

Aurora International Consulting (AIC)

"Bringing Energy, Experience, Knowledge and Creative Solutions To Every Assignment"

How To Win SBIR Homeland Security Technology Development Contracts

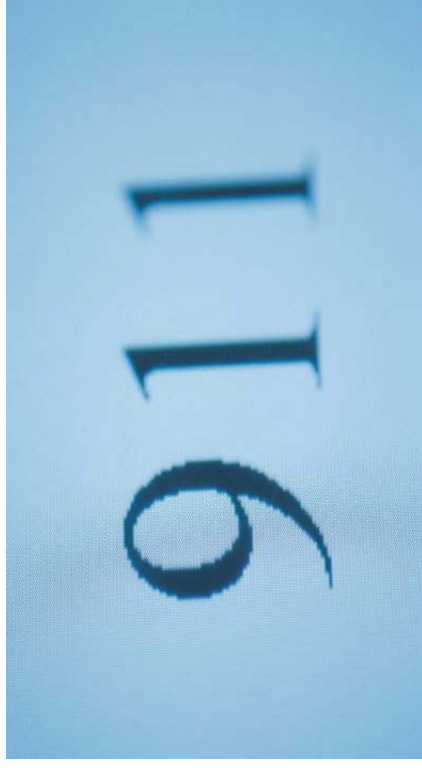
Department of
Agriculture

Department of
Commerce

Department of
Defense

Department of
Energy

Department of
Homeland Security



Department of Health
& Human Services
(NIH, CDC, FDA, AHRQ)

National Aeronautics &
Space Administration
(NASA)

National Science
Foundation

**How To Win SBIR Homeland Security
Technology Development Contracts**

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SBIR Program

SBIR is a competitive proposal submission process involving eleven (11) US federal agencies. Small firms and aspiring entrepreneurs vie for contract or grant funding awards to develop innovative technology products, services or advancement of scientific research methods that can be marketed in the governmental and/or commercial marketplace.

The federal money affords firms an opportunity to engage in high-risk research and development (R&D), which is normally cost-prohibitive for their companies. By commercializing the R&D results, more importantly, firms are able to generate additional revenues, achieve market leadership within their industry sector and expand their companies.

PLEASE NOTE: Agencies are not interested in buying existing technology products/services or funding further research on products that a company developed on its own.

SBIR Program Purpose

There are three stated purposes that drive the SBIR program:

- Help small firms gain a share of federal research & development funding;
- Help small firms grow their companies; and
- Help eleven federal agencies solve real world problems.

SBIR Program Eligibility Requirements

To be eligible for funding, applicants must meet the following criteria:

- A small business with no more than 500 employees
- Principal place of business is located in the United States
- A for-profit company
- At least 51 % owned, or at least 51% of its voting stock, in case of a publicly traded company

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Diagram A

Primary SBIR Program Goal:

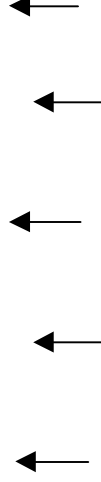
A small firm combines government SBIR funding dollars with its company's business plan to develop (produce) a new technology solution that can be sold to the private sector and/or the government

Benefits For Your Company

- Use the government's money to conduct high risk research and development (i.e., new product/service creation)
- Create a new product/service that contribute to your company's business growth
- Company retains Intellectual property (IP) rights on its new inventions
- Company can win multiple contracts
- All awards are Prime Contracts
- Become a market leader within your industry sector
- Don't have to compete against large corporations/contractors

Your Company's Targeted Buyers

New technology solution is sold to the company's target buyers: private sector customers and/or government agencies

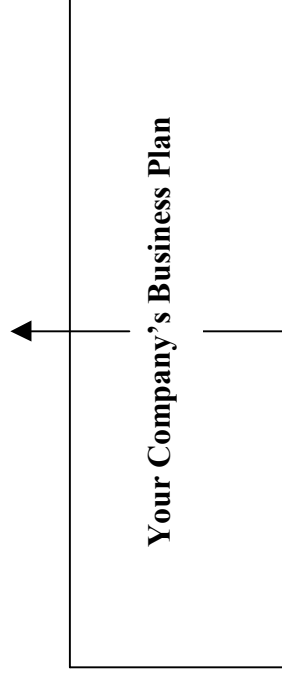


Produce new technology solution (Product/Service)

**New Product/
Service Solution**

**\$\$ SBIR Government
Contract Funding \$\$**

**Investment Dollars
(No Strings Attached)**



Marketing Management Finance

Starting Place

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SBIR Homeland Security/Anti-Terrorism Technology Contract Opportunities By Agency

