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Small Business Engineering Resource: Breaking the SBIR-Mill Business Model and Creating Big Companies From Small Ones

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Small Business Engineering Resource: Breaking the SBIR-Mill Business Model and Creating Big Companies from Small Ones

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Abstract

The Small Business Innovation Research (SBIR) program funds important applied research that often fails to transition into fielded military capability. Recent congressional activity highlights continued frustration with this gap (Ernst, 2026). This paper argues that pending SBIR reauthorization (as of this writing) does not address the root cause: Topics, statutory funding caps, and governance remain misaligned with acquisition pathways and current acquisition transformation efforts (Bresler, 2023; Department of Defense, 2025). We redefine the pervasive "SBIR-mill" outcome not as a moral failing of firms, but as a predictable result of government-created incentives that prioritize recurring research over production at scale, inhibit acquisition success, and prevent graduation from the program (Bryant, 2025).

To rectify this, we propose recasting SBIR as the Small Business Engineering Resource (SBER): a program oriented toward engineering execution, qualification, and integration so solutions are mature enough for adoption and scaling. This is not a cosmetic rebrand; it is a shift from early-stage R&D toward deliverables that are programmatically and financially embedded in Programs of Record, so transition is planned and funded from the start.

We outline a research design to evaluate two measurable transition outcomes: (a) integration into a Program of Record under a prime contractor or (b) displacement of an incumbent supplier enabled by open interfaces and competed technology insertion. We derive testable hypotheses and a data plan using federal acquisition data, with policy levers including fewer, larger awards (e.g., >$20 million), topics tied to Program of Record requirements with accountable PM sponsorship, and budgeting aligned to PPBE with explicit funds for integration, test, qualification, delivery, and iterative improvement.

The Structural Inadequacy of the SBIR Program for Scaling Capability

The Persistent Challenge of the "Valley of Death" in Defense Acquisition

The SBIR program was established with a dual mandate: stimulate innovation among small businesses and ensure resulting technologies transition into federal acquisition programs (S. 881, 1982). While the program succeeds at funding early-stage R&D, it repeatedly fails at

transition and firm growth in defense—often described as the “Valley of Death” (Bresler, 2023). That transition failure is a structural deficiency in the current acquisition model and supporting legislation.

SBIR Phase I–II efforts typically mature technologies to roughly TRL 4–6, but fielding requires “productionization,” qualification, test, systems engineering, and integration into existing platforms. Those activities are necessary for TRL 7–9 outcomes yet are largely unsupported by SBIR’s typical funding levels and timelines, leaving small firms without a credible path to sell into Programs of Record (PORs) or through primes (Borda, 2025; McNamara, 2025) and are unattractive for possible commercialization outside of the military market.

The Phase II Funding Cliff and Financial Incoherence

The core flaw in the current SBIR structure is the financial incoherence surrounding the transition phases. Statutory caps restrict Phase II awards, which are intended for continued research and prototyping, to approximately $2.1 million over 15–24 months, though waivers can sometimes increase this amount. This ceiling is generally adequate for advanced prototype development (TRL 4–6) but is fundamentally insufficient to fund the necessary qualification, testing, and systems engineering (SE) required to achieve TRL 7–9 readiness for major acquisition programs. The institutional and budgetary context confirms that typical SBIR scope, such as $2 million over three years, rarely transition because they have insufficient maturity to bridge the gap to higher acquisition phases.

These difficulties are exacerbated by PPBE timing and color-of-money constraints. Phase II is usually funded with 6.2/6.3 RDT&E, while the work needed to field capability (advanced development, integration, qualification, and initial production planning) must be funded on different timelines and often from different appropriations. The SBIR assumption that a successful Phase II “ROI event” will trigger timely follow-on funding is inconsistent with PPBE, creating a predictable multi-year gap and reinforcing the Valley of Death (Gallo, 2025).

Institutional Barriers and Program Manager Incentives

The cultural landscape of defense acquisition also contributes significantly to transition failure. Program Managers (PMs) operating large, complex PORs must balance execution risk and avoid immaturity in the delivered product, which may also result in operational risk to the fleet and force. As such, their careers and the success of their programs depend on mitigating schedule slips and technical failures for the validated and funded requirements. Integrating innovative technology from a small, non-traditional vendor is often viewed as creating more difficulty and programmatic burden that introduces challenges to implementation into an already difficult process. Limited Phase II funding, resulting in early prototypes from Phase II efforts exacerbate the concern.

