Leveraging America’s Seed Fund

SBA U.S. Small Business Administration

SBIR · STTR America’s Seed Fund
POWERED BY SBA
Goals

→ 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)
<table>
<thead>
<tr>
<th>Small Business Innovation Research (SBIR)</th>
<th>Small Business Technology Transfer (STTR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.2%</strong> of external research budgets</td>
<td><strong>0.45%</strong> of external research budgets</td>
</tr>
<tr>
<td>(extramural R&amp;D budgets greater than $100 million/year)</td>
<td>(extramural R&amp;D budgets greater than $1 billion/year)</td>
</tr>
<tr>
<td>~$3.28 billion (FY19)</td>
<td>~$453 million (FY19)</td>
</tr>
<tr>
<td>Requires small businesses to subcontract with a nonprofit U.S. research institution</td>
<td></td>
</tr>
<tr>
<td>Combined ~5,000 new awards to small businesses each year</td>
<td></td>
</tr>
</tbody>
</table>
Key Elements of SBIR/STTR Funding

**NON-DILUTED CAPITAL**
The funding agency cannot take an equity position or ownership of your firm

**IP/DATA RIGHTS PROTECTION**
Government can’t share your reports or data with anyone outside of the federal government for 20 years

**DIRECT FOLLOW ON PHASE III AWARDS**
No need for further competition (J&A not required)
SBIR & STTR Participating Agencies

- Department of Agriculture (USDA)
- Department of Commerce (DoC) NIST, NOAA
- Department of Defense (DoD)
- Department of Education (ED)
- Department of Energy (DOE)
- Department of Health and Human Services (HHS)
- Department of Homeland Security (DHS)
- Department of Transportation (DOT)
- Environmental Protection Agency (EPA)
- National Aeronautics and Space Administration (NASA)
- National Science Foundation (NSF)
# FY2019 SBIR/STTR Budgets by Agency

<table>
<thead>
<tr>
<th>Agencies</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Defense (DoD)*</td>
<td>$1.80 B</td>
</tr>
<tr>
<td>Department of Health and Human Services (HHS)**, including the National Institutes of Health (NIH)</td>
<td>$1.15 B</td>
</tr>
<tr>
<td>Department of Energy (DOE), including Advanced Research Projects Agency – Energy (ARPA-E)</td>
<td>$308 M</td>
</tr>
<tr>
<td>National Science Foundation (NSF)</td>
<td>$212 M</td>
</tr>
<tr>
<td>National Aeronautics and Space Administration (NASA)</td>
<td>$183 M</td>
</tr>
<tr>
<td>U.S. Department of Agriculture (USDA)</td>
<td>$30 M</td>
</tr>
<tr>
<td>Department of Homeland Security (DHS)</td>
<td>$17 M</td>
</tr>
<tr>
<td>Department of Commerce: National Oceanic and Atmospheric Administration (NOAA)</td>
<td>$9.5 M</td>
</tr>
<tr>
<td>Department of Education (ED)</td>
<td>$8.4 M</td>
</tr>
<tr>
<td>Department of Transportation (DOT)</td>
<td>$5.2 M</td>
</tr>
<tr>
<td>Department of Commerce: National Institute of Standards and Technology (NIST)</td>
<td>$3.9 M</td>
</tr>
<tr>
<td>Environmental Protection Agency (EPA)*</td>
<td>$3.6 M</td>
</tr>
</tbody>
</table>

* Budgeted Amount; other Agencies Obligated Amount
** Provides grants and contracts
<table>
<thead>
<tr>
<th>Contracting Agencies</th>
<th>Granting Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency establishes plans, protocols, requirements</td>
<td>Principal Investigator initiates approach</td>
</tr>
<tr>
<td>Highly focused topics</td>
<td>Less-specified topics</td>
</tr>
<tr>
<td>Procurement mechanism</td>
<td>Assistance mechanism</td>
</tr>
<tr>
<td>More fiscal requirements</td>
<td>More flexibility</td>
</tr>
<tr>
<td>Invoiced on progress</td>
<td>Allows upfront payment</td>
</tr>
<tr>
<td>Binding agreement between a buyer &amp; seller for goods/services</td>
<td>Funds support a public purpose, best efforts in research</td>
</tr>
</tbody>
</table>

**DoD, DHS, NASA, EPA, DOT, DoED**  
**NSF, DoE, USDA, NIST, NOAA**

Contracting and Granting: **HHS/NIH** (mostly grants)
Phase I
Concept Development
6 months – 1 year
~ $150,000

Phase II
Prototype Development
24 months
~ $1,000,000

Phase III
Commercialization
No SBIR funding

Three Phase Process

Solicitation to Award Process

1. Find Solicitation
2. Proposal Submission
3. Evaluation
4. Award Phase I
## Differences Between SBIR and STTR

<table>
<thead>
<tr>
<th></th>
<th>SBIR</th>
<th>STTR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partnering Requirement</strong></td>
<td>Permits partnering</td>
<td>Requires a non-profit research institution partner</td>
</tr>
<tr>
<td><strong>Principal Investigator</strong></td>
<td>Primary employment (&gt;50%) must be with the small business</td>
<td>PI may be employed by either the research institution partner or small business (check solicitation)</td>
</tr>
<tr>
<td><strong>Work Requirement</strong></td>
<td>May subcontract up to:</td>
<td>Minimum:</td>
</tr>
<tr>
<td></td>
<td>33% (Phase I)</td>
<td>40% Small Business</td>
</tr>
<tr>
<td></td>
<td>50% (Phase II)</td>
<td>30% Research Institution Partner</td>
</tr>
<tr>
<td><strong>Program Size</strong></td>
<td>3.2% (FY19 - $3.28B)</td>
<td>0.45% (FY19 - $453M)</td>
</tr>
<tr>
<td><strong>Majority VC ownership</strong></td>
<td>Allowed by some agencies</td>
<td>Not allowed</td>
</tr>
<tr>
<td><strong>Participating Agencies</strong></td>
<td>11 agencies (extramural R&amp;D budget &gt; $100M)</td>
<td>5 agencies (extramural R&amp;D budget &gt; $1B)</td>
</tr>
</tbody>
</table>
What does an SBIR/STTR firm look like?

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

The small business is ALWAYS the applicant and awardee!
SATELLITE DERIVED REFLECTIVITY

Thu Sep 7, 2017 3:00 PM

Indianapolis
Lightning Strikes

Positive: 238
Negative: 4797
Total: Nassau 5035
Principal Investigator (PI)

→ Must be employed by the small business (or partnering research institution for STTR) at **time of award** (check solicitation)

→ Should have appropriate expertise to oversee project scientifically and technically

→ Expertise of the PI and team are one of the three evaluation factors
Where to Begin? – Topic Searches

› Keyword searches – Learn which agencies fund your technology area!

www.sbir.gov/sbirsearch/topic/past
Where to Begin? – Award Searches

→ Identify successful firms
→ Identify agency investments in technology areas

www.sbir.gov/sbirsearch/award/all
Why We Work on America’s Seed Fund

Online Tutorials

- 55 Courses including:
  - Agency overviews
  - Program basics
  - Data rights
  - IP protection

www.sbir.gov/tutorials
Connect to Your Network of Local Support

SBA works with a number of local partners to counsel, mentor, and train small businesses in the innovation ecosystem.

www.sbir.gov
Stay In Touch

Brittany.Sickler@sba.gov

@SBIRgov
#seedthefuture

www.sbirc.gov
SBIR Road Tour
SEEDING AMERICA’S FUTURE INNOVATIONS™

Federal Laboratory Consortium (FLC)
YOUR ONE-STOP SHOP FOR FEDERAL LABORATORY INFORMATION

Dave Pronchick
FLC Deputy Regional Northeast Coordinator
MIT LL Assistant Department Head, Contracting Services Department

November 2019
THE FLC’S MISSION

**PROMOTE** awareness and foster dialogue about federal R&D and the significant economic benefits of T2 among government, industry academia and external partners.

