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TESTIMONY OF

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(ACQUISITION, TECHNOLOGY & LOGISTICS)

BEFORE THE

SUBCOMMITTEE ON TECHNOLOGY AND INNOVATION

OF THE

HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY

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Testimony of
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Office of the Under Secretary of Defense (Acquisition, Technology & Logistics)
Subcommittee on Technology and Innovation
House Science and Technology Committee
Review of the Department of Defense (DoD)
Small Business Innovation Research (SBIR) and Small Business Technology
Transfer (STTR) Programs
June 26, 2007

Chairman Wu, Ranking Member Gingrey and Members of the Subcommittee on
Technology and Innovation, House Committee on Science and Technology:

Thank you for the opportunity to testify on the Small Business Innovation
Research (SBIR) and Small Business Technology Transfer (STTR) programs as you
consider reauthorization of the SBIR program in the year of its 25th anniversary. I
welcome this opportunity to provide a perspective on how the programs are implemented
and managed within the Department and hope it will be useful as you consider program
reauthorization. These programs have become tools for the Department of Defense
(DoD) to seed innovation in our industrial base, and, in so doing, develop firms to supply

leading-edge technologies with the potential to meet warfighter needs today and in the future.

The essential mission of the Department of Defense is to fight and win our nation's wars. In a time of war, the challenges are many. Among them, we must sustain critical operations around the world while also preparing for the future while being ready to face the threats of tomorrow. A particularly important task is the supply of materiel to the warfighter to defeat identified threats, through the exploration and development of technologies to enable new or lower cost capabilities. Toward this end, the Department has established key goals to ensure we are investing in the right technologies, and cultivating an industrial base capable of meeting our strategic needs. The SBIR and STTR programs play roles in achieving both of these goals.

One of our central obligations as public officials is to ensure that we are using taxpayer dollars as productively and efficiently as possible for their intended purpose. In that vein, today I will address the questions presented to me in your invitation and will also highlight actions the Department has undertaken to improve our Program. We at the Department are always ready to work with the Congressional oversight committees, other participating federal agencies and the Small Business Administration (SBA) to ensure the SBIR and STTR programs are as effective as possible.

Program Changes Since Reauthorization

The DoD SBIR Program is comprised of twelve Military Department and Defense Agency programs with oversight provided by the DoD Office of Small Business Programs. The participating elements of DoD, hereafter referred to as “Components,” in order of largest to smallest budget in fiscal year (FY) 2007, are the: Air Force, Navy, Army, Missile Defense Agency (MDA), Defense Advanced Research Projects Agency (DARPA), Office of the Secretary of Defense (OSD), Joint Office of Chemical and Biological Defense (CBD), US Special Operations Command (SOCOM), Defense Threat Reduction Agency (DTRA), Defense Microelectronics Activity (DMEA), Defense Logistics Agency (DLA) and National Geospatial-Intelligence Agency (NGA). Since the 2000 reauthorization, DMEA and DLA joined the SBIR program in FY07 and participated in their first solicitation, SBIR 07.2, which closed on June 13th, 2007.

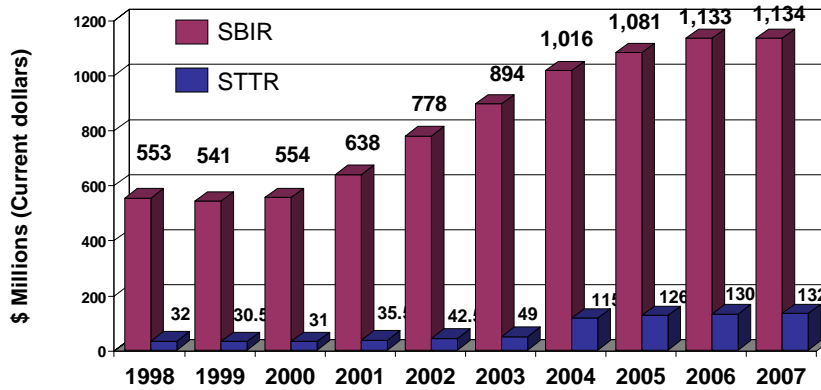
The Department’s SBIR budget is determined by a statutory 2.5 percent assessment of the extramural research, development, test and evaluation (RDT&E) budgets of each participating Component. Each Component’s portion of the overall program is managed to be responsive to specific mission and corresponding technology development needs while also being consistent with overarching Department science and technology guidance. In terms of budget, the Department’s Program represents over 50 percent of the total federal SBIR budget, which exceeds two billion dollars.

Shown in the chart below, the DoD SBIR Program has experienced substantial growth in recent years, more than doubling in size from FY 2000 to FY 2006 to over one billion dollars, and it continued to grow through FY 2007 to over \$1.13 billion. This expansion is driven directly by growth in the underlying RDT&E budget, as the set-aside

percentage has remained constant over this period of time. The number of SBIR solicitations has also increased from two to three per year. The annual STTR solicitation makes a total of four solicitations per year, issued approximately 3 months apart.



