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SBIR and STTR Programs

Governmental grants are neither debt nor equity. About one-half of all corporate research funds come from governmental grants. These grants support the research and development and subsequent commercialization of a technology, product, or service. Most prevalent are the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

SBIR and STTR programs offer:

- Funds reserved for small, innovative companies.
- Funds for high-risk projects.
- No dilution.
- Valuable credibility.
- A simplified route to obtaining federal R&D funds.

SBIR and STTR Objectives – These two programs have the same three objectives:

- Stimulate technological innovation.
- Strengthen the role of small businesses in meeting federal research and development needs.
- Increase private sector commercialization of innovations derived from federal research and development.

Small Business Eligibility – To qualify for SBIR and STTR programs, your business must have fewer than 500 employees, be American-owned and independently operated, and be for profit.

Each year the 10 participating agencies for SBIR and five participating agencies for STTR issue program solicitations describing the technical areas in which they are interested. The solicitations, their release and due dates, and submission instructions are available at each agency's Web site.

Evaluation Criteria – The agencies evaluate the submissions for SBIR and STTR grants based on the following criteria:

- Scientific and technical quality and innovativeness of the idea, and the significance of the scientific or technical challenge
- Ability to carry out the project; that is, qualifications of the principal investigator and other key personnel, adequacy of facilities and equipment, and soundness of work plan
- The impact as evidenced by technical and/or economic benefits, the likelihood that the work would lead to a marketable product, or the likelihood the project could attract further funding



Small Business Innovation Research (SBIR)

The Small Business Innovation Research (SBIR) program funds qualified small businesses to meet specific research and R&D needs of the federal government. The program was enacted in 1982 as part of the Small Business Innovation Development Act (and reauthorized in 2000). It requires that federal agencies with more than \$100 million in extramural R&D allocate a percentage of their budgets exclusively for small businesses. This set-aside began in 1983 at 0.2 percent and is currently at 2.5 percent, resulting in the availability of approximately \$2 billion in fiscal year 2004 to R&D small businesses.

Three Phases – SBIR is a highly competitive three-phase program. Phase I is a feasibility study to evaluate the proposed project's technical merit. An awardee may receive a maximum of \$100,000 for approximately six months for this initial phase. Phase II is the principal R&D effort that expands on the Phase I results. This two-year project may receive up to \$750,000 in funding. Only Phase I awardees are eligible to compete for Phase II funds. Phase III is the commercialization of the Phase II results and moves the innovation from the laboratory to the marketplace. This private-sector commercialization of innovations requires use of private sector or other non-SBIR funding. Some agencies, however, do provide follow-up Phase IIB or matching funds to assist with commercialization activities.

Small Business Technology Transfer (STTR)

The Small Business Technology Transfer (STTR) program was established by Title II of the Small Business Research and Development Enhancement Act of 1992 to foster innovation necessary to meet the nation's scientific and technological challenges of the future. This three-phase program provides the opportunity for qualified small businesses to work collaboratively with nonprofit research institutions on research or R&D projects. Federal agencies with more than \$1 billion of extramural R&D must reserve 0.3 percent of their budgets for R&D small businesses and their partners. STTR was recently reauthorized through 2009.

STTR is much like the Small Business Innovation Research (SBIR) program. Its unique feature is its requirement that the small business work jointly with a nonprofit research institution located in the United States. A minimum of 40 percent of the work must be performed by the small business and a minimum of 30 percent by the nonprofit research institution.

Three Phases – STTR is a three-phase program of which two are federally funded. Phase I is a feasibility study to evaluate the proposed project's technical merit, for which an awardee may receive a maximum of \$100,000 for approximately one year. Phase II is the principal R&D effort that expands on the Phase I results. This two-year project may receive up to \$500,000 in funding. Only Phase I awardees are eligible to compete for Phase II funds. Phase III is the commercialization of the Phase II results and moves the innovation from the laboratory to the marketplace. This requires use of private sector or other non-SBIR funding.

Differences Between SBIR and STTR

	SBIR	STTR
Phase I Level of Effort	Minimum of 2/3 of the effort must be performed by small business Maximum of 1/3 of the effort may be performed by consultants and/or subcontractors	Minimum of 40% of the effort must be performed by small business Minimum of 30% of the effort must be performed by a nonprofit research institution.
Phase II Level of Effort	Minimum of 50% of the effort must be performed by small business Maximum of 50% of the effort may be performed by consultants and/or subcontractors	(Same as Phase I) (Same as Phase I)
Subcontractors <i>Tip</i> Subcontracting can help shore up your project by adding important team members and equipment.	May have subcontractors involved	Must have nonprofit research institute involved as subcontractor
Project Duration	Phase I – Approximately 6 months Phase II – 2 years	Phase I – Approximately 1 year Phase II – 2 years
Maximum Award Amount	Phase I – \$100,000 Phase II – \$750,000	Phase I – \$100,000 Phase II – \$500,000
Number of Agencies Participating	10	5
Principal Investigator	Must be employed with small business	May be employed with either small business or nonprofit research institution. (This requirement varies among agencies.)

Research Institution Eligibility – STTR requires that your company work with a nonprofit research institution. That institution must meet these requirements:

- Located in the United States
- Is one of the following types of nonprofit organization:
 - University or college
 - Domestic research organization
 - University-affiliated hospital
 - FFRDC (federally funded research and development center)



Do SBIR and STTR Programs Work for You?

