The journey of a thousand miles begins with one step.

Lao Tzu
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MNSBIR
Minnesota High Tech Association
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To support scientific excellence and technological innovation through the investment of Federal research funds in critical American priorities to build a strong national economy…

one small business at a time.
• Stimulate technological innovation;
• Use small business to meet Federal R/R&D needs;
• Foster and encourage participation by socially and economically disadvantaged small businesses, and by women-owned small businesses, in technological innovation; and
• Increase private sector commercialization of innovations derived from Federal R/R&D, thereby increasing competition, productivity and economic growth.

• Stimulate a partnership of ideas and technologies between innovative small businesses and Research Institutions through Federally-funded research or research and development (R/R&D). (STTR Only)
• Provide awards to small businesses for cooperative R/R&D efforts with Research Institutions, the STTR Program assists the small business and research communities by commercializing innovative technologies. (STTR Only)
SMALL BUSINESS INNOVATION RESEARCH

Represents a source of high risk capital for small businesses to explore their technological potential and provide the incentive to profit from its commercialization. (Bayh Dole Act)

- Set-aside program for small businesses to engage in federal research and development with potential for commercialization.
- 11 Federal Agencies
- FY19 - not less than 3.2% in funding
- Agency SBIR budgets are based on extramural R&D budgets
- Funding exceeds $2B annually
- Equity-Free Investments (Non-Dilutive Funding - Grants and Contracts)

SBIR projects may involve:
- Universities and Colleges (Subawardees)
- Non-profit research organizations
- Consultants
- Subcontractors
- Large companies
- Small companies
SMALL BUSINESS TECHNOLOGY TRANSFER

Requires small businesses and the nation's premier nonprofit research institutions to foster innovation collaboratively to meet the nation's scientific and technological challenges in the 21st century.

- Set-aside program to facilitate cooperative research and development between small business concerns and U.S. research institutions with potential for commercialization.
- Not less than .45% in FY19
- Agency budgets are based on extramural R&D budgets
- Funding exceeds $300M annually
- Equity-Free Investments (Non-Dilutive Funding - Grants and Contracts)
- 5 Federal agencies

STTR projects may involve:
- **Required - Universities and Colleges (Subawardees)**
- Non-profit research organizations
- Consultants
- Subcontractors
- Large companies
- Small companies
The process of developing products, processes, technologies, or services and the production and delivery (whether by the originating party or others) of the products, processes, technologies, or services for sale to or use by the Federal government or commercial markets.

SBIR/STTR Phase III is for work that derives from, extends, or logically concludes effort(s) performed under prior SBIR funding agreements and is authorized under 15 U.S.C. § 638(r).

Federal Government Sole-Source Contract Opportunities $$$$$
SMALL BUSINESS ELIGIBILITY

- Seed, startup, emerging and existing firms
- Technological Innovation with strong commercial potential – in for the long haul.
- Organized as for-profit
- Located in the U.S.
- 500 or fewer employees, including affiliates
- Work must be done in the U.S.
- Greater than 50% U.S.-owned by individuals and independently operated
BENEFITS

Seed money to fund high risk, high payoff projects with strong commercial and/or military potential

→ Intellectual property rights are retained by the small business

→ Recognition, verification and visibility by large companies, investors, etc.

Maintain control of the company

→ Potential leveraging tool to attract other investments (state funding, angel, early stage and venture capital)

→ Potential for $$$ - sole-source federal government contracts with any federal buying office (built in market opportunity)
FEDERAL AGENCIES

Department of Defense
Department of Health and Human Services
Department of Energy
National Aeronautics and Space Administration
National Science Foundation
Department of Agriculture
Department of Homeland Security
Department of Education
Department of Commerce
Environmental Protection Agency
Department of Transportation