SBIR & STTR Budgets Have Grown



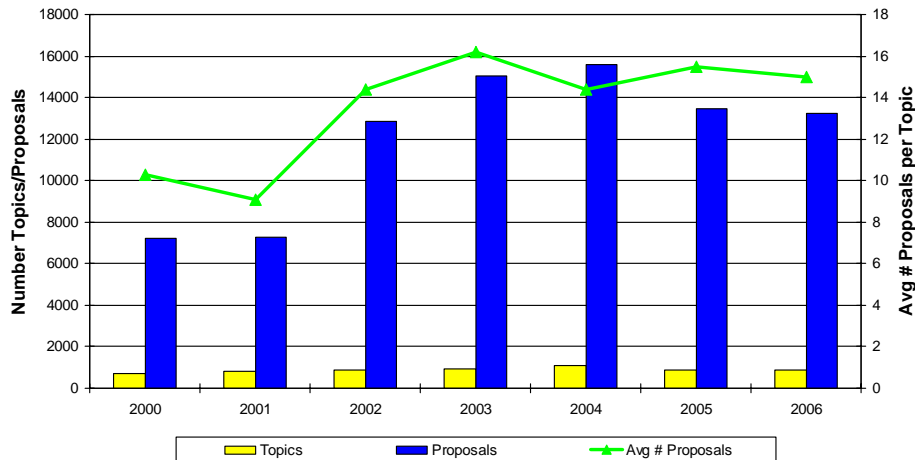
Increasing RDT&E appropriations have driven strong SBIR budget growth.

Likewise, the number of proposals and awards has increased somewhat proportionally with budget growth, while the number of topics solicited annually has grown 25 percent. This reflects a trend towards making an increasing number of Phase I and II awards per topic. In FY00, 701 topics attracted 7,201 Phase I proposals, and 1,842 Phase I and II awards were made; while for FY06, there were 883 topics, 13,253 proposals and 3,034 awards. As shown below, for the last four years, topics have received about 15 proposals each, on average.



Trends in Topics and Proposals, 2000-2006

✓ Number of proposals per topic seems to have hit a plateau



In 2000, nearly three years in advance of the Government Paperwork Elimination Act (GPEA) requirement, the DoD SBIR/STTR programs implemented a uniform, DoD-wide, web-based system for electronic proposal receipt. The volume of proposals received annually demanded that more efficient electronic processes be developed and implemented. For the first two years, proposal coversheet preparation was required through the system while electronic submission of full technical and cost proposals remained voluntary. This allowed the small business community, especially firms unfamiliar with government R&D programs, time to learn this new, ground-breaking submission process. Electronic proposal submission was made mandatory in 2002. Dedicated Help Desk operations were expanded to include proposal submission instruction.

Also established within the electronic proposal submission system (at www.dodsbir.net/submission) was a standard format for reporting commercialization¹ results from prior SBIR and STTR awards, called the SBIR/STTR Company Commercialization Report (CCR)—not to be confused with the Central Contractor Registration. This report is prepared and stored on-line and is required with every proposal submission. It captures quantitative results of all Phase II projects, including sales and additional investment from the Department, prime contractors, other Federal agencies, private sector, and other sources. It also captures qualitative information about commercialization achieved by Phase II efforts outside the SBIR/STTR programs, characterizes manufacturing experience, and documents technology use in fielded weapon and support systems. Beginning in FY07, firms are asked to enter information on cost savings or avoidance resulting from the Phase II projects, if known to the participating firm.

A proposing firm's record of commercializing its prior SBIR and STTR projects, as reflected in its SBIR/STTR CCR, is an important factor for assessing the potential for commercial application during proposal evaluation. Data in the SBIR/STTR CCR is used to calculate the Commercialization Achievement Index (CAI). Firms with four or more prior SBIR Phase II contracts are assigned a CAI score, which is a measure of how well

¹ Commercialization refers to the process of developing marketable products or services and producing and delivering products or services for sale (whether by the originating party or by others), to government and/or non-government markets. Funds data reported as commercialization includes the receipt of money for the performance of follow-on R&D (as government-supplied Phase III funds or other sources) and the collection of funds from investors. A related term is SBIR Phase III, which refers specifically to work that derives from, extends, or logically concludes effort(s) performed under prior SBIR funding agreements, but is funded by sources other than the SBIR program. Phase III work is thus typically oriented toward commercializing SBIR research or technology. The terms are often used synonymously and interchangeably when describing outcomes beyond SBIR Phase II.

the firm has commercialized prior SBIR technology relative to peers with the same number of Phase II awards. Initially, firms with a CAI in the bottom 5th percentile, those with the worst record of commercialization, could receive no more than half of the evaluation points available for commercial potential criteria. After thorough study of the impact of CAI on expected commercialization outcomes, the penalty expanded to firms in the bottom 10th percentile in FY06, the 15th percentile in FY07 and is planned to increase further to the bottom 20th percentile in FY08. The effect of this change is to increasingly focus SBIR/STTR resources on firms that have demonstrated the greatest ability to successfully commercialize SBIR/STTR-funded technologies and to put applicants on notice that commercialization is an important outcome of the program.

