



SBIR • STTR
America's Seed Fund

Small Business Innovation Research & Small Business Technology Transfer Programs

at the National Science Foundation

Presenter: Ruth Shuman, Ph.D.
SBIR/STTR Program Director

NSF's Small Business Funding Programs

Photo Credit: Ginkgo BioWorks





Funding for Small Businesses

Small Business Innovation Research (SBIR)

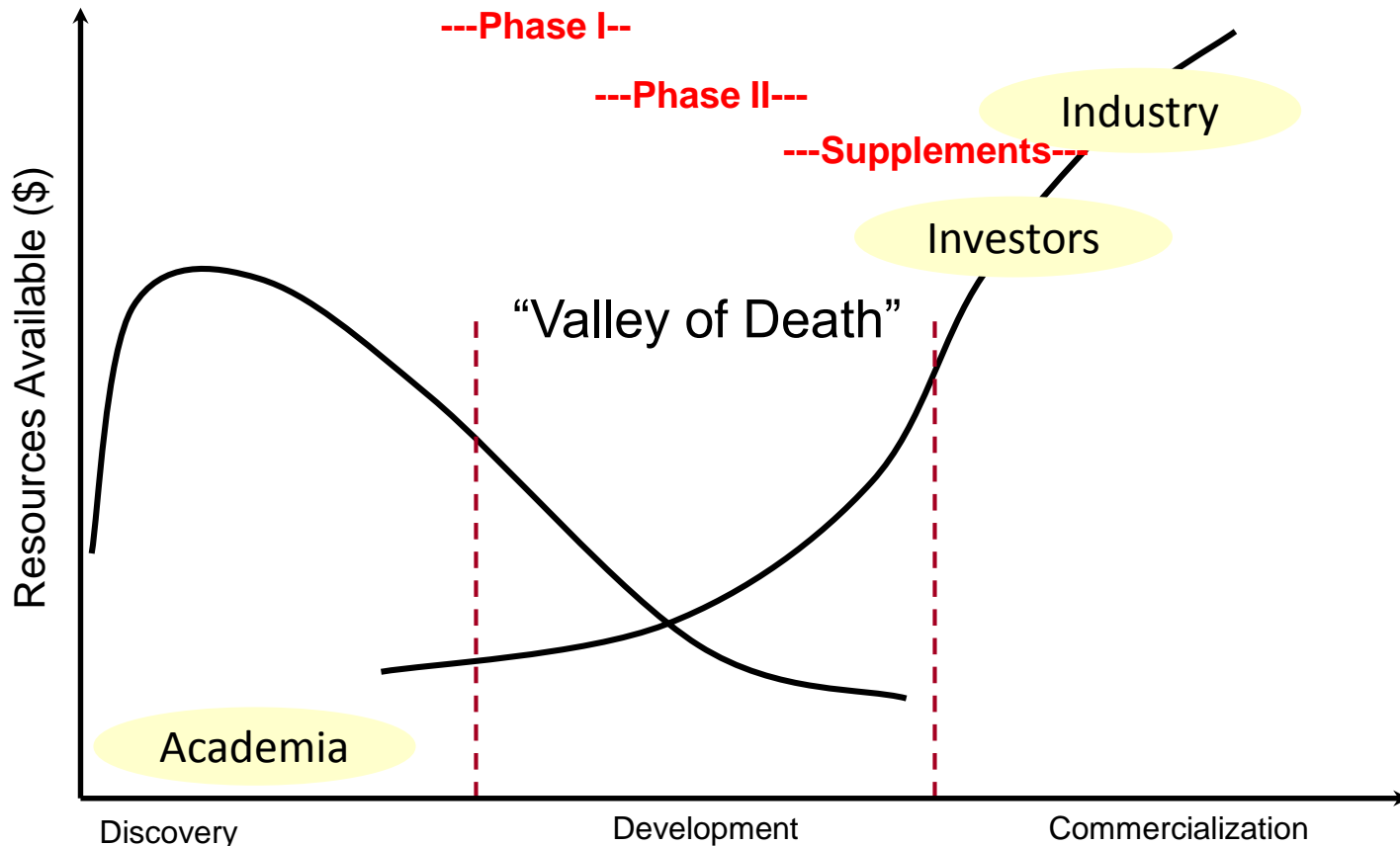
and

Small Business Technology Transfer (STTR)

