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ISSUE THEME

**THE CONTRACT LIFECYCLE**

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# Leveraging the Small Business Innovative Research (SBIR) Program



## Small businesses can build long-term federal partnerships from small business technology innovation pilots.

By Taniesha Simmons

**M**any small businesses look to the Small Business Innovative Research (SBIR) programs to establish a beachhead for working with big federal agencies.

The programs are designed to highlight technology that has significant commercialization potential but faces additional barriers when making the transition from small entry-level pilot projects into substantial long-term contracts.

The SBIR program was established by Congress in 1982 to provide an avenue for small businesses to bring innovative technology directly to federal programs without requiring the aid of large businesses and their prime contracts.

More than a dozen different federal agencies offer opportunities through this program each year as shown in Figure 1. The Small Business Administration (SBA) Policy Directive dictates that at least 3.2% of an agency’s research and development budget go to SBIR projects. That small percentage translates into hundreds of millions of project dollars and significant opportunities for small businesses to provide solutions to and work directly with federal programs.

The initial phases of an SBIR project are resourced via funding “taxes” applied to agency programs. Because the resulting funding pools are separate from specific programs’

budgets, they represent “free” resources that agencies can tap into to address their most difficult problems. This model provides a strong motivation for agencies to generate SBIR topics and take advantage of these resources.

The SBIR program can provide small businesses opportunities across two channels – either taking a mature product that was developed

for a non-federal customer base and transitioning it for application to a federal program, or generating a novel technology designed from the beginning for application to a federal program’s specific challenge.

In either case, the programs operate in three distinct phases. This article will address the ins and outs of each phase, including a focus on the challenges of moving into

**FIGURE 1.** Federal Agencies Participating in the SBIR Program

- ▶ Department of Agriculture
- ▶ Department of Commerce (NOAA)
- ▶ Department of Defense
  - Defense Technical Information Center
  - Air Force
  - Army
  - Navy
  - Defense Advanced Research Projects
- ▶ Department of Education
- ▶ Department of Energy
- ▶ Department of Homeland Security
- ▶ Department of Transportation
- ▶ Environmental Protection Agency
- ▶ Department of Health & Human Services
- ▶ National Aeronautics & Space Administration
- ▶ National Science Foundation

the long-term commercialization period that can occur if a successful transition to Phase III takes place.

### Phase I

Phase I is where SBIR programs provide funding for an initial feasibility study. Small businesses are eligible to receive between \$20,000 and \$150,000 from dedicated project pools for initial research into new ways to address a specific federal agency challenge or opportunity, which is called a “topic” in the program.

Awardees of Phase I grants present an innovative concept for addressing the agency’s problem, proposing a pilot project to examine the concept’s technical merit and suitability for practical use by the agency. Agencies typically award parallel projects to multiple small businesses all working on the same Phase I topic to “kick the tires” on different ideas that look appealing.

Although the overall program is administered by the SBA, each federal agency has its own way of identifying and offering SBIR projects. Finding the opportunities requires sleuthing and diligence, first identifying the resource through which your target agency lists SBIR projects, then combing through the listed projects to find those that might be a fit.

Every agency does it differently, on different cycles, and with different levels of detail. They publish their challenges as “topic” listings, as shown in Figure 2. It is important to thoughtfully target the agencies that represent a good fit for your technologies or capabilities, and to establish an internal schedule for surveilling and responding to topic releases according to the schedule that each agency has established.

The application process includes providing a creative description of the concept, product, tool, capability,

or process proposed to solve the agency’s stated problem. A proposing organization also needs to outline how it will apply the budget, which is fixed in advance by the agency. Phase I bids are generally comprised of 10-15 pages of written content, including charts, diagrams, and resumes for key performers.

Phase I opportunities are typically pre-released a month before bids officially open for responses, though each agency’s topic announcement process for SBIRs varies. If available, the pre-announcement period is the time to review the potential project and research whether it is likely to be a good fit for your business.

The author of the SBIR project is often identified with their contact information provided in the solicitation or on the website. It is critical that your go/no-go evaluation process includes researching how the topic fits into the federal agency’s larger context, namely

Topic Status: **Pre-Release**  **Open**

Number of Topics: 197

Topic #	Title	Open	Close	BAA	Component	Q&A
<input type="checkbox"/> A244-007 <span style="background-color: green; color: white; padding: 2px;">Open</span>	Large Scale Mobilization Operations Analysis	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	—
<input type="checkbox"/> A244-008 <span style="background-color: green; color: white; padding: 2px;">Open</span>	Biometrics for Multi Factor Authentication	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	—
<input type="checkbox"/> A244-009 <span style="background-color: green; color: white; padding: 2px;">Open</span>	Forward Looking Infrared (FLIR) Dual Band Focal Plane Array in High Definition Format	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	—
<input type="checkbox"/> A244-010 <span style="background-color: green; color: white; padding: 2px;">Open</span>	Non-RF Transceiver Alternative Communicator (NRF-TAC)	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	—
<input type="checkbox"/> A244-011 <span style="background-color: green; color: white; padding: 2px;">Open</span>	Off the Visor Heads Up Display (HUD)	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	<span style="background-color: #007bff; color: white; border-radius: 50%; padding: 2px 5px;">2</span>
<input type="checkbox"/> A244-012 <span style="background-color: green; color: white; padding: 2px;">Open</span>	Quantum Enhanced RF Components	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	—
<input type="checkbox"/> A244-013 <span style="background-color: green; color: white; padding: 2px;">Open</span>	User and Entity Behavior Analysis	02/15/2024	03/20/2024	DoD SBIR 2024.4	ARMY	—

