

Inspector General

United States
Department of Defense



DoD Small Business Innovation Research Program

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 30 JAN 2009		2. REPORT TYPE		3. DATES COVERED 00-00-2009 to 00-00-2009	
4. TITLE AND SUBTITLE DoD Small Business Innovation Research Program				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Department of Defense Inspector General,ODIG-AUD,400 Army Navy Drive,Arlington,VA,22202-4704				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 86	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

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Acronyms

DARPA	Defense Advanced Research Projects Agency
DFARS	Defense Federal Acquisition Regulation Supplement
GAO	Government Accountability Office
IG	Inspector General
OUSD	Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics
RDT&E	Research, Development, Test, and Evaluation
SBA	U.S. Small Business Administration
SBIR	Small Business Innovation Research
STTR	Small Business Technology Transfer



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-4704

January 30, 2009

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,
TECHNOLOGY, AND LOGISTICS
DIRECTOR, ACQUISITION RESOURCES AND ANALYSIS
ASSISTANT SECRETARY OF THE NAVY (RESEARCH,
DEVELOPMENT, AND ACQUISITION)
NAVAL INSPECTOR GENERAL
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL
MANAGEMENT AND COMPTROLLER)
AUDITOR GENERAL, DEPARTMENT OF THE ARMY
DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS
AGENCY

SUBJECT: Report on the DoD Small Business Innovation Research Program
(Report No. D-2009-048)

We are providing this report for review and comment. We considered comments from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the Assistant Secretary of the Navy (Research, Development, and Acquisition); and the Director, Defense Advanced Research Projects Agency when preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. We received comments from the Under Secretary of Defense and the Assistant Secretary of the Navy to recommendations made in a draft of this report. Client comments to Recommendation A.2. were fully responsive. Client comments to all other recommendations were partially responsive. In response to the client comments, we revised Recommendations A.1. and B.1.a. Therefore, we request additional comments from the Under Secretary of Defense to Recommendations A.1., A.3., A.4., B.1.a., and B.1.b.; and from the Assistant Secretary of the Navy for Recommendation B.2. by March 2, 2009.

Please provide comments that conform to the requirements of DoD Directive 7650.3. If possible, send comments in electronic format (Adobe Acrobat file only) to AudACM@dodig.mil. Copies of the comments must have the actual signature of the authorizing official for your organization. We cannot accept the / Signed / symbol in place of the actual signature. If you arrange to send classified comments electronically, you must send them over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the courtesies extended to the staff. Questions should be directed to Richard B. Jolliffe at 703 604-9201. If you desire, we will provide a formal briefing on the results.

Richard B. Jolliffe
Assistant Inspector General
Acquisition and Contract Management



Results in Brief: DoD Small Business Innovation Research Program

What We Did

Evaluated whether Military Departments and the Defense Advanced Research Projects Agency (DARPA) effectively used the Small Business Innovation Research (SBIR) program for research and development projects to meet DoD requirements and whether projects developed for the SBIR program resulted in products for commercial or military markets.

What We Found

- Army, Navy, Air Force, and DARPA used different methodologies to track and report SBIR commercialization.
- Inconsistent approaches to reporting Phase III contracting actions may have led to underreporting of SBIR successes.
- Underreported SBIR successes may affect future congressional decisions to reauthorize the Federal SBIR program and diminish the role that small businesses play in early-stage research and development with DoD activities.
- 27 of 34 contracts reviewed extended the period of performance by an average of 24 months beyond the U.S. Small Business Administration (SBA) 24-month recommended period of performance.
- Managers exceeded SBA recommended funding by a total of \$16.4 million on 21 of 34 contracts reviewed.
- DoD, Army, Air Force, and DARPA internal controls were not adequate for ensuring that SBIR program offices managed SBIR Phase II contracts according to the SBA policy guidelines.

What We Recommend

The Under Secretary of Defense for Acquisition, Technology, and Logistics should:

- Mandate adherence to a consistent methodology for identifying and reporting SBIR projects transitioning to Phase III commercialization.

- Establish supplemental funding to administer the SBIR program.
- Designate SBIR internal champions within acquisition program offices.
- Require SBIR contracting personnel to record Phase III contracting actions in DoD and Federal databases.
- Limit the length and cumulative award amounts of Phase II contracts.
- Require that any additional non-SBIR-funded work, not applicable to a Phase II basic contract under SBA policy guidelines, not be funded as part of the Phase II contract.

The Assistant Secretary of the Navy (Research, Development, and Acquisition) should establish controls to monitor compliance with standards for periods of performance and cumulative award amounts.

Client Comments and Our Response

The Under Secretary partially agreed with recommendations stating that a DoD Directive governing the SBIR program would be issued by December 2009. The new Directive would include a requirement to designate SBIR liaisons, make SBIR codes required fields in the Federal Procurement Data System-Next Generation, incorporate SBIR program award guidelines, require annual reporting, and encourage use of Phase III contracts to track program activity and the direct uptake of SBIR technology. The Assistant Secretary of the Navy agreed to establish controls to monitor compliance with standards for periods of performance and cumulative award amounts. Although not required to comment, the Director, DARPA generally disagreed with the findings.

We request that the Under Secretary of Defense for Acquisition, Technology, and Logistics; and the Assistant Secretary of the Navy (Research, Development, and Acquisition) provide further comments in response to this report. Please see the table on the back of this page.

Recommendations Table

Client	Recommendations Requiring Comment	No Additional Comments Required
Under Secretary of Defense for Acquisition, Technology, and Logistics	A.1., A.3., A.4., B.1.a., B.1.b.	A.2.
Assistant Secretary of the Navy (Research, Development, and Acquisition)	B.2.	

Please provide comments by March 2, 2009.

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Introduction

Objectives

Our overall audit objective was to determine whether DoD is effectively managing the Small Business Innovation Research (SBIR) program. Specifically, we determined whether Defense agencies and Military Departments are effectively using the SBIR program for research and development projects to meet DoD requirements and whether the projects developed for the SBIR program result in products for commercial or military markets.

Review of Internal Controls

We identified internal control weaknesses for the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the Army; the Air Force; and the Defense Advanced Research Projects Agency (DARPA) as defined by DoD Instruction 5010.40, “Managers’ Internal Control (MIC) Program Procedures,” January 4, 2006. DoD officials did not establish adequate internal controls for ensuring that SBIR program offices managed SBIR Phase II contracts according to the SBA Federal guidelines on period of performance and cumulative funding amounts. Implementing Recommendations B.1.a. and B.1.b. will improve contract management and administration procedures for the DoD SBIR program. Improving these procedures will result in more effective transitions of SBIR projects to meet DoD requirements.

We will provide a copy of this report to the senior officials responsible for internal controls in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the Department of the Army; the Air Force; and DARPA.

Background

The SBIR program was established under Public Law 97-219, “Small Business Innovation Development Act of 1982,” July 22, 1982, and reauthorized through September 30, 2008, by the Public Law 106-554, Title I, “Small Business Reauthorization Act of 2000,” December 21, 2000. The U.S. Small Business Administration (SBA) is the coordinating agency for the SBIR program. The SBA maintains overall Federal policy for SBIR and directs 11 Federal agencies’¹ implementation of SBIR, reviews their progress, and reports annually to Congress on the program’s operation. As required by Public Law, the SBA is responsible for ensuring that the 11 Federal agencies reserve a portion of their overall research and development extramural budget for award to small businesses.

¹The 11 Federal agencies participating in the SBIR program are the Department of Agriculture, Department of Commerce, Department of Defense, Department of Education, Department of Energy, Department of Health and Human Services, Department of Homeland Security, Department of Transportation, Environmental Protection Agency, National Aeronautics and Space Administration, and the National Science Foundation.

The SBIR program is a highly competitive program that encourages small businesses to explore their technological potential and provides the incentive to profit from commercialization. The program strengthens the role of qualified small businesses in meeting Federal research and development needs by stimulating technological innovation, increasing private sector commercialization, and enhancing participation of socially and economically disadvantaged small businesses. The DoD SBIR program is composed of the Army, Navy, Air Force, and nine Defense Agencies.² The DoD SBIR program was funded with approximately \$1.14 billion in FY 2007. The purpose of the DoD SBIR program is to develop the innovative talents of small technology companies for U.S. military and economic strength by funding early-stage to later-stage research and development. The four statutory goals of the DoD SBIR program are to:

- stimulate technological innovation,
- use small businesses to meet research and development needs,
- foster and encourage participation by minority and disadvantaged people in technological innovation, and
- increase private sector commercialization innovations derived from research and development.

SBIR Phases

The SBIR contractual process is structured into the following three phases:

- Phase I: initial determination of technical feasibility,
- Phase II: prototype development, and
- Phase III: commercialization of the technology in either the military or private-sector markets.

The “Small Business Innovation Research Program Policy Directive,” September 24, 2002, (the SBA Policy Directive) notes that Phase I allows small businesses to bid on early-stage research and development solicitations to determine initial approaches to specific DoD requirements. Phase II contracts further develop the research and development efforts, and in many cases require delivery of a prototype. Small businesses may submit Phase II proposals only by Government invitation. Government consideration of the commercial potential of Phase II proposals is an evaluation factor for selecting the Phase II awardees. Phase III commercialization is intended to meet one of the major statutory goals of the SBIR program. SBIR funds may not be used in Phase III, and Phase III includes no limitations on the period of performance or funding amounts. DoD issues a SBIR solicitation three times a year describing its research and development needs and inviting proposals from small companies. For Phase I, companies bid for a 6- to 9-month Phase I award of \$70,000 to \$100,000 to test the scientific, technical, and commercial merit and feasibility of a particular concept. If

²The nine Defense agencies participating in the SBIR program are the Missile Defense Agency, Defense Advanced Research Projects Agency, Chemical Biological Defense, Special Operations Command, Defense Threat Reduction Agency, National Geospatial-Intelligence Agency; Defense Logistics Agency, Defense Microelectronics Activity, and the Office of Secretary of Defense.

Phase I proves successful, the Government may invite the company to submit a proposal for a 2-year Phase II award of up to \$750,000 to further develop the concept. When Phase II is complete, small companies are expected to obtain funding from the private sector or non-SBIR Government sources to develop the concept into a product for sale in the private sector or military markets.

Finding A. Reporting Small Business Innovation Research Commercial Success

The Army, Navy, Air Force, and Defense Advanced Research Projects Agency (DARPA) used different methodologies, policies, and procedures for recording and reporting Small Business Innovation Research (SBIR) projects that transition to Phase III contracts. They used different methodologies because DoD has no overall guidance for tracking and reporting SBIR awards. We believe the Navy did the best job of capturing SBIR results. However, the Army, Air Force, and DARPA may be underreporting successful SBIR projects to DoD management officials, which may lead to DoD underreporting the full breadth of success of the SBIR program to Congress. Underreported SBIR successes may affect future congressional decisions to reauthorize the Federal SBIR program and diminish the role that small businesses play in early-stage research and development with DoD activities.

SBIR Commercialization Guidance

Small Business Administration Guidance

The SBA Policy Directive requires Federal agencies to submit an annual report to the SBA that includes Phase III awards using non-SBIR Federal funds. The Federal agency must enter the name, address, project title, and dollar amount obligated. The SBA Policy Directive also states that participating Agencies and Departments must collect and maintain information from awardees and provide it to the SBA to develop and maintain the SBA Technology Resources Access Network (Tech-Net) database. The data entered in the Tech-Net database provide a quantitative method to measure commercialization results. In October 2006, the Government Accountability Office (GAO) stated that the SBA was 5 years behind schedule in meeting a congressional mandate to implement a restricted Tech-Net Government-use database for the SBIR program.¹ The SBA Policy Directive requires Phase II awardees to update information on the Tech-Net database upon completion of the last deliverable under the funding agreement. In addition, the Phase II awardee is requested to voluntarily update information on that award via the Tech-Net for a minimum of 5 years.

Small Business Administration Commercialization Definition

The SBA Policy Directive defines commercialization for Federal agencies as the process of developing, producing, and delivering marketable products or services to Government or private-sector commercial markets.

¹See GAO Report No. 07-38, “Agencies Need to Strengthen Efforts to Improve the Completeness, Consistency, and Accuracy of Awards Data,” October 19, 2006. GAO found that participating Federal agencies submit most of the information required by SBA, but they did not consistently provide all required data elements resulting in incomplete sections of the Tech-Net database. Agencies told GAO that they do not always enter all data elements because the agencies do not collect all of the information that SBA wants and because the SBA requirements change regularly.

DoD Guidance

The DoD Office of Small Business Programs acts as the SBIR program office within the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. However, the DoD Office of Small Business Programs has not issued DoD-wide policy on how the Military Departments and Defense agencies should account for Phase III commercialization of SBIR projects. Because DoD has no overarching policy, each of the Military Departments used different methodologies, policies, and procedures for recognizing, recording, and reporting SBIR projects that can transition to commercialization according to SBA guidance.

SBIR Tracking in DoD and Federal Procurement Databases

Defense Federal Acquisition Regulation Supplement (DFARS) 204.670, “Contract Action Reporting Requirement,” requires that Departments and Agencies report all contracting actions, including SBIR actions, in accordance with DFARS Procedures, Guidance, and Information (PGI) 204.670-2(a), “Reportable Contracting Actions.” DFARS PGI 204.670-2(a) and 204.670-3, “Contracting Office Responsibilities,” require contracting offices to complete a DD Form 350 for all SBIR actions based on the stated criteria. The DoD Contracting Action Data System (known as the DD 350 database) includes data fields that specifically recognize SBIR phases. The Federal Procurement Data System-Next Generation, which replaced the DoD Contracting Action Data System in FY 2007, also includes data fields to track SBIR contract actions. Both systems are intended to allow decision makers to see how DoD is spending money for various procurements. However, DoD did not fully use either system to track SBIR contract actions.

SBIR Company Commercialization Report Database

The DoD Office of Small Business Programs maintains a Company Commercialization Report database that contains a history for each SBIR firm to aid DoD Components in SBIR source selection decisions. All firms submitting a Phase I or II proposal are required to prepare a Company Commercialization Report using the DoD Electronic Submission Web site. That Web site collects information used to calculate a Commercialization Achievement Index value. Phase II SBIR awardees can also voluntarily report their Phase III sales and investments. Only firms with four or more Phase II projects that were awarded at least 2 years prior² will receive a Commercialization Achievement Index score. The DoD Office of Small Business Programs also uses the information from the database to compile internal DoD commercialization reports. The DoD SBIR Program Manager stated that the existing DoD Company Commercialization Report database captures 70–80 percent of all SBIR activity in the Federal Government and captures 37 percent of all non-DoD SBIR actions. The DoD SBIR Program Manager also stated that information from the database was used for annual Phase III reporting to SBA. SBA officials stated that the DoD and the

²SBIR firms with Commercialization Achievement Index scores in the 15th percentile or lower are limited to scores of no more than 50 percent for past performance. Contracting officers may consider Commercialization Achievement Index Scores in determining future SBIR source selections.

Department of Health and Human Services National Institutes of Health were substantially ahead of other Federal agencies in establishing their own commercialization tracking databases. However, DoD officials stated that the Company Commercialization Report database is limited because the DoD relies on voluntary contractor participation, which may result in incomplete data capture of commercialization successes. In addition, DoD officials are concerned that the DoD data in the Company Commercialization Report database will not transfer into the SBA Tech-Net database because of differences in data definitions for some data fields that could render some data incompatible between the databases.

DoD SBIR Guidance

The Army, Navy, and Air Force use different methodologies, policies, and procedures for recording and reporting SBIR projects that are awarded as Phase III contracts. DARPA does not award Phase III contracts. Once a program is proven feasible, DARPA transitions the program to the Military Services for development. Unlike the Army, Air Force, and DARPA, the Navy has SBIR guidance that emphasizes transitioning, achieving, and reporting Phase III commercialization.

Army

The Department of the Army Pamphlet 70-3, “Army Acquisition Procedures,” July 15, 1999, provides a minimal description of the Army SBIR program. It has no specific guidance relating to the tracking and reporting of SBIR Phase III commercialization.

Navy

Secretary of the Navy Instruction 4380.7B, “Implementation of the Department of the Navy (DON) Small Business Innovation Research (SBIR) Program,” December 23, 2005, provides a general description of the Navy SBIR program, and delegates program management of the program to the Navy acquisition community. This instruction distinguishes itself from other DoD Components’ SBIR criteria because the Navy emphasizes commercialization. Specifically, the instruction requires that every Navy Program Executive Officer designate a SBIR manager responsible for advocating transition of SBIR products to Navy platforms or systems. The Navy instruction requires Phase III award transition planning, tracking mechanisms, and reporting. This guidance strengthens the Navy’s commitment to transitioning projects toward commercialization.

Air Force

Air Force Materiel Command Instruction 61-101, “Small Business Innovation Research (SBIR) Program and Small Business Technology Transfer (STTR) Program,” July 14, 2000, describes the operation and responsibilities of the Air Force SBIR program. The instruction does not provide information or procedures relating to the tracking and reporting of SBIR Phase III commercialization.

Defense Advanced Research Projects Agency

DARPA Instruction No. 35, “Administration of the Small Business Innovation Research (SBIR) Program,” August 28, 1996, states that SBIR is a three-phase program. However,

the instruction states that DARPA's participation in the SBIR program extends only through Phase II. Consequently, this Instruction does not address procedures relating to the tracking and reporting of SBIR Phase III commercialization.

SBIR Phase III Commercialization Tracking and Reporting

The Navy reported Phase III commercialization success rates that exceeded those of the Army, Air Force, and DARPA. Although each DoD Component we reviewed periodically publishes selected notable qualitative SBIR success stories, only the Navy has devoted resources to recognize its Phase III transitions through reporting in the DD 350 database.

Army

The Army SBIR program office did not collect, track, or submit commercialization data to the DoD SBIR office or track SBIR Phase III actions via the DD 350 database. Instead, the Army relied on SBIR firms to self-report commercial sales and investment information to the Company Commercialization Report database for use on subsequent SBIR proposals.

Navy

The goal of the Navy SBIR program was to transition SBIR technology into Navy and DoD systems. The Navy made a concerted effort to track SBIR Phase III contract awards through use of the DD 350 database and to report Phase III contracting actions that have reached the commercialization phase. Thus, the Navy had a mechanism with which to measure transitions to Phase III, based on actual SBIR contractual activity.

The Navy identified Phase III SBIR contract awards of \$383.8 million (FY 2005) and \$397.4 million (FY 2006) from the DD 350 databases. The Navy publicly reported successful aggregate transitions, through official publications available on the Navy SBIR Web site, showing the DD 350 Phase III Navy awards. In July 2006 at the Naval Science and Technology Conference the Director, Navy SBIR reported that in FY 2003, of the \$342 million DoD Phase III contracts, the Navy reported \$277.5 million (81 percent).

The Navy SBIR Director stated that the Navy success with DD 350 reporting was based on:

- the Navy making many more Phase III awards than the other Services,
- Navy oversight and management of Phase I and II awards derived from Acquisition Phase III funding sources, and
- the Navy properly educating small businesses and contracting officers on Phase III contracts including SBIR data rights clauses.

Air Force

Although the Air Force did not formally track the DD 350 data for Phase III reporting purposes, the Air Force identified Phase III contract awards of \$50.5 million in FY 2005 and \$70.7 million in FY 2006. The Air Force SBIR Program Manager stated the Air Force was not required to measure and collect commercialization data. Air Force personnel frequently used modifications to extend Phase II contracts well beyond the 24-month Phase II period of performance. The Air Force practice of extending Phase II contracts delays SBIR projects from entering the commercialization phase. See finding B for further details. Air Force SBIR officials later noted Phase II projects are typically expanded to perform more research and development work in order to raise the technology levels and reduce the project risk. However, we believe that this practice could delay Phase III awards, the stated goal for SBIR technology insertion.

Defense Advanced Research Projects Agency

DARPA did not use the DD 350 database to track its SBIR programs. The DARPA SBIR Program Manager stated that the agency did not use the DD 350 database to collect SBIR data because the system was not reliable. Instead, DARPA used the DoD Company Commercialization Report database to gauge contractor success. DARPA also required SBIR companies with four or more past awards to update their data in the Commercialization Achievement Index database before DARPA would analyze any new SBIR proposals from those companies. The DARPA SBIR Program Manager stated that the agency hired a support contractor to verify information in the Company Commercialization Report database and to summarize and document SBIR success stories.

