It May Take Two to Five Years or More from Technology to Product for University Technology, and $2–3 million is typical
Awards to Companies 2008–2012

Champaign–Urbana area
102 Awards
$34,274,703.39
Outline

- About me
- Description of SBIR/STTR Programs
- Overview of participating agencies
- Getting started
- Cost proposals
- Tips and tricks
David Kellner

- Grew up in Los Alamos, NM
- BS, MS in Biology  NMSU/LANL
- Grad school UIUC ABD Biochemistry
- CEO, Caviton
- CEO,  Cogent Innovations
- VP Engineering, ANDalyze
- VP of Development, Nanofab3D

- SBIR Consulting for East Central Illinois funded through EnterpriseWorks, EDA University Center. Sign-up for consulting time at: [http://go.illinois.edu/sbir](http://go.illinois.edu/sbir)
Background

- Involved in 11 Phase I SBIRs
- Resulted in 5 Phase II SBIRs
- Worked on several BAAs
- Acquired State Funding in Illinois and Indiana
- Worked with large corporations
- Worked with Venture Capital
- Have taken technologies from the lab, to prototype, to products resulting in sales
- Mentored several start-ups
Funding Sources

- USAF
- USMC
- DARPA
- NIH
- CDC
- DOT
- EPA
- DOE
- Army
- NSF
Case Study

- Phase I SBIR USAF Performance Monitoring
- Phase II SBIR USAF Performance Monitoring
- Phase I USMC CWA Monitoring
- Honeywell JDA
- DARPA BAA
- DoE BAA

- Phase I SBIR USAF Health Monitoring
- EPA Multiple Metals Monitoring
- EPA Phase II
SBIR and STTR Programs were legislated to fund early-stage R&D at small technology companies to:

- stimulate technological innovation
- increase private sector commercialization of federal R&D
- increase small business participation in federally funded R&D
- foster participation by minority and disadvantaged firms in technological innovation
SBIR/STTR Program Descriptions

- **SBIR (Small Business Innovation Research):** set-aside program for small businesses to participate in federal research and development—with potential for commercialization
  - 2.5%

- **STTR (Small Business Technology Transfer):** set-aside program to facilitate cooperative research and development between small businesses and non-profit research institutions—with potential for commercialization
  - 0.3%
**SBIR Program**
Federal agencies expending >$100M in extramural R&D must set aside 2.5% for SBIR

<table>
<thead>
<tr>
<th>Agency</th>
<th>Grants</th>
<th>Contracts</th>
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<tbody>
<tr>
<td>Agriculture</td>
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<tr>
<td>Education</td>
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<td>HSS</td>
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<td>NSF</td>
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<tr>
<td>Commerce</td>
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<tr>
<td>Energy</td>
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<td>Homeland Security</td>
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<td>Transportation</td>
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<tr>
<td>Defense</td>
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<td>EPA</td>
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<tr>
<td>NASA</td>
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## Participating Agencies

<table>
<thead>
<tr>
<th>Agency</th>
<th>SBIR</th>
<th>STTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoD</td>
<td>$1.23B</td>
<td>$141M</td>
</tr>
<tr>
<td>HHS (NIH/CDC/FDA)</td>
<td>$600M</td>
<td>$72M</td>
</tr>
<tr>
<td>Energy</td>
<td>$138M</td>
<td>$17M</td>
</tr>
<tr>
<td>NASA</td>
<td>$113.4M</td>
<td>$13.6M</td>
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<tr>
<td>NSF</td>
<td>$97M</td>
<td>$13M</td>
</tr>
<tr>
<td>Homeland Security</td>
<td>$20.5M</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>$18.3M</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>$9.9M</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>$8M</td>
<td></td>
</tr>
<tr>
<td>Commerce (NOAA/NIST)</td>
<td>$8M</td>
<td></td>
</tr>
<tr>
<td>EPA</td>
<td>$5M</td>
<td></td>
</tr>
</tbody>
</table>
Agency Differences: Type of Award

- **Contracting Agencies**
  - Agency establishes plans, protocols, and requirements
  - Highly focused topics
  - Procurement mechanism for DoD and NASA
  - More fiscal requirements

- **Granting Agencies**
  - Investigator initiates approach
  - Less-specified topics
  - Assistance mechanism
  - More Flexibility

- DoD, NASA, EPA, DOC, HHS/NIH, DOT, ED, DHS
- HHS/NIH, ED, NSF, USDA, DOE
Agency Differences

- Many differences among agencies with regard to:
  - Funding levels
  - Topic areas
  - Number and timing of solicitations
  - Proposal preparation instructions
  - Submission process
  - Type of award
  - Review process
  - Odds of receiving funding
STTR Program

