SBIR & STTR Funding Issues and Case Studies

~SBIR Outreach Program~

CNY Technology Development Organization (TDO)

Marcene Sonneborn

315-425-5144 or msonneborn@tdo.org

NYSTAR®
New York State Foundation for Science, Technology and Innovation

TDO
Solutions for Manufacturing & Technology

SBIR Outreach Program sponsored by

CNY Technology Development Organization

New York State Office of Science, Technology and Innovation (NYSTAR)

Regional SBIR Program

- NYSTAR funds:
  - 10 Regional Technology Development Centers
  - 15 Centers for Advanced Technology
- Three SBIR Outreach Centers:
  - Western NY
  - New York City and Downstate
  - Central NY

Regional SBIR Program Objectives

- To stimulate and encourage broader SBIR and STTR participation
- To increase the number of awards at all levels (Phases I, II and III)
- To outreach to small businesses
- To assist companies in applying for awards
  - A benefit of being a New York State business
    - No fees for services!!

Objectives for Today's Program

- Provide information about SBIR/STTR
  - Why might you be interested in these programs?
    - Brief history and objectives
      - Pre-feasibility to Commercialization
  - How the program operates
  - How to access these programs – strategies
  - Who to call when you are preparing to write your proposal

History of SBIR Program

- 1982 - Congress passed the Small Business Innovation Development Act
- 1986 - Reauthorization
- 1992 - Congress extended SBIR and created STTR
- 2000 – Renewal extended from 9/30/08 until March 20, 2009
- 2001 – STTR renewal until 9/30/09

Reauthorization Underway

- It is unlikely that SBIR will go away, but it could change immensely

SBIR/STTR Reauthorization

- 7th Continuing Resolution until 7/31/10
- There has been an unprecedented number of changes in SBIR program managers among the 11 agencies in the past year.

- With these personnel changes come changes in the agencies' SBIR program features, "culture" and priorities.

SBIR/STTR Reauthorization

- Specifics of final program unknown
  - Venture Capital participation
  - Phase I to Phase II
  - Length of term for reauthorization

- We do know the programs will be different after the House and Senate reach a compromise between their two radically different versions of the reauthorization legislation.

SBIR and STTR

- Federal R&D funding
  - To conduct research leading to a commercializable product, service or process – grant or contract awards
  - From $500,000 to $1.5 million (or more) for approximately 3 years of R&D
- SBIR = Small Business Innovation Research
- STTR = Small Business Technology Transfer Program

Why Should you be interested in SBIR or STTR?

- If you have an idea or concept for a technology or product that is truly an innovation

Why Should you be interested in SBIR or STTR?

- If your idea may or may not be feasible…

  but if it is, it could revolutionize some aspect of medicine, agriculture, aerospace, military operations, etc.

Why Should you be interested in SBIR or STTR?

- If you want to spinoff a business venture to take your innovation into the commercial market

Why Be Interested in SBIR?

- Grants and contracts - Not loans or equity
  - Retain full equity ownership (no stock for funds)
  - Retain cash for operations (no payback requirements)
- Establish a sole source marketing position with a ready-made customer base
- Receive additional support for business planning, commercialization and venture capital acquisition

Treated as Federal Procurement

- Subject to the Federal Acquisition regulations (FARs)
  - *DFAR for the Department of Defense*
- Announcements, solicitations, schedules
- Written proposals, review panels
- Subject to a DCAA audit

Purposes of SBIR/STTR

- To stimulate technological innovation in the U.S.
- To use small businesses to meet federal R&D needs
- To increase the commercialization of products and services from federal R&D assistance
- To emphasize private sector commercialization

What does SBIR/STTR fund?

- Exploitation of scientific breakthroughs
- Innovation through emerging technologies
- Novel application of existing technologies
- Major improvements to existing technologies

Three Phases of SBIR

- Phase I: Scientific and technical feasibility (Six months)
  - Up to $150,000
- Phase II: Concept refinement, generally leading to prototype (Two years)
  - $1 million or more
- Phase III: Commercialization (non-SBIR funded phase)