PMs also face weak incentives to absorb integration risk from non-traditional vendors, and major program budget and milestone timelines rarely align to SBIR periods of performance. Any effective SBIR restructuring therefore must treat transition efforts as “mini acquisition programs” with integrated planning, budgeting, and governance—not stand-alone research projects.

A related structural issue is topic creation: Many SBIR topics originate in S&T communities and are not tied to validated, funded POR requirements. When topics are disconnected from scheduled requirements, even a strong technical outcome can be doomed by design because no funded transition path exists.

Defining the "SBIR Mill" Phenomenon: Blaming the Victim and Structural Incentive Failure

Critique of the SBIR program often centers on the existence of firms that perpetually win Phase I and Phase II awards while rarely (or never) transitioning the resulting technology to commercial or defense utility; these are the so-called "SBIR Mills." The conventional analysis frequently characterizes this as a moral failing or inefficiency on the part of the businesses themselves (VanRoo, 2022). We make no attempt here to attack the firms. We assert instead that they are responding to the business environment and incentive structures they must operate in. Deeper analysis reveals the lack of break-out companies that take the SBIR path and ultimately succeed from being coupled to, and subjugated by, the defense industrial ecosystem. This is fundamentally a structural incentive failure set up by the government's legislation and associated policy implementation, not an ethical or competence deficiency among the participating firms.

At the conclusion of Phase II, many firms face no viable funded path to transition. In that environment, firms rationally pursue additional Phase I/II awards to retain specialized staff and remain solvent, reinforcing a cycle of repeated research awards ("the mill") rather than scale-up and production. Structural changes, especially acquisition alignment, funded transition pathways, and enforceable governance—are therefore *required* to replace the mill dynamic with predictable transition.

Policy Effectiveness and Systemic Constraints

Recent legislative proposals to reauthorize SBIR seek to address longstanding concerns regarding commercialization and transition. The new language contained in the pending SBIR Reauthorization Act (S. 3971) introduces several meaningful changes, including: (1) a "strategic breakthrough" Phase II authority of up to $30 million over four years, (2) a requirement for matching funds, (3) a commitment for inclusion in the Program Objective Memorandum (POM) at the Program Executive Office level or higher, and (4) expanded authorities for Phase III and improved data tracking.

These provisions acknowledge the transition problem, but they create a selective pathway rather than restructuring the baseline program.

Past legislative efforts, such as the SBIR and STTR Extension Act of 2022, added transition standards for Multiple Award Winners (MAWs) intended to filter out "mills." Results to date suggest limited practical effect: Only a small number of businesses approach the imposed limits, and few face meaningful consequences (Naval Submarine League, 2012).

These efforts suggest that tighter participation rules alone do not solve the transition problem. Proposals such as the INNOVATE Act (S. 853) emphasize award caps and submission limits but do not fix the structural requirements for transition: aligned topics, appropriate funding, executable contracts, and governance that ties prototypes to acquisition pathways and competition mechanisms (GAO, 2025).

Policy Proposal: SBER and the Dual-Path Transition Mandate

To rectify this deep structural misalignment, we propose the SBIR program be recast as the Small Business Engineering Resource (SBER) Program. This proposal creates a strategic shift in focus from the execution of early-stage R&D project at TRL 4–6 to the execution of advanced development engineering. With a goal of getting capability into the hands of operators/warfighters, we reject the siren-song of driving immature products into the field. This popular, but ineffective notion, ultimately shifts acquisition simplicity into operational risk. These innovations must be built to minimum viable capabilities that include:

- flexibly/modular designs that fluidly accept user feedback into successive development,
- excellence in integration into the target environment,
- sufficient automated testing that ensures the thing will work when called upon at times when lives matter,
- sufficient qualification for use on the battlefield, and
- excellent field training to ensure the user knows what right looks like.

This would take the prototype up through TRL 7–9 to be considered ready for initial deployment to the field. SBER would be designed, funded, and governed in a manner like the Navy's Undersea Warfare 6.3 Advanced Processing/Capability Build (APB/ACB) programs, which has a decades-long track record of using small businesses to deliver innovative yet mature R&D solutions directly into PORs (Guertin & Kaliz, 2005). Small business solutions are executed with sufficient funding and governance to resemble miniature acquisition projects. There is no valley of death in those R&D programs, as the scope of work is important, the viability of the technology solution is known, and the small business, large business and oversight activities plan the process and are funded for success from the beginning.