- Pre-seed funding for small businesses to catalyze the commercialization of high-risk technological innovations
- Typically, first money into the company to fund proof-of-concept
- \$190 million annual budget in 2016
- Fund about 400 companies each year
- Grants, not contracts, not loans – equity-free investment for R&D



NSF Funding: Bridge to Private Investment





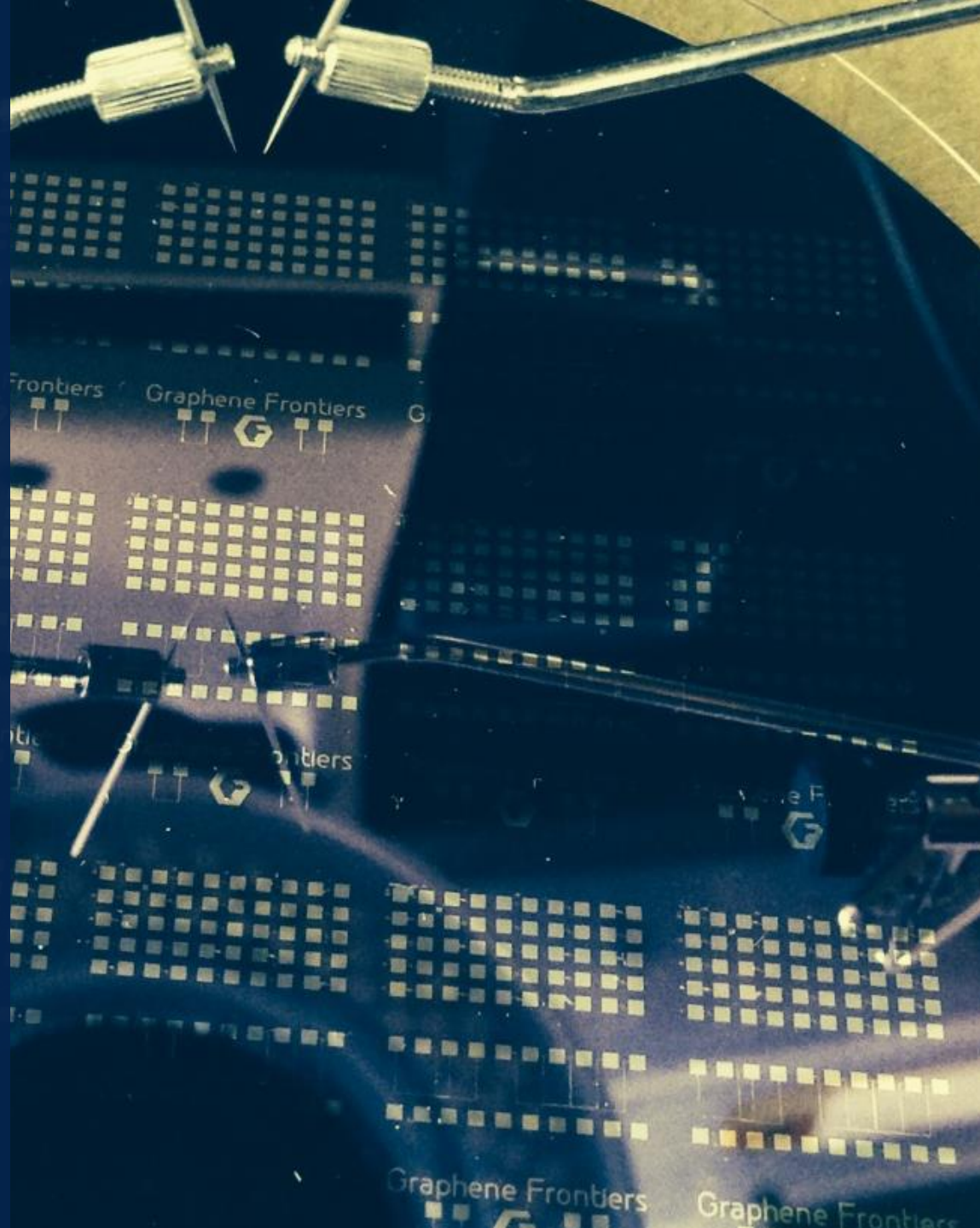
Aims of the Program

- Provide funding to startups developing high-impact engineering and science-based products and services
- De-risk technology development to encourage private investment
- De-risk value proposition and business model
- Long-term economic growth that will result in measurable revenue and job growth

WHAT IS THE NSF SBIR/STTR PROGRAM?