To further encourage the transition of SBIR research into DoD acquisition programs as well as the private sector, DoD Components developed their own Phase II Enhancement policy in 2000. Under this policy, the Component provides a Phase II awardee with additional Phase II SBIR funding to further develop, demonstrate and mature the technology to be more transition-ready. Phase II projects that qualify under Phase II Enhancement may:

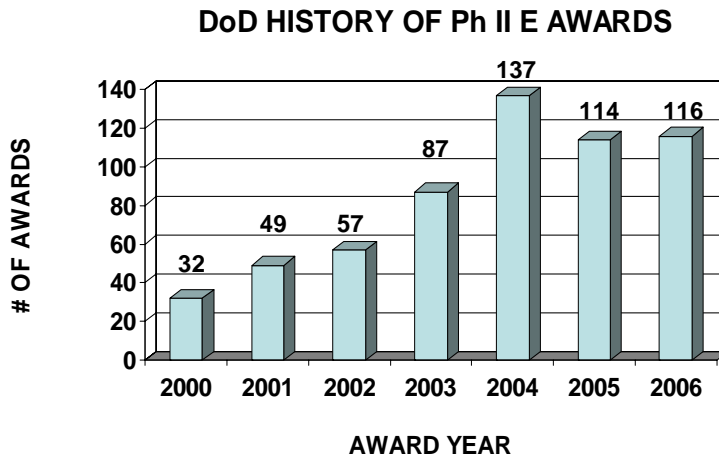
- (1) Extend an existing Phase II contract for up to one year and
- (2) Match up to \$500,000 funds from either non-SBIR DoD programs or from an outside investor, with SBIR funds.

Phase II Enhancement applications must be prepared and submitted through the DoD SBIR Submission website at www.dodsbir.net/submission.

As shown in the chart below, we have seen an increase in the use of this program vehicle as a means to both extend the development and demonstration of Phase II technologies and leverage external interest in the development.



Phase II Enhancement Program: Increasing Utilization



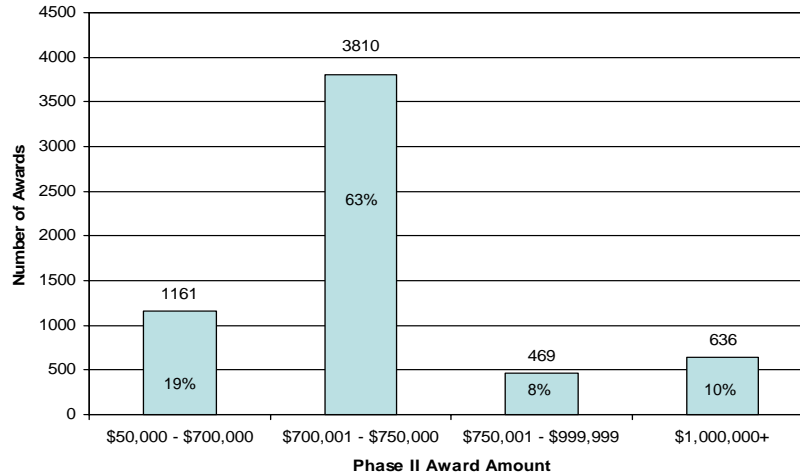
Phase II projects that have been enhanced have a substantially higher average commercialization rate as well as higher average level of commercialization than projects that have not been enhanced.² A result of the Phase II Enhancement program is an increase average Phase II contract value. While most Phase II awards remain below the \$750,000 threshold, historically, 5 percent are awarded above the threshold and an additional 13% receive modifications that increase the contract value above \$750,000.

Distribution of Phase II awards by total modified value is shown below.

² For the years 1997-2005, comparing 629 Phase II projects that received enhancements to 6,695 Phase II efforts that did not receive enhancement, the enhanced projects generated commercialization at a 63% higher rate. Average commercialization achieved is 23% higher for enhanced projects while median commercialization achieved is 72%



Distribution of Phase II Award Amounts 2000-2006



Executive Order (E.O.) 13329, *Encouraging Innovation in Manufacturing*, signed in February 2004, brought several changes to the program. In their call for topics, Components emphasize the E.O. and instruct topic authors to add a manufacturing component to the topic description and/or to emphasize the linkage to manufacturing related innovation, if a relationship is not readily apparent, in the Phase III commercialization section of the topics. Language has been added to the solicitations to indicate that the DoD is looking for innovative methods of manufacture that reduce cost and increase efficiencies in producing the item/process identified in the topic. Manufacturing-related SBIR/STTR awards are tracked and reported annually, and manufacturing-oriented commercialization is collected and characterized consistent with E.O. guidance. In addition, the Air Force has dedicated participation in one of the DoD

higher. We don't know yet whether this is a result of a bias in the Phase II Enhancement selection process or a reliable indicator of program effectiveness.

solicitations to focus exclusively on manufacturing technology, and dedicated \$5M in FY07 and at least this amount for FY08 to fund these technologies.

The National Defense Authorization Act for Fiscal Year 2006 (P.L. 109-163, Section 252) authorizes a Commercialization Pilot Program (CPP) under the Secretary of Defense and the Secretary of each Military Department. The purpose of the CPP is to accelerate the transition of SBIR-funded technologies to Phase III, especially into systems being developed, acquired and maintained for the warfighter. This can be done through activities that enhance the connectivity among SBIR-firms, prime contractors, and DoD science & technology and acquisition communities. It can also be accomplished by improving a SBIR firm's capability to provide the identified technology to the Department, directly or as a subcontractor. The Military Services established a Commercialization Pilot Program in FY06 and other Components will likely establish programs in 2007. Each Component develops criteria and processes to identify topics and projects with the potential for rapid transition to Phase III and that are expected to meet high priority needs of their Component. A project's inclusion in the CPP is by invitation and at the discretion of the Components. CPP participants may receive a variety of assistance services and/or opportunities to facilitate commercialization.