SBIR Reporting Through DoD Procurement Databases

DoD internally reports SBIR Phase II and Phase III transactions through DoD procurement databases, such as the DD 350 database and the system that has replaced the DD 350 database—the Federal Procurement Data System-Next Generation. However, only the Navy uses the DD 350 database to measure SBIR commercialization successes as an internal metric. Table 1 shows the contract award obligations for FYs 2005 and 2006 as reported in the DoD procurement systems. Based on the DD 350s, the Navy awarded the most SBIR Phase III-coded prime contracts in the contract reporting systems. The difference between the amounts in the table below and those that were self-reported shows the need for officials to enter accurate and timely Phase III contracting actions.

Table 1. FYs 2005 and 2006 Reported Phase III SBIR DD 350 Contract Award Obligations (in millions)		
<u>DoD Component</u>	<u>FY 2005</u>	<u>FY 2006</u>
Army	\$69.4	\$40.0
Navy	330.0	325.4
Air Force	52.7	74.7
DARPA	1.5	1.9

Source: DoD Personnel and Procurement Statistics, <http://siadapp.dmdc.osd.mil>

SBIR Commercialization Methods and Practices

The DoD SBIR Program Manager attributes the Navy's reported higher commercialization rates to institutional design, supplemental funding, and internal program champions. These attributed characteristics differentiate the Navy from the Army, Air Force, and DARPA.

Institutional Design

Because personnel in Navy acquisition program offices manage the Navy's SBIR program, they have greater ability to oversee SBIR-developed technologies. In contrast, the Army and the Air Force allow their laboratories to manage SBIR projects with significantly less involvement from the acquisition community.

One Air Force SBIR Program Manager believed that the Air Force has an organizational disconnect because its laboratory technical directorates manage the SBIR program with limited involvement from Air Force product centers. An Air Force laboratory manager elaborated, stating that the difference between the Navy and the Air Force was that Air Force laboratories write SBIR topics based on early research and development.

The National Research Council and Rand reports note that the Navy writes SBIR topics that are closely aligned with the needs of the acquisition community for easier transition of technology projects. As a result, Navy topics are less risky and they transition to commercialization more easily than topics the Air Force generates. The DoD SBIR Program Manager noted in a 2007 SBIR symposium that the Navy tries to ensure that SBIR topics comply with April 2000 guidance from the Under Secretary of Defense for Acquisition, Technology, and Logistics. The guidance states that 50 percent of topics should have the support of the acquisition community. The Navy 2007 SBIR symposium also noted that buy-in from the acquisition community reduces the risk associated with doing basic research. The Navy's practice also meets the intent of a May 6, 1998, Navy memorandum, which states that SBIR topics must be significant to acquisition programs. The Navy memorandum and Navy Instruction 4380.7B both demonstrate that the Navy emphasized commercialization through written policies.

Two recent reports support the commercialization success resulting from the Navy's institutional design.

- The National Research Council report of a symposium, "SBIR and the Phase III Challenge of Commercialization," 2007, discussed the challenge of SBIR Phase III transitioning and the Navy's emphasis on Phase III. The report notes that the Navy's acquisition community (instead of Navy laboratories) manages both SBIR award funding and Phase III transition planning. The National Research Council found that the majority of Air Force SBIR topics relate to technology and lower level research, whereas the Navy focused more on development, which expedited the transition to commercialization. The National Research Council report notes that during FY 2003, the Navy funded 84 percent of SBIR using money budgeted for testing, acquisitions, and upgrades of fielded systems.

- The RAND Report No. DB-490-OSD, “Evaluation and Recommendations for Improvement of the Department of Defense Small Business Innovation Research (SBIR) Program,” 2006, stated that the Air Force and Army generated a majority of their topics in laboratories, whereas the Navy generated a majority of its topics through the acquisition program offices. The report noted that 60 percent of overall SBIR contract funds are devoted toward early-stage basic and applied research. The report advocated DoD funding of primarily later stage research and development to better translate projects into marketable products. The report also noted that, with the exception of the Navy, individual DoD SBIR programs are managed in a manner that may be too lean due to inadequate administrative support funding.

On August 20, 2008, the Navy released a “Report on the Navy SBIR Program: Best Practices, Roadblocks and Recommendations for Technology Transition.” The Navy stated that the report will serve as key guidance for continuous SBIR program improvement. The report stated that the decentralized Navy program management structure through Program Executive Offices was the key to the Navy’s SBIR success. The report recommended SBIR process improvements, including a Phase III metric collection strategy as a best practice.

The Army SBIR Program Manager stated that the Navy is managing its SBIR program as more of a procurement program than a research and development program, even though DoD criteria state that the SBIR program will solicit for research and development and not procurement. However, the Army SBIR Program Manager agreed that the Army acquisition community needs to be more involved in the SBIR process.

The DARPA Strategic Plan states that, unlike the Military Departments, which may focus more on urgent needs and requirements, DARPA looks for radical innovations that may take years to prove feasible. Since DARPA does not have laboratories or facilities, once DARPA determines a SBIR topic is viable, the topic enters into Phase I, and DARPA issues a solicitation to conduct experimental or theoretical research. The DARPA SBIR Program Manager stated that upon completion of Phase I, for those programs that continue into Phase II, DARPA transfers the program to one of the Military Departments for development.

Military Department-Generated Supplemental SBIR Program Funding

The DoD SBIR Program Manager stated that the Navy allocates substantially more funds for SBIR administrative support than other programs. For example, Naval Air Systems Command applies approximately 0.15 percent of its research, development, test, and evaluation (RDT&E) extramural budget to the administration of the SBIR program. Navy officials stated that the Navy laboratories obtain their administrative funds from the Navy Working Capital Fund, which accounts for 70 percent of all of the Navy’s administrative funds; they added that, in contrast, the other Services use a direct administrative line of accounting, which does not require the extra funds needed when using a working capital fund. In contrast, Air Force SBIR Instruction 61-101 requires the Air Force to apply 0.01 percent of its RDT&E extramural budget for administrative

program costs for the SBIR and Small Business Technology Transfer (STTR) programs. This amounted to approximately \$1.3 million in FY 2006. Table 2 illustrates the differences between the FY 2006 Army, Navy, and Air Force administration funding amounts relative to similar SBIR budget amounts.

Table 2. Army, Navy and Air Force Comparison of FY 2006 Administrative Budgets Allocated for SBIR (in millions)			
<u>Service</u>	<u>Approximate SBIR Budget for Small Businesses</u>	<u>Approximate Administrative Amount Allocated</u>	<u>Percent of the Extramural RDT&E</u>
Army	\$243.4	\$ 1.2	0.01
Navy	309.7	18.6	0.15
Air Force	313.0	1.3	0.01

DoD SBIR officials stated that one of the challenges is finding enough resources to support the program. On February 6, 2007, the DoD requested that Congress include SBIR administrative funding in the FY 2008 National Defense Authorization Bill. DoD proposed allowing all Federal agencies to apply up to 3 percent of their SBIR and STTR program direct funds toward administrative costs. The proposal stated that Federal agencies cannot currently use SBIR program funds for administrative costs, but have to use their own mission funds. The DoD noted that use of the 3 percent application would allow the military Services and Defense agencies to fund a portion of their own cost of doing business, free valuable resources to meet mission objectives, and allow for more effective SBIR program management. DoD also believed the allocation would allow DoD to maintain a more robust database to track SBIR successes and SBIR Phase III commercialization efforts.

An Army laboratory official stated that the process to generate topics is very labor intensive, and funding is inadequate to support the process. The Deputy Assistant Secretary of the Army (Research and Technology) noted in a September 21, 2006, memorandum that “Reducing the number of topics will also serve somewhat to relieve a heavily burdened field workforce that evaluated approximately 3,800 Phase I and Phase II SBIR proposals last year.” The 2006 RAND study expressed concern about insufficient administrative funding for the SBIR program because DoD is not allowed to use SBIR funding to administer the program.

SBIR Champions

The Navy uses a system of internal champions to push the use and commercialization of its SBIR projects. Navy Instruction 4380.7B delegates SBIR managerial responsibilities to acquisition programs and requires each Navy Program Executive Office to designate a SBIR Technology Manager responsible for advocating transition. DARPA systems offices seek solutions to military problems resulting in end items for military inventory. The DARPA SBIR Program Manager stated that the agency has transferred approximately half of its SBIR projects to programs of record for the Military Departments. Conversely, Air Force SBIR management officials stated that most Air

Force acquisition offices consider the SBIR program a burden and would rather use the SBIR funds for their more standard research and development projects. However, Air Force SBIR officials also asserted they are making efforts through Commercialization Pilot Program funding to establish “transition agents” to assist acquisition office management on some SBIR projects.

Potential Underreporting of SBIR Successes

The Army, Navy, Air Force, and DARPA did not use a consistent approach to initiate, record, and report Phase III contracting actions. These inconsistent approaches may have led to the underreporting of SBIR successes. Underreported SBIR successes may affect future congressional decisions to reauthorize the Federal SBIR program and diminish the role that small businesses play in early-stage research and development with DoD activities. SBIR commercialization data may not be visible to decision makers because SBIR companies do not update the Company Commercialization Report database. Until DoD makes a concerted effort to ensure consistency and completeness in DoD SBIR contract data reporting, DoD cannot ensure decision makers will know about Phase III contract awards and commercial successes. If DoD mandates consistent reporting of Phase III obligated amounts using the DD 350 form, DoD will have an internal metric for measuring contract awards that transition into Phase III, including the percentage of Phase II awards that obtain some Phase III commercialization and the average commercialization amount.

Comments on the Finding

Responding for the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD), the Director, Office of Small Business Programs did not specifically agree or disagree with the finding, but did comment on several topics discussed in the finding. The Assistant Secretary of the Navy (Research, Development, and Acquisition) did not specifically agree or disagree with the finding but did comment on one aspect of the finding. The Director, DARPA generally disagreed with the finding. See Appendix C for a summary of client comments provided and our response.

Recommendations, Client Comments, and Our Response

Revised Recommendation

As a result of client comments, we revised the recommendation in the final report to remove specific reference to “DoD Instruction” and replaced it with “DoD Directive or Instruction.”

A. We recommend that the Under Secretary of Defense for Acquisition, Technology, and Logistics issue a DoD Directive or Instruction to:

1. Mandate adherence to a consistent methodology, similar to the Navy’s current practice, for identifying and reporting on Small Business Innovation Research projects transitioning to Phase III commercialization.

OUSD Comments

The OUSD partially agreed with a draft report recommendation to issue a DoD Instruction to mandate adherence to a consistent methodology, similar to the Navy's current practice, for identifying and reporting on SBIR project transitioning to Phase III commercialization. The OUSD stated that it has initially developed a DoD Directive governing the SBIR program and plans to advance it through the coordination and approval process to issue by December 2009. The OUSD stated that the Directive will address, as appropriate, direct Federal Phase III contracts as an available tool to advance SBIR technologies and describe the purpose and use of the SBIR Company Commercialization Report database. The OUSD noted that changes to both acquisition and procurement regulations as well as educational materials for use at the Defense Acquisition University are also being considered to provide clearer SBIR guidance to the acquisition and contracting communities.

The OUSD noted that SBIR Phase III Federal prime contracts are only one type of Phase III "commercialization" activity and that it considers the SBIR Company Commercialization Report database as the better source of data to systematically identify and track SBIR commercialization. The OUSD also noted that SBIR program solicitations have required commercialization data collection requirements since 2000 and that such data has been used in SBIR source selections and program evaluations.

OUSD noted that the Navy has historically awarded the greatest number of Phase III contracts with the greatest total award value. The OUSD noted that the Navy Phase III SBIR contracting was noteworthy because it reflected a strong institutional commitment to utilize SBIR to address Navy technology needs and that other DoD Components have used Navy Phase III contract vehicles to continue technology development with firms they have funded in prior SBIR phases.

Our Response

The OUSD comments were partially responsive to the intent of the draft report recommendation. We view the OUSD plan to develop DoD-wide formal SBIR program guidance by December 2009 as a positive step. We agree that SBIR Phase III Federal prime contracts are only one type of potential "commercialization" outcome. We also agree with the OUSD description of the Navy SBIR methodology as noteworthy and reflecting a strong institutional commitment to utilize SBIR to address technology needs.

The proposed DoD SBIR Directive should include specific procedures addressing our recommendations. A cursory description of the database's purpose is inadequate. A database is not equivalent to having a specific written methodology for managing commercialization success. All DoD Components need to adhere to a single unified methodology, internal to DoD, which advocates commercialization in meeting DoD's needs and the intent of the SBIR program.

The DoD's Company Commercialization Report database and the Federal procurement databases can complement each other in achieving SBIR program goals. The DFARS contract reporting requirement is not yet formalized in DoD SBIR-related criteria. The

Army, Navy, and Air Force have the largest DoD SBIR programs, yet only the Navy showed a significantly higher amount of Phase III awards, shown in the DD 350 database. The Navy's managerial emphasis on reporting of commercialization in Phase III as a quantitative metric should be extended in a similar manner, DoD-wide.

We do not believe that the database as presently constituted is necessarily the best source for SBIR commercialization data generally or for Phase III contract data specifically. Although a critical part of the DoD data-gathering process, the SBIR Company Commercialization Report database is not a direct DoD internal measure of SBIR performance. Company self-reported SBIR related sales and investments helps the DoD measure how businesses are benefiting from SBIR. Federal procurement databases (as used by the Navy) are a better indicator of successful managerial decisions that translate SBIR research and developments to meet DoD needs. In contrast, the SBIR Company Commercialization Report database does not directly measure SBIR acquisition decision acumen but rather concentrates on measures such as company sales and investment performance. The Navy initiative relates internal efforts to focus on the Phase III contract aspects of SBIR. Phase III contracts exist in the first place because of what the DoD decides to accomplish. Therefore, an internally measurable metric is needed. We request further comment from the OUSD to the revised Recommendation A.1.

DARPA Comments

Although not required to comment, the Director, DARPA agreed with the general recommendation to develop a DoD Instruction but disagreed with mandating a policy similar to the Navy's current practice for identifying and reporting SBIR projects transitioning to Phase III. DARPA stated that a mechanism exists within the Federal Procurement Data System-Next Generation to capture this information and that the Office of Defense Procurement, Acquisition Policy and Strategic Sourcing should identify and report Phase III actions in a consistent manner.

Our Response

We agree with DARPA comments that a mechanism exists within the Federal Procurement Data System-Next Generation to capture SBIR Phase III data and that the Office of Defense Procurement, Acquisition Policy and Strategic Sourcing should develop policies to identify and report Phase III actions. However, the DoD Office of Small Business Programs should maintain lead responsibility to track and measure Phase III activity at the Component level and focus on making transition a priority similar to the Navy process of focusing on Phase III metrics as a SBIR success factor.

2. Establish a consistent process for Military Departments to provide supplemental funding for the administration of the Small Business Innovation Research program.

OUSD Comments

The OUSD stated partial agreement with the recommendation. OUSD noted that the DoD requested in February 2007, through the Administration's draft National Defense Authorization Act for FY 2008, authority to use up to 3 percent of the SBIR set-aside

budget to fund administrative expenses and provide a uniform mechanism to provide each DoD Component with funds proportional to the size of each program to fund key functions such as contracting, technical oversight, and commercialization support. Absent such authority, the OUSD planned to include in the proposed DoD Directive the requirement for participating Components to provide sufficient funding to effectively administer the SBIR program. However, the OUSD stated that it did not plan to mandate a methodology, such as an additional assessment above the SBIR assessment, or an independently programmed funding line. The OUSD noted that it should be left to each DoD Component to determine the most appropriate approach.

Our Response

Even though the OUSD termed its response a partial agreement, we consider the comments to be fully responsive to the intent of the recommendation. We commend the OUSD for submitting the February 2007 legislative proposal. We believe that the proposed SBIR program DoD Directive if implemented, will establish proper controls to ensure that each DoD Component is funded proportional to the size of that Components' SBIR program.

3. Formally establish Small Business Innovation Research acquisition internal champions within acquisition program offices to generate topics, act as source selection proponents, and act as liaisons between laboratories and the acquisition community.

OUSD Comments

The OUSD stated agreement with the recommendation and noted that a requirement for acquisition liaisons dated back to an August 10, 1999, Under Secretary of Defense for Acquisition, Technology, and Logistics policy memorandum requiring each major acquisition program to designate SBIR liaisons to be posted on a Web site by the DoD SBIR program office. The OUSD noted that the policy would be restated in the proposed December 2009 SBIR Program Directive and highlighted as a best practice in the *Defense Acquisition Guidebook*.

DARPA Comments

Although not required to comment, the Director, DARPA stated that if the recommendation was implemented, DARPA would utilize the acquisition liaisons as appropriate.

Our Response

OUSD comments were partially responsive to the intent of the recommendation as the comments appear to agree to the concept of a "SBIR liaison" rather than a "SBIR internal champion." The purpose of a SBIR liaison, as based on the August 1999 memorandum, was to help the acquisition community identify useful SBIR technologies. Conversely, as noted in our report, we view a SBIR internal champion as an advocate for the SBIR program itself, which actively expands on the role of a liaison to include functions such as SBIR topic generation, securing SBIR funding, and acting as a source selection

proponent. Thus, we request further comment from the OUSD regarding Recommendation A.3.

4. Require Small Business Innovation Research contracting personnel to record Phase III contracting actions in the DoD and Federal procurement databases in accordance with Defense Federal Acquisition Regulation Supplement 204.670, “Contract Action Reporting Requirements,” and provide summary reports of such Phase III contracting actions to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics.

OUSD Comments

The OUSD agreed with the recommendation and noted that contracting personnel should properly code contracts as SBIR Phase III when the work performed under such contracts substantively derives from, extends, or logically concludes work begun under a prior SBIR effort. The OUSD noted that the Federal Procurement Data System-Next Generation currently allows contracting officials to identify prime contracts as SBIR Phase I, Phase II, or Phase III. OUSD noted that these SBIR codes are not currently required in the completion of a contract entry and agreed there may be some SBIR underreporting. The OUSD noted that it planned to advance a proposal to make SBIR codes required fields. The OUSD also noted that Phase III contract actions and other SBIR contract activity employing non-SBIR funding, to include Phase II extensions and enhancements, would continue to be a part of annual program data collection.

Our Response

OUSD comments were not fully responsive to the intent of the recommendation as the comments do not include an implementation date for the OUSD proposal to make SBIR codes required fields in the Federal Procurement Data System-Next Generation. In addition, the Federal Procurement Data System-Next Generation User’s Manual states that “Executive departments and agencies are responsible for collecting and reporting procurement data to FPDS-NG, as required by the FAR [Federal Acquisition Regulation],” and that procurement activities are to report the SBIR codes when awarding the contract. Thus, we request further comment from the OUSD regarding Recommendation A.4.

DARPA Comments

Although not required to comment, the Director, DARPA disagreed with the recommendation if the reporting burden was placed on the DoD Component SBIR offices to carry out the requirement. DARPA stated that responsibility for the requirement belonged to the Office for Defense Procurement, Acquisition Policy and Strategic Sourcing.

Our Response

We agree with DARPA comments to the extent that the Office of Defense Procurement, Acquisition Policy and Strategic Sourcing should be involved. The intent of the recommendation is to assure that SBIR contracting officers properly enter SBIR Phase III data into the Federal Procurement Data System-Next Generation. All DoD contracting

office personnel are responsible for carrying out this requirement as a standard procedure for all procurement contracting actions. The DARPA response that DoD SBIR Component offices should not be burdened with the requirement indicates a lack of understanding of management processes for SBIR contract reporting.

Finding B. Small Business Innovation Research Phase II Contract Management

Of the 34 DoD SBIR contracts (valued at \$40.8 million) we reviewed, 27 contracts (valued at \$35.2 million) extended Phase II work by an average of 24 months beyond the 24-month period of performance recommended in the SBA Policy Directive.

