**Statement for the Record**
**of**
**Jamil N. Jaffer**[1]
**on**
**National Security Challenges: Outpacing China in Emerging Technology**
**before the**
**United States Senate Committee on Banking, Housing, and Urban Affairs**

**January 18, 2024**

## I. Introduction

Chairman Brown, Ranking Member Scott, and Members of the Committee: thank you for inviting me here today to discuss the national security challenges facing our nation when it comes the pursuit of emerging technologies and specifically, the very real threat posed by People's Republic of China (PRC) under the leadership of the Chinese Communist Party (CCP) in this domain.[2]

I want to thank Chairman Brown and Ranking Member Scott for holding this hearing in the context of the Banking Committee's work and oversight responsibilities and, in particular, I want to thank both of you for your leadership in highlighting the significant relationship between national security and emerging technologies, particularly as we think about investment and innovation in the context of the threat posed by the PRC. As you both know, China is the key economic and national security challenge facing our nation going forward and our nation's ability to rapidly innovate is—and will remain—central to our ability to effectively address this challenge. I also want to thank both of you for your leadership in moving forward bipartisan legislative initiatives on challenges related to China, including addressing the very real national security threat posed by Fentanyl coming from the PRC through our southern border. I hope this hearing will offer us the opportunity to have a candid and frank discussion on these important matters.

---

[1] Jamil N. Jaffer currently serves as Founder & Executive Director of the National Security Institute and the NSI Cyber and Tech Center and as an Assistant Professor of Law and Director of the National Security Law & Policy and Cyber, Intelligence and National Security Programs at the Antonin Scalia Law School at George Mason University. Mr. Jaffer is also a Venture Partner at Paladin Capital Group, a leading global multi-stage investor that identifies, supports and invests in innovative companies that develop promising, early-stage technologies to address the critical cyber and advanced technological needs of both commercial and government customers. Among other things, Mr. Jaffer previously served as Chief Counsel & Senior Advisor to the Senate Foreign Relations Committee, Senior Counsel to the House Intelligence Committee, Associate Counsel to President George W. Bush in the White House, and Counsel to the Assistant Attorney General for National Security in the U.S. Department of Justice. Mr. Jaffer is testifying before the Senate Banking Committee in his personal and individual capacity and is not testifying on behalf of any organization or entity, including but not limited to any current or former employer.

[2] Significant portions of this testimony have been drawn in whole or in part from an NSI Decision Memo entitled *Addressing the National Security Threat of Chinese Technological Innovation* by Jamil N. Jaffer published in July 2023. Because much of this testimony is drawn directly from that paper, citations to that paper and quotation marks for portions of this testimony drawn from that paper have been omitted, including where significant portions are excerpted verbatim. Professor Jaffer would like to thank Devlin Birnie, Jessica Jones, Harrison McClintock, and Alex Tokie for their excellent research and editing assistance with the original paper. The original paper can be found at: https://nationalsecurity.gmu.edu/addressing-the-national-security-threat-of-chinese-technological-innovation-2/.

## II. The Threat from the People's Republic of China and its Relationship to Technological Innovation and Emerging Technologies

The defining national security challenge facing the United States today is threat posed by a rising China, a nation that not only oppresses its own people, but which also seeks to expand that repression beyond its borders, both within its own region as well as across the globe. One need only look at the PRC's treatment of Muslim Uyghurs in the Xinjiang region—which two successive U.S. administrations have determined constitutes genocide and crimes against humanity[3]—its repression of dissent in Hong Kong and Tibet, its military and economic threats against Taiwan, its belligerent actions against other U.S. allies in the region, including the Philippines, its export of surveillance and other repressive technologies across the globe, its theft of core intellectual property from private sector companies in the United States and allied nations, its growing cyber infiltrations of U.S. and allied critical infrastructure, its attempts to consolidate its control over key critical minerals and strategic metals and to withhold access to them, its belligerent posture to America and allied national security priorities in a wide range of regions, and its extortion of dozens of countries under the Belt and Road Initiative (BRI), to see just a few examples of the massive and growing threat that the China poses to the United States, our allies, and a host of other nations across the globe. And this doesn't even account for China's growing political, economic, and military relationships with other global repressors like Russia, Iran, and North Korea.

At the core of this national security threat that the PRC poses to the United States, as well as our global competition with China for supremacy—whether in the economic, political, military, or social spheres—is technological innovation, including access to and control over critical emerging technologies, particularly artificial intelligence capabilities.[4] In recent decades, the PRC has made

---

[3] *See* Michael R. Pompeo, *Press Statement: Determination of the Secretary of State on Atrocities in Xinjiang*, United States Department of State (Jan. 19, 2021), *available online at* <https://2017-2021.state.gov/determination-of-the-secretary-of-state-on-atrocities-in-xinjiang/> ("After careful examination of the available facts, I have determined that since at least March 2017, the People's Republic of China (PRC), under the direction and control of the Chinese Communist Party (CCP), has committed crimes against humanity against the predominantly Muslim Uyghurs and other members of ethnic and religious minority groups in Xinjiang….In addition, after careful examination of the available facts, I have determined that the PRC, under the direction and control of the CCP, has committed genocide against the predominantly Muslim Uyghurs and other ethnic and religious minority groups in Xinjiang. I believe this genocide is ongoing, and that we are witnessing the systematic attempt to destroy Uyghurs by the Chinese party-state."); *see also, e.g.*, United States Department of State, *2021 Country Reports on Human Rights Practices: China (Includes Hong Kong, Macau, and Tibet)* (Apr. 12, 2022), *available online at* <https://www.state.gov/reports/2021-country-reports-on-human-rights-practices/china/> ("Genocide and crimes against humanity occurred during the year against predominantly Muslim Uyghurs and members of other ethnic and religious minority groups in Xinjiang.")

[4] *See, e.g.*, The White House, National Security Strategy (Oct. 2022), at 23, *available online at* <https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden- Harris-Administrations-National-Security-Strategy-10.2022.pdf> ("The PRC is the only competitor with both the intent to reshape the international order and, increasingly, the economic, diplomatic, military, and technological power to do it…It is using its technological capacity and increasing influence over international institutions to create more permissive conditions for its own authoritarian model, and to mold global technology use and norms to privilege its interests and values."); Xi Jingping, *Speech to Members of the Chinese Academy of Sciences, the Chinese Academy of Engineering, and the National Congress of China Association for Science and Technology* (May 28, 2021) (translated by Zichen Wang), *available online at* <https://www.pekingnology.com/p/xi-jinpings-speech-on- science-and?s=r> ("[S]cientific and

aggressive moves to build its own technological innovation base and now seeks to expand its capabilities.[5] Much of this effort by the PRC initially began by actively seeking to dominate the manufacturing market for technology goods, producing equipment at costs well below those achievable in most other economies.[6] This was achieved, in significant part, by exploiting the PRC's theft of U.S. intellectual property at industrial scale—referred to as the greatest transfer of wealth in modern human history[7]—which was then leveraged to create an entire industry of state-owned and state-influenced enterprises that, when combined today, generate a tremendous amount of the technology products and capabilities sold around the globe, including producing goods on behalf of a number of highly innovative American companies, competing with others, and replacing or coopting yet others in the global market.[8] Worse still, the PRC is now going well

technological innovation has become the main battlefield of the international strategic game, and the competition around the commanding heights of science and technology is unprecedentedly fierce.").