In July 2005, DoD held its first *Beyond SBIR Phase II Conference* to bring together key technology and acquisition personnel from government and industry to enable the transition of SBIR-funded research and development into products for the warfighter, and for other government and private sector commercial markets. Small high-tech firms from across the country, that are recent SBIR Phase II contract awardees,

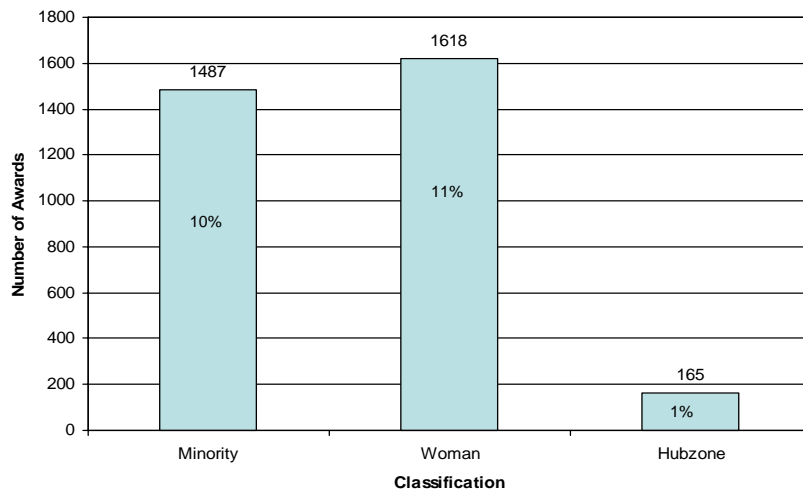
were invited to showcase their technologies at this conference. The conference featured pre-scheduled one-on-one "technology matchmaking" meetings between these firms and representatives of prime contractors, government technology and acquisition, the investment community and manufacturing firms. The next *Beyond SBIR Phase II Conference* is scheduled for August 20-23, 2007 in Arlington, Virginia.

Outreach Programs

Outreach activities are important to ensure that small businesses have the opportunity to learn about the programs and also foster participation by firms owned by minority and disadvantaged persons. Although no preference is given to minority-owned, woman-owned or HUBzone firms, awards to these firms account for over 20% of all Phase I awards, as shown below.



Phase I Awards (2000-2006) to Minority, Woman Owned and HUBZone* SBIR Firms



*HUBZone data collected as of 2004

Outreach is primarily conducted through attending conferences organized for this purpose, and through making information available to the public, primarily via the internet. The Department and its components support as many conferences as time and resources allow. Strong support of two national conferences and several regional and state events is the norm.

National outreach events include the *Beyond SBIR Phase II Conference 2007* and National SBIR Conferences, which are supported by all Federal agencies and occurs twice per year. By design, sites for the National SBIR conferences have alternated among east coast, west and central U.S. states for greater geographic participation. While program participation occurs throughout the United States and awards are made to firms from every state, participation from a few states stands out, as shown below. The states with the most awards from 2000 through 2006 in descending order are: California, Massachusetts, Virginia, Maryland, Colorado, Ohio, Texas, New York, Pennsylvania, and New Jersey.

Annual SBIR/STTR and Historically Black Colleges and Universities and Minority Institutions (HBCU/MI) Technical Assistance Conference is sponsored by DoD and is attended by members of industry, partner entrepreneurs and contractors to HBCUs. DoD Component representatives also visit HBCU/MIs each year to conduct SBIR/STTR outreach.

Additionally, information contained on the DoD and on DoD Component web pages is quite significant, permitting interested firms to learn virtually anything they might want to know about the programs. The SBIR Resource Center website, www.dodsbir.net, lets visitors search awards, topics and submit technical questions for clarification directly to the topic authors through the SBIR Interactive Topic Information System (SITIS). The Resource Center also provides links to SBIR areas of interest, access to help, and the proposal submission system. A screen capture of the SBIR Resource Center is included below.

DEPARTMENT OF DEFENSE *Resource Center*
Small Business Innovation Research
www.dodsbir.net

SEARCH

- AWARDS**
DoD SBIR & STTR Awards
- TOPICS**
Current DoD SBIR & STTR Topics
- SITIS**
Interactive Topic Info System

INTEREST

- [ABOUT SBIR/STTR](#)
- [CURRENT SOLICITATION](#)
- [SELECTION LISTINGS](#)
- [CONFERENCES](#)
- [DESK REFERENCE](#)
- [MAJOR ACQUISITION LIAISONS](#)
- [SUCCESS STORIES](#)
- [FIRMS IN THE NEWS](#)
- [SBIR ANNUAL REPORT](#)
- [STTR ANNUAL REPORT](#)
- [FAST TRACK/PHASE II ENHANCEMENT](#)
- [COMMERCIALIZATION PILOT PROGRAM](#)

HELP

- HELPDESK**
Answers Questions About DoD SBIR & STTR
- WEBSITE**
Main Website for More Information
- LISTSERV**
Subscribe to Receive Program Notices and Updates
- SUBMISSION TUTORIAL**
Tutorial on how to use the DoD SBIR/STTR Submission Site

SUBMISSION
DoD SBIR/STTR Proposal Submission

PRIVACY AND SECURITY POLICY

The Department staffs a toll-free Help Desk to answer questions firms have about the programs. The DoD SBIR/STTR Help Desk is prepared to address general questions about solicitations, proposal preparation, the electronic submission process, contract negotiation, payment vouchers, Government accounting requirements, intellectual property protection, Fast Track, financing strategies and other program related areas. The Help Desk may be contacted from 8am to 5pm EST by: 866-SBIRHLP (866-724-7457) or email www.dodsbir.net/helpdesk.

