

**USEFULNESS OF THE  
SMALL BUSINESS INNOVATION RESEARCH  
TECH-NET DATABASE**

*Report Number: 11-02*

*Date Issued: November 12, 2010*

**Prepared by the  
Office of Inspector General  
U. S. Small Business Administration**



U.S. Small Business Administration  
Office of Inspector General

# Memorandum

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To: Sean Greene  
Associate Administrator for Investment

Date: November 12, 2010

From: /s/ Original Signed  
Debra S. Ritt  
Assistant Inspector General for Auditing

Subject: Usefulness of the Small Business Innovation Research Tech-Net Database,  
Report No. 11-02

This report summarizes the results of our limited-scope review of the usefulness of the Small Business Administration's (SBA) Small Business Innovation Research (SBIR) Tech-Net database. The database, which is publicly available, contains data on SBIR grants and contracts. SBA plans to expand Tech-Net to include a government-use section that would capture the data on the commercialization of SBIR results needed for better evaluation of the SBIR program. A prior review by the Government Accountability Office (GAO) in 2006 and reports from various Offices of Inspectors General (OIG) have identified data gaps and weaknesses in Tech-Net that have prevented agencies participating in the SBIR program from using it to identify duplicative awards.

The purpose of the review was to assess SBA's progress in completing enhancements and expanding the Tech-Net database to allow agencies to: (1) identify duplicate awards and or other potential fraud; and (2) better evaluate the performance of the SBIR program.

To determine whether previously identified weaknesses in Tech-Net had been addressed, we reviewed prior GAO and OIG reports and testimony, and feedback from two SBIR working groups that were established to recommend database improvements. We also interviewed personnel from SBA's Office of Technology and the National Science Foundation's (NSF) Office of Inspector General (OIG). We examined Tech-Net data fields and discussed with SBA changes that had been made or were planned for the system.

To assess SBA's progress in developing the government-use portion of Tech-Net, we interviewed officials in SBA's SBIR program office and obtained relevant documents. We also reviewed the Small Business Innovation Development Act of

1982 and amendments to the Act, Federal Register publications, and SBA's Policy Directive for the SBIR program to identify database requirements, guidance provided participating agencies, and SBA program responsibilities. We conducted our review between March 2010 and August 2010, in accordance with *Government Auditing Standards* prescribed by the Comptroller General of the United States.

## **BACKGROUND**

Congress established the SBIR program in 1982 to increase the use of small businesses to meet Federal research and development needs, to foster and encourage participation by minority and disadvantaged persons in technological innovation, and to commercialize results from the research. Participating – agencies – all Federal departments or agencies with extramural research and development budgets greater than \$100 million – are required to set aside no less than 2.5 percent of their overall extramural research and development budget for SBIR awards.

Congress designated SBA as the SBIR program administrator and tasked it with developing and maintaining a publically available database of searchable up-to-date information on each SBIR award to assure qualified and interested small businesses have the opportunity to participate in the SBIR program. This public-use database, referred to as “Tech-Net,” is currently in operation and contains 58 data elements that are to be reported for each SBIR award, of which 18 are mandatory. These elements are listed in Appendix I. The data collected includes: (1) award-specific information, such as the date and amount of the award, an abstract of the project funded by the award, and a unique tracking number for each award; (2) award recipient information, such as gender and socio-economic status; and (3) information about the type of firms that received the awards, such as the number of employees and geographic location. Subsequently, the Small Business Reauthorization Act of 2000 (Act) mandated that SBA develop, by mid-2001, a more comprehensive database available only to the Federal government or other authorized persons for SBIR program evaluation purposes.

Prior reviews by GAO and agency OIGs have identified data gaps and other weaknesses with Tech-Net that have made assessment of the SBIR program a challenge and have impeded use of the data to prevent funding of identical research projects.<sup>1</sup> In 2006, GAO reported that (1) agencies did not consistently enter the data elements within Tech-Net, resulting in incomplete sections of the

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<sup>1</sup>GAO-07-38, *Small Business Innovation Research – Agencies Need to Strengthen Efforts to Improve the Completeness, Consistency of Award Data*, October 2006; Department of Energy Office of Inspector General, OAS-M-08-09, *Management Controls over Monitoring and Closeout of Small Business Innovation Research Phase II Grants*, July 2008; National Aeronautics and Space Administration Office of Inspector General, *Management Alert: Concerns Relating to NASA Small Business Innovation Research Contracts*, April 2004.

database, (2) SBA limited corrections on format errors to only key data elements, thereby limiting the quality of comprehensive program evaluations to the quality of the data within the fields, and (3) SBA was 5 years behind schedule in implementing the restricted government-use database.

