

**Government Funding: Leveraging Public Resources
to bring technologies out of the lab**
Small Business Innovation and Research (SBIR)
Small Business Technology Transfer (STTR)
Berkeley Postdoc Entrepreneur Program, Sept 23rd 2015

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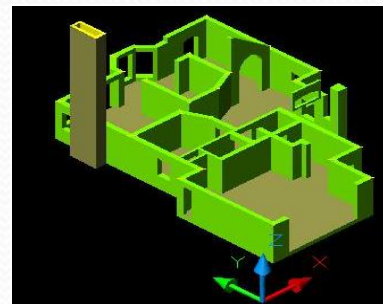
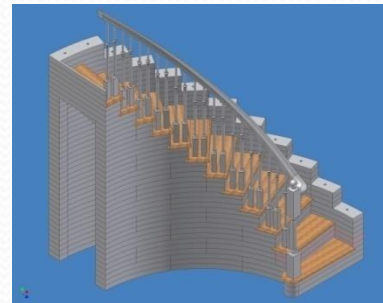
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ShapeMaker Technology



- Rapid Prototyping Process called “Thick Layer Object Manufacturing”
- Can produce objects the size of a house or larger from any 3D CAD model.
- Prefabricated building components that can be shipped to the construction site for final assembly.



Purpose of SBIR/STTR Program

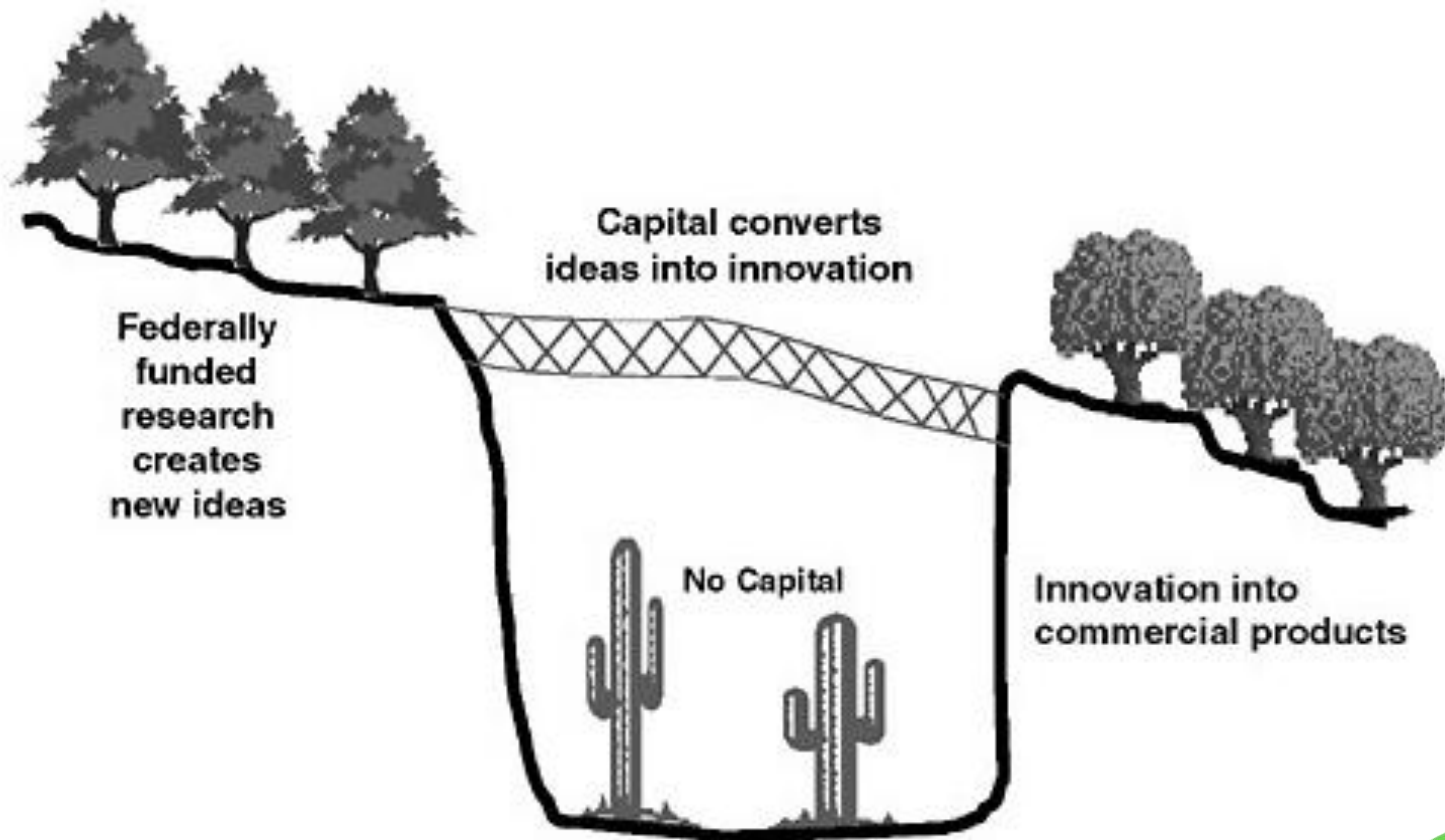
Mission: To promote technological innovation and economic growth through the investment of Federal research funds in small US businesses.