Structural Mandates for SBER

The shift to SBER necessitates specific structural mandates to ensure that technologies are anchored to real lethality needs from inception:

1. Mandatory Topic Sponsorship: SBER Topics must be approved at a sufficiently senior level—specifically by a responsible/accountable Program Manager (PM) and a Service Chief Warfare Sponsor Resource Officer (RO). This governance change takes the topic creation and funding guesswork out of the hands of people who are not responsible for outcomes and guarantees that the SBER efforts are aligned with funded, scheduled requirements within a specific POR.
2. Fewer, Larger Awards: The traditional Phase II limits must be redesigned by allocating fewer, but significantly larger, awards, targeting $10 million to $20 million per effort. This concept is partially echoed in current legislative proposals, such as the INNOVATE Act, which proposes 'strategic breakthrough' grants or Phase III defense-specific awards up to $30 million to push commercialization and fielding. The new SBER award structure mandates that these funds span the entire prototype lifecycle, through qualification, integration, test, and initial delivery of a minimum viable capability, addressing the previously identified deficits in 6.4/6.5 RDT&E funding.
3. Execution through the POR: The SBER award execution must be embedded within and managed by the POR. This would typically involve the small business acting as a subcontractor to the prime contractor or as a displacing capability as described below.

The Dual-Path Transition Model

Central to the SBER concept is the establishment of two explicit, measurable, and structurally enforced transition pathways that define success not merely as technology development, but as system insertion: Path A (Subcontract Integration) and Path B (Incumbent Displacement). These pathways provide the foundational policy framework for success measurement and strategic investment.

This structural shift requires a clear understanding of the investment mechanics and objectives, as outlined in the following comparative table.

Table 1. Modeling the Structural Shift: Current SBIR vs. Proposed SBER Award

	Current SBIR Phase II (Statutory Cap)	**Proposed SBER Transition Award ($10–$20M)**	**Policy Objective Alignment**
Primary Focus	Continued Research and Prototype (TRL 4–6)	Engineering, Qualification, and Integration (TRL 7–9)	Mitigate TRL/Acquisition Gap
Funding Cap (Typical/Statutory)	$2.1 Million	$10 Million – $20 Million (Single Award)	Fund Test/Systems Engineering and Production Scale-up
Duration (Typical)	15 to 24 Months	3–5 Years (Aligned to POR Milestones)	Match POR Schedules
Color of Money Target	RDT&E 6.2/6.3	Integrated RDT&E 6.4/6.5 and Procurement Planning	Fund Prime, Small Business and Oversight Activities. Bridge Phase Gaps
Transition Authority	Uncertain Phase III, often limited by traditional FAR-based contracts	Assured Phase III via subcontract to Prime or MTA/CSO/OTA Bridge Contracts	Guarantee Production Path

Conceptual Model: The Dual-Path Transition Framework (SBER)

The SBER model institutionalizes two transition strategies intended to ensure adoption within the acquisition lifecycle while growing small businesses. Both paths leverage the DoD's Modular Open Systems Approach (MOSA) as a key enabler for integration and competition.

Path A: Subcontract Integration (SB-as-Module)

Path A focuses on the seamless integration of the SBER-developed module into an existing or planned POR structure. This path transforms the small business performer into a structured and supported subcontractor to the prime contractor responsible for the overall system integration.

The efficacy of Path A is driven by mandatory governance changes. This will require both the government PM and RO joint approval to ensure that the technology is fully integrated into the programmatic, funding, and technical structure and a critical component of the POR. This top-down mandate overcomes the PM's inherent resistance to risk, as the technology is organizationally and financially supported from the highest levels of acquisition authority and operational commands. For this path, the prime contractor serves as the key integrator and sub-contracting manager. By embedding the SBER execution directly through the POR, the structural barriers that typically isolate small businesses from major weapon systems are systematically dismantled.

Path A also uses the SBER award as a contractual incentive for the prime contractor to integrate the small business module. By funding the integration work and making the module a required program element, the government changes the prime's cost/benefit calculus and shifts initial integration risk away from the small business.

