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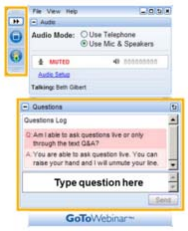

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ACS WEBINARS™
September 23, 2010

Demystifying SBIR/STTR Grant Applications and Processes for Entrepreneurs and Small Businesses

Presenter: Josephine Yuen, Ph.D.
National Science Foundation

Moderator: Stephen Flaim, Ph.D.
San Diego Tech Coast Angels

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DISCOVERY TO INNOVATION

NSF's SBIR/STTR Program

Josephine Yuen, Ph.D.
Program Director

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To Be Learned

- What do the acronyms SBIR and STTR stand for?
- What is the purpose of these programs at NSF?
- Who is eligible to apply?
- When will such funding be appropriate?
- What are the elements of these NSF programs?
- What is the size of the funding?
- What other help is available for grantees?
- What is NSF interested in funding?
- What are the funding criteria?
- What makes a good proposal?
- What is the historical funding rate?
- Can a proposal be submitted anytime? Now?
- Where do I go for additional information?

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EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL ECONOMIC COUNCIL
OFFICE OF SCIENCE AND TECHNOLOGY POLICY :
Sept 2009

New and vibrant businesses will lead to new jobs and economic growth

http://www.whitehouse.gov/administration/eop/nec/StrategyforAmericanInnovation/

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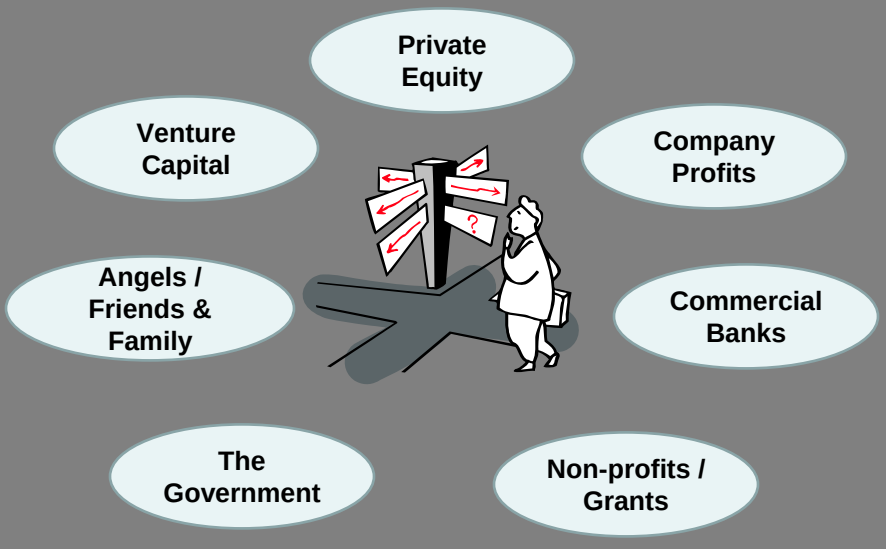
Importance of Innovation*

- Fundamentally, innovation is the development of new products, services, and processes.
- As global competition erodes the return to traditional practices, the key to developing more jobs and more prosperity will be to create and deploy new products and processes.
- Innovation will create new jobs and catalyze broadly shared economic growth.

* http://www.whitehouse.gov/administration/eop/nec/StrategyforAmericanInnovation/

Access to Capital for New Businesses



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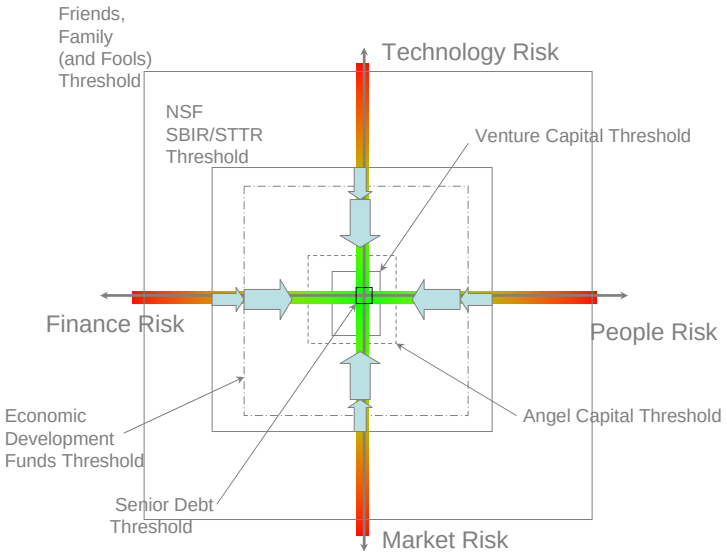
What is your Enterprise's Risk Profile?



