Small Business Innovation Research Small Business Technology Transfer

Dr. Joseph Grant | STTR Overview | 05.08.18

www.nasa.gov
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.
Small Business Innovation Research (SBIR)

• A set-aside program for small business to engage in Federal R&D – with potential for commercialization

• For FY17, 3.2% of Federal agencies Extramural R&D budgets greater than $100M per year
The STTR Program

Small Business Technology Transfer (STTR)

• STTR facilitates cooperative R&D between small business concerns and U.S. research institutions – with potential for commercialization

• For FY17, 0.45% of the extramural research budget for all agencies with a budget greater than $1B per year (5 federal agencies presently participate)

• The STTR program has a statutory requirement to stimulate a partnership of ideas and technologies between innovative small business concerns (SBCs) and Research Institutions through Federally-funded research or research and development (R/R&D).

• STTR also adheres to SBA directives to increase participation by Women-Owned, Veteran-Owned and Small Disadvantaged Businesses and outreach to HBCUs and Minority Serving Institutions. Outreach is also made to under represented areas/regions of the country.
Participating Federal Agencies

SBIR + STTR Programs

- Department of Defense (DoD)
- Department of Health and Human Services (HHS)
- Department of Energy (DoE)
- National Aeronautics and Space Administration (NASA)
- National Science Foundation (NSF)

SBIR Program Only

- Department of Agriculture (USDA)
- Department of Education (DoEd)
- Department of Transportation (DoT)
- Environmental Protection Agency (EPA)
- Department of Homeland Security (DHS)
- Department of Commerce (DoC)
### Eligibility Requirements

#### Small Business Innovation Research (SBIR)

1. Organized for-profit U.S. business
2. At least 51% U.S. owned by individuals and independently operated
3. 500 or fewer employees
4. Principal Investigator’s primary employment with small business during project
5. Intellectual Property Agreement

**SBIR Phase I award rate: ~25%**  
**SBIR Phase II award rate: ~40%**

#### Small Business Technology Transfer (STTR)

1. Formal Cooperative R&D effort with a U.S. Research Institution
2. Minimum 40% by small business, 30% by U.S. Research Institution
3. Small business is Prime, Principal Investigator can be from Small Business Concern or Research Institution
4. Other SBIR requirements apply

**STTR Phase I award rate: ~40%**  
**STTR Phase II award rate: ~40 to 70%**
NASA has Four Mission Directorates

**Space Technology Mission Directorate (STMD):** Develops and operates an overall program of science and exploration.

**Aeronautics Research Mission Directorate (ARMD):** Expands the boundaries of aeronautical knowledge.

**Science Mission Directorate (SMD):** Enables a new class of missions to deliver innovative solutions that dramatically improve technological capabilities for NASA and the Nation.

**Human Exploration and Operations Mission Directorate (HEO):** Provides leadership and management of NASA’s human space exploration programs.
Why Should You Participate in SBIR/STTR?

For the Small Business Concerns

- Opportunity to Leverage expertise and innovative ideas from Professors/Research Staff/Students
- Opportunity to leverage specialized facilities and experimental equipment at the Research Institutions (RIs) when often SBCs may not be able to afford such facilities on their own
- Opportunity to Create Pipeline of Usable Talent for Company from the RIs
- Develop working relationship & credibility with government R&D
- Fosters partnerships with large corporations and academia
- Provides recognition and visibility for your business
- Participation attracts venture capital and other funding sources

For the Research Institutions

- Opportunity to Create/Inspire Entrepreneurship as a vital part of the Educational Experience
- Another opportunity to access federal funding for research
- An opportunity sometimes to get RI Intellectual Property (IP) involved in the project and licensed
- Another means for visibility in the research community, generate peer-reviewed pubs., etc.
## Agency SBIR / STTR Differences

### Contracting Agencies
- Agency establishes plans, protocols, requirements
- Highly focused topics
- **Procurement** mechanism for DOD and NASA
- More fiscal requirements

### Granting Agencies
- Investigator initiates
- Approach
- Less-specified topics
- **Assistance** mechanism
- More flexibility

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| NASA, DoD, HHS/NIH, ED, EPA, DOT, DOC | HHS/NIH, NSF, ED, USDA, DOE |
SBIR/STTR Program Structure

Phase I: Concept
• Award Guideline: $125K
• Duration: 6 months (SBIR) 13 months (STTR)

Phase II: Full Research R&D to Prototype
• Award Guideline: $750K
• Duration: 24 months
  • Phase II-E → 1:1 Matching up to $375K

Phase III: Transition to Commercialization/Infusion
Non-SBIR/STTR funds
• Contract from NASA program or other Agency
• Prime contractor

Go to www.sbir.nasa.gov for details
Patent Rights

- Small business concerns normally retain the principal worldwide patent rights to any invention developed with Government support.

