</sup> Relatively strong data protection and privacy standards in Taiwan, especially compared to China, have made Taiwan a key partner for U.S. companies.<sup>113</sup> Taiwan has a key opportunity right now help lead the Asia-Pacific Economic Cooperation (APEC)’s efforts to set cybersecurity standards for the digital economy and Internet of Things.<sup>114</sup> As Evan Feigenbaum, former Deputy Assistant Secretary of State for South Asia and for Central Asia, has argued, data protection and privacy are “especially ripe for potential Taiwan-U.S. collaboration on standard setting. Even beyond the cybersecurity-specific issues, the combination of U.S. design and Taiwanese production of chips can, and should, open the door to cooperative standard setting.”<sup>115</sup>

However, Taiwan is not a member of any of the three major international standards bodies.<sup>116–118</sup> Taiwanese firms can participate in industry-led bodies like the Internet Engineering Task Force, Institute of Electrical and Electronics Engineers (IEEE), and the World Wide Web Consortium,<sup>119</sup> as well as regional bodies like APEC.<sup>120</sup> But Taiwan does not have national committee representation at ISO or IEC and has been sidelined (by China) at the ITU because it is not a state.

Engaging Taiwan on standards issues should be a priority for the State Department. The United States should work with European allies and Japan to advance Taiwan for membership in all three major international standards bodies. More generally, helping well-positioned and technically savvy countries like Taiwan, Israel, Vietnam, South Africa, and Kenya—all of which

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<sup>112</sup> Feigenbaum, E. (2020). Assuring Taiwan’s Innovation Future. Carnegie Endowment for International Peace, January 29. <https://carnegieendowment.org/2020/01/29/assuring-taiwan-s-innovation-future-pub-80920>.

<sup>113</sup> Ibid.

<sup>114</sup> Ibid.

<sup>115</sup> Ibid. See also: Feigenbaum, E.; Nelson, M. (2021). How Standard Setting Can Help Taiwan Grow Its Global Role. Carnegie Endowment for International Peace, March 9. <https://carnegieendowment.org/2021/03/09/how-standard-setting-can-help-taiwan-grow-its-global-role-pub-84026>.

<sup>116</sup> International Electrotechnical Commission. (n.d.). National Committees. <https://www.iec.ch/national-committees>.

<sup>117</sup> International Organization for Standardization. (n.d.). About Us: Members. <https://www.iso.org/members.html>.

<sup>118</sup> ITU. (n.d.). List of Member States. <https://www.itu.int/online/mm/scripts/gensel8>.

<sup>119</sup> Some of which are themselves members of national standards committees. The Institute of Electrical and Electronics Engineers, for example, is a member of ANSI. See: American National Standards Institute. (n.d.). ANSI Membership Roster. <https://myaccount.ansi.org/Membership/membershipRoster.aspx?qryLtq=i>.

<sup>120</sup> Feigenbaum, E.; Nelson, M. (2021). How Standard Setting Can Help Taiwan Grow Its Global Role.

have strong or growing technology sectors<sup>121-123</sup>—to engage effectively in regional bodies should be a crucial component of U.S. standards strategy.

Indeed, China's international standards engagement has also focused on building standards coalitions with developing countries. China is also in the process of acquiring asymmetric influence over these actors through its Belt and Road Initiative (BRI).<sup>124</sup> As John Seaman describes in a brief for the Institut Français des Relations Internationales, China has pursued bilateral agreements focused on "mutual standards recognition" with countries like Mexico, Vietnam, Myanmar, and Indonesia, and it has used its market position through the BRI to act as a de facto setter of standards in developing countries.<sup>125-126</sup> This "bottom-up" push to promote Chinese standards worldwide occurs alongside China's efforts to engage more heavily in international standards bodies. The U.S.-China Economic and Security Review Commission has described these two approaches as "mutually reinforcing," such that "the ability to demonstrate widespread adoption lends Chinese standards weight in international standards consideration, while the approval of Chinese technical standards on the global level increases their marketability."<sup>127</sup>

China's heavy engagement with developing countries sharpens concerns that China is attempting to circumvent the usual market-driven process by which technical standards are and should be developed. As one paper offering a European perspective on technical standards policy warned, "China's rising influence in international technical standardisation might lead third countries to study the Chinese approach and make the PRC [People's Republic of China] a role model. If this becomes the case, the idea of technical standardisation as a private self-regulatory—rather than state-centric—domain would be questioned."<sup>128</sup>

## Plan of Action

In response to growing Chinese influence in international standards bodies, the United States must substantially reorganize and improve its engagement in these fora and work to promote American leadership in standards development. Four lines of effort are essential to achieving these goals:

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<sup>121</sup> Dharmaraj, S. (2019). Record Growth in Vietnamese IT Industry. OpenGov, November 12. <https://opengovasia.com/growth-in-vietnamese-it-industry/>.

<sup>122</sup> Butcher, M. (2021). Israel's startup ecosystem powers ahead, amid a year of change. TechCrunch, January 21. <https://techcrunch.com/2021/01/21/israels-startup-ecosystem-powers-ahead-amid-a-year-of-change/>.