**FIGURE 2.** Example of Topics From DoD’s Defense SBIR/STTR Innovation Portal (DSIP)



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how the project aligns to its overall mission and where to get long-term funding for further development.

### **Determining a “Good Fit” Phase I Project**

A “good fit” Phase I project has three major components:

- 1. Confidence** in the organization’s ability to solve the problem with a great solution while leveraging existing capabilities.
- 2. Strong interpersonal connections** with the issuing program to ensure understanding of and alignment with agency leaders’ perspective on the topic’s challenge.
- 3. Commercialization potential** for long-term applications for the solution across a large customer base, both within and outside the federal agency that issued the topic.

Once the opportunity is formally announced, the responding company or individual will generally have 30 days to submit a proposal, with awards issued anywhere between one to six months after the submission deadline. SBIR program guidelines dictate that Phase I awards must be resolved before the release of new topics, which are generally issued every four to six months.

It is important for responding organizations to keep in mind that they will be competing with others. The controlling agency might decide to award Phase I contracts to several different organizations.

### **Phase II**

The transition to Phase II occurs when research is completed and the SBIR

concept is fully developed. Awards are issued to the small businesses that complete the most successful and promising of the Phase I projects commissioned, demonstrating strong feasibility for generating a mature solution.

A selection committee within the sponsoring organization will judge which project delivers the solution best suited to solve its problem. Phase II projects typically receive funding between \$1 million and \$2.5 million to create a prototype or working model of the solution. Similarly to Phase I, this funding comes directly from SBIR funding pools, giving the program sponsor the advantage of continuing to tap into resources that do not draw on the program’s budget.

As Phase I nears completion, some agencies will exercise a contract “option,” providing incremental funding to the team that has developed the most promising solution. These optional funds can be as much as 50% above the initial Phase I budget and are applied towards the creation of a detailed Phase II plan. This can be very helpful due to the higher stakes and budgets in Phase II, funding as much as six additional months between the completion of Phase I and the initiation of Phase II.

In addition to proposing a concept with long-term value to the federal agency, the key to achieving successful transitions from Phase I to Phase II is developing strong relationships with both the programmatic and technical thought leaders on the project. This allows small businesses to begin working in earnest with their government project leads to plan and explore how their solutions could be made more broadly available.

## **START EVALUATING EARLY**

Identifying where the technology challenge described in the topic announcement originated (e.g., as a part of a specific system development or as a more general research initiative) is essential to framing a response that will resonate with the topic author and demonstrate long-term viability.

One example of an agency that assists with this transition is the U.S. Navy. Its SBIR program provides market research to identify other areas, within and outside the government, where the product or service could fit. In fact, the Navy mandates proposals for Phases I, II, and III elaborate on how the product or solution could be expanded beyond the initial use case and estimate the size of their expanded market. This requires proposal teams to think big. The ability to articulate broader applications can be a difference maker but, in many cases, is not a major focus for evaluators.

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Market research, such as that required by the U.S. Navy, is one of those aspects that doesn't affect performance within a phase but is essential for subsequent transitions. Successful SBIR bidders must consider how to "go-to-market" with their solutions. This includes identifying a wide range of possible use cases for the solution, understanding which customers have corresponding pain points, identifying how they might hear about or procure the solution, and determining how the product solves their problem.

### **Phase III**

Phase III is the elusive territory where the SBIR program can turn prototypes into large-scale programs. Accomplishing Phase III means a small business has gained approval to broadly commercialize its unique and proprietary solution into the vast federal government.

It is also the most difficult transition to make. The execution of Phase III is completely different from Phase I and II. Each Phase III project is embodied in a unique procurement contract; it is not possible to write a simple step-by-step guide to the process.

In most cases getting to Phase III depends upon successful completion of the Phase II prototype, achieving goals set out at the beginning, and being accepted by the sponsoring organization. Unlike Phase I, which might be completed in a few months, Phase II projects are more likely to take a year or longer.

Even longer and more rigorous than these phases is the process of progressing from the end of Phase

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II to actually achieving Phase III investment. This leap, commonly called "transition," is only accomplished by a tiny minority of SBIR project participants. There are two major hurdles that must be overcome: securing non-SBIR funding and finding a contracting solution.

#### ***Phase III Funding Transition***

During the transition to Phase III, the funding source shifts from "other people's money" to "direct program dollars." Prior to the transition stage, the program sponsor – the author of the initial problem addressed by the proposal in Phase I – was able to advocate for the shaping, completion, and evaluation of Phase I and Phase II results without tapping into their department or division's operating or capital budget.

