Statement before the

Senate Committee on Small Business & Entrepreneurship

"Innovation in the Crosshairs: Countering China's Industrial Espionage"

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Chair Ernst, Ranking Member Markey, distinguished Members of the Committee, my name is Sujai Shivakumar, and I am honored to share my views with you on this important topic concerning our nation's innovation strategy. I am a Senior Fellow at the Center for Strategic and International Studies, where I direct the program on Renewing American Innovation. CSIS is a bipartisan, nonprofit policy research organization dedicated to advancing practical ideas to address the world's challenges, with a core mission to define the future of national security. The program on Renewing American Innovation focuses on revitalizing the U.S. innovation system to enhance economic competitiveness and strengthen national security in today's challenging global environment. Please note that CSIS does not take institutional policy positions, so the views represented in this testimony are my own.

Thank you for the opportunity to testify today on why investment in and capacity of U.S. research and development (R&D) is crucial to build our economic competitiveness, global technological leadership, and national security. Universities, federal agencies, and the Small Business Innovation Research (SBIR) program all play vital and successful roles in that equation, enabling our R&D enterprise to grow new, strong clusters in the communities that need them most.

A key point, which I hope can be recognized on a bipartisan basis, is that U.S. innovation—and, by extension, our competitiveness and national security—depends on sustained, substantial support to our federal R&D agencies and research institutions and our ability to convert the results of this research into products that meet the needs of the American people.

While the United States is an innovation powerhouse that produces more intellectual property (IP) through our research universities and corporations than any other country in the world,[1] that edge is shrinking. In the past, there were few places where inventions could be developed and rapidly commercialized. That has changed. The current world economy is multipolar—others can quickly grab U.S. ideas and run with them[2]

Think of our innovation system as a set of interlocking gears. They have to work together. We can't block one of the gears and expect the same outcomes. We can't ask universities and small businesses to be able to expand due diligence while at the same time receiving dramatically fewer resources.[3] It will be hard for agencies to add new functions while their staff are undergoing significant reductions.

[1] Chris Borges, "Innovation Lightbulb: The U.S. IP Trade Surplus," CSIS, May 12, 2025, https://www.csis.org/analysis/innovation-lightbulb-us-ip-trade-surplus; Alexander Kersten and Chris Borges, "The United States' Trade Surplus in Intellectual Property Is a Strategic Asset," CSIS, June 25, 2025.
[2] Sujai Shivakumar, Charles Wessner, and Thomas Howell, Investing in Science and Technology (Washington, DC: CSIS, June 2024), https://www.csis.org/analysis/investing-science-and-technology.
[3] The President's FY26 budget proposal, released in May, requests a 22 percent cut to federal R&D funding, including a 36 percent decrease to non-defense R&D funding. The National Science Foundation (NSF) faces the steepest cuts at 56 percent, followed by the National Institutes of Health at 43 percent. Chris Borges, "Innovation Lightbulb: Visualizing Proposed Cuts to Federal R&D Funding," CSIS, July 17, 2025, https://www.csis.org/analysis/innovation-lightbulb-visualizing-proposed-cuts-federal-rd-funding.

Already, we are seeing warning signs, like universities cutting back PhD admissions and freezing research hiring.[4] Meanwhile, other countries are rapidly moving to poach U.S. talent by luring the country's best minds with offers of stable positions and serious funding.[5] And China's intensifying investment in new technologies, backed by aggressive trade policies, pose a generational challenge to the United States.[6] These majeures pose long-term risks to our global standing in innovation.

U.S. innovation leadership depends critically on our country's ability to invest in research, make new discoveries, and then bring them to market at competitive cost. When promising technologies aren't developed or can't reach scale because commercialization tools are underfunded, others will seize the opportunity.

In short, the investment and now qualitative challenge from China mean that we must reinforce key elements of our innovation ecosystem. To maintain our competitive leadership and national security, we must surge investment into our domestic R&D technology, including scale-up, workforce development, and advanced manufacturing, and ensure that the results of that research advantages U.S. security and everyday Americans.