Since that report, SBA has revised the way that agencies submit SBIR award information. Previously, agencies were expected to provide the data to SBA in a preselected computer language format. SBA, in turn, converted the data which often led to incomplete data entry or transfer errors that went uncorrected. Currently, participating agencies electronically transmit SBIR award data directly to Tech-Net.

In a 2009 Congressional hearing, GAO and the NSF OIG reported that the growing number of duplicate awards for the same work and duplicative deliverables was attributed to SBA's failure to provide the mandated database allowing SBIR award information to be shared between awarding agencies. To address concerns with the quality and usefulness of SBIR data and to strengthen the completeness, accuracy, and consistency of its data collection efforts, SBA established a working group of SBIR participating agencies. It also became a participant in a fraud working group, lead by the National Aeronautics and Space Administration (NASA) and NSF Offices of Inspector General. The fraud working group, which was established to identify ways to prevent fraud in the SBIR program, has recommended improvements to Tech-Net to guard against fraud, waste, and abuse.

## **RESULTS IN BRIEF**

SBA had made limited progress in enhancing Tech-Net since the 2006 GAO audit. Participating agencies were still experiencing difficulty in searching the database for duplicative awards and other indicators of fraud because information in the Tech-Net database was incomplete, and the search capabilities of the system were limited. The database did not capture all mandatory data as one field was missing from the database and two others were not designated as mandatory. Further, all awards were not captured in Tech-Net to guide funding decisions because many participating agencies did not enter SBIR data timely. Additionally, SBA had not developed the government-use component of Tech-Net to capture information on the commercialization of SBIR research and development projects. However, SBA recently allocated \$1.25 million and has begun the acquisition process to enhance and expand the Tech-Net database. While these enhancements could fulfill the statutory requirement for a government-use database and significantly improve the search features of Tech-Net, SBA will still need to take steps to ensure the completeness of award data.

To address the issues noted in our review, we recommended that the Associate Administrator for the Office of Investment: add the missing data field to Tech-Net; designate two other data fields as mandatory and inform participating agencies of these designations; add a database control that prevents participating agencies from submitting their award data when any of the mandatory data fields are left blank; and require that award information be submitted at the time of award.

Management concurred with two recommendations and is taking actions to address two other recommendations. Management also commented that it has been undertaking a comprehensive upgrade of the Tech-Net database, which will address a number of concerns raised in the audit report. Therefore, we consider management's comments to be fully responsive to all four recommendations.

## RESULTS

### **Tech-Net Has Not Been an Effective Tool for Monitoring and Preventing Duplicative Funding**

Despite database changes made by SBA since the 2006 GAO report, agencies participating in the SBIR program still find the Tech-Net database of limited usefulness as a tool for identifying duplicative funding of research projects. Specifically, Tech-Net lacks complete and up-to-date information and is difficult to search because of inconsistencies in data formats, the lack of a single identifier for companies receiving awards, and limited query and data linking capabilities.

#### *Completeness of the Database*

Participating agencies reported that Tech-Net did not contain complete information for all SBIR awards. SBA's *Small Business Innovation Research Program Policy Directive*, issued on September 24, 2002, requires that the Tech-Net database include 18 mandatory data fields for each SBIR award. Despite this requirement, the database was established without one of the mandatory fields, "Minority Code," which is needed to identify and report on the number of awards made to minority firms. Additionally, participating agencies did not always enter data in two other mandatory fields, "Principal Investigator" and "Agency Solicitation Topic Code," which are key fields used for identifying duplicate awards. This occurred because while these two fields are required by the policy directive, they are not designated as mandatory in the Tech-Net database structure and no controls exist in Tech-Net to prevent agency submissions when mandatory fields have not been completed.