- Federal agencies expending >$1B in extramural R&D must set aside 0.3% for STTR

5 participating agencies:
  - Defence
  - Energy
  - HHS
  - NASA
  - NSF
Agency Differences

- Odds of receiving funding
  - Phase I: ~1/5 –~1/12 for SBIR; average across agencies is ~1/8.
    - you may be invited to apply for Phase II for some agencies
  - Phase II: ~1/3 –~1/2
  - Depends on budget, number of proposals submitted, target number of Phase I vs. Phase II
  - You must receive a Phase I award before applying for Phase II
## Comparing SBIR & STTR Programs

<table>
<thead>
<tr>
<th></th>
<th>SBIR</th>
<th>STTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm eligibility</td>
<td>US, for-profit, and fewer than 500 employees</td>
<td></td>
</tr>
<tr>
<td>Collaboration with</td>
<td>May subcontract</td>
<td>Must have formal collaboration agreement with university, FFRDC or</td>
</tr>
<tr>
<td>research institution</td>
<td></td>
<td>other non-profit research institution</td>
</tr>
<tr>
<td>Principal Investigator</td>
<td>Must spend more than $\frac{1}{2}$ time employed by firm</td>
<td>Not specified</td>
</tr>
<tr>
<td>Work breakdown</td>
<td>$\frac{1}{3}$ of Phase 1 and $\frac{1}{2}$ of Phase II</td>
<td>Firm must perform a min. of 40% of work and the research institution a min. of 30% of work for both phases</td>
</tr>
</tbody>
</table>
Key Differences Between the SBIR & STTR Programs

- Research Partner
  - SBIR: **Permits** research institution partners (Outsource ~ 33% Phase I and 50% Phase II R&D)
  - STTR: **Requires** research institution partners (e.g., universities)
    - [40% small business concern (for-profit) and 30% U.S. research institution (non-profit)]

- Funding is always awarded to the small business
National Academies 5-yr Study on SBIR

“The SBIR Program supports the transfer of research into the marketplace, as well as the general expansion of scientific and technical knowledge…

> >1/3 respondents to NRC study reported involvement with university in their SBIR project… amount those:
  ◦ >2/3 of companies reported at least one founder was former academic
  ◦ ~1/3 of founders were most recently employed as academic before founding company
  ◦ ~27% of projects used university faculty as contractors,
    • 17% used universities themselves as subcontractors, and
    • 15% employed graduate students”

Eligibility

- Small business must have fewer than 500 employees, including affiliates
- Must be organized for profit
- Must be >51% US-owned by individuals and individually operated OR at least 51% owned and controlled by another for-profit business concern that is at least 51% owned and controlled by one or more individuals
- All work must be performed in the US
Eligibility (continued)

- Principal Investigator must be primarily employed (>50%) by the small business for SBIR; for STTR DoD, NIH, and NASA permit PI to be primarily employed by the non-profit partner
- SBIR company must perform at least 2/3 of effort for Phase I projects and at least 1/2 of Phase II
- Small business must perform at least 40% of the effort for an STTR project
- Requirements apply “at the time of award and for the duration of the project”
Overview of the SBIR/STTR Programs

- **Phase I**
  - Proof-of-concept/feasibility study
  - Up to $150,000 for 6 month project (SBIR) or $100,000 for 12 month project (STTR)
  - Ranges from $80k to $150k

- **Phase II**
  - Full Research/R&D effort
  - Up to $1,000,000 for 2 year project ($750,000 for STTR)

- **Phase III**
  - Commercialization phase
  - Requires the use of non-SBIR/STTR funds
  - Can lead to a DOD contract
Agencies describe R&D topics in solicitations.

Small Business Concerns prepare proposals. Unsolicited proposals are not accepted.

Agencies evaluate proposals based on technical merit, firm’s qualifications, and commercial potential/societal impact.

Agencies make Phase I awards.
Improving Your Odds

- Need an innovative idea
- Need credibility as a researcher and a company
- Understand the agency’s mission and needs—example EPA’s White Paper.
- Respond to the appropriate solicitation or topic (unsolicited proposals are not accepted)
- Follow the rules
- Call the program manager prior to the date and discuss your idea.
Improving Your Odds: Meet Agency Priorities

- E.O. 13329 “Encouraging Innovation in Manufacturing”
  - SBIR/STTR program managers are instructed to give priority to manufacturing-related R&D
  - Priority for all agencies
  - Directs SBIR Programs to give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system R&D projects.
Agency Differences: Funding Levels