Additionally, 21 of the 34 contracts exceeded recommended funding by a total of \$16.4 million. These extensions occurred because DoD did not have a formal instruction implementing the SBA Policy Directive and Army, Navy, Air Force, and DARPA SBIR program offices did not consistently follow the SBA procedures regulating SBIR periods of performance and award amounts. As a result, SBIR projects are not progressing through appropriate phases to achieve two of the four statutory goals of the SBIR program: increasing commercialization through Phase III awards and meeting DoD needs with small business contracting. In particular, small businesses may have lost opportunities for larger DoD acquisition community Phase III awards or private sector funding to advance successful technologies toward commercialization.

SBIR Performance Periods and Funding

The SBA Policy Directive provides all Federal agencies with a uniform, simplified SBIR program with minimal regulatory burden. DoD has not issued any DoD Directives or Instructions for management of the SBIR program. Rather, each of the 12 participating DoD Components is responsible for managing its individual SBIR program tasks including SBIR topic generation, source selections, and funding allocations.

SBIR Period of Performance Guidelines

The SBA Policy Directive states that although the SBIR period of performance is subject to negotiation between the awardee and the issuing agency, the performance period should not normally exceed 6 months for Phase I and 24 months for Phase II. The SBA Policy Directive permits the period of performance to be extended, at the discretion of Federal agencies, as appropriate to exercise options included in the original Phase I or Phase II awards. DoD, the Air Force, and DARPA have not established policy on the duration of Phase II SBIR contracts. Army Pamphlet 70-3, Figure 2-11, “Army SBIR Process,” depicts 2-years for Phase II awards and Navy Instruction 4380.7B states that Phase II awards are “typically performed” over 24 months.

SBIR Funding Amount Guidelines

The SBA Policy Directive states that “Generally, a Phase I award may not exceed \$100,000, and a Phase II award may not exceed \$750,000.” The SBA Policy Directive does not define what exceptions are allowable to deviate from the recommended funding guidelines, but does require Federal agencies to provide written justification to SBA when exceeding recommended funding amounts. Agencies cannot use SBIR funds for Phase III awards.

Modification to SBIR Phase II Contracts

Federal Acquisition Regulation 43.201(a) provides the contracting officer authority to issue contract modifications that are within the general scope of the original contract. The *SBIR Contracting and Payment Desk Reference*, 8th Edition, endorses the use of modifications if the additional effort substantially increases the product's commercialization potential or enhances the capability to the user. The *SBIR Contracting and Desk Reference* notes that Phase II work related to the initial Phase II contract may be added under the statutory authority of the SBIR program. However, the *SBIR Contracting and Desk Reference* does not provide guidance on transitioning projects to Phase III.

DoD Phase II Enhancement Program

Since 2000, DoD has authorized its SBIR Components to develop Phase II enhancement programs to encourage the rapid transition of SBIR research and development into acquisition programs, private sector commercialization, or both. Enhancement programs provide an opportunity for SBIR firms to attract additional non-SBIR funding for Phase II contract work. If a Phase II SBIR awardee can secure non-SBIR funding from a source such as a DoD acquisition program or a non-Government source, then the DoD SBIR Component responsible for that project can match up to \$500,000 in funding with additional Phase II SBIR funds. The DoD SBIR website states that SBIR Components may extend the Phase II contract period of performance for no more than 1-year when using the enhancement program.

SBIR Phase II Contract Period of Performance and Funding

Of the 34 DoD SBIR contracts we reviewed, Phase II work on 27 of the contracts was extended an average of 24 months beyond the 24-month recommended period of performance. Additionally, 21 of the 34 contracts reviewed exceeded recommended funding by a total of \$16.4 million. Our audit found that, of 34 Phase II contracts reviewed, 14 of the contracts were part of the DoD Phase II enhancement program. However, 12 of the 14 enhancement program contracts exceeded DoD's 1-year period of performance extension limit. Six of the 14 Phase II enhancement contracts also exceeded the \$500,000 DoD supplemental SBIR funding limit. See Appendix B for a detailed summary of project duration and funding amounts for the Phase II contracts we reviewed at the Army, Navy, Air Force, and DARPA.

DoD Data on Contract Periods of Performance

Data obtained from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics indicated that 205 (30 percent) of 682 Phase II, FY 2000 projects exceeded the SBA Phase II funding guidelines as of September 30, 2006. The Army, Navy, Air Force, and DARPA all had average award amounts exceeding the

\$750,000 guideline. In particular, 39 percent of Air Force SBIR projects had cumulative award amounts exceeding the guideline, with an average award amount of \$913,066.³

The DoD SBIR manager provided a summary of the Phase II FY 2000 awards, including a detailed distribution of those awards at or above the SBA \$750,000 Phase II award guideline. The Phase II awards were made from FY 2000 through FY 2006, resulting from FY 2000 solicitation topics, with modifications reported from FY 2002 through FY 2006. Table 3 provides an overview of DoD Phase II contract awards derived from the FY 2000 solicitation, relative to each DoD Component.

Table 3. DoD Phase II Contract Awards Derived From the FY 2000 SBIR Solicitation					
DoD SBIR Component	Number of Awards	Total Awards	Awards at or Below \$750,000 Guideline	Awards Above \$750,000 Award Guideline	
				Phase II Enhancement	Non-Phase II Enhancement
Air Force	222	\$202,700,650	135	44	43
Army	158	127,911,462	118	35	5
Navy	119	92,911,350	87	4	28
DARPA	51	42,531,772	37	8	6
MDA	79	71,782,632	48	2	29
DTRA	6	4,472,488	6	0	0
CBD	9	6,726,989	8	1	0
OSD	28	20,044,508	28	0	0
SOCOM	7	3,117,819	7	0	0
NGA	3	1,496,847	3	0	0
Total DoD	682	\$573,696,517	477	94	111

Source: DoD SBIR Program Manager

Acronyms:
 CBD Chemical Biological Defense
 DTRA Defense Threat Reduction Agency
 DARPA Defense Advanced Research Projects Agency
 MDA Missile Defense Agency
 NGA National Geospatial-Intelligence Agency
 OSD Office of the Secretary of Defense
 SOCOM Special Operations Command

Army

We reviewed 13 Army Phase II awards valued at \$12.2 million. Contracting officers extended the period of performance on 10 (77 percent) of those 13 contracts. The average extension for additional Phase II work was 19 months more than the recommended 24-month guideline. The Army also exceeded recommended funding for 6 of the 13 contracts by a total of \$2.8 million. Army officials agreed that the Army

³The total FY 2000 Phase II award amounts divided by the total number of awards.

tends to award Phase II contract modifications rather than issue Phase III contracts. For example, contracting officials at the Tank Automotive Research, Development, and Engineering Center, stated that tasks for additional work for Phase II contract DAAE07-01-C-L018 were within the scope of the initial Phase II project tasks. As another example, contracting officials at the Communications and Electronics Research and Development Center, awarded Phase II contract DAAB07-01-C-J403 in December 2000. The contract included 12 modifications, including administrative changes. Modifications 6 and 12 included additional statements of work and applied additional research and development funds from SBIR and from private sector financial sources. Modification 12 also extended the period of performance through October 2006. The 70-month period of performance and the use of outside capital (non-DoD) could have warranted the issuance of a Phase III contract as early as July 2004, even though the statements of work for some of the modifications were within the scope of the original proposal. Both Army contracts noted above used the DoD Phase II enhancement program to extend the period of performance. However, both contracts exceeded the DoD 1-year period of performance extension limit.

Navy

We reviewed nine Navy Phase II awards valued at \$10.3 million. Contracting officers extended the period of performance on five (56 percent) of those nine contracts. The average extension for additional Phase II work was 21 months more than the recommended 24-month guideline. The Navy also exceeded recommended funding for six of the nine contracts by a total of \$4.3 million.

For example, Navy contracting officials awarded Phase II contract N68335-02-C-0007 in January 2002. The contract included six modifications with a completion date of February 2007, which extended the period for performance a total of 37 months beyond the recommended 24-month guideline. The contract included SBIR funding of approximately \$741,000 more than the recommended \$750,000 SBIR funding guideline. The Navy contract used the DoD Phase II enhancement program to extend funding and the period of performance. However, the contract exceeded the DoD 1-year period of performance extension limit and \$500,000 funding enhancement limit. On September 14, 2004, the Navy issued Phase III delivery order contract N68335-04-D-0018 to the SBIR contractor. As a result, the Navy allowed the contractor to perform Phase II and Phase III tasks concurrently under separate contracting vehicles.

Air Force

We reviewed seven Air Force Phase II contracts valued at \$13.3 million. Contracting officers extended the period of performance on all seven contracts. The average extension for additional Phase II work was 33 months more than the recommended 24-month guideline. All seven contracts exceeded the guideline by 15 months or more. The Air Force also exceeded recommended funding for six of the seven contracts by a total of \$8.1 million. The Phase II modifications included \$5.4 million in non-SBIR funding, out of total contract funding of \$13.3 million.

The Air Force awarded Phase II contract modifications to extend SBIR performance periods rather than issuing a Phase III contract with non-SBIR funding. Project managers believed that they could maintain better control over SBIR projects if the projects remained at the Air Force Research Laboratory in Phase II instead of transitioning to a Phase III contract administered elsewhere. Air Force SBIR program officials stated that the Air Force tends to add additional Phase II work through a “Phase II enhancement” program because SBIR funds cannot be applied to a Phase III contract. Contracting officials at the Air Force Research Laboratory stated that the Phase II modifications for additional tasks were justified and within the scope of the original Phase II projects. The Air Force SBIR manager noted that the SBA Policy Directive did not prohibit extending Phase II work. However, they acknowledged that the work could have been awarded under Phase III contracts and that the cost of analyzing and processing separately proposed Phase II modifications would be the same as analyzing and processing a sole-source Phase III contract.

As one example, the Air Force awarded SBIR Phase II contract F33615-01-C-1863 on June 12, 2001. The contract included nine modifications for additional work. Eight of those modifications added \$1.4 million in non-SBIR funding to the contract. The last Phase II modification extended the contract period of performance through January 2009. The Air Force contract used the DoD Phase II enhancement program to extend funding and the period of performance. However, the contract exceeded the DoD 1-year period of performance extension limit and the DoD \$500,000 funding enhancement limit. We believe that the Air Force should have issued one or more Phase III contracts as early as 2003.

We performed a technical analysis of contract F33615-01-C-1863 and found that the Phase I and Phase II proposals did not correspond to the core SBIR topic objective, and the justification for advancing to Phase II was inadequate. We also found that the non-SBIR-funded Phase II modifications did not logically flow from the original topic, even though the additional work was within the scope of the Phase II statement of work. The original topic for the SBIR project called for a low-cost, commercially available component. However, the SBIR contractor proposed a higher cost component for Phase II. Also, the SBIR project did not meet the core objectives of the original SBIR topic, one of which was to achieve cost reduction. The Air Force’s use of a Phase II contractor proposal in lieu of a Phase II statement of work was insufficient to protect the Government’s interests.

DARPA

We reviewed five DARPA Phase II awards valued at \$5 million. Contracting officers extended the period of performance on all five contracts. The average extension for additional Phase II work was 22 months more than the recommended 24-month guideline. DARPA also exceeded recommended funding for three of the five contracts by a total of \$1.3 million. For example, Phase II SBIR contract DAAH01-01-C-R156, awarded April 2001, included eight modifications that cumulatively extended the period of performance through May 2006, 37 months beyond the recommended 24-month

guideline. It also used \$649,606 more than the recommended \$750,000 SBIR funding guideline.

SBIR Program Controls

The DoD, Army, Navy, Air Force, and DARPA SBIR program offices did not have consistent procedures regulating SBIR periods of performance and award amounts. Further, DoD, the Army, the Air Force, and DARPA did not have any formal guidance to address contracts exceeding SBA recommended guidelines on Phase II period of performance and funding amounts.

DoD SBIR Controls

DoD Instruction 5134.04, “Director of Small and Disadvantaged Business Utilization,” September 27, 2005, defines the responsibilities of the DoD SBIR Program Manager.⁴ The DoD SBIR Program Manager requires that DoD Components gather and report justifications to the DoD SBIR program office for consolidation and reporting to SBA. The DoD SBIR program office developed a standardized list of 10 potential justifications for exceeding funding guidelines. However, none of those potential justifications to exceed funding guidelines are included in official DoD policy. SBA SBIR officials stated that they did not consider the DoD SBIR program office standardized checklist, in and of itself, to be sufficient justification to support deviations from recommended SBA funding guidelines. We concluded that the DoD SBIR program office had no internal controls over the preparation or validation of additional funding justifications or the accuracy of the data provided to SBA.

The DoD SBIR program office did not issue any specific written standard operating procedures to provide DoD Components with specific limits to phase duration or award amounts. In the absence of specific DoD guidance, individual SBIR managers allowed Phase II work to proceed beyond the SBA recommended period of performance guideline to maintain control over SBIR projects rather than transitioning projects to a Phase III contract outside their control. Without written guidance, decisions to advance a project and establish periods of performance were subjective, thereby limiting DoD’s ability to achieve and measure the success of its SBIR program in meeting DoD requirements.

The DoD SBIR Program Manager agreed that much of the Phase II work could have qualified as Phase III using non-SBIR funding and that many of the Phase II projects included tasks that could have been awarded on Phase III contracts. Further, the DoD SBIR Program Manager agreed that DoD should have overall guidance regulating periods of performance in accordance with SBA guidelines.

⁴The Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, Office of Small Business Programs acts as the DoD SBIR Program Manager. Public Law 109-163, “National Defense Authorization Act for Fiscal Year 2006,” changed the Office of Small and Disadvantaged Business Utilization of the DoD to the Office of Small Business Programs of the DoD.

Military Department SBIR Controls

The Army and Air Force did not have formalized internal controls to prevent contracts from exceeding the SBA-recommended Phase II period of performance and funding guidelines. For example, Air Force Materiel Command Instruction 61-101 does not identify specific procedures for the day-to-day operation of the program, including a description of responsibilities. The instruction also does not discuss the SBA funding and period of performance guidelines, or discuss moving from Phase II to commercialization.

The Navy implemented written criteria promoting the transition of SBIR projects. The Navy SBIR guidance emphasizes transitioning, achieving, and reporting Phase III commercialization. Secretary of the Navy Instruction 4380.7B mandates SBA funding and period of performance guidelines. In addition, the Instruction emphasizes awarding Phase III SBIR contracts to foster effective transition planning to implement SBIR-developed products into Navy acquisition programs. The Navy SBIR Program Manager stated that the Navy monitors SBIR contracts but believed that SBA guidance allows for increased funding levels above the guidelines. None of the four Office of Naval Research projects we reviewed exceeded the 24-month period of performance guideline for Phase II. However, contracting officers at the Naval Air Systems Command did not follow Navy criteria on period of performance for five contracts. The Navy SBIR Program Manager stated that the Naval Air Systems Command SBIR program office approved the contract extensions and believed neither SBA, DoD, nor Navy required reporting of time extensions. We believe the Navy should improve its monitoring of SBIR contracts to ensure contracting and program officials comply with the guidance on periods of performance and funding.

Defense Advanced Research Projects Agency SBIR Controls

DARPA had no formalized internal controls to prevent exceeding SBA-recommended Phase II period of performance and funding guidelines.

Achieving SBIR Commercialization

SBIR projects were not progressing through appropriate phases to achieve two of the four statutory purposes of the SBIR program: increasing commercialization through Phase III awards and meeting DoD needs with small business contracting. In particular, small businesses may have lost opportunities for either larger DoD acquisition community Phase III contracting, or private sector funding to advance successful technologies toward commercialization.

Acquisition Process

One of the primary statutory goals of the SBIR program is to increase private sector commercialization of innovations derived from research and development. The SBIR phases are similar to the Defense Acquisition Management Framework phases discussed in DoD Instruction 5000.2, "The Defense Acquisition System," May 12, 2003, for acquisition programs. DoD uses the Defense Acquisition System to provide effective, affordable, and timely systems to users. Likewise, each SBIR phase is intended to transition projects from determination of project feasibility to transitioning technologies

to the warfighter. SBIR Phase III is the final phase, intended to transition to commercialization, allowing small businesses to transform DoD requirements into viable products for DoD and the private sector.

DoD Requirements

To support SBIR projects in meeting DoD requirements beyond Phase II, DoD must use non-SBIR funds. Without mission funding and support, SBIR projects cannot transition to Phase III. If SBIR projects languish in Phase II, then DoD will not achieve its goal of accelerating transition of SBIR-funded technologies into systems supporting the warfighter.

Small Business Needs

The practice of extending the time a project remains in Phase II may cause SBIR awardees to lose opportunities for additional private-sector capital funding support. If projects do not advance to Phase III in a timely manner, the SBIR program is not assisting small businesses. A Phase III award is a visible measure of success for the project. It demonstrates to the private sector that DoD is supporting a successful initiative by committing mission funds to the program. Moreover, projects which could have advanced to Phase III may be discontinued in Phase II due to lack of funding support from program offices.

Comments to the Finding

Responding for the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, the Director, DoD SBIR program did not specifically agree or disagree with the finding, but did comment on several topics discussed in the finding. The Assistant Secretary of the Navy (Research, Development, and Acquisition) did not specifically agree or disagree with the finding but did comment on several topics discussed in the finding. The Director, DARPA generally disagreed with the finding. See Appendix C for a summary of comments provided and our response.

Recommendations, Client Comments, and Our Response

Revised Recommendation

As a result of client comments, we revised the recommendation in the final report to remove specific reference to “DoD Instruction” and replaced it with “DoD Directive or Instruction” and changed language on length limits and cumulative award amounts on contracts to amounts called for in the Small Business Administration’s Policy Directive or approved legislation.

B.1. We recommend that the Under Secretary of Defense for Acquisition, Technology, and Logistics include within the Directive or Instruction as recommended in Finding A:

a. Limit the length and cumulative award amounts of Phase II contracts to amounts called for in the Small Business Administration’s “Small Business

Innovation Research Program Policy Directive,” or otherwise approved by law unless the DoD Component Small Business Innovation Research program manager approves a 1-year Phase II enhancement extension, obligated with Small Business Innovation Research funds.

OUSD Comments

The OUSD disagreed with a draft report recommendation that the proposed SBIR DoD Instruction limit the length and cumulative award amounts of Phase II contracts to 24 months and \$750,000, respectively, to comply with the intent of the SBA Policy Directive, unless the DoD Component SBIR Program Manager approved a 1-year extension, obligated with SBIR funds. The OUSD noted that treating the SBIR Phase II contract guideline as a cap was not in consonance with the intent of the SBIR program and would dramatically limit the effectiveness of SBIR the program performance. The OUSD also believed that the recommendation would restrict SBIR contracting officer flexibility relative to how non-SBIR funds are employed. The OUSD noted that DoD reports to SBA all awards in excess of the prescribed SBA guidelines consistent with the SBA Policy Directive and that the SBA has never objected to the DoD-reported deviations.

The OUSD proposed that our draft report recommendation be reworded to remove specific reference to “24 months” and “\$750,000” as guidelines since the existing standards were likely to change either through a current congressional reauthorization of the SBIR program or through current efforts of the SBA. The OUSD also proposed that we remove reference to the 1-year extension to allow deployment of SBIR resources. The OUSD noted that the SBA SBIR Program Directive explicitly permits awarding agencies to exceed award values where appropriate for a particular project. The OUSD believed that neither basic nor modified award amounts should be restricted to SBA guideline levels. The OUSD noted that it planned to incorporate program award guidelines into its proposed SBIR program DoD Directive to establish normative behavior but allow program flexibility through guideline deviations, and to require strict annual reporting requirements as described in the SBA Program Directive.

Navy Comments

Although not required to comment on the draft report recommendation, the Assistant Secretary of the Navy (Research, Development, and Acquisition) disagreed, noting the recommendation should be stricken. The Navy believed that placing arbitrary limits on SBIR research, either with funding or time limitations, might limit program effectiveness and not be in the Government’s best interest. The Assistant Secretary also noted the importance of SBIR program flexibility to provide contract extensions with either SBIR or non-SBIR funds, or both, to keep the technology moving forward in support of the commercialization goal.

