CONGRESSIONAL TESTIMONY: FOUNDATION FOR DEFENSE OF DEMOCRACIES

Senate Committee on Small Business and Entrepreneurship

Innovation in the Crosshairs:

Countering China's Industrial Espionage

EMILY DE LA BRUYÈRE

Senior Fellow
Foundation for Defense of Democracies

Washington, DC
July 23, 2025

FDD
FOUNDATION FOR DEFENSE OF DEMOCRACIES

www.fdd.org

China is winning the technological competition against the United States. China is not winning by out-innovating the United States — by besting the United States in the race America assumes to be underway. Rather, Beijing is winning because it isn't racing. Beijing is playing a completely different game. The United States cannot recover by racing faster or smarter or by racing at all. The United States must start blocking and tackling instead — and start building.

China's Asymmetric Strategy

The Chinese Communist Party (CCP) weaponizes the interdependence of the global system to acquire advanced technology at low cost and low risk. Beijing then focuses its resources on the points where it sees real competitive advantage: first, *applying* technology to scale global systems and control value chains; and second, placing targeted and risk-adjusted bets in potentially paradigm-shifting domains, like materials science and cross-cutting disciplines, where first-mover advantage *can* be determinative.

This strategy is asymmetric. It plays to China's strengths — including scale, centralization, and industrial capacity. It lets Beijing benefit from American investments, namely in creating and proving cutting-edge technology, therefore freeing up China's resources for the real contest: the applications of that technology. China's strategy converts core U.S. characteristics — and presumed strengths — into weaknesses. Beijing preys on the openness of the American system for access and its decentralization for control.

And Beijing's strategy is working. China has proven its ability to acquire crown jewel technologies from the rest of the world — despite increasingly serious efforts to prevent as much. Beijing has also proven the strategic value of competing at the application stage.[1]

The first practical solar cell was made at Bell Labs in Murray Hill, New Jersey. But China now owns some 90 percent of the global solar supply chain. The global solar industry therefore depends on China for both production and technology. China decides the technological direction of the field. And Beijing is increasingly using this foothold to dominate in downstream and adjacent domains, like smart grids. The People's Republic of China (PRC) therefore claims control over not only a future energy source but also critical infrastructure.[2]

In communications, the United States led the world in developing 5G technology. But it was Beijing that built scaled, global 5G systems. It is therefore Beijing that has cemented access to the information on those systems; an advantage in the infrastructures, like smart cities and smart transportation, built on top of them; and leadership in the hardware inputs, like chips and modules, going into them.[3]

OpenAI changed the game in artificial intelligence. But with DeepSeek, China matched the performance of American leaders at a fraction of the price. Beijing is therefore positioned to

[1] Emily de La Bruyere and Nathan Picarsic, "Military-Civil Fusion: Crafting a Strategic Response," *CHIPS*, July 2019. (https://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=12635)
[2] "Out of China's Shadow," *Horizon Advisory*, February 2024. (https://www.horizonadvisory.org/solarsqueeze)
[3] Nathan Picarsic and Emily de La Bruyere, "Wiring a 6G World," *Hinrich Foundation*, September 19, 2023. (https://www.hinrichfoundation.com/research/article/us-china/wiring-6g-world)

claim the algorithm layer of the AI era and to own the foundation on which vertical applications, the real reward of AI, will be built.[4]

The Stakes at Hand

The story repeats across technologies and sectors. The United States is playing a losing game.

This matters because technology matters — for economic prosperity and security, national sovereignty, and international influence. The stakes are particularly high today because, and this is key to the CCP's strategy, the contemporary tech revolution is reshaping the global order. Modern advances in technology — including big data, artificial intelligence, and biotechnology — are creating new markets, new methods of production, and new means of control. If China can win today's tech competition, it can capture global markets, production, and control.

In a world where China wins, Beijing owns not only global supply chains but also core information networks, the rules and standards guiding them, and the data on them. Therefore, Beijing controls economic growth, opportunity, and future generations of technological innovation. In this world, countries, including the United States, will be reduced to vassal states, dependent on Beijing's tech empire. So will companies. Industrial and commercial activity will rely on Chinese systems and inputs, ensuring an advantage for Chinese companies.

If you are a tech worker in San Francisco, you will work for a Chinese big tech company, that company will answer to the CCP, and the value you create will flow to China. If you are a farmer in Iowa, you will rely on Chinese smart agriculture systems — as well as Chinese seeds and the Chinese market — such that China will be able to decide your economic future. Ultimately, Beijing will take over your farm. If you are an American and you have an idea, capitalizing on that idea will require building on a Chinese system. Therefore, it will be a Chinese entity that benefits.