- **Phase I SBIR (up to 6 months duration)**
  - $75,000: ED (grants)
  - $80,000: EPA
  - $90,000: USDA, NIST
  - $95,000: NOAA
  - Up to $100,000: DoD, NASA, DOE, DOT, DHS, ED (contracts)
  - Up to $150,000: NIH, NSF, and DHS

- **Phase II SBIR (up to two years duration)**
  - $300,000: NIST, EPA
  - $400,000: USDA, NOAA
  - $500,000: NSF, ED (grants)
  - $600,000: NASA
  - $750,000: DoD, DOE, DOT, DHS, ED (contracts)
  - $1 million: DHS, NIH
Agency Differences: Funding Levels

- **Phase I STTR**
  - Up to $100,000: NASA, NIH, DoD, DOE
  - Up to $150,000: NSF
  - Up to 12 months in duration

- **Phase II STTR**  
  Does not include supplements or matching funding programs
  - $500,000: NSF
  - $600,000: NASA
  - $750,000: DoD, NIH, DOE
  - Up to two years duration
Agency Differences: Follow-on Funding

- Several agencies have mechanisms for “gap” or follow-on funding to continue development of technologies that may need to go through a regulatory approvals process or to meet additional developmental requirements for successful commercialization.
- Often these require the small business to provide matching funds from a third party.
Filling Gaps in Current Portfolio

Innovation through Partnerships

Valley of Death

Level of Development

Discovery

Development

Commercialization

Resources Invested

SBIR

University

Small Business

Investors

Foundations

Industry
Agency Differences: Contact

- Direct contact with agency officials concerning a particular topic may be limited to a specified time period
  - DoD
    - Monitor questions posted on SBIR/STTR Interactive Topic Information System (http://www.dodsbir.net/sitis/)
  - ED (contracts)
  - Homeland Security
- Direct contact with agency officials may be prohibited
  - NOAA
Agency Differences: Deadlines

- There is no single deadline for submitting SBIR or STTR applications
- Some agencies have multiple deadlines per year
- Some agencies have one deadline per year
- Deadlines vary as to the date and time
Agency Differences: Submission Process

- May be required to use agency website for submission
  - DoD (DoD Submission Site)
  - NSF (Fastlane)
- May be required to use Grants.gov
- EPA, NIST and NOAA require hard copies of proposals to be mailed in
Agency Differences: Contact

- Can contact other agencies throughout the solicitation period
- Helps with SBIR/STTR strategy:
  - Identify the agency’s needs that are being addressed by the topic
  - Assess appropriateness of your idea for a particular topic
  - Determine how much competition or target number of awards
  - Identify other potential opportunities
Agency Differences: Contact

- Contacting program officials:
  - Look through solicitation or guidelines first.
  - Be prepared: have “elevator speech” or white paper that briefly describes your technology or idea.
  - Have a prioritized list of questions.
  - Spend about 10–15 minutes on the phone: many others are also contacting them.
  - Send an email if you can with your summary and schedule a time to talk.
Review Process

- Many agencies use administrative review to screen proposals
  - May reject proposals without further review if they fail to adhere to proposal preparation guidelines or other screening criteria
    - Page limitations
    - Font sizes
    - Specified elements (in order)
    - Technical merit
    - “Responsiveness”
    - Need Intellectual merit and broader impact
Review Process

- Internal (agency officials, scientists, engineers)
  - NASA
  - DoD
  - NIST
  - DOT

- Get to know the agency before submitting: contact program manager/topic author (when permitted) and find out as much as possible about the topic
Review Process

- External (Peer)
  - USDA (4–6 ad hoc reviewers)
  - NIH (academia/industry)
  - NSF (academic/industry)
    - Phase I and Phase II have both technical and commercial reviewers
  - DOE (three independent external reviewers)
  - ED
Agency Differences: Review Process

- Both
  - Homeland Security—may include internal and external reviewers as well as end-users
  - EPA—external peer review to assign ratings; internal relevancy review (only for proposals rated excellent and very good)
Duplicate Proposals

- Can submit essentially duplicate proposals to different agencies (but not to different components within an agency)
- However, duplicate proposals will not be funded
- Can submit multiple proposals related to a “platform” technology, provided the projects are substantially different
Key Differences Between SBIR/STTR Proposals and Other Research Proposals

- SBIR/STTR research topic must have commercial potential
  - Requires knowledge of market space as well as state-of-the-art of technology
  - Goal should be a product or service, not more research or publications
  - Impacts can be financial as well as scientific or educational
  - Phase II applications require a detailed commercialization plan
Key Differences Between SBIR/STTR Proposals and Other Research Proposals

