NSF Small Business Innovation Research Program

The Search for Transformational Technologies

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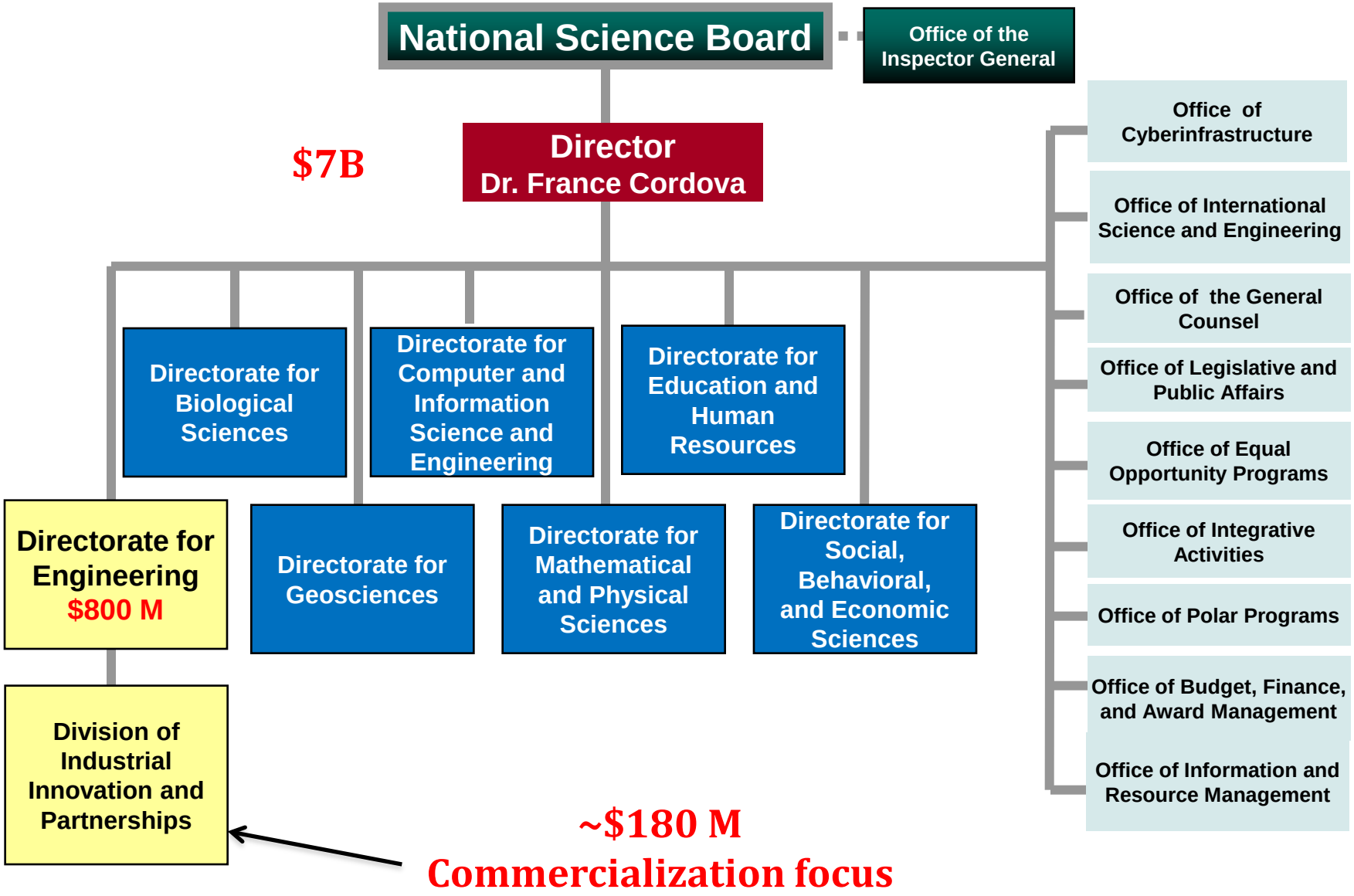
National Science Foundation