**EDUCATE** the federal T2 professionals on commercialization best practice strategies through various training opportunities and resources.

**FACILITATE** federal laboratories T2 goals through FLC-created tools and services that enable an accessible path for getting technologies from lab to market.

*Foster lab-to-market strategies and connections to accelerate federal technologies.*
Your one-stop shop for Federal Lab information

EASY-TO-FIND LABORATORY DATA
Federal Laboratories
Facilities
Available Technologies
Equipment
Lab Publications
Funding
Programs

Search FLC Business
Connect with a laboratory
Engage with an expert

https://www.federallabs.org/flcbusiness/search

Reversible Computation Gate in Superconducting Circuits
This technology replaces standard logic components for more energy-efficient digital logic. To execute digital logic operations, devices use gates—typically irreversible gates whose functions cannot be inverted. By using reversible gates, the logic operations of these gates can be inverted...

USGS Water Science Centers
Water information is fundamental to rational and local economic well-being, protection of life and property, and effective management of the Nation’s water resources. The USGS works with partners to monitor, assess, conduct targeted research, and deliver information on a wide range of water...

Stable Isotope Laboratory
Description of Capability: Isotopic analysis of sediments and soil as a tool for understanding past environmental conditions. Stable isotopes are used to infer past climate and ecological conditions.

Luminescence Geochronology Lab
Description of Capability: Dating of sediment for geological, palaeontological and archeological applications. Luminescence dating is a form of geochronology that measures the energy of photons being released. In natural settings, (e.g., radiation from U, Th, K) is absorbed and stored by...

Tephrochronology Project Laboratory
Description of Capability: Tephrochronology and micropaleontology. Specific Capabilities: In support of USGS programmatic and collaborative scientific investigations - provide geochronologic frameworks using Tephrochronology Lab processing, petrographic characterization, chemical identification, and dating of volcanic ash layers.
COLLABORATIVE RESEARCH ACCESS

• National Experts
• State of the Art Facilities
• Specialized Equipment
• Innovation

LABS CAN PARTNER WITH:

• Large Businesses? ✓YES
• Academia? ✓YES
• Nonprofits? ✓YES
• GOV Entities? ✓YES
• Foreign Entities? ✓YES
• Individuals? ✓YES
• Small Businesses ✓YES
• Others? ✓YES
SBIR Example

- US DoE Phase I & II SBIR Project – Triton Systems, Chelmsford, MA ($1.2M)
- SBIR Agreement with MIT Lincoln Laboratory
  - Joint Research & Development of Photonic Fabrics for Optical Tagging
  - Objective of program was to create a novel class of fiber-based tagging materials that could be tracked from km-range
- Mutual Benefit for both parties
  - Stimulates U.S. economy by partnering with small business
  - Supports U.S. Government’s goal of transferring technology to the private sector
STTR Example

- U.S. Army Phase I & II STTR Project – QmagiQ, LLC, Nashua, NH ($1.5M)

- STTR Agreement with MIT Lincoln Laboratory
  - Joint Research and Development of VLWIR SLS-DFPA for Imaging Spectroscopy
  - Objective of program was to reduce dark current very-long wavelength infrared (VLWIR) strained-layer super lattice (SLS) detectors using Lab’s digital –pixel focal plane array (DFPA)

- Mutual Benefit for both parties
  - Provides collaborative opportunities with small and innovative businesses
  - Allows small businesses to work with experts in particular field

MIT LL’s DFPA offers an unparalleled dynamic range that can better handle high dark current than analog ROICs
T2 SUCCESS TRACK

**STEP 1**
Identify your R&D needs and requirements

**STEP 2**
Search lab resources and Technologies
*FLC BUSINESS!*

**STEP 3**
Work with lab to determine T2 mechanism
*FLC T2 MECHANISM DATABASE!*

**STEP 4**
Re-assess your desire and needs

**STEP 5**
Negotiate and finalize agreement

**STEP 6**
Execute, collaborate, and commercialize

For Assistance contact your FLC Regional POC

www.federallabs.org
REGIONS POCs

- **FAR WEST**
  - Jennifer Stewart
  - Far West Regional Coordinator

- **MID-CONTINENT**
  - John Eiseman
  - Mid-Continent Regional Coordinator

- **MIDWEST**
  - Jenna Dix
  - Midwest Regional Coordinator

- **NORTHEAST**
  - Laurie Bagley & David Lee
  - Northeast Regional Coordinator

- **MID-ATLANTIC**
  - Jack Pevenstein
  - Mid-Atlantic Regional Coordinator

- **SOUTHEAST**
  - Paige George
  - Southeast Regional Coordinator
QUESTIONS

Dave Pronchick
FLC Deputy Regional Northeast Coordinator (FY20)
MIT LL Assistant Department Head,
Contracting Services Department
pronchick@ll.mit.edu

Thank you!
Backup
### SBIR and STTR Program Descriptions

<table>
<thead>
<tr>
<th>Description Detail</th>
<th>SBIR</th>
<th>STTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program generated by the Small Business Admin.</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Governed by same original statue and regulations</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Purpose and intent is technology transfer to SBCs</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Program requires SBC has the lead role</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Program PI must be employed by SBC</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Requires SBC to partner with research institution</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>SBC must manage and control funding agreement</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Research institution part of commercialization (Phase III)</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>DoD SBIR/STTR administered in same manner</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Same COI rules and regulations</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Maximum work ceiling for research institution (Phase I)</td>
<td>33%</td>
<td>60%</td>
</tr>
<tr>
<td>Maximum work ceiling for research institution (Phase II)</td>
<td>50%</td>
<td>60%</td>
</tr>
</tbody>
</table>

SBIR and STTR Programs Very Similar
Why We are Here:
FY12 NDAA

SEC. 5109. COLLABORATING WITH FEDERAL LABORATORIES AND RESEARCH AND DEVELOPMENT CENTERS.

Section 9 of the Small Business Act (15 U.S.C. 638), as amended by this title, is further amended by adding at the end the following:

“(ee) COLLABORATING WITH FEDERAL LABORATORIES AND RESEARCH AND DEVELOPMENT CENTERS.—

“(1) AUTHORIZATION.—Subject to the limitations under this section, the head of each participating Federal agency may make SBIR and STTR awards to any eligible small business concern that—

“(A) intends to enter into an agreement with a Federal laboratory or federally funded research and development center for portions of the activities to be performed under that award; or

CLEAR STATUTORY GREEN LIGHT
What are the SBIR and STTR Programs?

- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) are programs designed to fund and assist early-stage research and development performed by small businesses.
- Various federal agencies promote partnerships between small business and federal laboratories to cultivate their ideas with the ultimate goal of commercializing innovative technologies.
- SBIR/STTR Program sets aside $2.5 billion annually.
Why do labs love SBIRS/STTRS

• Portfolio diversification
• Access/Exposure to different USG entities
• Small Business Goals
Why Partner with MIT Lincoln Laboratory?