- SBIR/STTR funding is not meant to build your laboratory
  - Assume you have or have access to equipment and facilities you need to complete the project
  - Equipment requests may be capped by agencies

- SBIR/STTR funding is not intended to develop your career
  - No special consideration or programs for “new” investigators
  - Newcomers compete with well established and experienced companies
Key Differences Between SBIR/STTR Proposals and Other Research Proposals

- SBIR/STTR awards may be contracts
  - Contracts mean milestones and deliverables
- SBIR/STTR awards come with more stringent reporting requirements
  - Accounting system approval may be required
  - Expect audits in Phase II
- Companies may be penalized for receiving too many SBIR or STTR awards
Similarities Between SBIR/STTR Proposals and Other (Research) Proposals

- Scientific merit is critical for success
- Must address agency/organizational needs or program priorities
- Selection is a highly competitive process
- Proposal development and writing process are similar
- All types of proposals can be viewed as marketing documents
Grants and Contracts
- Grants: investigator-initiated (many -topic areas)
- Contracts: specific topics
- Omnibus solicitation and special program announcements/requests for applications

Multiple deadlines throughout the year
- April 5, August 5, and December 5 for non-AIDS related topics
- May 1, September 1, and January 1 for AIDS related topics
- Contracts deadline will be announced

External review (new review criteria implemented)

New page limits and other changes in proposal structure in place for 2010 submissions

FY 2009 funding: $600 Million (SBIR); $72 Million (STTR)

Flexible agency (can exceed statutory guidelines for funding limits and time frames)

Has STTR program

Has FastTrack Program

Other assistance (Niche assessment, Competing continuation Phase II, CAP)

Electronic submission: register on Grants.gov and eRA Commons

Web site: http://grants.nih.gov/grants/funding/sbir.htm
Grants
Solicitation topics vary year to year but are typically broad
External review (both technical merit and commercial potential)
Electronic submission through FastLane
FY 2009 funding: $97 Million (SBIR); $13 Million (STTR)
Additional assistance (Phase Ib; Phase Ila, Ilb, MatchMaker)
NSF is typically not the final customer
Focus on near-term commercialization potential: Phase I applications require 3–5 commercialization plan
DoD

- Contracts (topics are very specific)
- Differences exist among the various DoD components
- Multiple deadlines throughout the year (but always at 6:00 am ET)
- Internal review
- Establishing a relationship with program managers/topic authors (TPOC) is very important
- FY 2009 funding $1.23 billion (SBIR and STTR)
- Electronic submission through DoD submission site
- DoD SBIR/STTR Help Desk is very helpful (866–724–7457)
Grants (one application deadline per year)
13 Topic areas, usually do not vary from year to year
  ◦ Ideas are investigator initiated
  ◦ Very broad array of technologies are funded
Review panel of outside experts
Phase I and Phase II commercialization programs
Electronic submission through Grants.gov
FY 2009 funding: $18.3 Million
Department of Commerce: NIST

- Awards contracts
- Emphasizes transfer of federal technologies to small businesses (SBIR TT) and meeting NIST programmatic goals (SBIR R)
- Has administrative and internal review process
- Does not accept electronic submission of proposals
- Direct contact with agency prohibited during open solicitation period (monitor bulletin board on website)
Awards contracts
Focuses on Ecosystems, Climate, Weather and Water, and Commerce and Transportation
Review process includes administrative screening and internal evaluation
Uses hardcopy submission
Direct contact with agency prohibited during open solicitation period
Website: http://www.oar.noaa.gov/orta/
Awards contracts ($100K Phase I, $750K Phase II)
Internal review process
May issue Fast-Track solicitation along with or in lieu of Phase I offering
Focus is on education technology products that improve student learning or teacher practices
FY 2008 funding $5.45 million
Website: http://www2.ed.gov/programs/sbir/index.html
Department of Education: OSERS/NIDRR

- Award grants ($75K Phase I, $500K Phase II)
- Administrative screening and external review
- Focus is on R&D of technology for individuals with disabilities
- FY 2008 funding $3.63 million
- Electronic submission through Grants.gov
- Website: http://www2.ed.gov/programs/sbir/index.html
Awards grants
External review
Four agency goals: Defense, Energy, Science, Environment
Topics vary by solicitation; recommended that applicants contact topic authors
Can be considered for under SBIR or STTR if meet all criteria (check box)
FY 2009 funding $138 million (SBIR) and $17 million (STTR)
Web-Based, Technical Assistance Portal (http://doecapreg.foresightst.com/)
Commercialization Assessments
Website: http://science.energy.gov/sbir/
Awards contracts

