

Written Testimony:

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

Before the

U.S. Senate Committee on Small Business and Entrepreneurship

March 05, 2025

Chair Ernst, Ranking Member Markey, and distinguished members of the committee, thank you for the opportunity to appear before you to discuss the Small Business Innovation Research (“SBIR”) and Small Business Technology Transfer (“STTR”) programs.

My name is Caleb Carr, and I am the CEO of Vita Inclinata Technologies (“Vita”), headquartered in Broomfield, Colorado. I also serve as a board member of the Software in Defense Coalition and am a professor of entrepreneurship at the University of Colorado. I am honored to testify before you on the essential nature of the SBIR program, a cornerstone of small business innovation in the United States.

For over forty years, the SBIR and STTR programs have been the federal government’s flagship vehicles to harness promising companies’ unique agility for product, value, and job creation. From industry giants like Qualcomm, to small but mighty startups like Vita Inclinata, growing businesses have leveraged “America’s Seed Fund” to develop groundbreaking technologies, bridging the gap between early-stage research and commercialization, and ultimately creating jobs and economic value in the process.

A Valley of Death Story

Vita Inclinata was not founded with a traditional business model in mind; it was born out of a personal tragedy and a desperate need for innovation. Over a decade ago, I witnessed a close friend suffer cardiac arrest during a search and rescue mission. A rescue helicopter arrived, but due to uncontrollable swinging of the rescue basket caused by rotor wash and winds that night, the crew was unable to complete the hoist mission. After repeated failed attempts, the helicopter crew called off the mission. We had no choice but to declare his time of death.

That moment solidified my commitment to finding a better solution for suspended load stabilization that wasn’t the current practice – a rope. However, as with any hardware innovation, developing a viable product required significant capital. Time and again, Vita was rejected by investors who saw the barriers to entry in government procurement as insurmountable. The irony is that while the U.S. government is often seen as a highly desirable customer due to its purchasing power and contract stability, early-stage investors recognize the difficulty of breaking into federal markets, leading to significant hesitation in funding companies like ours.¹

Eventually someone, or in this case, something took a risk on us – the SBIR program. In late 2018, Vita won one of the first open topic SBIR contract from AFWERX. The initial Phase 1

¹ This is not inclusive of investment funds which are supported by the DoD trusted capital environment as these funds are more prone to understanding the US government processes. More information can be found here: <https://www.defense.gov/News/Releases/Release/Article/2470485/department-of-defense-announces-establishment-of-the-trusted-capital-digital-ma/>

award of \$75,000 gave us the jolt that we needed to take the risk of leaving our day jobs, hiring a team, and building a solution that wasn't just a research project but that was something tangible. This initial success paved the way for the company to go on and win an MD5 SBIR (now NSIN) and two Phase 2 SBIR contracts to complete the capability.

Eventually, that capability turned into a product known as the Vita Rescue System ("VRS"). A system that uses thrust to control a suspended load under a helicopter, simply put – a solution which would have saved my friend over a decade ago. The product went through rigorous Army testing equivalent to that of aircraft components and is now ready to execute its mission for the US Government, only slowed down by the length of time that it has taken to get an SBIR Phase 3 transition contract in place. By the end of the year, Vita is on track to receive a Phase 3 \$50M IDIQ to execute on this mission and take this capability to the fleet of US Army aircraft.

The contracting process has taken almost as long, if not longer, than the airworthiness process, and forced the company to get creative with military customers. We leveraged the Defense Logistics Agency ("DLA") to get the VRS into the hands of the warfighter faster than the contracting processes would normally allow. As a result of the company's and the government's willingness to be flexible, the capability is now in the hands of the entire Air National Guard, Air Force Reserves, and numerous Army units. Outside of the Department of Defense, the VRS is now deployed to the battlefield of Ukraine, CALFIRE's firefighting helicopters that recently were recently used in the Palisade and Eaton fires, and the UAE Coast Guard, among others.

Through the SBIR program and the initial investment that it made, Vita successfully navigated the Valley of Death, deployed solutions to our nation's war fighters, facilitated deep military and humanitarian international relationships, and moved closer to ensuring that we bring everyone home, every time.

The SBIR Program is an Investment Program

The SBIR program is not a research grant, it is an investment program. As "America's Seed Fund,"² its purpose is to jumpstart innovation, validate market potential, and accelerate commercialization. Unfortunately, some entities known as "SBIR Mills" exploit the system by securing a significant number of SBIR awards without ever transitioning technologies to market. This practice diverts funding away from companies that could benefit from the program's intended purpose.

To establish a real technology and a real solution, you must conduct Research and Development ("R&D"). That research should focus on the market, the use case, the technology solution itself,

² **U.S. Small Business Administration.** (n.d.). *Small Business Innovation Research (SBIR) program.* SBIR.gov., from <https://www.sbir.gov>

the unique value proposition it provides. However, the technology is but one part of the equation. It is critical that companies leverage their tools to complete R&D of all the other pillars of the technology simultaneously. If you do not, how can one successfully transition the technology into something meaningful and useful for the end user – in this case, the US Government?

At the end of the day, the SBIR program is meant to be a seed stage investor to encourage parties to innovate and create. It is not meant to be an R&D slush fund that allows for companies to survive off the income from the SBIR program due to their ability to win small proposals. Is that really what we want American businesses to become? People who just complete R&D contracts which don't turn into a tangible solution?

I ask these questions because the outcome matters. If Vita would have solely lived off our SBIRs, we would not be what we are today. Vita would be less than 20 people instead of the nearly 100 people we are now, taking a drip of SBIR funding in exchange for ideas sitting on dusty shelves; ideas that do not benefit the market or the government. Because Vita took the SBIR capability commercial, we were able to raise over \$70,000,000 in capital, hire nearly 100 staff, and pursue the global market in addition to the US government. Isn't this what the SBIR program is meant to create? Isn't that what a seed fund is meant to do?