• LL was established over 65 years ago and is a DoD federally funded research and development center
• Small businesses gain access to technical expertise and knowledge
• LL currently posting topics of interest on external website for partnership opportunities
• Contact LL SBLO (sblo@ll.mit.edu) if interested in partnering on SBIR/STTR topics

For additional information, please visit:
www.ll.mit.edu/partner-us
5 Minute Reverse Pitch
National Science Foundation (NSF)
A federal agency that supports fundamental research and education across all fields of science and engineering, currently with an annual budget of approximately $8B.
NSF SBIR/STTR Program

✓ Approximately $200M program that focuses on getting-to-market; NSF not a customer

✓ Funds roughly 400 companies each year

✓ Program Directors have startup/industry/university/private equity experience

✓ All grants, no contracts

✓ Phase I, II and Phase II supplements can add up to approximately $2M
Technology Areas

- Advanced Manufacturing and Nanotechnologies
- Advanced Materials and Instrumentation
- Artificial Intelligence
- Biological Technologies
- Biomedical Technologies
- Chemical and Environmental Technologies
- Digital Health and Medical Devices
- Distributed Ledger
- Educational Technologies and Applications
- Electronic Hardware, Robotics, Sensors, and Wireless Technologies
- Energy and Power Systems
- Information and Quantum Information Technologies
- Internet of Things, Semiconductors, and Photonics
- Space
- Other Topics
Unique Features of Program

Program Statistics

- **Company Size:** 90% of awardees have 10 or fewer employees
- **History:** 90% of awardees have never had a prior SBIR/STTR Phase II award from any agency
- **Company Age:** 80% of awardee companies were incorporated within the past 5 years
- **Start-up Creation:** Many Phase I awardees have only recently been incorporated
What We Fund

R&D to overcome significant technical hurdles

- Novel, proprietary
- Prove feasibility/viability of a new product/process/service
- High technical risk, early-stage development

A significant commercial opportunity

- Game-changing technology in chosen market segment
- Product-market fit validated by customers/partners
What We Do Not Fund

- Basic research (primary goal being knowledge creation)
- Incremental improvement to an existing product/service/process
- Projects that lack strong chance of commercial success
- NSF funding cannot make a big impact on company’s prospects
- Analytical/市场 studies of existing technology/product/service/process
Proposal Submission

- Read the steps on the Apply page of NSF SBIR/STTR website, seedfund.nsf.gov/apply

- Submit a 2-3 page Project Pitch and a Program Director will respond to it in < 3 weeks

- Proposals are accepted when there’s an open window

- Windows close in June and December

- Next window closes December 12, 2019
THANK YOU!

Henry Ahn, hahn@nsf.gov
Steven Konsek, skonsek@nsf.gov
Anna Brady-Estevez, abrady@nsf.gov

sbir@nsf.gov
@NSFSBIR
seedfund.nsf.gov
National Institutes of Health (NIH)
Eastern SBIR Road Tour

November 13, 2019

Miami, FL >> San Juan, PR

Bo Yeon Lee
SBIR/STTR Program Manager, Office of Extramural Research, NIH
SBIR/STTR Website

https://sbir.nih.gov
<table>
<thead>
<tr>
<th></th>
<th>2019 Budget</th>
<th>SBIR</th>
<th>STTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIH</td>
<td>$1B</td>
<td>$141M</td>
<td></td>
</tr>
<tr>
<td>CDC</td>
<td>~$12M</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>ACL (NIDILRR)</td>
<td>~$3M</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>FDA</td>
<td>~$1M</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
**SBIR/STTR Three-Phase Program**

**Phase I Feasibility Study**
- **Budget Guide:** $252K for SBIR and STTR
- **Project Period:** 6 months (SBIR); 1 year (STTR)

**Phase II Full Research/R&D**
- $1.68M for SBIR and STTR, over two years

**Phase IIB Competing Renewal/R&D**
- Clinical R&D; Complex Instrumentation/to FDA
- Many, but not all, IC’s participate
- Varies~$1M per year; up to 3 years

**Phase III Commercialization**
- NIH, generally, not the “customer”
- Consider partnering and exit strategy early
To seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.
No SBIR/STTR funding authority!
NIH, CDC, FDA, & SBIR/STTR Grant
Solicitation “Parent” FOAs:
https://sbir.nih.gov/funding#omni-sbir

Clinical Trial Required
SBIR: **PA-19-273**  STTR: **PA-19-271**

Clinical Trial Not Allowed
SBIR: **PA-19-272**  STTR: **PA-19-270**

Solicitation Released:  May 7, 2018

Standard Due Dates:  Sept. 5, 2019
**January 6, 2020**
April 6, 2020
Contracts

SBIR Contract Solicitation (NIH, CDC) - OPEN
Closing Date: October 23, 2019  5:00PM EDT
Program Solicitation PHS 2020-1 (SBIR Only)

NIH Guide Notice: NOT-OD-19-121
NIH Guide for Grants and Contracts
Release: Weekly receipt dates specified in each FOA
Some of our Home Runs!

[Logos of various companies]

U.S. Department of Transportation (DOT)
Stimulating Innovation and the U.S. Economy through the U.S. DOT's Small Business Innovation Research (SBIR) Program

SBIR Road Tour
November 2019
How SBIR Supports the Mission of DOT

**Mission:** To ensure a fast, safe, efficient, accessible, and convenient transportation system that meets vital national interests and enhances the quality of life of the American people.

SBIR addresses high priority research gaps within DOT’s R&D Program.

SBIR topics are developed to align with Secretary’s strategic priorities, specific modal priorities, and SBA.
# Phase I Participation by Agency

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Aviation Administration*</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Highway Administration / Intelligent Transportation Systems-Joint Program Office (ITS JPO)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Federal Railroad Administration</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Federal Transit Administration</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Federal Motor Carrier Safety Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>National Highway Traffic Safety Administration</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Office of the Secretary</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipeline and Hazardous Material Safety Administration</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

*Excused by Legislation: FAA contributed to the U.S. DOT’s SBIR Program from 1985 to 2005
DOT’s SBIR Topics
DOT’s SBIR Program Details

- Annual SBIR budget approx. $9M
- 5-10 topics per year (11 topics in FY19)
  - Phase I – Up to $150K
  - Phase II – $200K to $1M
  - Phase IIB – $250K to $1M
- Number of awards per year
  - Phase I – based on solicitation topics
  - Phase II – 50-60% of Phase 1 awards
  - Phase IIB – ~25% of Phase 2 awards
DOT SBIR Program Details

- One solicitation per year
- Next solicitation expected Winter 2019-20
  - Sign up on our website to receive notifications of when topics are posted, as well as solicitation open and close dates
- Administer Contracts, not Grants
- Majority VC firms not eligible
- Program Office does not accept unsolicited proposals
DOT SBIR Program Details

- Technical and Business Assistance (TABA) available to U.S. DOT SBIR awardees
  
  Focus on increasing commercialization potential for the Phase I award and preparing for entry into the marketplace for Phase II

- Pre-proposal conference calls for Phase II

- Funding for CORs to travel to project sites
FY19 Phase I Contracts Awarded

- Award recommendations for the FY19 Solicitation topics were announced July 9, 2019. Awards were made in October.


- 13 awards were recommended, for a total of $1.95 million

- The projects fall under 9 different research topics and 5 different DOT operating administrations
DOT Solicitation Process

- Solicitations are posted at volpe.dot.gov/sbir and fbo.gov
- Offers must be submitted via secured website
- Sign up for email notifications at: https://public.govdelivery.com/accounts/USDOTVOLPE/subscriber/new?topic_id=USDOTVOLPE_44
DOT SBIR Project Examples

**SBIR-Funded Sensors Detect Pipeline Stresses Early, Mitigating Future Problems**

**Agency:** Pipeline and Hazardous Materials Safety Administration  
**Company:** Generation 2 Materials Technology, LLC (G2MT)  
**Product:** Non-destructive pipeline stress analysis sensor

**Evaluating Fatigue in Individual Drivers**

**Agency:** Federal Motor Carrier Safety Administration  
**Company:** Pulsar Informatics, Inc.  
**Project:** Advanced Fatigue Modeling for Individual Differences
Opportunities Outside of the DOT SBIR Program

- Fed Biz Ops: fbo.gov
- University Transportation Centers: utc.dot.gov
- Transportation Research Board: trb.org
- Challenge.gov
- Check DOT agency websites for BAAs, RFIs and other research opportunities
U.S. DOT SBIR Contact Information

http://www.volpe.dot.gov/sbir

DOT SBIR Hotline
617-494-2051
DOTSBIR@dot.gov

SBIR Program Manager
Melissa Wong
Melissa.wong@dot.gov
Defense Advanced Research Projects Agency (DARPA)
DARPA’s Mission

Breakthrough Technologies and Capabilities for National Security

Military Application

- Communications/Networking
- Stealth
- Precision Guidance & Navigation
- Hypersonics & LEO Satellites

Commercial Transition

- ARPAnet/Internet
- Microelectronics: VLSI, CAD, manufacturing, IR, RF, MEMS
- Information Technology: timesharing, client/server, graphics, GUI, RISC, speech recognition
- Revolutionizing Prosthetics

Materials Science: semiconductors, superalloys, carbon fibers, composites, thermoelectrics, ceramics

DARPA’s role: Pivotal early investments that change what’s possible
Characteristics of DARPA

• $3B funding Agency – all research is performed extramural (no in-house DARPA labs)

• Interested in compelling outcomes that provide new capability
  • Revolutionary change (not evolutionary extensions or incremental gains)
  • High risk tolerance – If the outcome of a project is certain, with only dollars and time needed to complete the work, it may not be a program for DARPA.

