



April 2015

SMALL BUSINESS RESEARCH PROGRAMS

Challenges Remain in Meeting Spending and Reporting Requirements

Accessible Version

GAO Highlights

Highlights of [GAO-15-358](#), a report to congressional committees

Why GAO Did This Study

Federal agencies have awarded more than 156,000 contracts and grants, totaling nearly \$40 billion through the SBIR and STTR programs to small businesses to develop and commercialize innovative technologies. The Small Business Act requires agencies with extramural R&D obligations that meet certain thresholds for participation—\$100 million for SBIR and \$1 billion for STTR—to spend a percentage of these funds on the programs. The agencies are to report on their activities to SBA and, in turn, SBA is to report to Congress.

The 2011 reauthorization of the programs mandated GAO to review compliance with spending and reporting requirements, as well as other program aspects. This report examines, for fiscal year 2013, (1) the extent to which agencies complied with spending requirements, (2) the extent to which agencies and SBA complied with certain reporting requirements, (3) the potential effects of basing spending requirements on total R&D budgets, and (4) what is known about the amounts spent on administering the programs. GAO reviewed agency spending data and required reports for fiscal year 2013 and interviewed program officials from SBA and the participating agencies.

What GAO Recommends

GAO recommends, among other things, that SBA notify Congress if it cannot determine agency compliance with spending requirements and assess the adequacy of the methodology reporting requirement. SBA generally agreed with GAO's findings and recommendations.

View [GAO-15-358](#). For more information, contact John Neumann at (202) 512-3841 or neumannj@gao.gov.

April 2015

SMALL BUSINESS RESEARCH PROGRAMS

Challenges Remain in Meeting Spending and Reporting Requirements

What GAO Found

The Small Business Administration's (SBA) ability to fully determine compliance with spending requirements for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs for fiscal year 2013 is limited because most agencies submitted incorrect data. Nevertheless, analyzing agency data submitted to SBA suggests that 9 of the 11 agencies participating in the SBIR program and 4 of the 5 agencies participating in the STTR program complied with spending requirements for fiscal year 2013. Specifically, agencies are required to submit the actual amount obligated for extramural research or research and development (R&D)—which is generally conducted by nonfederal employees outside of federal facilities—and these obligations are the basis for calculating the agencies' spending requirements. However, most agencies submitted budget data instead. Program managers raised concerns about the difficulties in determining the amount of extramural R&D obligations and the challenges in using this amount to calculate spending requirements, as extramural R&D obligations are not known until after the end of the fiscal year. However, without the required data, SBA cannot accurately report on agencies' compliance with spending requirements—as defined in the law—to Congress.

Some agencies did not comply with certain methodology reporting requirements for the programs. For example, 3 of the 11 participating agencies did not itemize the specific programs they excluded from their extramural R&D in their required methodology reports, or did not explain the reasons why they excluded the programs, or both. GAO also found that SBA did not assess whether the information it collected was adequate to appropriately analyze agencies' methodology reports. Without such an assessment, SBA cannot provide Congress with an accurate analysis of how agencies calculate their extramural R&D. Furthermore, SBA has not issued its required report to Congress on the programs for fiscal year 2013.

Basing the programs' spending requirements on total R&D instead of extramural R&D could increase the amount of each agency's spending requirement and increase the number of agencies required to participate. Some agency officials said that basing the calculation methodology on their total R&D budget would make administering their programs easier, but officials at other agencies said that the change could result in reduced funding for intramural research and extramural research outside of the SBIR and STTR programs.

Little is known about total administrative spending on the programs for fiscal year 2013 because the agencies that participate are not required to and do not fully track these costs. Six agencies participated in an administrative pilot program that allowed them to spend program funds on new administrative and oversight activities in fiscal year 2013. These agencies reported spending \$12.3 million on these activities, but this amount does not represent total administrative spending. Additionally, this is about 20 percent of what the agencies had planned to spend on the administrative pilot program at the beginning of the fiscal year. Program managers at seven agencies told GAO that they would prefer that the administrative pilot program were either extended or made permanent.