The Submission Tutorial is an online tutorial on how to prepare and submit a proposal to the DoD SBIR/STTR program and is available at the Resource Center website at www.dodsbir.net. It is a practical guide for beginners and a quick reference for more experienced participants.

The ListServ is an email broadcast service maintained by DoD. Subscribers stay in touch with SBIR opportunities and receive notices about upcoming conferences and solicitations. The ListServ is available by emailing sbirlist@listserv.dodsbir.net and typing SUBSCRIBE in the subject line.

Other outreach activities conducted by Components include, but are not limited to the following:

- The Army "Inreach" to reach out to Army organizations informing them of the program and its benefit to them, and getting the word out at larger Army venues such as the Association of the United States Army (AUSA) and the Senior Acquisition Leaders Conference to raise the visibility of the program to Army senior leaders.

- The Air Force has refocused outreach into the development and fielding of the virtual SBIR/STTR "shopping mall" on the web. The main purpose of the mall web site is to provide a "24/7" opportunity for the Air Force acquisition community and prime contractors to find SBIR/STTR technologies that meet their needs. The Air Force SBIR Program Office has given contract awardees "virtual store fronts" to help them market their capabilities. During this year, the Air Force plans to create "virtual store fronts" for the prime contractors to help provide a single entry point for small businesses to identify opportunities in the Air Force. The Air Force has future plans to add "virtual store fronts" for the Historically Black Colleges and Universities and Minority Serving Institutions (HBCU/MI) community as well.
- The Navy's Transition Assistance Program (TAP) is a unique outreach vehicle designed to help participating Phase II award winners commercialize their innovations. TAP is a competitive 10-month program consisting of business process assistance and mentoring and where each small business is provided with a business consultant. This program is offered exclusively to SBIR and STTR Phase II award recipients and is designed to help recipients conduct preliminary strategic planning and enhance their strategies for transition to Phase III/product commercialization. Historically, about one-third of TAP participants are first-time SBIR award winners. The Navy SBIR program is considering increasing outreach to Phase I awardees with an enhanced training component. Such outreach would be permitted under the terms of a legislative

provision that the Department submitted to Congress earlier this year, titled “Small Business Innovation Research Awards: Discretionary Technical Assistance.”

- MDA provides a free opportunity for small businesses from the SBIR Program to exhibit at the annual American Institute of Aeronautics and Astronautics (AIAA) National Ballistic Missile Defense (BMD) Conference in Washington D.C. and the annual Space and Missile Defense Conference in Huntsville, Alabama. The goal is to provide a unique opportunity for industry and key MDA/DoD personnel to interface with the small businesses developing some of the leading edge technologies that will address future needs of the Missile Defense Agency.
- MDA also hosts an Annual Industry Day to enhance the SBIR Process for both MDA and the participating small business community. Research Area Leads present briefings on the current technology areas. Small Businesses also have the opportunity to sign up for one-on-one sessions with topic authors, key MDA technical representatives and representatives from prime contractors. This is a great opportunity during the DoD pre-solicitation period for candidate firms to seek technical clarification of MDA technology needs.
- MDA has established the Technology Applications Program to assist small businesses in converting their innovations into marketable products. Administered by the National Technology Transfer Center (NTTC) -

Washington Operations, assistance from the Technology Applications Program is free-of-charge to all MDA SBIR awardees.

- DARPA and the Virginia Center for Innovative Technology (CIT) sponsor a multitude of rural SBIR workshops in Virginia. DARPA used the LARTA Venture Forum, in California, the last two years for SBIR/STTR Outreach to help contract recipients make connections necessary to cultivate commercialization. DARPATech, an informational conference for industry, features SBIR outreach information and a large SBIR exhibit. Several successful DARPA SBIR contact recipients normally display their technology at DARPATech.
- DARPA also supports many state and regional outreach events on an annual basis, extending awareness of program opportunities to small business communities around the country.

Topic Selection

Agency research topics are generated by the DoD Components to meet individual mission needs. These candidate topics are then reviewed via a uniform topic review process and selected for solicitation upon completing the review. Under current policy, at least half of the Military Department topics must either be authored by the DoD acquisition community or be supported by an acquisition activity. This support is noted in the text of the topic. Before topics are released, they go through a rigorous review

process enabled by an electronically-hosted Topic Review system to make sure all topics are suitable for funding under the SBIR/STTR program. The phases of topic review are:

- DoD Components generate and internally review topics for quality and consistency with program requirements. Topics must be through security review for public release and topics covering technology governed by the International Traffic in Arms Regulations (ITAR) are so annotated.
- DoD Components submit topics to OSD for initial technical review. Staff members of the Office of Director, Defense Research & Engineering (DDR&E) perform this initial review of topics against prescribed topic criteria.³
- DoD Components revise topics that did not meet one or more of the review criteria. Components may also appeal or delete topics not meeting all criteria.
- DDR&E staff performs a second review of rewritten topics.
- An Integrated Review Team (IRT) comprised of representatives of each Component and two representatives from DDR&E review those topics that are identified as still not meeting all criteria and that the Components have appealed or rewritten. The IRT is responsible for making a final decision on

³ All topics must meet the following 6 criteria to be selected for inclusion in the solicitation: Topics will solicit R&D and not procurement; Topics will fall within one or more of DoD's key technology areas; Topics will allow the performing company "significant flexibility;" Topics will include examples of possible phase III dual-use applications; Topics will not duplicate each other, and; Topics will be clearly written so that small businesses with limited defense experience can clearly understand the desired objectives and have sufficient information to write a proposal.

whether each topic meets all topic criteria and thus should be included in the upcoming SBIR or STTR solicitation.

- Topics meeting all criteria upon first or second review, or passed by majority vote of the IRT, are eligible for inclusion in the program solicitation. DoD Components then select from among the eligible topics which ones they wish to solicit. These are submitted to OSD along with component-specific submission instructions to inclusion in the DoD solicitation.

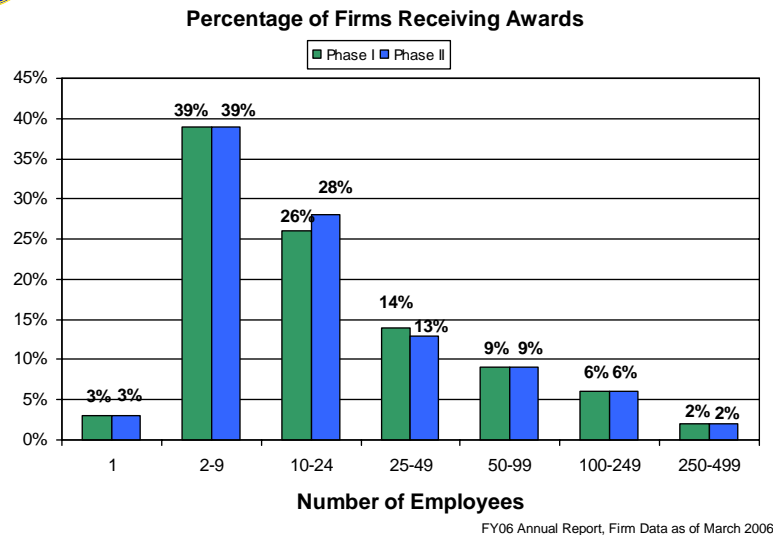
The DoD Solicitations have generally offered a mix of broad and narrowly-focused topics, with a preponderance of the latter. On several occasions, Components have clustered SBIR topics around a broader capability requirement. Each constituent topic focuses on an individual subsystem element that could stand alone as a commercialized item. The Component then applies other funding to integrate the topic-technologies together. The United States Special Operations Command (USSOCOM) used this technique to develop a man-portable signal intelligence system that morphed into the “Manpack” Advanced Concept Technology Demonstration (ACTD). 14 topics and \$19M dollars were applied to this effort over four years. OSD, through the ACTD oversight office in DDR&E, supplied the integration funds. SOCOM is currently clustering topics around another capability area requirement with the intention of applying non-SBIR program funds for the integration. The Navy’s Space and Naval Warfare Systems Command (SPAWAR) has also used this technique to develop sophisticated anti-terrorism capabilities.

Applicant Pool & Source Selection

The DoD has not witnessed any significant changes or trends in the applicant pool. The defining characteristics of applicants have remained steady. These are newness to the SBIR/STTR programs, firm size, and geographic diversity. Historically, about a third of awardees are new to the program or have minimal experience, approximately 70% of awardees have fewer than 25 employees, and as shown earlier, awards are made to firms in every state. The chart below shows the distribution of firms receiving Phase I and Phase II contracts in FY06 by number of employees.



SBIR AWARDS – FY 2006



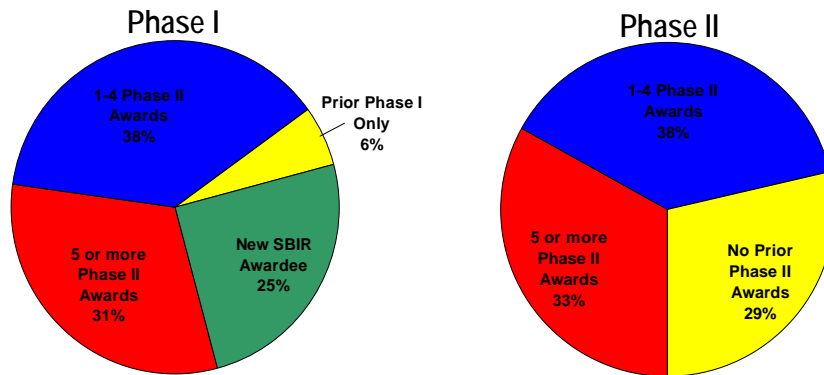
The next chart shows the prior experience of FY06 award recipients. 25% of Phase I award winners had never received a Phase I award from the Department before, while an additional 6% had never received a Phase II award. 29% of Phase II award recipients had never before been awarded an SBIR Phase II contract by the Department, while an

additional 38% had received four or fewer Phase II awards. 33% had received more than four awards. Looking at awards rather than award recipients, 54% of Phase I awards were made to companies that received 5 or more Phase II awards. Together, these statistics show that the SBIR program is attracting a significant number of new or relatively new program participants, but that, at the same time, many awards are going to companies that have received many awards each.