$3B
## DIFFERENCES AMONG THE PROGRAMS

<table>
<thead>
<tr>
<th>Program</th>
<th>Principal Investigator/Project Director</th>
<th>Percent of Effort – Small Business</th>
<th>Percent of Effort – Other</th>
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<tbody>
<tr>
<td>SBIR</td>
<td>Must be an employed at least 50% or more with the small business</td>
<td>Minimum of 66.7% in Phase I&lt;br&gt;Minimum of 50% in Phase II</td>
<td>Maximum of 33.3% in Phase I&lt;br&gt;Maximum of 50% in Phase II</td>
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<tr>
<td>STTR</td>
<td>Check the agency solicitation - the PI/PD can be from the small business or the research institution</td>
<td>Minimum of 40% in Phase I&lt;br&gt;Minimum of 30% in Phase II&lt;br&gt;Other – 30%</td>
<td>Minimum of 40% in Phase I&lt;br&gt;Minimum of 30% in Phase II&lt;br&gt;Other – 30%</td>
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Phase I - The objective of Phase I is to establish the technical/scientific merit and feasibility of the proposed R/R&D efforts. *Preliminary data may be included but are not required.* The application should concentrate on R/R&D efforts that will significantly contribute to proving the scientific or technical feasibility of the approach or concept that would be a prerequisite to further support in Phase II.

Phase II - The objective of Phase II is to continue the research or R&D efforts initiated in Phase I. Funding shall be based on the results of Phase I and the scientific and technical merit and commercial potential of the Phase II application.

Phase III - An objective of the SBIR/STTR program is to increase private sector commercialization of innovations derived from Federal R/R&D.
• **Strong unmet market need** – it’s all about **COMMERCIALIZATION**

• Innovative idea, concept or project

• Strong commercial potential worldwide

• 3-5 years before sales or licensing are possible

• Potential for intellectual property (patents, trade secrets, etc.)

• Need for additional investments (angel, venture capital, other)
INNOVATION/TRANSFORMATIVE

Something new or improved, including research for:

- Development of new technologies
- Refinement of existing technologies, or
- Development of new applications for existing technologies
A systematic, intensive study directed toward greater knowledge or understanding of the subject studied;

A systematic study directed specifically toward applying new knowledge to meet a recognized need;

A systematic application of knowledge toward the production of useful materials, devices and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.
WHAT IS NEEDED TO BE COMPETITIVE?

Commercialization Opportunity – Start with the end in mind
- Market need
- Potential and strategy

Technological Innovation
- Technical Gaps
- Game changing, disruptive, cutting edge idea, concept or project
- Technological innovation with commercial/military potential
- Bibliography (References – Scientific/Technical Literature Review)

Agency/Solicitation/Research Match
- Funding Availability
- Project Narrative/Scope of Work/Timeline

People and Organizations
- Principal Investigator/Project Director, Academic Partner
- Team Members (Internal and External)
- Subcontractors/Consultants/Strategic Partnerships (Need letters)
- Letters of Support (Market Validation, Customers, Investors, etc.)
- Federal Funding
- Facilities, Equipment and Expertise (Rent, Lease, Buy)
SBIR - The *Principal Investigator/Project Direction (PI/PD)* must have primary employment (50% or more) with the small business at the time of award and during the conduct of the research effort. *Primary employment with a small business concern precludes full-time employment at another organization.*

STTR – The *Principal Investigator/Project Direction (PI/PD)* primary employment means that more than one half (greater than 50%) of the PD/PI's time is spent in the employ of the small business or the research institution. The PI/PD from the research institution must have a 10% commitment to the small business as evidenced by a formal appointment.
Phase I – Technical Feasibility
Describes the need, technological innovation, research and development plan (technical objectives/specific aims), project timeline, proposed outcomes, budget and the commercial potential. Less than 25 pages (depends on the agency). **Read the solicitation. Start early.**

Phase II – Prototype
Continues the Phase I effort. Describes the innovation, research and development effort (technical objectives/specific aims), project timeline, proposed outcomes, and the commercial potential. Less than 35 pages (depends on the agency). **Read the solicitation. Start early.**

Phase II Commercialization Plan
The Commercialization Plan is your roadmap for the future and should convey how you plan to generate revenues from your innovation. The Plan covers company/team, customers, value proposition, competition; market opportunity; intellectual property; revenue projections, equity financing; partnerships, etc. Less than 15 pages. **Read the solicitation. Start early. Get help with the market information.**

***NIH FAST Track – Phase I/II/Commercialization Plan – submitted as one proposal***
Direct Costs
- Salaries/Wages
- Travel
- Materials
- Supplies
- Animal Studies
- Human Clinical Trials
- Etc.