My second key point is to affirm that the SBIR program is a proven national security asset that we must continue to strategically support and expand.

As someone who has directed multiple independent assessments of SBIR at the National Academies of Sciences and Engineering, I can affirm that the program is sound in concept and effective in practice. It is a low-profile but highly effective tool with an exceptional track record.[7] Around 70,000 patents and 700 public companies can trace their origins to SBIR-funded projects.[8] An independent study found that, across the entire U.S. economy, around 25 percent of *R&D Magazine*'s prestigious R&D 100 Awards in recent years went to SBIR-nurtured firms."[9]

SBIR has catalyzed the success of companies like Qualcomm, which have transformed our daily communications, and today continues to support breakthrough technologies including drones, next-generation reconnaissance, and missile propellants. In a time of intensifying technological competition, SBIR awards contribute directly to our economic growth, technological leadership, and defense capabilities.

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[4] Deon Hampton, "Universities impose hiring freezes in face of uncertainty over federal funding," *NBC News*, March 10, 2025, https://www.nbcnews.com/news/us-news/universities-impose-hiring-freezes-face-uncertainty-federal-funding-rcna195697.

[5] Isobel Hamilton, "The poaching of American talent begins," *Politico*, April 28, 2025, https://www.politico.com/newsletters/digital-future-daily/2025/04/28/the-poaching-of-american-talent-begins-00313162.

[6] Sujai Shivakumar, Charles Wessner, and Thomas Howell, Investing in Science and Technology (Washington, DC: CSIS, June 2024), https://www.csis.org/analysis/investing-science-and-technology.

[7] Charles Wessner and Sujai Shivakumar, *Renew SBIR, Just Defend the Recipients Against China*, (Washington, DC: CSIS, September 2022), https://www.csis.org/analysis/renew-sbir-just-defend-recipients-against-china.

[8] Robert O'Shaughnessy, "Why Congress Should Reauthorize, Strengthen the SBIR Program," Federal News Network, April 18, 2022. https://federalnewsnetwork.com/commentary/2022/04/why-congress-should-reauthorize-strengthen-the-sbir-program/.

[9] Jay Lloyd, "Design Principles for American Industrial Policy," Issues in Science and Technology, April 26, 2021, https://issues.org/design-principles-american-industrial-policy-schrank/.

A highly effective partnership: SBIR is one of the most important and effective public-private partnerships in the country. Reflecting its success, it is currently one of the most emulated and extensively studied government R&D programs in the world.[10] It enables start-ups and small businesses to bridge the "Valley of Death," the gap between research or proof of concept and commercial production while allowing agencies like the Department of Defense (DOD) to procure cutting-edge innovations far faster than conventional Pentagon acquisition programs.

Like any ambitious endeavor, SBIR is not flawless. Not every idea succeeds if funded. But the program's value lies in its high-risk, high-reward nature. Think of it like basketball: you won't make every shot, but if you want to win the game you have to keep shooting. At its most modest, SBIR yields incremental improvements in mission-critical areas like defense, health, and energy. At its best, it shapes entire industries. When SBIR works, it can help transform whole sectors.

Our adversaries and competitors have recognized the value of the SBIR program for its proven outcomes and the technological leadership it has helped secure. The Department of Defense's 2021 internal report documenting efforts by state-sponsored Chinese firms targeting DOD SBIR companies merits serious attention. But let's be clear: if a competitor is stealing your playbook, it's probably because your playbook works.

To be sure, steps should be taken to defend small companies against cyberattacks and foreign efforts to acquire ownership or steal technology. SBIR supports small businesses that often lack the tools to protect themselves from espionage. These are firms without in-house counsel, threat intelligence, or cybersecurity teams. We cannot just focus on oversight but instead should provide active support for cybersecurity awareness and defense. In other words, our response should not be to shut down or weaken this successful program but to fortify it.