SBIR Awards - FY 2006

Percentage of Firms Receiving Awards



FY06 Annual Report, Firm Data as of March 2007

Proposals are evaluated on a competitive basis. Phase I proposals are invited through solicitations released on roughly a quarterly basis. Firms are invited to submit Phase II proposals based on the results of the Phase I effort. Both phases use the same proposal evaluation criteria. DoD Components select for award those proposals based on the following factors (in descending order of importance):

(1) The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic solution.

(2) The qualifications of the proposed principal investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.

(3) The potential for commercial application, either in the Government or private sector, and the benefits expected to accrue from this commercialization.

Other factors that may be considered during the selection process include possible duplication of other work and program balance. Where technical evaluations are essentially equal in merit, cost to the Government will be considered in determining the selection.

Factors used to assess the commercial potential of proposals includes the commercialization strategy provided in the proposal and the proposing firm's history of commercializing prior SBIR and STTR projects as shown in the Company Commercialization Report. The strategy should explain any commitments of additional investments in the technology from the private sector, non-SBIR/STTR DoD programs or other sources, and any Phase III follow-on funding commitments. Currently, as discussed earlier, firms with a CAI at the 15th percentile or below may receive no more than half of the evaluation points available for commercial potential criteria. Debriefings are available to unsuccessful offering firms submitting a written request within 30 days of being notified that its proposal was not selected for award.

Proposal evaluation criteria weights vary by Component. Generally, the third criterion (i.e., commercialization potential) carries more weight in the Phase II evaluation than in the Phase I evaluation process. For Phase II, each proposal must contain a two-page commercialization strategy as part of the technical proposal, addressing the following questions:

- (1) What is the first product that this technology will go into?
- (2) Who will be your customers, and what is your estimate of the market size?
- (3) How much money will you need to bring the technology to market, and how will you raise that money?
- (4) Does your company contain marketing expertise and, if not, how do you intend to bring that expertise into the company?
- (5) Who are your competitors, and what is your price and/or quality advantage over your competitors?

The commercialization strategy must also include a schedule showing the quantitative commercialization results from the Phase II project the company expects to report in its Company Commercialization Report. Updates to Phase II commercialization are requested one year after the start of Phase II, at the completion of Phase II, and at least yearly thereafter.

Databases and Public Information

The DoD SBIR program maintains databases which are a useful way to pull relevant data to identify partnership or other opportunities. The publicly available award

and topic databases (at www.dodsbir.net/awards and www.dodsbir.net/topics) contain information that is reported to Small Business Administration (SBA). Awards from the DoD SBIR program activity for FY83-FY06 and STTR program activity for FY94-FY06 are easily accessed through a user friendly interface that offers simple “basic” search and complex “custom” searches by database field. Basic searches can be performed by entering a keyword, phrase or topic number and selecting from pull-down menus. The Topic Search website offers a quick way to identify topics in the current solicitation that are in the small businesses’ area of interest. Both databases are updated quarterly. A third public database linked to topics contains questions submitted and answered through SBIR/STTR Interactive Topic Information System (SITIS) for technical clarification. In SITIS, questioner and respondent remain anonymous and all technical questions and answers are posted electronically for general viewing.

Although not a database, the Department provides a list of major acquisition programs designated liaisons to the SBIR community at www.dodsbir.net/liasons.htm. Here SBIR firms can locate individuals who are (a) knowledgeable about the technology needs of the acquisition program and (b) responsible for technology infusion into the program. These liaisons interface with the SBIR program managers within DoD and with the SBIR contractor community for the purpose of integrating appropriate SBIR technologies into their acquisition programs. This web site lists the SBIR Liaisons and their contact information, so that both DoD laboratory personnel and SBIR contractors have an efficient means of communicating with their end customers in acquisition programs at all stages of the SBIR process.

In addition, the DoD has a number of private databases for program administration and program assessment. These include proposal databases, funding obligations and increments database, and commercialization database. User access to private databases is controlled through physical security, passwords, and/or secure socket layer (SSL). The Commercialization database, comprised of company-reported commercialization information, in particular has provided tremendous information about the scale and anatomy of Phase III activity. For example, fifty-three percent of Phase II projects from 1995 to 2005 have resulted in sales and/or investment. Investment typically arrives first and it usually takes 8 years after Phase II award to be eclipsed by sales. For DoD Phase II projects, initial sales are often from DoD acquisition programs or DoD prime contractors, but over time DoD/Prime sales nearly equal private sector sales (accounting for 45% and 46%, respectively, of all sales dollars). It makes sense that the Department would be the first end user of DoD-funded R&D. Similarly, DoD/Prime investment is on par with private sector investment.

Financing Gaps & Assistance Efforts

Several programs exist in the DoD SBIR/STTR Program to address financing gaps in the phased award structure. Phase I with Option and Fast Track focus on needs between Phase I and Phase II, while Phase II Enhancement's focus is between phases II and III. The Department's analysis shows that both the Fast Track and Phase II Enhancement programs are associated with systematically higher levels of commercialization, although this could be due to the nature of the DoD Component

review and approval process (e.g. projects with little chance of success may be less likely to be awarded matching funding).