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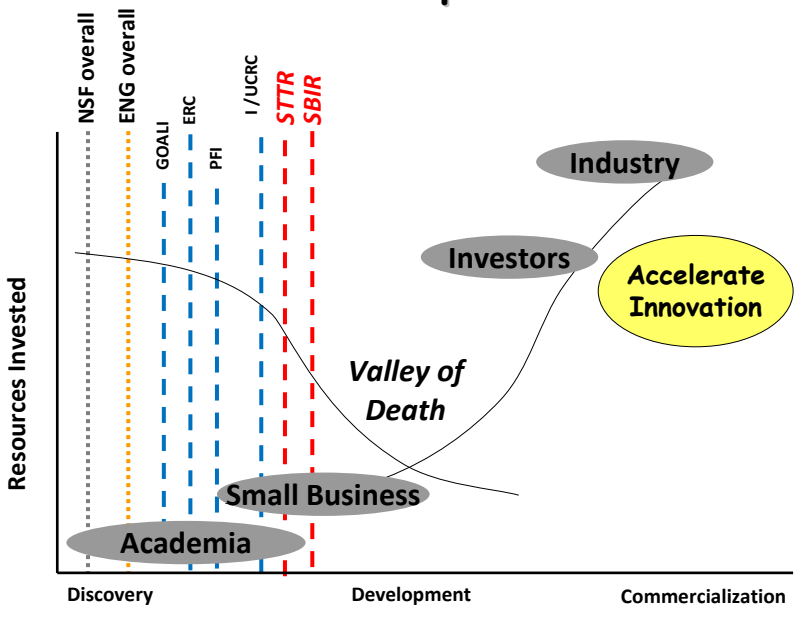
Innovation Spectrum



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What is SBIR/STTR?

- Small Business Innovation Research (SBIR)
- Small Business Technology Transfer (STTR)
- US Government program authorized by Congress and coordinated by Small Business Administration
- A small percentage of the extramural research budgets of all federal agencies reserved for contracts or grants to small businesses.
- "To provide funding for some of the best early-stage innovation ideas -- ideas that, however promising, are still too high risk for private investors" (Roland Tibbets)
- SBIR programs in 11 federal departments and STTR programs in 5 federal departments

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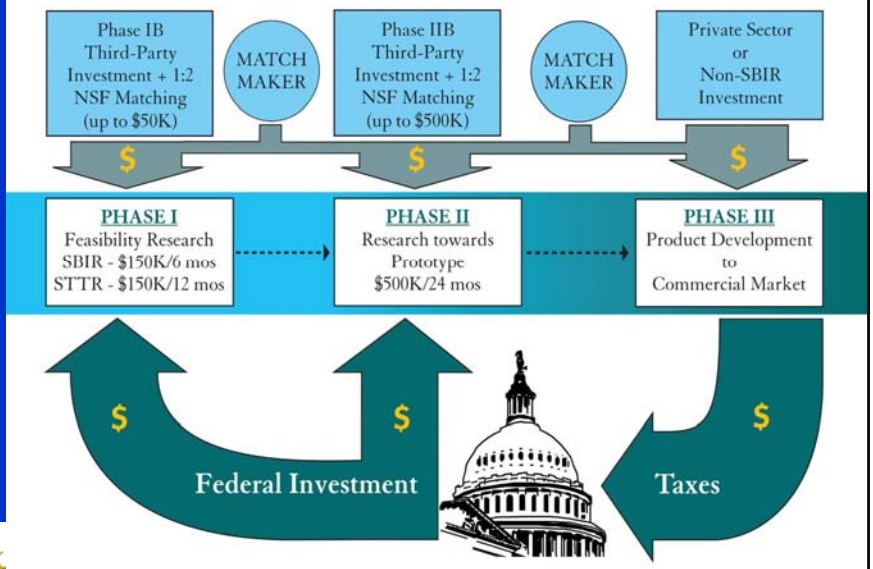
NSF SBIR/STTR Innovation Model