Indirect Costs
- General & Administrative
- Rent
- Legal (Not Patents)
- Accounting
- Etc.

Profit/Fee
Generally 7%, depends on the agency
Consider the following:

**Phase I Application:**
NIH Fast Track, 12 pages, $1.75M, Grant (value of each page is $145,833)
NIH Standard Phase I: 7 pages, $225K, Grant (value of each page is $32,142)
NSF Phase I: 15 pages; $225K, Grant (value of each page is $15,000)
DOD Phase I: 20-25 pages; $150,000, Contract (value of each page is $7,500)
NASA Phase I: 23 pages; $125,000, Contract (value of each page is $5,434)
USDA Phase I: 25 pages; $100,000, Grant (value of each page is $4,000)

**Phase II Application:**
NIH Phase II, 12 pages + Commercialization Plan, $2M, Grant (value of each page is $166,666)
NSF Phase I: 15 pages; $750K, Grant (value of each page is $50,000)
DOD Phase II: 25 pages; $1,000,000, Contract (value of each page is $40,000)
NASA Phase I: 50 pages; $125,000, Contract (value of each page is $15,000)
USDA Phase I: 20 pages; $600,000, Grant (value of each page is $30,000)
THE PROCESS

SOLICITATION AND TOPIC

PROPOSAL

THE AGENCY

OR

contract

PEEP F. ERIGER

OR

Dollars
Search for open, future and closed solicitations

Search for similar awards/companies

Search for “open” topics – specific and broad (PI Initiated)
SBIR/STTR

Therapist
Motivator
Advocate
Educator
Supporter
Navigator
Advisor
Connector
Translator
• To increase the number of SBIR/STTR proposals (through outreach and financial support);

• To increase the number of SBIR/STTR awards (through technical assistance and mentoring); and

• To better prepare SBIR/STTR awardees for commercialization success (through technical assistance and mentoring).
Outreach  

Education  

Coaching
Business Opportunity, Market Assessment and Commercialization Strategy
• Assess the business case, technical team, partners and collaborators
• Determine small business eligibility
• Discuss the proprietary technology/innovation, freedom to operate
• Develop technology funding roadmap

Agency Solicitation/Topic
• Determine agency funding opportunities
• Identify agency introductions, solicitations and topics
• Assist with the electronic registration requirements

Technical Proposal
• Conduct pre-proposal planning and development
• Conduct proposal development/review/submission

Cost Proposal
• Guidance on federal cost accounting requirement
• Conduct cost proposal review
• Determine indirect cost rate
• Assist with pre/post award assistance
Commercialization Readiness Program
Link to federal agency commercialization programs
Develop a commercialization strategy
Conduct market research and analysis
Prepare commercialization plan
Critique the commercialization plan
Make recommendations to improve the commercialization plan

Technology transfer
Coordinate and collaborate with the University of Minnesota, Office for Technology Commercialization, Natural Resources Research Institute, and the Mayo Clinic Ventures to assist spinoffs

Angel investor connections
Assist with pitch deck development
Connect to qualified angels

Connect with qualified adhoc consultants, when appropriate
Connect small businesses with consultants on an adhoc basis for proposal development, cost accounting, market research and analysis and investor relations.
OUTREACH AND TRAINING

- Clinic Hours
  - U of M, OTC
  - Mayo Clinic Business Accelerator/Collider
  - University Enterprise Labs

- SBIR Hubs
  - Rochester
  - Mankato
  - St. Cloud
  - Duluth
  - Winona
  - Bemidji
  - Moorhead

Training

- Proposal Preparation Courses
  - 18 courses in FY19
- Technology Commercialization Courses (I-Corps/Min-Corps)
MINNESOTA IMPACT

>$650 million (1983-present)
>$2B economic contribution
>7800 high paying jobs
Global sales of new products and services

Phase III – Sole-Source Contracts and Global Sales

- Angel and VC investments
- Mergers/Acquisitions
- IPOs
- Technology in and out licensing
- Intellectual Property
- Academic and private sector partnerships
- Large company strategic partnerships
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