<sup>123</sup> Chakravorti, B.; Chaturvedi, R.S. (2019). Research: How Technology Could Promote Growth in 6 African Countries. *Harvard Business Review*, December 4. <https://hbr.org/2019/12/research-how-technology-could-promote-growth-in-6-african-countries>.

<sup>124</sup> Chatzky, A.; McBride, J. (2020). China's Massive Belt and Road Initiative. Council on Foreign Relations. January 28.

<sup>125</sup> Seaman, J. (2020). China and the New Geopolitics. 25–27. <https://www.cfr.org/backgroundunder/chinas-massive-belt-and-road-initiative>.

<sup>126</sup> - Chen, J.; et al. (2018). China's Internet of Things. 43-44.

<sup>127</sup> Ibid. 44.

<sup>128</sup> Rühlig, T.N. (2020). *Technical standardisation*. 20.

# DAY ONE PROJECT

1. **The U.S. government should better organize itself for the task of international standards engagement.** To date, the U.S. government has taken a relatively hands-off approach to standards setting. While government-developed standards are neither feasible nor desirable, strengthening interagency coordination on standards engagement is essential.
2. **The U.S. State Department should lead an interagency effort to engage with allies and partners on standards issues.** With the involvement of key partners at the Departments of Commerce (including NIST) and Defense, the State Department should work with like-minded allies and partners to advance technically sound standards proposals that protect the vision of a free, open, and interoperable digital ecosystem.
3. **The U.S. government should foster a public-private partnership focused on standards development.** Such a partnership should raise private-sector awareness about the importance of standards engagement, fund grants to U.S. companies to help offset the cost of standards participation, and provide a mechanism for federal stakeholders to coordinate with the private sector on standards setting.
4. **The U.S. government should advocate for reforms within international standards bodies that promote transparency.** An example of such a reform would be a mandatory “cooling-off period” that prohibits former government officials from serving in leadership roles at international standards bodies for a specified period of time.

The following sections provide more detail on each of these lines of effort.

## ***Revamping U.S. engagement in standards setting***

The President should direct NIST to strengthen its federal standards work through the Interagency Committee on Standards Policy (ICSP) and should convene a new ICSP working group focused specifically on U.S. engagement in international ICT standards bodies. The ICSP currently serves as the point of coordination within the federal government for “promot[ing] effective and consistent standards policies in furtherance of U.S. domestic and foreign goals and ... foster[ing] cooperative participation by the Federal government and U.S. industry and other private organizations in standards activities.”<sup>129</sup> The ICSP’s members comprise one official representative from each federal executive agency (referred to as “Standards Executives”).<sup>130</sup>

Key agencies, like the Federal Communications Commission (FCC), the National Science Foundation, the Office of the Director of National Intelligence, the U.S. Agency for International Development (USAID), and the U.S. International Trade Commission, have yet to appoint a Standards Executive or lack any agency staff as supportive of the ICSP’s efforts.<sup>131</sup> Of the 36 federal entities listed as ICSP members, eight do not have listed a Standards Executive, and

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<sup>129</sup> National Institute of Standards and Technology. (2021). Interagency Committee on Standards Policy (ICSP). <https://www.nist.gov/standardsgov/interagency-committee-standards-policy-icsp>.

<sup>130</sup> National Institute of Standards and Technology. (2021). Interagency Committee on Standards Policy (ICSP): Members. <https://www.nist.gov/standardsgov/interagency-committee-standards-policy-icsp-members-0>.

<sup>131</sup> Ibid.

# DAY ONE PROJECT

seven have no representation listed at all. The lack of a Standards Executive from the FCC is a particular cause for concern given the important role the FCC plays in domestic deployment of 5G.<sup>132</sup> The absence of any representative from USAID also raises concerns given China's aforementioned focus on using development projects to become a *de facto* standard setter. Federal departments and agencies lacking an official serving in ICSP at the Senior Executive Service level or higher should immediately appoint someone to fill the gap and should designate additional representatives, as necessary, to aid their appointed Standards Executive's work.

In addition, the National Cyber Director should join the ICSP to help coordinate comprehensive interagency and public-private engagement on ICT standards issues. Codified by the FY2021 NDAA,<sup>133</sup> the Office of the National Cyber Director is just now being established. The Biden Administration recently nominated Chris Inglis to be the first National Cyber Director,<sup>134</sup> and Congress needs to immediately appropriate funds to support the Office of the National Cyber Director in getting off the ground. The Office will have broad responsibility for federal cybersecurity policy issues, but Congress specifically called out leadership in ICT and international norms in the legislation authorizing the Office's creation.<sup>135</sup> Engaging with the ICSP on technical standards should be a priority for the Office.

Strong participation in the ICSP from the Office of the National Cyber Director will help position U.S. standards engagement within a broader strategy to protect the integrity of the United States' ICT supply chain. As the CSC's 2020 Supply Chain White Paper put it, "in the context of our supply chains for ICT, the United States has a China problem."<sup>136</sup> Alongside market-distorting practices like state-sponsored intellectual property theft, China's efforts to politicize standards-development processes reflect a broader government-led campaign to bolster China's position in the global technology landscape by any means necessary. The United States' strategy for engaging more effectively in standards bodies should recognize this, and the Office of National Cyber Director should place standards setting within the context of efforts to protect the United States' ICT supply chain.