DARPA Comments

Although not required to comment, the Director, DARPA disagreed with the draft report recommendation noting that agencies should be allowed flexibility to exceed the SBA Policy Directive guidelines when appropriate and that reporting of instances when the

guidelines are exceeded was acceptable. DARPA stated that adding funding to existing Phase II projects and extending the period of performance is warranted under the Phase II enhancement rules and is necessary to bring the technology to a maturity level so that it can be transitioned or commercialized.

Our Response

OUSD, Navy, and DARPA comments were partially responsive to the intent of the draft report recommendation. Based on the OUSD and DARPA comments, we revised the recommendation in the final report to remove specific reference to “24 months” and “\$750,000” to allow for the possibility of adopting presently proposed SBA increases to the time and funding limits. We also revised language regarding the 1-year extension to note that the extension was to allow for the 1-year Phase II enhancement such as those presently authorized by the DoD SBIR program. Our audit found no indication that treating the SBIR Phase II contract SBA guideline as a normative cap would in any way limit the effectiveness of SBIR program performance.

While DoD reports to SBA those SBIR awards made in excess of the prescribed SBA guidelines, we noted that none of 10 “check-off” justifications the DoD SBIR program office used for exceeding SBA funding guidelines were included in official DoD policy. In addition, SBA SBIR officials stated that they did not consider the DoD justifications in and of themselves to be sufficient to support deviations from recommended SBA funding guidelines. We concluded that the DoD SBIR program office had no internal controls over the preparation or validation of additional funding justifications or the accuracy of the data provided to SBA.

We disagree with the OUSD, the Navy, and DARPA premise that SBIR program managers and contracting officers should have unlimited flexibility relative to how non-SBIR funds are employed. The OUSD should not focus on implementing a policy of unlimited deviations from SBA Phase II guidelines, but, rather focus on methods to obtain acquisition community support and non-SBIR funding for Phase III contract actions. This will allow DoD to maintain and uphold SBA Phase III development guidelines by encouraging the use of non-SBIR funds to support SBIR technologies. While we agree with the OUSD effort to include program award guidelines into the proposed DoD-wide formal SBIR program guidance, such award guidelines must truly make normative behavior the norm, and not enable deviations from the SBA guidance to become the prevalent behavior. Such an open-door policy would simply exacerbate the SBIR award and project length problems noted in the finding. As such, we believe that the 1-year Phase II enhancement language noted in our recommendation allows enough flexibility to allow deployment of both SBIR and non-SBIR resources in exceptional situations and maintain SBA recommended guidelines. We request the OUSD comment on the revised Recommendation B.1.a.

b. Require that any additional non-Small Business Innovation Research-funded work, not applicable to a Phase II basic contract under Small Business Administration policy guidelines, not be funded as part of the Phase II contract. Once the concept is proven, the acquisition community should pursue sponsorship through Phase III contracts.

OUSD Comments

The OUSD disagreed with the recommendation stating it implied that Phase III is only pursued via direct Government contracts funded by acquisition activities and the recommendation made an erroneous assumption that technologies are always ready for direct acquisition office sponsorship at the end of Phase II. The OUSD noted that Phase III contracts were only one form of commercialization for SBIR-funded innovations and that attempting to force technology development and maturation would thwart technology transition and increase costs.

The OUSD stated that the modification of existing Phase II contracts within the scope of the base contract should fund technology development and demonstration. The OUSD also stated that while application of non-SBIR-funded Phase III contracts can provide better program visibility, it could also impose additional contracting office administrative burdens or require additional work to accommodate separate contracting vehicles. The OUSD noted that, while it planned to identify use of the Phase III contract approach as a best practice to track program activity and encourage the direct uptake of SBIR technology, it did not support making the approach a requirement.

Our Response

The OUSD comments were partially responsive to the intent of the recommendation. While we agree that direct Phase III contracts are only one form of commercialization, we disagree that the recommendation makes an erroneous assumption that SBIR technologies are ready for direct acquisition sponsorship at the end of Phase II. Rather, the recommendation is consistent with the SBA SBIR Policy Directive guidelines and metrics that recognize that additional development and maturation steps can be performed in Phase III to help DoD and small businesses achieve commercialization goals and achieve technology transition. As noted in the finding, all too often, Phase III-type SBIR work is performed under modifications to Phase II contracts using non-SBIR funding. Such work deviates from the intent of the SBA Policy Directive to progress technologies into a non-SBIR-funded Phase III environment. If SBIR projects languish in Phase II, then DoD will not achieve its goal of accelerating transition of SBIR-funded technologies into systems supporting the warfighter.

We applaud the OUSD statements to identify use of the Phase III contract approach as a best practice to track program activity and encourage the direct uptake of SBIR technology. However, such best practices should be viewed as the norm for DoD SBIR technologies and be included in DoD-wide guidance. We disagree that use of Phase III contracts would necessarily add additional contracting office administrative costs. As noted in the finding, SBIR contracting personnel told us that the time and costs to analyze and negotiate a proposed Phase II contract modification was equivalent to a separate proposed phase III contract. We request further comment from the OUSD regarding Recommendation B.1.b.

Navy Comments

Although not required to comment, the Assistant Secretary of the Navy agreed with the recommendation.

DARPA Comments

Although not required to comment, the Director, DARPA disagreed with the recommendation stating it was within the contracting officer's discretion whether to place non-SBIR funding on a SBIR Phase II contract. DARPA noted that agencies may transfer promising SBIR Phase II projects to another Federal agency as appropriate or discontinue SBIR projects that do not show promising results.

B.2. We recommend that the Assistant Secretary of the Navy (Research, Development, and Acquisition) establish controls to monitor compliance with standards for periods of performance and cumulative award amounts in Secretary of the Navy Instruction 4380.7B, "Implementation of the Department of the Navy (DON) Small Business Innovation Research (SBIR) Program," December 23, 2005, and the Small Business Administration's "Small Business Innovation Research Program Policy Directive," September 24, 2002.

Navy Comments

The Assistant Secretary of the Navy agreed with the recommendation.

Our Response

Navy comments were partially responsive to the intent of the recommendation. Though agreeing with the recommendation, the Navy did not provide completion timelines regarding establishing controls to monitor compliance with standards for periods of performance and cumulative award amounts included in Secretary of the Navy Instruction 4380.7B. As such, we request further comment from the Navy concerning completion timelines for this recommendation.

Appendix A. Scope and Methodology

We conducted this performance audit from July 2006 to October 2007; from November 2007 through March 2008; and June 2008 in accordance with generally accepted government auditing standards. Breaks in performance occurred because of changes to key personnel and higher priority projects. Those standards require that we plan and perform this audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We evaluated whether Military Departments and DARPA effectively used the SBIR program for research and development projects that meet DoD requirements and whether the projects developed for the SBIR program resulted in products for commercial or military markets. We reviewed the justification for contract award and the commercialization reporting process for Phase I and Phase II contracts at the Army, Navy, Air Force, and DARPA. At each location visited, we interviewed SBIR program managers to learn the processes they used to execute the SBIR program. We examined proposals, statements of work, technical evaluations, price negotiation memoranda, contract modifications, and other miscellaneous correspondence dated from August 1999 through September 2007.

We selected a judgmental sample of 34 high dollar value projects where Phase I contracts progressed to Phase II, from a universe of 509 FY 2000 projects. The total Phase II contract value of the 34 projects sampled was \$40.8 million.

We reviewed eight Army projects at the U.S. Tank Automotive Research, Development, and Engineering Center, Warren, Michigan; and five projects at the Communications and Electronics Research and Development Center, Fort Monmouth, New Jersey. The Phase II cumulative award amount for the 13 Army sampled projects totaled \$12.2 million, selected from a universe of 143 Army projects valued at \$118.3 million. We reviewed five Navy projects at the Naval Air Systems Command, Patuxent River, Maryland; and four projects at the Office of Naval Research, Arlington, Virginia. The Phase II cumulative award amount for the nine Navy sampled projects totaled \$10.3 million, selected from a universe of 115 Navy projects valued at \$93.1 million. We reviewed seven Air Force projects at the Air Force Research Laboratory, Dayton, Ohio. The Phase II cumulative award amount for the seven Air Force sampled projects totaled \$13.3 million, selected from a universe of 208 Air Force projects valued at \$186.2 million. We also reviewed five projects at the DARPA headquarters, Arlington, Virginia; and the U.S. Army Aviation and Missile Command, Huntsville, Alabama. Phase II cumulative award amount for the five DARPA sampled projects totaled \$5.0 million, selected from a universe of 43 DARPA projects.

Small Business Technology Transfer program

We did not review the Small Business Technology Transfer (STTR) program, which funds cooperative research and development projects involving small business and DoD nonprofit research institution partners, as the STTR program is not covered by SBIR guidance. The exclusion of the STTR program does not affect the results of this audit.

Use of Computer-Processed Data

We used computer-processed data from the DoD SBIR Awards database to perform this audit. Baum Romstedt Technology Research Corporation, a service support contractor for the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, maintained the DoD SBIR Awards database and queried the database to obtain Phase II awards data resulting from FY 2000 DoD SBIR solicitations. We did not assess the reliability of the data from the DoD SBIR Awards database, the DD 350 database, or the Federal Procurement Data System-Next Generation database. However, data obtained throughout the fieldwork phase did not materially differ from the computer-processed data obtained from those databases. Thus, nothing came to our attention during the audit that caused us to doubt the reliability of the computer-processed data.

Use of Technical Assistance

The Technical Assessment and Data Mining Directorates of the Department of Defense, Office of the Deputy Inspector General for Policy and Oversight provided assistance. The Technical Assessment Directorate reviewed one SBIR project for each Military Department and DARPA. Specifically, the Technical Assessment Directorate reviewed statements of work, Government technical evaluations, and contractor-generated SBIR Phase I and II final reports to ensure the scope of the work and SBIR products were in alignment with the SBIR topic and proposal. The Data Mining Directorate searched and analyzed the DD 350 database for FYs 2005 and 2006, and the Federal Procurement Data System-Next Generation database for FYs 2005 and 2006 Military Department and DARPA SBIR-related contract information.

Prior Coverage

During the last 5 years, the Government Accountability Office (GAO) and the Department of Defense Inspector General (IG) have issued three reports discussing the accuracy of capturing, reporting, and disclosing data on contract awards. Unrestricted GAO reports can be accessed over the Internet at <http://www.gao.gov>. Unrestricted DoD IG reports can be accessed at <http://www.dodig.mil/audit/reports>.

GAO

GAO Report No. GAO-07-38, "Agencies Need to Strengthen Efforts to Improve the Completeness, Consistency, and Accuracy of Awards Data," October 2006

GAO Report No. GAO-06-565, "Information on Awards Made by NIH and DoD in Fiscal Years 2001 through 2004," April 2006

DoD IG

DoD IG Report No. D-2004-001, "Disclosure of Contractor Data for the Development of Night Vision and Display Systems," October 3, 2003

Appendix B. Small Business Innovation Research Phase II Project Duration and Funding

<u>Contract Number</u>	<u>Phase II Cumulative Award (millions)</u>	<u>SBIR Funds (millions)</u>	<u>Non-SBIR Funds (millions)</u>	<u>Funds Exceeding Recommended Amount (millions)</u>	<u>Months of Performance Beyond 24- Month Limit¹</u>
TARDEC²					
DAAE07-01-C-L010	\$0.73	\$0.73	0	0	8
DAAE07-01-C-L001	0.75	0.73	\$0.02	0	8
DAAE07-01-C-L079	0.72	0.72	0	0	6
DAAE07-01-C-L097	0.72	0.72	0	0	2
DAAE07-02-C-L049	0.73	0.73	0	0	0
DAAE07-01-C-L003	0.73	0.73	0	0	3
DAAE07-01-C-L034	0.51	0.51	0	0	0
DAAE07-01-C-L018	1.61	0.98	0.63	\$0.86	43
CERDEC³					
DAAB07-02-C-P609	\$1.22	\$0.97	\$0.25	\$0.47	0
DAAB07-01-C-K602	1.22	0.97	0.25	0.47	17
DAAB07-01-C-L728	0.78	0.78	0	0.03	27
DAAB07-01-C-L501	1.41	0.98	0.43	0.66	29
DAAB07-01-C-J403	<u>1.03</u>	<u>0.98</u>	<u>0.05</u>	<u>0.28</u>	<u>46</u>
Army Total	\$12.15	\$10.53	\$1.62	\$2.76	19
ONR⁴					
N00014-02-C-0126	\$0.75	\$0.45	\$0.30	0	0
N00014-02-C-0295	0.45	0.22	0.23	0	0
N00014-01-C-0388	0.30	0.30	0	0	0
N00014-01-C-0081	1.65	0.91	0.75	\$0.90	0

¹The four averages shown in this column include only contracts exceeding the 24-month guideline.

²Tank Automotive Research, Development and Engineering Center.

³Communications and Electronics Research and Development Center.

⁴Office of Naval Research.

<u>Contract Number</u>	Phase II Cumulative Award Amount (millions)	SBIR Funds (millions)	Non-SBIR Funds (millions)	Funds Exceeding Recommended Amount (millions)	Months of Performance Beyond 24- Month Limit
<u>NAVAIR</u> ⁵					
N68335-01-C-0292	\$1.47	\$1.12	\$0.35	\$0.72	16
N68335-01-C-0210	1.47	1.32	0.15	0.72	16
N68335-01-C-0323	1.74	0.99	0.75	0.99	11
N68335-01-C-0380	0.99	0.99	0	0.24	23
N68335-02-C-0007	<u>1.49</u>	<u>1.49</u>	<u>0</u>	<u>0.74</u>	<u>37</u>
Navy Total	\$10.31	\$7.79	\$2.52	\$4.31	21
<u>AFRL</u> ⁶					
F33615-01-C-5208	\$0.75	\$0.75	0	0	15
F33615-01-C-5407	0.95	0.85	\$0.10	\$0.20	29
F33615-01-C-1863	2.38	1.00	1.38	1.63	67
F33615-01-C-1872	2.21	1.50	0.71	1.46	37
F33615-01-C-1870	1.53	1.31	0.22	0.78	46
F33615-01-C-1866	3.62	1.00	2.62	2.87	16
F33615-01-C-1869	<u>1.88</u>	<u>1.50</u>	<u>0.38</u>	<u>1.13</u>	<u>23</u>
Air Force Total	\$13.31	\$7.91	\$5.40	\$8.06	33
<u>DARPA</u>					
DAAH01-02-C-R213	\$1.15	\$0.95	\$0.20	\$0.40	27
DAAH01-01-C-R177	0.75	0.75	0	0	9
DAAH01-01-C-R181	0.95	0.75	0.20	0.20	19
DAAH01-02-C-R184	0.75	0.75	0	0	18
DAAH01-01-C-R156	<u>1.40</u>	<u>1.07</u>	<u>0.33</u>	<u>0.65</u>	<u>37</u>
DARPA Total	\$4.99	\$4.27	\$0.73	\$1.25	22
Grand Total	\$40.76	\$30.50	\$10.27	\$16.38	24

⁵Naval Air Systems Command.

⁶Air Force Research Laboratory.

Appendix C. Summary of Client Comments and Our Response

Client Comments on Background, Audit Objectives, Internal Controls, and Contract Selection Methodology

Navy Comments on Background

The Assistant Secretary of the Navy (Research, Development, and Acquisition) disagreed with a draft report background statement that the purpose of the DoD SBIR program is to develop the innovative talents of small technology companies for U.S. Military and economic strength by funding early-stage research and development. The Navy recommended that the term “early stage” be stricken from the report. The Navy stated it operates the SBIR program to fund innovative solutions to address military needs including early stage to later stage research and development. The Navy noted that focusing on early-stage research would negate the support received from military acquisition programs and be counter to the audit report’s recognition of the importance of strong acquisition support to affect a successful Phase III program.

Our Response

Based on the Navy comment we modified the report background phrase to include “early-stage to later-stage” research and development.

DARPA Comments on Audit Objectives

The Director, DARPA stated that the audit report did not address audit objectives on whether DoD is effectively managing the program overall or if the agencies are effectively using the program to meet DoD research and development needs. DARPA stated that the audit report focused entirely on tracking and reporting commercialization success, which could be used, in part, to determine whether the projects developed for the SBIR program result in products for commercial or military markets.

Our Response

Due to the broad area of the SBIR program, the audit report focused on specific areas of SBIR compliance and improvement to demonstrate the effectiveness of DoD management of the SBIR program and whether using the SBIR program for research and development projects met DoD requirements. For example, to determine whether projects met DoD requirements, the audit and technical subject matter expert staff performed verification fieldwork to determine if decisions to advance SBIR projects to Phase II were properly justified. To determine whether the projects developed for the SBIR program result in products for commercial or military markets, we reviewed the DoD tracking and reporting of commercialization success.

DARPA Comments on Review of Internal Controls

DARPA disagreed with the report conclusion that an internal control weakness existed with regard to management of Phase II contracts in accordance with SBA Federal guidelines on period of performance and cumulative funding. DARPA noted the SBA SBIR Policy Directive allows agencies to provide a longer performance period and exceed award values where appropriate. DARPA also noted that SBA may adjust the guidelines once every 5 years but has not done so since 1993. DARPA stated that its internal controls include annual reporting to DoD of each occurrence exceeding the SBA Policy Directive guidelines. DARPA believed that establishing inflexible performance periods and hard funding ceilings would not make sense for research and development programs and would diminish its ability to mature SBIR-developed technology for transfer to the Military Departments or other Federal agencies.

Our Response

We continue to believe that an internal control weakness existed at the Army, the Air Force, and DARPA with regard to management of Phase II contracts in accordance with SBA Federal guidelines. As noted in numerous other responses to the DARPA comments, we disagree with the DARPA position that the existing guidelines give SBIR program managers and contracting officers unlimited flexibility relative to funding amounts and periods of performance. Good Phase II internal controls should not focus on implementing a policy of unlimited deviations from SBA Phase II guidelines, but, rather focus on methods to obtain acquisition community support and non-SBIR funding for resulting Phase III contract actions.

Navy Comments on Phase II Contract Selection Methodology

The Navy stated that a draft report statement indicated that our audit included 34 contracts with a total value of \$40.8 million but did not detail how the audit data were selected. The Navy recommended we add clarifying information that discusses the method used for selection and advise the reader that the data used to derive the conclusions in this report were not statistically relevant. The Navy stated that we briefed to them that the contract selection was based upon the quantity of modifications that had been executed. The Navy disagreed with the contract selection method used for the sample because it believed the selection method could give the reader a false sense of the state of the SBIR environment as the selection criteria increased the chances that contracts exceeding both funding and the recommended 24-month period of performance would appear.

Our Response

As noted in Appendix A, the 34 Phase II contracts were based on a judgmental sample of 34 high dollar value projects where Phase I contracts progressed to Phase II, from a universe of 509 FY 2000 projects. Judgmental samples are by their nature not statistically projectable to the universe as a whole, and the report makes no such projection. We did not select contracts for review based upon the quantity of modifications that had been executed. However, the audit judgmental selection methodology of high dollar projects did increase the likelihood that resulting Phase II

contracts could include modifications and exceed SBA funding guidelines. We attempted to balance the finding B presentation with Company Commercialization Report data the DoD SBIR Program Manager provided that showed approximately 30 percent of all FY 2000 Phase II contracts exceeded the SBA recommended guidelines.

Client Comments on Finding A

OUSD and DARPA Comments on Reporting SBIR Commercial Success

The OUSD commented that the audit should clarify or reconsider selected finding language to ensure accuracy in intended meaning and consistency in relation to other report findings: the OUSD believed the finding was unclear as to whether “transition to Phase III contracts” referred to Phase III DoD or Federal prime contracts, or if Phase III referred more broadly as a measure of SBIR commercialization, to include DoD and Federal prime and subcontract activity as well as commercial sales, license or royalty revenue, capital investment, derivative sales revenue, and other form of Phase III activity defined by statute. The OUSD also recommended that we replace the phrase “transition to Phase III contracts,” to “commercialize.”

While DARPA disagreed with several aspects of the finding, DARPA agreed that there was no DoD guidance for tracking and reporting SBIR awards.