(FY 2000 – 2007)

<u>Agency</u>	<u>Number of Awards</u>
Department of Agriculture	4
Department of Commerce	6
Department of Defense	108
Department of Energy	35
Department of Homeland Security	27
Environmental Protection Agency	1
National Institutes of Health	8
National Aeronautics & Space Administration	1
National Science Foundation	47

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Homeland Security Technology (Area) Contract Opportunities

Biotechnology	Software
RFID	2D & 3D
CB Detection	Digital Imaging
Sensors	Artificial Intelligence
Remote Sensing	Chemical
Visualization	Communication
Modeling & Simulation	Virtual Reality Training
Wireless	Biomedical

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Sample Homeland Security/Anti-Terrorism Request For Proposals (RFPs)

**Early Warning Detection of Computer Network Attacks Against Mobile Networks
Department of Defense (DoD)/Army - Communications Electronics Command (CECOM)**

OBJECTIVE: Perform research into an Early Warning capability to detect computer network attacks against mobile networks. This Early Warning feature would be extremely useful in both the commercial and military worlds. Note that it is anticipated that the security solutions formulated would also be extremely beneficial in the Homeland Defense application by protecting critical computer network infrastructures.

DESCRIPTION: In both the commercial world and military world computer network attacks are being recognized as a major problem. It is vital to protect mobile networks from hacker and foreign power threats. There are a number of commercially available Intrusion Detection products that provide alerts once an intrusion has taken place and damage has probably occurred. However, there is a dearth of products that would provide an alert of an intended attack, before the attack actually takes place and causes damage. This research will investigate new and innovative approaches for security solutions for Early Warning Detection of computer network attacks against mobile networks.

**Security for Wireless Handheld Devices
Department of Defense (DoD)/ARMY - Communications Electronics Command (CECOM)**

OBJECTIVE: Perform research into strong Authentication Techniques for Handheld Wireless devices. It should be noted that some commercial wireless applications, such as Bluetooth, incorporate weak authentication. The authentication security solutions formulated would be extremely useful to both the commercial and military worlds. Note that it is anticipated that the authentication security solutions formulated would also be extremely beneficial in the Homeland Defense application by protecting critical computer network infrastructures.

DESCRIPTION: In both the commercial world and military world Authentication Techniques are being recognized as a major emerging problem. It is vital to protect computers and computer networks from hacker and foreign power threats. There are a number of commercially available strong Authentication products for larger computers, but there are a dearth of strong Authentication products for Handheld Wireless devices. In particular the Authentication techniques used in commercial wireless products (such as Bluetooth) are weak. This research will investigate new and innovative approaches for strong Authentication solutions for Handheld Wireless devices.

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Wireless Network Smart Sensors

Department of Commerce (DOC) National Institute of Standards and Technology (NIST)

Wireless network smart sensors play a very important role in homeland security and first responder (HLS-FR) applications. A smart sensor can reduce a large amount of data measured from a single sensor, a cluster of sensors, or an array of sensors to simple, human readable information for quick decision-making. Without the need to lay many long cables, these wireless sensors can be easily deployed anywhere for surveillances and to monitor environmental and hazardous conditions. Integrated with networking capability, these wireless sensors can be linked to form a wireless sensor network that can pass and exchange data among sensors and to the Internet for easy access with a common web browser. The activity of a malfunctioned or damaged sensor can be quickly taken over by the adjacent sensors. In some applications, it is important to know the location of the sensor. In some specific HLS-FR applications, it is desirable to have a wireless smart sensor that can report its location inside or outside a building, in a moving vehicle, container, or vessel with accuracy to as small as one foot. The wireless smart sensor could use the latest GPS, differential GPS, or other advanced localization techniques or technologies to identify its location. It is also very desirable to have wireless smart sensors that can be powered by energy derived from the ambient environment, thus freeing them of the need for power cables or battery changes. In addition, smart sensors with integrated self-test, built-in calibration, or self-healing capability can ensure the proper functioning of the sensors for an extended period before servicing is required.