Such an approach would align closely with the Biden administration's foreign policy to date, one that recognizes China as "the only competitor potentially capable of combining its economic, diplomatic, military, and technological power to mount a sustained challenge to a stable and open international system."<sup>137</sup> The administration has signaled that it is prioritizing technology competition in its broader China strategy,<sup>138</sup> aiming to bolster domestic technology

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<sup>132</sup> Federal Communications Commission. (n.d.). America's 5G Future. <https://www.fcc.gov/5G>.

<sup>133</sup> H.R. 6395. §1752.

<sup>134</sup> The White House. (2021). Statement by National Security Advisor Jake Sullivan on National Cyber Director and CISA Director Nominations. April 12. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/12/statement-by-national-security-advisor-jake-sullivan-on-national-cyber-director-and-cisa-director-nominations/>.

<sup>135</sup> H.R. 6395. §1752(c)(1)(A)(iv)-(v).

<sup>136</sup> U.S. Cyberspace Solarium Commission. (2020). *Building a Trusted ICT Supply Chain*. ii.

<sup>137</sup> The White House. (2021). *Interim National Security Strategic Guidance*. 8. <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

<sup>138</sup> Wadhams, N. (2021). Biden Putting Tech, Not Troops, at Core of U.S.-China Policy. *Bloomberg*, March 1. <https://www.bloomberg.com/news/articles/2021-03-01/biden-putting-tech-not-troops-at-center-of-u-s-china-strategy>.



# DAY ONE PROJECT

manufacturing;<sup>139</sup> working with regional partners like the Quad;<sup>140</sup> and signing an Executive Order on supply chains that begins a process of identifying critical technology resources and assessing the capacity of the United States and allied nations to produce them.<sup>141</sup> Elevating the importance of technical standards and working to ensure continued U.S. leadership in international standards bodies dovetails nicely with these actions. Exerting influence in standards setting is a key way for the U.S. government to secure American competitiveness in global technology markets and counter China's growing influence.

The recently proposed U.S. Innovation and Competition Act of 2021 contains a provision that would require the establishment of an interagency working group, led by the State Department, to provide assistance and technical expertise in support of U.S. representation and leadership at 5G standards bodies.<sup>142</sup> Though it sits under the Commerce Department (via NIST), the U.S. government already has an interagency body that can serve exactly this purpose: the ICSP. Rather than duplicating efforts, the ICSP should continue its work and establish a subordinate working group dedicated to international ICT standards engagement. In either case, the U.S. government should convene a working group dedicated to international standards engagement.

One of the functions of the ICSP is to “encourage effective representation of the Federal Government at significant national, regional, and international standardization meetings and conferences.”<sup>143</sup> Concerted attention can be paid to this priority by creating a working group focused on U.S. strategy for engagement in multilateral and multistakeholder bodies. A 2015 NIST report on U.S. government engagement in international standardization activities related to cybersecurity specifically noted the need to further the “high-level interagency coordination process” and create an interagency working group “to develop and implement a set of objectives and strategies pursuant to [U.S. government] agencies’ missions, and to coordinate on major issues in standardization before and as they arise.”<sup>144</sup> The working group should be chaired by a representative from the Office of the National Cyber Director to help elevate standards engagement as a priority at the highest level of government. This effort should focus on more than just 5G standards, however, and include attention to the broader array of ICT standards determined at multilateral and multistakeholder fora, including those related to artificial intelligence and the internet of things.

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<sup>139</sup> Hunnicutt, T.; Bose, N. (2021). Biden to press for \$37 billion to boost chip manufacturing amid shortfall. Reuters, February 24. <https://www.reuters.com/article/us-usa-biden-supply-chains/biden-to-press-for-37-billion-to-boost-chip-manufacturing-amid-shortfall-idUSKBN2AO13D>.

<sup>140</sup> Ruwitch, J.; Kelemen, M. (2021). Biden and ‘Quad’ Leaders Launch Vaccine Push, Deepen Coordination Against China. NPR, March 12. <https://www.npr.org/2021/03/12/976305089/biden-and-quad-leaders-launch-vaccine-push-deepen-coordination-against-china>.

<sup>141</sup> The White House. (2021). Executive Order on America’s Supply Chains. February 24. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/02/24/executive-order-on-americas-supply-chains/>.

<sup>142</sup> S. 1260 – United States Innovation and Competition Act, §3210(c)(1)-(2). <https://www.congress.gov/bill/117th-congress/senate-bill/1260/>.

<sup>143</sup> National Institute of Standards and Technology. (2021). Interagency Committee on Standards Policy (ICSP): Charter. <https://www.nist.gov/standardsgov/interagency-committee-standards-policy-icsp>.

<sup>144</sup> Hogan, M.; Newton, E. [Eds.]. (2015). *Interagency Report*. 14.

# DAY ONE PROJECT

The ICSP focuses on issues broader than ICT standards, so the working group should be scoped appropriately to address this particular area of standards engagement. If the working group is successful, and if NIST identifies an opportunity to better engage in standards setting in other areas, the ICSP should consider expanding the working group to focus on U.S. engagement in all international standards bodies, not just those focused on ICTs.