These funds were allocated by Congress to the SBIR program and won by the small business through its creativity, leadership, and knowledge of the SBIR program. However, this funding ends with the transition to Phase III. The SBIR program's role in Phase III is little more than a "stamp

of approval" enabling the vendor and program sponsor to begin searching for new funding. That funding needs to come from normal, everyday program budgets.

This is where a solution must graduate from being an "interesting and useful novelty" into being a "mission-critical requirement." In the case of one cybersecurity solution designed for the Navy, after the completion of Phase II, a battle began for funding against other cybersecurity engineering choices that seemed like similar investments. It took a focused effort to educate all stakeholders that the solution provided a highly capable, cost-effective resolution to their challenges.

Once that was accomplished, it was a quick turnaround to gain the support necessary to begin applying the solution to real-world problems. Identifying and understanding the challenges of the transition into Phase III is why small businesses should place a high priority on collaboration.

By forming a partnership with the SBIR topic author and program sponsor, project participants maintain

continuous visibility into how the developing solution is, or could be, mission critical.

These collaborations also provide insights into which organizations and which people will ultimately be involved in gathering support for Phase III funding decisions.

### **Phase III Contracting Transition**

The second major leap needed to make the transition to Phase III is establishing a contract vehicle. Project engagements in Phases I and II are governed by standard, proven boiler-plate contracts provided by the SBA and/or a particular agency's SBIR program. The purchaser uses a standard program and vehicle to make research and development (R&D) investments.

However, as projects transition from R&D into a mainstream solution, a new business arrangement is needed, as well as a new contract. Small businesses will likely face challenges never before seen in their organizations' history. Unlike a large contractor like General Dynamics or Lockheed Martin, they are not likely to have an existing master service agreement or prime contract into which this new program can neatly fit.

Pursuing innovative product development through the SBIR program has some significant benefits that help in this area – the small business has special “rights” to the intellectual property that it developed and is considered to have satisfied the competitive contracting requirements via its Phase I and Phase II grant awards.

Nevertheless, the creation of a Phase III contract taking advantage of the sole source status is *not* a

typical type of business arrangement for most government procurement organizations. The procurement and contracting groups involved in the deal must understand the value of the sole-sourcing opportunity, agree to create agreements with that understanding, and know how to construct such an agreement.

Unfortunately, the challenges in transitioning from Phase II to Phase III often prevent the government from fully capitalizing on technologies developed through the SBIR program. If a project does not transition to Phase III, the \$2.5 million invested in Phases I and II essentially goes to waste.

### **Conclusion**

Small businesses should be aware of the challenges that arise from subsequent transitions throughout the process of bidding on, and completing, Phases I and II. Aim for close collaboration with the program that generated the topic and all potential stakeholders.

Create a “coalition of the willing” to overcome the challenges of funding and contracting to succeed through the SBIR program and truly bring innovation to our federal government. Make sure the customer has a clear strategy to integrate the innovation into the long-term mission of its agency.

Small businesses can get the rewards of Phase III if there is product and organizational “fit,” they

collaborate with the sponsor to build towards broader opportunities, and, most importantly, persevere!

For more information on the SBIR opportunities, visit the links below:

- ▶ [www.nifa.usda.gov/grants/programs/sbir-sttr](http://www.nifa.usda.gov/grants/programs/sbir-sttr)
- ▶ [www.techpartnerships.noaa.gov/sbir/](http://www.techpartnerships.noaa.gov/sbir/)
- ▶ [www.defensesbirsttr.mil/](http://www.defensesbirsttr.mil/)
- ▶ [www.discover.dtic.mil/](http://www.discover.dtic.mil/)
- ▶ [www.afsbirsttr.af.mil/](http://www.afsbirsttr.af.mil/)
- ▶ [www.armysbir.army.mil/](http://www.armysbir.army.mil/)
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- ▶ [www.darpa.mil/work-with-us/for-small-businesses/participate-sbir-sttr-program](http://www.darpa.mil/work-with-us/for-small-businesses/participate-sbir-sttr-program)
- ▶ [www.ed.gov/programs/sbir/index.html](http://www.ed.gov/programs/sbir/index.html)
- ▶ [www.science.energy.gov/sbir/](http://www.science.energy.gov/sbir/)
- ▶ [www.dhs.gov/files/grants/gc\\_1247254058883.shtm](http://www.dhs.gov/files/grants/gc_1247254058883.shtm)
- ▶ [www.volpe.dot.gov/sbir](http://www.volpe.dot.gov/sbir)
- ▶ [www.epa.gov/ncer/sbir/](http://www.epa.gov/ncer/sbir/)
- ▶ [www.grants.nih.gov/grants/funding/sbir.htm](http://www.grants.nih.gov/grants/funding/sbir.htm)
- ▶ [www.nasa.gov/sbir\\_sttr/](http://www.nasa.gov/sbir_sttr/)
- ▶ [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13371&org=IIP](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13371&org=IIP) **CM**

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