[5] *See, e.g.*, Tarun Chhabra, et. al, *Executive Summary – Global China: Assessing China's Growing Role in the World, Brookings Institution* (Apr. 2020), *available online at* <https://www.brookings.edu/articles/global-china-technology/> ("China's rapid technological advances are playing a leading role in contemporary geopolitical competition….While the U.S. has maintained its position as the technologically dominant power for decades, China has made enormous investments and implemented policies that have contributed significantly to its economic growth, military capability, and global influence. In some areas, China has eclipsed, or is on the verge of eclipsing, the United States — particularly in the rapid deployment of certain technologies."); Bloomberg News, *How China Aims to Counter US 'Containment' Efforts in Tech*, Washington Post (Mar. 30, 2023), available online at <https://www.washingtonpost.com/business/2023/03/30/explainer-how-china-aims-to-counter-us-containment-efforts-in-tech/cea71f0c-cf1d-11ed-8907-156f0390d081_story.html> ("Chinese President Xi Jinping…and his new lieutenants are deploying what they call a "whole nation" system: marshaling resources and companies from across the country — and trillions of dollars — to drive research and development.").

[6] *See* Wayne M. Morrison, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, Congressional Research Service (June 25, 2019), at 23, *available online at* <https://crsreports.congress.gov/product/pdf/RL/RL33534> ("China's abundance of low-cost labor has made it internationally competitive in many low-cost, labor-intensive manufactures. As a result, manufactured products constitute a significant share of China's trade. A substantial amount of China's imports is comprised of parts and components that are assembled into finished products, such as consumer electronic products and computers, and then exported.")

[7] *See, e.g.*, Keith B. Alexander, *Prepared Statement of GEN (Ret) Keith B. Alexander, A Borderless Battle: Defending Against Cyber Threats*, House Committee on Homeland Security (Mar. 22, 2017), *available online at* <https://www.congress.gov/115/meeting/house/105741/witnesses/HHRG-115-HM00-Wstate-AlexanderK-20170322.pdf> ("[T]he ongoing theft of intellectual property from American companies…continues to represent the greatest transfer of wealth in human history."); Senator Carl Levin, *Opening Statement of Chairman Carl Levin in Hearing to Receive Testimony on U.S. Strategic Command and U.S. Cyber Command in Review of the Defense Authorization Request for Fiscal Year 2013 and the Future Years Defense Program*, Senate Armed Services Committee (Mar. 27, 2012), at 3, *available online at* <https://www.armed-services.senate.gov/imo/media/doc/12-19%20-%203-27-12.pdf> ("General Alexander has stated that the relentless industrial espionage being waged against U.S. industry and Government chiefly by China constitute 'the largest transfer of wealth in history.'").

[8] *See, e.g.*, Special Competitive Studies Project, *Generative AI: The Future of Innovation Power* (Oct. 2023), at 3 & n.6 (collecting sources), 10-12 and 23, *available online at* <https://www.scsp.ai/wp-content/uploads/2023/10/economy.pdf>; Brady Helwig, et al., *National Action Plan for Advanced Compute & Microelectronics*, Special Competitive Studies Project (Nov. 2023), at 8-9, 13, 32, and 39, *available online at* <https://www.scsp.ai/wp-content/uploads/2023/11/National-Action-Plan-for-U.S.-Advantage-in-Advanced-Compute-and-Microelectronics.pdf>; *see also, e.g.*, John Miller & Sacha Wunsch-Vincent, *High-Tech Trade*

beyond manufacturing-at-scale and is creating innovation on top of this stolen IP and securing its access to data, as it recognizes that whichever nation dominates the technology revolution—particularly in emerging technology areas like quantum computing, biotechnology, and artificial intelligence (the latter of which is particularly data reliant)—will likely also win the larger geopolitical competition.[9]

A key aspect of the PRC's effort to lead in the technology domain is its centralized planning efforts that have been in place for well over a decade, including its Made in China 2025 line of effort ("PRC 2025"), a "broad set of industrial plans that aim to boost competitiveness by advancing China's position in the global manufacturing value chain, 'leapfrogging' into emerging technologies, and reducing reliance on foreign firms."[10] This effort aims to enable China to "make major technology breakthroughs, lead innovation in specific industries, and set global standards" by 2035 and "[l]ead global manufacturing and innovation with a competitive position in advanced technology and industrial systems" by 2049, with key areas of focus including next generation IT and telecommunications capabilities, high performance computing, advanced robotics, and artificial intelligence.[11] And in the critically important AI domain, China released a plan back in 2017—long before the public advent of highly-capable generative AI in 2022 and even well prior to the enactment of the U.S. National AI Initiative Act of 2020—to "lead the world in AI by 2030."[12] While ostensibly emphasizing domestic development in these national plans, it is clear that the PRC plans to continue to rely on the "acquisition, absorption, and adaptation of foreign technology by PRC entities that recast these capabilities as their own,"[13] and then build upon these stolen technologies to create additional innovation.

China's acquisition of U.S. and allied emerging technology takes place through a range of vectors: (1) outright theft of intellectual property;[14] (2) forced technology transfer from companies seeking to enter the Chinese market;[15] (3) requiring new market entrants to establish joint ventures with

---

*Rebounded Strongly in the Second Half of 2020, with New Asian Exporters Benefiting* (Mar. 15, 2021), *available online at* <https://www.wipo.int/pressroom/en/news/2021/news_0001.html>.

[9] *Id.*

[10] *See* Karen M. Sutter, "Made in China 2025" Industrial Policies: Issues for Congress, Congressional Research Service (Mar. 10, 2023), at 1, available online at <https://crsreports.congress.gov/product/pdf/IF/IF10964>.

[11] *Id.*

[12] *See* SCSP, *Generative AI*, *supra* at n. 8, at 3 & n. 6.

[13] *Id.*

[14] *See, e.g.*, Office of the U.S. Trade Representative, *2023 Special 301 Report*, Executive Office of the President, The White House (Apr. 2023), at 9, 22-23, 45-47, *available online at* <https://ustr.gov/sites/default/files/2023-04/2023Special301Report.pdf>; *see also* Keith B. Alexander and Jamil N. Jaffer, *China Is Waging Economic War on America. The Pandemic Is an Opportunity to Turn the Fight Around*, Barron's (August 4, 2020), *available online at* <https://www.barrons.com/ articles/china-is-waging-cyber-enabled-economic-war-on-the-u-s-how-to-fight-back-51596587400>.

[15] *Id.*

PRC companies;[16] (4) requiring sensitive IP to be kept in China;[17] (5) tax incentives to get production and R&D moved to China;[18] (6) acquisition of American and allied companies with sensitive technologies directly or through bankruptcy proceedings;[19] (7) corporate and government partnerships with U.S. companies, universities, and individual experts or academics, including through PRC talent programs and educational pipeline work;[20] and (8) joining and setting the agenda for international standards setting bodies.[21] And China has doubled down on these efforts, making clear that it will continue to exploit its foreign research connections, use domestic regulatory measures and influence abroad in areas like antitrust, IP, and international standards,[22] as well as make massive investments into key emerging technology areas, including quantum computing, robotics, artificial intelligence, and cybersecurity,[23] both directly and by offering low-interest and no-interest loans and massive state-driven subsidies—totaling well-over a trillion

[16] *See, e.g.*, Sean O'Connor, *How Chinese Companies Facilitate Technology Transfer from the United States*, U.S.-China Economic Security Review Commission, at 7 (May 6, 2019), *available online at* <https://www.uscc.gov/sites/default/files/Research/HowChineseCompaniesFacilitateTechTransferfromtheUS.pdf>

[17] *Id.* at 8.

[18] *See, e.g.*, Erica York, et al., *Comparing the Corporate Tax System in the U.S. & China*, Tax Foundation, at 4 (May 2022), *available online at* <https://files.taxfoundation.org/20220502152914/Comparing-the-Corporate-Tax-Systems-in-the-United-States-and-China.pdf>.