Our Response

While we agree that Phase III contracts are but one type of statutorily defined Phase III SBIR outcome, we disagree to inserting the term “commercialize” when we are referring to Phase III SBIR contracts or the opportunity for the Government to contract using Phase III vehicles. The report use of the term “transition to Phase III contracts” is appropriate as it is used to note the potential award of SBIR Phase III contracts, in most cases the only likely and logical initial outcome for use of Defense technologies developed to support specific Defense acquisition programs.

As described in Appendix A, the scope of our review covered DoD SBIR contractual award data, including Federal procurement database (and former DD 350 database) information that should, if fully used, include SBIR Phase I, II, and III contracting actions. This is the only Government-generated SBIR metric available. Other types of commercialization data (such as royalty revenue and sales revenue) OUSD referred to are company-generated and self-reported.

Due to the repetitive nature of DARPA comments on Finding A we have not summarized them in this section; rather the specific DARPA comments are noted in the following client comment sections.

OUSD Comments on DoD Guidance

The OUSD stated that finding statements asserting that DoD has no overall guidance for tracking and reporting SBIR awards needed to be clarified to eliminate ambiguity and

possible misinterpretation. OUSD also stated that DoD had processes and procedures to methodically collect SBIR Phase I and Phase II award information from DoD Components on a quarterly basis and make the data publicly available on the SBIR program Web site. OUSD also noted that SBIR awards are reported to the SBA annually to comply with the SBA SBIR Program Directive.

Our Response

The OUSD annually posts on its Web site and reports to SBA the number of DoD-created SBIR topics, the number of SBIR proposals submitted, and SBIR Phase I and Phase II contract award amounts. The reporting is limited to Phase I and Phase II and does not include any Phase III data. Both the DFARS and the OUSD memorandum, “Federal Procurement Data System – Next Generation,” October 3, 2006, require actual awards to be tracked and reported in the Federal Procurement Database. We believe that OUSD needs to assert additional reporting focus over Phase III contractual activity, which is not presently covered in the DoD SBIR Web site posting or reporting. We continue to believe that OUSD needs to promulgate further guidance on recognizing, recording, and reporting SBIR projects that qualify as Phase III commercialization.

OUSD and DARPA Comments on Company Commercialization Report Database

The OUSD stated that the SBIR Company Commercialization Report database is the DoD standard methodology, policy, and procedure for collecting commercialization data and includes all types of Phase III activities, including revenue derived from Federal prime contracts. The OUSD stated that participating SBIR firms enter and are required to annually update the data while under contract or when submitting SBIR proposals. The OUSD noted that SBIR firms are requested to update data for 5 years after Phase II contract completion and that DoD will annually review the database to identify and resolve reporting errors. The OUSD stated that the Company Commercialization Report data are not reported to the SBA or Congress, as the SBA Tech-Net database does not have the ability to accept the data. The OUSD stated it would support a Tech-Net reporting effort when the SBA capability is in place, but noted a significant challenge will be to define how data are to be kept current by participating firms or awarding agencies. The OUSD believed that the Company Commercialization Report database is a fair approximation of what the SBA Tech-Net database might eventually be. The OUSD noted that we should revise a draft report comment regarding the capture of commercialization data to indicate that 37 percent of Company Commercialization Report database Phase II entries are funded by non-Defense agencies, such as the National Aeronautics and Space Administration, the Department of Energy, and the National Science Foundation. The OUSD also noted that these agencies capture 70 to 80 percent of non-DoD SBIR activity and that DoD represents more than 50 percent of the Federal SBIR budget.

DARPA disagreed with the finding that there is no DoD guidance for tracking and reporting SBIR awards. However, DARPA stated that, while this was a true statement, there is no evidence in the report or any other study that such guidance would solve the inconsistencies encountered in tracking Phase III success. DARPA believed that the

SBA Policy Directive could be interpreted as requiring SBA to be responsible for collecting and reporting Phase III information to Congress. But DARPA noted neither the SBA Policy Directive nor the statute advises how Phase III awards should be recognized, recorded, and reported. DARPA noted that a company does not have to be small to receive a Phase III award; therefore, those awards may not be reported. DARPA noted any reporting instructions should be specific to assure consistency in data reporting.

Our Response

Based on OUSD comments, we revised the discussion on the Company Commercialization Report database to include non-DoD SBIR Federal activity in the database. However, our report continues to state that since DoD had no overarching SBIR policy, each of the Military Departments used different methodologies, policies, and procedures for recognizing, recording, and reporting SBIR projects that qualify as Phase III commercialization. While we agree that the Company Commercialization Report data are essential for measuring private sector commercialization success, the Company Commercialization Report data do not necessarily correlate with how well the DoD is managing SBIR procurement-related activities. DoD also needs to focus on internally generated performance measurements of SBIR success such as DoD Phase III contract award data measured through the Federal Procurement Database System and the DoD predecessor DD 350 system.

The DARPA comments fail to address the report section's key issue that existing internal DoD tracking mechanisms do not comply with existing requirements to enter Phase III contracting actions into Federal procurement databases.

To ensure consistency, OUSD should promulgate a written management policy so the SBIR program, contracting, and acquisition officials throughout DoD are on the "same page" when it comes to recognizing SBIR commercialization success. As previously stated, DFARS and the October 3, 2006, OUSD memorandum require Phase III contracting actions to be identified and reported in the Federal Procurement Data System-Next Generation database; the size of the business with a Phase III contract does not change this requirement.

DARPA Comments on DoD SBIR Guidance

DARPA disagreed with report characterizations of DARPA in the DoD SBIR guidance section of the report. DARPA suggested we use a DARPA-provided replacement paragraph to more accurately portray DARPA business practices. DARPA stated that it planned to add a Phase III section to the DARPA Instruction by October 1, 2008, outlining the program managers' responsibilities for facilitating Phase III opportunities and a plan for tracking SBIR transfers to either the Military Departments or other Federal agencies, or both.

Our Response

We consider the existing audit report characterization of DARPA in the DoD SBIR guidance portion of the report to be fully supported by source documentation. The

suggested DARPA paragraphs are included in the full text of the DARPA client comments on report page 67.

OUSD and DARPA Comments on SBIR Reporting Through the DoD Procurement Databases

The OUSD recommended we revise draft report statements regarding the Navy capturing results to clarify what is meant by results. The OUSD also stated the report should be modified to indicate the Navy has awarded the most SBIR Phase III-coded contracts and that Phase III contract awards are one of many funding alternatives to achieving commercialization. They believed that Federal contract awards tend to favor certain technologies that are able to adhere to this business model. The OUSD also noted that a discussion of program results should address the quality and character of SBIR-funded research and development and the extent to which SBIR addresses Federal research and development needs.

DARPA disagreed with report statements that it did not use the DD 350 database to track its SBIR program. DARPA stated that the SBA Policy Directive does not require SBIR data to be reported from the DD 350 database and that contracting data should not be used to track SBIR Phase III actions. DARPA agreed with Table 1 conclusions that SBIR contracting data are inconsistently reported across DoD. DARPA believed that the contracting database deficiencies should be corrected by the Office of Defense Procurement, Acquisition Policy and Strategic Sourcing rather than SBIR program officers. DARPA also noted it uses a variety of contracting agents, who have the responsibility to properly record actions in the contracting database in order to award SBIR efforts.

Our Response

We revised the SBIR reporting through the DD 350 database discussion to note that the Navy has awarded the most SBIR Phase III-coded prime contracts in the systems. We continue to believe that Phase III contracts activity is the most important measure when it comes to DoD SBIR results as discussed in the SBA SBIR Policy Directive. A Phase III contract is the logical outgrowth of a process driven by an initial Phase I source selection and Phase II development process and represents a significant amount of Government funds provided to SBIR awardees. The OUSD comments did not include any information to show that non-contractual Government Phase III funding would be comparable in importance to Phase III contracts. As noted in one Navy SBIR briefing, Navy Systems Commands managers, program executive officers, and SBIR managers all have Phase III SBIR technology as a responsibility, and should focus on Phase III metrics.

We found no indication that DARPA used the DD 350 or the Federal Procurement Data System-Next Generation databases to track its SBIR program. Implementation of Recommendation A.4. requiring contracting personnel to record Phase III contracting actions and provide summary reports of Phase III contracting actions to OUSD will increase commercialization reporting. We agree that the SBA Policy Directive does not require SBIR contract data reporting, and such contract action database recording

responsibility does reside with the contracting officer in accordance with DFARS 204.670-2(a) requirements.

DARPA Comments on SBIR Commercialization Methods and Practices

DARPA disagreed with draft audit report characterizations of DARPA in the institutional design and SBIR champion sections of the report. DARPA suggested we use replacement paragraphs in both sections to more accurately portray DARPA business practices.

Our Response

We consider the existing audit report characterization of DARPA in the institutional design and SBIR champion portions of the report as stated to be fully supported by source documentation. The suggested DARPA paragraphs are included in the full text of the DARPA client comments on page 71.

Navy Comments on Military Department-Generated Supplemental SBIR Program Funding

The Navy agreed with report statements that DoD should be allowed to use some of the SBIR set-aside monies for the management of the program, especially in the area of increasing involvement by and transition into acquisition offices. The Navy noted that a 2006 DoD Congressional Change Request proposed that 0.075 percent be set aside for management of the SBIR program. The Navy believed that no other single change to the program would have a more direct benefit, especially if those funds were targeted towards commercialization activities. The Navy stated that its Working Capital system results in substantially higher SBIR administrative funding than for other Military Services as the system requires the Navy to use research and development funding lines to pay for employees at Navy laboratories and research and development centers. The Navy also stated that more than 70 percent of Navy SBIR administrative funds are collected through research and development funding lines. The Navy asserted that the other Military Services do not use such research and development funding but rather use management accounts to fund SBIR-related contract and technical oversight functions performed at laboratory and research and development centers. The Navy said that only Navy Headquarters Command personnel are funded through management accounts. The Navy recommended the report add text to discuss the DoD congressional request for SBIR management funding and the Navy Working Capital Fund system.

Our Response

Based on the Navy comments, we modified the report to discuss the DoD congressional request for SBIR administrative funding and the Navy Working Capital Fund system.

OUSD and DARPA Comments on Potential Underreporting of SBIR Successes

The OUSD stated that we should remove the statements referring to underreporting of SBIR successes as having a potential impact on Congressional program reauthorization.

The OUSD noted there was currently no systematic collection of SBIR commercialization data by the SBA or subsequent reporting to Congress and the DoD uses the SBIR Company Commercialization Report database and other program data to support discussions with Congress about the SBIR program.

DARPA also disagreed, stating that its business model focuses on radical innovation, which may take many years to prove feasible. DARPA believed there is a 5–7 year lag from the time a topic is published to company sales, meaning that it may take several years for a company to realize success from its SBIR efforts. DARPA believed early-stage research will most likely not be ready for commercialization or transition at the end of Phase II. In addition, DARPA noted its SBIR efforts are typically transferred to one of the Military Services which then capture the technology as a Phase III success. DARPA also noted that inconsistent recording and reporting of SBIR successes can result in overreporting as well as underreporting. DARPA believed that audit statements that small businesses play a significant role in early-stage research contradicted the statement that companies are not reporting their commercialization success.

Our Response

We continue to believe that inconsistent Military Service approaches to SBIR reporting may have led to underreporting of SBIR successes and thus have a potential impact on ongoing congressional SBIR program reauthorization. We agree that DoD Company Commercialization Report database information will also affect congressional perceptions on SBIR reauthorization. DARPA provided no examples to support its statement that inconsistent recording and reporting of SBIR successes can result in overreporting as well as underreporting. As noted in Table 1, inconsistencies in reporting between the Services demonstrated the potential for underreporting. We selected FY 2000 SBIR projects for audit review precisely because of the potential lag from SBIR topic commercialization. Regarding other DARPA comments, we believe the report statement that small businesses play a significant role in early-stage research is a fact of the SBIR program.

Client Comments on Finding B

OUSD, Navy, and DARPA Comments on SBIR Phase II Contract Management

The OUSD stated that finding B required clarification and drew misleading conclusions that DoD Components routinely ignore the current statutory award guidelines for SBIR Phase II contracts. The OUSD stated that all SBIR awards were in compliance with statute, the SBA Policy Directive, and DoD standard procedures to award contracts within statutory guidelines. OUSD stated Section (7) (h) of the SBA SBIR Policy Directive permitted DoD standard procedures, and the DoD reports to the SBA consistent with the Directive.

The Assistant Secretary of the Navy (Research, Development, and Acquisition) recommended that portions of the finding B lead paragraph be removed. The Navy stated that the SBA provides general terms and procedures to follow when deviating from its

general guidelines and that there is no regulation limiting the term of a Phase II SBIR contract to 24 months or the ceiling to \$750,000. The Navy stated it holds its SBIR program managers accountable for the successful performance of their programs and as such, expects them to make decisions that further the Navy's interests, and that to place arbitrary limits on SBIR research, either with funding or time limitations, might limit the effectiveness of the program and not be in the Government's best interest.

The Director, DARPA disagreed with finding B that DARPA did not consistently follow the SBA procedures regulating SBIR periods of performance and award amounts. DARPA stated that SBIR award funding amounts and periods of performance are set forth in the SBA Policy Directive as guidelines and that each DoD Component is required to include in its SBIR annual report each instance of exceeding the guidelines. DARPA stated that it was within the contracting officer's discretion to extend a SBIR contract if necessary to bring SBIR technology to a maturity level allowing transition or commercialization. Further, adding funding and extending the period of performance to an existing Phase II contract was warranted under the DoD Phase II enhancement rules. DARPA also stated that a RAND Corporation study, "Measuring and Improving Results from the SBIR Program: A Focus on Phase III Transition," came to different conclusions from those in finding B. DARPA questioned whether we used the RAND study results or if we collected or compared Phase III success of SBIR projects that exceeded the guidelines with those that did not exceed the guidelines. DARPA also noted that the finding did not provide any examples of small business opportunities that were lost due to receiving additional Phase II SBIR funding.

Our Response

We disagree that finding B draws misleading conclusions or should be deleted. We disagree with the Navy premise that no regulation exists limiting the term or ceiling of a Phase II SBIR contract. We also disagree with OUSD comments regarding the existence of DoD standard SBIR contracting procedures in compliance with SBA policy directives. As noted in the finding, the DoD SBIR program office did not issue any specific written standard operating procedures to provide DoD Components with specific limits to phase duration or award amounts. In the absence of specific DoD guidance, individual SBIR managers allowed Phase II work to proceed beyond the SBA-recommended period of performance guideline.

The SBA SBIR Policy Directive, Section 7, "SBIR Funding Process," addresses the need, as specified in legislation, for a simplified and standardized funding process. The Policy Directive, section 7(g), "Period of Performance and Extensions," states the following types of Phase I and Phase II contract modifications should be kept to a minimum: period of performance extensions, scope of work increases, and dollar amount increases. The Policy Directive, section 7(h), "Dollar Value of Awards," states that, as a general rule, award amount guidelines are not to be exceeded. When this general rule is exceeded, the Policy Directive requires Federal agencies to submit to SBA a written justification. Our review of SBIR Phase II contracts showed that the Policy Directive's award amounts and period of performances were not being adhered to; the written justifications that the DoD submitted to SBA were single sentences, generically

applicable to all SBIR projects. Therefore, DoD did not have internal controls for complying with the SBIR funding process guidelines.

While we agree that SBIR program managers should be held accountable for program performance, we found nothing during our review to support Navy comments that any attempt to enforce the SBA-recommended guidelines would be arbitrary, would limit SBIR program effectiveness, or not be in the Government's best interest. While DoD reports to the SBA those SBIR awards made in excess of the prescribed SBA guidelines, we noted that none of 10 "check-off" justifications the DoD SBIR program office used to justify exceeding SBA funding guidelines were included in official DoD policy. In addition, SBA SBIR officials stated that they did not consider the DoD justifications in and of themselves sufficient to support deviations from recommended SBA funding guidelines. We concluded that the DoD SBIR program office had no internal controls over the preparation or validation of additional funding justifications or the accuracy of the data provided to SBA.

Our audit results support the DARPA statement that the agency did not consistently follow the SBA procedures regulating SBIR periods of performance and award amounts. For example, all five DARPA contracts we reviewed exceeded SBA period of performance guidelines by an average of 22 months. The DoD SBIR Resource Center Web site guidance notes that the DoD Phase II enhancement program is intended to encourage rapid transition into commercialization.

We did not rely on any RAND product in preparing our report. We could not locate the RAND study cited in the DARPA comments. DARPA subsequently stated to us that the citation was in error and referred us to RAND April 26, 2007, testimony, "Improving the Department of Defense's Small Business Innovation Research Program," made before the House Science and Technology Committee, Subcommittee on Technology and Innovation. The RAND testimony is consistent with our report findings. The testimony concluded that:

The effectiveness of the [SBIR] program in generating technology, products, services and process that are utilized by the armed forces is less clear. As a result, the DoD may not be taking the best advantage of the research results that emerge from its SBIR program, and the small-business participants may not be getting the commercialization opportunities that would turn their innovations into sales or other sources of revenue.

• • • • •
Absent steps to increase the willingness and capability of the DoD acquisition community to participate in the SBIR program, it is unlikely that other commercialization and financing efforts will be very successful. . . . In addition, policies that require and encourage DoD's acquisition program managers to administer SBIR projects as a resource will improve the likelihood that SBIR research results will transition into technologies, products, services and processes used by the soldiers, sailors, airmen and marines of America's armed forces.

OUSD, Navy, and DARPA Comments on SBIR Phase II Contract Period of Performance and Funding

The OUSD stated that the office overseeing SBIR technology development sometimes modified the Phase II contract directly using either SBIR or non-SBIR funding and that non-SBIR funds were sometimes obtained through a risk-sharing arrangement with a commercial or Government partner, such as an acquisition program office, through a Phase II enhancement program. The OUSD stated that such contract modifications were normally funded to further develop and bring to maturity technologies for transition to another (non-SBIR) funding source. The OUSD considered flexible application of additional funds from both SBIR and non-SBIR funding sources through SBIR Phase II and Phase III contract vehicles as critical to program success.

The Navy stated that finding B conclusions were derived principally from a review of only 9 of 119 Navy FY 2000 SBIR awards. The Navy offered its own assessment of FY 2000 Navy SBIR Phase II projects based on a Company Commercialization Report database query. The Navy stated it made 115 FY 2000 awards, of which 89 were funded at or below the \$750,000 guideline and 26 above the guideline. The Navy stated it found a positive correlation between awards of more than \$750,000 and commercialization success, in that 48 percent of the 89 Phase II awards at or below the \$750,000 guideline received Phase III funding with an average dollar value of \$1.1 million. The Navy noted that 61 percent of the 26 Phase II awards over \$750,000 received Phase III funding at an average dollar value of \$1.4 million. The Navy also reviewed Navy Phase II projects in the Company Commercialization Report database for FYs 1999 and 2001 and stated the results were generally consistent with a pattern of increased Phase III commercialization for Phase II awards funded above the \$750,000 level. The Navy recommended that we revise finding B and associated recommendations on SBIR transition or commercialization based on the Navy assessment of the Company Commercialization Report data for the 3-year period.

DARPA did not agree with a report statement that DoD did not have a formal instruction implementing SBA policy. DARPA believed that the report made conflicting statements regarding the SBA Policy Directive providing guidelines and the lack of guidelines provided by DoD, the Air Force, and DARPA.

Our Response

Based on OUSD comments, we revised the finding B discussion to include a more detailed description of the DoD Phase II enhancement program and how the program was used in the contract actions our audit reviewed. DoD SBIR program policy limits Phase II enhancements to a 1-year extension of the existing Phase II contract, and provides matching non-SBIR funds of up to \$500,000. Our audit found no indication that treating the SBIR Phase II contract SBA guideline as a normative cap with qualified application of a 1-year Phase II enhancement program would in any way limit the effectiveness of SBIR program performance. As noted in finding B, of 34 Phase II contracts reviewed, 14 were part of the DoD Phase II enhancement program. However, 12 of the 14 enhancement program contracts exceeded DoD's own 1-year program extension limit

clearly supporting the need to stress that contracting officers adhere to SBA guidelines and period of performance limits on contract modifications for enhancements.