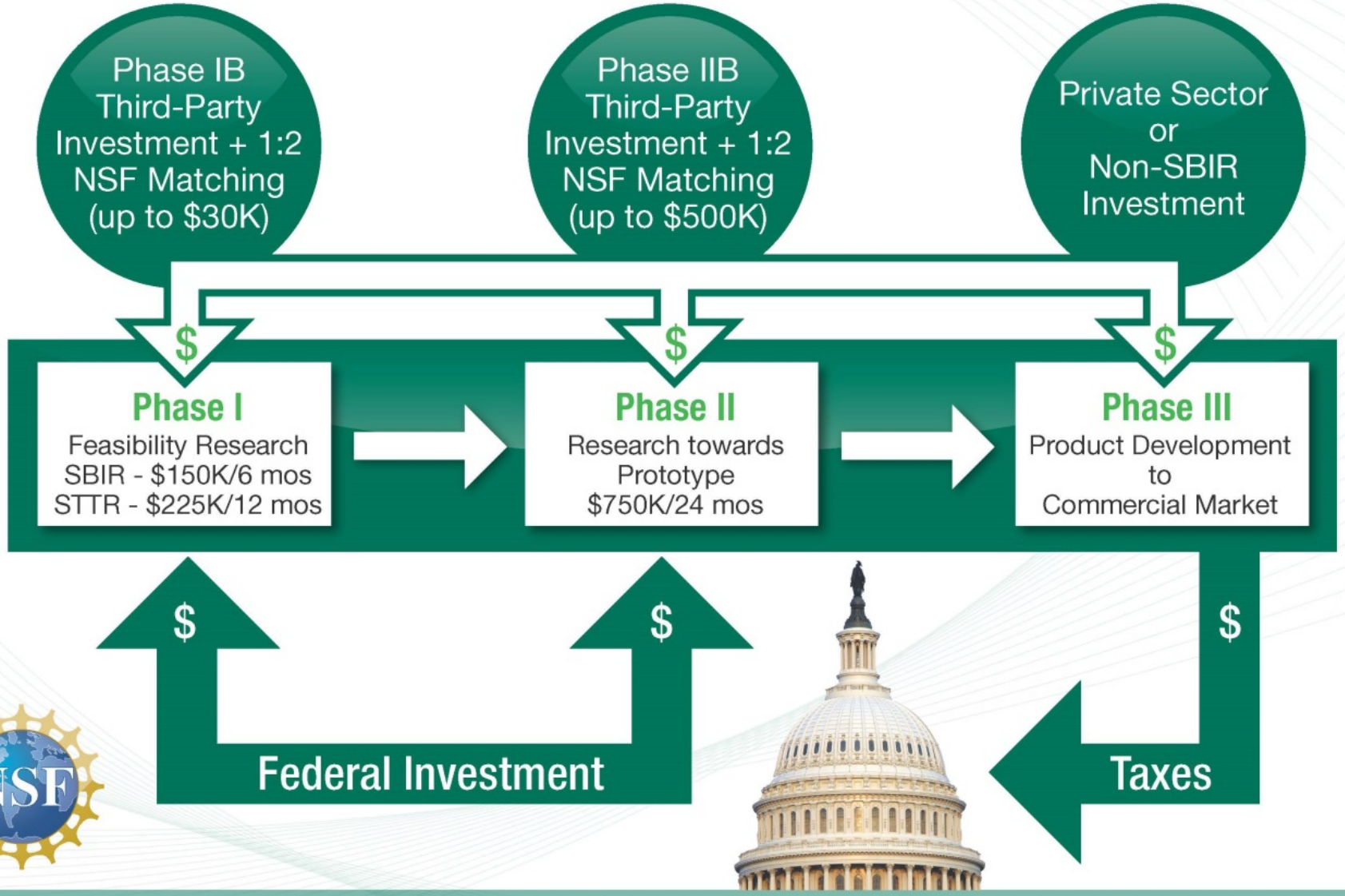
SBIR Program – Initiated by NSF

- **In 1976**
  - ✓ Roland Tibbetts initiated an NSF program to support small businesses
  - ✓ Provided early-stage financial support for high-risk technologies with commercial potential