[19] See, e.g., Cory Bennet & Bryan Bender, *How China Acquires 'The Crown Jewels' of U.S. Technology*, Politico (May 22, 2018), available online at <https://www. politico.com/story/2018/05/22/china-us-tech-companies-cfius-572413>; Camille A. Stewart, *Full Court Press: Preventing Foreign Adversaries from Exfiltrating National Security Technologies Through Bankruptcy Proceedings*, 10 J. Nat'l Security L. & Pol'y 277, 279-82 (2019).

[20] *See, e.g.*, Alison Snyder, *China Talent Program Increased Young Scientists' Productivity, Study Says*, Axios (Jan. 10, 2023), *available online at* <https://www. axios.com/2023/01/10/china-funding-young-scientists-productivity>; *see also* Emily S. Weinstein, *Chinese Talent Program Tracker*, Center for Security and Emerging Technology, Georgetown University (Nov. 2020), *available online at* <https://cset.georgetown.edu/publication/chinese-talent-program- tracker/>; Federal Bureau of Investigation, *The China Threat - Chinese Talent Plans Encourage Trade Secret Theft, Economic Espionage*, Federal Bureau of Investigation, available online at <https://www.fbi.gov/investigate/counterintelligence/the-china-threat/chinese- talent-plans>.

[21] *See, e.g.*, Arjun Gargeyas, *China's '2035 Standards' Quest to Dominate Global Standard-Setting*, Hinrich Foundation (Feb. 21, 2023), *available online at* <https:// www.hinrichfoundation.com/research/article/trade-and-geopolitics/china-2035-standards-project-restructure-global-economy/>.

[22] See Sutter, *Made in China 2025*, supra n. 10 at 2 ("Similarly, the FYP calls for an expanded use of antitrust, IP, and standards tools—in China and extraterritorially—to set market terms and promote the export of MIC2025 goods and services now coming to market. The FYP also emphasizes the value of China's foreign research ties in developing China's own competencies in a range of MIC2025 technology areas.").

[23] *See id.*

dollars—to enable its companies to compete more favorably in global markets,[24] while also using board seats influence corporate decision-making.[25]

We know also that China is actively working to get other nations to put Chinese national champion technology capabilities—from telecoms to chips—at the heart of their networks,[26] and that it continues to build out its STEM workforce, proactively recruiting leading STEM players from around the world,[27] and, having already passed the U.S. in the number of annual Ph.Ds awarded many years back, some estimate that the PRC may annually graduate nearly double the number of STEM Ph.Ds as the U.S. in the near future.[28] All of these efforts are also buttressed by China's longer-term efforts to secure its access to critical minerals, strategic metals, and energy resources, from production to processing,[29] and its parallel efforts to exclude U.S. and allied partners from access to such resources, all of which are critical to our technological and industrial innovation base.[30]

---

[24] *See, e.g.*, Jill C. Gallagher, *U.S. Restrictions on Huawei Technologies: National Security, Foreign Policy, and Economic Interests*, Congressional Research Service (Jan. 5, 2022), at 7-8, *available online at* <https://crsreports.congress.gov/product/pdf/R/R47012/2> (describing how "[n]ational champions [in China], including Huawei, received preferential policy treatment, access to low-cost financing, R&D funding, and tax benefits"); *see also, e.g.*, Ann Harrison, et al., *Can a Tiger Change Its Stripes? Reform of Chinese State-Owned Enterprises in the Penumbra of the State*, NBER Working Paper No. 25475 (Jan. 2019), at 24, *available online at* <https://www.nber.org/system/files/working_papers/w25475/w25475.pdf> (noting that former Chinese state-owned enterprises, like SOEs themselves, generally "retain ready access to large loans, concessionary interest rates, and outright subsidies").

[25] *See, e.g.*, Scott Livingston, *The New Challenge of Communist Corporate Governance*, Center for Strategic & International Studies (Jan. 2021), at 2-4, *available online at* <https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210114_Livingston_New_Challenge.pdf>.

[26] *See* Joshua Kurlantzick, *Assessing China's Digital Silk Road Initiative*, Council on Foreign Relations (Dec. 18, 2020), *available online at* <https://www.cfr.org/ china-digital-silk-road/>; Chang Che and John Liu, *'De-Americanize': How China Is Remaking Its Chip Business*, New York Times (May 11, 2023), *available online at* <https://www. nytimes.com/2023/05/11/technology/china-us-chip-controls.html>.

[27] *See, e.g.*, Eric Schmidt, *To Compete With China on Tech, America Needs to Fix Its Immigration System*, Foreign Affairs (May 16, 2023), *available online at* <https://www.foreignaffairs.com/united-states/eric-schmidt-compete-china-tech-america-needs-fix-its-immigration-system> ("While the United States' dysfunctional system increasingly deters the world's top scientists, researchers, and entrepreneurs, other countries are proactively recruiting them. China is particularly active in doing so, with direction coming from the very top.").

[28] *See, e.g.*, Karin Fischer, *China Outpaces U.S. in STEM*, Georgetown Center for Security and Emerging Technology, Latitudes (Aug. 9, 2021), *available online at* <https://cset.georgetown.edu/article/china-outpaces-u-s-in-stem/>. ("China could graduate nearly twice as many STEM PhDs as the United States by 2025…China overtook the U.S. in PhD production in 2007 and has steadily increased its lead ever since.").

[29] *See* Jane Nakano, *The Geopolitics of Critical Minerals Supply Chains*, Center for Strategic & International Studies, at 5 (March 2021), *available online at* <https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210311_Nakano_Critical_Minerals.pdf>.

[30] *See, e.g.*, Arjun Kharpal, *What are Gallium and Germanium? China Curbs Exports of Metals Critical to Chips and Other Tech, CNBC* (July 4, 2023), *available online at* <https://www.cnbc.com/2023/07/04/what-are-gallium-and-germanium-china-curbs-exports-of-metals-for-tech.html>; *see also* Mai Nguyen, *China's Rare Earths Dominance in Focus After it Limits Germanium & Gallium Exports*, Reuters (July 5, 2023), *available online at* <https://www.reuters.com/markets/commodities/ chinas-rare-earths-dominance-focus-after-mineral-export-curbs-2023-07-05/>.

## III. The Need for a Strong U.S. Government Response to the Emerging Technology Threat from China

The United States has thus far used a variety of tools to push back on unfair PRC technology practices, including IP theft and forced technology transfers,[31] "ramped up law enforcement to counter China's theft of U.S. IP, restricted certain PRC firms from U.S. infrastructure, started to scrutinize China's role in federally funded research,"[32] and focused efforts on stopping the PRC's exploitation of U.S. technology researchers in academia and industry.[33] The Administration has also sought to work both independently and with our allies, like the EU, to limit technology transfers to China in critical areas like aerospace technologies[34] and semiconductors,[35] and has begun the process of identifying categories of outbound investments that ought be reported or restricted.[36] Congress, for its part, has provided for additional review of Chinese transactions in the United States,[37] enhanced American export control laws,[38] and made major new R&D and production investments and commitments to fund new efforts in areas like semiconductors,[39]

---

[31] *See, e.g.*, Office of the U.S. Trade Representative, *Section 301 Investigation Fact Sheet*, Executive Office of the President, The White House (June 2018), *available online at* <https://ustr.gov/about-us/policy-offices/press-office/fact-sheets/2018/june/section-301-investigation-fact-sheet> (noting that the Trump Administration invoked Section 301 authorities and imposed tariffs on most imports from China in response to findings that China's IP policies harmed U.S. stakeholders); *see also* Sutter, *Made in China 2025*, *supra* n. 10 at 2 (noting that a January 2020 bilateral economic and trade agreement resulted in some IP and technology transfer commitments by China but left most U.S. concerns unresolved).