Involves DHS’s S&T Directorate and DND Office
- S&T: $100K Phase I; $750K Phase II
- DNDO: $150K Phase I; $1 million Phase II
- Phase II proposals are evaluated and awarded incrementally

Topics align with needs of agency and authored by DHS program managers

Internal review (but may seek outside advice): merit and relevance

Seeking near-term commercialization potential projects

Has Phase II cost-match program

FY 2009 funding $20.5 million

Electronic submission through DHS website

Website: [http://www.dhs.gov/small-business-innovation-research-sbir-program](http://www.dhs.gov/small-business-innovation-research-sbir-program)
Department of Transportation

- Awards contracts (Phase II by invitation only)
- Topics developed by DOT’s Operating Administrations
- Internal review
- Direct contact with agency not permitted during open solicitation and evaluation period
- FY 2009 funding $8 million
- Electronic submission through DOT SBIR website
Awards contracts
Topics tend vary year to year, but are relatively broad
  ◦ Emphasize EPA regions, but any company across the country can apply
External peer review followed by internal agency relevancy review
Collaboration with NSF on environmental technologies
Phase II options (commercialization and verification)
FY 2009 funding $5 million
Website: http://www.epa.gov/ncer/sbir/
Awards contracts
Administrative screening and internal review
Topics align with Mission Directorates priorities
  ◦ Communicate with technical points of contact to help develop an internal champion
FY 2009 funding: $113.4 million (SBIR); 13.6 million (STTR)
Prime customer for SBIR and STTR developed technologies: has issued many multi-million dollar Phase III follow-on contracts
Electronic submission through NASA’s Electronic Submission Handbook
Website: [http://sbir.gsfc.nasa.gov/SBIR/SBIR.html](http://sbir.gsfc.nasa.gov/SBIR/SBIR.html)
Getting Started: Register for Electronic Submission

- Most agencies have moved to an electronic submission process for SBIR/STTR applications
- Process requires several time-consuming registration steps
Steps for Registration

1. Obtain a DUNS number: available free by calling Dun & Bradstreet at 1–866–705–5711

2. Register in the Central Contractor Registry (CCR)
   - Need a DUNS number
   - Need a Taxpayer Identification Number (TIN)
   - Need statistical information about your company
   - Need electronic funds transfer information
   - Assign an eBusiness Point of Contact (EPOC)
   - Must renew/validate your registration once a year
Does This Mean I Have to Have a Company?

- Yes! You need to have formed a legal entity and set up a bank account
- Your company does not need to have significant operations until an award is made
  - But, remember that reviewers will be evaluating your facilities and resources for performing and SBIR or STTR project
Steps for Registration, con’t.

4. Register on Grants.gov

   ◦ View tutorial to preview steps: http://www.grants.gov/applicants/get_registered.jsp
   ◦ Make sure you have an Authorized Organizational Representative (AOR) registered in Grants.gov
     • There are several screens to go through when registering your AOR—be sure to complete the process
     • Your AOR must be authorized to submit grants by your E–Business Point of Contact
Electronic Submission Tips

- Servers get busy near deadlines: submit early if possible
- Be prepared for hiccups
- Be sure you have registered where directed by the agency
- Prepare your proposal as a single document using word processing software, then break into appropriate PDF documents as directed by the solicitation instructions
- If applicable, download application instructions and application package early and save to your hard drive
Useful Links

- [http://www.zyn.com/sbir](http://www.zyn.com/sbir) (SBIR Gateway)
- [https://www.sam.gov/portal/public/SAM/](https://www.sam.gov/portal/public/SAM/) (System Award management site)
- [http://www.grants.gov](http://www.grants.gov) (Grants.gov site)
Potential Benefits to the Researcher

- Can provide financial rewards for the researcher.
- Can strengthen researcher’s lab program and reputation.
- Can attracts innovative employees.
- Can support university research program.
- Can strengthens industry relations.
- Company can fund research, therefore the need to rely on getting grants is less.
- Can strength local technology community.
- Can obtain recognition – US Patent, Copyright
- Can fulfill university tech-transfer charter
Starting a Company Basics

Determination of Business Name & then register the name with your Secretary of State for the State in which your business is located or the State you want to incorporating in (Delaware is an example).
Business Structure

- Sole Proprietorship, Partnership general and limited, C-Corp, S-Corp, Limited Liability Company
- Should consider:
  - Formation requirements
  - Ease of formation
  - Period of existence
  - Liability
  - Taxes
  - Dissolution
- State require annual payment for corporations.
- If a corporation – must have an agent in the State – therefore must have an agent in Delaware if located in California.
Company Tips

- Generally VCs will not invest in LLC – limit on number of investors.
- LLCs are easy but do have their problems.
- Most closely held companies do not pay taxes.
- There are accounting costs.
- Do not want to commingle funds – pierce the corporate veil.
- Open a business bank account – needed for CCR registration.
The SBIR programs requires registrations and they all take time to get. Plan to start early.