Goals:

- Stimulate technological **innovation** by small US businesses
- Strengthen the role of small businesses in meeting **Federal research and development needs**
- Increase private-sector **commercialization** of innovations derived from Federal research and development funding
- Foster and encourage participation in innovation and entrepreneurship by **socially and economically disadvantaged persons**



Valley of Death



“Research is the transformation of money into knowledge and innovation is the transformation of knowledge into money.”

Source: SBIR and the Phase III Challenge of Commercialization: Report of a Symposium. NAS, 2007.



Intellectual Property Rights

- Applicant retains worldwide patent rights
- Applicant grants a nontransferable license to practice the invention to the federal government
- Federal Government can force you to license the technology to others under certain circumstances:
 - National Emergency
 - March-in Rights
- SBIR/STTR data protected from disclosure by agencies for 4 years after last deliverable under Phase I, II, or III.

SBIR/STTR Participating Agencies

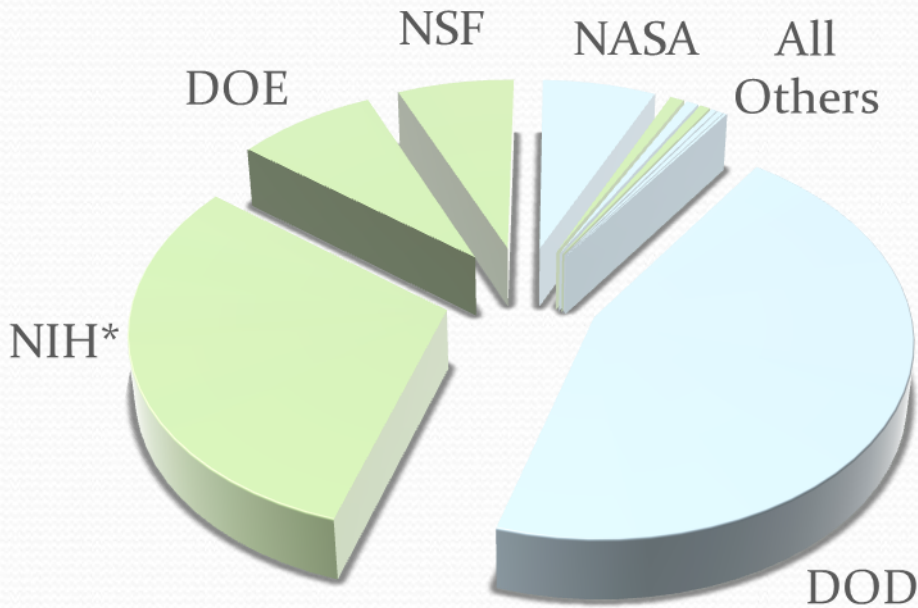


TOTAL ~ \$2.7B

- DOD SBIR/STTR
- HHS SBIR/STTR
- NASA SBIR/STTR
- DOE SBIR/STTR
- NSF SBIR/STTR
- DHS SBIR
- USDA SBIR
- DOC SBIR
- ED SBIR
- EPA SBIR
- DOT SBIR



