COMMENTS TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY'S REQUEST FOR INFORMATION ON THE PEOPLE'S REPUBLIC OF CHINA'S INFLUENCE IN THE DEVELOPMENT OF INTERNATIONAL STANDARDS FOR EMERGING TECHNOLOGIES

By: Noah Vehafric – December 6th, 2021

These comments are being submitted in response to the National Institute of Standards and Technology's ("NIST") Request for Information ("RFI") that was published in the *Federal Register* on November 4th, 2021 (86 F.R. 60801)[1] regarding policies and influence that the People's Republic of China ("PRC") has on international standards setting for emerging technologies.

These comments are being submitted in my personal capacity as an undergraduate student interested in protecting American global economic competitiveness and national security. I thank NIST for looking at this important issue and providing opportunity for members of the public like myself to comment on this matter.

To facilitate the review of these comments, I will be using the telecommunications and information technology industries as an example of how the PRC influences international standards-setting.

I. Chinese Formula for Influencing Standards Setting.

Formula: *The PRC aggressively subsidizes firms in key industries to increase market share abroad; providing them the influence needed to participate in standards setting.*

Chinese firms in key industries including telecommunications, semiconductors, aerospace, biopharmaceuticals, and others receive robust state support. This support is used for research and development, promotion at home and abroad. By growing the market share of its firms, they garner the economic influence that invites and justifies their participation in international standard setting organizations.

As part of their large belt-and-road initiative, the PRC has taken a very large role in the construction of developing countries telecommunications infrastructure. In Africa for example, construction of networks by Chinese firms accounts for 50% of Africa's 3G networks and 70% of their 4G networks[2] – all facilitated by loans from China's policy banks.[3] China is poised to build the vast majority of Africa's 5G networks.[4] China has built multibillion dollar data centers

[1] *Available at:* https://www.govinfo.gov/content/pkg/FR-2021-11-04/pdf/2021-24090.pdf
[2] Aubrey Hruby, "The digital infrastructure imperative in African markets," *AtlanticCouncil*, (Apr. 8, 2021), https://www.atlanticcouncil.org/blogs/africasource/the-digital-infrastructure-imperative-in-african-markets/
[3] *See*: 2020 Report to Congress of the U.S.–China Economic and Security Review Commission," *USSC*, (Dec. 2020) at *pg. 166,* https://www.uscc.gov/sites/default/files/2020-12/2020_Annual_Report_to_Congress.pdf
[4] Bianca Wright, "Made in China: Africa's ICT Infrastructure backbone," *CIO*, (Mar. 22, 2020), https://www.cio.com/article/3533435/made-in-china-africas-ict-infrastructure-backbone.html

in multiple African nations including Zimbabwe, Senegal, South Africa, Kenya and more[5] and it exporting and implementing facial recognition technology to improve its accuracy on African faces.[6] This investment by Chinese firms has made their companies large voices in the African Telecommunications Union and national telecommunication agencies.

Figuring out the extent to which the PRC provides financial support to its firms can be difficult. Since joining in the World Trade Organization in 2001, the PRC has never published a complete list of its subsidies in certain sectors[7] and continues its practices of providing prohibited subsidies by the hundreds,[8] however we can estimate that these subsidies have been impactful.

The PRC views technical standards as policy tools to advance its economic and geopolitical interests.[9] This is further proved by the Chinese Communist Party's ("CCP") recent calls for "international compatibility standards… with Chinese characteristics."[10]

Chinese corporations and research institutions can provide legitimate innovation and market value to the global economy, however their memberships in standards setting organizations must be met with an understanding that if these firms receive any form of support from the government, their behavior and objectives are influenced by CCP and PRC policy objectives.

II. Example: The PRC is working to Outpace the United States in 6G Technologies.

While the U.S. hasn't even realized the full potential of 5G wireless networks yet, the PRC has made research and development of 6G technologies by 2025 a priority.

The United States has faced serious roadblocks to deploying 5G wireless networks across the country. This is due to in part from dysfunction among federal agencies to appropriate sufficient portions of the wireless spectrum to be used for 5G. Just recently the Federal Aviation Administration dubiously claimed 5G signals in the C-band would cause interference with airplane altimeters, despite large amounts of evidence to the contrary.[11]

---

[5] Jevans Nyabiage, "African nations continue to put trust in Huawei for data management," *South China Morning Post*, (Jun. 28, 2021), https://www.scmp.com/news/china/diplomacy/article/3138917/african-nations-continue-put-trust-huawei-data-management?module=perpetual_scroll&pgtype=article&campaign=3138917

[6] Chris White, "Chinese Companies Use Zimbabweans As Guinea Pigs To Identify Black Face: Report," *National Interest*, (Dec. 3, 2019), https://nationalinterest.org/blog/buzz/chinese-companies-use-zimbabweans-guinea-pigs-identify-black-faces-report-101447