The FY 2000 Navy Company Commercialization Report data cited in the Navy client comments were generally consistent with FY 2000 Company Commercialization Report data the DoD SBIR Program Manager provided to us and presented in Table 3. We considered the commercialization data the DoD SBIR Program Manager provided in conjunction with our review of the 34 DoD (including 9 Navy) FY 2000 Phase II contracts. The Company Commercialization Report data are limited in that they provide insight only into the number of contracts that exceed SBA-recommended funding constraints and does not cover period of performance data. In addition, Company Commercialization Report funding data are limited because the collection of the data relies on SBIR companies to self-report and is not verifiable without specific review of Government funding and contract records. We did not verify the voluminous FY 2000 Company Commercialization Report data DoD provided, and as such limited our reliance on the data. While we agree with Navy comments that FYs 1999 and 2001 Navy Company Commercialization Report data were generally consistent with FY 2000 data, we do not believe that such unverified data would significantly alter the finding or the recommendations.

The report statement that DoD does not have a formal instruction implementing SBA policy is factually correct and agreed to in the OUSD comments. Furthermore, DARPA did not provide any example to support its contention that the report statements conflict regarding DoD implementation of the SBA guidelines.

DARPA Comments on SBIR Period of Performance Guidelines

DARPA stated that, in its 1996 instruction, the SBA Policy Directive was referenced but did not reiterate the SBA guidelines. However, DARPA stated that it will include the SBA guidelines in the next revision of the DARPA instruction planned for March 2009.

Our Response

We applaud DARPA's decision to include the SBA guidelines in the next revision of the DARPA instruction. As noted above, the 1996 DARPA instruction did not include any SBA guidelines or procedures advocating the moving of SBIR projects to and from Phase II to Phase III. The new DARPA instruction should include specific responsibilities to advocate, monitor, and support commercialization of SBIR projects meeting DoD needs.

DARPA Comments on Funding Amount Guidelines

DARPA stated that it follows SBA funding amount guidelines but makes exceptions on a case-by-case basis at the discretion of the DARPA Deputy Director. DARPA stated it reports all funding amount exceptions in its annual report to DoD. DARPA noted that it does not use SBIR funds for Phase III awards.

Navy Comments on Navy Phase II Contract Reviewed by the Audit

The Navy stated that the Navy SBIR Phase II contract (N68335-02-C-0007) cited in the report was an example of the value of the Navy SBIR approach. The Navy stated that the SBIR firm obtained \$14.9 million in non-SBIR funding on a separate Phase III contract (N68335-04-D-0018) when three Navy offices came forward with matching funds totaling \$9 million. The Navy disagreed with report language that Navy contracting officials should have determined whether transitioning this contract from a Phase II to a Phase III contract was appropriate. The Navy noted that there was no indication that such a determination was not made.

Our Response

Based on the Navy comments, we revised the report discussion regarding contract N68335-02-C-0007 to note the use of the Navy Phase II enhancement program and the issuance of concurrent Phase III contract N68335-04-D-0018 to the same SBIR contractor. We found no indication in the N68335-02-C-0007 contract file or during interviews of available program personnel to indicate whether or when Navy contracting officials determined that the project should transition from a Phase II to a Phase III contract.

Navy Comments on Phase II Enhancement Program

The Navy stated that its Phase II enhancement program is meant to incentivize or leverage the acquisition programs funds with SBIR funds to help motivate the acquisition program manager to get a Phase III contract in place for a SBIR project. The Navy stated its Phase II enhancement program provides up to \$250,000 of SBIR funding for every acquisition program that provides non-SBIR funds in Phase III. The Navy believes the program has been highly successful, but noted that at some point in a project's evolution, Phase II funding must be "turned off" and only non-SBIR Phase III funds be applied.

Our Response

Our audit did not specifically review and makes no conclusions regarding the effectiveness of the Navy Phase II enhancement program.

OUSD and DARPA Comments on DoD Data on Contract Periods of Performance

The OUSD noted that of the 550 Phase II awards derived from FY 2000 solicitations, 516 (94 percent) were within SBA guidelines at the time of award, and that 172 of these awards were eventually modified beyond SBA guidelines and were reported by DoD to SBA as required by the SBA Policy Directive. The OUSD stated that 90 of the 172 Phase II awards that extended beyond SBA guidelines did so via Phase II enhancements. The OUSD believed where Phase II non-SBIR Government funding or commercial funding was applied on a discretionary basis, the Government and the recipient firm benefited both from the performance of additional Federal research and from the increased opportunity for technology commercialization.

DARPA stated that, under the authority of the contracting officer, it extends the period of performance and funding over SBA-recommended guidelines based on the program manager's recommendation and at the discretion of the DARPA Deputy Director. DARPA noted that the practice was consistent with its business model to pursue radical innovation.

Our Response

Excessive extensions of contractual work through modifications caused SBA-recommended guidelines to be exceeded. As noted in the finding, our review of 34 DoD contracts showed that 27 contracts extended Phase II work by an average of 24 months beyond the 24-month period of performance recommended in the SBA Policy Directive. Contrary to the implication of the OUSD comment, the number of Phase II awards derived from FY 2000 solicitations that exceeded SBA period of performance guidelines cannot be determined. Rather, the above OUSD data can only provide insight into the number of contracts that exceed SBA-recommended funding constraints. Using the above OUSD numbers, at least 82 (14.9 percent) of the 550 contract actions exceeded the SBA \$750,000 Phase II award funding guideline. The 82 actions were not part of the DoD Phase II enhancement program and thus should not have received additional SBIR funding above the \$750,000 SBA guideline without written justification. In addition, OUSD FY 2000 data revealed that the Air Force exceeded the Phase II funding guidelines 39.2 percent of the time, with an average award amount of \$913,066.

Navy and DARPA Comments on SBIR Program Controls

The Navy and DARPA disagreed with report statements that SBIR program offices did not have consistent procedures in place to adequately adhere to SBA guidance on Phase II recommended periods of performance and cumulative award amounts. The Navy stated that its SBIR office had procedures on reporting and monitoring Phase II periods of performance and funding amounts and followed SBA guidance. The Navy noted that the SBIR program office and its Systems Commands have developed a "gated process" for Phase II awards that allow extensions and expansions if milestones were met, transition agreements were increased, and matching non-SBIR funds provided. The Navy believed the strategy was in accordance with 2006 GAO recommendations on DoD technology transition improvement. The Navy also noted that it just completed and released an 18-month study of Navy SBIR Best Transition Practices that includes the "gated process" Phase II strategy. DARPA stated that each DoD Component makes the decision to exceed SBA recommended periods of performance and funding guidelines based on mission requirements and that implementing DoD guidance would limit DoD Component flexibility to exceed the SBA guidelines when appropriate.

Our Response

Based on the Navy comments, we modified the report to note the April 2008 Navy SBIR best practices study. The 2006 GAO recommendations and accompanying audit results do not include any reference to the SBIR program or small business research and development requirements. As such, we did not consider the GAO review and recommendations, or Navy steps taken to implement the recommendations, germane to Navy SBIR program controls. In addition, we do not consider any method, including the

“gated process” strategy as a SBIR program control adhering to SBA Phase II recommended periods of performance and cumulative award amounts if the resulting Phase II extensions, expansions, and transition agreements are outside the SBA and DoD Phase II enhancement program guidelines. As such, we do not agree with DARPA comments that DoD Components should have unlimited flexibility to exceed those same SBA guidelines.

OUSD, Navy, and DARPA Comments on Achieving SBIR Commercialization

The OUSD, the Navy, and DARPA disagreed with finding comments that SBIR projects were not progressing through the appropriate phases to achieve two of the four statutory purposes of the program. The OUSD stated that the DoD Phase II enhancement program correlates to both higher rates and levels of commercialization among recipient firms based on analyses the National Academies of Science performed and has been identified as a best practice in the Federal SBIR program. OUSD noted that over the 10-year period from 1997 to 2006, 675 Phase II enhancements generated commercialization at a 76 percent rate compared to a 45 percent rate for a broader pool of 8,657 Phase II awards that were not enhanced, and that median commercialization for awards of enhanced projects was \$815,000 compared with \$425,000 for non-enhanced projects. OUSD also noted that for Phase II awards derived from FY 2000 solicitations cited in the audit, those receiving additional funding attracted non-SBIR Government and non-Government funding at a rate of 70 percent with median reported commercialization of \$652,000 versus a rate of 54 percent with median commercialization of \$388,000 for those project awards that were not modified beyond program guidelines. The Navy stated that the Navy SBIR community experience and assessment of Company Commercialization Report data supported a conclusion opposite of that drawn by the finding and that the report recommendations should be substantially revised to reflect the Navy experience. DARPA stated that the SBIR program is not a linear process that simply progresses from Phase I to Phase II to Phase III because it is based solely on the progress of the technology. DARPA noted it is essential to sometimes extend the Phase II period of performance and increase the funding amount above the SBA guideline in order to address technical challenges and raise the level of maturity to be considered for a Phase III opportunity.

Our Response

We revised the final report to provide further discussion on the DoD Phase II enhancement program. However, our audit did not specifically review and makes no conclusions regarding the effectiveness of the program. The OUSD comments mistakenly assume that the application of the Phase II enhancement program is the most important factor for variations in performance periods and SBIR funding beyond SBA-recommended guidelines. As noted in the finding, we found that 27 of 34 Phase II contracts reviewed extended Phase II work beyond the SBA-recommended guidelines. Of those 27 contracts, 14 were not part of the Phase II enhancement program. For 13 of the 27 contracts that were part of the Phase II enhancement program, 12 contracts exceeded the enhancement program’s 1-year extension limit. Similarly, we found that 21 of 34 Phase II contracts reviewed included Phase II SBIR funds above SBA-

recommended guidelines. Of those 21 contracts, 13 either were not part of the Phase II enhancement program or implemented a Phase II enhancement that exceeded the DoD-mandated additional \$500,000 SBIR funding limit. Thus, OUSD should not use the program itself as an explanation for the unsupported extension and funding of SBIR projects beyond SBA-recommended guidelines. While, as noted throughout the report, we value and generally approve of Navy SBIR practices and the Navy SBIR community experience, we do not believe that unverified Company Commercialization Report data the Navy presented would significantly alter finding B or related recommendations. We consider the DARPA position on technology development, while having some argumentative merit, inconsistent with the existing SBA Policy Directive guidance on Phase II funding and periods of performance.

DARPA Comments on Acquisition Process

DARPA did not agree with report comments that the SBIR phases follow the DoD Defense Acquisition life cycle phases for major acquisition programs. DARPA stated that some SBIR program technologies may not follow the acquisition process and may take longer to transition or conversely could be more rapidly commercialized to the private sector and become off-the-shelf products that the Military can purchase.

Our Response

While we agree that in truly exceptional instances SBIR program technologies may not follow the acquisition process life cycle, the DARPA comment misses the point that SBIR must primarily support the DoD acquisition life-cycle process in a timely manner. The SBA Policy Directive recognizes that Phase III work can also include additional research and development. For most DoD SBIR projects, direct funding support will end and the acquisition community must pick up the Phase III funding responsibility. As noted in the report, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics April 2000 guidance advocated such rapid technology transition and acquisition community support.

DARPA Comments on Small Business Needs

DARPA did not agree with a report statement that the practice of extending the time a project remains in Phase II may cause SBIR awardees to lose opportunities for additional private sector capital funding support. DARPA stated that, in many cases, the practice of extending Phase II contracts is necessary to bring the technology to a maturity level so it can be transitioned or commercialized.

Our Response

We continue to believe that SBIR awardees could lose opportunities for additional private sector capital funding if a project remains unnecessarily in Phase II. For example, the National Academy of Sciences noted that venture capital firms normally prefer to wait until a SBIR firm's growth prospects are well advanced before committing capital, due to limited information about small firms. To receive private sector funding support small firms must cross a funding gap from early stage to later stage development.

Under Secretary of Defense for Acquisition, Technology, and Logistics Comments



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

AUG 6 2008

MEMORANDUM FOR PROGRAM DIRECTOR, ACQUISITION AND CONTRACT
MANAGEMENT

THROUGH: DIRECTOR, ACQUISITION RESOURCES AND ANALYSIS *THS*

SUBJECT: Response to DODIG Draft Report D2006-D000AB-0215.000, "Report on the
DoD Small Business Innovation Research Program"

As requested, I am providing responses to the findings and recommendations contained in the subject report, as well as selected other content. The DODIG findings, recommendation and other report content and the DoD response to each are provided below:

DODIG Finding A – Reporting SBIR Commercial Success. The Army, Navy, Air Force and DARPA used different methodologies, policies and procedures for recording and reporting SBIR projects that transition to Phase III contracts. They used different methodologies because DoD has no overall guidance for tracking and reporting SBIR awards. We believe the Navy did the best job of capturing SBIR results. However, the Army, Air Force, and DARPA may be underreporting successful SBIR projects to DoD management officials, which may lead to DoD underreporting the full breadth of success of the SBIR program to Congress. Underreported SBIR successes may affect future congressional decisions to reauthorize the Federal SBIR program beyond FY 2008. If Congress does not reauthorize the program, it will diminish the role that small businesses play in early-state research and development with DoD activities.

DoD Response: The following points in this finding should be clarified or reconsidered to ensure accuracy in intended meaning, and consistency in relation to other findings within this report:

- It is unclear what is meant by "transition to Phase III contracts." If the finding refers to Phase III DoD or federal prime contracts, then it should state this. If it refers to Phase III more broadly as a measure of SBIR commercialization, to include DoD and federal prime and subcontract activity as well as commercial sales, license or royalty revenue, capital investment, derivative sales revenue, and other forms of Phase III activity defined by statute (15 U.S.C.



638(e)(4)(C)), it should so state. We recommend changing this phase from "...transition to Phase III contracts." to "commercialize."

- The finding asserts that there are no standard methodologies, policies or procedures for recording and reporting SBIR projects that transition to Phase III contracts. The Department has a standard methodology, policy and procedure for collecting commercialization data via the SBIR Company Commercialization Report Database described on page 5 of the draft report. All types of Phase III activities, including revenue derived from federal prime contracts, are recorded in this database by participating firms, the only parties with awareness of all Phase III activity. There are strong incentives for participating firms to report this data. Firms are required to update this data at least annually while under contract and when submitting SBIR proposals, and are requested to do so for a period of five years after Phase II contract completion. The DoD comprehensively reviews the database annually to identify and resolve many type of reporting errors. The data is used to assess the commercialization success of firms, and this assessment contributes to evaluation ratings in source selection. This data is not yet reported to the Small Business Administration (SBA), and subsequently to Congress, because the SBA has not yet requested the data, and the SBA database (TechNet-Government) does not have the ability to accept the data. When the capability is in place and the data is requested, the Department is poised to support that effort. However, one significant challenge at that point will be defining how the data is to be kept current—either directly, by the participating firms, or indirectly, by awarding agencies.

The DoDIG report cites DoD officials on page 5 as saying the DoD Company Commercialization Database captures "70 to 80 percent of all firms doing business with the federal government..." and "...38 percent of the Phase II non-defense actions." This statement should indicate that the 37% of Phase II entries in the DoD Company Commercialization Database efforts are funded by non-defense agencies, such as NASA, the Department of Energy or National Science Foundation and thus captures 70-80% of SBIR activity outside of DoD, observing that DoD represents over 50% of the federal SBIR budget. The citation can be found on page 57 of The National Academies 2007 publication "SBIR and the Phase III Challenge of Commercialization." The implication here is that through capture of commercialization derived from a vast majority of DoD-funded SBIR contracts, and a significant majority of non-DoD SBIR contracts, the DoD Company Commercialization Report Database is a fair approximation of what TechNet – Government might eventually be.

- The finding asserts that the DoD has no overall guidance for tracking and reporting SBIR awards. This needs to be clarified to eliminate ambiguity and possible misinterpretation. The DoD has processes and procedures to methodically collect SBIR Phase I and Phase II award information from all participating components on a quarterly basis and makes this data available to the public in a database on the SBIR program website. Awards are tracked and reported to comply with the SBA SBIR Program Directive, and are reported to the SBA annually. We recommend this sentence be removed.
- The finding states that the Navy is doing the best job of capturing SBIR results. This should be refined to clarify what is meant by “results.” To be more accurate as written, we recommend this statement be modified to state that FPDS-NG and its predecessor DoD prime contract database indicate that the Navy has awarded the most “SBIR Phase III-coded prime contracts.” These contracts are only one form of Phase III activity. However important, this type of activity represents only one among many commercialization pathways for SBIR-funded innovation. It inherently reflects one business model—direct development and sale of a product to the government through a dedicated contract vehicle—and also favors certain technologies suitable to such a path. Further, a more complete discussion of program results should address not just commercialization activity, but also the quality and character of SBIR-funded research and development itself and the extent to which it addresses federal R&D needs.
- We recommend removing the statements referring to underreporting of SBIR successes and its potential impact on program reauthorization. As stated above, there is currently no systematic collection of SBIR commercialization by the SBA or subsequent reporting to Congress. The Department uses SBIR Company Commercialization Report data and other program data to support discussions with Congress about the SBIR program.

DODIG Recommendation A: We recommend that the Under Secretary of Defense for Acquisition, Technology & Logistics issue a DoD Instruction to:

1. Mandate adherence to a consistent methodology, similar to the Navy’s current practice, for identifying and reporting on Small Business Innovation Research project transitioning to Phase III commercialization.

DoD Response: Partially concur. As discussed above, SBIR Phase III federal prime contracts are only one type of Phase III activity or commercialization. The Navy has historically awarded the greatest number of these coded contracts with the greatest total award value, as noted in the report. This is noteworthy because it reflects a strong institutional commitment to utilizing SBIR directly as a source of

innovation to address Navy technology needs. Additionally, other DoD Components have used Navy Phase III contracts, particularly Indefinite Delivery/Indefinite Quantity (ID/IQ) vehicles, to continue technology development with firms they have funded in prior SBIR phases.

However, since it is important to account for all forms of commercialization, recognizing that different technologies take different paths to the marketplace, the SBIR Company Commercialization Database is the better source of data to systematically identify and track SBIR commercialization. The Department has been collecting and using this data in source selection and program evaluation since 2000 when the database was established. The commercialization data collection requirement has been a part of all program solicitations since that time.

We have initially developed a DoD Directive governing the SBIR Program and plan to advance it through the coordination and approval process to issue by December 2009. The directive will address, as appropriate, both direct federal Phase III contracts as an available tool to advance SBIR technologies without further competition, and describe the purpose and use of the SBIR Company Commercialization Report Database. Changes to both acquisition and procurement regulations as well as educational materials for use at the Defense Acquisition University are also being considered to address this challenge by providing clearer guidance to the acquisition and contracting communities.

- A-2. Establish a consistent process for Military Departments to provide supplemental funding for the administration of the Small Business Innovation Research Program.

DoD Response: Partially concur. The Department requested authority to use up to 3% of the SBIR set-aside budget to fund administrative expenses through the Administration's draft National Defense Authorization Act for Fiscal Year 2008, submitted to Congress in February 2007. This would provide a uniform mechanism to provide each component with funds proportional to the size of each program to fund key functions such as contracting, technical oversight and commercialization support. Absent this authority, we plan to include in the DoD Directive in development the requirement for participating components to provide sufficient funding to effectively administer the program. However, we do not plan to mandate a methodology, such as an additional assessment above the SBIR assessment, or an independently programmed funding line. It will be left to each component to determine the most appropriate approach.

- A-3. Formally establish Small Business Innovation Research acquisition internal champions within acquisition program offices to generate topics, act as source

selection proponents, and act as liaisons between laboratories and the acquisition community.

DoD Response: Concur. The requirement for acquisition liaisons dates back to an Under Secretary of Defense (Acquisition, Technology & Logistics) policy memorandum dated 10 August 1999. Specifically, this policy requires that each Acquisition Category 1 and 2 program designate SBIR liaisons, which the DoD SBIR Program posts on the program web site. This policy will be restated in the forthcoming SBIR Program Directive we anticipate issuing by December 2009. We also plan to highlight this as a best practice in the Defense Acquisition Guidebook.

- A.4. Require Small Business Innovation Research contracting personnel to record Phase III contracting actions in the DoD and Federal procurement databases in accordance with Defense Federal Acquisition Regulation Supplement 204.670, "Contract Action Reporting Requirements," and provide summary reports of such Phase III contracting actions to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics.