Government Use


U.S. Patent and Trade Office
http://www.uspto.gov/
Data Protection

Protection Period
• Data generated from your R/R&D is protected from public disclosure for a minimum of 4 years (civilian agencies) or 5 years (DOD) after the conclusion of your award (Phase I, Phase II, or federally funded Phase III)

Government Use
• The Government retains a royalty-free license for Government use of any technical data delivered under an SBIR award, whether patented or not
Working with Small Businesses

FY17 Phase I SBIR/STTR Awards Data Points

- 34% of applicants are new to the program
- 18% of the awards are first time winners
- 79% of firms have less than 26 employees
- 88% of firms have more than 51 employees
I-Corps

In partnership with the National Science Foundation (NSF), NASA is offering the I-Corps program to educate selected teams on how to translate technologies from the laboratory into the marketplace.

http://sbir.nasa.gov/content/I-Corps
The NASA Mentor-Protégé Program encourages NASA prime contractors to assist eligible protégés to:

• Enhance their capabilities to perform on NASA contracts and subcontracts,

• Foster the establishment of long-term business relationships between these entities and NASA prime contractors, and

• Increase the overall number of these entities that receive NASA contract and subcontract awards.

For more information on the Mentor-Protégé Program visit: http://www.osbp.nasa.gov/mpp/index.html
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
NASAs Technology Roadmaps

https://www.nasa.gov/offices/oct/home/roadmaps/index.html
Checklist before Submitting Application

- Submit proposal prior to the deadline
- Perform the “Endorse Proposal” step, which is the final step in the submissions process
- Make sure you meet the format requirements (margin and font size, page limitation)
- Have the RI register correctly (STTR Requirement)
  - For STTR proposals the RI needs to endorse the Research Agreement prior to your proposal being complete and submitted
    - RI will need to create an account in the Proposal Submission EHB
    - register under your firm using your EIN, State, and PIN so they are attached to your proposal correctly
    - choose the RI option at the bottom of the page when entering their name, email, phone etc
2018 Solicitation is Closed

NASA SBIR/STTR
2018 PROGRAM
SOLICITATION
OPENS
JANUARY 11, 2018

Website: www.sbir.nasa.gov    NASA Help Desk: 301.937.0888
The NASA SBIR/STTR website is located at www.sbir.nasa.gov

Research NASA’s Needs
- Annual Solicitations including past years

Looking to Join the Program?
- Program Basics
- Forms Library
- Model Contract
- In-depth Training Resources and FAQs

Contact the Program
SBIR/STTR Helpdesk and Program Points of Contact
Success Stories

NASA SBIR/STTR Success
Easy and Non-intrusive Nanoscale Diagnostic Platform

DNA Medicine Institute (DMI), Cambridge, Massachusetts

Challenge

NASA had been searching for ways to monitor the health of astronauts during long missions using tests that would be easy to administer and are not intrusive. NASA also wanted to enable astronauts to address medical issues immediately without waiting for guidance from mission control.

Innovation

DMI developed a comprehensive nanoscale diagnostic platform to meet these stringent requirements. The solution includes fluorescence-based test strips, a hand-held sensor and software to generate a medical results dashboard.

https://sbir.nasa.gov/success-stories
PHASE III SUCCESS

Recent Phase III follow-on contracts with NASA worth $200K to supply the UBC to the International Space Station; technology results in cost savings of $2 million per launch.

SNAPSHOT

Aurora Flight Science has utilized the NASA SBIR program to develop a Universal Battery Charger for use on the ISS capable of interfacing with the most commonly used batteries on board.

ISS Universal Battery Charger (UBC)

Aurora Flight Sciences Corporation, Manassas, VA

Innovation

From camcorders and digital cameras, to science experiments, to drills, the International Space Station is home to a handful of tech gadgets and power tools that constantly need to be charged. Just like on Earth, all of these things require their own dedicated chargers. While the obvious inconvenience of lugging dozens of various adapters to space might seem like reason enough to invest in a universal battery charger, the driving force is actually the cost. The estimated total to launch 1 kg (a little over 2 pounds) of equipment into orbit is over $10,000. Although the newer launch vehicles may drive that figure down, it will still cost thousands of dollars to send equipment into space – necessitating a simpler, cost-effective system for use on the ISS.

https://sbir.nasa.gov/success-stories
Compact Lightweight Sampling Drill for Planetary Exploration

Honeybee Robotics, Ltd., New York, New York

Innovation

From Brooklyn, New York-based Honeybee Robotics has spent over fifteen years developing advanced robotics systems and planetary drills that allow scientists to explore planets in three dimensions. The company’s meter-class drill extraction systems were originally intended for lunar missions. Honeybee had a vision of sustaining a human or robotic presence on the Moon to mine local resources from a central base, thus decreasing the cost and wait times associated with sending them up from Earth.
Contact us and let’s innovate together

Website: www.sbir.nasa.gov

NASA Help Desk: 301.937.0888