Several Components have implemented the use of a Phase I Option that may be exercised to fund interim Phase I activities while a Phase II contract is being negotiated. Only Phase I efforts selected to compete for Phase II awards are eligible to exercise the Phase I Option. The Phase I Option, which must be included as part of the Phase I proposal, typically covers activities over a period of 3 to 5 months and is for \$30,000 to \$50,000.

The DoD SBIR program has implemented a streamlined Fast Track process for active Phase I projects that attract matching funds from an outside investor for the Phase II SBIR effort as well as for the interim effort between Phases I and II. The purpose is to focus SBIR funding on those projects that are most likely to be developed into viable new products that will thrive in the marketplace, essentially using external matching funds as a leading indicator of success. Phase I projects that qualify under Fast Track may:

- (1) Receive interim funding of \$30,000 to \$50,000 between Phases I and II;
- (2) Be evaluated for Phase II award under a separate process; and
- (3) Be selected for Phase II award provided they meet or exceed a threshold of "technically sufficient" and have substantially met their Phase I technical goals (and assuming other programmatic factors are met).

Fast Track applications must be prepared and submitted through the DoD SBIR Submission website at www.dodsbir.net/submission.

The Phase II Enhancement Program addresses the second type of financing gap -- between Phase II and Phase III. Phase II Enhancement encourages the transition of SBIR research into DoD acquisition programs as well as the private sector. Under this policy, the Component will provide a Phase II award recipient with additional Phase II SBIR or STTR funding matching funds the company obtains from non-SBIR/non-STTR Federal sources such as DoD acquisition program offices or private sector sources. Phase II Enhancements (also called Phase II Plus) do the following:

- Extend an existing Phase II contract for up to one year; and
- Match up to \$500,000 of non-SBIR/non-STTR funds.
- If selected for Enhancement, the funds from the outside investor must be transferred to the company before the SBIR/STTR-matching funds will be added to the Phase II contract. It is possible for a phase II project to receive additional SBIR/STTR funds from both Fast Track and Phase II Enhancement as long as the outside investment for Fast Track is separate and distinct from the outside investment for Phase II Enhancement.

Some components are experimenting with their own pilots to explore other ways to accelerate SBIR projects into use by the warfighter. These include:

- The Navy SBIR Accelerated Transition (SAT) program, which currently reserves \$15M for “super sizing” existing Phase II awardees with additional funds. Total contract value of SAT Phase II projects range from \$1M-\$2.5M.
- Navy Transition Assistance Program (TAP) facilitates Department use of Navy-funded SBIR technology and assists SBIR-funded firms to increase the

rate of technology transition through development of relationships with Prime Contractors, Investors and other agencies/activities.

- MDA's Technology Assistance (TA) Program assists small businesses in converting their innovations into marketable products. Administered by the National Technology Transfer Center-Washington Operations, assistance from the Technology Applications Program is free-of-charge to all MDA SBIR awardees. Assistance includes Business Focus Workshops and Technology Applications Reviews.
- DARPA's Technology Transition Initiatives with the Virginia Center for Innovative Technology (CIT) and the Foundation for Enterprise Development (FED) provide technology and business mentoring.

As mentioned earlier, CPP provides commercialization assistance between Phase II and Phase III to accelerate the transition of SBIR-funded technologies to Phase III, especially into systems being developed, acquired and maintained for the warfighter. CPP participants may receive a variety of assistance services and/or opportunities to facilitate the transition of their projects. The type of assistance offered varies by Component and may also include modifications to existing Phase II contracts with additional non-SBIR funding, as well as additional SBIR funding beyond the normal SBIR funding guidelines, to enhance ongoing projects with expanded research, development, test, or evaluation to accelerate transition and commercialization.

The *Beyond SBIR Phase II Conference* initiated in 2005 was also designed to facilitate partnership development addressing the Phase II-to-Phase III funding gap. For

the first time across the whole Department, Phase II awardees from around the country with SBIR technologies ready for transition from all DoD Components, and many other Federal agencies as well, were invited to 3 days of one-on-one "technology matchmaking" meetings with acquisition personnel from government, prime contractors representatives, venture capital firms, and manufacturing-oriented firms and organizations. Meetings were coordinated by matching the SBIR firms' Phase II project information with stated technology needs, and by specific requests.

The objective of this conference is to enhance the transition of SBIR-developed technology within the Department. A particular advantage of the SBIR program worth noting is that all showcased technologies may be further developed, tested and acquired without competition since competition during SBIR Phase I and II satisfies all competition in contracting requirements. Thus, if technologies addressing an identified need are found, they may be sole-sourced without delay. As discussed earlier, the next *Beyond SBIR Phase II Conference* will be held in Arlington, Virginia on August 20 to 23, 2007. This year's focus is on bringing technological edge to the warfighter.

Conclusion

In summary, again I thank you for the opportunity to testify on where the DoD SBIR and STTR programs are today. I hope my testimony has provided you with an understanding of how we run the program at the Department of Defense and will assist you and your colleagues as you consider program reauthorization. I would be happy to answer any questions you and the Members of the Subcommittee may have.