This future may sound overblown. But it is already being made. And as long as the United States does not change its competitive approach, this future will materialize. Avoiding this result requires understanding Beijing's strategic approach, understanding how Beijing pursues it, and fighting back.

China's Path to Tech Access

The CCP's asymmetric strategy begins with access to technology. Beijing secures that access in part through academic relationships but most of all through commercial ones. Leveraging its "State-led, Enterprise-driven" model of government-industry coordination, Beijing weaponizes the open, global nature of international markets — and the commercial research and development (R&D) they contain — to acquire innovation.

[4] Nathan Picarsic and Emily de La Bruyere, "What DeepSeek Taught Us about Gaps in US Tech Strategy," *Hinrich Foundation*, February 25, 2025. (https://www.hinrichfoundation.com/research/wp/tech/what-deepseek-taught-us-about-the-gaps-in-us-tech-strategy)

Beijing accomplishes some of this through illicit means: industrial espionage conducted via cyber and human vectors and, in China, forced data localization, for example.

But much of China's tech acquisition is entirely licit, a manipulation of — but not an attack on — international business. Government, government-backed, and government-guided Chinese entities "Go Out" into the international system to obtain technology through acquisitions, joint ventures, direct and indirect investment, talent programs and personnel recruitment, and even lawsuits. Those Chinese entities benefit from government support and direction, freeing them from market forces, and therefore allowing them to redeem strategic value from counterparts bound by economic logic. Alongside those "Go Out" vectors of tech acquisition, Beijing deploys a parallel and reinforcing "Bring In" program, leveraging the appeal of the Chinese market and Chinese industrial base to attract foreign intellectual property (IP), research and development, data, and even capital necessary to fuel China's domestic tech program.

Across the board, Beijing preys on the constraints and incentives of commercial entities — and manipulates U.S. and international restrictions intended to prevent as much.

China's Vectors of Commercial Tech Access

Illicit mechanisms

- Cyber espionage
- Human espionage

Licit mechanisms

- Go Out
    - Investment (incl. via limited partnership stakes)
    - Joint ventures (incl. minority joint ventures)
    - Acquisitions (incl. out of bankruptcy)
    - Lawsuits (incl. that lead to discovery)
    - Talents programs and employee poaching
- Bring In
    - Market access restrictions (e.g., forced tech transfer, joint ventures, and data localization)
    - Incentives for localization of production, research, and development in China (e.g., through industry zones)
    - Incentives for investment in China
    - Conferences and industry fairs

For instance, Chinese tech acquisitions have been known to target distressed or bankrupt U.S. companies with cutting-edge intellectual property, including military-relevant and -funded IP. These entities have strategic value but lack immediate commercial traction. They are therefore

ripe for the taking. In 2017, for example, Chinese automotive group Zhejiang Geely Holding Group acquired struggling U.S. flying car start-up Terrafugia, a DARPA contributor. Terrafugia has since reportedly moved part of its operations and IP to China.[5]

And while the United States has deployed a host of policies, including investment review, intended to prevent China's tech poaching, Beijing has managed consistently to find and exploit loopholes. Chief among those are minority and limited partnership stakes not covered by U.S. regulation.[6] Take TuSimple, for instance. A self-driving truck startup, TuSimple launched in 2015, backed by Chinese capital, with a dual presence in both China and the United States. Its U.S. address granted it legitimacy in the American market. That, in turn, enabled fundraising and partnerships — at the expense of legitimate U.S. companies. TuSimple's presence in the United States also gave it access to technology and data. Both ultimately made their way to China.[7]

In those cases, Beijing leverages short-term economic incentives to "Go Out" into the international system and acquire technology. Beijing also uses those short-term economic incentives to bring companies, and with them their technology, into China. The PRC is the world's second-largest market and a rapidly growing one. International companies want access. Beijing grants them as much but with conditions — like forced technology transfer, joint ventures, and data localization — that make market access contingent on the surrender of technology. International companies get to sell into China for a few years. But in the process of doing so, they sow the seeds of their own demise: They arm Chinese competitors with the tools necessary to overtake — in China and internationally.