• Agency is Program Manager centric – Bottom up and active management
  • Program Managers are transitory (2 – 5 year tours) – Sets rapid pace


SBIR
3.2% of all extramural RDT&E
FY19 - $100M

STTR
.45% of all extramural RDT&E
FY19 – $12M
DARPA Structure

- Advanced S&T, above and beyond Service Labs; not requirements driven.
- Revolutionary, high-payoff research that bridges the gap between fundamental discoveries and ultimate defense use.

Where Technical Programs are managed and BAAs are written to create breakthroughs
## DARPA Technical Offices

<table>
<thead>
<tr>
<th>Office</th>
<th>Themes</th>
</tr>
</thead>
</table>
| **BTO** Biomedical Technologies Office | - Biology for security  
- Outpacing infectious disease  
- Neuro-technology  
- Gene editing & synthetic biology |
| **DSO** Defense Sciences Office | - Frontiers in math, computation & design  
- Limits of sensing & sensors  
- Complex social systems  
- Anticipating surprise |
| **I2O** Information Innovation Office | - Symbiosis: partner with machines  
- Analytics: understand the world  
- Cyber: deter cyber attack |
| **MTO** Microsystem Technology Office | - Electronics: drive solutions for DoD access/infrastructure  
- Spectrum: focus on usability of highly-adaptive systems  
- Sensors: enable high-end capabilities to proliferate into the field |
| **STO** Strategic Technology Office | - Lethality: resilient killchains over invulnerable systems  
- Surprise: heterogeneity over uniformity  
- Continuous speed: agility and adaptability over performance |
| **TTO** Tactical Technology Office | - Enterprise disruption: platforms, systems, & technologies that enable new warfighting constructs  
- Crosscutting themes  
- Eliminate high-value assets  
- Exploit cross-domain seams  
- Enable decision-making asymmetry |

**TACTICAL TECHNOLOGY OFFICE**
FY19 SBIR/STTR Topic Areas

- Biotechnology
- Microelectronics
- Artificial Intelligence (AI)
- Directed Energy
- Cybersecurity
- Networked Command, Control, Communications (C3)
- Autonomy
- Hypersonics
- Space

Distribution Statement "A"
(Approved for Public Release, Distribution Unlimited)
Seedlings vs. Programs vs. SBIR/STTR

**Seedlings**  
*(Office Wide/Open Office BBAs)*  
- Open to all capable sources  
- Usually submitted through Office-Wide BAA  
- Small short duration (6-9 months) projects  
- Move concepts from “disbelief” to “mere doubt”  
- May lead to the next generation of program ideas

**Programs**  
- Open to all capable sources  
- Proposals solicited through specific program BAAs  
- Often multi-year, multi-disciplinary efforts  
- Technology development to move from “possibility” to “capability”

**SBIR/STTR**  
- Open to eligible small business concerns  
- Usually submitted through DoD SBIR/STTR BAA  
- Phase I feasibility up to $225K  
- Phase II prototype development up to $1.5M  
- May lead to the next generation of program ideas
Streamlined and Competitive Process

**BAA Characteristics**

- No common Statement of Work
- Varying technical approaches/solutions are anticipated
- Proposals are evaluated with technical quality and approach as the main factor
- Communication with proposers allowed during the open period of the BAA
- White papers or proposal abstracts may be solicited
- Industry Days where PMs brief interested communities on the program solicitation

**BAA Types**

- Tech Offices will issue program-specific BAAs throughout the year
- 1-year Office-Wide BAAs with a more general scope (rolling submission process)
How To Participate in the Program?

- **Step 1 – Determine Eligibility**
  - Review complete eligibility requirements at [SBIR Policy Directive](#).

- **Step 2 – Find a Topic**
  - Review announcements at [https://sbir.defensebusiness.org](https://sbir.defensebusiness.org) to identify topics of interest.

- **Step 3 – Ask Questions**
  - During the announcement period, communication between small businesses and topic authors is highly encouraged.

- **Step 4 – Prepare your Proposal**
  - All proposals are initially screened to determine responsiveness with submission requirements published in the DoD SBIR/STTR Program Announcement and supplemental DARPA instructions. FOLLOW INSTRUCTIONS!

- **Step 5 – Submit Proposal**
  - All SBIR/STTR proposals must be prepared and submitted electronically through the DoD SBIR/STTR Electronic Submission website at [https://sbir.defensebusiness.org](https://sbir.defensebusiness.org) and in accordance with the program announcement.

For More Info Visit:
DARPA makes pivotal investments in ideas that lead to breakthrough technologies for national security.

To maximize the pool of innovative proposal concepts it receives, DARPA strongly encourages participation by all capable sources: industry, academia, and individuals.
Technology Transition Support

Goal - to maximize SBIR/STTR companies’ potential to move their technology beyond Phase II, and into other research and development programs for further maturity

- **No cost to participants - Costs covered by DARPA SBPO**
  - Automatic participation upon Phase II award
  - SBPO assists performers by providing business planning advice, identifying funding and collaboration opportunities, and maintaining access to an extensive network
  - Feedback on Commercialization Plans and marketing materials
  - Assist in Phase II Enhancement application processes
  - Weekly opportunity alert sent to all current and past performers
    - Daily FedBizOps posting reviews for new solicitations
    - Agency level SBIR/STTR solicitations
  - Topical conferences and training events
  - Alumni list maintained for targeted technology requests
Doing Business With DARPA

• Do Your Research - Become familiar with the challenges and opportunities of National Security.

• Visit www.grants.gov or www.fedbizopps.gov to view DARPA Broad Agency Announcements (BAAs), Research Announcement (RAs), and Requests for Proposals (RFPs).

• Visit https://sbir.defensebusiness.org/ to view DoD SBIR and STTR Program Announcements.

• Contact a DARPA Program Manager (PM) about your idea prior to submitting a white paper or proposal to gain insight into the general need for the type of effort. PMs are the key to working with DARPA.
Small Business Programs Office (SBPO)


Jason Preisser
Program Director

Small Business Support Team
(703) 526-4170
sbir@darpa.mil

www.darpa.mil

Distribution Statement "A"
(Approved for Public Release, Distribution Unlimited)
United States Air Force Mission

Fly, Fight, and Win…In Air, Space, and Cyberspace

“The first essential of air power is preeminence in research.”
- General Henry “Hap” Arnold

“…innovation – fueled by intelligent, creative Airmen – will remain a key part of who we are and what we value as a service.”
- General Welsh
Turning Science into Capabilities

Air Force Science and Technology Strategy

Science and Knowledge Leads to Technologies Leads to Capability Concepts Leads to Service Core Function Capabilities

- NUCLEAR
- TECHNOLOGY
- LIFE CYCLE MANAGEMENT
- TEST & EVALUATION
- SUSTAINMENT
- INSTALLATION & MISSION SUPPORT

- Air Superiority
- Global Precision Attack
- Personnel Recovery
- Command & Control
- Global Integrated ISR
- Cyberspace Superiority

- Space Superiority
- Special Operations
- Rapid Global Mobility
- Nuclear Deterrence Operations
- Agile Combat Support
- Education and Training