In addition to the mandatory fields, SBA has identified 40 other items of information that agencies should report on. These items, which are identified in Appendix I, include information that would be useful in identifying duplicative

awards, such as the contact official for the recipient company. However, because this information is not mandatory, it is not reported by all agencies. The working groups believe that this information would assist in their efforts to identify research proposals that duplicate existing awards, and therefore, should be designated as required.

Also, according to SBA's Office of Technology, all recent awards are not in Tech-Net because agencies record award information at different times. Although SBA's policy directive for the program requires participating agencies to submit award information to SBA at the time the award is funded, some agencies do not report their awards until the time of their annual data submissions to SBA. This has hampered the ability of participating agencies to use the database to determine whether similar research proposals have been funded when making award decisions. Without the ability to identify recent awards, agencies may be awarding SBIR grants or contracts to companies that received funding for the same research.

#### *Limited Search/Sort Capability*

To facilitate analysis of the program and to identify similarities in research proposals, Tech-Net users must be able to search and sort the data captured in the database. According to one of the SBIR working groups, the database is difficult to search because awardees are not uniquely identified, technical abstracts lack searchable plain language, grants cannot be distinguished from contracts, the system lacks advanced sorting capabilities, and search results cannot be tallied. More specifically:

- There is no single identifier for companies receiving awards. For example, a company may be entered as "ABC, Inc.," "ABC Inc.," "ABC," or any other iteration, which would make these companies appear as separate entities.
- Technical abstracts lack searchable plain language and are difficult for a layperson to understand. According to one of the working groups and NSF OIG testimony<sup>2</sup>, abstract information placed in Tech-Net varies by agency in content, length, and technical complexity. As a result, reviews for duplicate proposals are difficult and labor intensive as it is difficult to identify similarities in research proposals.
- SBIR contracts cannot be distinguished from grant awards. Because each funding vehicle has a different set of regulations and requirement, users find it difficult to identify potential deviations from program requirements

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<sup>2</sup> NSF OIG Testimony, *Waste, Fraud, and Abuse in the SBIR Program*, August 6, 2009.

and performance measurements and are unable to accurately report program performance by funding vehicle.

- Tech-Net lacks advance sorting and linking capabilities needed for analyses. For example, the number of searchable fields is limited, multi-level searches cannot be performed, and custom reports of user-selected search fields cannot be created. As a result, agencies are unable to use the database to obtain specific information or generate detailed reports meeting their analytical and reporting needs. Further, identifiers linking related entities are limited to basic demographics, such as address and phone number. As a result, relationships between related companies (i.e. affiliates or subsidiaries), principle investors, or research topics are difficult to identify.
- Summary totals for search results are not available. As a result, agencies cannot readily identify the total number and value of awards made to individual companies to assess program performance.

### **Government-Use Component of Tech-Net Needed for Program Evaluation Has Not Been Developed**

The Small Business Reauthorization Act of 2000 required that SBA, within 6 months of the Act's enactment, develop a database to collect and maintain information from SBIR applicants and awardees necessary to assess the SBIR program. The Act also required that SBA maintain two databases, one for the public and another for authorized government users. According to the Act, the government-use database was to be used solely for SBIR program evaluation and was to capture information on:

- sales revenue earned by awardees from new products or services resulting from SBIR funded research;
- any additional non-SBIR investments that awardees received to further their research and development projects;
- narrative information on second phase awards voluntarily submitted by awardees;
- applicants that did not receive SBIR awards; and
- any other information determined useful, relevant and appropriate for SBIR program evaluation.

Despite the mandate that SBA develop the database within 6 months of the Act's enactment, a 2006 GAO report stated, among other things, that SBA had not implemented the mandated government-use database. We determined that as of August 2010, SBA still had not developed the mandated government-use database

to capture information on the commercialization of SBIR-funded research and development projects. According to SBA officials, a lack of funding had prevented it from expanding Tech-Net to meet the government-use requirements. However, as of July 2010, SBA allocated \$1.25 million to enhance and expand the Tech-Net database, including the implementation of the required government-use component.