Path A relies on open interfaces (or the mandated creation of MOSA interfaces) to reduce integration burden. Success can be measured with operationally meaningful metrics such as fielded units using the module, integration cycle time, and post-fielding defect/deficiency rates.

Path B: Incumbent Displacement (SB-as-Challenger)

Path B is the structural enforcement mechanism designed to promote competition and technological refresh by allowing the SBER small business to function as a challenger, displacing incumbent suppliers who have high cost, perform poorly, or rely on proprietary/closed architectures.

Path B depends on enforceable open standards: the government must mandate MOSA compliance in major programs and fund the reference architectures and conformance testing needed to make "plug-and-play" competition credible. This reduces vendor lock and lowers selection risk for PMs considering a challenger solution.

To make displacement a reality, Path B demands significant government investment in reference architectures and conformance test environments. These resources are serving as objective testing laboratories where the small business can rigorously prove its fluid integration (a.k.a. "plug-and-play") conformance to the open standard. By funding and stewarding these open interfaces and the necessary testing infrastructure, the government manages systemic risk and avoids future vendor lock that typically plagues proprietary systems. This approach effectively standardizes the component market within a given architecture, shifting competition away from specific vendors that control interfaces into those that provide the best technical solution (cost, performance, agility). This reduction in technological risk is necessary to allow PMs to confidently select a small business solution over a familiar incumbent.

Success in Path B can be measured by displaced modules, cost/schedule/performance differences versus incumbents, and insertion cycle time. Enabling these outcomes requires clear data-rights terms and planned technology-insertion windows so competitions can be executed on predictable schedules.

Table 2. Operational Mechanics of the Dual-Path SBER Transition Model

Transition Path	**Path A: Subcontract Integration (SB-as-Module)**	**Path B: Incumbent Displacement (SB-as-Challenger)**	**Critical Policy Levers**
Acquisition Goal	Seamlessly integrate capability into a POR structure.	Institutionalize market competition and technological refresh.	Governance & Standards
Technical Enabler	Existing or newly established Modular Open Systems Approach (MOSA) interface.	Government-stewarded Open Interfaces and Funded Conformance Benches.	MOSA Mandate Enforcement
Required Governance	Mandatory O-6/Pentagon Sponsorship; Execution via POR.	Standardized IP/Data Rights; Publicly published Tech-Insertion Windows.	Contractual Clarity
Metrics of Success	Fielded units, integration cycle time, defect escape rate.	Displaced modules, cost/performance delta vs. incumbent, insertion cycle time.	Quantifiable Outcomes

Putting the Two-Path Concept Into Motion – Governance and Scaling

The transformation of SBIR into SBER is dependent on radically restructuring the funding and governance architecture to treat the small business as an essential resource for production rather than a source of exploratory research.

Financial Mandates: Justification for Fewer, Larger Awards – and Alignment With PPBE

Fewer, larger SBER awards (roughly $10–$20 million) would cover the cost of qualification and effort needed to address sufficient supportability to move from a TRL 6 prototype to an operationally suitable TRL 9 capability. The current Phase II cap is generally insufficient to fund the integration, test, certification, and production-engineering work needed for scale and operational impact (DoD, 2024).

Funding this full transition scope changes the PM risk calculus from "will the prototype work?" to "does the qualified component meet the interface and performance requirements?" Compared to reforms that primarily expand entry pathways (e.g., Phase IA concepts), the SBER approach targets the system bottleneck: resourcing acquisition readiness and integration.

When an SBER module is planned and executed within the PPBE system through certification, integration, test, and delivery, the program can reduce both acquisition and operational risk while enabling faster, more predictable insertion.

In today's defense innovation climate, private capital is increasingly directed toward *dual-use* companies that can scale in commercial markets while also delivering military capability (e.g., venture, growth equity, and corporate strategic investment aligned to national security). Dual-use is attractive because commercial demand can finance manufacturing readiness, talent, and iterative product improvement, while DoD demand can validate requirements and provide resilient revenue. But private capital is not a substitute for an executable government transition path: Without clear demand signals (e.g., POR sponsorship), sound intellectual property strategies, and planned insertion windows, investors will discount DoD revenue as uncertain and are more likely to push firms to prioritize purely commercial roadmaps or repeated R&D awards. The SBER model improves dual-use opportunities and attractiveness for investment by turning transition into a governed, budget-aligned engineering and integration effort with measurable outcomes, allowing external capital to complement (rather than compensate for) PPBE and acquisition misalignment.