SBIR/STTR Budgets by Agency, FY 2013



~\$2.3B in FY13 across all agencies



Agencies with SBIR & STTR Programs	Budget
Department of Defense (DOD)	\$ 1.0 B
Department of Health and Human Services (HHS): National Institutes of Health (NIH)*	\$697.0 M
Department of Energy (DOE), including Advanced Research Projects Agency (ARPA-E)	\$183.9M
National Science Foundation (NSF)	\$153.0 M
National Aeronautics and Space Administration (NASA)	\$ 148.8 M
Agencies with SBIR Programs	Budget
U.S. Department of Agriculture (USDA)	\$18.4M
Department of Homeland Security (DHS): Science and Technology Directorate (S&T) and Domestic Nuclear Detection Office (DNDO)	\$15.7 M
Department of Education (ED)*	\$13.4 M
Department of Transportation (DOT)	\$7.6 M
Department of Commerce (DOC): National Oceanic and Atmospheric Administration (NOAA) and National Institute of Standards and Technology (NIST)*	\$7.4 M
Environmental Protection Agency (EPA)	\$3.8 M

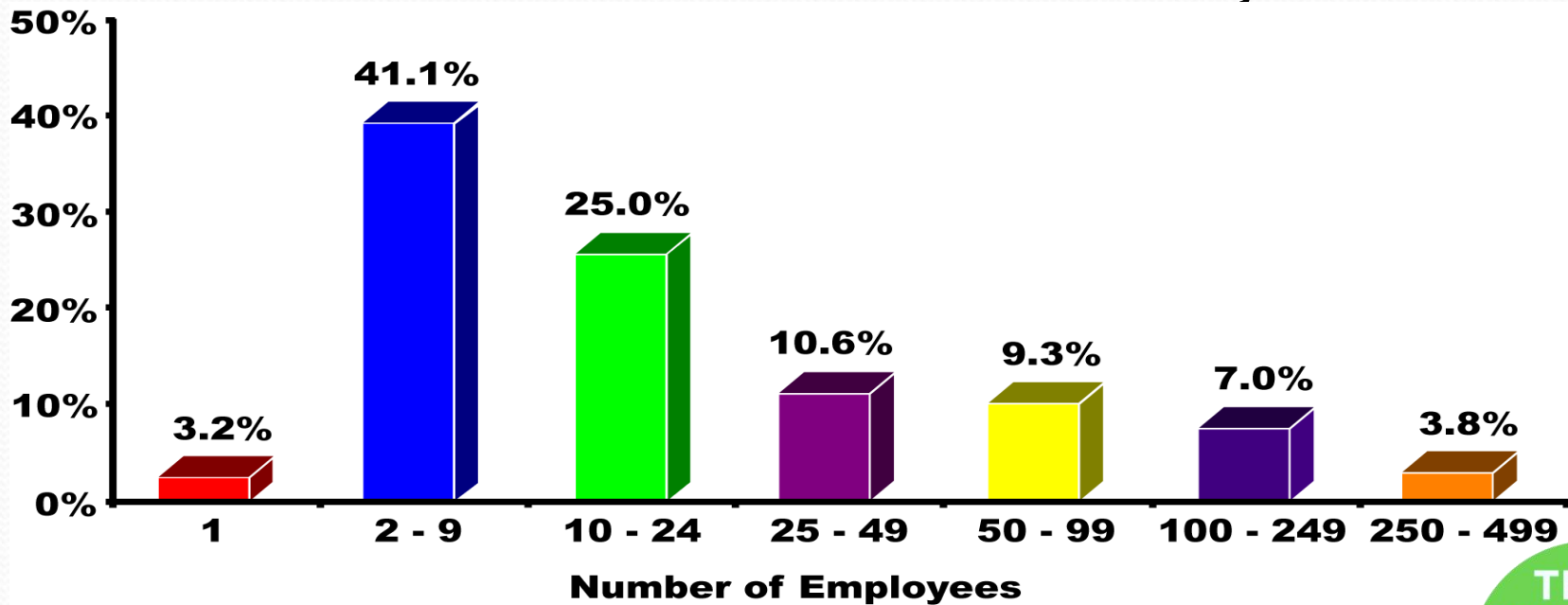
Eligibility to Participate

- Must be a for-profit organization >50% owned and controlled by:
 - i. US citizens, permanent resident aliens and/or one or more domestic business concerns which themselves are >50% owned and controlled by US Citizens or permanent resident aliens
 - ii. Multiple domestic Venture Capital Firms, Hedge Funds, or Private Equity Funds, provided that no single such investor owns more than 50%
- Must be a Small Business (fewer than 500 employees)
- PI's **primary employment** must be with the **small business concern** at the time of award and for the duration of the project period
- R&D must be done in U.S.



