NEW ENGLAND INNOVATION ALLIANCE
20 NEW ENGLAND BUSINESS CENTER, ANDOVER, MA 01810

Hearing of the Senate Small Business and Entrepreneurship Committee

"The Golden Age of American Innovation: Reforming SBIR-STTR for the 21st Century"

March 5,2025

Thank you Chair Ernst, Ranking Member Markey, and Members of the Senate Committee on Small Business and Entrepreneurship for holding this hearing. As Congress and this Committee begin the process of reauthorizing the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs, which are set to expire at the end of September, we are pleased to share some insights based on our firsthand experience with these programs that provide enormous benefits to U.S. small businesses and the federal government.

The New England Innovation Alliance (NEIA) is a coalition of small, disruptive innovation businesses located in Massachusetts and New Hampshire. Our states are fortunate to have many excellent universities. Graduates from those universities have diverse skillsets. Multiple small companies have formed in our area to take advantage of that source of brilliant, new-technology innovators. Our NEIA meetings bring leaders of those companies, who are otherwise competitors, together in informal gatherings to discuss topics of mutual interest, concerns, and best practices such as security, hiring, and changing government regulations. This information-sharing benefits each company, provides mentoring for newer, less-experienced businesses, and helps each optimize priorities, practices and investments that provide long term benefit to their company and the U.S. government.

Our local universities, recognized as national and international leaders, provide skilled new scientists and engineers, but to be successful small businesses must focus their innovative ideas on solving the critical needs of customers. NEIA mentorship helps to train businesses to construct a development program that stepwise demonstrates feasibility and viability by using objectives and tasks to set milestone goals throughout the SBIR and STTR Phase I and Phase II programs. This approach results in successful programs that demonstrate a high technology readiness at the end of Phase II and the basis for conversion to Phase III technology demonstrations and transition.

Our companies learn of the customer need/technology application by reading agency Strategic Plans, attending agency Briefings for Industry and SBIR topic briefings, and by speaking with the Topic author during open discussion periods.

NEIA members are not typically single-technology companies on a linear venture-capital driven trajectory. They focus on innovating technologies that federal agencies, like the U.S. Department of Defense (DoD) and its service branches, need to meet critical mission objectives, for which no other stakeholders are positioned to deliver. These companies then seek to mature multiple, and often complementary, technology platforms across diverse fields.
NEIA member companies employ a range of approaches to bring SBIR-funded technology to the market, employing the best approach to reach commercial and government customers. In many instances, numerous SBIR awards, across multiple agencies, are needed to develop a technology platform. Technology development remains an uncertain process that involves risk-taking; success is accomplished in years, not months.

The SBIR/STTR programs only recently acquired the venture capital motivated slogan "America's Seed Fund." The legislation's founding intent had four objectives:

1. "Stimulate technological innovation,"
2. "**Use small business to meet Federal research and development needs,"**
3. "Increase private sector commercialization of innovations derived from Federal research and development," and
4. "Foster and encourage the participation of socially and economically disadvantaged small business concerns and women-owned small business concerns in technological innovation."

The second goal (with emphasis added) is to develop technology that enables the US government to fulfill its mission to keep America the world leader.

In some cases, commercialization of SBIR-funded technology can actually yield adverse consequences. Many of the products commercialized through SBIR funding are on the open markets, available to adversaries around the world. Our adversaries are then able to reverse engineer the product and manufacture their own version within years. Many companies deemphasize patenting technology to limit that technology transfer. An example of commercial technology transfer from one of our member companies is a standoff optical methane detector for natural gas surveys – making homes safe. Within two years of its release, less-expensive Chinese versions were on the market. These foreign products are cheaper because there is less development cost.

China's 100-year plan is to achieve global hegemony by 2049. They are already near-peers in many technologies. Clearly, certain technologies are needed to maintain a US strategic advantage and not be commercially available. It is not a goal of the SBIR program to enable placing these advanced technologies in the hands of our adversaries.

SBIR topics are also not exclusively about heroic entrepreneurs building a large new spacecraft, aircraft, or ship. They are much more often about creating significant innovative improvements to component

capabilities that maintain the technological dominance of those platforms, or reducing the cost of sustaining those platform. Those markets for commercialization are small, take a long time for innovative technology to be evaluated, certified and adopted. The commercial methane detector mentioned above took three years to get to the market. Military technology can take a decade. And the U.S. government expects the best price, so the profit is low.

As a result, few of these technologies, by themselves, scale into a large commercial enterprise. In most cases SBIR funding is used to initially develop and then de-risk the technology to a level of maturity suitable for commercial adoption or insertion into a much larger and higher value military or homeland security platform.