[32] Sutter, *Made in China 2025*, *supra* n. 10 at 2; *see also, e.g.*, Ana Swanson, *Trump's Trade War With China is Officially Underway*, New York Times (July 5, 2018), *available online at* <https://www.nytimes.com/2018/07/05/business/china-us-trade-war-trump-tariffs.html>.

[33] *See, e.g.*, Snyder, *China Talent Program*, *supra* n. 20.

[34] *See* Sutter, *Made in China 2025*, *supra* n. 10 at 2.

[35] *See, e.g.*, Tim Kelly, et al., *Japan, Netherlands to Join U.S. in Restricting Chip Equipment Exports to China, Bloomberg Reports*, Reuters (Jan. 27, 2023), *available online at* <https://www.reuters.com/technology/japan-netherlands-join-us-china-chip-controls-bloomberg-2023-01-27/>.

[36] *See* The White House, *Executive Order on Addressing United States Investments in Certain National Security Technologies and Products in Countries of Concern* (Aug. 9, 2023), *available online at* <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/08/09/executive-order-on-addressing-united-states-investments-in-certain-national-security-technologies-and-products-in-countries-of-concern/>.

[37] *See* John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, §§ 1701-28 (2018) (Foreign Investment Risk Review Modernization Act of 2018).

[38] *See, e.g.*, Michael Geffroy and Andy Keiser, *NSI Policy Brief: Restricting U.S. Outbound Investment to Targeted Chinese Sectors*, National Security Institute, George Mason University Scalia Law School (May 2023), *available online at* <https://nationalsecurity.gmu.edu/restricting-u-s-outbound-investment-to-targeted- chinese-sectors/> (discussing export control authorities and the importance of stepping cautiously).

[39] *See* CHIPS Act of 2022, Pub. L. No. 117-167, § 103 (2022).

critical minerals,[40] basic science research,[41] OPEN-RAN,[42] and other emerging technologies under the CHIPS and Science Act.[43]

At the same time, significantly more needs to be done if we are to successfully and effectively take on the threat that China poses to our economic and national security.

First, when it comes to government action, there is no question that the United States government to needs to expand its efforts and provide the requisite funding necessary to support key basic science research, including providing appropriations for some of the key programs authorized in the CHIPS and Science Act,[44] as this type of funding has historically supported major breakthroughs in areas like biosecurity, high-performance and accelerated computing, quantum computing, and artificial intelligence, to name just a few.[45] For those concerned that such funding might involve the government too directly in private markets, it is worth noting that the kind of core capability development driven by basic science research is often well removed from the goods that actually enter the market, and government funding has long played a central role in providing support for the kind innovation that is fundamental to our security interests, from defense technology to telecommunications. Such early-stage base funding is particularly important when the applied business uses cases may not be obvious enough to attract core private funding.[46]

---

[40] *See, e.g.*, Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, §§ 40206, 40210 (2021).

[41] *See, e.g.*, Pub. L. No. 117-167, §§ 10102-103, 10105-113, 10348-362 (2022).

[42] *See* CHIPS Act, *supra* n. 39, § 106; *see also* National Telecommunications and Information Administration, *Wireless Innovation Fund Notice of Funding Opportunity*, U.S. Dept. of Commerce (Apr. 12, 2023), available online at <https://www.ntia.gov/issues/innovation-fund/notice-of-funding-opportunity>.

[43] *See, e.g.*, Pub. L. No. 117-167, §§ 10104, 10230, 10374 (2022)

[44] *See, e.g.*, Pub. L. No. 117-167, §§ 10101-114 (basic science); §§ 10221-235 (basic science); §§ 10311-321 (STEM education & workforce) & §§ 10501-526 (STEM education & workforce).

[45] *See* James Manyika et al., *Innovation and National Security - Keeping Our Edge*, Council on Foreign Relations (Sep. 2019), at 2, 19, *available online at* <https:// www.cfr.org/report/keeping-our-edge/pdf/TFR_Innovation_Strategy.pdf> ("Federally supported R&D had a dramatic impact on U.S. competitiveness and national security. According to a 2019 study, starting in the 2010s nearly one-third of patented U.S. inventions relied on federally funded science []. Touch screens, the Global Positioning System (GPS), and internet technologies central to the smartphone are all products of Defense Department research…Between 1988 and 2010, $3.8 billion of federal investment in genomic research generated an economic impact of $796 billion and created 310,000 jobs. A new wave of support for basic research could have similar economic and military benefits."); *see also* Jamie Gaida et al., *ASPI's Critical Technology Tracker: The Global Race for Future Power*, Australian Strategic Policy Institute (Feb. 2023), at 1, available online at <https://ad-aspi.s3.ap-southeast-2.amazonaws.com/2023-03/ASPIs%20Critical%20 Technology%20Tracker_0.pdf> (noting that "China's global lead extends to 37 out of 44 technologies that ASPI is now tracking, covering a range of crucial technology fields spanning defence, space, robotics, energy, the environment, biotechnology, artificial intelligence (AI), advanced materials and key quantum technology areas").

[46] *See id*. at 21 ("Public spending on basic science drives discoveries that would have been too big and risky for a private company to undertake. In effect, federal investment funds R&D with national economic, strategic, and social returns, while private sector R&D is motivated by commercial returns. Moreover, public R&D creates spillovers that benefit the entire economy and incentivize greater R&D funding in the private sector.")

Second, to ensure the U.S. is able to effectively compete with China, the government should provide significant tax and other economic incentive to startups, as well as other companies that can rapidly and massively scale up (therefore effectively compete with Chinese national champions)—and remove existing regulatory and other barriers—for increased private basic and applied R&D investment in critical emerging technology areas like: (1) high-performance and accelerated computing; (2) quantum technology; (3) cloud and edge computing capabilities, particularly for the warfighter; (4) AI/ML capabilities, including generative AI, as well as capabilities to enhance the trust, safety, and security of AI-enabled systems; (5) design and production, in the United States and allied nations, of both commodity and bleeding-edge semiconductors, particularly for artificial intelligence and other critical applications; (6) production and processing, in the United States and allied nations, of critical minerals necessary for national security and technology applications; and (7) enhanced cybersecurity efforts and protection of intellectual property.

Third, while incentivizing such investments, U.S. and allied governments (across both the legislative and executive branches), should also ensure that they are not actively taking action—whether through overregulation or otherwise—that would undermine the ability of key American and allied companies to scale their capabilities, disincentivize innovation and investment in critical emerging technologies, or take advantage of new innovations in a manner that allows us to actively stay ahead of the PRC. This means, for example, not adopting significant new regulatory or administrative policies—including adopting new laws or gerrymandering enforcement efforts to focus on a narrow set of technology leaders—that would undermine the ability of the United States to effectively compete on a global scale and thereby undermine our economic and national security. This also includes, for example, modifying longstanding and highly effective antitrust laws to intentionally target some of the most innovative and scalable companies in the AI space,[47] particularly given that there is no clear reason to believe existing law can't address any legitimate concerns.[48] Indeed, requiring successful American technology companies to give foreign competitors deep access to their hardware and software, bypassing traditional security controls, could create a massive nightmare and undermine our economic and national security.[49] Ensuring we have the right incentives in place also means recognizing that overaggressive or selective

[47] *See, e.g.*, American Innovation and Choice Online Act, S.2992, 117th Cong. (2021); Open App Markets Act, S.2710, 117th Cong. (2021); Bill Evanina & Jamil N. Jaffer, *Kneecapping U.S. Tech Companies Is a Recipe for Economic Disaster*, Barron's (June 17, 2022), *available online at* <https://www.barrons.com/articles/kneecapping-u-s-tech-firms-is-a-recipe-for-economic-disaster-51655480902> ("Conservatives are often worried—sometimes for good reason—that certain social or mainstream media companies might actively seek to suppress or quiet conservative voices. On the liberal side, there are a range of legitimate concerns with technology companies, including the displacement of traditional labor in the new gig economy… Yet rather than tackling these concerns directly by going after the specific behaviors or actions that trouble ordinary Americans, politicians in Washington have chosen instead to vilify some of our most successful companies and to go after them economically."); *see also* David R. Henderson, *A Populist Attack On Big Tech*, The Hoover Institution (Mar. 3, 2022), *available online at* <https://www. hoover.org/research/populist-attack-big-tech-0>; Klon Kitchen & Jamil Jaffer, *The American Innovation & Choice Online Act Is A Mistake*, The Kitchen Sync (Jan. 19, 2022), *available online at* <https://www. thekitchensync.tech/p/the-american-innovation-and-choice>.