Contents

Letter	1
Background	6
SBA Cannot Fully Determine Compliance with Spending Requirements, but Data Submitted to SBA Indicate Most Agencies Met the Requirements	8
Agencies Did Not Comply with All Methodology Reporting Requirements	17
Changing the Calculation Methodology for Determining Spending Requirements Could Increase Spending Requirements and Participation with Potential Benefits and Drawbacks	21
Total Administrative Spending in Fiscal Year 2013 Is Unknown, but Six Agencies Spent \$12.3 Million on the Administrative Pilot Program	28
Conclusions	32
Recommendations for Executive Action	34
Agency Comments and Our Evaluation	34

Appendix I: Agencies' Compliance with Spending Requirements for the Small Business Innovation Research Program for Fiscal Year 2013, according to Agency Data	38
Appendix II: Agencies' Compliance with Spending Requirements for the Small Business Technology Transfer Program for Fiscal Year 2013, according to Agency Data	40
Appendix III: Comments from the Department of Defense	41
Appendix IV: Comments from the Department of Agriculture	42
Appendix V: GAO Contact and Staff Acknowledgments	43
GAO Contact	43
Staff Acknowledgments	43

Appendix VI: Accessible Data	44
------------------------------	----

Tables	
Table 1: Agencies Participating in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs	2
Table 2: Comparison of NASA's Spending Requirements Using Budget Data and Extramural Research or Research and Development Obligations for Fiscal Year 2013 (dollars in millions)	11

Table 3: Proposed Spending and Actual Obligations for Fiscal Year 2013 Administrative Pilot	31
Table 4: Agency Compliance with Small Business Innovation Research (SBIR) Program Spending Requirements for Fiscal Year 2013, according to Agency Data (dollars in millions)	38
Table 5: Agency Compliance with Small Business Technology Transfer (STTR) Program Spending Requirements for Fiscal Year 2013, according to Agency Data (dollars in millions)	40
Data Table for Figure 1: Percentage of Extramural Research or Research and Development (R&D) Obligations Spent on the Small Business Innovation Research (SBIR) Program in Fiscal Year 2013, according to Agency Data	44
Data Table for Figure 2: Percentage of Extramural Research or Research and Development (R&D) Obligations That Participating Agencies Spent on the Small Business Technology Transfer (STTR) Program in Fiscal Year 2013, according to Agency Data	44
Data Table for Figure 3: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and an Alternative Scenario Using Current Percentages (dollars in millions)	45
Data Table for Figure 4: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and a Second Alternative Scenario Using Lower Percentages	46

Figures

Figure 1: Percentage of Extramural Research or Research and Development (R&D) Obligations Spent on the Small Business Innovation Research (SBIR) Program in Fiscal Year 2013, according to Agency Data	13
Figure 2: Percentage of Extramural Research or Research and Development (R&D) Obligations That Participating Agencies Spent on the Small Business Technology Transfer (STTR) Program in Fiscal Year 2013, according to Agency Data	14
Figure 3: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and an Alternative Scenario Using Current Percentages	23

Figure 4: Comparison of Fiscal Year 2013 Spending
Requirements under the Current Law and a Second
Alternative Scenario Using Lower Percentages

26

Abbreviations

DHS	Department of Homeland Security
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
HHS	Department of Health and Human Services
NASA	National Aeronautics and Space Administration
NSF	National Science Foundation
R&D	research or research and development
SBA	Small Business Administration
SBIR	Small Business Innovation Research
STTR	Small Business Technology Transfer