Who Participates in SBIR/STTR?

- ✓ Firms are typically small and new to the program.
- ✓ About 1/3 are first-time Phase I awardees.
- ✓ Small hi-tech firms from across the country.



SBIR/STTR: 3-Phase Program

PHASE I

- ⇒ Feasibility Study
- ⇒ \$80-225K and 6-month (SBIR)
or 12-month (STTR) Award

PHASE II

- ⇒ Expand on Phase I R&D
- ⇒ \$750k - \$1.5M and 2-year Award

PHASE III

- ⇒ Commercialization Stage
- ⇒ Use of non-SBIR/STTR Funds



SBIR AND STTR *DIFFERENCES*

SBIR: **Permits** research institution partners
[Outsource ~ 33% Phase I and 50% Phase II R&D]
Principal Investigator (PI) primary
employment (>50%) **must** be with
small business concern

STTR: **Requires** research institution partners
[40% small business concerns (for-profit) and
30% U.S. research institution (non-profit)]
PI primary employment **not stipulated**
[PI can be from research institution and/or from
small business concern, except NSF]

AWARD ALWAYS MADE TO SMALL BUSINESS



Researching Topics

- Proposals must match a topic that the agency is interested in funding
- Each agency generates a solicitation listing the research topics they are seeking SBIR proposals.
- Solicitations are issued one to three times a year depending on the agency
- Topics are selected by agency, but it may be possible to influence future topics by working closely to develop future topics
- www.sbir.gov and www.zyn.com



Address bar: <http://www.zyn.com/sbir/>

Search:

Navigation: File Edit View Favorites Tools Help

Current Page: Wisdom

Search: Sign In

Navigation: Home RSS Email Print Page Safety Tools

SBIR / STTR Gateway - News and Search Engine

SBIR Gateway

The Most Comprehensive and Easy to Use SBIR Information Site

SBIR Open Topic Search

Includes all agencies open topics

Resources

- [SBIR Insider Newsletter](#)
- [Solicitation Dates](#)
- [SBIR Agency Links](#)
- [SBIR Events Calendar](#)
- [SBA FAST Awardees](#)
- [About SBIR Funding](#)
- [Federal Laboratories](#)
- [EPSCoR Program](#)
- [Other Grant Info](#)
- [SBIR Policy Directive](#)
- [Contact Us](#)

News Items

- [View Latest Solicitation News](#)
News Updated 10/20/11
- [NIST FY-2012 SBIR Presolicitation](#)
Opens 11/3/11 Closes 1/26/12
- [DOT Opens FY-12.1 SBIR](#)
Opens 10/11/11 Closes 12/12/11
- [SBIR/STTR/PPP Extended!!](#)
CR extends programs through 11/18/11
- [NSF Releases FY-2012 SBIR](#)
Opens 11/2/11 Closes 12/2/11
- [NIH SBIR \(contracts\) Solicitation](#)
Opens 8/24/11 Closes 11/07/11

National / Regional Conferences

- [National SBIR Fall 2011 Conference](#)
New Orleans, LA * November 6 - 9, 2011
Registration Now Open
- [View SBIR Conference Calendar](#)

Search Services

- [Open SBIR/STTR Solicitation Topics](#)
Select an Agency's Open SBIR Topics
- [Closed SBIR/STTR Solicitation Topics](#)
Topics often recycled for future solicitations
- [Past SBIR/STTR Awards](#)
SBIR/STTR Awards Databases
- [Federal Laboratory R&D Resources](#)
Keyword search for federal tech resources

Help & Assistance Services

- [State & Local Assistance Services](#)
They're here to help you
- [3rd Party Assistance Services](#)
Map Government for profit services



FIND FUNDING

Search Open Funding Topics Search

SUCCESS STORIES

GET THE 411



LEARN ABOUT

- Overview
- Policy Directive
- Authorization Act
- Intellectual Property
- Commercialization Successes



I'M A(AN)...