SBIR and STTR programs offer small businesses a great opportunity to obtain R&D funding, but the proposal process can be long and complex. Therefore, you must be certain that the program is a fit with your business strategy.

Be sure that a grant fits directly into your business plan and is not just an interesting sideline. Investors are particularly wary of entrepreneurs who have funded the very early stages of the company with a list of federal grants and cannot focus on commercializing a single product. Pursuing a series of grants may be interpreted as an entrepreneur who lacks focus.

The first question to ask is whether the three-year project period fits with the timeline set forth in your business plan. If you have investors who have agreed to certain milestones, be sure that shareholders agree to the SBIR's extended timetable before submitting a proposal.

You must also consider whether the SBIR or STTR time frame is realistic for the proposed technology. Determine how far potential competition has progressed into the development phase. For instance, you may determine that a competitor could be able to go to market in only 15 months, while it may take you twice as long via the SBIR or STTR programs. If yours is a first-to-market strategy, the SBIR or STTR programs may not be the way to go.

Keep in mind, however, that there are many benefits to taking a slower development approach via the SBIR or STTR programs, including the credibility brought to your technology through a scientific peer review process and the equity benefits of the non-diluted funding.

A second question to ask is whether the business has the facilities, equipment, and other resources necessary to conduct an SBIR or STTR project. These resources include team members and cash flow funds to support business overhead needs before and after the SBIR project. Many options exist to develop the resource base that will be required to carry out a project. Just take the time to clearly define those needs before sitting down at the keyboard to write your proposal. Small Business and Technology Development Center (SBTDC) counselors can help tech companies assess potential blind spots when building a resource base.

Also keep in mind that proposal preparation itself is an investment. As with any project, there are opportunity costs involved with developing a winning proposal. Consider whether you have the team in place to devote 120–180 hours to develop the proposal and whether the team is willing to try again if the first proposal is initially unsuccessful.

Finally, consider whether you and your team have the desire to journey down the long road of commercialization following your R&D efforts. Keep in mind that the goal of these programs is to propel your technology beyond the testing and development phases. Thus, once Phase II is completed and the SBIR or STTR dollars have stopped flowing, your primary responsibility becomes that of getting your product or service out of the lab and into the hands of a buyer. You and your team must agree that selling your product or service is the end goal of all your hard work. SBTDC technology commercialization counselors can assist you in getting your product to market.

How to Write a Competitive Proposal for SBIR or STTR

To gain a competitive advantage, your proposal should:

- Focus on one main idea or concept. Avoid the shopping bag of ideas approach.
- Involve an advanced concept related to an important scientific problem or opportunity.
- Show how your concept or idea is new and innovative. Describe the innovation effort concisely, quickly, and accurately. The proposal concept or idea cannot be an extension of an earlier work or already in the public domain.
- Address high-quality research or research and development. It must be at the cutting-edge of the subject to be investigated. Literature reviews or market surveys are not appropriate.
- Include work plan details. Your work plan must be adequate to satisfy your technical objectives. Show where you have the resources to support your work plan.
- Note the significant commercial potential. An idea or concept that leads to the penetration of many markets is most attractive. Describe who or what will benefit from the success of this work. Identify available sales channels and potential industry partners. Use your financial forecasting to estimate the profitability of your venture.
- Introduce future plans. Give an outline of where you plan to go after this project.
- Highlight project personnel. As principal investigator, you are responsible for the project. Convince the reviewer that you are the best qualified to carry out the project. Reference your prior publications, research, or hardware in the specific proposal area. Make sure that you identify and obtain support from at least one expert consultant and an industrial partner.

You should have a broad knowledge of the technical fields associated with the proposal concept or idea. Most successful proposals are completed according to a specified time schedule. Therefore you should:

- Provide sufficient time to develop a sound project concept.
- Adequately research background.
- Develop and rework research approach.
- Define technical objectives.
- Write a work plan that is adequate to satisfy technical objectives.
- Prepare a complete draft of the proposal and leave it for a few days.
- Review the proposal and make changes that represent significant improvements.
- Prepare the final draft.

And finally, don't forget about common sense:

- If you are not a real expert or you don't have a real innovation, do not waste your time. If you cannot reference prior publications, research, or hardware in the specific proposal area, you will not be perceived as a real expert.
- There needs to be a real company.
- Get to the innovation and significance of the effort concisely, quickly, and accurately.
- Accurately and fairly discuss what others have done and why the innovation is an improvement to the state-of-the-art.
- Deliver hardware or demonstrate the innovation in Phase I.
- Do not waste the reviewers' time with fluff and boilerplate.
- Do not clone proposals and/or reuse proposals.

Reality
Check 

Creating a winning proposal is a laborious project. Make sure you provide sufficient time to develop, rework, and review your project proposal before submitting it.



Common Proposal Problems

Many grant seekers feel that they are pursuing important new technology and are surprised when they don't win a grant. Remember, however, like with your Marketing Plan, that there are many more elements that make up your proposal than just your product or service. The details count, and people who don't win grants often forget to address these details. To improve your chances for success, avoid these common proposal problems:

- Poorly written and presented
- Principal investigator lacks necessary technical expertise
- Insufficient literature review
- Insufficient technical information
- Cannot be completed in six months
- Inadequate bibliographical information
- Lacks letters from consultants
- 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
- Too much research done at university
- Need to engage consultants to add expertise in area where principal investigator is deficient