Air Force Science and Technology Strategy

- NUCLEAR TECHNOLOGY LIFE CYCLE MANAGEMENT TEST & EVALUATION SUSTAINMENT INSTALLATION & MISSION SUPPORT

- Air Superiority Global Precision Attack Personnel Recovery Command & Control Global Integrated ISR Cyberspace Superiority

- Space Superiority Special Operations Rapid Global Mobility Nuclear Deterrence Operations Agile Combat Support Education and Training

AirForce SBIR/STTR
www.afsbirsttr.com

Turning Science into Capabilities

Air Force Science and Technology Strategy

Science and Knowledge Leads to Technologies Leads to Capability Concepts Leads to Service Core Function Capabilities

- NUCLEAR
- TECHNOLOGY
- LIFE CYCLE MANAGEMENT
- TEST & EVALUATION
- SUSTAINMENT
- INSTALLATION & MISSION SUPPORT

- Air Superiority
- Global Precision Attack
- Personnel Recovery
- Command & Control
- Global Integrated ISR
- Cyberspace Superiority

- Space Superiority
- Special Operations
- Rapid Global Mobility
- Nuclear Deterrence Operations
- Agile Combat Support
- Education and Training

Air Force Science and Technology Strategy

Science and Knowledge Leads to Technologies Leads to Capability Concepts Leads to Service Core Function Capabilities

- NUCLEAR
- TECHNOLOGY
- LIFE CYCLE MANAGEMENT
- TEST & EVALUATION
- SUSTAINMENT
- INSTALLATION & MISSION SUPPORT

- Air Superiority
- Global Precision Attack
- Personnel Recovery
- Command & Control
- Global Integrated ISR
- Cyberspace Superiority

- Space Superiority
- Special Operations
- Rapid Global Mobility
- Nuclear Deterrence Operations
- Agile Combat Support
- Education and Training

AirForce SBIR/STTR
www.afsbirsttr.com

93
The AF Small Business Innovation Research (AF SBIR/STTR) Program

**FY2018 Portfolio**

- Air Force
  - ~$663M
  - +48%

**Inputs**

- Air Force Need Topics
  - Responsive – Urgent Needs
  - Relevant – Service Core Functions
  - Revolutionary – Game Changers

**Investments**

- Phase 2 - Concepts: ~$90M, +11%
- Phase 2 - Prototypes: ~$330M, +48%
- Phase 2+ - Commercialization: ~$230M, +64%
- Program Administration: ~$7M, -41%

**Results**

- Innovation Potential: +11%
- Fueling the Economy: +48%
- Technology Transitions: +48%
- Fielded Capabilities: +64%
- Program Administration: -41%

**Success**

DISTRIBUTION A: APPROVED FOR PUBLIC RELEASE (Case #: 88ABW-2018-3378)
AF SBIR/STTR Program Structure

**PHASE 0**
- **PRE**
- Up to $150K 9-mo. award
- CONCEPT

**PHASE I**
- **YEAR 1**
- Up to $750K 2 -yr. award
- DEMOS AND PROTOTYPE

**PHASE II**
- **YEAR 2**
- **YEAR 3**
- $750K to $1.5M Time varies
- COMMERCIALIZATION AND TECHNOLOGY TRANSITION

**PHASE II+**
- **YEAR 4 - 8**
- (Non-SBIR/STTR Money)

**PHASE III**
- COMMERCIALIZATION READINESS PROGRAM

[Image of program structure]

DISTRIBUTION A: APPROVED FOR PUBLIC RELEASE (Case #: 88ABW-2018-3378)
AF SBIR/STTR “Special Initiatives”

Provide an opportunity for small businesses with an Air Force research and development contract, in particular SBIR/STTR contracts, to test, experiment, conduct data collection, insert, and/or otherwise showcase and demonstrate state-of-the-art warfighting technologies in a realistic operational environment.
“INVENTORS MAKE STUFF....BUT
INNOVATORS
MAKE HISTORY”

— D. Shahady
Contact Us

- Contact the Air Force SBIR/STTR Program Office at 1-800-222-0336 - info@afsbirsttr.com
- Visit our website for SBIR POCs, topic info, newsletter, etc.:

www.afsbirsttr.com
DEPARTMENT OF THE NAVY
SMALL BUSINESS INNOVATION RESEARCH (SBIR)
SMALL BUSINESS TECHNOLOGY TRANSFER (STTR)

www.navysbir.com
navy-sbir-sttr@navy.mil
DON SBIR/STTR Programs

• Primary Program Goals
  • Use small business to develop innovative R&D that addresses DON need
  • Commercialize (Phase III) SBIR-developed technology into a DON platform or weapons/communication system, or for facilities use in expeditionary bases in new “pivot” locales in Africa and Asia

• About the Program
  • Acquisition Driven Process with Strong Technology Pull
  • $400 M+ annual funding supporting small business innovation/research
  • Wide range of SBIR/STTR topics driven by PEO/PM/FNC specific needs
Why Participate in DON SBIR/STTR?

• Largest source of early stage R&D funds for small businesses
• Builds credibility of company’s research
• Data Rights retained for 5 years
  • STTR: small business must have data rights agreement with research institution
• Small business can maintain ownership of equipment purchased under Phase I and Phase II
DON Participating Commands:
Centrally Managed | Decentralized Execution
What is part of DON SBIR/STTR?

We need YOUR solutions
The Navy typically participates in all three BAAs released by DoD each year. The upcoming schedule is listed below.

- The .1/A BAA typically has the largest number of topics and Agency participation, including the Navy.
- FY20.1 BAA will have Standard, ADAPT 2.0, and Direct Phase II topics.

<table>
<thead>
<tr>
<th>BAA</th>
<th>Pre-Release</th>
<th>Open</th>
<th>Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY20.1/A</td>
<td>December 10, 2019</td>
<td>January 14, 2020</td>
<td>February 12, 2020</td>
</tr>
<tr>
<td>FY20.2/B</td>
<td>April 22, 2020</td>
<td>May 20, 2020</td>
<td>June 17, 2020</td>
</tr>
</tbody>
</table>

DISTRIBUTION STATEMENT A. Approved for public release
Missile Defense Agency (MDA)
Missile Defense Agency Mission

To develop and deploy a **layered** Missile Defense System to **defend** the United States, its deployed forces, allies, and friends from missile attacks in **all phases** of flight.

Missile Defense Capability
Globally Deployed
Missile Defense Agency Lines of Effort
In Support Of The National Defense Strategy

• Build Warfighter confidence through focus on readiness and sustainment

• Increase engagement capability and capacity to outpace emerging threats

• Increase speed of delivery of new capability to address the evolving threat

Today’s Missile Defense System Meets Today’s Threat but Requires Additional Capacity and Advanced Capability to Outpace the Evolving Threat
MDA Advanced Research

• Pursue a broad range of high-risk technologies
  - Capitalize on the innovation and creativity of the Nation’s small businesses and universities
  - Develop and transform cutting edge technologies into actual applications for insertion into the BMDS

• Technology insertion into the BMDS is critical

• Advanced Research utilizes the following research vehicles:
  - Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) program
    • 4th largest SBIR/STTR program in the Department of Defense
  - Rapid Innovation Funding (RIF)
  - Broad Agency Announcements (BAA)
    • Missile Defense Science & Technology Advanced Research (MSTAR)
    • Advanced Technology Innovation (ATI)
Technology Interest Areas

**Interceptor Technology**
- Guidance, navigation, & control
- Batteries & power systems
- Advanced materials
  - High temperature
  - Light weight
- Seeker technology
- Rad-Hard technology
- Deployment systems
- Lightweight composites
- Propulsion & control technologies
  - Improved specific impulse

**C2BMC**
- Advanced tracking & discrimination algorithms
- Command & control algorithms
- Low latency and secure communications
- Battlespace management
- Data fusion
- Warfighter training

**BMDS Testing**
- Affordable targets
- Scene generation
- HWIL
- Rapid analysis SW toolkits
- Predictive analysis & modeling
- Range safety