The proposed U.S. Innovation and Competition Act of 2021 also contains a section that would require the Assistant Secretary of Commerce for Communications and Information to submit a report that identifies opportunities for improved participation by the United States at ITU-T.<sup>145</sup> The report must describe barriers to robust U.S. participation and make recommendations on addressing those barriers. The ICSP can be an important partner in the assessment and in implementing the recommendations contained within the report.

### ***Working with like-minded countries to advance strong and values-driven standards***

In support of the United States' standards priorities, the State Department, ideally through the proposed Bureau of International Cyberspace Policy included in the Cyber Diplomacy Act of 2021,<sup>146</sup> should coordinate U.S. federal agency and industry engagement with like-minded countries on standards development. American diplomats should participate in international standards bodies alongside technical experts and should also conduct outreach to partner and allied nations on relevant standards issues. The latter is key for ensuring international adoption of strong, technically sound, and values-driven standards.

The U.S. Innovation and Competition Act of 2021 also highlights the importance of engagement with partners and allies to “encourage and facilitate the development of secure supply chains and networks for 5<sup>th</sup> and future generation mobile telecommunications systems and infrastructure.”<sup>147</sup> It also requires a briefing to Congress within 180 days on U.S. diplomatic engagement to share information related to security risks in 5G technologies and infrastructure and cooperation on risk mitigation.<sup>148</sup> Again, these efforts are crucial, but they should not be limited to the 5G space.

Furthermore, diplomatic engagement can involve identifying candidates (and coordinating support for those candidates) for leadership roles at international standards bodies.<sup>149</sup> The United States can and should continue to support candidacies of qualified Americans and nationals from ally and partner countries in these bodies. The United States should not, however, put forward American candidates purely for the sake of gaining influence—rather, it should support the election of the most technically capable and qualified leadership.

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<sup>145</sup> S. 1260. §2517.

<sup>146</sup> H.R. 1251 - Cyber Diplomacy Act of 2021. <https://www.congress.gov/bill/117th-congress/house-bill/1251>.

<sup>147</sup> S. 1260. §3210(b)(2).

<sup>148</sup> Ibid. §3210(c)(3)(A)(ii).

<sup>149</sup> Gorman, L. (2020). A Future Internet for Democracies. 42.

# DAY ONE PROJECT

Diplomatic engagement should also focus on raising awareness among developing countries of the importance of standards and building capacity for developing countries and their firms to participate in standards bodies. One think tank report has dubbed some developing countries the “digital deciders” since their decisions regarding technology and internet governance will crucially affect the balance between countries favoring sovereign control of technology and the internet (e.g., China and Russia) and those that prioritize a free and open ICT ecosystem (e.g., the United States).<sup>150</sup> The United States should make sure that countries targeted by China’s BRI are exposed to alternate perspectives. This is especially true for countries lacking experience with standards development, which may look to China’s example of state-driven standards-setting as a model.<sup>151</sup> Diplomatic engagement can focus on providing technical assistance and training for government officials from those countries involved in standards setting.

A new “technology alliance” could help the federal government “explore access to technology and proprietary standards for developing countries to counter hypercompetitive Chinese prices” and influence created through the BRI.<sup>152</sup> To this end, the United States should work with partners like the United Kingdom, France, Germany, and Japan to advocate for standards that promote transparency, respect the rule of law, and limit the ability of authoritarian or repressive regimes to infringe on users’ privacy and freedom. Ensuring that these values are preserved in the technologies marketed to developing countries will help foster a resilient and democratic global digital ecosystem. With respect to Taiwan specifically, U.S. diplomatic engagement can ensure that American representatives are apprised of Taiwan’s concerns and preferences in standards-setting processes. The United States can also advocate for the participation of Taiwanese companies in multi-stakeholder processes like 3GPP.

### ***Establishing a public-private partnership focused on standards development***

President Biden should direct NIST—in close collaboration with the Departments of Defense and State, the intelligence community, the Office of the National Cyber Director, and the FCC—to create a public-private partnership aimed at encouraging the participation of U.S. companies and organizations in international standards bodies. Such a partnership should focus on three key aims:

- 1) Providing a forum for American companies and organizations to coordinate on standards issues;
- 2) Funding grants to facilitate participation of American companies and organizations in international standards bodies; and
- 3) Informing U.S. companies and organizations about the importance of international standards for U.S. competitiveness and national security.

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<sup>150</sup> Morgus, R.; Woolbright, J.; Sherman, J. (2018). The Digital Deciders. New America, October 23. <https://www.newamerica.org/cybersecurity-initiative/reports/digital-decidere/>.

<sup>151</sup> Rühlig, T.N. (2020). *Technical standardisation*. 27.

<sup>152</sup> Morrissey, W.; Givens, J. (2020). The Measure of a Country: America’s Wonkiest Competition with China. War on the Rocks, August 21. <https://warontherocks.com/2020/08/the-measure-of-a-country-americas-wonkiest-competition-with-china/>.

# DAY ONE PROJECT

First and foremost, the public-private partnership would provide a venue for multi-stakeholder discussion and information-sharing regarding upcoming meetings of standards bodies, U.S. representation in standards bodies, and U.S. standards proposals.<sup>153</sup> Ideally, such a forum would bring together not only participants from the federal government and U.S. companies, but also academics and representatives of nongovernmental organizations with expertise or a vested interest in standards setting. The process would also provide an opportunity to discuss the contours of an appropriate role for the Federal Government in this area. U.S. companies have global footprints, and the private sector “may not find it useful or feasible to take part in a bilateral competition in a global market.”<sup>154</sup> Providing a forum where these concerns can be expressed and where the federal government and industry can work together to identify areas for improved federal action should be the foundation of government engagement in standards-setting.