- **In 1982**
  - ✓ Congress passed Small Business Innovation Development Act

- **Today**
  - ✓ 11 Federal agencies support SBIR
  - ✓ 5 Federal agencies support STTR
  - ✓ Over $2.5 billion awarded to small businesses in FY2011
  - ✓ Produces an average of 7 patents/day

NSF SBIR/STTR INNOVATION MODEL

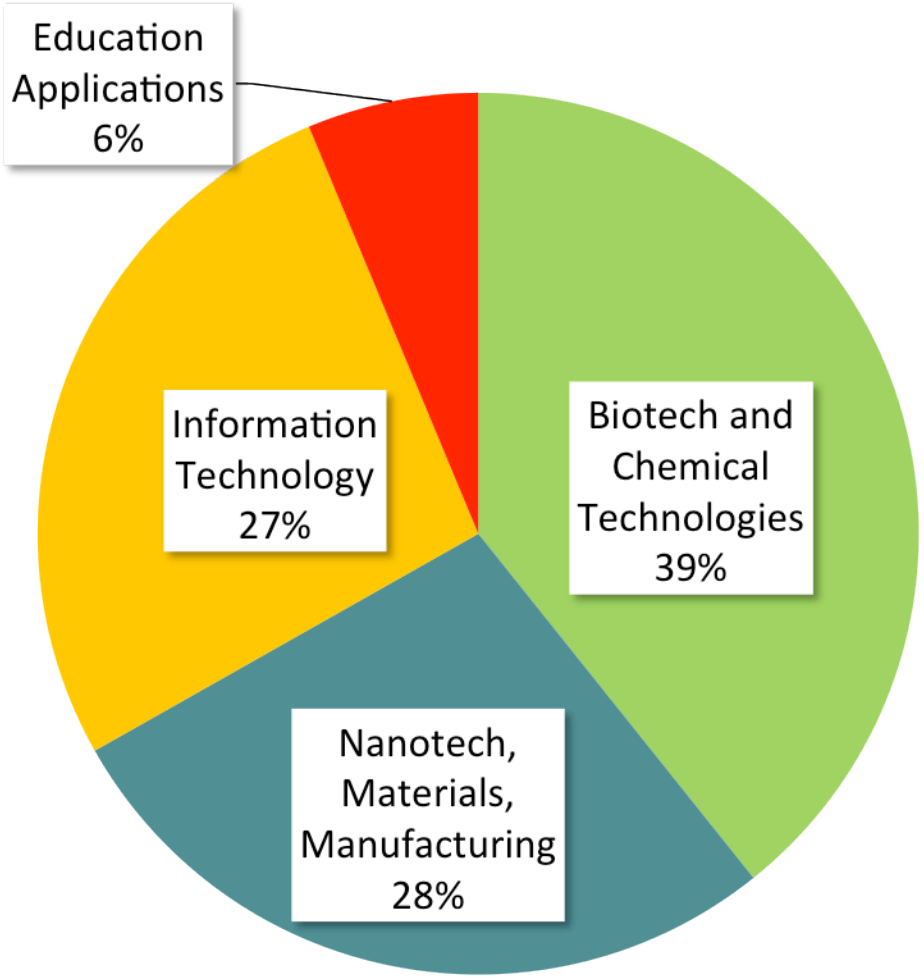


NSF's very broad SBIR/STTR technology landscape

- **Advanced Materials**
  - Coatings, Surface Modification, and Thin Film Technologies
  - Electronic and Magnetic Materials
  - High-Temperature Materials
  - Material: Energy Applications
  - Materials for Sustainability
  - Optical and Optoelectronic Materials
  - Smart Materials and Specialized Materials
  - Structural Materials
- **Biotechnology**
  - Agriculture and Forest Biotechnology
  - Bioenergy
  - Bioinstrumentation and Imaging Technologies
  - Biomanufacturing
  - Biomaterials and Bioinspired Materials
  - Biomedical Devices
  - Biosensors
  - Diagnostic Assays and Platforms
  - Drug Delivery and Drug Discovery
  - Environmental Biotechnology
  - Food Biotechnology
  - Marine and Aquatic Biotechnology
  - Omics, Systems Biology, and Bioinformatics
  - Tissue Engineering and Repair
- **Chemical Technology**
  - Chemical Design and Manufacturing
  - Energy Delivery and Storage
  - Energy Supply and Use
  - Engines and Fuels
  - Novel Catalytic Systems
  - Separation Technologies
- **Education Applications**
  - Assessment Applications
  - Assistive Applications
  - Entrepreneurship Enterprise Applications
  - Teaching and Learning Applications
- **Info and Communications Tech**
  - Electrical and Mechanical Systems
  - Energy Management and Harvesting
  - Instrumentation
  - Integrated Circuits and Electronic Devices
  - Microelectro-mechanical Systems
  - Optics and Optoelectronics
  - Robotics
  - Sensors
  - Software and Services
  - Wireless and RF Technologies
- **Manufacturing**
  - Machines and Equipment
  - Manufacturing Processes
  - Modeling and Simulation
- **Nanotechnology**
  - Instrumentation for Nanotechnology
  - Nanomanufacturing
  - Nanomaterials
  - Nanotechnology for Biological and Medical Applications

Bi-annual Calls for Proposals

Typical SBIR New Phase I Proposals - Distribution



~ 1900 small company proposals

Calls for Proposals every 6 months

Funding Criteria

- **Must be <u>high-impact</u> <u>high technical risk</u> innovations with the potential for commercialization**