If a corporation need EIN number.

DUNS numbers are Free for Government Grants. [http://fedgov.dnb.com/webform/index.jsp](http://fedgov.dnb.com/webform/index.jsp)


If you are going to apply to NSF – register with FastLane. [https://www.fastlane.nsf.gov/n1/N1AddInst.html](https://www.fastlane.nsf.gov/n1/N1AddInst.html)

The PI must also be registered at FastLane.
Employee Related Issues

- If you have at least one employee, you are required to address the issue of employer insurance.
  - Unemployment insurance
  - Worker’s compensation insurance
- Independent Contractors
  - Must follow IRS rules
- Should have employment – contractor’s agreements
  - Who owns the IP? (see example)
  - Should be assigned to small business.
Top 10 Reasons Proposals are Rejects

1. Lack of technical detail in the work plan
2. Do not adhere to proposal guidelines
3. Perceived lack of innovation
4. Too ambitious
5. Lack of knowledge of prior work or state-of-the-art
6. Lack of credibility
7. Poorly written
8. Missed deadline
9. Not “responsive” to topic
10. Inadequate Phase II or Phase III potential
Mistake #1: Not doing your “homework”

- SBIR Solicitation – read it!
- Competition? Yes you do have it and you should tell them in the proposal about your competition
- Current research – prove you are leading-edge
- Understand your customer
  - Federal agency
  - End user/purchaser
Mistake #2: Failure to communicate with agency

- Related to not doing your homework
- Know whether solicitation is released or “pre-released”: may not be able to contact directly
- Have defined objectives for communication
  - Get feedback on your idea (“responsiveness”, innovation)
  - Familiarize the agency with your company (build credibility)
  - Have questions answered or clarifications made (strategic, not those that are obvious in the solicitation)
- Communication prior to solicitation release provides more time to build credibility
  - Network at conferences, industry days or by direct contact
  - An opportunity to submit ideas and topics to agency
Mistake #3: Underestimating commercialization

- Lack of commercial potential can doom your proposal in Phase I
- You need to have a plan for commercialization before you start your Phase I application
- You need to demonstrate pull for your technology
- You need to demonstrate you understand the market space and have realistic expectations for sales and growth
- You need to know how your technology fits into a larger system
- You will need resources beyond SBIR to finance commercialization
Mistake #4: Lack of credibility

- No business expertise in the company or no scientific collaborators to round out the team
- No letters from collaborators or consultants
- Facilities are inadequate
- “While the researchers appear to have good engineering experience for tackling the design challenges presented by this project, a major weakness of the proposal is that the company lacks expertise in manufacturing, sales, and marketing…”
Mistake #5: Lack of attention to detail

- Have someone proofread your proposal before you submit.
- Do you know what counts towards the page limits, and do you know what the page limits are?
- Did you address all the items specified in the solicitation?
- Did you submit on time?
Planning

Once you identify long-term market opportunities or technological challenges for your industry

Ask the question:
Can SBIR or STTR provide early stage R&D funding?

- 3 to 5 years from product launch
- High level of innovation (Potential for failure)
- In-house capabilities
- Build relations with university researchers, Potential customers, Federal Labs, Tier One DOD Suppliers
Occasionally you can win going in “cold”, but……

- You vastly increase your odds by establishing customer relationships
- Who are the customers?
  - Federal agencies
    - Have mission to accomplish
    - Have SBIR funds
  - End users/purchasers
Examples – DOE, EPA, DoD, NSF

- Know your agency:
  - EPA – White paper announced building green builds in a priority. It is one topic only
  - DOE – has a priority – renewable energy. They have 100s of topics
  - In a NCET 2 webinar – 50% of the winners of DOE SBIR’s have a relationship with a DOE lab
  - DoD and DHS like companies that “know their business”
  - NSF uses university researchers as reviewers

- Valuable insights
Examples – NIH and NIST

- Programs are constantly changing – NCET2 is a way to stay updated:
  - NIST new TT program will give your company an SBIR if take their patents out of the lab. They had spend years developing the technology. Looking for a commercialization partner.
  - NIH’s new SHIFT program for postdoc shifting from academia to business.
Tips – Proposal Summary

- Be cautious not to exceed page / worked limit.
- Must have key words.
- If responding to particular topic – list in in the summary. (Example this proposal is responding to ----.)
- Use Header – with the topic and company name – make it easy for the PD to get your proposal reviewer by the right people.
- NSF – must address intellectual merit and broader impact. Recommend using these terms.
- NIH – TIP – be specific – not broad
Searching for Topics

