

National Science Foundation: America's Seed Fund for Innovative Technology

April 2021



Agenda

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- 2. NSF SBIR/STTR Overview**
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- 4. NSF Solicitation/Review Process**
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SBIR/STTR Overview



SBIR · STTR
America's Seed Fund

About the **SBIR/STTR** program

- Small Business set-aside: \$3.7 billion federal program for early-stage research and development projects leading to commercialization of products, processes or services.
- SBIR = Small Business Innovation Research
 - Established in 1982
 - 3.2% set-aside extramural R&D budget = \$3.28B
- STTR = Small Business Technology Transfer
 - Established in 1992
 - 0.45% set-aside extramural R&D budget = \$453M



SBIR · STTR
America's Seed Fund

About the SBIR/STTR program (cont.)

- Largest source of early-stage, high-risk technology financing in the United States
 - Meet federal R&D needs by stimulating technology innovation
 - Foster and encourage participation by women & socially/economically disadvantaged individuals
 - Foster technology transfer between small businesses & research institutions
 - Technically competitive proposal process – over 5,000 awards made annually!

Differences between SBIR & STTR

	SBIR	STTR
Purpose	R&D of technology for commercialization	Promote R&D between private and public sector
Partnering	Permits partnering with a nonprofit research institution	Requires nonprofit research institution partner
Principal Investigator	Primary employment (>51%) must be with the small business	May be employed by either the research institution or the small business
Work Requirement Based on Budget	May subcontract up to: 33% (Phase I) 50% (Phase II)	Minimum: 40% Small business 30% Research institution partner
Program Size	\$3.28 billion	\$453 million
Majority VC Ownership	Allowed by some agencies	Not allowed
Participating Agencies	11	5

Participating federal agencies*

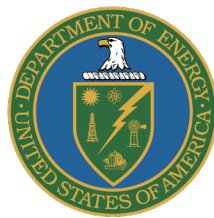
SBIR and STTR



\$1.8B



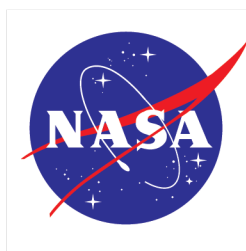
\$1.15B



\$308M



\$212M



\$183M

SBIR



\$30M



\$17M



\$3.9M



\$8.4M



\$5.2M



\$3.6M

* Based on the FY2019 budget

Three Phase Process



Solicitation to Award Process



NSF SBIR/STTR Program Overview

Dr. Ben Schrag – Senior Program Director

www.seedfund.nsf.gov

Company Considerations



Businesses that qualify for SBIR/STTR funding

- Must be for-profit, independently owned and operated, and have less than 500 employees, including affiliates
- 51% + ownership by U.S. citizens/permanent residents
- Principal place of business in the U.S.
- Work must be done in the U.S.
- Focus is on performing research & development — not purchasing equipment or commercializing a previously developed technology.



Requirements:

- Small Business is always the applicant
- Principal Investigator – At time of award:
 - SBIR: must be more than 50% employee of the business
 - STTR: PI may be from Research Institution
- Have expertise to oversee the effort scientifically and technically

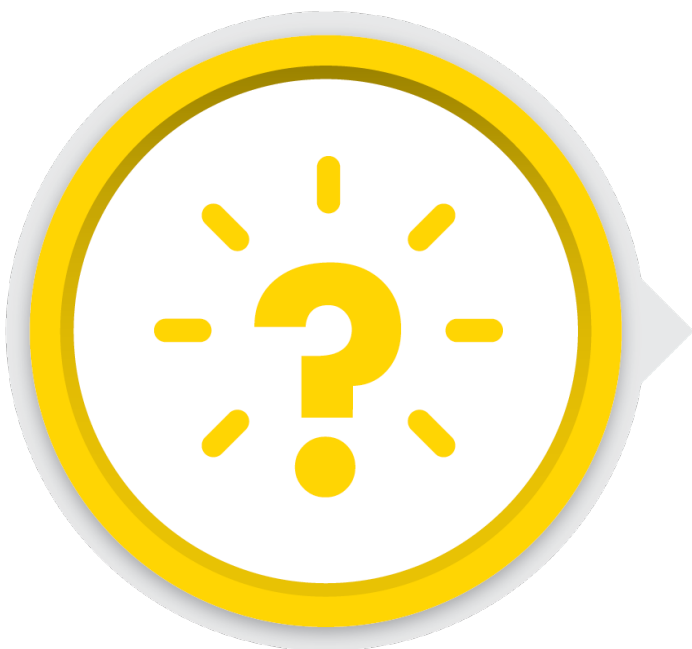


Benefits of SBIR/STTR

In addition to funding for your innovative project, these programs have several unique benefits:

- No repayment or cost match
- Non-Dilutive Capital
- Intellectual Property (IP)/Data Rights Protection
- Direct follow-on Phase III awards
- Typically only source of early-stage R&D Funding
- Caveat – patient capital 3-5 years from idea to market

Knowing if it's right for your business



Before diving into the process, you need to answer these questions honestly:

- Do I have the technical competence?
Can I oversee the project's development? If not, can I assemble a team? Partner with another business?
- What will this innovative technology achieve?
Does it meet the company's goals? Have societal merit?
Provide a strong ROI?
- What's my long-term plan?
Am I ready to commit 3–4 years to commercializing this innovation? Do I want to run the business then? Do I have a technology and business roadmap in place?

Small businesses don't have to stay small

These major corporations got to where they are today thanks in part to the SBIR program.



NSF Project Pitch and Solicitation

www.seedfund.nsf.gov

Project Pitch

- Must submit Pitch in order to receive invite
- 4 areas – either 500 or 250 words
 - Technology Innovation,
 - Technical Objectives and Challenges
 - Market Opportunity
 - Company/Team
- Must show:
 - Commercial potential
 - Societal benefit
 - Technical risk
- Invite is good for one year
- MTI's Technical Assistance Program (TAP) can help you draft a convincing pitch

NSF Request for Application

- SBIR – NSF 21-562
- STTR – NSF 21-563
- Core of Proposal – The Project Description – 10-15 pages
 - Elevator Pitch (1 pg.)
 - The Commercial Opportunity (2-4 pgs.)
 - Technical Solution (1-3 pgs.)
 - The Company/Team (1-3 pgs.)
 - Intellectual Merits – Technical Discussion and R&D Plan (5-6 pgs.)
 - Broader Impacts (new this year) (1 pg.)

NSF Request for Application

- Balance of Proposal:
 - References cited
 - Biographical Sketches
 - Budget/Subaward & Justifications
 - Current & Pending Support of PI/Senior Personnel
 - Collaborators & Other Affiliations
 - Facilities, Equipment and Other Resources
 - Supplementary Documents – Seven “as applicable” & required documents
 - Letters of Support – no more than three!
 - Human Subject/Vertebrate Animals
 - Resubmission Change Description

The Review Process

NSF Criteria for Award



- Intellectual Merit – advance knowledge
- Broader Impacts – benefit society
- Scientific Premise – sound rationale for research plan
- Firms' Qualifications – ability to conduct research
- Commercial Potential
 - Market potential
 - Compelling business model
 - Company expertise, experience
 - Funding – catalyst to commercialization

Other Notable Items

- Proposals reviewed by outside experts – academia, businesses and consultants
- STTR awardees – Complete a Cooperative Research Agreement
- NSF Phase IIB – Match funding program – up to \$1M
- Phase I profit allowability – 7%
- Phase II profit allowability – 10%
- Beat-the-Odd's Bootcamp (ICorps program)
- Technical and Business Assistance

Timeline to Commercialization

Commercializing an innovation with the SBIR program can take up to two years.



2 to 4 months to write and submit a proposal

4 to 6-month review process by internal or external panel of reviewers

1 to 2-month award process

6 to 12-month period of performance for Phase I

On average a 3-5 year program but uses OPM (other people's money)!



Submit Phase II proposal

4-month review process

2-year period of performance for Phase II

Commercialization

SBIR/STTR Reality

- Highly Competitive – Requires excellence in all aspects of competition process
- Funding generally NOT CONTINUOUS between Phase I and Phase II
- A credible project team must be assembled
- A viable commercialization plan is critical
- You need to submit an excellent and compelling proposal that excites reviewers, is complete and is innovative

Registrations

- Register the business with the IRS and receive a Taxpayer Identification Number
- Register with Dun & Bradstreet at <http://fedgov.dnb.com/webform> (free, 1 day)
- Register with System for Award Management (SAM) at <https://www.sam.gov> (free)
- Register with SBIR.gov: www.sbir.gov
- Register with NSF: www.research.gov/
- NSF Submission Portal: <https://www.fastlane.nsf.gov/index.jsp>

Register early - There are no exceptions – except death or illness
Contact your local counselor from the Maine PTAC for assistance –
www.maineptac.org

Registrations are free!