- **Demonstrate strategic partnerships with research collaborators, customers and equity investors**

- **NOT funded**
  - ✓ ***Evolutionary*** **optimization of existing products and processes or modifications to broaden the scope of an existing product, process or application**
  - ✓ **Analytical or "market" studies of technologies**

An intensely competitive process

- ~ 1500-2000 Phase I Proposals typically received (annualized)
- ~15% of the Phase I proposals get funded
- Roughly 50% of Phase I companies will make it all the way to Phase II funding
- Proposals reviewed on both technical and commercial merits

Rigorous Review Process

- **Invited subject matter experts and thought leaders from Academia and Industry in Panel reviews**
  - ✓ **Reviews shared verbatim with companies**

- **Focus on disruptive and discontinuous technology developments with broad impact**
  - ✓ **New markets, novel products, enabling platform technologies and applications**

- **Company Proposals must show a strong commercialization focus and well thought out vision to profitability and growth**

A versatile team of Program Directors

- 9 Program Directors run the SBIR/STTR program
- Broad industrial experience
  - Experience spanning large & small business, startups, investment, technical expertise and business experience
- Strong mentorship of funded companies
- Companies are actively monitored throughout the award period

Profile of Companies Funded

FY 2013 Phase I <u>awardees</u>:

- 86% of Phase I awardees have 10 or fewer employees
- 68% of Phase I awardee companies were incorporated since 2008
- 76% of Phase I awardees had never had a Phase II award from any agency

Commercialization success statistics

For FY 2013

- About 10-15 acquisitions of Phase II Companies per year
- 52 Phase II Grantees brought in $83 Million in third-party investment based on their NSF SBIR funded research
  - vast majority were private funds

If you are planning to submit…

- **NEXT SBIR/STTR Solicitation Announcement likely in Sept 2014**
- Seek Feedback: You are welcome to email an executive summary to a Program Director
- Discuss
  - Market Opportunity
  - Value Proposition
  - Novelty & Technology
  - Company/Team
  - Competition

Have Questions?

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Program website:
http://www.nsf.gov/eng/iip/sbir/

Recent solicitations (closed in June):
SBIR: http://www.nsf.gov/pubs/2014/nsf14539/nsf14539.htm
STTR: http://www.nsf.gov/pubs/2014/nsf14540/nsf14540.htm