Similarly, Beijing incentivizes foreign companies to localize production, research, and development in China; to encourage their suppliers and customers to do the same, including through government-led industry zones; and to invest in Chinese tech entities. These policies generate favorable margins for production, access to low-cost Chinese suppliers, and profitable exits — in the short term. But these policies also lead to knowledge transfer and spillover, generate dependence on China that grants Beijing leverage over IP, and provide the PRC with the human and financial resources necessary to fund its tech offensive.

Take, for example, a case from the biopharmaceutical industry. In the early 2000s, driven by Chinese government incentives and low costs, Eli Lilly established a pharmaceutical service outsourcing company in Shanghai's Zhangjiang High-Tech Park and transferred part of its research and development footprint there. This move catalyzed the development of the contract research organization industry in China. Over the years that followed, a bevy of other multinational companies established footprints in the area, forming, as Chinese media puts it, "a

[5] Charles Alcock, "Terrafugia Owner Moves Transition Flying Car Program to China," *Aviation International News*, February 23, 2021. (https://www.ainonline.com/news-article/2021-02-23/terrafugia-owner-moves-transition-flying-car-program-china)
[6] Nathan Picarsic and Emily de La Bruyere, "The Weaponization of Capital: Strategic Implications of China's Private Equity/Venture Capital Playbook," *Foundation for Defense of Democracies*, September 15, 2022. (https://www.fdd.org/analysis/2022/09/15/the-weaponization-of-capital-chinas-private-equity-venture-capital)
[7] Heather Somerville, "The Self-Driving Truck Startup That Siphoned Trade Secrets to Chinese Companies," *The Wall Street Journal*, May 27, 2025. (https://www.wsj.com/tech/china-self-driving-trucks-tusimple-c20255e1)

unique new drug R&D ecosystem in Zhangjiang."[8] That new drug R&D ecosystem is increasingly dominated by Chinese companies, building on the technology brought in from abroad. Many of those Chinese companies have been founded by the very Eli Lilly, Merck, AstraZeneca, and Pfizer employees who led, and encouraged, those giants' moves to China. These new Chinese upstarts benefit from government funding, investment, and preferential policies that let them underprice and outproduce the international competitors that spawned them. And those international competitors? They continue to invest, partner, and produce in China. They continue to fuel their own destruction.

Or — in a case where the "Bring In" and "Go Out" programs overlap — take Suzhou Innolight, a Chinese optical module company that the Ministry of Industry and Information Technology designated as a "single champion" in 2022. Innolight's founder and CEO began his career in the United States before returning to China in 2008, as part of a government talents program, to launch the company. He did so with backing from both the Suzhou government and Acorn Campus Ventures, a venture capital firm with a presence in California and tied to Chinese sources of capital. Innolight has grown through Chinese government industrial policy support and state-backed investors on the one hand and U.S. investors, partners, and research facilities on the other. CapitalG, Alphabet's growth fund, has invested in the company.[9] Innolight has an R&D center in the United States. Chinese reporting indicates that the company is a key supplier of optical modules for Google and Amazon, among other international hyperscalers.[10] These U.S. relationships grant Innolight access to American technology and a cemented place in American data infrastructure — and American capital to fund the process. At the same time, Innolight's non-market Chinese government support ensures that it can continue to prevent any real challenge from international competitors.

The Scale of the Problem and Charting a Competitive Path

The Commission on the Theft of American Intellectual Property has estimated that Chinese tech theft costs the United States up to $600 billion a year.[11] The problem is so severe that the United States — and its allies and partners — have implemented an unprecedented raft of restrictions on Chinese entities and tech partnerships with them. Both that assessment and that response miss the point.

---

[8] "从和誉生物乔迁研发中心，看本土创新药企实力崛起 [From the Relocation of Abbisko Bio's R&D Center, We Can See the Rise of local Innovative Pharmaceutical Companies]," *Pharma Cube*, November 6, 2020. (http://www.360doc.com/content/20/1106/23/72280700_944506538.shtml); Wuhan Optics Valley plays a similar role in optoelectronics and third-generation semiconductor applications. See: "Chip Risk Monitor Monthly Note – December 2023," *Horizon Advisory*, December 2023. (https://www.chipriskmonitor.com/monthly-notes/december2023)

[9] Sonja Cheung, "Google Capital Makes First China Investment, Backs InnoLight," *The Wall Street Journal*, September 29, 2014. (https://www.wsj.com/articles/BL-VCDB-15564)