### **Planned Tech-Net Database Enhancements and Expansion**

According to SBA's Office of Technology, it is actively working with the SBIR working groups and SBA's Office of the Chief Information Officer to revamp the Tech-Net database and awarded a contract to develop a new Tech-Net database on September 21, 2010. Planned enhancements to the system include:

- creating a unique "business key" field for each submitting entity;
- increasing the number of searchable data fields;
- increasing the number of sort capabilities including allowing multi-level searches; and
- adding the ability to subtotal search results.

SBA also plans to use a portion of the \$1.25 million to develop the government-use component of the Tech-Net database. This expansion would provide information on the commercialization of SBIR-funded research and development projects and allow SBA and other authorized users a vehicle to perform a proper evaluation of the SBIR program's performance. While the expansion and enhancements will fulfill the statutory requirement of the government-use database and significantly improve the search features of Tech-Net, SBA will still need to take steps to ensure the completeness of award data.

### **RECOMMENDATIONS**

We recommended that the Associate Administrator for Investment:

1. Add the mandatory "Minority Code" data field to Tech-Net.
2. Designate the "Principal Investigator" and "Agency Solicitation Topic Code" as required data fields and inform participating agencies of these designations.
3. Add a database control that prevents participating agencies from submitting their award data when any of the mandatory data fields are left blank.

4. Require that participating agencies submit award information to SBA and other participating agencies at the time of award, as required by SBIR Policy Directive, Section 7(a)(iii).

## **AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE**

On September 22, 2010, we provided a draft of this report to SBA's Office of Investment for comments. On November 5, 2010, the Associate Administrator for Investment provided formal comments, which are contained in their entirety in Appendix II. Management agreed with recommendations 1, 2, and neither agreed nor disagreed with recommendations 3 and 4. The Agency's comments and our evaluation of them are summarized below.

### **Recommendation 1**

#### *Management Comments*

Management agreed with the recommendation and stated that several years ago SBA changed the terminology from "Minority Code" to "Economically Disadvantaged." However, management noted that the two terms are not identical in meaning and agreed to change the term back to "Minority Code" and to make it a mandatory field.

#### *OIG Response*

We believe management's comments are responsive to the recommendation.

### **Recommendation 2**

#### *Management Comments*

Management agreed with the recommendation and stated that it will add "Principal Investigator" and "Agency Solicitation Topic Code" as required fields. It will also advise participating agencies of these designations.

#### *OIG Response*

We believe management's comments are responsive to the recommendation.

### **Recommendation 3**

#### *Management Comments*

Management stated that as part of the current Tech-Net upgrade, it was working with its contractor to implement controls allowing agencies to submit award data only when all mandatory data fields were completed.

#### *OIG Response*

We believe management's comments are responsive to the recommendation.

### **Recommendation 4**

#### *Management Comments*

Management stated that it was taking steps to have agencies submit award information to SBA at the time of award. These steps included adding an edit function to Tech-Net allowing agencies the capability to revise award information after submission. This capability would entice agencies to submit their award data as soon as possible after award by alleviating their concerns that correcting records would be difficult and time consuming.

#### *OIG Response*

We believe management's comments were responsive to the recommendation.

### **ACTIONS REQUIRED**

Please provide your management decision for each recommendation on the attached SBA Forms 1824, Recommendation Action Sheet, within 30 days from the date of this report. Your decision should identify the specific action(s) taken or planned for each recommendation and the target date(s) for completion.

We appreciate the courtesies and cooperation of the Small Business Administration during this audit. If you have any questions concerning this report, please call me at (202) 205-<sup>[FOIA ex. 2]</sup> or Riccardo R. Buglisi, Director, Business Development Programs Group at (202) 205-<sup>[FOIA ex. 2]</sup>