Addressing Logistics and Classification Barriers

Beyond direct financial investment, SBER must also overcome logistical barriers to integration. Small businesses frequently lack the facility clearance (FCL) necessary to work on classified aspects of a POR. The model established by initiatives such as DARPA's BRIDGES, which specifically sponsors facility clearances for innovative small firms to connect them directly to classified DoD research and development efforts, demonstrates a successful blueprint (Bryant, 2025). Replicating this model ensures that FCL requirements do not become an insurmountable barrier to transition, especially for Path A efforts which are integrated into sensitive programs.

Analytical Framework and Testable Hypotheses

To substantiate the proposed structural transformation of SBIR to SBER, a rigorous, data-driven analytical framework is required. The research design must shift the definition of "success" from R&D completion to measurable acquisition outcomes.

Research Design and Data Plan

The methodological approach requires linking disparate federal data sources to trace the full lifecycle of the SBER investment, from topic initiation to fielded capability.

The foundation of the quantitative analysis lies in joining specific SBER awards with subsequent contract actions. This linkage allows for the accurate measurement of time-to-production and the total monetary value of post-SBER follow-on funding or contract type (SBIR Phase III, Other Transaction Authority, or FAR-based contracts). This data-driven approach is essential, particularly as legislators have expressed a need for agencies to measure and report the transition outcomes of SBIR/STTR funding to quantify its success. Specifically, the analysis must utilize Federal Procurement Data System subcontract flags to identify successful Path A transitions where the small business became a managed component supplier to a prime contractor.

Complementary data must be drawn directly from POR documentation. A detailed review of POR budget exhibits (PPBE artifacts such as R-Docs or P-Docs), System Engineering Plans (SEPs), and Test and Evaluation Master Plans (TEMPs) is necessary to confirm that the SBER technology was truly inserted into the formal acquisition baseline, rather than remaining an isolated test effort.

To isolate the effects of the new governance structure sponsorship as a partnership between the PM, the RO and the SB, a Difference-in-Differences methodology should be employed (Lechner, 2011). This approach would compare the transition outcomes of legacy Phase II awards (the control group) with the new, sponsored SBER awards (the treatment group). Controlling independent variables such as the timeline of mandatory MOSA implementation and the specific service component ensures that differences in transition rates are attributable to the SBER structural changes.

Transformation for the Long-Term: Policy Implementation Roadmap, Risks, and Mitigation

The transition from a research-centric SBIR culture to an acquisition-focused SBER model requires a structured, phased implementation roadmap, accompanied by specific mitigation strategies for anticipated organizational and contractual resistance.

Implementation Timeline for Rapid Concept Integration

The roadmap establishes key milestones to ensure swift institutional adoption and integration into the defense acquisition ecosystem.

Immediate action is required to demonstrate commitment and force cultural change. This phase involves administrative mandates for 90-Day Actions (Administrative and Cultural Shifts):

1. Topic Conversion and Sponsorship: Mandatorily convert a minimum of 20% of the next solicitation cycle's SBIR topics into the new SBER format, immediately requiring PM and RO mandatory sponsorship for proposal acceptance.
2. Publishing Insertion Calendars: All Portfolio Acquisition Executives must publish mandatory technology insertion calendars for their subordinate programs, establishing a drumbeat of opportunities to align potential SBER solutions with periodic fielding opportunities, both providing clarity and compressing the planning horizon.
3. Infrastructure Refresh: Conduct a rapid refresh of government-stewarded conformance benches and reference architectures to validate the foundation for Path B operations.

12-Month Actions (Pilot and Contracting Reform)

This phase focuses on piloting the dual-path model and formalizing the contractual mechanisms:

1. Pilot Execution: Execute the first set of SBER pilot transitions—roughly half focused on Path A Subcontract Integration (leveraging POR execution) and the other half focused on Path B Incumbent Displacement (leveraging open interfaces).
2. Standardized Contracting: Formalize and mandate the use of standardized Intellectual Property (IP)/data-rights templates for all SBER awards. These templates must clearly define the government's rights to foster competition and ensure successful Path B transitions.
3. Bridge Contracting Utilization: Establish mandatory metrics for the utilization of Middle-Tier of Acquisition (MTA), OTA, and Commercial Solutions Offerings (CSO) authorities to transition SBER Phase II prototypes into Phase III contracts, ensuring robust funding bridges are active across the components.