NIST is conducting research and development work on communication and connectivity standards for smart and wireless sensors for HLS-FR applications. We are currently working with IEEE and industry to standardize wireless communication interfaces for smart sensors and seeking to establish a wireless framework for sensors. Hence, we solicit proposals for the development of ambient powered, wireless, network, smart sensors that can detect chemical, biological, radiological, nuclear, and explosive parameters or hazards, and/or measure temperature, air flow, vibration etc. A multi-sensor smart device that can measure multiple physical phenomena and provide a single output parameter will be given a higher score in the proposal evaluation process. Proposals that include more of the capabilities described will be rated with a higher score accordingly. These wireless smart sensors should be designed for compatibility with the IEEE 1451 family of standards. It is recommended that the proposing party be thoroughly familiar with IEEE 1451. Copies of the standards can be acquired from IEEE at 1-800-678-4333.

Technologies for Improved Aviation Security

National Aeronautics and Space Administration (NASA)

NASA seeks highly innovative and commercially viable technologies that will improve aviation security by addressing threats to air vehicles, as well as the ATS. Specific areas of focus include: preventing aircraft from being used as a weapon of mass destruction (WMD); protection from man-portable air defense systems (ManPADS) and electromagnetic energy (EME) attacks; light-weight, fire- and explosive-resistant composite materials; explosive resistant fuel systems, ground-based decision support tools needed to monitor airspace security concerns; reporting systems to monitor security violations; secure encrypted data link systems, intrusion-tolerant communications networks and communications systems to support emerging aviation security applications; tools to support real-time management of security information; and chemical and biological sensor development. Technologies may take the form of tools, models, techniques, procedures, substantiated guidelines, prototypes, and devices:

Intelligent systems monitoring and alerting technologies;

Technologies that enable secure communications, navigation, and surveillance onboard the aircraft

3-D Visualization System to Show First Responders and Assets Within Building Structures in Urban Areas for Situational Awareness, Department of Homeland Security (DHS)

OBJECTIVE: Develop an innovative 3-D visualization system that will accept location measurements of individuals in building structures and that will provide the incident commanders with readily understandable situational awareness on an incident scene.

DESCRIPTION: The responder community needs situational awareness tools and technologies to identify, locate, and track resources, responders, and victims in urban area infrastructures such as buildings. The ability to quickly visualize and track the movement of people and resources in buildings will provide incident commanders with effective decision making capabilities in terms of search and rescue and task assignments. While there are a variety of sensors that provide location information, the visualization aspects are lacking, especially in cases where building blueprints, if available, are static 2-D drawings.

The focus of this topic is to produce an innovative technology that: provides for quick representation of building infrastructure in 3-D; will show tracks and various architectural elements, such as rooms, storage, stairs; and will allow for the addition of extra features to be relayed to the base station (by the responders) dynamically and quickly in seconds.

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SBIR Funding Levels

The funding is divided into three phases. Phase I funding, which generally maximize at **\$100,000**, is awarded to a small firm for the development of a feasibility study. The study is a "*proof of concept*" document indicating that the proposed new product/solution is technically viable. If the agency approves the study, the firm competes for additional money in Phase II. Funding under Phase II, which generally maximizes at **\$750,000**, enables a company to begin the actual process of producing and testing a prototype.

In the third phase, small firms are encouraged to seek funding from either internal (i.e., self-funding) or external sources (i.e., venture capitalists, angels, banks, etc.) for the production, promotion and distribution of the new product/service solution.

<u>Agency</u>	<u>SBIR Phase I Funding Amounts</u>
Department of Agriculture	80,000
Department of Commerce	75,000
Department of Defense	70,000 – 100,000
Department of Energy	100,000
Department of Homeland Security	100,000
Environmental Protection Agency	70,000
National Institutes of Health	100,000
National Aeronautics & Space Administration	70,000
National Science Foundation	100,000

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How SBIR Proposal Development Process Works

Each agency is responsible for preparing and releasing request for proposals (RFPs), evaluating submitted proposals and awarding SBIR funding contracts.

A RFP describes either a specific technology or a broad concept solution that is needed. Small companies are invited to submit a 25-page proposal indicating how they plan to meet the agency's needs, develop the technology concept solution into an actual product/service and sell the product/service in a designed marketplace.

After a company submits its proposal electronically, the agency evaluates whether the proposal satisfies the RFP's stated requirements. Moreover, the agencies utilize the following standard proposal review criteria:

- 1. Scientific and Technical Innovation** (Creativity & Originality)
- 2. Potential Commercial Application of Innovation** (Marketability)
- 3. Investigator Qualifications** (Project Leader & Research Team)

<u>(1) RFP Issued</u>	<u>(2) Phase I</u>	<u>(3) Phase II</u>	<u>(4) Commercialization</u>
Agency issues request for proposals (RFPs) seeking new technology solution.	Agency reviews your company's proposal and awards funding.	Agency reviews and accepts your company's feasibility study and awards the company additional funds.	Agency expects your company to either use internal funding or raise outside funds to market and sell the new technology solution.
Your company answers an RFP by preparing a 25-page proposal indicating it has the experience, knowledge, and skills to produce the desired technology solution.	For six-months, your company use the funding to produce a feasibility, "Proof of Concept," study.	Your company is awarded funds, for the next two years, to produce an actual prototype of the proposed technology solution.	You company utilizes its marketing plan to promote and sell the new solution in the commercial and/or governmental marketplace.