- Who We Are
- Why We Fund
- Other Benefits

Photo Credit: Graphene Frontiers, LLC





NSF's SBIR/STTR Funding Programs

- Funding for small businesses to conduct R&D critical to commercial success
- Supports transformational, game-changing technology at an early stage
- Makes investments across a **broad range** of technologies and applications areas



Why We Fund

- The SBIR program is federally mandated; 11 federal government agencies participate
- Congress designated 4 major goals for SBIR in the **Small Business Innovation Development Act of 1982**:
 - Stimulate technological innovation in the private sector
 - Use small business to meet federal R&D needs
 - Foster and encourage participation by socially and economically disadvantaged, and women-owned, persons in technological innovation
 - Increase private-sector commercialization of innovations derived from federal R&D



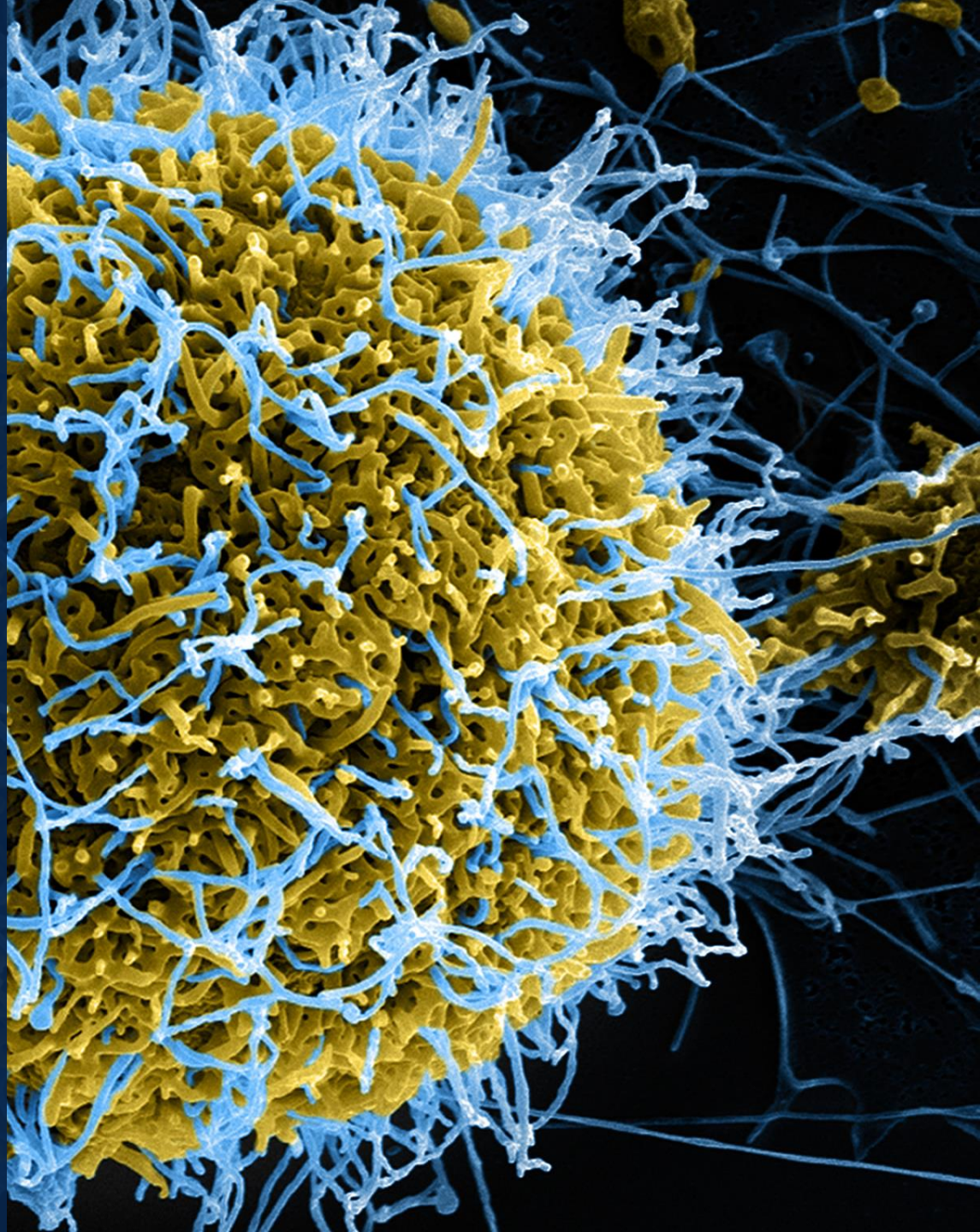
NSF SBIR Awards Go Beyond Funding

- Strongly encourages and supports commercialization
- Recipients receive training in stage-appropriate business areas and mentorship from seasoned Program Directors
- Receiving an SBIR/STTR award signals success to investors, partners, and customers
- Connection to other small companies working on innovative R&D

PROGRAM STATS

- Grantee Profile

Photo Credit: National Institute of Allergy and
Infectious Diseases, NIH





Program Stats

NSF SBIR/STTR Phase I Grantees

- **Company Size:** ~ 92% of awardees have 10 or fewer employees
- **History:** ~ 87% of awardees had never had a prior SBIR/STTR Phase II award from any agency
- **Company Age:** ~ 78% of awardee companies were incorporated within the past 5 years
- **Start-up Creation:** Many Phase I awardees have just formed their business based on the availability of SBIR funding



Program Stats – Past 3 Years

- Phase I: Average of 338 awards from 2,112 proposals received per year (**16% funding rate**)
- Phase II: Average of 118 Phase II awards from 303 proposals received per year (**39% funding rate**)
- About 10-15 Phase II companies are acquired each year
- About half of all Phase II grantees raise significant third-party funding during the Phase II award as a direct result of their NSF research (~ \$60 million cumulative per year)