- Must respond to a specific solicitation and research topic to apply for SBIR or STTR funding
- Can find topics by searching:
  - Solicitations posted on individual agency websites
  - SBIR.gov
  - SBIR Gateway
Searching for Topics

http://www.zyn.com/sbir

Resources

SBIR Insider Newsletter
- Solicitation Dates
- SBIR Agency Links
- SBIR Events Calendar
- State Newsletters
- About SBIR Funding
- Federal Laboratories
- EPM/CoP Program
- Other Grant Info
- SBIR Policy Directive
- Contact Us

News Items

View Latest Solicitation News
- News Updated 4/29/10

Congress Passes Bill to Extend SBIR/STTR
- Extension to 7/31/10 for all but DoD

DoD 5.6T Issues FY-10 2 SBIR
- Opens 03/15/10 Closes 06/10/10

DoD Issues FY-10 2 SBIR
- Opens 05/19/10 Closes 06/23/10

NIH Honors New SBIR Award Amounts
- With awards over $100K, 19 awards in FY 2009

SBA Raises SBIR Award Amounts
- Phase I $150K - Phase II $1M

SBA FAST Released
- Grant Program for Stages
- Opens 3/25/10 Closes 5/10/10

NSF Releases FY-2011 SBIR
- Opens 5/19/10 Closes 5/19/10

DoD SBIR/STTR Extended Through Sep 30, 2010
- DoD Only, 1-Year Reauthorization

National / Regional Conferences

12th Annual NIH SBIR/STTR Conference
- Raleigh, NC - June 2 - 3, 2010
- Registration Now Open

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
A quality proposal has three generic components each targeted towards addressing one of the following questions:

- What is the significance of the problem? What problem are you going to solve (or what are you going to produce) and what difference will your efforts make?
- How you are going to go about resolving the issue identified in component 1? What are your specific technical objectives and what are their roles in proving of feasibility? What are the details the work plan for accomplishing the objectives?
- Why you are the right firm to perform the work? What evidence can you provide to establish your firm’s credibility, including your awareness of the state-of-art, your firm’s previous experience in the conduct of related R&D, and the qualifications of key personnel, of consultants, and of your facilities.
Common Sections of Proposal

- Abstract or Summary
- Specific aims
- Background and significance (or identification of problem or opportunity)
- Work plan
- Related Work
- Related research or research and development
- Commercialization strategy
- Key personnel
- Company and facilities
- Subcontracts and/or consultants
- Prior, current, or pending awards
- Cost proposal
- Literature cited

- Tip–NIH significantly revised its application guidelines this year and now has a Research Strategy section
Proposal Writing Tips

- Use formatting to indicate key sections of the proposal and label them with the same language used in the solicitation.
- If a section does not apply to your proposal write “not applicable” under that heading.
- Be clear and concise.
- Double check spelling and grammar.
- Avoid jargon.
- Spell out acronyms on first usage.
Budget or Cost Proposal

- Follow solicitation instructions carefully
  - Know what is “allowable” and “unallowable”
- Be specific
  - Do not round numbers
  - Get quotes or other documentation for equipment, etc.
- Generally speaking, grant applications are not treated like a bidding process
Cost Proposal

- Proposed budgets should:
  - Cover 100% of the project-related expenses
  - Enable you to recover some of your indirect costs
- Do not exceed funding limits: budget requests that exceed the ceiling specified in the solicitation may cause the proposal to be rejected without review
Cost Proposal

Types of costs:

- Direct:
  - Costs directly related to performing the project (would you still have them if you didn’t do the work?)
  - Labor
  - Materials
  - Consultants

- Indirect:
  - Costs associated with ongoing operations
  - Calculated using a logical and consistent method
  - May be capped at a certain rate
  - May be negotiated by federal agency for each organization
Cost Proposal

- **Direct Labor**
  - Rates should be fair and reasonable
  - Can calculate hourly rate by dividing annual salary by 2080 (40 hrs per week x 52 weeks per year)
  - Fringe benefits can be a direct cost included with direct labor, or can be an indirect cost
Cost Proposal

- Other direct costs
  - Consumables
  - Equipment*
  - Travel*
  - Publication costs*
  - Machining/Prototyping
  - Keep documentation for auditing purposes—get written bids/quotes if possible

*What’s allowed varies by agency: know their rules!
Cost Proposal

- Indirect costs
  - Covers costs of operations not related to a specific project
  - General lab supplies
  - Fringe (employee benefits)
  - Overhead (infrastructure)
  - General and administrative (G&A; management and administration)
  - Indirect cost rates vary from organization to organization
  - Agency rules vary
There are two keys to preparing a good budget: be realistic, and follow the instructions.