MTI's SBIR/STTR Support Programs



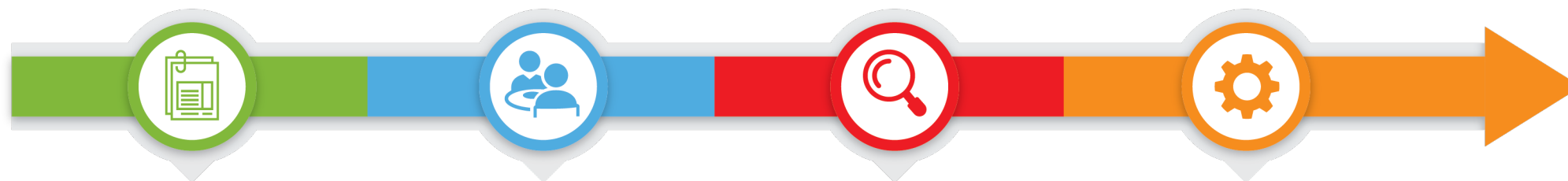
MTI's Technical Assistance Program is here to help. Companies using TAP assistance are more likely to win an award.

The TAP team provides free, expert guidance to Maine small businesses seeking SBIR/STTR funding, including:

- Overview of the program & participating agencies
- Proposal development support
- Commercialization strategy & market research
- Accounting assistance
- Technical editing and review
- Form preparation
- Follow-on assistance for Phase II proposals
- NIH/Biotech support available

Application process when working with TAP

Developing a SBIR/STTR proposal can take 2–3 months. Here is how the process unfolds:



Intake

Fill out an intake form at MaineTechnology.org

Discovery

Meet with TAP team member

Solicitation

Identify one that fits your technology

Registration

Register with appropriate organizations



Proposal

Development and gathering letters of support



Review

Iterative process of refining proposal



Submission

Finalize and submit electronically

MTI Funding

In addition to free TAP support, MTI also offers funding to help support activities to improve the quality of SBIR/STTR proposals.



Phase I

Support for grant writing, market reports, technical expertise.



Phase II

Support to improve business maturity and business development to make commercialization more likely, which makes an application more competitive.

SBIR/STTR in Maine

Maine SBIR/STTR Award Snapshot



Over 114 small businesses have won 397 awards



Maine's small businesses have received over \$115M since 1997



Businesses in all 16 Maine counties have received awards



With MTI support, companies tend to have a higher success rate than going it alone!



2020 SBIR Tibbetts Awardee!



MTI's guidance throughout the SBIR process was crucial in getting our grant approved.



RockStep Solutions

RockStep Solutions is the creator of Climb, a project management platform that digitalizes a critical step in the biomedical research process. Used by top research institutions and pharmaceutical manufacturers, Climb has reduced the time and errors involved in drug development — which in turn saves money and potentially lives.

NIH Phase I SBIR award to prove the technology and its need in the medical research field.

Phase II SBIR award to produce a minimal viable commercialized product.



Chuck Donnelly, Co-Founder & CEO



UNAR Lab, Inc.

UNAR has developed an assistive technology that allows visually-impaired individuals to access graphical information — such as charts, maps and diagrams — through smartphones and tablets. Their innovations have empowered people with visual-impairments to access digital information.

\$225,000 NSF Phase I award to develop multimodal interface for improving independence of blind and visually-impaired people.

\$1,000,000 NSF Phase II award

\$300,000 NIH Phase I award



Don't apply to every SBIR that you could possibly do. Focus on ones that legitimately extend your technology and move you toward your company's end goal.



Kay Aikin, CEO

Introspective Solutions

Introspective Solutions is addressing the problem of 'prosumer' integration into the national grid by seamlessly fusing a scalable fractal graph energy distribution framework with a modern approach to cryptocurrency ledgers that will reduce the cost of tracking transactions with a transactive energy system.

Numerous Phase I and Phase II awards from the Department of Energy for innovations in the national grid, microgrids and energy transactions.



Montalvo Corporation

Montalvo an industry leader in Web Tension Control — an important process in many commercial manufacturing operations. They've been in business for over 60 years and have used their unique knowledge to innovate in their industry.

\$225,000 NSF Phase I award to create new tension control device for composite manufacturing.

\$750,000 NSF Phase II award for product prototypes and field testing.

\$250,000 NSF Phase IIB award for commercialization.

Next Steps



Learn more

- Explore SBIR.gov
Look at the various agencies, topics, awards and solicitations
- Network and talk to others
- Better understand your technology
Where does it fit in the market? What makes it unique?

Get started



- Complete an intake form at MaineTechnology.org to begin working with the TAP team
- Mentally prepared to spend 140–180 hours to write a competitive proposal
- Complete registrations — contact Maine PTAC for assistance
- Pull together your team
- Read the solicitation, over and over and over again
- Understand the elements of a proposal

Thank You

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