**Modeling & Simulation**
- Lethality
- Battlespace environments
- Engagement
- Aerothermal environments
- Technology investment evaluation
- Test verification

**Sensors**
- EO/IR and radar
  - T/R modules
  - FPAs
- Signal & data processing algorithms
- Rad-Hard technology
- Telescopes & antennas
- Windows & radomes
• SBIR / STTR program is a four step process
  - Phase I: feasibility and concept development
  - Phase II: technology and prototype development
    ➢ Technology may receive one sequential Phase II
  - Phase II Enhancement: Prototype testing and technology
demonstrations and validation ($500,000)
  - Phase III: Commercialization and Transition
Broad Agency Announcement (BAA)

• A competitive research and development contracting approach in the form of a general agency announcement:
  - Identifies areas of research interest
  - Evaluates proposals based on peer or scientific reviews against individual merits rather than against each other

• Meets full and open competition requirements of "The Competition in Contracting Act of 1984"

• The following slides give more information regarding specific BAA programs
Rapid Innovation Fund (RIF) Program

• Established under FY11 Defense Authorization Act (Section 1073)
  - A competitive, merit-based program
  - Accelerate fielding of innovative technologies into military systems
  - Typically, all MDA RIF projects are a SBIR Phase II follow-on
  - Prioritization is given to small business

• Key Requirements:
  - Satisfy an operational or national security need
  - Accelerate or enhance military capability
  - Reduce
    • Technical risk
    • Cost: Development, acquisition, sustainment, or lifecycle
  - Improve timeliness and quality of test and evaluation outcome
  - Provide approach for use by an acquisition program
  - Typical award length 24 months
  - Award values up to $3M
Recent SBIR / RIF / BAA Research Accomplishments

- Inaugurated a nanosat testbed program to demonstrate notional Kill Vehicle communication architecture
- Executed structural test series to validate SBIR developed lightweight unitary nosecone
- Near Net Shape Manufacturing Non-Eroding, Thin Walled, Tungsten
- Completed radiation testing on hardened mirrors
- Developed high-speed test instrumentation
For More Information

www.mda.mil

• Missile Defense News, Images, Videos, Fact Sheets
• BMDS Overview, BMD Basics
• MDA Business Opportunities
• DoD SBIR/STTR website: https://sbir.defensebusiness.org
• SBA SBIR/STTR website: https://www.sbir.gov

To Contact MDA

• SBIR / STTR 256-955-2020 sbirsttr@mda.mil
• University / BAA 256-450-3800 Advanced Research@mda.mil
• Commercialization 256-450-5343 SBIR-PhaseIII@mda.mil

Approved for Public Release 19-MDA-10212 (12 Sep 19)
National Aeronautics and Space Administration (NASA)
VISION
Empower small businesses to deliver technological innovation that contributes to NASA’s missions, provides societal benefit, and grows the US economy.

MISSION
Create opportunities through SBIR/STTR awards to leverage small business knowledge and technology development for maximum impact and contribution.

NASA’s SBIR and STTR programs have awarded more than $3.75 billion to research-intensive American small businesses.

Engineers and scientists from more than 3,100 Firms in all 50 States, DC, and Puerto Rico have participated across the two programs.

Approximately 15,000 total awards have been made to-date.
SBIR/STTR Program Structure

NASA SBIR/STTR PROCESS

PHASE I
- Idea Generation
- $125,000
  - SBIR 6 months
  - STTR 13 months
- I-CORPS

PHASE II
- Prototype Development
- $750,000
  - 24 months

PHASE III
- Infusion/Commercialization
- Non-SBIR Funding

POST PHASE II OPPORTUNITIES

PHASE II – E
- Requires matching funding
  - up to $375,000
  - 6 to 12 months

CCRPP
- Requires matching funding
  - $500,000 to $1,000,000
  - 24 months

Go to sbir.nasa.gov/guide for details
Focus Areas

NASA’s research subtopics are organized by “Focus Areas” that group interests and related technologies.

- Identify the Area(s) closest to your innovation/idea
- Go to our website to research
- Prepare to write a proposal tailored to NASA’s needs

https://sbir.nasa.gov/solicitations
NSF Space Topic

• NSF is including a Space topic in its SBIR/STTR Program

• Given different program goals and criteria, it’s likely that one agency would be a much better fit for any specific project.

• Learn more about the differences between the NSF SBIR/STTR and NASA SBIR/STTR Programs at:

  https://sbir.gsfc.nasa.gov/content/nsf-sbirsttr-space-topic-what-you-need-know
LONG ENDURANCE AIRCRAFT SET WORLD RECORD

Vanilla Aircraft, Falls Church, VA

Innovation

A long endurance Unmanned Aircraft System (UAS) was designed by Vanilla Aircraft to cover thousands of square miles of treacherous terrain in a single flight on one tank of fuel through temperatures below −40 °F. The newly-designed UAS is specifically outfitted with instruments to collect critical information for research missions. Due to its capability for longer missions, fewer missions are needed, translating into reduced operating and personnel costs.

A non-stop, record-breaking unrefueled 56-hour test flight proved the aircraft could meet both NASA’s need to explore remote locations with extreme cold climates as well as the Department of Defense’s desire to add capabilities to support ground forces in critical missions.
Finding Cost Efficiencies in US National Airspace Operations

Robust Analytics, Gambrills, MD

Challenge

The United States National Airspace System (NAS) is comprised of airspace, along with navigation facilities and airports. There are approximately 41,000 NAS operational facilities in the US. Efficient, cost-effective and safe air traffic management operations are critical for NAS.

Innovation

Robust Analytics developed the Air Traffic Cost Assessment Tool (ATCAT), a model that estimates the cost of operating commercial aircraft in the NAS. This innovation offers a greater understanding of the cost drivers for aircraft operators and will help to validate the cost and revenue impacts.
Special Mirrors Help NASA Detect Planets

IRIS AO, Inc., Berkeley, CA

Challenge

Starlight can lower the contrast in images sent back to Earth from a telescope traveling in space, making it harder to detect planets light years away.

Innovation

IRIS AO, Inc. helped NASA to develop deformable mirror (DM) technology that can filter out direct light from stars that limit the visibility of exoplanets. The technology is a key component of starlight blocking instruments on telescopes. The DM is used to correct optical aberrations that otherwise reduce the resolution of an image.

PHASE III SUCCESS

IRIS AO products derived from SBIR funding are available for world-wide distribution by Edmund Optics - approximately $2 million revenue generated annually from the technology developed from NASA SBIR. NASA’s SBIR program invested $875,000.

SNAPSHOT

Since the first exoplanet discovery in 1995, NASA has dedicated resources to develop deformable mirrors for powerful telescopes to determine if there are signs of life beyond Earth on planets outside our solar system.

https://sbir.nasa.gov/success-stories
Contact us and let’s innovate together

Website
www.sbir.nasa.gov

Sign up for our Newsletter
https://sbir.nasa.gov/info

NASA Help Desk
301.937.0888
U.S. Special Operations Command (SOCOM)
Anthony Aldrich
Small Business Innovative Research Program Manager

“Somewhere something incredible is waiting to be known.”
-Carl Sagan
USSOCOM SBIR Technology Insertion

Program Executive Offices
Future and Current Technology Needs

Capability Focus Areas
Technology Representatives for Components and TSOCs*

SBIR
Phase I Topics
Direct to Phase II Leverage

* Theater Special Operations Command (TSOC)
SEA
SPACE
>50% of SOCOM Phase IIs Began as Non-SOCOM Efforts
SBIR LINKS

• USSOCOM SBIR Program:  
  https://www.socom.mil/SOF-ATL/Pages/sbir.aspx

• DoD SBIR program:  
  https://sbir.defensebusiness.org/?AspxAutoDetectCookieSupport=1

• Federal SBIR Program (managed by SBA):  https://www.sbir.gov
U.S. Department of Homeland Security (DHS)
DHS Small Business Innovation Research (SBIR) Programs Overview

2019 SBIR Road Tour

Seeding America's Future Innovations™

SBIR-STTR Miami, FL and San Juan, PR

November 13 and November 15, 2019

Dusty Lang
DHS BAA/Prize Program Manager
Science and Technology Directorate
Homeland Security Missions

- Prevent Terrorism and Enhance Security
- Secure and Manage Our Borders
- Enforce and Administer Our Immigration Laws
- Safeguard and Secure Cyberspace
- Strengthen National Preparedness and Resilience
DHS SBIR Supports…..