FUNDING

- What We Fund
- Phase I Funding
- Phase II Funding
- Technology Topic Areas



Photo Credit: PhylloTech, LLC



What We Fund

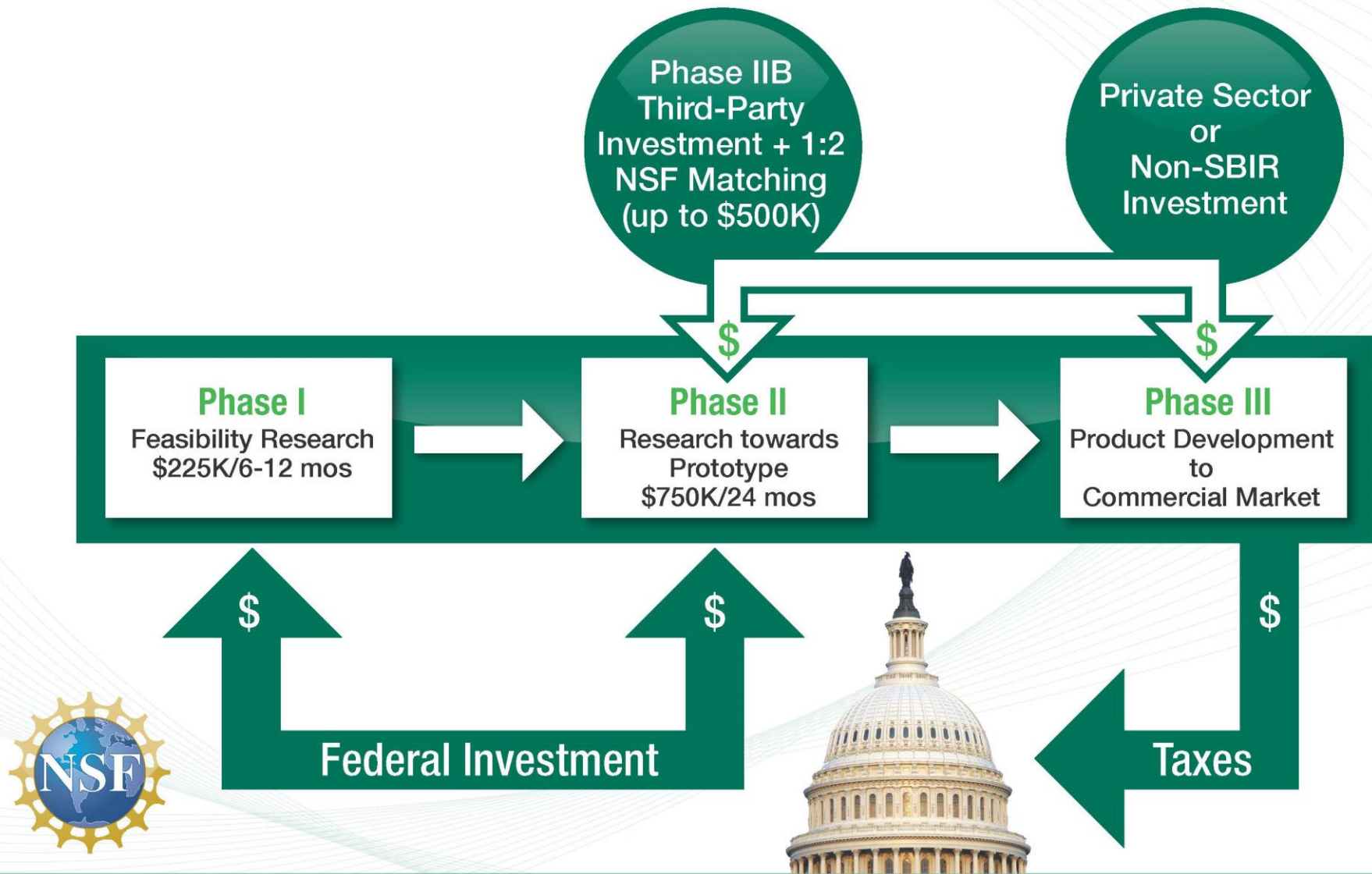
- **R&D to overcome significant technical hurdles**
 - Novel core technology development
 - Research to prove feasibility/viability of a new product, process, or service
 - High technological risk, early-stage development
 - Proprietary technologies
- **A significant commercial opportunity**
 - Game-changing technology in the chosen market/application space
 - Product-market fit validated by customers/partners



What We Do NOT Fund

- Basic research (*i.e.*, research with the primary goal of knowledge creation)
- *Incremental (evolutionary)* optimization of existing products and processes or straightforward modifications to broaden the scope of an existing product or process
- Analytical or “market” studies of existing technologies or products/services; business development activities

NSF SBIR/STTR INNOVATION MODEL





Recent Changes to Program

- Award amount has been increased up to \$225,000 for Phase I SBIR; STTR remains at \$225,000
- Duration of either the SBIR or STTR award is 6-12 months (at the discretion of the applicant and with NSF approval)
- Phase I grantees are no longer required to have completed the entire work plan prior to submitting the Phase II application
- Initial payment has increased to up to \$200,000



Basic Information

- Applications require written proposals responding to the solicitation (solicitations released 90 days before the submission deadline)