DoD Response: Concur. We concur that contracting personnel should properly code contracts as SBIR Phase III when the work performed under such contracts substantively derives from, extends, or logically concludes work begun under a prior SBIR effort. FPDS-NG currently allows contracting officials to identify prime contracts as SBIR Phase I, Phase II or Phase III. These codes are not currently required in the completion of a contract entry. Therefore, there may be some underreporting even if there is awareness that the work reported is SBIR-related. We plan to advance a proposal to make this a required field in FPDS-NG. Phase III contract actions and other SBIR contract activity employing non-SBIR funding, to include Phase II extensions and enhancements, will continue to be a part of annual program data collection.

DODIG Finding B – SBIR Phase II Contract Management. Of the 34 DoD contracts (valued at \$40.8 million) we reviewed, 27 contracts (valued at \$35.2 million) extended Phase II work by an average of 24 months beyond the 24-month period of performance recommended in the SBA Policy Directive. Additionally, 21 of the 34 contracts exceeded recommended funding by a total of \$16.4 million. These extensions occurred because the DoD did not have a formal instruction implementing the SBA Policy Directive and Army, Navy, Air Force, and DARPA SBIR program offices did not consistently follow SBA procedures regulating SBIR periods of performance and award amounts. As a result, SBIR projects are not progressing through appropriate phases to achieve two of the four statutory goals of the SBIR program: increasing commercialization through Phase III awards and meeting DoD needs with small business contracting. In particular,

small businesses may have lost opportunities for larger DoD acquisition community Phase III awards or private sector funding to advance successful technologies toward commercialization.

DoD Response: This finding requires clarification and draws misleading conclusions. Based on the contracts examined by the DoDIG, the finding makes it appear that DoD components routinely ignore the current statutory award guidelines for SBIR Phase II. This is not correct; all awards are in compliance with statute and the SBA Policy Directive and DoD's standard procedure is to award contracts within statutory guidelines. Awards above the standard guidelines are permitted by the SBA's SBIR Policy Directive, Section (7)(h) and the Department reports all such situations to the SBA consistent with the Directive. In the small sample of Phase II contracts assessed by the DoDIG, those derived from solicitations conducted in fiscal year 2000, a total of 550 Phase II awards were made by the four DoD components examined. 516 of these awards (94%) were within standard guidelines at the time of award; 172 of these awards (31%) were eventually modified beyond standard program award guidelines and reported to SBA as required by the Policy Directive.

Such contract modifications are normally performed to fund further development, test and demonstration of technologies, ultimately to bring them to a maturity level suitable for transition to another funding source. Sometimes this is performed directly by the office overseeing the SBIR technology development using SBIR or non-SBIR government funding. But often this is executed in a risk-sharing arrangement with a commercial or government partner, such as an acquisition program office, through Phase II "Enhancements." This Phase II Enhancement Program, a DoD initiative identified by the National Academies of Science as a best practice in the federal SBIR program, correlates to both higher rates and levels of commercialization among recipient firms, based on National Academies and DoD analysis. In the small sample of Army, Navy, Air Force and DARPA Phase II contracts audited (referenced in Table 3 on page 15 of the report), 90 of 172 Phase II awards (52%) that eventually went beyond SBA guidelines did so via such enhancements. In these cases, and in other cases in which additional set-aside funding and/or other government funding was applied on a discretionary basis, the government and the recipient firm benefited both through the performance of additional federal research and development and the increased opportunity for technology commercialization.

It therefore does not follow that projects are not progressing through the appropriate phases to achieve program research, development and commercialization goals, as stated in the finding. On the contrary, again looking at only this set of Phase II awards derived from FY2000 solicitations cited in the audit, those that received additional funding attracted additional non-SBIR

government and non-government funding at rate of 70% with median reported commercialization of \$652,000 versus a rate of 54% with median commercialization of \$388,000 for those project awards that were not modified beyond program guidelines. Looking at a broader set of Phase II Enhancement activity over a ten year period, 1997-2006, 675 Phase II Enhancements generated commercialization at a 76% rate, compared a 45% rate for the broader pool of 8,657 Phase II awards that were not enhanced. Further, median commercialization for awards receiving any commercialization was \$815,000 for enhanced projects compared to \$425,000 for non-enhanced projects. We consider this strong evidence that flexible application of additional funds from both SBIR and non-SBIR funding sources through SBIR Phase II and Phase III vehicles as permitted by SBA policy is critical to the success of the program.

DODIG Recommendation B1: We recommend that the Under Secretary of Defense for Acquisition, Technology, and Logistics include within the instruction as recommended in Finding A:

- a. Limit the length and cumulative award amounts of Phase II contracts to 24 months and \$750,000, respectively, to comply with the intent of the Small Business Administration's "Small Business Innovation Research Program Policy Directive," September 24, 2002, unless the DoD Component Small Business Innovation Research program manager approves a 1-year extension, obligated with Small Business Innovation Research funds.

DoD Response: Nonconcur. We believe that treating the SBIR Phase II contract guideline as a cap will dramatically limit the effectiveness of the program and inhibit performance relative to primary program objectives. Further, restricting DoD component and sub-component funding allocation and contracting officer flexibility relative to how non-SBIR funds are employed could also limit program performance. Such limitations are not in consonance with the intent of the SBIR program. The DoD works closely with the SBA and reports all awards in excess of prescribed guidelines to the SBA consistent with the Policy Directive. The existence of this reporting requirement within the policy and the fact that the SBA has never objected to the reported deviations are clear indications of the intended flexibility of the policy.

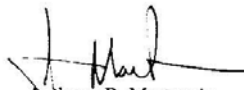
If this recommendation must be retained in some form, we recommend rewording it to remove specific reference to "24 months" and "\$750,000" as guidelines since at least one of these is very likely to change via either Congressional reauthorization or current efforts of the SBA. We also suggest modifying it to allow deployment of SBIR resources responsive to technology demands and opportunities, which requires removal of restriction to a one-year extension. The SBA SBIR Program Directive explicitly permits awarding

agencies in Section 7(h)(2) to exceed award values where appropriate for a particular project. Base awards should not be restricted to guideline levels nor should modified awards. We plan to incorporate guidance into the forthcoming DoD directive governing the SBIR Program indicating that the program award guidelines establish normative behavior but program flexibility enables deviation from these guidelines, with strict annual reporting requirements described in the program directive.

- b. Require that any additional non-Small Business Innovation Research funded work, not applicable to a Phase II base contract under Small Business Administration policy guidelines, not be funded as part of the Phase II contract. Once the concept is proven, the Acquisition community should pursue sponsorship through Phase III contracts.

DoD Response: Nonconcur. We agree that modification of existing contracts should fund technology development and demonstration consistent with the scope of the base contract and believe that current contracting practices generally provide this type of scrutiny. This recommendation again seems to imply that Phase III is only pursued via direct government contracts funded by acquisition activities. While important, this reflects only one form of commercialization and one particular path to market with one particular funding sponsor for SBIR-funded innovations. Further, it makes the erroneous assumption that technologies are always ready for direct acquisition office sponsorship at the end of Phase II, which is typically not the case. Attempting to force technology development and maturation in the suggested manner would thwart technology transition and increase costs. We agree that application of non-SBIR government via Phase III contracts can provide better visibility of Phase III activity. However, it can also impose additional administrative burden on heavily taxed contracting offices and may require unnatural division of work to accommodate separate contracting vehicles. While we plan to identify use of this approach as a best practice, when appropriate, to both track program activity and encourage the direct uptake of SBIR technology, we do not support making it a requirement.

Thank you for your efforts and for the opportunity to address the findings and recommendations in this report. My point of contact, Mr. Michael Caccuitto, can be reached at 703-604-0157, x146 or michael.caccuitto@osd.mil if you have any questions regarding this response.



Anthony R. Martoccia
Director, Office of Small Business Programs

Department of the Navy Comments



THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

AUG 19 2008

MEMORANDUM FOR PROGRAM DIRECTOR ACQUISITION AND CONTRACT MANAGEMENT, DODIG

SUBJECT: Draft Inspector General Report on the DoD Small Business Innovation
Research Program (Project No. D2006-D000AB-0215.000)

The Navy has reviewed the Draft Report and is providing the attached comments for your consideration. While we appreciate its praise of the Navy Small Business Innovation Research (SBIR) Program and concur with many of the recommendations, we believe that there are some areas where our actual performance was misstated. For that reason, we are providing amplifying information which we believe will serve to clarify some of the areas where we believe confusion remains.

Additionally, the Department of the Navy responses to Recommendations B.1.a, B.1.b, and B.2 are included in the attachment.

The attached Navy response reflects our years of successful experience with this Program. Mr. John R. Williams, the Navy SBIR Director, should be contacted at (703)696-0342 or john.williams6@navy.mil to address specific questions or issues with this matter.

A handwritten signature in blue ink, appearing to read "SJS", is positioned above the name Sean J. Stackley.

Sean J. Stackley

Attachments
As stated

**Department of the Navy Response
to
OIG Draft Report of June 27, 2008
On
DoD Small Business Innovation Research Program
Project No. D2006-D000AB-0215.000**

The Navy strongly non-concurs with Recommendation B.1.a which recommends limiting the length and cumulative award amounts of Phase II contracts to 24 months and \$750,000 respectively unless the DoD Component Small Business Innovation Research program manager approved a 1-year extension obligated with SBIR funds. The Navy has seen over and over again the importance of SBIR program flexibility to provide contract extensions with SBIR and/or non-SBIR funds, to keep the technology moving forward in support of the commercialization goal. The Navy is a strong supporter of gated Phase II awards, only allowing for extensions and expansions if milestones are met, transition agreements are increased, and matching non-SBIR funds provided. This strategy accords with the GAO-06-833 recommendation to Congress on DoD technology transition improvement. In most cases, the Navy's main reason for extending a contract is to increase the probability of maturing the technology so that it will commercialize and mobilize necessary transition resources from all non-SBIR funding sources. These actions are usually taken to increase success in meeting both the SBIR commercialization and contracting goals. Therefore, the Navy intends to continue to hold their Program Managers accountable for the successful performance of their programs and as such, expects them to make decisions which further the Navy's interests, the SBIR program included. To place arbitrary limits on this type of research, either with funding or time limitations, may limit the effectiveness of this proven program and not be in the Government's best interest. The Navy recommends that this recommendation be stricken from the report.

The Navy concurs with Recommendation B.1.b which recommends that any additional non-SBIR funded work, not applicable to a Phase II basic contract, not be funded as part of the Phase II contract.

The Navy concurs with Recommendation B.2 that ASN(RDA) establish controls to monitor compliance with standards for periods of performance and cumulative award amounts in SECNAVINST 4380.7B, "Implementation of the Department of the Navy (DON) Small Business Innovation Research (SBIR) Program."

Attachment (1)

FURTHER COMMENTS FOR YOUR CONSIDERATION

The **Background** paragraph (page i) indicates, "Our audit included 34 contracts with a total value of \$40.8M." but does not detail how the audit data was selected. Recommend clarifying information be added that discusses the method used for selection. From our meeting with the IG, we learned that the selection of contracts was based upon the quantity of modifications which had been executed. While we disagree with the method of selection of the contracts used for the sample (as it may give the reader a false sense of the state of the environment), we believe that, at a minimum, the Summary should advise the reader that the data used to derive the conclusions in this report is not statistically relevant.

The **Results** paragraph (page ii,) provides that 27 of the 34 contracts reviewed extended the Phase II work by an average of 24 months beyond the 24-month period of performance. It goes on to indicate that, "21 of the 34 contract exceeded recommended funding by a total of \$16.4 million. As a result, SBIR projects are not progressing through appropriate phases to achieve two of the four statutory goals of the SBIR program..." The report does little to provide the reader an understanding that when the selection criteria includes the contracts with the most modifications, the chances that the quantity of contracts which appear to exceed both funding and the recommended 24-month period of performance is increased.

The **Background** paragraph (page 1) indicates, "The purpose of the DoD SBIR program is to develop the innovative talents of small technology companies for US military and economic strength by funding *early-stage* (emphasis added) research and development." The Navy operates in accordance with 15 USC 638 and the SBA's *Final Policy Directive* to use the SBIR program to fund innovative solutions to address our military needs. These needs include early stage to later stage research and development. Solely focusing on early stage research would negate the support we received from many military acquisition programs and thus be counter to the report's recognition of the importance of strong acquisition support to effect a successful Phase III program. Therefore, we recommend that the term "early stage" be stricken from report.

Under the Military Department Generated Supplemental SBIR Program Funding (page 10), the Navy strongly agrees that DoD should be allowed to use some of the SBIR set-aside for the management of the program, especially in the area of increasing involvement by and transition into our acquisition offices. DoD has requested that 3 percent of the 2.5 percent set aside be used for management of the SBIR program through a Congressional Change Request in 2006. The Navy believes that no other single change to the program would have a more direct benefit especially if those funds were targeted towards commercialization activities.

Executive Summary of the draft report replaced with Results in Brief in the Final Report. Sentence in question moved to page 29.

Information on page 16

This report fails to acknowledge that more than 70 percent of administrative funds currently collected by the Navy are required due to the Navy Working Capital Fund system; per this system, the Navy must use 6.1 to 6.5 lines of accounting to fund employees at our Laboratories and Centers. Other services' Laboratories and Centers are funded through their 6.6 accounts, but only Navy Headquarters Command personnel are funded that way in the Navy. Since much of the personnel supporting technical oversight and contract awards reside at these Laboratories and Centers, the majority of our assessed funds go to pay for what the other services fund with their overhead accounts. We have had to take this additional assessment. The Navy does use about 10 percent of our administrative funds to pay for the Transition Assistance Program, which, as we have demonstrated elsewhere, increases Phase III awards. But the Navy Working Capital system will always require substantially higher administrative funding than other services to produce the same benefit. Recommend that text be added that discusses the DoD Congressional request for SBIR administrative funding and the Navy Working Capital Fund system, stating that more than 70 percent Navy administrative funds goes towards costs that other services fund using their 6.6 lines.

Section B. SBIR Phase II Contract Management

On page 13 under SBIR Phase II Contract Management, the report alleges that DoD SBIR program offices "...did not consistently follow the SBA procedures regulating SBIR periods of performance and award amounts." Further, it indicates that, "As a result, SBIR projects are not progressing through appropriate phases to achieve two of the four statutory goals of the SBIR program: increasing commercialization through Phase III awards and meeting DoD needs with small business contracting. In particular, small businesses may have lost opportunities for larger DoD acquisition community Phase III awards or private sector funding to advance successful technologies toward commercialization." There is no regulation limiting the term of a Phase II SBIR contract to 24-months or the ceiling to \$750,000. SBA provides general terms and procedures to follow when deviating from their general guidelines. The Navy holds their Program Managers accountable for the successful performance of their programs and as such, expects them to make decisions which further the Navy's interests, the SBIR program included. To place arbitrary limits on this type of research, either with funding or time limitations, may limit the effectiveness of this proven program and not be in the Government's best interest. Recommend that this language be removed from the draft report.

SBIR Phase II Contract Period of Performance and Funding

In Table 3. - FY2000 DoD SBIR Phase II Contract Awards Summary under the Section entitled "**SBIR Phase II Contract Period of Performance and Funding**" (page 15), it appears that the findings and recommendations are derived principally from a review of only nine Navy SBIR awards of 119, with a focus on just one of the nine. Recommend that findings and recommendations on the critical subject of SBIR transition/commercialization be based on a thorough assessment of annual awards data to

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Page 18

include CCR data on commercialization and that this assessment cover a minimum period of three years to account for any potential anomalies.

Additionally, with respect to the FY2000 Navy SBIR Phase II projects cited in the draft report, we queried the database so as to better understand your findings regarding the contract awards summary (Attachment 2). From the FY2000 solicitation, we made 115 awards, of which 89 were funded at or below the \$750,000 guideline and 26 above that guideline. We then pulled commercialization data for these Phase II's through CCR database. Our findings strongly suggest a dominant, positive correlation between awards more than \$750,000 and commercialization success as follows:

- 48 percent of the 89 Phase II's at or below \$750,000 obtained non SBIR funds. For those that did receive funding the average dollar value of the Phase III funding was \$1,123,719.
- 61 percent of the 26 Phase II's over \$750,000 received phase III funding (a 27 percent increase) with an average dollar value of \$1,472,066 (a 31 percent increase).

To test these results, we queried the databases for FY1999 and 2001, on either side of the FY2000 target year. The results of the FY1999 and 2001 queries were, in fact, generally consistent with our FY2000 assessment and with our observed pattern of increased commercialization (Phase III) results for those Phase II's above the \$750,000 level.

■ From the FY1999 Solicitation Navy awarded 161 Phase II's, 102 were at or below \$750,000 and 59 above.

- 58 percent of the 102 Phase II's at or below \$750,000 obtained non-SBIR funding with an average phase III non-SBIR funding level of \$1,353,901.
- 85 percent of the 59 Phase II's above \$750,000 obtained non-SBIR funding (a 47% increase) with an average Phase III dollar value of \$4,704,415 (a 248 percent increase).

■ From the FY2001 Solicitation Navy awarded 196 Phase II's, 136 were at or below \$750,000 and 60 above.

- 52 percent of the 136 Phase II's at or below \$750,000 obtained non-SBIR funds. For those that did receive funding the average dollar value of the Phase III funding was \$902,192.

Attachment 2 not
included due to size

- 62 percent of the 60 Phase II's over \$750,000 obtained non-SBIR funding (a 19% increase) with an average dollar value of the Phase III funding at \$1,457,907 (a 61 percent increase).

Therefore, all of these findings and scenarios regarding FY1999-2001 Navy SBIR Phase II projects strongly suggest a positive correlation between awards more than \$750,000 and commercialization success.

Recommend that all of the above data and evaluative text be included in the report, and serve as the basis for completely revised Section 2 recommendations.

In the one specific Navy SBIR example cited in the draft report, the firm has obtained over \$14.9M in Phase III funding to date on a separate Phase III contract (N68335-04-D-0018). As part of the Navy Enhancement program, we provide up to \$250,000 of SBIR funding for every acquisition program that provided non-SBIR funds to the Phase III. In this case, three offices came forward with matching funds totaling \$9M. The amount of Phase III funds this contract received is higher than average. The Phase II Enhancement program is meant to incentivize or leverage the acquisition programs funds with SBIR funds to help motivate the acquisition program manager to get a phase III contract in place for an SBIR project. It has been a highly successful program for the Navy, and while I agree that some point in a project's evolution we need to turn Phase II off and only let Phase III funds be applied, this specific example illustrates the value of the Navy SBIR approach described above.

The report (page 16, Navy) indicated that the "Navy contracting officials should have determined whether transitioning this contract from a Phase II to a Phase III contract was appropriate." There is no indication that such a determination was not made; therefore, recommend that this language be updated to reflect this.

Statement deleted
from Report

Under **SBIR Program Controls** (page 17), the Navy SBIR Program has consistent procedures and follows SBA guidance which allows for increased funding levels and time periods. The Navy, through considerable and lengthy iteration with the Systems Commands (SYSCOMs), has developed a "gated process" Phase II strategy for maturing technologies which we believe will improve commercialization. This gated strategy has been strongly recommended in GAO-06-833, a report to Congress on DoD technology transition improvement. The Navy contends it has proper guidance in place on reporting and monitoring Phase II period of performance and funding amounts. Additionally, the Navy SBIR Program has just completed and released to the Navy, DoD and the public an 18-month study of *Navy SBIR Best Transition Practices*, which includes an entire section on our "gated process" Phase II strategy of maturing technologies to help ensure commercialization. The SYSCOMs collaborated significantly, further ensuring that

Page 21

guidance on this issue is shared in the Navy SBIR community. Therefore, we recommend that the Navy be removed from this paragraph.

Finally, under **Achieving SBIR Commercialization** (page 19), the Navy SBIR community's experience as well as the SBIR awards data with CCR commercialization data does not support your finding that "SBIR projects were not progressing through appropriate phases to achieve two of the four statutory purposes of the SBIR program: increasing commercialization through Phase III awards and meeting DoD needs with small business contracting. In particular, small businesses may have lost opportunities for either larger DoD acquisition community Phase III contracting." In fact, the Navy SBIR experience and assessment of the best available data support the opposite conclusion. Therefore, we recommend that the draft report recommendations be substantially revised to reflect this experience.