- Applicant
- Awardee
- Investor



I WANT TO...

- START A SMALL BUSINESS
- REGISTER MY COMPANY
- UPDATE MY COMPANY PROFILE/COMMERCIALIZATION
- SUBSCRIBE TO SOLICITATION POSTINGS

Sample NSF SBIR Proposal Outline

Cover Sheet and Certification

Project Summary (1 page)

Project Description (maximum 15 pages)

Summary (1 page)

The Market Opportunity (2 to 4 pages)

The Innovation (1 to 3 pages)

The Company/Team (1 to 3 pages)

Technical Discussion and R&D Plan (5-7 pages)

References Cited

Biographical Sketches

Budget, Sub-budgets, and Budget Justification

Current and Pending Support of PI and Senior Personnel

Facilities, Equipment, and Other Resources

Supplementary Docs



Sample NIH Proposal Content

1. Introduction to Application (1pg)
2. Specific Aims (1 pg)
3. Research Strategy (6 or 12 pg)
 - Significance
 - Innovation
 - Approach
4. Inclusion Enrollment Report
5. Progress report/Publication List
6. Protection of Human Subjects
7. Inclusion of Women and Minorities
8. Targeted/Planned Enrollment Table
9. Inclusion of Children
10. Vertebrate Animals
11. Select Agents
12. Multiple PD/PI Plan
13. Consortium/Contractual Arrangements
14. Letters of Support
15. Resource Sharing Plans
16. Appendix
 - Bibliography and Refs Cited
 - Project Summary/Abstract (30 lines)
 - Public Health Relevance Statement/Narrative
 - Senior/Key Person Profiles
 - Biographical Sketches (4 pg ea.)
 - Facilities & Other Resources
 - Equipment
 - Project Budget
 - Subaward Budget
 - Cover Letter
 - Commercialization Plan (12 pg; Ph II & Fast Track only)
 - Forms



Basic Commercialization Plan

- The Market Opportunity
- The Company/Team
- The product or technology and competition
- Financing and revenue model

Cost Proposal (Budget)

- Direct Costs
 - Material
 - Labor
 - Travel
- Indirect Costs
 - Overhead
 - G&A
- Profit
 - Most agencies allow up to 7%



Submitting Your Proposal

Online submittal and [registrations](#) required for most agencies

www.grants.gov

www.fastlane.nsf.gov

www.dodsbir.net

<https://commons.era.nih.gov>

<https://pamspublic.science.energy.gov>

Company Registry with SBA (new in 2013)

www.sbir.gov

Obtain Employer Identification Number (EIN) from IRS

www.irs.gov

Obtain DUNS number from Dun and Bradstreet

www.dnb.com

Register with System for Award Management (SAM)

www.sam.gov

Don't wait till the last minute



Proposal Review Criteria

1. Scientific and Technical Merit
2. Importance of the Problem
3. Scientific or Technical Innovation
4. Potential Commercial Application
5. Investigator and Resource Qualifications
6. Budget



Odds of Being Funded

- For Phase I, about 1 in 8 to 1 in 12 proposals receive funding. Many are first time proposers
- For Phase II, about 1 in 2 to 1 in 3 receive funding
- For Phase III, about 1 in 20 succeed in commercializing their technology



Common Reasons For Decline

- Screened out for format reasons
- Not innovative or unique
- Work plan does not contain specifics as to how research will be carried out
- Insufficient Technical Information
- Principle Investigator lacks necessary expertise
- Get Review Panel Feedback

Additional Funding Opportunities

- NSF Phase IB (\$50K)
- NSF Phase IIB (\$500K)
- NSF Phase IICC (\$40K)
- DoD FastTrack (\$30-\$50K interim funding)
- DoD Phase II Enhancement/Phase II Plus (\$500K)
- EPA Phase II Verification Testing Option (50K)
- NASA Phase II Enhancement (\$150K)
- State Matching Funding Programs
- Other Grants



Conclusion

- Over \$2.7 Billion Available
- Must be innovative R&D with some degree of risk
- Keys to Success:
 - Be Responsive to agency need.
 - Demonstrate commercial application and strategy
 - Detailed Technical Work Plan
 - Experienced Team with Credentials