24-Month Actions (Scaling and Institutionalization)

The final phase involves institutionalizing SBER as the default mechanism for capability introduction:

1. Budget Exhibit Alignment: Mandate the systematic alignment of all R-Docs and P-Docs (budget exhibits) to reflect SBER as a key, mandatory source of POR capability increments, ensuring funding stability for 6.4/6.5 RDT&E and initial procurement planning.
2. Policy Scale-up: Scale the SBER policy across all participating components of the Department of the Navy (DoN), transitioning the entire SBIR budget allocation above a minimal R&D baseline toward the $10 million–$20 million SBER model.

Risk & Mitigation Strategy

Implementing structural change of this magnitude involves significant organizational resistance and logistical risk. These must be proactively mitigated.

Risk 1: Prime Contractor Resistance

Prime contractors (traditional or new entrants), who have traditionally benefitted from closed architectures and proprietary supply chains, will make partial commitment or outright resist the introduction of government-mandated, open-standard components, particularly those enabling Path B Incumbent Displacement.

- *Mitigation:* Resistance is mitigated by tying integrated financial incentives to the prime contractor's adoption of open interfaces and successful management of SBER subcontractors (Path A). For Path B, strict enforcement of MOSA mandates (Title 10 U.S.C. 4401(b)) ensures that resistance to open standards results in competitive disadvantage, forcing compliance with the government-stewarded architecture.

Risk 2: Small Business Capacity and Classification Barriers

Small businesses may lack the internal Systems Engineering (SE) rigor, testing facilities, or the requisite security clearances (Facility Clearance Level - FCL) necessary to manage a large, acquisition-grade contract embedded in a POR.

- *Mitigation:* The SBER award funding itself must include allocations for technical assistance programs, providing embedded SE support and consulting to the small firm. Furthermore, the government must adopt and scale successful models like DARPA's BRIDGES initiative, which provides FCL sponsorship and access to classified work areas, systematically eliminating security barriers for innovative small companies.

Risk 3: Budget Stability for Infrastructure

Funding for foundational infrastructure—reference architectures, conformance benches, and government-stewarded open standards teams—is often vulnerable to discretionary cuts during budget cycles, undermining the viability of Path B.

- *Mitigation:* Funding for these open-architecture infrastructure components must be mandated and categorized not as R&D or RDT&E 6.1/6.2, but as essential acquisition portfolio infrastructure within the 6.4/6.5 or a dedicated, protected budget line item. This classification ensures the tools necessary for managing competition and technical refresh are protected from annual budgetary volatility.

Conclusion and Recommendation Summary: Adding SBER Into Acquisition Transformation

The analysis demonstrates that the current SBIR structure is an adequate seed-fund mechanism for fostering early-stage research but is fundamentally incapable of fulfilling its national strategic goals and legislative mandate to harness the American ingenuity machine in small businesses and transition technology into warfighting capability at scale. The pervasive "SBIR mill" phenomenon is not a failure of small businesses, but a structural incentive failure caused by the misalignment of topics, funding levels, and governance with the complex demands of defense acquisition.

Current legislative reforms may improve transition for a subset of projects by adding higher-end funding pathways and enhanced Phase III authorities. However, they largely overlay the existing SBIR structure rather than redesigning it.

Transition must be embedded in program structure—through acquisition alignment, open modular interface design, funding continuity, and competition mechanisms, so that successful prototypes have a planned path into PORs.

The proposed SBER model provides for structural reorientation by shifting SBIR from early-stage R&D toward engineering, qualification, and integration aligned to acquisition timelines.

Crucially, SBER introduces systemic accountability through its dual transition mandate: Path A (Subcontract Integration) utilizes high-level sponsorship and POR execution to guarantee insertion, while Path B (Incumbent Displacement) enforces competition through government-stewarded Modular Open Systems Approach (MOSA) standards and funded conformance benches.

By implementing the SBER framework, the DoD transforms the small business technology ecosystem from an exploratory feeder of isolated prototypes into a dependable, competitive, and acquisition-ready source of fielded military capability. This structural change is necessary to maintain technological superiority and military readiness by replacing bureaucratic stagnation with predictable, engineering-driven technology insertion.

