

An Innovative Approach to the SBIR and STTR Programs: AFWERX “Open Topic” Program by Nilay Papila, Stanford University

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are most commonly used funding tools for domestic small businesses in the United States since 1982 (Small Business Innovation Development Act of 1982 (P.L. 97-219)). Both programs are highly competitive that encourage domestic small businesses to engage in R&D activities with the potential for commercialization. Both SBIR and STTR aim to stimulate high-tech innovation by including qualified small businesses in the nation's R&D arena. The eligible small businesses can apply to the SBIR program, but for the STTR program, the small businesses are required to formally collaborate with a research institution¹.

More specifically the programs' goals² are to:

- Meet federal **research and development needs**
- Increase private-sector **commercialization** of innovation derived from federal research and development funding
- Stimulate technological **innovation**
- Foster and encourage **participation** in innovation and entrepreneurship by women and socially/economically disadvantaged individuals
- Foster **technology transfer** through cooperative R&D between small businesses and research institutions (STTR)

The traditional SBIR/STTR Program is structured in three Phase Process which is shown below.



Figure 1. The Three Phase Process of traditional SBIR/STTR

The following Government Agencies are participating in SBIR/STTR program

- Department of Agriculture (USDA) (\$30 M)
- Department of Commerce (DoC) NIST, NOAA (\$13.4 M)
- **Department of Defense (DoD) (\$1.8 B)**
- Department of Education (ED) (\$8.4 M)
- Department of Energy (DOE) (\$308 M)
- Dept of Health and Human Services (HHS) NIH, FDA, CDC, ACL (\$1.15 B)
- Department of Homeland Security (DHS) (\$17 M)
- Department of Transportation (DOT) (\$5.2 M)
- Environmental Protection Agency (EPA) (\$3.6 M)
- National Aeronautics and Space Administration (NASA) (\$183 M)
- National Science Foundation (NSF) (\$212 M)

Among these agencies, Department of Defense (DoD) has the largest budget share (\$1.8B in \$3.783B in FY2019 budget). Within the DoD, the Air Force (AF) flipped the traditional process and implemented a totally innovative approach. First, the Secretary of the Air Force established **AFWERX** in 2017 as a catalyst for agile Air Force engagement across industry, academia and non-traditional contributors to create transformative opportunities and foster an Air Force culture of innovation. In time, the AFWERX manage to establish community of innovators who strive to connect Air Force to solutions. This community aims to solve problems and enhance the effectiveness of the Air Force by enabling thoughtful, deliberate, ground-up innovation across the Air Force³.

Below table summarizes the differences between the traditional SBIR/STTR approach and AFWERX Open Topic SBIR/STTR approach.

¹ <https://www.sbir.gov/about>

² <https://innovation.ucsd.edu/build-your-company/funding/sbir/>

³ : <https://www.afwerx.af.mil>

Traditional Program	AFWERX Open Topic Approach
Requirements -based	Demand-based
6+ months solicitation to award	30-day from solicitation to award
Deep technical requirements	25 slide technical volume
Limited number of small business exposure	Any compelling IP/solution
R&D customers only	Any USAF/DoD customer or user
Single topic sponsor	Multiple relevant investors across govt
Government-driven	Business/user-driven
Solicitation and Evaluation (Phase 1): 30 days and 6 months+	Solicitation and Evaluation (Phase 1): 30 days
Feasibility Study (Phase 1): 9 months	Feasibility Study (Phase 1): 3 months
Solicitation and Evaluation (Phase 2): 30 days and 6 months+	Solicitation and Evaluation (Phase 2): 45 days
POC/Prototype (Phase 2): 2 years	POC/Prototype (Phase 2): 9 to 15 months

The AFWERX's competitive advantage will be its collective ability to quickly identify, validate, and integrate those technologies. The AFWERX SBIR/STTR program 'Open Topic' aims to help small businesses commercialize emerging research in partnership with a university, non-profit entrepreneurship center, or research center. In contrast to the traditional SBIR/STTR program, the Open Topic is 'open' to any technology, customer, or application⁴.

By streamlining the proposal process, accelerating contract award, and providing direct access to our global network of customers and capital, AFWERX SBIR/STTR Open Topic provides unrivaled opportunity for small businesses to protect their IP and establish themselves in both the commercial and federal marketplace.

Figure 2 shows the three-phase approach of AFWERX Open Topic SBIR/STTR program.



Figure 2. The Three-Phase Process of AFWERX Open Topic SBIR/STTR

AFWERX Open Topic SBIR/STTR program can be considered as a useful program for eligible startups or for researchers collaborating with startups. Please check the eligibility rules below before applying AFWERX Open Topic Awards⁵.

- Company must be for profit, U.S. owned/operated, and under 500 people

⁴ <https://www.afwerx.af.mil/sttr.html>

⁵ https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf

- Registered incorporation with DUNS, SAM Cage Number
- Work must be done in the U.S.
- Focus is on performing R&D – Not purchasing equipment, commercializing a technology that has already been developed, or one that has very low risk and only needs capital
- For STTRs, small business must partner with eligible Research Institutions and must complete >40% of the proposed work and RI must complete >30% of the proposed work
- PI must be US citizen or permanent resident

The upcoming deadlines for the **FY2021 AFWERX Open Topic BAA** program is given in the below.

FY2021 AFWERX Open Topic BAA Schedule (Dates subject to change)			
Program	Pre-Release	Opens	Closes
X21.1/A	8-Dec-20	14-Jan-21	18-Feb-21
X21.2/B	21-April-21	19-May-21	17-June-21
X21.3/C	25-Aug-21	23-Sept-21	22-Oct-21

References

1. DoD SBIR websites: <https://sbir.defensebusiness.org/>
2. AFWERX websites: <https://www.afwerx.af.mil>
3. AFWERX Open Topic STTR: <https://www.afwerx.af.mil/sttr.html>
4. AFWERX Open Topic SBIR: <https://www.afwerx.af.mil/sbir.html>
5. AF SBIR: <https://www.afsbirsttr.af.mil>
6. DoD electronic submission: <https://sbir.defensebusiness.org/>
7. DSIP Portal for submission: <https://www.dodsbirsttr.mil/submissions/baa-schedule>