[48] *See* Henderson, *A Populist Attack on Big Tech*, *supra* n. 47; Evanina & Jaffer, *Kneecapping U.S. Tech Companies*, supra n. 47.

[49] See Kitchen & Jaffer, *The American Innovation & Choice Online Act*, *supra* n. 47; Evanina & Jaffer, *Kneecapping U.S. Tech Companies*, *supra* n. 47.

enforcement of existing laws in other domains—including the environmental and sanctions context—can undermine larger innovation policy efforts.[50] To the extent the government has discretion in how the laws or regulatory policies are to be enforced, it should be done in an evenhanded manner and should account for the innovation impacts of such enforcement as well.

Fourth, it is critical that the United States both create a STEM-capable workforce here in the United States. In doing so, Congress funding some of the key workforce-related programs authorized in the CHIPS and Science Act,[51] and should consider redirecting existing resources and providing new resources to states in the form of block grants,[52] and encouraging them to deploy these grants through public schools, public charter schools (some of which have highly innovative curricula in the technology domain),[53] and, as appropriate, private institutions. This effort must be partnered with programs that provide incentives innovators and entrepreneurs to stay, develop new technology, and build businesses in the United States over the long-term, including tax benefits for building new startups in the U.S. and hiring American workers to develop code. Of course, this is a long-term plan, and the fact of the matter is that we need to fill the significant existing technology worker gap now.[54] To do so, we must fundamentally reform our broken immigration

---

[50] *See, e.g.*, Phillip Singerman and Alexander Kersten, *Implementing CHIPS: The NEPA Permitting Challenge*, Center for Strategic and International Studies (May 1, 2023), *available online at* <https://www.csis.org/analysis/implementing-chips-nepa-permitting-challenge> ("[F]ederal funding under the CHIPS Act triggers the federal NEPA review process…This has raised fears that complying with the NEPA review could stall projects for over two years and cost the firms billions, undermining the policy imperatives of CHIPS….Currently, there is uncertainty about how these rules will apply to the construction of semiconductor fabs stimulated by the CHIPS Act….Further, the Council on Environmental Quality (CEQ) claims that between 2013 and 2018 Environmental Impact Statements took an average of 4.5 years to complete. This implies that any fab that is obliged to generate an Environmental Impact Statement would likely face significant delays. Some estimates put delay costs for large infrastructure projects as high as 5 percent a year, meaning, for example, that Intel's planned $20 billion investment in Ohio could encounter about $1 billion in extra expenses for every year delayed.").

[51] *See* McKinsey & Co., *The CHIPS and Science Act: Here's What's in It* (Oct. 4, 2022), *available online at* <https://www.mckinsey.com/industries/public-sector/ our-insights/the-chips-and-science-act-heres-whats-in-it> (noting that the CHIPS and Science Act "authorizes (but does not yet appropriate) $174 billion over the next five years to various federal science agencies to invest in STEM, workforce development, and R&D, with some $80 billion earmarked for the National Science Foundation").

[52] *Cf.* National Science Teachers Association, *FACT SHEET: Title IV, Part A of ESSA: Student Support and Academic Enrichment Grants and Science/STEM Education*, *available online at* <https://static.nsta.org/pdfs/ESSATitleIV-ScienceSTEMFactSheet.pdf> (describing the $1.65 billion Student Support and Academic Enrichment block grant program under The Every Student Succeeds Act (ESSA) enacted in 2014, which consolidated the Math and Science Partnership Grants, which is described as "the largest single program at the Department of Education devoted exclusively to science/STEM-related classroom purposes," having "received $152.7M in FY2016 before it was eliminated").

[53] *See, e.g.*, Digital Pioneers Academy, *Our Academic Model*, *available online at* <https://www.digitalpioneersacademy.org/enroll/academic-model> (describing the D.C. charter school's unique model of two teachers per classroom and requiring one hour of computer science per day for students at all grade levels); Digital Pioneers Academy, *Computer Science Model*, *available online at* <https://www.digitalpioneersacademy.org/enroll/csmodel> (describing the Digital Pioneer's curriculum as requiring students to "[t]ake and pass the Computer Science Advanced Placement exam in 10th grade [and] [m]aster two programming languages by 12th grade.").

[54] *See* Schmidt, *To Compete with China on Tech*, *supra* n. 27 ("According to current projections, U.S. semiconductor companies will have 300,000 unfilled vacancies for skilled engineers by 2030. Targeting, training,

system to ensure that we are recruiting and retaining the best and brightest minds the world has to offer. Our current immigration system makes little sense, in that it allows a wide range of undergraduate and graduate students to benefit from our world-class higher education system, but then—with exception of the small number that are able to obtain H-1B visas or otherwise stay in the United States—forces them to return home and build their businesses abroad.[55] Indeed, this poorly thought-out policy actually forces American companies to hire high-skilled workers abroad and deprives our own economy of the benefits of their employment here, including the tax revenues and spending of these high-skilled, high-wage workers.[56] There is no reason why—other than the obvious political challenges—the United States couldn't create a much more sensible immigration system that prioritizes those with the key skills we need and provides for a stringent pre-admission vetting to address potential IP theft and foreign intelligence concerns. Such a system could provide both a path to work and permanent residency for those that build successful businesses here. Such a system would stand in sharp contrast to the current lottery system which provides a level of randomness that makes little, if any, sense. Examples of ideas that might move us in the right direction can be found in a recent CSIS report,[57] and in more limited form in earlier versions of the CHIPS and Science Act, as well as in other proposals that have garnered bipartisan support.[58] The ongoing failure to address the very real problem created by our immigration system today, as well as the long-term challenge in our educational system when it comes to STEM education is, without a doubt, creating significant national security risk at a time when the U.S. can least afford it, particularly as our adversaries look to take advantage.

Fifth, the government could do more to identify, target, and limit strategic Chinese investment in the United States. Our current laws remain challenged in addressing the threat from China, because they apply in a "country-agnostic [manner], treating investment from foreign adversary countries like the PRC the same as that of any other country" and also don't provide jurisdiction

---

and recruiting hundreds of thousands of U.S. citizens will be impossible in such a compressed time frame. The only way to meet this demand is to recruit many more skilled workers from abroad.").

[55] *Id*. ("[T]he United States has long relied on its companies and universities to attract the world's best and brightest. Brilliant engineers from all around the world helped me turn Google into a world-leading technology company. But this did not happen because of the U.S. immigration system. It happened in spite of it.").

[56] *See* Paayal Zaveri, *America's Immigration System is a Nightmare & it's Forcing Tech Companies to Move Jobs Outside of the Country*, Business Insider (Mar. 14, 2023), *available online at* <https://www.businessinsider.com/us-tech-firms-offshoring-immigration-labor-shortage-issues-remote-work-2023-3> ("[T]he difficulties in bringing immigrants into the US is pushing companies to instead hire them to work in other countries. That, in turn, is encouraging those same companies to open branch offices in other countries and recruit there, staffing them with people who might otherwise have come to the US to work[.]").