References

Borda, A. (2025, June 27). Small business programs play critical defense industrial role. *National Defense*. https://www.nationaldefensemagazine.org/articles/2025/6/27/ndia-policy-points-small-business-programs-play-critical-defense-industry-role

Bresler, A. (2023, May). *Assessing the effectiveness of defense-sponsored innovation programs as a means of accelerating the adoption of innovation forcewide*. Acquisition Research Program, Naval Postgraduate School. https://dair.nps.edu/handle/123456789/4868

Bryant. (2025). *BRIDGES initiative: Connecting innovators to classified R&D*. Defense Advanced Research Projects Agency.

Department of Defense. (2024). *Engineering of defense systems guidebook*.

Department of Defense. (2025a). *Acquisition transformation strategy: Rebuilding the arsenal of freedom*. https://media.defense.gov/2025/Nov/10/2003819441/-1/-1/1/ACQUISITION-TRANSFORMATION-STRATEGY.PDF

Department of Defense. (2025b). *DoD modular open systems approach (MOSA) implementation guidebook*.

Ernst, J. (2026, March 3). *Senate passes Ernst updates to put small businesses first in America's innovation program*. https://www.ernst.senate.gov/news/press-releases/senate-passes-ernst-updates-to-put-small-businesses-first-in-americas-innovation-program

ForwardEdge. (n.d.). *Other transaction authorities (OTAs), CSOs, and SBIR Phase III: What's the difference?*

Gallo, M. (2025). *Small business research programs: Selected issues for reauthorization* (CRS Report No. R48629). Congressional Research Service.

Government Accountability Office. (2024a). *SBIR and STTR: New standards may have minimal effects on multiple award winners* (GAO-24-106398).

Government Accountability Office. (2024b). *Small business research programs: Increased performance standards likely affect few businesses receiving multiple awards* (GAO-24-106398).

Government Accountability Office. (2025). *Small business research programs: Clearer guidance could improve data on topic types and award competitiveness* (GAO-25-107942).

Guertin, N., & Kaliz, M. (2005). *Submarine combat control system development with a focus on human systems integration*.

Lechner, M. (2011). *The estimation of causal effects by difference-in-difference methods*. Department of Economics, University of St. Gallen.

McNamara, R. (2025, August 27). Commentary on SBIR reauthorization: Experienced small businesses play vital role in major acquisition programs. *National Defense*. https://www.nationaldefensemagazine.org/articles/2025/8/27/2-commentary-on-sbir-reauthorization-experienced-small-businesses-play-vital-role-in-major

National Academies Press. (2000). *Phase III transition: Critiques and proposals*.

National Library of Medicine. (2024, July). *Advances in difference-in-differences methods for policy evaluation research*. https://pmc.ncbi.nlm.nih.gov/articles/PMC11305929/

Naval Submarine League. (2012, January). *Team submarine—Providing undersea assets to the warfighter*. https://archive.navalsubleague.org/2012/team-submarine-providing-undersea-assets-to-the-warfighter

Office of the Under Secretary of Defense for Research and Engineering. (2025a). *Modular open systems approach (MOSA) implementation guidebook*.

Office of the Under Secretary of Defense for Research and Engineering. (2025b, February). *Implementing a modular open systems approach in Department of Defense programs*. https://www.cto.mil/wp-content/uploads/2025/03/MOSA-Implementation-Guidebook-27Feb2025-Cleared.pdf

Rothzeid, D. (2025, September 8). *SBIR mills are draining America's innovation fund*. DefenseScoop. https://defensescoop.com/2025/09/08/sbir-mills-are-draining-americas-innovation-fund/

Small Business Innovation Development Act of 1982, S. 881 (1982).

Small Business Innovation and Economic Security Act, S. 3971 (2026).

Stangler, D. (2022). *Should SBIR reauthorization include limits on multiple award winners?* Bipartisan Policy Center.

U.S. House of Representatives Committee on Small Business. (2024). *Chairman Williams introduces legislation to extend the SBIR/STTR programs*.

VanRoo, B. (2022). *Are a few dozen SBIR mills sucking the air out of small business innovation?* https://benvanroo.substack.com/p/are-a-few-dozen-sbir-mills-sucking


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