- Federal Emergency Management Agency (FEMA)
- Customs and Border Protection (CBP)
- U.S. Coast Guard (USCG)
- Transportation Security Administration (TSA)
- Immigration and Customs Enforcement (ICE)
- Cybersecurity and Infrastructure Security Agency (CISA)
- U.S. Secret Service (USSS)
- Countering Weapons of Mass Destruction Office (CWMD)
- First Responders
S&T’s Visionary Goals

SCREENING AT SPEED:
Security that Matches the Pace of Life

A TRUSTED CYBER FUTURE:
Protecting Privacy, Commerce, and Community

ENABLE THE DECISION MAKER:
Actionable Information at the Speed of Thought

RESPONDER OF THE FUTURE:
Protected, Connected, and Fully Aware

RESILIENT COMMUNITIES:
Disaster-Proofing Society
Today DHS will...
DHS SBIR Program Specifics

- Two Directorates in DHS manage SBIR
  - Science & Technology (S&T) Directorate
  - Countering Weapons of Mass Destruction Office (CWMD)

- FY2019 Budgets:
  - S&T Directorate’s SBIR: $15.3M
  - CWMD’s SBIR: $2.5M

- Topics determined by the government in response to component and HSE needs
  - Solicitation released in early December each year
  - 7-14 topics per year
  - 10 topics in December 2019 solicitation

- Phase I contracts: $150,000
- Phase II contracts: $1,000,000
FY18 and 19 Topics

S&T

• Reach-Back Capability for Fielded Rapid DNA Systems
• ICAM On-the-Fly
• On Body Power Module for First Responders
• Modeling-based Design of Sensors for Chemical Detection in Complex Environment
• Synthetic Training Data for Explosive Detection Machine Learning Algorithms
• Cybersecurity Peer-to-Peer Knowledge/Lessons Learned Tool
• Network Modeling for Risk Assessment
• Blockchain Applications for Homeland Security Forensic Analytics
• Development of a Wearable Fentanyl Analog Sensor
• Cell Phone Location Finder for Maritime and Remote Search and Rescue
• Device to Detect Interference of Communications Systems
• Deterministic Augmentation of RF Transmissions for PNT

S&T continued

• LMR-P25 and LTE Mission Critical Push to Talk Interface Service
• Improved Human Systems for Computed Tomography
• Automated & Scalable Analysis of Mobile & IoT Device Firmware

CWMD

• Detector Integration with Current and Emerging Networked Systems
• Unmanned Aerial System Autonomous Search of Limited Area for Radiological Threats
• Ground-Based Autonomous Robotic Inspection of General Aviation for Radiological Threats
• Exploitation of Security Networks and Video Management Systems for Nuclear Threat Identification and Tracking
• Semiconductor-Based Thermal Neutron Detector Module for Incorporation into Radiation Detector Systems
• Inorganic Microscopy Standardization and Training for Image Analysis

Details available under “Past Solicitations” at https://sbir2.st.dhs.gov/
DHS SBIR Points of Contact

**S&T Directorate**
John Pucci  
SBIR Program Director  
[john.pucci@hq.dhs.gov](mailto:john.pucci@hq.dhs.gov)  
202-254-8764  

S&T Program email  
[stsbir.program@hq.dhs.gov](mailto:stsbir.program@hq.dhs.gov)

**CWMD**
Marissa Giles  
SBIR Program Manager  
[marissa.giles@hq.dhs.gov](mailto:marissa.giles@hq.dhs.gov)  
202-254-7615  

Roger Gima  
SBIR Program/Technical Analyst  
[roger.gima@associates.hq.dhs.gov](mailto:roger.gima@associates.hq.dhs.gov)  
202-254-7033  

DNDO SBIR Program email  
[dndosbir@hq.dhs.gov](mailto:dndosbir@hq.dhs.gov)

**SBIR Portal Help Desk**
Email: [dhssbir@reisystems.com](mailto:dhssbir@reisystems.com)
Phone: 703-480-7676

**To report DHS SBIR fraud, waste and abuse:**
- Anonymous Hotline: 1-800-323-8603  
- Fax: 202-254-4297  
- Mail: DHS Office of Inspector General/Mail Stop 0305  
  Attn: Office of Investigations - Hotline  
  245 Murray Drive SW  
  Washington, DC 20528-0305
Questions?
SBIR Road Tour
SEEDING AMERICA'S FUTURE INNOVATIONS™

Department of Energy (DOE)
U.S. Department of Energy
WHAT DO WE FUND?

• Mission
  • Leadership in clean energy technologies
  • Leadership in basic science and engineering in the physical sciences
  • Enhancement of nuclear security

• SBIR/STTR Research Areas
  • Renewable energy, energy efficiency, grid modernization, advanced fossil fuel technologies, nuclear energy, fusion energy
  • Advanced scientific instrumentation in the physical sciences, advanced computing, atmospheric and environmental monitoring, accelerator technology
  • Nuclear nonproliferation, environmental remediation and clean up
  • More details: http://www.science.osti.gov/sbir/research-areas-and-impact/
HOW DO WE OPERATE?

• Phase I
  • *Issue two Funding Opportunities Announcements annually*—DOE issues grants
  • *Typically very focused topics areas, approximately 70 topics per year*
  • *Awards up to $200,000, 6-12 months duration, ~ 400 per year*

• Phase II
  • *Phase I awardees compete Phase II Awards the following year*
  • *Awards up to $1,100,000 or $1,600,000 (varies by topic), up to 2 years duration, ~180 per year*

• Second & Third Phase II
  • *These award focus on follow-on R&D to achieve commercialization. Third Phase II requires investor matching funds.*
  • *Awards up to $1,100,000, up to 2 years duration*

• Schedule: [https://science.osti.gov/sbir/funding-opportunities/](https://science.osti.gov/sbir/funding-opportunities/)
TAKE ADVANTAGE OF . . .

• Applicants
  • *Phase 0 Application Assistance program for first time applicants*
  • Online application tutorials ([http://science.osti.gov/SBIRLearning](http://science.osti.gov/SBIRLearning))
  • *Partnership with DOE National Labs* ([http://www.science.osti.gov/sbir/applicant-resources/national-labs-profiles-and-contacts](http://www.science.osti.gov/sbir/applicant-resources/national-labs-profiles-and-contacts) and [https://www.labpartnering.org/partnering](https://www.labpartnering.org/partnering))

• Awardees
  • *Select your own commercialization assistance provider or utilize the DOE Commercialization Assistance Program ([http://www.larta.org/doecap](http://www.larta.org/doecap)). Up to $6,500 available for Phase I and $50,000 available for Phase II.*
CONTACT US

- DOE SBIR/STTR Website: [www.science.osti.gov/sbir](http://www.science.osti.gov/sbir)
  - You can join our mailing list on our homepage
- Telephone: 301-903-5707
- Email: sbir-sttr@science.doe.gov
National Institute of Standards and Technology (NIST)
National Institute of Standards and Technology

U.S. Department of Commerce

Paul Zielinski
Director, Technology partnerships Office
Mission

To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.
User Facility & Extramural Programs:
- NIST Center for Neutron Research
- Advanced Manufacturing Office
- Hollings Manufacturing Extension Partnership
- Baldrige Performance Excellence Program
- Special Programs Office
# SBIR 3-Phase Program