[57] *See* William Alan Reinsch & Thibault Denamiel, *Immigration Policy's Role in Bolstering the U.S. Technology Edge*, Center for Strategic & International Studs. (Feb. 6, 2023), *available online at* <https://www.csis.org/analysis/immigration-policys-role-bolstering-us-technology-edge>; *see also* William R. Kerr & Sari Pekkala Kerr, *Immigration Policy Levers for U.S. Innovation & Startups*, Harvard Business School, Working Paper 20-105 (Apr. 2020), *available online a*t <https://www.hbs.edu/ris/Publication Files/20-105_aac0d5ae-e6e3-4570- 8225-31bcc127f693.pdf>.

[58] *See* H. Comm. On Rules, H.R. 7900, Amend. 117-54 (July 12, 2022), <https://amendments-rules.house.gov/amendments/LOFGRE_036_xml220705125918927. pdf> (showing an unenacted amendment by Congresswoman Lofgren (CA-18)); *see also* Reinsch & Denamiel, Immigration Policy's Role, *supra* n. 57 ("Last year, there was bipartisan support for making available additional green cards with shorter wait times for STEM Ph.D.'s. Yet ultimately this initiative was stripped from the final National Defense Authorization Act.").

over certain critical technologies and joint ventures, among other things.[59] The China Select Committee in the House of Representatives has recently suggested some potential changes to existing laws that are worth taking seriously.[60]

## IV. The Critical Role of Private Actors in Emerging Technology Innovation and the Need for Government and Industry to Work Collaboratively to Protect Our National Security

Today, private sector research and development funding represents 70% of all R&D expenditures in the United States,[61] with technology companies leading the way, making up seven of the top ten R&D spenders, including all of the top five.[62] It is this expenditure on core R&D—along with the ability to rapidly iterate and innovate, enabled by a permissive economic and legal environment, and the availability of significant amounts of venture and growth capital, as well as a highly-skilled workforce—that makes the U.S. the technology innovation hub of the globe.

These capabilities are not only at the heart of America's economic success, they are also a core reason why our national defense capabilities remain relatively unmatched across the globe today. As such, rather than limiting the capabilities of the top R&D investors in the U.S. to continue to make such investments—including the technology companies that are in the top five R&D spenders in the nation—it is precisely this R&D spend that the U.S. government and our allies ought be encouraging companies to scale up. Likewise, as noted above, to ensure the U.S. remains a leader in innovation and investment, we must keep in place and expand on the kind of economic incentives and regulatory structures that have worked so well thus far, and must avoid the temptation to artificially restrain successful innovators—whether startups or otherwise—in the absence of actual, demonstrable bad behavior.

There is also critical room for private action as well. Free and open societies grounded in economic liberty, like the United States, are the engine that drives technological innovation and the expansion of economic opportunities for people around the globe. The fact of the matter is that financial investors and capital allocators (whether venture capitalists, private equity investors, or their respective limited partners), as well as the entrepreneurs, startups, and established companies building innovative capabilities in critical areas of emerging technologies, all benefit from being

---

[59] *See, e.g.*, Select Committee on the Strategic Competition with the Chinese Communist Party, *Reset, Prevent, Build: A Strategy to Win America's Economic Competition with the Chinese Communist Party* (Dec. 12, 2023), at 31-32, *available online at* <https://selectcommitteeontheccp.house.gov/sites/evo-subsites/selectcommitteeontheccp.house.gov/files/evo-media-document/reset-prevent-build-scc-report.pdf>.

[60] *Id.*

[61] *See* Jamil N. Jaffer, *NSI Backgrounder: The Role of American Technology Sector in Safeguarding U.S. Economic and National Security*, National Security Institute, GMU Scalia Law School (Dec. 2022), at 1 & n. 6, available online at <https://nationalsecurity.gmu.edu/the-role-of-american-technology-sector-in- safeguarding-u-s-economic-and-national-security/> (*citing* John F. Sargent, U.*S. Research and Development Funding and Performance: Fact Sheet*, Congressional Research Service (Sept. 13, 2022), *available online at* <https://crsreports.congress.gov/product/pdf/R/R44307/18>).

[62] *See id.* at 1 & n. 5 (citing Prableen Bajpai, *Which Companies Spend the Most in Research and Development (R&D)?*, Nasdaq (June 21, 2021), *available online at* <https://www.nasdaq.com/articles/which-compa- nies-spend-the-most-in-research-and-development-rd-2021-06-21>).

in the United States and key allied countries, particularly because of the economic and political systems that undergird our nations.

As such, it is reasonable to expect that the financial investors, entrepreneurs, and companies that benefit from these advantages, while seeking significant returns for their investors and powerful capabilities for their customers, ought be incentivized to voluntarily take action, consistent with their own investment and corporate mandates and objectives, to invest in innovation and capabilities that support the United States and our allies, including those capabilities that will enhance the collective defense of our nations. This includes actively promoting innovation in key emerging technologies, like artificial intelligence, cloud and edge computing, quantum computing, cybersecurity, and underlying capabilities like critical minerals, semiconductors, high performance and accelerated computing, as well as capabilities that enhance the trust, safety, and security of such technologies. Likewise, such financial investors and companies that work in critical emerging technology areas ought also be incentivized to voluntarily avoid investments and transfer of capabilities or technology to adversary nations. Such efforts undermine American and allied technological advantage and harm our economic and national security, and thus make it harder to protect the very system that permits the innovation and capital allocation that these organizations rely upon in the daily course of their businesses.

Unfortunately, there is evidence that suggests American investors and companies are making significant investments in leading-edge Chinese companies, including in the artificial intelligence arena.[63] Indeed, by one metric, U.S. investors "accounted for nearly a fifth of investment deals in Chinese AI/ML companies from 2015 to 2021."[64] Countering the PRC's effort to establish technology supremacy also requires starving the CCP of its economic lifeblood, capital from abroad, particularly in the form of U.S. investment capital which, while perhaps a small relative amount, nonetheless provides a key signaling function to others. Given the alignment of interests, it is reasonable to expect that some of amount of voluntary action might be sufficient to address some of the key challenges in the current investment environment.

To the extent private action alone does not achieve these goals immediately—whether on investment dollars or technology provision—the government ought be cautious not to reach immediately for the regulatory stick. Rather, additional carrots, like the tax and research and

---

[63] *See* Emily S. Weinstein & Ngor Luong, *U.S. Outbound Investment into Chinese AI Companies*, Georgetown University Center for Security & Emerging Technology (Feb. 2023), at 11-13, *available online at* <https://cset.georgetown.edu/wp-content/uploads/CSET-U.S.-Outbound-Investment-into-Chinese-AI-Companies.pdf>; *see also* Alexandra Alper, *U.S. Investors Have Plowed Billions into China's AI sector, Report Shows*, Reuters (Feb. 1, 2023), *available online at* <https://www.reuters.com/ technology/us-investors-have-plowed-billions-into-chinas-ai-sector-report-shows-2023-02-01/>; Select Committee on Strategic Competition with the Chinese Communist Party, *Letter to Sequoia Capital on its PRC High-Tech Investments, Examine Implications of Announced Split* (Oct. 18, 2023), *available online at* <https://selectcommitteeontheccp.house.gov/media/letters/letter-sequoia-capital-its-prc-high-tech-investments-examine-implications-announced>.