NEIA member companies function as bridges from university concepts, then under SBIR and STTR funding reduce-to-practice and demonstrate the technology. Our companies then provide the important further bridge to prime contractors in aerospace or industrial partners in the commercial world. Our member companies' successes in transitioning technologies across the Valley of Technology Death, is from our focus on transition to the customer from the first proposal creation.

It was suggested in recent Senate testimony that SBIR technology insertion via sales to a prime contractor for platform integration should not be counted as successful commercialization, regardless of the benefit to the taxpayer. That flawed approach devalues an important role played by small businesses and would leave a handful of large and risk-averse defense companies as the exclusive agents of defense modernization.

It was also asserted in Senate testimony that innovative companies with SBIR-funding can, and only should, do one thing well at a time. That they are not capable or concurrently transitioning technologies in multiple fields. This view is a disservice to the thousands of US small companies that do this every day. It is a myopic view of how business operates, skewed by the need for venture funded enterprises to rapidly deliver high returns to their investors.

Transition is a complex and difficult activity and benefits from experience. small businesses seeking to meet these needs or insert their technology to meet problems of significance need to address a broad range of issues:

- Navigating the transition from Technology Development to Product Engineering to Manufacturing,
- Addressing the skills and priorities of multiple organizations including universities, other small businesses, Science and Technology (S&T) funding organizations, prime contractors, and/or government and commercial end users.

- Developing the certified manufacturing processes, quality systems, information technology, and classified program capabilities necessary to be viewed as a reliable component technology supplier to higher value platforms.
- Investing in a broad range of special facilities, equipment, certifications, and training to address multiple low volume markets that reach full market potential over a decade or longer.

We thank Chair Ernst, and others, for contributing language in the 2022 Reauthorization that increase security oversight to address SBIR technology theft by foreign adversaries. The current Congress appears to be increasing scrutiny of this Chinese threat.

New companies, with staff fresh from universities and with limited funding, do not have the resources to train employees in security procedures and develop information systems well protected against cyber-attacks. They need additional development funds and are thus vulnerable to foreign influence. The Navy study on SBIR technology stolen by foreign entities were almost entirely from very small companies. This is a reality, and a risk factor, that could be exacerbated during the upcoming reauthorization process

Experienced SBIR companies – including many NEIA members – have put in place the procedures and training systems to protect their technology. They have developed processes and certifications to be considered viable suppliers of technology to prime contractors. Our company and others have invested significant capital to create facilities and systems to support our Defense Industrial Base.

It takes time and resources to create this capability. As mentioned above, few of these SBIR developed hardware systems would support the necessary infrastructure for a viable company. Diversified technology companies have many technology platforms sharing resources. And their staff are continually applying their innovative ideas to address the next government need. These innovators include women and minority technologists and owners who are committed to providing solutions to problems of national defense and security even though it is an arduous process - because of its vital importance.

The SBIR program is de facto the only early-stage R&D funding available to small businesses. Agency budgets are tight and devoted to operating and sustaining ongoing programs, leaving no funds for technology upgrades and improvements. Forcing companies such as ours out of the SBIR program eliminates this source of technology investment and ultimately weakens the nation's industrial base.

There have been suggestions that the SBIR and STTR programs should behave as pure venture capital funds, supporting companies on a single-technology linear path to a commercially successful outcome with time-limited funding and a mandate to "graduate" from the program. We strongly disagree. That singular intent of the program was not enshrined in its 1982 creation or subsequent execution. It would not serve the needs of the mission agencies of the US government that provide the largest segment of funding for the program. NEIA opposes any reauthorization proposal that would convert the SBIR

program into “corporate welfare” for established, well-funded, VC-backed companies that will exploit the program for “free” taxpayer money to leverage VC investments.

It is important to understand the different objectives of venture capital and mission agency technology investment. Venture capital invests to obtain the largest possible monetary return, at the highest possible margin, in the shortest time. Mission agencies invest to obtain a capability return, not available commercially and superior to our adversaries, at the lowest possible margin, on timescales consistent with platforms that take over a decade to develop, and often at market sizes that are not attractive for commercial investment.

This contrast, and its consequence, was identified in the 2019 Council on Foreign Relations – Independent Task Force 77 report entitled “Innovation and National Security: Keeping Our Edge.” [1] That task force was co-chaired by Admiral William McRaven, the retired commander of the US Special Forces Command and former Chancellor of the University of Texas system. The report identified a shift in venture capital investment in software vs hardware from a 55%/45% split in 2006 to a 92%/8% split in 2017. Others have noted that this strategy focusses almost 70% of all venture funding into narrow technology ecosystems in three coastal states.