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Standard SBIR Phase I Proposal Application Form

I. Cover Sheet

II. Proposal Summary

III. Technical Section

Identification and Significance of the Innovation
Technical Objectives
Work Plan

Related Work

Relationship with Future Research or Research and Development

Key Personnel

Facilities/Equipment

Subcontractors/Consultants

Prior, Current, or Pending Support of Similar Proposals or Awards

IV. Commercialization

Commercialization Strategy

V. Budget

Cost Proposal

NOTE: Participating federal agencies, offering Homeland Security technology contracts, use the same or a similar Phase I proposal application form.

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Ten Steps To Victory

1. Start early! You need to start now organizing key information/information sources and creating a proposal development strategy that enables your company to win. If you don't plan, plan to fail.
2. Your company's business plan is the key to success: **80%** of the Phase I proposal content comes from the business plan.

Phase I Proposal Ingredients

Your Company's Business Plan
80% of Proposal Content

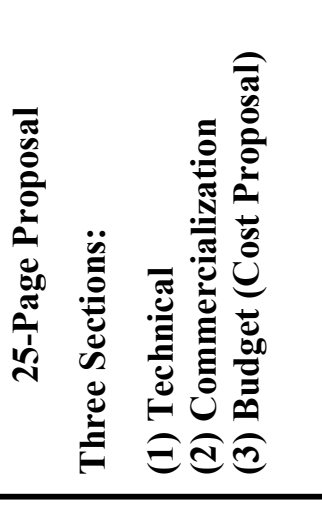
Your Company's Team

- Experience
- Knowledge
- Skill

Research Information
20% of Proposal Content

1. Required References
2. Market Research, Scientific and Technical Data

Phase I Proposal Application



Funding

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Ten Steps To Victory

3. Your project team must include experienced, skilled and knowledgeable individuals who know how to get the job done. **Note:** For companies lacking qualified personnel, the SBIR program allows applicants to use up to thirty (30%) percent of their proposed project budget to hire consultants or outside talent that can enhance and/or augment a company's research team.
 4. Select an RFP that matches your company's core competency. The agency wants to **"Pay Your Company For What It Does Best"**, thus, your company must go after projects that are similar to its past successful product/service development assignments.
 5. Take the time to talk with the writer of the RFP. DoD, for examples, provides the writer's contact information (i.e., phone & fax numbers, e-mail address) with each RFP so that applicants can ask specific technical questions.
 6. Your team must include supporting scientific & technical research information that demonstrates your company's awareness of the **State-of-Art**. At the same time, your company is responsible for retrieving, analyzing and incorporating the information into the proposal.
- NOTE:** Under the STTR program, your firm must partner with a university/college or non-profit research institution. In addition, your firm and the partnering institution must negotiate a written agreement with the research institution allocating intellectual property rights.
7. Market research information is needed to show that an actual market (potential customers/buyers) exists for the proposed technology solution. The market research information will be used to prepare the proposal's Commercialization Section.
 8. High regards are given to proposals that transcend the norm and present "*out-of-the-box*" technology solutions. The agency is very interested in funding innovations that revolutionizes a technology field, as well as serves the needs of multiple markets (e.g., military and commercial product users) simultaneously. In short, a technology solution that appears to be unique and marketable piques the interest of proposal reviewers.
 9. The proposal budget must not go over a stated funding level. For example, if an agency specifies funding up to \$70,000, then your budget must be equal to or below that amount.
 10. Abide by all of the agency's rules and requirements on how to prepare and submit a proposal application.

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Who We Are:

Aurora International Consulting (AIC) provides business formation and business development services. Specifically, AIC offers:

- Business Plan Development Service
- Market Assessment Service
- SBIR Action Plan™ Development Service
- Business Health Check-up™
- SBIR Proposal Development Service

Who We Serve:

Aspiring technology entrepreneurs (i.e., Researchers, Scientists, Technologists, etc.) involved in starting & running a new company; and Emerging small high technology firms interested in earning consistent revenues, reducing costs and achieving profits

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