[64] *See* Alper, *U.S. Investors*, *supra* n. 61; *see Weinstein & Luong*, U.S. Outbound Investment, supra n. 61, at 11-12 (showing that 167 U.S. investors took part in 401 transactions, or roughly 17% of the investments into Chinese AI companies in the period; those transactions, in total, represented a total $40.2 billion in investment, or 37% of the total raised by Chinese AI companies in the 6-year period; it is unclear how much of that amount is attributable to U.S. investors).

development incentives noted above, could have some success in achieving governmental objectives, as they help ensure that the interests of all actors are fully aligned. Forcing companies or investors to do things that are against their financial interests simply ensures that rational economic actors will seek ways around such rules, complying with the specific provisions required, but also taking action where law or regulation permits. It is therefore critical that government and industry work together to create the right tax and regulatory incentives to ensure that American and allied companies invest their money here (and in allied nations) to create much-needed capacity and to ensure that we have the skilled workers necessary to build and maintain this capacity. Moreover, where government does need to act to specifically bar certain investment or technology export activity—potentially even by regulation or statute in critical industries at the heart of U.S. national security like high performance computing, semiconductors, critical minerals, cloud computing, artificial intelligence, and quantum computing—clear rules of the road are critical.[65] Likewise, the government ought be sure to avoid using taxpayer dollars to companies that are spending capital on advanced capabilities in competitor nations or transferring advanced technology to such nations, like the PRC.[66]

This also means the government needs to take action to open new markets and create the right kind of structures that allow and encourage innovative American business to not only sell to or manufacture in nations that are already aligned with the United States, but also to do so with nations that we would like to see increasingly align with us. The government also ought work with industry to ensure that low-cost capital is available for critical emerging technology companies.[67]

Seeking address the national security threat presented by China standing alone—whether as individual nations or as existing blocs like the EU or the African Union—is also simply untenable. It is critical that the U.S. and our allies work hand-in-hand to address these challenges and stave off the depredations of the PRC. We must find a way to make common cause with our longstanding allies in both Europe and in the Indo-Pacific, as well as the Middle East and Africa, and we must avoid allowing nations that are notionally in our allied bloc from shifting their allegiances and policies towards the PRC.[68]

Likewise, as we think about the role of allies and the relationship of our most innovative private sector actors taking advantage of opportunities in the overseas markets, it is critical that we

---

[65] *See, e.g.*, China Select Committee, *Reset, Prevent, Build*, *supra* n. 59 at 28-31.

[66] *See* 15 U.S.C. § 4652(a)(5)-(6); *see also* National Inst. for Standards & Technology, *Proposed Rule: Preventing the Improper Use of CHIPS Act Funding*, 88 FR 17439 (Mar. 23, 2023), *available online at* <https://www.federalregister.gov/d/2023-05869>; Various Authors, *Comments on Proposed Rule: Preventing the Improper Use of CHIPS Act Funding*, *available online at* <https://www.regulations.gov/docket/NIST-2023-0001/comments>.

[67] *See* Alexander & Jaffer, *China Is Waging Economic War on America*, *supra* n. 14.

[68] Eric Cheung, *Honduras Establishes Diplomatic Ties with China, Severs Them With Taiwan*, CNN (Mar. 26, 2023), *available online at* <https://edition.cnn. com/2023/03/25/asia/honduras-cuts-diplomatic-ties-with-taiwan-intl-hnk/index.html>; Enrique Garcia, *Guatemalan Presidential Contender Pitches Closer China Ties*, Reuters (June 28, 2023), *available online at* <https://www.reuters.com/world/americas/surprise-guatemalan-presidential-contender-pitches-closer-china- ties-2023-06-27/>.

discourage our allies from implementing legislation that undermines the ability of American companies to fairly compete.[69] For example, nations in Europe and the EU itself have sought to enact and implement aggressive regulatory legislation, including the General Data Protection Regulation (GDPR), the Digital Markets Act (DMA), the Digital Services Act (DSA), and the new AI Act, as well as a range of data sovereignty measures, in ways that makes it difficult for American innovation to reach Europe and limit the access of innovative US industry to the European market. Similar challenges have appeared in the Indo-Pacific as well.[70] The record is clear that these efforts—at least in Europe—are designed not to enhance competition but to limit it.[71] Given this backdrop, it is incumbent upon the Executive Branch to more aggressively press our allies to align efforts across the Atlantic, including amongst Five Eyes nations, and ensure that we are not taking actions that undermine our collective efforts. Moreover, as some advocate for the government to consider similar regulatory or legislative action in the United States,[72] it is worth noting that it is the very lack of such efforts that have made the United States so innovative as compared to Europe on a range of metrics, including GDP growth,[73] the creation of highly

---

[69] *See, e.g.*, General Data Protection Regulation, Council Regulation 2016/679, 2016 O.J. (L 119) 1 (EU); Single Market For Digital Services (Digital Services Act), Council Regulation 2022/2065, 2022 O.J. (L 277) 1 (EU); Contestable and Fair Markets in the Digital Sector (Digital Markets Act), Council Regulation 2022/1925, 2022 O.J. (L 265) 1 (EU).

[70] *See, e.g.*, The Digital Personal Data Protection Bill, 2022, §§ 1-30, *available online at* <https://www.meity.gov.in/writereaddata/files/The%20Digital%20Personal%20Data%20Potection%20Bill%2C%202022_0.pdf>; Proposed Digital India Act, 2023, *available online at* <https://www.meity.gov.in/writereaddata/files/DIA_Presentation 09.03.2023 Final.pdf>; Shivani Bazaz, E*xplained: India's Upcoming Digital Competition Act & What is the Debate Around it All About*, CNBC (Jul. 14, 2023), *available online at* <https://www.cnbctv18.com/technology/explained--indias-upcoming-digital-competition-act-and-what-is-the-debate-around-it-all- about-17222501.htm>.

[71] *See, e.g.*, Javier Espinoza, *EU Should Focus on Top 5 Tech Companies, Says Leading MEP*, Financial Times (May 31, 2021), *available online at* <https://www. ft.com/content/49f3d7f2-30d5-4336-87ad-eea0ee0ecc7b> ("The EU lawmaker who will steer the EU's flagship tech regulation through the European parliament has said it should focus on the largest five US tech companies. Andreas Schwab, a German MEP and longtime critic of Google, spoke after France and Germany both called for the EU to be tougher on Big Tech. He said Google, Apple, Amazon, Facebook and Microsoft, were the 'biggest problems' for EU competition policy."); Adam Satariano, *Meta Fined $1.3 Billion for Violating E.U. Data Privacy Rules*, New York Times (May 22, 2022), *available online at* <https://www.nytimes. com/2023/05/22/business/meta-facebook-eu-privacy-fine.html>; Rep. Darin LaHood, et al., *Bipartisan Letter from 47 Members of the U.S. to President Biden* (June 22, 2023), *available online at* <https://lahood. house.gov/_cache/files/6/8/681fc5f3-dacf-458e-9096-0943b2bb2d1f/685FC0EBDAF0D803ED514345D8FEF91A.final-letter-to-president-biden-on-eu-digital- trade-concerns---june-2023.pdf> (describing efforts by the EU "to regulate the digital economy in ways that harm American companies and workers" and arguing that "the discriminatory elements of these policies will weaken American competitiveness by unfairly advantaging domestic European firms and inadvertently benefitting Chinese, Russian, and other foreign-owned competitors").

[72] *See* Cecilia Kang, *As Europe Approves New Tech Laws, the U.S. Falls Further Behind*, New York Times (April 22, 2022), *available online at* <https://www. nytimes.com/2022/04/22/technology/tech-regulation-europe-us.html>.