<table>
<thead>
<tr>
<th>Phase</th>
<th>Purpose</th>
<th>Duration</th>
<th>Funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>Feasibility</td>
<td>6 months</td>
<td>Up to $100,000</td>
</tr>
<tr>
<td>Phase II</td>
<td>R&amp;D</td>
<td>2 years</td>
<td>Up to $400,000</td>
</tr>
<tr>
<td>Phase III</td>
<td>Commercialization</td>
<td>No Limit</td>
<td>Non-SBIR funds</td>
</tr>
</tbody>
</table>
Program Timeline (tentative)

• Phase I Solicitation Release Date: January
  *(available at www.nist.gov/sbir & grants.gov)*

• Phase I Proposals Due: April

• Phase I Awards: June/July

• Phase II Proposals Due: April

• Phase II Awards: June/July

NIST awards are cooperative agreements.
- Advanced Communications, Networks and Scientific Data Systems
- Advanced Manufacturing and Material Measurements
- Cybersecurity and Privacy
- Fundamental Measurement, Quantum Science and Measurement Dissemination
- Health and Biological Systems Measurements
- Physical Infrastructure and Resilience
- Exploratory Measurement Science
- Technology Transfer
Proposal Evaluation

Administrative Review

Merit/Technical Evaluation
(1) Technical Approach (20 points)
(2) Appropriateness of staff and facilities (5 points)
(3) The likelihood that the proposed research program will lead to a successful product or service (30 points)
(4) Anticipated commercial benefits of the resulting product or service. (20 points)
(5) Relationship to the goals of a NIST technical program and the NIST mission. (20 points)
(6) SBIR Programmatic priorities (5 points):
   a) manufacturing-related and energy-efficiency research
   b) women, socially and economically disadvantaged SBCs, and SBCs from HUBZones or under-served states
The new breast phantom consists of two components. The one at left is designed to provide a standard for measuring proton spin relaxation time, which varies with different kinds of tissue. The one at right provides references for imaging diffusion.
Small Business Innovation Research Program (SBIR)

The National Institute of Standards and Technology’s SBIR program solicits R&D proposals from small businesses that respond to specific technical needs described in the subtopics of the annual Solicitation. Information regarding the subtopics will be made available only via the Solicitation. Please see the Resources below for more information on the specifics of the program.

SBIR BULLETIN BOARD

NIST SBIR Phase I
The FY 2018 NIST SBIR Phase I Notice of Funding Opportunity is closed.

NIST SBIR Phase II
The FY 2018 NIST SBIR Phase II Notice of Funding Opportunity is closed.

Contact
Mary Clague
NIST SBIR Program Manager
100 Bureau Dr., M/S 2290
Germantown, MD 20899-2290
E-Mail: mary.clague@nist.gov
Phone: 301-975-4189

Additional Links
DOD Office of Inspector General
DOD OIG Investigations
DOD Suspension and Debarment Handbook
Successful Prosecutions of SBIR FWA
Examples of FWA
NIST SBIR FWA page
 SBIR FWA

Compliance with SBIR Program Requirements Applicant Fraud Awareness Training

http://www.nist.gov/sbir
Contact Information

Thank you!

Paul Zielinski, Director Technology Partnerships Office
Paul.Zielinski@nist.gov, 301-975-4980

Mary Clague, NIST SBIR Program Manager
mary.clague@nist.gov 301-975-4188
Surprising Opportunities with DoD and NASA

Moderator: SBA
Small Business Administration

Anne Neumann
Defense Advanced Research Projects Agency (DARPA)

Gwenevere Jasper
National Aeronautics and Space Administration (NASA)

Claudia Lazo
Naval Sea Systems Command (NAVSEA)

Mario Rios
U.S. Air Force (USAF)
USPTO Resources for Independent Inventors, Small Business Owners, and Entrepreneurs

NaThanya Ferguson
Supervisory Innovation Development Program Manager
Types of intellectual property

- **Patent**: New, inventive ideas
- **Trademark**: Identifies the origin of goods or services
- **Copyright**: Creative expression stored in a tangible form
- **Trade secret**: Any information that is valuable & kept confidential
Inventor and entrepreneur resources

• USPTO’s hub for resources and information for inventors, entrepreneurs, and small businesses.

• Webpage: www.uspto.gov/inventors
Inventor and entrepreneur resources by state

Resources and assistance in your state for filing for a patent or registering a trademark

• Free patent and trademark legal assistance
• Learn to search inventions and trademarks
• Attend events in your region
• Network with inventor and entrepreneur organizations in your state
• Accessible via uspto.gov homepage
  – New to IP? Find help in your area

New to IP?
Learn the basics of intellectual property.

Patent basics »
Trademark basics »
Find help in your area »
USPTO offices

Detroit
- Operational since July 2012

Denver
- Byron G. Rogers Federal Building
- Operational since July 2014

Silicon Valley
- San Jose City Hall Building
- Operational since October 2015

Dallas
- Terminal Annex Federal Building
- Operational since November 2015
Eastern Region – USPTO headquarters
600 Dulany Street, Alexandria, Virginia

Core Functions:
• Receipt and examination of patent and trademark applications
• U.S. and international IP policy development
• Oversight and management of USPTO operational functions
• Stakeholder engagement and training

• Office hours: 8:30 a.m. – 5 p.m. ET, M – F
• Services
  – Public search facility hours 8 a.m. – 8:00 p.m.
  – Examiner interview rooms
  – PTAB and TTAB hearing rooms
  – Public meeting space
  – National Inventors Hall of Fame Museum, 10:00 a.m. – 5:00 p.m.
Pro Se Assistance Program

• Hours of Operation
  – 8:30 a.m. – 5 p.m. (ET), Monday through Friday

• Email
  – innovationdevelopment@uspto.gov

• Phone
  – (866) 757-3848
  – Webpage
    www.uspto.gov/ProSePatents
Trademark Assistance Center (TAC)

• Provides general information about the registration process
• Responds to status inquiries
• Hours of Operation
  – 8:30 a.m. – 8 p.m. (ET), Monday through Friday
• Phone
  – (571) 272-9250 or (800) 786-9199
• Email
  – TrademarkAssistanceCenter@uspto.gov
• Webpage: www.uspto.gov/TrademarkAssistance
Patent and Trademark Resource Centers (PTRC)

Nationwide network of public, state, and academic libraries that are designated by the USPTO to disseminate patent and trademark information and to support intellectual property needs of the public.

www.uspto.gov/PTRC
Free legal assistance*

- Patent Pro Bono Program
- Law School Clinic Certification Program

*Applicant(s) must pay for all USPTO fees
Patent Pro Bono Program

File and prosecute patent applications: The program matches financially under-resourced inventors and small businesses with registered patent attorneys.
• 22 regional programs across the country provide matching services.
Patent Pro Bono Program

• Learn more about how to apply for patent pro bono assistance:
  – www.uspto.gov/probonopatents

• Questions? Please email: probono@uspto.gov
Patents Ombudsman Office

• Assists applicants throughout the application process including initial filing, patent examination, and post examination

• Helps applicants get their applications back on track.

• Hours of Operation: 8:30 a.m. – 8 p.m. (ET), Monday through Friday
  – Telephone: (571) 272-5555 or (855) 559-8589
  – Email: PatentsOmbudsmanProgram@uspto.gov

• Website:
  – www.uspto.gov/Ombudsman
Thank you!

NaThanya Ferguson
Supervisory Innovation Development Program Manager
Nathanya.Ferguson@uspto.gov
571-272-8033
www.uspto.gov
Flexible Funding Opportunities:
The Granting Agencies

Moderator: SBA
Small Business Administration

Christopher O’Gwin
U.S Department of Energy (DOE)

Henry Ahn
National Science Foundation (NSF)
Inside the Head of an Evaluator: Common Mistakes

Moderator: SBA
Small Business Administration

James (Mike) Madewell
Missile Defense Agency (MDA)

Steven Konsek
National Science Foundation (NSF)

Melissa Wong
U.S. Department of Transportation (DOT)

Anthony Aldrich
U.S. Special Operations Command (SOCOM)
SBIR Road Tour
SEEDING AMERICA’S FUTURE INNOVATIONS™