The public-private partnership should aim to *coordinate* U.S. standards engagement without *directing* it. A decentralized approach to standards setting, in which the government plays a relatively hands-off role, has favored U.S. industry in the past.<sup>155</sup> As Jeffrey Ding puts it, “[t]he period when government efforts can have the most influence in shaping the trajectory of an emerging technology coincides with the period of the least technical expertise about the technology.”<sup>156</sup> Government direction in standards-setting can hence, unintentionally, result in technically inferior standards.<sup>157</sup> While a hands-off approach has not been as successful for the United States in the face of recent Chinese efforts to assert dominance in standards setting, U.S. credibility in international standards bodies rests on the technical superiority of the contributions made by American companies. Allowing the U.S. government to appear to take a heavy-handed approach to standards coordination risks undermining this credibility<sup>158</sup> and further politicizing the standards process.

The public-private partnership should also provide grants to U.S. companies sending representatives to standards bodies,<sup>159</sup> including standards bodies other than ISO, IEC, and ITU, which are just three of the hundreds of associations and consortia that work on the development of technical standards. Standards setting is not cheap. One estimate suggested that it can cost a company \$300,000 to participate in 3GPP for a single year.<sup>160</sup> While this estimate may include the opportunity costs associated with sending engineers to participate in standards bodies (time that they would otherwise spend working on in-house research and development projects), membership fees for standards organizations alone cost thousands of dollars.<sup>161</sup> Since companies

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<sup>153</sup> Gorman, L. (2020). A Future Internet for Democracies. 41-42.

<sup>154</sup> McGeachy, H. (2019). US-China Technology Competition.

<sup>155</sup> See the FAQ for more on this history of the standards-setting process in the United States.

<sup>156</sup> Ding, J. (2020). Balancing Standards.

<sup>157</sup> Ibid.

<sup>158</sup> Some commentators have already criticized the idea of greater government involvement in the standards process. See: Coopersmith, J.; Yates, J.; Murphy, C.N. (2021). Let's Thwart This Terrible Idea for Standards Setting. IEEE Spectrum, March 31. <https://spectrum.ieee.org/tech-talk/geek-life/history/lets-thwart-this-terrible-idea-for-standards-setting>.

<sup>159</sup> Hart, M.; Link, J. (2020). There is a Solution.

<sup>160</sup> Ibid.

<sup>161</sup> Ibid.

# DAY ONE PROJECT

may reasonably wish to participate in multiple standards organizations (the head of Qualcomm's standards group estimates that his engineers participate in 200 global standards and industry organizations<sup>162</sup>), membership costs can add up. Federal support for U.S. companies can help close the participation gap between U.S. and Chinese counterparts by making it possible for smaller U.S. companies to send representatives to standards bodies.

Similarly, the grant program should provide the opportunity for federal departments and agencies to seek reimbursement for costs associated with participation of federal employees in standards processes. Federal budgets are tight, and standards meetings frequent: 3GPP holds quarterly plenary meetings in locations all over the world, and technical working group meetings are even more frequent.<sup>163</sup> Without ready reimbursement, travel costs alone may discourage federal entities from sending representatives to participate in international standards bodies.

The federal government should support an ANSI-led education initiative aimed at increasing awareness of the benefits of U.S. participation in standards bodies.<sup>164</sup> Key partners in this effort will include (naturally) ANSI, and the companies, organizations, consumer groups, and academic institutions that comprise its member base.<sup>165</sup> Technical associations like the IEEE and business groups like the Information Technology Industry Council can contribute expertise regarding standards development and valuable perspectives regarding the economic impact of technical standards. Academic experts on standards as well as on international relations and geopolitical competition can contribute context about the importance of standards development in the broader landscape of national security and economic competitiveness.

Finally, the federal government must continue to clarify how enforcement actions taken against Chinese companies for national-security reasons or because of intellectual-property theft affect U.S. companies.<sup>166</sup> In June 2020, the Department of Commerce amended its addition of Huawei to the "Entity List" to clarify that companies need not seek export licenses for disclosing technologies to Huawei in standards bodies.<sup>167</sup> The amendment was an important step in assuring U.S. companies that policymakers are considering the importance of standards setting when making national-security decisions. Should the Biden administration continue to pursue economic measures against Chinese firms, similar steps must be taken to minimize impacts on U.S. companies participating in standards bodies alongside Chinese counterparts.

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<sup>162</sup> Tiedemann, E. (2020). The essential role of technology standards. OnQ Blog, September 29.

<https://www.qualcomm.com/news/onq/2020/09/29/essential-role-technology-standards>.

<sup>163</sup> For the full calendar of 3GPP meetings, visit the 3GPP portal: 3<sup>rd</sup> Generation Partnership Project. (n.d.). Portal. <https://portal.3gpp.org/#/>.

<sup>164</sup> DeVaux, C.R. (2000). A Review of U.S. Participation. 24.