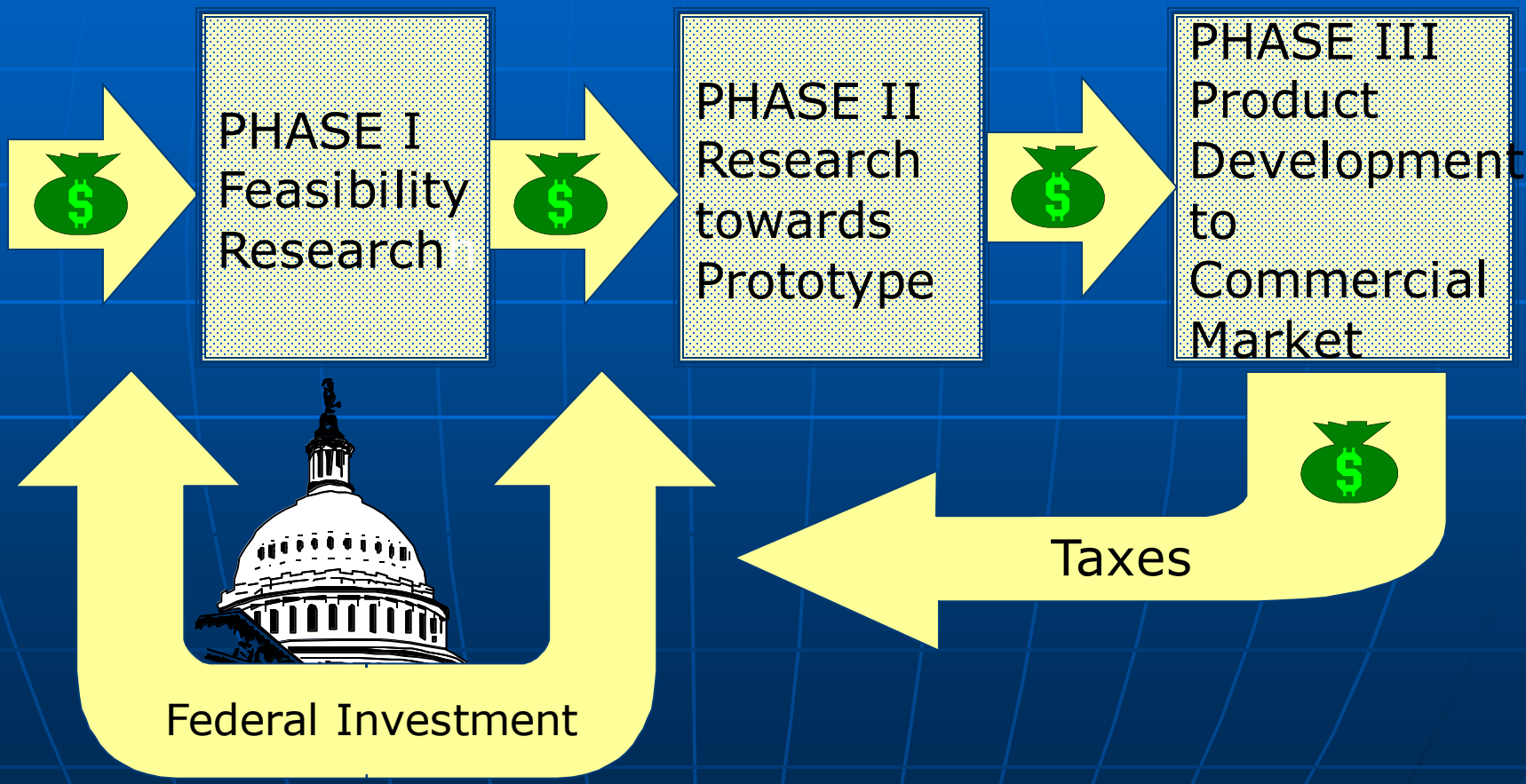
What is STTR?

- Small Business Technology Transfer Program
- Cooperative R&D between small business and research institutions
- Joint venture introducing entrepreneurial skills to high-tech research efforts

Three Phases of STTR

- **Phase I**
  - **Awards up to $100,000 for up to one year**
  - **Explore scientific, technical, and commercial feasibility of an idea or technology**
  - **Requires an allocation of rights agreement between the parties**
- **Phase II**
  - **Awards of $750,000 or more for two years**
  - **R&D work performed and commercial potential considered**
- **Phase III**
  - **Non-STTR funding to move from lab to market**

SBIR/STTR "Innovation" Model



SBIR/STTR Differences

- **SBIR**
  - **11 agencies participate**
  - **Two-thirds (minimum) of funds spent inside the company**
  - **One-third spent on outside consultants or resources**
  - **SBIR is 2.5% of the agency's external R&D budget**
- **STTR**
  - **5 agencies participate**
  - **Company performs at least 40% of work**
  - **Research institution performs at least 30% of work**
  - **STTR is 0.3% of the agency's external R&D budget**
  - **Allocation of Rights agreement required**
  - **Phase I term is up to one year**
  - **Topics may be limited, different cycle than SBIR**