The SBIR Program is a Tool - not a Means to an End

Like many government programs, SBIR is one of many tools in the vast tool chest for executing development and, eventually, sales within the US Government. It goes without saying that the US government can be a challenging customer. However, SBIR is uniquely positioned to enable companies to excel when partnering with the US government.

When Vita first submitted for our Phase 1, the requirement was a 3-page white paper on the idea. Without this ease of submission, Vita would have never been able to submit for the Phase 1 which made Vita what it is today. This ease was due to the following:

- **Resource Constraints** - Everyone had day jobs, including myself. We simply couldn't dedicate 40+ hours a week to a proposal for the US Government.
- **Proposal Simplicity** - As an idea, it is just that – an idea. There is nothing tangible yet. A simple proposal focused on the future vs. on the past, enabling the company to dream and dream big, forcing the company to sell that idea to the SBIR team evaluating the possibility of the solution.
- **Unknown Unknowns** - The SBIR program, while structured and effective, often focuses on predefined problems and solutions. This approach can overlook groundbreaking ideas

that address unrecognized issues or offer novel solutions to existing challenges.³ How does that bring new solutions to the forefront that no one thought about before? For instance, Vita's innovation in stabilizing suspended helicopter loads was initially met with skepticism, as the industry standard was a simple rope. No one had considered a technological solution because it wasn't perceived as a solvable problem.

Collectively, these tools were only possible because of the SBIR program. I am aware of no other program in the US Government that allows for simplicity but also allows for people to propose some of the most radical solutions to solve problems that no one knew that they had.

The Opportunity to Ideate and Innovate the SBIR Program

The upcoming SBIR reauthorization offers the opportunity to harness what small businesses do every day - ideate and innovate for the future. Through this reauthorization, we can create real improvements that can break down barriers and serve as even stronger catalysts to nurture ideas and grow them into viable products delivered by vibrant and disruptive companies. Ultimately,

³ An active SBIR solicitation, SOCOM254-D002, requires the following:

The capability to provide oxygen therapy and generation far-forward will incorporate a design that is both durable and small-scale so that it is both portable and able to withstand travel and ground movement while simultaneously providing the necessary oxygen concentration to an adult patient and is able to generate oxygen by separating it from other gases in the atmosphere. As a part of this feasibility study, the proposers shall address the design options with specifications on the key equipment attributes:

- Able to generate and provide oxygen purity of 93% +/- 3%.
- Able to provide 15 liters per minute and capable of supporting multiple patients.
- Device must meet MIL-STD-810H and Environmental – Joint Enroute Care Equipment Test Standards.
- Device must be dual voltage with battery pack capability; capable of running off “shore” power.
- Battery has a run-time of 6 hours.
- Battery charging is compatible with universal USB-C; compatible with external AC/DC (110/240 VAC/12-24 VDC).
- Batteries are swappable without device losing memory or settings; must not require use of hold up battery.
- Battery recharge time is <35 minutes.
- Device has a replace sieve bend and replaceable / cleanable filter(s).
- Device must be able to fit within a standard “D” size oxygen cylinder mount (4.5” diameter x 20” length).
- Device is compatible with standard connectors.
- Device must have a tactical setting that allows audible alarms to be completely disabled or reduced to a level acceptable by the FDA.
- Device must have a tactical setting that changes all light sources or visual screens to the lowest level acceptable by the FDA.
- Device must weight < 5 lbs.
- Device is easily transportable by a single person.

the best SBIR model will incentivize small business participation, boost competition for awards, reduce undue bureaucratic process and contracting burdens, and employ mechanisms to help worthwhile awardees transition from start-up to viable and self-sufficient companies.

The intent and practice should be for every awardee to transition. The SBIR program is not and cannot be viewed as “corporate welfare,” where applicants compete for dollars that go into an R&D “black hole.” The newly reauthorized SBIR program should include a system that identifies the most promising technologies and has the necessary controls to ensure any government dollar invested is working toward this end – a real transition based on successful products brought to market, jobs created, procurement contracts secured, and captured revenues reinvested in a business’ long-term growth. As such, I recommend the following:

1. Simplify and streamline the application and administrative processes by providing tools to submit simple applications that have quick response turn arounds and facilitate more entrants into the market.
2. Install measures that prioritize successful product commercialization over research alone. Whether it’s including a mandate for program executives to account for Phase III funding in the PPBE (Planning, Programming, Budgeting, and Execution) process or simply conducting more oversight to ensure decision-makers and Commercial Technology Pipeline (CTP) partners are communicating and equipped to match available funding with the best technologies, methods to helping the right companies bridge the Valley of Death and achieve commercialization are necessary.
3. Default to Firm Fixed Price contract vehicles, with other options for contract vehicles remaining available to meet specific needs of different products enabling small businesses to be nimble and flexible as they work to get off the ground in the early days of the company.
4. Eliminate “SBIR Mills” by capping award and funding opportunities bringing back the SBIR program to what it is meant to be – a seed investment fund to create value not items that sit on a shelf.

Building on the myriad successes of the SBIR program, while incorporating lessons learned over time, we have an opportunity to refine and modernize the system—reducing administrative burdens, enhancing commercialization pathways, and expanding access to diverse and emerging innovators. By addressing these challenges now, we can ensure the SBIR program continues to drive technological leadership and economic prosperity for generations to come.

Thank you for the opportunity to testify before you today and for all you do to enable small business success. I look forward to answering your questions and working with this committee and our stakeholders to strengthen the SBIR program for the future.