<sup>165</sup> American National Standards Institute. (n.d.). ANSI Membership. <https://www.ansi.org/membership/introduction>.

<sup>166</sup> Schwartz, A. (2020). Standards Bodies Are Under Friendly Fire in the War on Huawei. *Lawfare*, May 5.

<https://www.lawfareblog.com/standards-bodies-are-under-friendly-fire-war-huawei>.

<sup>167</sup> U.S. Department of Commerce. (2020). Commerce Clears Way for U.S. Companies to More Fully Engage in Tech Standards-Development Bodies. June 15. <https://www.commerce.gov/news/press-releases/2020/06/commerce-clears-way-us-companies-more-fully-engage-tech-standards>.

# DAY ONE PROJECT

Three provisions of the proposed U.S. Innovation and Competition Act of 2021 contain similar recommendations. The provision mentioned above that recommends the creation of an interagency working group also stresses the need to engage with private sector entities and requires a briefing on engagement with the private sector to propose and develop secure 5G standards.<sup>168</sup> Another authorizes the Assistant Secretary of Commerce for Communications and Information to provide grants to private sector entities to participate in standards bodies, a welcome sign of Congressional support for reinvigorating private sector engagement.<sup>169</sup> Finally, the bill also contains a provision that would direct NIST and the Secretary of Energy to build capacity for leadership in standards bodies and partner with the private sector in standards engagement and leadership for “digital economy technologies.”<sup>170</sup> The public-private vehicle described above would be an ideal place for this work to take place.

The Biden administration has already signaled the importance of collaboration between public and private sectors in the area of cybersecurity. The administration’s recently released “Interim National Security Strategic Guidance” stresses the importance of such collaboration for “build[ing] a safe and secure online environment for all Americans.”<sup>171</sup> In the wake of the SolarWinds incident and the Microsoft Exchange hack, the federal government invited private-sector companies to participate in the Unified Coordination Group convened by the National Security Council, describing public-private partnership as “foundational.”<sup>172</sup> The administration can leverage the unique resources, capabilities, and insights of the private sector by coordinating a similarly explicitly public-private process on standards.

### ***Advocating for reforms within international standards bodies***

The United States can help mitigate abuse of international standards bodies by advocating for reforms. Near-term priorities should include reforming leadership-selection processes at the ITU and reinforcing expectations regarding impartiality in consensus-driven standards-development processes. Banning current government officials from holding leadership roles at the ITU (or requiring a “cooling-off period” for recent government officials) can help separate the geopolitical interests of governments and their leaders from the technically sound, impartial imperatives of standards-setting organizations.<sup>173</sup> This reform would involve amending the ITU Constitution, which governs the election of civil servants for leadership roles.<sup>174</sup>

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<sup>168</sup> S. 1260. §3210(c)(3)(A)(iv).

<sup>169</sup> *Ibid.*, §2520(b).

<sup>170</sup> *Ibid.*, §2306(c).

<sup>171</sup> The White House. (2021). Interim National Security Strategic Guidance. 18.

<sup>172</sup> The White House. (2021). Background Press Call by Senior Administration Officials on the Administration’s Response to the Microsoft and SolarWinds Intrusions. March 12. <https://www.whitehouse.gov/briefing-room/press-briefings/2021/03/12/background-press-call-by-senior-administration-officials-on-the-administrations-response-to-the-microsoft-and-solarwinds-intrusions/>.

<sup>173</sup> Hart, M.; Link, J. (2020). There is a Solution.

<sup>174</sup> ITU. (2019). Collection of the basic texts adopted by the Plenipotentiary Conference. <http://search.itu.int/history/HistoryDigitalCollectionDoCLibrary/5.22.61.en.100.pdf>.

# DAY ONE PROJECT

## Budget

Congress should authorize and appropriate funds for NIST to establish the public-private partnership and run the grant program described above. The Congressional Budget Office has previously estimated that such public-private working groups cost approximately \$500,000 to run.<sup>175</sup> An additional \$4.5 million should be appropriated to seed the grant program. With a cap of providing approximately half the above-cited cost of a company participating in 3GPP (i.e., \$150,000 of \$300,000), this amount could subsidize participation of at least 30 companies in standards-developing activities. In total, the NIST program would require approximately \$5 million per year.

Action	Budget
Establish public-private working group	\$500,000
Subsidize U.S. participation in international standards bodies	\$4,500,000
<b>TOTAL</b>	<b>\$5,000,000</b>

## Conclusion

As the world's largest exporter of goods and a key player in the global technology landscape, China's participation in standards bodies is essential<sup>176</sup> and unavoidable. China's participation in international standards bodies can yield benefits for the United States, China, and the rest of the world if technically sound proposals are put forward and the rules-based international order upheld. As Jack Kamensky has pointed out, "Chinese participation in technical discussions in international [standards-setting organizations] may help Chinese experts better understand the concerns of foreign companies that at times might not be able to fully participate in domestic standards-setting in China."<sup>177</sup> But China cannot be allowed to run roughshod over long-standing standards processes and unduly politicize what should be primarily a technical exercise.