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NSF SBIR/STTR Program

- $120 M/year in grants of $150K (Phase I) and $500K (Phase II)
- Placing bets on high-risk/high-impact innovation research
  - Need Commercialization Pathway
- Separate SBIR and STTR solicitations beginning in 2009
- All proposals are externally-reviewed
  - Reviews: Technology and Commercial reviewers
  - Reviewers: Academic, Equity Investors, Industrial
- Grants NOT Contracts
  - NOT Equity Investment
  - NOT contract research
- Decision made three months after proposal receipt
- Cash in the bank 6 months after proposal receipt
- After the cash, immersion in NSF network

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Additional Resources to Grantees

- Supplements
  - Financial help to participate in selected NSF funded centers
  - Research grants for undergraduates to perform research
  - Financial help to attract third party investments
  - Matching of third party investments
- Coaching & Assistance
  - Phase I: help with commercialization plan for Phase II
  - Phase II:
    - Innovation Accelerator (IA) Program: mentoring by experienced entrepreneurs
    - Matchmaker Program: Introduction to established firms
  - Training at Grantees Conferences
  - Program Directors, many of whom have small business and entrepreneurial experience and domain expertise

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Applicant Must be a Small Business

- A for-profit Business of 500 or fewer employees located in the U.S.
- At least 51% U.S.- owned by individuals and independently operated
- PI's primary employment is with small business during the project
- Socially and economically disadvantaged small business concerns and women-owned small business concerns are particularly encouraged to participate.

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SBIR versus STTR

- Partnership between small business and university highly encouraged.
- SBIR – 6 months Phase I award duration
  - Program allows no more than 1/3 to go to subawards/contractors
- STTR – 12 months Phase I award duration
  - Program allows majority funding (up to 60%) goes to academic partner
  - Phase II: small business typically receives majority funding to drive commercialization
- Frequency of solicitations
  - SBIR: twice a year; deadlines in June & December
  - STTR: once a year; deadline in November

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Broad Technology Focus

- NSF's small business program does NOT have roadmaps.
- SBIR: Broad focus with four topics, clarified by sub-topics
  - Biotechnology and Chemical Technologies (BC)
  - Information and Communications Technologies (IC)
  - Nanotechnology, Advanced Materials and Manufacturing (NM)
  - Education Applications (EA)
  - Current program solicitation NSF 10-106; deadline – December 3, 2010
- STTR: Topic specific
  - 2010 topic: Digital Gaming in Education
  - Program solicitation NSF 10-590, deadline – November 17, 2010

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SBIR Subtopics

- BIOTECHNOLOGY & CHEMICAL TECHNOLOGY
  - **Biological Technologies:** *Food, Aquaculture, Aquatic, Biosensors, Omics & Bioinformatics, Bioinstrumentation*
  - **Biomedical Technologies:** *Biomaterials and Bio-inspired materials, Medical Diagnostics Assays and Platforms, Enabling technologies for Drug Discovery, Drug Delivery, Tissue Engineering, Medical Imaging*
  - **Environmental Technologies:** *Water Monitoring and Treatment, Air and Soil Monitoring and Mitigation, Bioenergy, Alternative Fuels, Transportation and Combustion*
  - **Chemical Technologies:** *Energy Storage, Supply & Use, Chemical Synthesis and Processing, Separation Technologies, Polymeric Materials, Novel Catalytic Systems*

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SBIR Subtopics (cont'd)