- Submission deadlines typically in June and December
 - ***Next deadline – June 14th!***
- Submitting a proposal to NSF does not constitute a public disclosure. All information is treated as confidential, and proprietary details may be marked.
- Proposals are reviewed by technical and commercial experts; process may last 4-5 months
- Awards begin about 6 months from submission



Technology Topic Areas

Proposals in all areas of engineering and science and related education are welcome

- Advanced Manufacturing and Nanotechnology (MN)
- Advanced Materials and Instrumentation (MI)
- Biological Technologies (BT)
- Biomedical Technologies (BM)
- Chemical and Environmental Technologies (CT)
- Educational Technologies and Applications (EA)
- Electronic Hardware, Robotics and Wireless Technologies (EW)
- Information Technologies (IT)
- Internet of Things (I)
- Semiconductors (S) and Photonic (PH) Devices and Materials
- Smart Health (SH)
- Other Topics (OT)



Key Takeaways

- NSF is not a customer, it is more like an investor
- NSF places much less importance on “topical fit”
- Funding **ONLY** may be used for R&D, so successful proposals stress the importance of the proposed R&D on commercial viability
- Long-term success metrics for the program and its grantees are largely economic: Revenues, job growth, etc.
- Communication is encouraged throughout the process – start by sending us your executive summary

Proposal Submission

- Nuts and Bolts



Photo Credit: Navillum Nanotechnologies, Inc.