Agencies Offering SBIR and STTR Awards

- *Eleven SBIR agencies and five STTR agencies:*
- Department of Agriculture
- Department of Commerce
- Department of Defense - also STTR
- Department of Education
- Department of Energy - also STTR
- Department of Homeland Security (HSARPA)
- Health and Human Services - also STTR
  - National Institutes of Health
  - Health Care Financing Administration
- Department of Transportation
- Environmental Protection Agency
- National Aeronautics and Space Administration - also STTR
- National Science Foundation - also STTR

Approximate Amounts by Agency

- Defense (DoD - $1 Billion)
- Health and Human Services (National Institutes of Health, Centers for Disease Control- HHS/NIH - $574 million)
- National Aeronautics and Space Administration (NASA - $108 million)
- Energy (DOE- $102 million)
- National Science Foundation (NSF - $94 million)
- Homeland Security ($33 million)
- Department of Agriculture (USDA - $18 million)
- Department of Education (ED - $9 million)
- Environmental Protection Agency (EPA - $8 million)
- Commerce (National Oceanographic and Atmospheric Administration NOAA /National Institute on Standards and Technology NIST- $7 million)
- Department of Transportation (DOT - $4 million)

Eligibility for SBIR

- American-owned,independently operated
- For-Profit business less than 500 employees
- Not dominant in the proposed field of operation
- The Principal Investigator is employed by the business over 50% time (SBIR)
- Research space must be available to and under the control of the SBIR grantee for the company's portion of the proposed project

STTR Eligibility

- American-owned, independently operated
- For-profit
- Principal researcher need not be employed by small business
- Company size limited to 500 employees (no size limit for non-profit research institution)
- Research Institution must be in U.S.

	SBIR		STTR	
Agency:	**Release Date:**	**Closing Date(s):**	**Release Date:**	**Closing Date:**
Department of Agriculture	June 1	Sept 4	**	**
Department of Commerce: 1. NOAA 2. NIST	 Oct 15 Oct 31	 Jan 14 Jan 30	**	**
Department of Defense: 1. DOD First Solicitation 2. DOD Second Solicitation 3. DOD Third Solication 4. DOD Fourth Solication	 Dec 1 May 1 July 1 Sept 15	 Jan 15 Jun 17 Aug 12 Oct 15	Mar 1	Apr 15
Department of Education 1. First Solication 2. Second Solication	 Dec 14 Mar 28	 Feb 14 Jun 1	**	**
Department of Energy	Oct 7	Jan 6	Oct 7	Jan 6
Health & Human Services (NIH, CDC, FDA): 1. PHS/NIH (grants) (AIDS related applications due 1 month later) 2. PHS/NIH (contracts)	 Jan 15 Jul 16	 Apr 5, Aug 5 Apr, Nov 7	Jan 15	Apr 5, Aug 5, Dec 5
Homeland Security	Jun 14	Jul 14	**	**
Department of Transportation	Feb 17	May 1	**	**
Environmental Protection Agency	Mar 25	May 25	**	**
National Aeronautics & Space Administration	Jul 7	Sept 9	Jul 7	Sept 9
National Science Foundation: 1. IT & ST 2. AM	 Mar 1 Oct 1	 Jun 9 Jan 20	 Mar 1 Oct 1	 Jun 9 Jan 20

SBIR APPLICATION PROCESS

- How Do I Apply?
  - Identifying Topics
  - Contacting Agencies
  - Preparing the Proposal
  - Following Up
  - Resubmitting

How Do I Apply?

1. Identify topics funded by each agency that relate to your company's R&D interest:

- Link from http://www.sbirworld.com/

- Links to SBIR Info Sources
- SBIR Solicitation Schedule
- STTR Solicitation Schedule

How Do I Apply?

2. Review Solicitation information:

- Presolicitation Announcements
- SBIR/STTR Solicitation Schedules
- Guidelines
  - Requirements - technical and personnel
  - Award amounts
  - Application and submission details
  - Forms and budget guidelines
- Research funded in the past
- Sample or model proposals

General Phase I Proposal Outline

- Cover page(s) – (Includes abstract for public release)
- Identification & Significance of the Problem or Opportunity
- Technical Objectives
- Work Plan
- Related Work
- Relationship With Future R&D
- Potential Post Applications
- Key Personnel
- Facilities/Equipment
- Consultants & Subcontracts
- Prior, Current or Pending Support
- Cost Proposal

How Do I Apply?