Given the enduring nature of technical standards, standards set today will have a significant economic impact for years to come. In the 20<sup>th</sup> century, the United States had a track record of robust engagement in standards bodies—both in terms of leadership roles, representation, and technical proposals. In the face of China's willingness to weaponize standards bodies for economic and strategic gain, the U.S. government must make efforts to restore and maintain its influence. Doing so is critical for preserving American economic competitiveness and protecting the values that underpin a free, open, and interoperable global digital ecosystem.

<sup>175</sup> Congressional Budget Office. (2014). *H.R. 4263, Social Media Working Group Act of 2014*. June 17. <https://www.cbo.gov/publication/45454>.

<sup>176</sup> Kamensky, J. (2020). *China's Participation*.

<sup>177</sup> *Ibid.*

## Frequently Asked Questions

### What are international technical standards?

According to the International Organization for Standardization (ISO), one of the largest and most active international standards organizations, standards are “documents, established by consensus and approved by recognized bodies, that provide, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.”<sup>178</sup> The effort to promote international technical standards began in the early 1900s in the electrotechnical field. The 1950s and 1960s saw a concerted effort to develop basic international standards, like those pertaining to standard units, weights, and measurements.<sup>179</sup> Since the 1980s, there has been an “increasing recognition of the role that standards and standards-related issues play in trade,”<sup>180</sup> as differences in standards impact product design and organization and can, in aggregate, “discourage competition and cross-border trade.”<sup>181</sup> Around the same time, efforts to develop ICT standards gained momentum.<sup>182</sup> Particularly with the creation of the World Trade Organization (WTO) and agreements related to technical barriers to trade, adoption of international standards has grown since the 1990s.<sup>183</sup>

International standards are proposed, debated, and adopted in two types of bodies: multilateral and multi-stakeholder bodies. Multilateral standards bodies—like the International Telecommunication Union (ITU)—involve state participants. In these fora, the State Department acts as the main vehicle for U.S. participation,<sup>184,185</sup> though the National Institute of Standards and Technology (NIST) coordinates an interagency process on standards that includes State Department engagement.<sup>186</sup>

Multi-stakeholder bodies—like the ISO or International Electrotechnical Commission (IEC)—involve a diverse array of stakeholders. Many members are governmental institutions or organizations like national standards bodies.<sup>187</sup> The United Kingdom, for example, participates in multi-stakeholder bodies through the British Standards Institution, a nonprofit organization operating under a royal charter.<sup>188</sup> In multi-stakeholder standards bodies, U.S. participation is led by ANSI. ANSI coordinates industry-driven standards-developing organizations, which are

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<sup>178</sup> Quoted in Hui, L.; Cargill, C.F. (2017). *Setting Standards for Industry*. 9

<sup>179</sup> DeVaux, C.R. (2000). *A Review of U.S. Participation*. 6.

<sup>180</sup> *Ibid.*

<sup>181</sup> Egan, M. (2003). *Setting Standards*. 52.

<sup>182</sup> Choi; D.C.; Puskar, E. (2014). *A Review of U.S.A. Participation*. 4.

<sup>183</sup> DeVaux, C.R. (2000). *A Review of U.S. Participation*. 6.

<sup>184</sup> *Ibid.*

<sup>185</sup> Choi; D.C.; Puskar, E. (2014). *A Review of U.S.A. Participation*.

<sup>186</sup> National Institute of Standards and Technology. (2019). *Interagency Committee on Standards Policy (ICSP): Charter*.

<sup>187</sup> DeVaux, C.R. (2000). *A Review of U.S. Participation*. 7.

<sup>188</sup> BSI group. (n.d.). *About BSI*. <https://www.bsigroup.com/en-US/about-bsi/>.



# DAY ONE PROJECT

typically run by independent private-sector organizations.<sup>189</sup> ISO, IEC, and the ITU are the three largest international standards bodies and assume responsibility for the vast majority of internationally agreed upon technical standards.

Though international technical standards are largely voluntary in nature—meaning, no legal force requires their adoption by any company—the aforementioned WTO agreement on technical barriers to trade has given some force to the standards developed by international standards bodies.<sup>190</sup> The agreement states that members should “use, in part or in whole, relevant international standards as a basis for technical regulations whenever possible” and “participate in relevant international standards bodies to develop and adopt appropriate technical regulations and standards.”<sup>191</sup> Moreover, given the economic benefits of standardization, countries and companies have incentives to adopt internationally recognized standards.

## **What has the United States’ engagement in standards setting looked like to date?**

The United States has historically taken a decentralized approach to standards development, with engagement organized largely through nongovernmental organizations. Where international standards are concerned, almost all U.S. engagement occurs through ANSI.<sup>192</sup> The ITU, as a multilateral institution, is the exception. U.S. standards engagement at ITU is coordinated through the State Department.<sup>193</sup> By law, federal departments and agencies are required to use voluntary, industry-developed standards wherever possible.<sup>194</sup> ANSI and NIST have signed a memorandum of understanding (MoU) detailing the roles the two organizations play in coordinating standards among private-sector and government entities in order to “enhance and strengthen the national voluntary consensus standards system of the United States while supporting continued U.S. competitiveness and economic growth.”<sup>195</sup> The MoU designates ANSI as the United States’ representative at ISO and IEC.