Pre-submission Feedback

- At your option, you may communicate with the Program Director to get their feedback
- Typically, wait until a solicitation is released
- Preferred method of communication is e-mail
- Send a 1-2 page summary that discusses:
 - Core technology and IP position
 - Proposed project and anticipated product or service
 - Market opportunity, value proposition, customers, competition
 - Company/team (including commercial experience)



SBIR vs. STTR

| | SBIR | STTR |
|--|-------------|-------------|
| Phase I project duration | 6-12 months | 6-12 months |
| Phase I max award amount | \$225,000 | \$225,000 |
| Phase II project duration | 24 months | 24 months |
| Phase II max award amount | \$750,000 | \$750,000 |
| Subaward to research institution (RI) | Allowed | Required |
| Small business minimum budget percentage in Phase I / Phase II | 66 / 50 | 40 / 40 |
| Research institution minimum budget percentage in Phase I / Phase II | N/A | 30 / 30 |



Eligibility Information - Company

- For-profit small business
- Fewer than 500 employees, including affiliates
- Located in the United States
- >50% owned and controlled by US individuals (>50% ownership by venture capitalists, private equity firms, or hedge funds is NOT allowed)
- No more than 1 proposal per company (per SBIR/STTR submission cycle)



Eligibility Information - PI

- PI must be primary employed by the small business at the time the award is made, and for the duration of the award
 - Defined as at least 51% (of a 40-hour work week)
- PI must commit at least
 - 1 calendar month
- No more than 1 proposal may be submitted per PI



Register Early



1. Data Universal Numbering System (DUNS)*
www.dnb.com
2. System for Award Management (SAM)*
www.sam.gov
3. SBIR.GOV Company Registry*
www.sbir.gov/registration
4. FastLane (register both company and PI)*
www.fastlane.nsf.gov

**We recommend completing the registrations
in this order.*



NSF SBIR & STTR Phase I Solicitations

- Read the solicitation!
- It's 15/16 pages of everything you need to know – From the award & eligibility information to proposal preparation and submission guides.