3. Contact each agency

Treat each agency as you would treat any customer - "market to them"

Learn why the agency is funding the topic

- Technical questions before "Release Date"
- Only administrative questions after release
- DOD has a pre-release period
- HHS and Agriculture not concerned about release date restrictions

Before You Start to Write…

- 4. Think about your plan for the long term

- Prepare a technology/product development plan
  - Clear list of all that needs to be done to take the technology into the market
    - Technology and product features
    - Markets and Core Benefits
    - IP issues
    - Manufacturing or production
    - Quality assurance and quality control issues
    - Clinical trials or product testing
    - Partnerships, strategic alliances

Before You Start to Write…

- 5. Clearly define specific aims for the grant proposal, consistent with the product development plan
  - Time span and budget
- What preliminary data is valuable
  - What will support the Specific Aims?

Preparing to Sell Your Idea

- 6. Homework - Search the Literature
  - Your own field of expertise and alternatives
  - Key application areas, existing patents
  - Potential market opportunities
- 7. Brainstorming/Teamwork

Tight Focus on the Project

- 8. Evaluating the Topic "Fit"
  - Why did the agency list this topic?
  - Is this within your strategic mission?
  - Identify the Project's Theme
  - Contact SBIR/STTR people in the "off season"
  - Know how your approach is different from competing technologies and explain it

Preparing a Phase I Proposal

- Elements of the Application
  - Total proposal no more than 25 pages for Phase I
    - NIH has reduced its technical description from 15 down to 6 pages
    - Description of the problem you are attempting to solve
    - How you propose to solve it (research plan)
    - Timeline
    - Resources needed
    - Budget and administrative forms
    - CVs and research team capabilities, expertise

Preparing a Phase I Proposal

- Personnel and Facilities
  - Principal Investigator and Key Personnel
  - Industry Partners and Recognized Consultants
- Commercial Potential, Anticipated Benefits
- Plans for Phase II
- Budget and Justification

- Commercialization Planning
  - Who will benefit, who will buy
  - Identify a pathway to commercial use

Useful Websites

- http://www.sbir.gov/
- http://www.zyn.com/SBIR/
  - Solicitation News
  - Sign up for Zyn's SBIR Gateway *Insider*
- http://sbir.us/schedule.html
- http://gram.eng.uci.edu/~top/sbir.htm#SBIR_SCHEDULE
- http://www.sba.gov/SBIR/
  - Requires a password

DOD SITIS

- http://www.dodsbir.net/SITIS/
- SBIR/STTR Interactive Topic Information System
  - **Provides technical clarification on solicitation topics**
  - **Questioner and respondent remain anonymous**
  - **All technical questions and answers posted electronically for general viewing**

SBIR Web Sites (Cross-Agency)

http://www.sbir.gov

http://www.zyn.com/sbir/

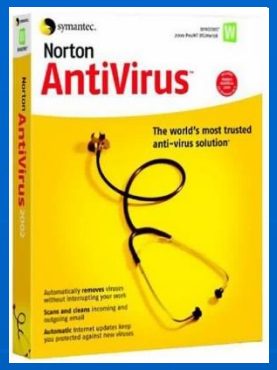
Case Studies

Symantec

Sensis Corporation

Early SBIR Case Study

- 1979:
- An NSF SBIR grant funded a high risk, potentially high payoff, extremely complex idea that Dr. Gary Hendrix conceived when he was working at Stanford Research Institute.
  - Technology:
    - Microcomputer-based Natural Language Understanding
  - The SBIR project resulted in the first personal computer software that understood English.



Early SBIR Case Study

- 1982:
- Symantec was founded by Dr. Hendrix and a team of visionary scientists

  - Their breakthrough was so successful that it helped Symantec attract:
    - 12 outstanding scientists and engineers from academia
    - $3.5 million of venture capital from Kleiner Perkins
    - and a strong marketing team

  - Symantec was originally focused on artificial intelligence-related projects, including a database program

Early SBIR Case Study

1985:

- It's first product was marketed in 1985 as "Q&A Software"
  - 6 years after the first SBIR
- Q&A quickly generated millions of dollars of sales
  - Database management bundled with a word processor
- Symantec grew from a small, four-person startup to a large, diversified software firm
  - The company had record sales of $455 million in 1995 and cumulative sales are now approximately $2 billion. Total employment is nearly 2000.
- Symantec's initial success with Q&A led to an IPO of $10.5 million that was followed by 19 acquisitions.