The positions taken by U.S. delegates to ISO and IEC do not have official government sanction, but they are thought to “generally represent public interest views.”<sup>196</sup> ANSI does not receive government funding and relies on membership fees, publication sales, and donations to sustain its operations.<sup>197</sup> Unlike some of its European counterparts, ANSI does not subsidize the participation of U.S. delegates in ISO meetings.<sup>198</sup> Many other highly industrialized nations favor

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<sup>189</sup> American National Standards Initiative. (n.d.). U.S. Standards Systems: Introduction.

[https://standardsportal.org/USa\\_en/standards\\_system/introduction.aspx](https://standardsportal.org/USa_en/standards_system/introduction.aspx).

<sup>190</sup> DeVaux, C.R. (2000). A Review of U.S. Participation. 11.

<sup>191</sup> Ibid.

<sup>192</sup> Ibid., 3.

<sup>193</sup> Ibid., 6.

<sup>194</sup> Hui, L.; Cargill, C.F. (2017). Setting Standards for Industry. 29.

<sup>195</sup> DeVaux, C.R. (2000). A Review of U.S. Participation. 4.

<sup>196</sup> Ibid., 13.

<sup>197</sup> Ibid., 7-8.

<sup>198</sup> Ibid., 8.



a more coordinated, government-driven process and are represented by governmental institutions in multi-stakeholder standards bodies.<sup>199,200</sup>

The United States has been a member of ISO since its founding in 1947 and has served as a member of the ISO Council, which governs the organization's operations.<sup>201</sup> ANSI is one of five permanent members of the ISO Council, and the U.S.A. National Standards Committee, which participates in IEC discussions and receives administrative and technical support from ANSI,<sup>202</sup> also has representation in IEC's boards.<sup>203</sup> The United Kingdom and France have been Council Members since 1947 and are the only two other countries with such a robust history of leadership.<sup>204</sup>

### **Why are international partners important in technical standards-setting?**

International partners are crucial in technical standards-setting because of the globalized nature of ICT supply chains. It is unrealistic—and undesirable—for the United States to completely indigenize its ICT supply chain. U.S. companies rely on the expertise and capacity of global corporations for product development, manufacturing, and packaging. Similarly, the United States cannot bet on the rest of the world using only American-made goods and products. As a result, aligning with like-minded nations on standards setting is a key means of ensuring that products integral to American ICT supply chains are secure and help realize democratic values.

Moreover, the United States alone cannot meet the challenge posed by China's increasing leadership in standards bodies. Working alongside partner and allied nations with highly advanced technology bases ensures that multiple voices are advocating for technically sound proposals that protect liberal democratic values.

### **Why is the current NIST interagency process insufficient for assuring robust U.S. participation in standards bodies?**

The current NIST interagency process does not significantly involve the private sector and is aimed largely at ensuring that government-implemented standards align with industry-developed standards. Though the interagency process is tasked with "improv[ing] the efficiency of the Federal Government with regard to national, regional, and international standardization activities" and "encourag[ing] effective representation of the Federal Government at significant national, regional, and international standardization meetings and conferences,"<sup>205</sup> this effort has been insufficient to ensure U.S. leadership in standards bodies. Moreover, the ICSP does not have representatives from all federal executive agencies whose participation is crucial in this

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<sup>199</sup> Ibid., 7.

<sup>200</sup> Hui, L.; Cargill, C.F. (2017). Setting Standards for Industry. 5–6.

<sup>201</sup> Choi; D.C.; Puskar, E. (2014). A Review of U.S.A. Participation. 8.

<sup>202</sup> Ibid., 15.

<sup>203</sup> DeVaux, C.R. (2000). A Review of U.S. Participation. 12–13.

<sup>204</sup> Choi; D.C.; Puskar, E. (2014). A Review of U.S.A. Participation. 8.

<sup>205</sup> National Institute of Standards and Technology. (2019). Charter of the Interagency Committee.

# DAY ONE PROJECT

area. Creating a working group focused on international ICT standards engagement will allow the United States to make more concerted efforts to engage in standards bodies. A dedicated public-private partnership will advance private-sector participation in international standards setting.

## **How will the proposed public-private partnership allow the private sector to maintain its independence in international standards bodies?**

Advocating for technically sound, industry-driven standards proposals is essential to maintaining the credibility of U.S. engagement in international standards bodies. Because of this, the public-private partnership will not be aimed at coordinating a unified American approach to standards issues. Rather, it will simply serve as a forum for U.S. companies and federal stakeholders to discuss relevant issues and upcoming meetings and to raise awareness of the importance of international standards bodies for the public and private sectors alike.

## **Will involving the federal government more actively in standards setting risk politicizing what is supposed to be a technical and apolitical process?**

No. China's blatant efforts to dominate standards bodies have unduly politicized standards-setting processes. Encouraging stronger U.S. participation in these bodies—participation based on technically sound, industry-driven proposals—is a step in the direction of restoring the technical and apolitical nature of standards setting. American leadership in international standards bodies can help mitigate pressure placed on international standards bodies by increasingly aggressive Chinese industrial policies.

# DAY ONE PROJECT

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## About the Day One Project

The Day One Project is dedicated to democratizing the policymaking process by working with new and expert voices across the science and technology community to develop actionable policies that can improve the lives of all Americans. For more about the Day One Project, visit [dayoneproject.org](https://dayoneproject.org)