| | |
|---|---|
| Small Business Innovation Research Program Phase I (SBIR) December 2015 Submission | |
| PROGRAM SOLICITATION NSF 15-605 | |
|  National Science Foundation Directorate for Engineering Industrial Innovation and Partnerships | Small Business Technology Transfer Program Phase I (STTR) December Submission 2015 |
| PROGRAM SOLICITATION NSF 15-604 | |
|  National Science Foundation Directorate for Engineering Industrial Innovation and Partnerships | |
| Full Proposal Deadline(s) (due by 5 p.m. proposer's local time): December 11, 2015 | |
| Proposals submitted outside the window of November 11 - December 11, 2015 will be returned without review. Proposer's time is defined as the time zone associated with the company's address (as registered in FastLane!) at time of submission. | |
| IMPORTANT INFORMATION AND REVISION NOTES | |
| <p>NSF's SBIR program provides non-dilutive funds for early-stage research and development (R&D) at small businesses. This R&D should be based on innovative, transformational technology with potential for substantial commercial and/or societal benefits. The program invites proposals from small businesses across a broad range of science and engineering disciplines in collaboration with researchers at universities, Federally-Funded Research and Development Centers, and other non-profit institutions. If you are successful, you will receive a grant of up to \$225,000 for a 6-12 month development/feasibility project. You can then compete for a second grant of up to \$750,000 over a 2 year period, with the aim of advancing the technology toward commercial deployment.</p> <p>The award amount of Phase I was \$150,000. Phase I awards previously had a duration of 12 months. Proposers will indicate their requested duration on the cover page of the proposal.</p> <p>NSF encourages proposals from a diversity of entrepreneurs – new and seasoned. What is most important is that you have a transformative idea or innovation and that your team's primary goal is the commercialization of the technology. Having no commercialization track record will not count against you – for many companies, an NSF STTR award is their first attempt at commercializing an innovation.</p> <p>Small businesses that will be working with a research institution may also consider the Small Business Innovation Research (SBIR) program. SBIR is similar to STTR. In fact, the programs are discussed in tandem at several points throughout this solicitation and on the SBIR/STTR website. However SBIR has a separate, concurrent Phase I solicitation with a similar due date. Several important differences between SBIR and STTR are outlined on the SBIR/STTR website.</p> <p>Video resources on the SBIR/STTR website provide a general program description, solicitation-specific</p> | <p>NSF's SBIR program provides non-dilutive funds for early-stage research and development (R&D) at small businesses. This R&D should be based on innovative, transformational technology with potential for substantial commercial and/or societal benefits. The program invites proposals from small businesses across a broad range of science and engineering disciplines in collaboration with researchers at universities, Federally-Funded Research and Development Centers, and other non-profit institutions. If you are successful, you will receive a grant of up to \$225,000 for a 6-12 month development/feasibility project. You can then compete for a second grant of up to \$750,000 over a 2 year period, with the aim of advancing the technology toward commercial deployment.</p> <p>The award amount of Phase I was \$150,000. Phase I awards previously had a duration of 12 months. Proposers will indicate their requested duration on the cover page of the proposal.</p> <p>NSF encourages proposals from a diversity of entrepreneurs – new and seasoned. What is most important is that you have a transformative idea or innovation and that your team's primary goal is the commercialization of the technology. Having no commercialization track record will not count against you – for many companies, an NSF STTR award is their first attempt at commercializing an innovation.</p> <p>Small businesses that will be working with a research institution may also consider the Small Business Innovation Research (SBIR) program. SBIR is similar to STTR. In fact, the programs are discussed in tandem at several points throughout this solicitation and on the SBIR/STTR website. However SBIR has a separate, concurrent Phase I solicitation with a similar due date. Several important differences between SBIR and STTR are outlined on the SBIR/STTR website.</p> <p>Video resources on the SBIR/STTR website provide a general program description, solicitation-specific</p> |



FastLane Guide



Step-by-Step Guide to Submitting a SBIR/STTR Phase I Proposal in FastLane

ADA & 508 Compliance Assistance - Please Call the FastLane Help Desk at 1-800-673-6188.

STOP: Do you have the required registrations?

Verify the below required registrations have been complete: *It is imperative that you register your company and enter all information identically in all systems to avoid processing delays later.*

- ✓ [Dun and Bradstreet Data Universal Numbering System \(DUNS\)](#)
- ✓ [System for Award Management \(SAM\)](#)
- ✓ [Small Business Administration \(SBA\) Company Registry](#)
- ✓ [NSF FastLane](#) - register company and Principal Investigator (PI)

How to Use this Guide

The **Phase I SBIR and STTR solicitations** explain what information should go in a proposal.

This **FastLane Submission Guide** explains how to enter that information into FastLane, NSF's electronic submission system.

Generally, these two documents contain the information needed to submit a proposal. When needed, NSF's Grant Proposal Guide (GPG) is referenced. The GPG is NSF's general guide for proposal submission. The instructions in the solicitations take precedence over instructions in the GPG in the event of a conflict. As such, SBIR/STTR proposers are encouraged to use the Phase I solicitation and FastLane Submission Guide as the primary submission resources.

The Solicitation explains what information should go into the proposal.

But the Guide will walk through the process of submitting a proposal in FastLane, NSF's electronic submission system.

**This document is updated regularly.*



NSF SBIR Program Directors

- **Educational Technologies and Applications**
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Administrative and compliance questions: sbir@nsf.gov

FastLane Help: fastlane@nsf.gov or 1-800-673-6188



Other Resources

**Additional information for Phase I
submitters**

can be found on our website:

www.nsf.gov/SBIR

**We will host a series of Q&A webinars
in 2017.**

**Please watch for the schedule
and register for a webinar.**



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America's Seed Fund

THANK YOU!

We look forward to receiving
your proposal.

Contact Us:

sbir@nsf.gov

www.nsf.gov/SBIR