## APPENDIX I. Tech-Net Data Fields for Public Database

<b>Mandatory Fields</b>	<b>Non-Mandatory Fields</b>
1. Program Identification	1. Street2
2. Company	2. Zip4
3. - 6. Address: Street1, City, State and Zip	3. - 5. Contact First, Last, & Middle Init
7. Minority Code	6. Contact Title
8. Women	7. Contact Phone
9. Agency Code	8. Contact Email Address
10. Phase	9. Employees
11. Award Year	10. Branch
12. Award Amount	11. PI Middle Init
13. -14. PI First/ PI Last	12. PI Title
15. Topic Code	13. PI Phone
16. Tracking Number	14. PI Email Address
17. TIN/EIN	15. RI Type
18. Title	16. RI Name
	17. - 22. RI Address: Street1, Street2, City, State, Zip, & Zip4
	23. - 25. RI Official First, Last, & Initial
	26. RI Official Phone
	27. Contract/Grant Number
	28. Solicitation Number
	29. Solicitation Year
	30. Project Initiator
	31. Technology Used (Y/N)
	32. Time to establish license agreement (months)
	33. STTR Proceeds Distribution to SBC (%)
	34. STTR Proceeds Distribution to RI (%)
	35. Abstract
	36. Abstract Sequence Number
	37. Results
	38. Comments
	39. Industry Share Amount
	40. Cost Share Tracking

## APPENDIX II. Management Comments



U.S. SMALL BUSINESS ADMINISTRATION  
WASHINGTON, DC 20416

November 5, 2010

Ms. Debra Ritt  
Assistant Inspector General  
Auditing Division  
Office of Inspector General  
U. S. Small Business Administration  
409 3<sup>rd</sup> Street, S. W., 5<sup>th</sup> Floor  
Washington, D. C. 20416

Dear Ms. Ritt:

This letter is in response to the Office of Inspector General's (OIG) request for comment on its recent draft report entitled, "Usefulness of the Small Business Innovation Research Tech-Net Database". Outside of the framework of the OIG audit, SBA has been undertaking a comprehensive upgrade of the Tech-Net database. This effort aims to improve data collection and management program wide and will address a number of the concerns raised in the report.

After review of the draft report and conversations with the OIG staff conducting the audit, SBA has the following comment:

### **Recommendations:**

#### **1) Add the mandatory 'Minority Code' data field to Tech-Net.**

SBA concurs with the recommendation. Several years ago, SBA changed the terminology on the form from "Minority Code" to "Economically Disadvantaged." However, we note that the two terms are not identical in meaning and will make plans to change the term back to "minority code" and make it a mandatory field.

#### **2) Designate the "Principal Investigator" and "Agency Solicitation Topic Code" as required data fields and inform participating agencies of these designations.**

SBA concurs with the recommendation and will take steps to inform participating agencies to add "Principal Investigator" and "Agency Solicitation Topic Code" as required fields. SBA anticipates incorporating these mandatory fields as part of the current Tech-Net upgrade, which should take place over the next six to nine months.

#### **3) Add a database control that prevents participating agencies from submitting their award data when any of the mandatory data fields are left blank.**

SBA is working with its contractor to put in controls so that agencies will only be able to submit award data when all mandatory data fields are completed. This addition is part of the current Tech-Net upgrade. While SBA's goal is to have all agencies complete all mandatory fields, we are concerned that a system that prevents all data from being compiled due to a few fields being incomplete and SBA anticipates changes being made over the next six to nine months.

**4) Require that participating agencies submit award information to SBA and other participating agencies at the time of award, as required by SBIR Policy Directive, Section 7(a)(iii).**

SBA is taking steps to have agencies submit award information to SBA at the time of award. SBA is working with its contractor (Tech-Net upgrade) to make it viable for all agencies to submit their award information as soon as possible after award. Part of the issue has been the concern by agencies that if there are changes in their award information, that it would be difficult and time consuming to go back and correct individual records. As part of the Tech-Net upgrade, mechanisms will be put in place that will allow the agencies to edit awardees information post submission. SBA is working toward getting this portion of the upgrade completed in the next six to nine months. It must be noted, that of the OIG recommendations, this one is the most challenging because of the different infrastructures and resources available to the varying SBIR agencies. So, while SBA will strive to make this a short term reality, we must factor in legacy and other issues.

Thank you for the opportunity to provide comment on the draft report. Our office looks forward to working with you. If you have any questions please contact Edsel Brown of my staff at (202) 205-7343.

Sincerely

[FOIA ex. 6]

Sean J. Greene  
Associate Administrator  
Investment Division