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Defense Advanced Research Projects Agency Comments



DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
3701 NORTH FAIRFAX DRIVE
ARLINGTON, VA 22203-1714

JUL 23 2008

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL

SUBJECT: Report on the DoD Small Business Innovation Research Program
(Project No. D2006-D000AB-0215.000)

I appreciate the opportunity to respond to your draft proposed report on the DoD Small Business Innovation Research (SBIR) Program. The program plays an important role in the accomplishment of the Defense Advanced Research Projects Agency's (DARPA) mission to identify and fund promising, advanced technologies requiring high-risk, high-payoff efforts to bridge the gap between concept and reality.

DARPA's response to the proposed report (attached) should assist in your understanding of our implementation of this vital program within our business model. My point of contact for this project is Ms. Susan Nichols (Susan.Nichols@darpa.mil, 571-218-4922).


Anthony J. Tether
Director

Attachment:
As stated

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
Response to DRAFT of PROPOSED REPORT
DoDIG Project No. D2006-D000AB-0215.000

EXECUTIVE SUMMARY

Responses indicating concurrence or non-concurrence to each applicable finding and recommendation including actions taken, target dates for planned actions or proposed alternative actions follow this Executive Summary.

As stated in its strategic plan, DARPA searches for radical, innovative, high-risk approaches to address existing and emerging national security threats; thereby supporting its overall strategy to bridge the gap between fundamental discoveries and the provision of new military capabilities.

DARPA's research and development (R&D) business model, which includes the SBIR Program, is executed in a manner consistent with its strategic plan. Since DARPA does not have any laboratories or facilities and is not an acquisition agency, promising SBIR Phase II projects are transferred to one or more of the Military Departments for further development and Phase III transition to a Program of Record or commercialization in the private sector as appropriate. Promising SBIR Phase II projects may also be transferred to another Federal agency as appropriate. SBIR projects that do not show promising results are discontinued.

DARPA's R&D business model is consistent with its unique mission and does not violate any of the laws or regulations governing the program, (e.g. 15 USC 638 Section 14, Small Business Administration Policy Directive). DARPA recognizes that its formal policies regarding small business need to be updated to reflect the changing dynamics of the small business R&D environment.

DARPA COMMENTS TO DoDIG DRAFT REPORT

OBJECTIVES (pg. 2)

Original DoDIG Announcement memo stated that, “The overall audit objective will be to determine whether DoD is effectively managing the Small Business Innovation Research (SBIR) Program. Specifically, the audit will determine whether the Defense agencies and Military Departments are effectively using the SBIR Program for research and development projects that meet DoD requirements and whether the projects developed for the SBIR Program result in products for commercial or military markets.”

Page 1

DARPA COMMENT: The report focuses entirely on tracking and reporting commercialization success, which could be included, in part, as a determination of “whether the projects developed for the SBIR Program result in products for commercial or military markets”; however, the report does not address whether or not DoD is effectively managing the program overall or if the agencies are effectively using the program to meet DoD’s R&D needs.

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REVIEW OF INTERNAL CONTROLS (pg. 2)

DARPA non-concurs with the finding that there is an internal control weakness with regard to managing Phase II contracts according to the SBA Federal guidelines on period of performance and cumulative funding amounts.

Basis for non-concurrence: The SBA SBIR Policy Directive, page 20, states that, “...agencies may provide a longer performance period where appropriate for a particular project.” and “An awarding agency may exceed those award values where appropriate for a particular project.” The same page also states that, “SBA may adjust these amounts once every 5 years to reflect economic adjustments and programmatic considerations.” SBA has not adjusted these thresholds since 1993, which further supports the need for an agency to use its discretion to provide additional SBIR funds to the effort. DARPA includes in its annual report to DoD each occurrence of exceeding the SBA Policy Directive guidelines as required. Additional internal controls are in place through the FAR/DFAR and DoD Financial Management Regulation. Establishing inflexible performance periods and hard funding ceilings over what is already allowable does not make sense for Research and Development programs and will diminish DARPA’s ability to further mature SBIR developed technology for transfer to one or more of the Military Departments or another Federal agency.

A. REPORTING SBIR COMMERCIAL SUCCESS (pg. 4)

DARPA non-concurs with the finding that there is no DoD guidance for tracking and reporting SBIR awards. While this is a true statement, there is no evidence in this report or any other study that such guidance would solve the inconsistencies encountered in tracking Phase III success.

Page 3

Basis for non-concurrence:

- Based on the language in the Policy Directive (page 3, paragraph (iii) and page 5, paragraph (e)), it could be argued that SBA is responsible for collecting Phase III information and reporting it to Congress.
- The SBA Policy Directive states that Phase III is funded by sources other than the SBIR Program (page 11), which may or may not come from an agency's core mission. Contracts awarded using non-SBIR funds outside of the originating agency may not be properly identified as a SBIR Phase III.
- A company does not have to be small in order to receive a Phase III award (page 12), therefore, those awards may not be reported.
- The overall guidance for reporting and tracking SBIR awards, including Phase III, is communicated to the DoD components through the annual report preparation instructions in accordance with SBA requirements.
- The lack of overarching DoD guidance for reporting Phase III could result in over reporting as well as under reporting of Phase III successes.
- Neither the SBA Policy Directive, nor the statute advises how Phase III should be recognized, recorded and reported.
- Reporting instructions should be specific. Consistency in data reporting will result in a more accurate reflection of the SBIR environment.

SBIR COMMERCIALIZATION GUIDANCE (pg 4)

SBIR TRACKING IN DOD AND FEDERAL PROCUREMENT DATABASES (pg. 5)

DARPA non-concurs with the finding that DoD did not fully use either the DoD Contracting Action Database (DD 350 Database) or the Federal Procurement Data System – Next Generation (FPDS-NG).

Basis for non-concurrence:

- While the statements in this paragraph are correct with regard to what the regulations require, enforcement of these regulations is outside of the purview of the component SBIR offices and should be pursued through the Office of Defense Procurement, Acquisition Policy and Strategic Sourcing.
- The DD 350 database was not consistently used across DoD with regard to identification of SBIR Phase I, II, and III contracts, therefore, utilization of this database alone would not have provided better data for tracking and reporting SBIR contracts.
- The new contracting database, FPDS-NG, no longer requires contracting offices to provide the same level of detail for small business contract awards, e.g. SBIR Phase I, II, and III, which will increase the difficulty in identifying SBIR Phase III contracts.
- FPDS-NG does not capture investment of non-SBIR dollars from non-government sources.

DoD SBIR GUIDANCE (pg. 6)

DARPA non-concurs with the translation of its statement in this section of the report. The following paragraph should be used to more accurately reflect DARPA's business practice.

DARPA uses a variety of contracting agents, primarily the US Army to award SBIR efforts. Depending on the scope of work, the contracting agent may decide to award a SBIR Phase III contract when additional non-SBIR investment is made to the effort. Promising SBIR Phase II projects are transferred to one or more of the Military Departments for further development and Phase III transition to a Program of Record or commercialization in the private sector as appropriate. Promising SBIR Phase II projects may also be transferred to another Federal agency as appropriate. SBIR projects that do not show promising results are discontinued. Based on this business model, DARPA saw no need to include guidance for Phase III in the DARPA Instruction.

PLANNED ACTION: DARPA plans to add a Phase III section to the DARPA Instruction outlining the Program Managers' responsibilities for facilitating Phase III opportunities and a plan for tracking SBIR transfers to the Military Departments and/or other Federal Agencies. The goal for publishing an updated DARPA Instruction is 1 October 2008.

SBIR PHASE III COMMERCIALIZATION TRACKING AND REPORTING (pg. 7)

DARPA non-concurs with the finding that it did not self-report all Phase III commercial successes.

Basis for non-concurrence: As follows, in addition to reasons previously stated in the SBIR TRACKING IN DOD AND FEDERAL PROCUREMENT DATABASES section.

- There is no requirement for the DoD Components to individually self-report Phase III commercial successes. However, DARPA does publish its SBIR success stories.
- DARPA will continue to educate small companies of the importance in notifying the Contracting Officer awarding any follow-on contracts it receives whether the effort is a SBIR Phase III. This will be accomplished through outreach events and published materials.
- DARPA will discuss with its SBIR Contracting Agent what procedures are being followed for reporting Phase III awards in FPDS-NG and emphasize the importance of accurately capturing SBIR Phase III awards. The goal for conducting this discussion is 1 August 2008.

SBIR REPORTING THROUGH THE DOD PROCUREMENT DATABASES (pg. 8)

DARPA non-concurs with the finding that it did not use the DD350 database to track its SBIR program.

Basis for non-concurrence: DARPA uses a variety of contracting agents, primarily the US Army to award SBIR efforts; therefore, the responsibility to properly record small

business contract actions in the contracting database resides with the contracting agent. In addition, the SBA Policy Directive does not require data to be reported from the DD350 database. The table itself speaks loud and clear that this data is inconsistent across DoD, is unreliable and should not be used to track SBIR Phase III. The deficiency of this database needs to be corrected through the Office of Defense Procurement, Acquisition Policy and Strategic Sourcing, not through the SBIR Program.

SBIR COMMERCIALIZATION METHODS AND PRACTICES (pg. 8)

Institutional Design (pg. 9)

DARPA non-concurs with the translation of its statement in this section of the report. The following paragraph should be used to more accurately reflect DARPA's business practice.

DARPA research focuses on radical innovation that may take years to prove feasible vs. the Military Departments that focus on urgent needs and requirements. Since DARPA does not have any laboratories or facilities and is not an acquisition agency, promising SBIR Phase II projects are transferred to one or more of the Military Departments for further development and Phase III transition to a Program of Record or commercialization in the private sector as appropriate. Promising SBIR Phase II projects may also be transferred to another Federal agency as appropriate. SBIR projects that do not show promising results are discontinued.

SBIR Champions (pg. 11)

DARPA non-concurs with the translation of its statement in this section of the report. The correction to this paragraph has been highlighted.

DARPA Technical Offices seek revolutionary, high-payoff ideas for SBIR projects that bridge the gap between fundamental discoveries and the provision of new military capabilities. DARPA has transferred approximately half of its SBIR projects to programs of record for the Military Departments.

POTENTIAL UNDERREPORTING OF SBIR SUCCESSES (pg. 11)

DARPA non-concurs with the finding that the agency may be underreporting successful SBIR projects to DoD management Officials, which may lead to DoD underreporting the full breadth of success of the SBIR program to Congress.

Basis for non-concurrence: DARPA's R&D business model focuses on radical innovation, which may take many years to prove feasible. Therefore, promising SBIR Phase II projects are transferred to one or more of the Military Departments for continued development and/or private sector commercialization. Successful SBIR efforts that originated through DARPA's SBIR program will typically be captured as a Phase III success of the gaining Military Department. DARPA has begun tracking transfers of SBIR projects more closely.

Additional factors for non-concurrence:

- Inconsistent recording and reporting of SBIR successes can result in over-reporting as well as under-reporting, an aspect that was overlooked in the report.
- The fact that small businesses play a significant role in early-stage research contradicts the statement that companies are not reporting their commercialization success. Early stage research will most likely not be ready for commercialization or transition at the end of the Phase II. There is a 5-7 year lag from the time the topic is published to company sales meaning that it may take several years for a company to realize success from its SBIR efforts.

RECOMMENDATIONS (PART A) (pg. 12)

A. DARPA concurs with the general recommendation for USD, ATL to develop a DOD Instruction with input from the DoD Component SBIR Program Managers.

1. DARPA non-concurs with mandating a policy similar to the Navy's current practice for identifying and reporting SBIR projects transitioning to Phase III. The mechanism already exists within FPDS-NG to capture this information. The mandate for identifying and reporting Phase III in a consistent manner across DoD should be placed on the Office for Defense Procurement, Acquisition Policy and Strategic Sourcing not the DoD Office of Small Business Programs nor the Component SBIR Offices.

2. DARPA neither concurs nor non-concurs with establishment of a consistent process for Military Departments to provide supplemental funding for the administration of the SBIR Program. This recommendation is not applicable to DARPA.

3. DARPA neither concurs nor non-concurs with formal establishment of SBIR acquisition internal champions within acquisition offices to generate topics, act as source selection proponents, and act as liaisons between laboratories and the acquisition community. Although this recommendation is not directly applicable to DARPA, if established, DARPA will utilize the acquisition liaisons as appropriate.

4. DARPA non-concurs with the requirement for SBIR contracting personnel to record Phase III contracting actions in the DoD and Federal procurement databases in accordance with Defense Federal Acquisition Regulation Supplement 204.670, "Contract Action Reporting Requirements," and provide summary reports of such Phase III contracting actions to the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics IF the burden is placed on the DoD Component SBIR offices to ensure this requirement is carried out. The responsibility for this requirement belongs to the Office for Defense Procurement, Acquisition Policy and Strategic Sourcing not the DoD Office of Small Business Programs nor the Component SBIR Offices.

B. SBIR PHASE II CONTRACT MANAGEMENT (pg. 13)

DARPA non-concurs with the finding that DARPA did not consistently follow the SBA procedures regulating SBIR periods of performance and award amounts.

Basis for non-concurrence:

- The IG findings in this section draw exactly the opposite conclusions of a study performed by the RAND Corporation entitled, "Measuring and Improving Results from the SBIR Program: A focus on Phase III Transition." The IG report does not indicate if the results of the RAND study were used as a reference or whether or not IG Audit Team collected or compared Phase III success of SBIR projects that exceeded the guidelines to those that did not exceed the guidelines. In addition, the IG report does not cite any cases of small business opportunities that were lost due to receiving SBIR additional funding.
- DARPA does consistently follow the SBA Policy Directive guidelines and exceeds those guidelines on a case-by-case basis at the discretion of the DARPA Deputy Director.
- The amounts for SBIR awards set forth in the SBA Policy Directive are guidelines. Each component is required to include in the annual report each instance of exceeding these guidelines. In addition, the recommended period of performance is also a guideline and it is within the contracting officer's discretion whether or not it is appropriate to extend the contract. Further, adding funding to an existing Phase II and extending the period of performance is warranted under the Phase II Enhancement rules. In many cases, the practice of extending Phase II contracts is necessary to bring the technology to a maturity level so that it can be transitioned or commercialized.

SBIR PERFORMANCE PERIODS AND FUNDING (pg. 13)

DARPA non-concurs with the finding that DoD did not have a formal instruction implementing SBA Policy.

Basis for non-concurrence: The IG report makes conflicting statements in this section regarding the SBA Policy Directive providing guidelines and the lack of guidelines provided by DoD, the Air Force, and DARPA.

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SBIR PERIOD OF PERFORMANCE GUIDELINES (pg. 13)

DARPA non-concurs with the finding that DARPA did not establish policy on the duration of Phase II SBIR contracts.

Basis for non-concurrence: DARPA has published DARPA Instruction No. 35, dated August 28, 1996, Administration of the SBIR Program. DARPA references the SBA Policy Directive within the DI 35 and did not see the necessity of reiterating these guidelines. However, DARPA will include the guidelines in the next revision of the DARPA Instruction.

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DARPA PLANNED ACTION: The goal for publishing an updated DARPA Instruction is 1 October 2008.

SBIR FUNDING AMOUNT GUIDELINES (pg. 13)

DARPA's business practices support the findings in this section as follows:

- DARPA follows the funding amount guidelines provided in the SBA Policy Directive and makes exceptions that deviate from those guidelines on a case-by-case basis at the discretion of the DARPA Deputy Director.

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- DARPA reports all exceptions made to the funding amount guidelines in its annual report to DoD as required.
- DARPA does not use SBIR funds for Phase III awards.

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MODIFICATION TO SBIR PHASE II CONTRACTS (pg. 14)

DARPA's business practices support the findings in this section as follows:

- DARPA makes modifications to enhance SBIR Phase II contracts based on the recommendation from the PM and at the discretion of the DARPA Deputy Director and under the authority of the contracting officer.

SBIR PHASE II CONTRACT PERIOD OF PERFORMANCE AND FUNDING (pg. 14)

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DoD DATA ON CONTRACT PERIODS OF PERFORMANCE (pg. 14)

DARPA's data reported in this section is consistent with its business model to pursue radical innovation and is supported by the following business practice:

- DARPA extends the period of performance and funding guidelines based on the recommendation from the PM and at the discretion of the DARPA Deputy Director and under the authority of the contracting officer.

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SBIR PROGRAM CONTROLS (pg. 17)

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Defense Advanced Research Projects Agency SBIR Controls (pg. 19)

DARPA non-concurs with the finding that the SBIR program offices did not have consistent procedures regulating SBIR periods of performance and award amounts and that there is not formal guidance to address contracts exceeding SBA recommended guidelines on Phase II period of performance and funding amounts.

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Basis for non-concurrence:

- DARPA has published DARPA Instruction No. 35, dated August 28, 1996, Administration of the SBIR Program. DARPA references the SBA Policy Directive within the DI 35 and did not see the necessity of reiterating these guidelines. However, DARPA will include the guidelines in the next revision of the DARPA Instruction.
- Each component makes the decision to exceed SBA recommended periods of performance and funding guidelines based on mission requirements. Reference GAO study. Implementing guidance that will limit the components flexibility to exceed the SBA guidelines when appropriate will have a negative impact on the components ability to raise the maturity level of SBIR developed technology, thereby reducing Phase III opportunities.

ACHIEVING SBIR COMMERCIALIZATION (pg. 19)

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DARPA non-concurs with the finding that SBIR projects do not progress through appropriate phases to achieve two of the four statutory purposes of the program: increasing commercialization through Phase III awards and meeting DoD needs with small business contracting.

Basis for non-concurrence:

- The SBIR Program is not a linear process as described by the IG audit team. Projects funded through the program don't simply progress from Phase I to Phase II to Phase III because they are based solely on the progress of the technology. More often that not, it is essential to extend the period of performance and increase the funding amount above the SBA guideline for a Phase II project in order to address technical challenges and raise the level of maturity to be considered for a Phase III opportunity.

ACQUISITION PROCESS (pg. 19)

DARPA non-concurs with the finding that the SBIR program follows the DoD Defense Acquisition life cycle phases for major acquisition programs.

Basis for non-concurrence:

- The SBIR program may or may not follow the acquisition process, which is not designed to be a rapid process. If a technology does follow that path, it will most likely take longer to transition. In addition, certain technologies can be more rapidly commercialized to the private sector and become off-the-shelf products that can be purchased by the military.

SMALL BUSINESS NEEDS (pg. 19)

DARPA non-concurs with the finding that extending the time a project remains in Phase II may cause SBIR awardees to lose opportunities for additional private sector capital funding support.

Basis for non-concurrence:

- In many cases, the practice of extending Phase II contracts is necessary to bring the technology to a maturity level so that it can be transitioned or commercialized. In addition, the IG report does not cite any cases of small business opportunities that were lost due to receiving SBIR additional funding.

RECOMMENDATIONS (PART B) (pg. 19)

1. a. DARPA non-concurs with the recommendation to limit the period of performance and award amounts of Phase II contracts. Agencies should be allowed flexibility to exceed the SBA Policy Directive guidelines when appropriate. Continued reporting of instances when the guidelines are exceeded is acceptable.

b. DARPA non-concurs with the recommendation to not allow non-SBIR funding to be placed on the Phase II contract. It is within the contracting officer's discretion whether or not it is appropriate to place non-SBIR funding on a SBIR Phase II contract. Depending on the scope of work, the contracting officer may decide to award a SBIR Phase III contract when additional non-SBIR investment is made to the effort. DARPA is not an acquisition agency; therefore, promising SBIR Phase II projects are transferred to one or more of the Military Departments for further development and Phase III transition to a Program of Record or commercialization in the private sector as appropriate. Promising SBIR Phase II projects may also be transferred to another Federal agency as appropriate. SBIR projects that do not show

promising results are discontinued. Further, adding funding to an existing Phase II and extending the period of performance is warranted under the Phase II Enhancement rules. In many cases, the practice of extending Phase II contracts is necessary to bring the technology to a maturity level so that it can be transitioned or commercialized.

2. This recommendation is not applicable to DARPA.

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