Early SBIR Case Study

- 1995:
- 10 years after Q&A was released, the company had reached:
  - Record sales of $455 million
  - Cumulative sales of approximately $2 billion
  - Over 2000 employees
- By 1997 it was the most popular commercial application of natural language processing in the world.

Best known for Norton Antivirus and its family of security products

- 2009:
- The company has evolved to become one of the world's largest software companies with more than 17,500 employees in more than 40 countries.

- Security, storage, and systems management solutions

Local SBIR Case Study

- Founded in 1985, Sensis Corporation is a global provider of air defense, air traffic control, airline and airport operations management, and data integration and distribution.

Local SBIR Case Study

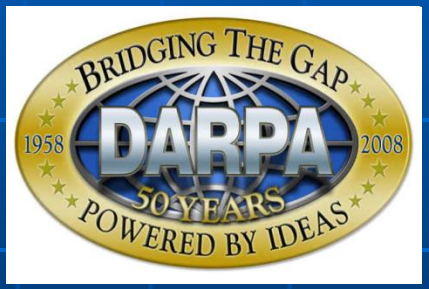
- Founded in 1985 by Jud Gostin
  - A former General Electric executive in Syracuse
  - Left GE after 27 years and patterned his new company after GE's military radar business.
  - His first six employees were radar design engineers hired away from General Electric.

- FY 86 – First Phase I received from the Navy for $49,860

  - "Multi-Static Radar (Passive) Applicability for Small Radar Cross Section"
  - Employees: 6

Local SBIR Case Study

- 1986-1991
- Sensis Corporation received 7 Phase Is and one Phase II for a total of nearly $1 million:



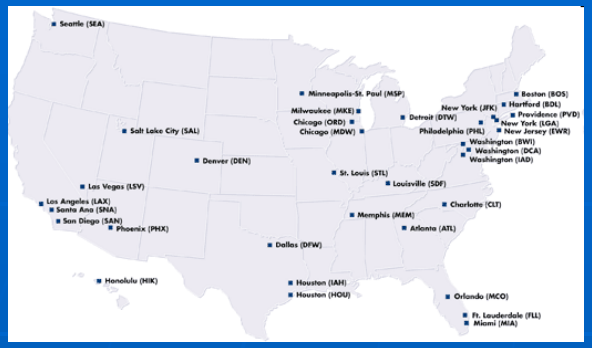
- A global provider of air defense, air traffic control, airline and airport operations management, and data integration and distribution.

"A key to success? Empower employees to innovate"

By Steve Carlic / The Post-Standard
February 09, 2009

- Jud Gostin on incentives for innovation

- ". . . If we forestall (airport) collisions, you can imagine how good that makes people feel. And we do. Our equipment saves lots of lives on airports. And we think it will save lots of lives on the battlefield, as well."



Sensis

- 2010:
- Over 700 employees and hiring…

- Sensis has branched out into other lines of business, driven by employee innovation.

- » **Air Traffic Systems**
  - Air Traffic Systems (ATS) provides surveillance and information technology for the aviation industry, supporting air navigation service providers, airports and airlines.
- » **Defense & Security Systems**
  - Defense & Security Systems (D&SS) provides protection, safety and security to the world's defense organizations through radar subsystems and upgrades; ground based radar; and performance and optimization tools.
- » **Advanced Development**
  - Leveraging our core competencies, Advanced Development (AD) works in conjunction with our ATS and D&SS divisions to develop innovative, real-world solutions for today and new business for tomorrow.

Things to Keep in Focus About SBIR/STTR

- Commercial application is the focus
- Good ROI evidence is important
  - Addresses a significant issue
- Market and customer need is the driving force
- Economic prosperity for the U.S.
  - Job creation
  - Richer tax payers
  - Keep the U.S. globally competitive

There is no fee for SBIR Outreach services, they are funded through a New York State contract to TDO

www. tdo.org
Marcene Sonneborn
SBIR Specialist
CNYTDO
445 Electronics Parkway, Suite 206
Liverpool, NY 13088
(315)425-5144
msonneborn@tdo.org