[10] Zhao Mianlu, "中际旭创-研报正文: 受益于北美CSP对ASIC服务器出货的乐观预期 [Zhongji Xuchuan-Research Report: Benefiting from North American CSP's Optimistic Expectations for ASIC Server Shipments]," *First Shanghai Securities*, June 18, 2025. (https://stock.finance.sina.com.cn/stock/view/paper.php?symbol=sh000001&reportid=803571720313)

[11] "Update to the IP Commission Report," *National Bureau of Asian Research*, 2017. (https://www.nbr.org/publication/update-to-the-ip-commission-report-february-2017)

China's strategy and positioning put all U.S. technology at risk. They ensure that the U.S. approach to tech development, and leadership, is fundamentally a losing one. If the United States does not change paths, Beijing will continue to hoover up cutting-edge technology. Beijing will industrialize and commercialize it at low cost and scale, undercutting international competition. In the process, the CCP will establish control over tomorrow's technological architecture, and therefore tomorrow's world. Beijing will do all of this backed by American innovation and capital.

The United States needs to change its game.

First, the U.S. government needs to shift from protecting American technology to protecting the American market. Washington needs to impose and enforce real, rigorous restrictions on Chinese commercial entities operating in the United States and their ability to access the U.S. market. Such restrictions should cover investment, both direct and indirect; joint ventures, including minority stakes, and tech licensing; and construction and deployment of information systems, components, and software that could give the PRC access to U.S. information and data. These restrictions should adopt definitions of Chinese entities that Beijing cannot circumvent through shell companies or localization — for example, the U.S. Commerce Department's definition of a "person owned by, controlled by, or subject to the jurisdiction or direction of a foreign adversary" — and presumptions of denial.

At the same time, the United States should not give up on efforts to slow China's access to critical technology — but should focus those efforts on strategic domains like military-relevant R&D and government funding. Such efforts should build on novel features of recently proposed legislation, like the INNOVATE Act introduced by Chair Ernst, to guarantee that R&D dollars are only doled out with appropriate due diligence and with capacity for funds to be clawed back in the event of fraud or negligence that results in adversarial access to U.S. government-funded technology.

Second, the United States needs to activate its private sector both to stop forfeiting critical U.S. resources to China and to start investing in the actual competition at hand. Such activation will require sticks. The private sector should have to choose between the U.S. and the Chinese markets. Because as long as a company operates in China, it will serve China's interests. Businesses that localize data, research, development, or production in China; invest in Chinese entities; or maintain tech licensing deals with Chinese entities should not be eligible for federal procurement, federal tax credits or other incentives, or defense-industrial base procurement. Such restrictions will send a strong signal. Those signals, necessary and long overdue, will, in turn, trigger accountability mechanisms throughout America's capital markets that can reinforce government market and tech protection edicts.[12]

[12] Nathan Picarsic and Emily de La Bruyere, "Commanding Heights; Ensuring US Leadership in the Critical and Emerging Technologies of the 21st Century," *Statement for the Record before the Select Committee on the Strategic Competition Between the United States and the Chinese Communist Party*, July 26, 2023. (https://selectcommitteeontheccp.house.gov/sites/evo-subsites/selectcommitteeontheccp.house.gov/files/evo-media-document/scc-expert-written-testimony_20230726_emily-de-la-bruyere-and-nathan-picarsic.pdf)

There are carrots for Washington to provide, too. Restrictions on private sector engagement with China will incur short-term costs. The U.S. government will need to ensure that compliance with them generates opportunity to invest and produce in the United States — and in a way that is profitable. Washington should provide the infrastructure necessary for tech production, including through the expanded provision of domestic energy and upstream resources, a permissive regulatory environment, and a skilled workforce. This should include, for instance, access to training data and computing power for AI companies. It should also include regulations that allow U.S. tech companies to form the consolidations and tie-ups necessary to compete with Beijing's scale. And it should focus incentives on today's real, determinative competition: technological applications.

The United States is dangerously unaware of the state of the tech competition with China — and its stakes. We still think we're winning. We do not realize the degree to which our orientation fuels our competitor. And we certainly don't realize what will happen if we lose.
But there is a positive story too: Whether we recognize it or not, we are all too used to seeing our core characteristics turned against us; to playing a game that asymmetrically benefits our adversary. We have not internalized the *opportunity* at hand if we start playing a different game. America has the chance to reclaim our core strengths and reset the playing field. America's market can serve American interests — if we protect it from China. American innovation can fuel us, not our adversary, if it is directed toward the actual competitive arena. And our agility as a country can throw the centralized, slow, and deliberate PRC on its heels — if we take the initiative. But all of this must happen now.