The report offered the following explanations for this disinvestment in hardware: “Companies built around hardware face high risk in terms of technology development and high costs associated with building research facilities, attracting scientific expertise, and manufacturing.” Furthermore: “Given the smaller risks of investing in software, VC firms funnel the vast majority of their investments to software, resulting in a funding gap for hardware.” It noted that “Weapons platforms that involve large numbers of warfighters in the loop, such as airplanes, submarines, and ships, will always demand longer development times, exceptional performance, and steady oversight” and “not everything, of course, can fail fast.”

To improve their own economic success, the venture-only advocates have stated that SBIR funding should only go to technologies that can “scale” to commercial as well as mission agency applications. This approach would severely limit the ability of the program to invest in those specialized capabilities that do not meet this scaling criteria. Furthermore, this approach tends to “commoditize” our capabilities to a level of commercial performance that is more easily copied and hence readily available to our adversaries. The suspicion that the Chinese Large Language Model *DeepSeek* is built on Open AI’s *ChatGPT* is only the latest example of this form of technology transfer.

Arbitrarily limiting the ability of capable small businesses to contribute to future US production capability, based what is effectively a software-centric technology funding doctrine, portends a commodity-equipped US military going up against an industrial peer with four times our population.

SBIR Reauthorization

A recurrent theme in the hearings surrounding the reauthorization of the SBIR/STTR programs is the difficulty small technology firms experience in bringing innovative technology to the needs of the US government. That difficulty is present whether the firms are experienced businesses like ours or a new entrant into the program. A goal during this program reauthorization should be to reduce barriers to entry and broaden, not restrict, participation in the program. The task of "Reforming SBIR-STTR for the 21st Century" should reinforce several principles:

Merit-based Awards - Congress should maintain the competitive, merit-based fundamentals of the program to ensure the best technology is developed to keep America as the world leader. The GAO review of the program showed that Multiple Award Winners were effective in meeting their 4.5X increase in performance metrics and that there were no "SBIR Mills" crowding out other small businesses by any accepted measure of market concentration. There should be no arbitrary award caps, submission limits, or forced graduation from programs. The ability of most multi-award winners to meet the enhanced participation metrics included in the 2022 legislation that reauthorized SBIR/STTR programs indicates the intent of the program is being exceeded. These metrics have been in place for a much shorter time than the typical commercial (5-7 years) and defense (10-15 years) technology insertion times and should be assessed over these longer time scales rather than yet again moving the bar with this reauthorization.

Application Simplification – The largest barrier to participation in the program for new entrants is the increased administrative burden and complexity of proposal submission. Safeguards to address foreign influence and technology transfer, however necessary, have further increased that barrier. A myriad of proposal formats and solicitations, changes in how proposed program staffing is reported, and the impact on small businesses of recent mid-program changes in the allowability of administrative and facility costs, have made it difficult for even the most sophisticated organizations to participate in the program. Data has shown that per capita proposal submission rates from underserved regions of the country are some of the lowest in the program, reflecting those administrative barriers. With that said, Congress must ensure that any efforts to spur greater participation include appropriate guardrails to ensure FAR or DFAR compliance and mitigate the possibility of rampant fraud and abuse. And perhaps most important, so that new entrants to the SBIR program are not ripe for exploitation by foreign elements.

Improved Communication – Agencies should be required to improve the communication of their needs and opportunities to small businesses across all topic types. Open topics provide a way to make topic managers aware of potential technology solutions, but their lack of specificity can deprive companies of the ability to tailor their proposals to meet specific needs that might improve their potential for award and ultimate technology transition.

Agency Discretion - Agencies should have discretion to shape the program and define merit consistent with their missions. The GAO recently found that multi-award winners are regularly selected to research and develop technologies that meet specific agency or warfighter needs without wider applications. Multiple Award Winners should not be penalized for those agencies' lower rate of adoption and commercialization potential. The ability of a small business to submit proposals should not be unreasonably restricted to effectively limit competition or to inhibit the federal government's ability to secure the very best technology it wants/needs.

Permanent Authorization – Companies make investments based on an assessment of their ability to grow and recover that investment. The GAO report identified investments in dedicated testing, training, contracting, IT, and business processes as key to receiving awards from the DoD. Commercialization of technologies requires investment in capital equipment and facilities, with long depreciation times, to be viewed as dependable suppliers for our national industrial base. Program permanency reduces the perception that those investments will be stranded at the next reauthorization without limiting the ability of Congress to make further adjustments to the program.

Citation

[1] James Manyika and William H. McRaven, Chairs, Adam Segal, Project Director, "Innovation and National Security: Keeping Our Edge," Report of the Council of Foreign Relations Independent Task Force 77, September 2019 (https://www.cfr.org/report/keeping-our-edge/)