- **Information & Communications Technologies**
  - **Services:** *Security and privacy, Knowledge discovery, search, data mining, data management and/or visualization, Digital arts Financial services, Personalized user services, Virtualization Cloud-enabled services*
  - **Applications:** *Mobile, Peer to Peer, Broadband, Tools for collective intelligence and collaborations, device design and testing software*
  - **Systems:** *Human and computer interactions, Virtual/mixed reality environment, Assistive technologies, Robotics, Engineering systems and critical infrastructure, Scientific instrumentation*
  - **Components:** *Human and computer interactions, Virtual/mixed reality environment, Assistive technologies, Robotics, Engineering systems and critical infrastructure, Scientific instrumentation*
  - **Devices:** *Ultra low power semiconductor transistors, IC with novel materials, Quantum effect devices, Novel chip and device architecture*

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SBIR Subtopics (cont'd)

- **Advanced Materials, Nanotechnology and Manufacturing**
  - **Advanced Materials:** *Electronic and Magnetic, Optical and Optoelectronic, Solar Energy Applications, High Temperature, Structural, Coatings and Surface Modifications, Materials for Sustainability*
  - **Nanotechnology:** *Nanomaterials, Nanomanufacturing, nanoelectronics, nanotechnology for biomedical and medical applications, instrumentation for nanotechnology*
  - **Manufacturing:** *Manufacturing processes, Machine and Equipment, Modelling and Simulation*
- **Education Applications**
  - **Teaching and Learning Applications**
  - **Entrepreneurship Education**
  - **Assessment Applications**
  - **Assistive Applications**

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A Competitive Program

- Historical proposals submitted per SBIR solicitation: 700-850
  - Last 3 solicitations: >1500 with all time high at 1740 proposals in June 2009
- Historical Phase I Funding rate 15-20%
- Phase I award prelude to Phase II competition
- Historical Phase II Funding rate <40%
- Historical ~20% of Phase II awardees obtain Phase IIB supplements
- Proposals undergo peer review

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NSF SBIR/STTR Funding Criteria

- Must be high-payback high-risk innovations with the potential for commercialization
  - Intellectual merit: high risk research
  - Broader Impact: commercial and societal impact
- Demonstrate strategic partnerships with research collaborators, customers and equity investors
- We do NOT fund
  - *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
  - Medical trials

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Proposal = Framework for Value Creation

- What is the gap or unserved need in the market?
  - What is the size of the servable market segment?
- What are the specific/quantifiable benefits for the customers, if the gap/need is filled?
- What is your solution to fill the gap/need?
  - What is the underlying science? What aspects are of high technical risks?
  - What are the quantitative success metrics?
  - Do you have preliminary data to indicate promise?
- How is your solution better than the competition?
- How will you make money by delivering the solution?
- What will the commercialization pathway look like?
- How will you undertake the venture?
- How will you finance the venture? How will you attract funding beyond SBIR/STTR funding?
- Why is your team the most qualified technical AND business wise to undertake this venture?

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Unique Features of NSF SBIR Program

- NSF is not the final customer
- NSF does not buy product/process or software or IP
- NSF's goal is to have grantees successfully commercialize their technology
- Investment $$ beyond SBIR/STTR is needed

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To Learn More

- **Visit Program's Homepage:**
  http://www.nsf.gov/eng/iip/sbir/index.jsrap
- **READ the entire solicitation.**
  - SBIR: NSF 10-106
  - STTR: NSF 10-590
- **Email cognizant program officers with 1 page summary of technical ideas and commercial potential before proposal submission:**
  - Biotechnology and Chemical Technology: Greg Baxter gbaxter@nsf.gov
  - Information and Communications Technology: Murali Nair, mnair@nsf.gov
  - Advanced Materials, Nanotechnology and Manufacturing: Cheryl Albus, calbus@nsf.gov
  - Education: Glenn Larsen, glarsen@nsf.gov

Q&A SESSION

ACS Chemistry for Life™

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Thursday, September 30, 2010, 2-3 p.m. EDT

Global Patent Protection and International Business Strategies

Dr. Michael Brodowski, Attorney at Law, K&L Gates LLP.

Thursday, October 7, 2010, 2-3 p.m. EDT

Careers in Intellectual Property for Chemists

Robert J. Koch, Attorney at Law, Milbank LLP.

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