As a general policy, cost-sharing is not required.

Most agencies provide budget sheets as part of their SBIR solicitations.

Tip–7% FEE (PROFIT) allowed–Use it.
Budget (cont’d)

- Equipment over $5,000 is owned by US Government –TIP–recommend lease or lease to own.
- PI must be 51% time –budget accordingly.
- If the Panel has problem with the budget –it can be fitted later by agreeing to change it. Tip–do what they want.
Tip–no commercialization expenses allowed.
Tip–no patenting cost allowed.
Budget is for research only.
Tip–maximum consultancy fee is $600 per day –must be in writing.
Tip –Need budget justification.
Sub awards must have their own budget and budget justification.
NSF –may need Postbox mentoring plan.
Budget Justification

- Careful balance between providing enough, but not too much, detail
- Tie budget requests back to experimental design, specific aims or impact:
  - “Purchase of enzymes and reagents is requested for PCR testing of …”
  - “Principal investigator will be responsible for…”
  - Request funds for travel to awardees conference if submitting to NSF (you are required to go)
Agency Budget Nuances to be Aware of NSF

- NSF:
  - No publication costs or travel allowed (except for SBIR awardees conference).
  - Tip—50% or below F&A (overhead) for NSF is approved.
  - Don’t request equipment unless you want NSF to own it.
  - Pay attention to maximum daily consulting fee.

Agency Budget Nuances to be Aware of NIH

- NIH:
  - Tip—NIH wants you to request a reasonable budget and a reasonable timeframe, but pay attention to whether you are submitting under the Omnibus solicitation or a specific RFP or PA: RFPs and PA sometimes have specified funding ceilings
  - Tip—NIH will accept a 40% indirect cost rate without negotiation on Phase I and Phase II proposals (but rates are subject to audit at any time: propose only what you can support)
Agency Budget Nuances to be Aware of USDA

- USDA:
  - Equipment purchases are limited to 10% of Phase I budget request
  - Agency may negotiate fee requests (i.e., you may get less than 7%)
  - If you don’t have a negotiated G&A rate, can put in a reasonable dollar amount, but will have to provide an indirect cost rate proposal if selected for funding
A proposal is a written document. Accordingly, all the considerations which go into writing any persuasive piece apply to proposal writing. You must consider what your audience wants to hear, how they like to hear it, and what criteria they use in evaluating what they hear. The proposal usually requires 150–200 professional hours to complete.

Tip–Agencies give you the criteria and who will evaluate the proposal. NSF – important to have a PhD and university partner. DOD – tier one DOD contractor as partner, DOE – DOE lab as partner. Know who is going to review your proposal.
References Tips

- Applicants are expected to know the STATE OF THE ART in the field.
- Consider that the reviewers are volunteers who are generally academics with expertise in the field of study, therefore YOU MUST HAVE knowledge of current literature and related prior successful proposals,
- TIP – You should reference 25 to 70 references in the proposal.
NSF Checklist

- Checklist is available at [http://www.nsf.gov/eng/iip/sbir/PhI_Check_List.pdf](http://www.nsf.gov/eng/iip/sbir/PhI_Check_List.pdf)
- Phase I Proposal Check List Start Early
- Tip – It is recommended to submit your proposal 1–2 days prior to the deadline date.
- Tip – Review the Frequently Asked Questions
- Tip – Call Program Manager before preparing the proposal. Run your idea through him first.
Common Reviewers Criticisms

- Poorly written and presented.
- Principal Investigator lacks necessary technical expertise.
- Insufficient technical information.
- Cannot be completed in six months.
- Inadequate bibliographical information.
Common Reviewers Criticisms (cont’d)

- Lacks letters from consultants / Letters of Support.
- Research already done by others.
- Too vague and unfocused.
- Failure to indicate where project would go in Phase II. Poor commercialization potential.
- Doubtful economic prospects.
- Inadequate detail in experimental plan
Phase I Report Tips

- Phase I reports may be carefully read by technical reviewers: be sure you prove feasibility
- Phase I reports may or may not be read by commercialization plan reviewers: be sure to goals and outcomes of the project are clear in the commercialization plan
- However, assume all reviewers will read, understand and critique the Phase I technical report
Phase I Report Tips (cont’d)

- If you have not yet proven feasibility, ask for a no-cost extension to complete the work that does prove it
- Use figures, tables, and formatting to highlight Phase I accomplishments: help “sell” Phase II
- Follow the agency’s instructions
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