For SBIR to work, it needs to be stable and substantial yet flexible.

a) A strong program cannot thrive in a climate of fiscal and legislative uncertainty. Given SBIR's importance, we cannot subject it to whiplash in the budget process every few years. Without predictable funding and a stable policy environment, the program risks eroding trust and losing the very entrepreneurs it seeks to help.

b) We must also avoid overregulation. Some proposed reforms risk violating the dictum that "if it isn't broken, don't fix it." While in principle it is understandable to want to solicit more first-time applicants rather than deliver multiple awards to the same firm, in fact both those objectives can be met, with both new firms and proven firms receiving support. But more fundamentally, for a program run by program managers, micro-level legislative requirements are less effective than coordination and encouragement at the program manager level. Rather than legislate, why not first call up the managers and ask them why they are making multiple awards to a particular firm? And are multiple awards for a small company so different from multiple contracts for the big primes or multiple grants for well-performing universities? It is important to reinforce success and recognize the myth that just one award will beget one successful company for what it is.

[10] Gabrielle Athanasia, "RAI Explainer: the Small Business Innovation Research Program," CSIS, July 8, 2022, https://www.csis.org/blogs/perspectives-innovation/rai-explainer-small-business-innovation-research-program.

Furthermore, in sectors like quantum computing and communications, industries that are in the U.S. national security interest to grow, but where the community of capable inventors is relatively small, multiple awards may be a strategic necessity. This makes some companies ideal targets for multiple awards as this strategic industry begins to gain traction. Indeed, if anything, a forthcoming CSIS study suggests SBIR managers are underinvesting in quantum startups and early-stage companies.[11]

c) We need to strengthen and encourage the transition to commercialization. SBIR helps companies cross the Valley of Death in phase one and two, but in many cases, that bridge ends halfway. There are different paths to add an additional arch. Options include adding an active, agency-financed Phase III followed by a Phase IV, particularly for agencies without a procurement function, or drawing from the NSF model's Phase IIB which matches private capital investments up to a limit to encourage a smoother handoff to the private sector.

Most importantly, the SBIR program needs to be embedded in a strong innovation ecosystem. To truly protect and leverage SBIR technologies and their national security benefits, we must surge investment into domestic technology ecosystems and absorptive capacity, including scale-up, workforce development, and advanced manufacturing.[12] To stay ahead, we must not only double down on our R&D investments but also reinforce programs that enable our firms to commercialize these new technologies. SBIR plays a unique and vital role in that equation, enabling the contributions of our research enterprise to grow security-enhancing technologies, as well as clusters for new technologies around the communities that need them most. It is also noteworthy that given how SBIR programs are funded, current plans to significantly cut agency R&D budgets necessarily mean cuts to the SBIR budget, limiting the program's ability to capitalize on previous national investments in R&D.

In conclusion, **innovation without commercialization is a lost opportunity, and, in a world of accelerating competition, a potential gift to our adversaries**. SBIR works. But it must be buttressed with cybersecurity support, flexible follow-on funding to facilitate commercialization, and programmatic stability. Most importantly, it must remain embedded within a **strong innovation ecosystem—one that is supported by sustained and substantial investment in our federal R&D agencies and research institutions**. Let us not forget: the future is not waiting. We have the ideas; let's reinforce and keep building.

Thank you, and I look forward to your questions.

[11] Forthcoming research at CSIS found that from 2015 through 2023, DOE, NASA, HHS, NSF, and Commerce awarded just 4.5, 2.6, 0.7, 1.6, and 1.9 percent of their total SBIR grant funds to quantum-related projects, respectively. 362 companies received SBIR 862 awards, an average of 2.4 per firm; five firms, representing fewer than 1 percent of the total, received 96 (11.1 percent) of the awards.

[12] Sujai Shivakumar and Julie Heng, "Renewing the United States' Skilled Technical Workforce," CSIS, July 9, 2025, https://www.csis.org/analysis/renewing-united-states-skilled-technical-workforce; Sujai Shivakumar, *Priming the Innovation System: A New Age of U.S. Industrial Policy*, (Washington, DC: CSIS, September 2023), https://www.csis.org/analysis/priming-innovation-system.