[73] *See* Jan Rybnicek, *Innovation in the United States and Europe*, in *Report on the Digital Economy*, Global Antitrust Institute (2020), *available online at* <https://gaidigitalreport.com/2020/08/25/innovation-in-the-united-states-and-europe/> ("The United States also has greater and faster GDP growth than Europe. Although not a perfect metric, it gives some sense of the contributions that innovative firms have brought to the U.S. economy over time."); International Monetary Fund, GDP Per Capita, Current Prices: U.S. Dollars Per Capita (2023), available online at <https://www.imf.org/external/datamapper/NGDPDPC@WEO/EU/USA> .

successful, highly innovative businesses,[74] and building private companies whose technology innovations have a massive benefit for national and economic security.[75] Indeed, such measures make little sense at a time when the key threat to our nations collectively, comes not from within the alliance, but from a rising superpower, like China, that is actively hostile to the world order crafted by the alliance. Indeed, there is support amongst the publics in the U.S. and in our allied nations for increased collaboration on technology and security issues with respect China.[76]

## V. The Critical Transformative Capability of Artificial Intelligence.

AI has the potential to have a massively transformative effect on human society, raising all boats, creating new innovation and capability, and allowing a broad range of workers to do ordinary tasks significantly more efficiently, while also freeing innovators to create even more productive tools and capabilities.[77]

While much has been written about the potential of AI to cause significant harm, key claims have been so overwrought and lacking in substance as to undermine their own credibility[78] or have later been determined to be inaccurate.[79]

---

[74] *See id*. ("The United States is home to the most innovative companies that span numerous industries. This includes the most successful global tech firms at the forefront of technological change. These companies consistently outspend their European counterparts on research and development, a key indicator of product improvement and development."); Michael Ringel et al., *The Most Innovative Companies 2020, The Serial Innovation Imperative*, Boston Consulting Group, at 16 (June 2020), *available online at* <https://web-assets.bcg.com/img-src/BCG-Most-Innovative-Companies-2020-Jun-2020-R-4_tcm9-251007.pdf>.

[75] *See, e.g.*, Loren Thompson, *Why Reining In Big Tech Could Be Bad News For U.S. National Security*, Forbes (July 7, 2022), *available online at* <https://www. forbes.com/sites/lorenthompson/2022/07/07/why-breaking-up-big-tech-could-be-bad-news-for-us-national-security/?sh=1e40190d32bd> ; Jaffer, *The Role of American Technology Sector*, *supra* n. 59.

[76] *See* American Edge Project, *U.S. and European Views of the Tech Industry* (Sept. 2022), *available online at* <https://americanedgeproject.org/wp-content/ uploads/2022/09/AEP-US-EU-Survey-Insights-F9.12.22.pdf>.

[77] *See, e.g.*, Chris Inglis, et al., *As the U.S. Sprints Ahead on AI, Values Can't Be Left Behind*, Barron's (Oct 26, 2023), *available online at* <https://www.barrons.com/articles/ai-regulation-nationalization-innovation-security-6d60ba33> (""); *see also* Michael Chui, et al., *Generative AI is Here: How Tools Like ChatGPT Could Change Your Business*, McKinsey & Co. (Dec. 20, 2022), *available online at* <https://www.mckinsey.com/capabilities/quantumblack/our-insights/generative-ai-is-here-how-tools-like-chatgpt-could-change-your-business>; Danny Hajek, et al., *What Is AI and How Will It Change Our Lives? NPR Explains.* (May 25, 2023), *available online at* <https://www.npr.org/2023/05/25/1177700852/ai- future-dangers-benefits>.

[78] *See, e.g.*, Geoffrey Hinton, et al., *Statement on AI Risk: AI Experts and Public Figures Express their Concern About AI Risk*, Center for AI Risk (May 30, 2023), *available online at* <https://www.safe.ai/statement-on-ai-risk#open-letter> ("Mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war."); Max Zahn, *AI Leaders Warn the Technology Poses 'Risk of Extinction' Like Pandemics and Nuclear War*, ABC News (May 30, 2023), *available online at* <https://abcnews.go.com/Technology/ai-leaders-warn-technology-poses-risk-extinction-pandemics/story?id=99690874>.

[79] See Will Knight, *Why the Story of an AI Drone Trying to Kill Its Operator Seems So True*, Wired (June 8, 2023), *available online at* <https://www.wired.com/story/ business-fast-forward/>.

The best approach to protecting U.S. economic and national security in the context of AI—a rapidly moving area of technology innovation where a key consideration is ensuring that government regulation does not crush innovation and deprive society of AI's potentially massive benefits—is one that allows innovation to flourish, stepping cautiously to address legitimate concerns where regulation may be warranted and appropriate, based on traditional considerations like demonstrable market failures.

As such, rather than rushing to broad-based regulation, as the European Parliament is doing with the AI Act,[80] imposing significant burdens that may not be directly regulatory but are likely to have a regulatory impact,[81] or directly limiting AI capabilities or applications,[82] the wiser approach, consistent with the American approach to innovation, would be to prioritize the voluntary adoption of industry-driven frameworks, before moving to a more traditional regulatory posture.[83] To that end, encouraging those closest to the actual creation of the technology—the companies, innovators, and investors at the cutting-edge of AI—to craft potential frameworks and industry best practices that might guide the trusted, safe, and secure development and implementation of these technologies, is likely the best approach in the near term. Indeed, providing safe harbors for the implementation of industry best practices and compliance with voluntary, industry-led standards might be a good place for Congress and the Administration to start as they consider potential further action.

## VI. Conclusion

For at least a half century, if not significantly longer, the United States has been the world's leading engine of innovation and investment, driving much of the growth and development of the global information infrastructure, including the Internet as we know it today, and developing the leading-edge technologies that are creating to the new and novel capabilities of today, like generative artificial intelligence. This innovation engine has benefitted the United States economically, politically, and militarily, and has provided the very capabilities that have cemented the United States as a global superpower. Today, however, the PRC poses a major strategic challenge to America and our allies across the entire economic and national security landscape. There is little chance that standing alone, any one nation or current bloc of nations will successfully be able to confront and beat China when it comes to economics and (soon) military might. Nor will the any government be able to do it without the cooperation of its private sector. Given the centrality of

[80] Ryan Browne, *Europe Takes Aim at ChatGPT With What Might Soon be the West's First A.I. Law. Here's What It Means*, CNBC (May 15, 2023), *available online at* <https://www.cnbc.com/2023/05/15/eu-ai-act-europe-takes-aim-at-chatgpt-with-landmark-regulation.html> ("A key committee of lawmakers in the European Parliament have approved a first-of-its-kind artificial intelligence regulation — making it closer to becoming law. The approval marks a landmark development in the race among authorities to get a handle on AI, which is evolving with breakneck speed.").

[81] See The White House, Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

[82] *See Europe Takes Aim*, *supra* n. 77 ("The AI Act categorizes applications of AI into four levels of risk: unacceptable risk, high risk, limited risk and minimal or no risk. Unacceptable risk applications are banned by default and cannot be deployed in the bloc.")

[83] *Cf. Framework for Improving Critical Infrastructure Cybersecurity*, National Institute of Standards & Technology (Apr. 16, 2018), *available online at* <https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf>.

technology innovation to our economic, political, and military success going forward—and the critical role of the private sector, including investors, innovators, entrepreneurs, and companies alike, in such innovation—it is critical that the United States act now to quickly and significantly shore up our ability to ensure we remains the technology capital of the globe, and that we and our allies, working together, are able to leverage joint technology innovation, research, and development, as well as combined production capabilities to gain a significant measure of economic independence from the PRC. Given our leading position today and the clear effort by China to try to take the pole position, if we fail to maintain this advantage now and into the future, we will have no one to blame but ourselves.