[7] *See*: "How China's Subsidies Threaten Advanced-Technology industries", *Information Technology & Innovation Foundation*, (oct. 28, 2021), https://itif.org/events/2021/10/28/how-chinas-subsidies-threaten-advanced-technology-industries

[8] *See*: 2020 Report to Congress on China's WTO Compliance, *United States Trade Representative*, (Jan. 2020), https://ustr.gov/sites/default/files/files/reports/2020/2020USTRReportCongressChinaWTOCompliance.pdf

[9] *See*: 2020 Report to Congress of the U.S.–China Economic and Security Review Commission," *USSC*, (Dec. 2020) at *pg. 166,* https://www.uscc.gov/sites/default/files/2020-12/2020_Annual_Report_to_Congress.pdf

[10] *See*: "The Chinese Communist Party Central Committee and the State Council Publish "National Standardization Development Outline," *Center for Security and Emerging Technology*, (Nov. 19, 2021), https://cset.georgetown.edu/publication/the-chinese-communist-party-central-committee-and-the-state-council-publish-the-national-standardization-development-outline/

[11] 5G signals are used in the C-Band in nearly 40 other countries and our aircraft perform without incident. *See:* https://www.5gandaviation.com/; Roslyn Layton, "The FAA Dishonors Its Impressive Safety Record When It Impugns 5G," *Forbes*, (Nov. 1, 2021), https://www.forbes.com/sites/roslynlayton/2021/11/01/the-faa-dishonors-its-

This dysfunction has real impacts. Major carriers voluntarily delayed deployment of 5G,[12] and despite multilateral restrictions on 5G equipment from PRC originated firms, the US's delay to deploy 5G has given those firms a 5G market share of 50%.[13] The economic and security implications from this are wide ranging.

These problems cannot be repeated with 6G –

China is already looking at the horizon to 6G; calling it a "top priority" for 2025.[14] China holds 40% of 6G patent applications, ahead of the US's 35% – according to September survey.[15] Already, China has launched what has been called the world's "first 6G satellite."[16] And in the Chinese Communist Party's October 2021 "National Standardization Development Outline," it calls for expanding "international cooperation on standardization" and calls for establishing more than 50 "national technological standards innovation bases."[17]

6G technologies are expected to be a primary driver of Internet of Things (IoT) technologies. Because these technologies will have an ever-increasing role in our lives, PRC leadership in this technology poses grave risks to personal privacy and security. Retaining US leadership in 6G and other advanced technologies is critical. Once leadership in these industries is lost, it's incredibly difficult and expensive to reconstitute and regain, if that's even possible.[18]

I thank NIST for taking the time to consider these comments and hope they were helpful in the completion of their study.

Sincerely,

Noah Vehafric

---

impressive-safety-record-when-it-impugns-5g/; Tom Wheeler, "Will 5G mean airplanes falling from the sky?," *Brookings Institution*, (Nov. 22, 2021), https://www.brookings.edu/blog/techtank/2021/11/22/will-5g-mean-airplanes-falling-from-the-sky/;

[12] Andrew Tangel & Drew FitzGerald, "AT&T, Verizon to Delay 5G Rollout Over FAA's Airplane Safety Concerns," *Wall Street Journal,* (Nov. 4, 2021), https://www.wsj.com/articles/at-t-verizon-to-delay-5g-rollout-over-faas-airplane-safety-concerns-11636039555

[13] Joel Thayer, "Federal 5G Disfunction Only Helps China | Opinion," *Newsweek*, (Nov. 22, 2021), https://www.newsweek.com/federal-5g-disfunction-only-helps-china-opinion-1651527

[14] Cheng Yu & Zheng Yiran, "Chian eye 6G as next tech frontier," *ChinaDaily*, (Mar. 03, 2021), https://www.chinadaily.com.cn/a/202103/20/WS60554052a31024ad0bab0636.html

[15] Naoki Watanbe, "China accounts for 40% of 6G patent applications: survey,", *NIKKEIAsia*, (Sept. 16, 2021), https://asia.nikkei.com/Business/Telecommunication/China-accounts-for-40-of-6G-patent-applications-survey

[16] Tim Childers, "China Has Launched the World's First 6G Satellite. We Don't Even Know What 6G Is Yet." *Popular Mechanics,* (Nov. 20, 2020) https://www.popularmechanics.com/space/satellites/a34739258/china-launches-first-6g-satellite/

[17] *See*: "The Chinese Communist Party Central Committee and the State Council Publish "National Standardization Development Outline," *Center for Security and Emerging Technology*, (Nov. 19, 2021), https://cset.georgetown.edu/publication/the-chinese-communist-party-central-committee-and-the-state-council-publish-the-national-standardization-development-outline/

[18] Stephen Ezzell, "Going, Going, Gone? To Stay Competitive in Biopharmeceuticals, America Must Leaern From Its Semiconductor Mistakes, *Information Technology & Innovation Foundation*, (Nov. 2021), https://itif.org/sites/default/files/2021-biopharmaceuticals-semiconductor.pdf