USDA

Department of Agriculture

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



April 15, 2015

Congressional Committees

Federal agencies support research or research and development (R&D) projects at small businesses through the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and have awarded more than 156,000 contracts and grants, totaling nearly \$40 billion, through these programs since their inception in 1982 and 1992, respectively. These awards have supported development and commercialization of innovative technologies. For example, Mapp Biopharmaceutical, Inc. received SBIR awards in 2007 and 2011 totaling more than \$3.5 million to develop the ZMapp drug that was administered to two Americans infected with the Ebola virus in West Africa in 2014. The SBIR and STTR programs are similar in that participating agencies identify topics for R&D projects and make awards to small businesses to develop and commercialize innovative technologies. For the SBIR program, a for-profit small business performs the work associated with the award, while the STTR program requires the small business to partner with a nonprofit research institution—such as a nonprofit college or university or federally funded research and development center—to perform the work.

Federal agencies with budgets of \$100 million or more for extramural R&D are required to establish and administer an SBIR program, and federal agencies with budgets of \$1 billion or more for extramural R&D are also required to establish and administer an STTR program.¹ Currently, 11 agencies participate in the SBIR program, and 5 of these agencies also participate in the STTR program, as shown in table 1.

¹Agencies' R&D programs generally include funding for two types of R&D: intramural and extramural. Intramural R&D is conducted by employees of a federal agency in or through government-owned, government-operated facilities. Extramural R&D is generally conducted by nonfederal employees outside of federal facilities. Agencies are required to calculate their extramural R&D budget by subtracting amounts obligated for intramural R&D from total obligations for R&D.

Table 1: Agencies Participating in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

Agency	Program	
	SBIR	STTR
Department of Agriculture (USDA)	X	
Department of Commerce	X	
Department of Defense (DOD)	X	X
Department of Education	X	
Department of Energy (DOE)	X	X
Department of Health and Human Services (HHS)	X	X
Department of Homeland Security (DHS)	X	
Department of Transportation (DOT)	X	
Environmental Protection Agency (EPA)	X	
National Aeronautics and Space Administration (NASA)	X	X
National Science Foundation (NSF)	X	X

Source: SBA. | GAO-15-358

The Small Business Act, which authorizes the programs, establishes the minimum percentage of an agency's extramural R&D obligations that must be spent on the programs annually.² In fiscal year 2013, agencies participating in the SBIR program were required to spend at least 2.7 percent of their extramural R&D obligations on the program, and agencies participating in the STTR program were required to spend at least 0.35 percent of their extramural R&D obligations on the program.³ The SBIR and STTR policy directives, which provide direction to the participating

²The Small Business Act requires a minimum percentage of an agency's extramural R&D "budget" to be spent on the programs annually, but it defines the extramural R&D budget in terms of obligations. More specifically, the act defines an agency's extramural R&D budget as the sum of an agency's total R&D obligations minus amounts obligated for research conducted by employees of the agency in or through government-owned and government-operated facilities. In 2014, SBA changed the terminology it uses from "extramural R&D budget" to "extramural R&D obligations" to clarify how agencies are required to calculate their spending requirements for the programs. In this report, we generally use the term extramural R&D obligations to be consistent with SBA's terminology. Additionally, in this report, we refer to the amounts resulting from applying the mandated percentages to extramural R&D obligations as "spending requirements."

³We used agencies' data on total program obligations to represent spending for the programs, in part because obligations data were readily available from each of the agencies for program purposes and because obligations provided a reasonable measure of the spending for the programs in each year.

agencies for the general operation of the programs, require participating agencies to submit data to the Small Business Administration (SBA) each year on the amount of their extramural R&D obligations and the amount obligated for awards, among other information.⁴ The Small Business Act also establishes certain reporting requirements for participating agencies and SBA. Among other things, agencies must, within 4 months of the enactment of their annual appropriations, report to SBA on their methodologies for calculating their extramural R&D obligations. Furthermore, SBA must annually report to Congress on the participating agencies' SBIR and STTR programs.

The 2011 reauthorization of the programs directed SBA to allow agencies to participate in a pilot program that permits the funding of administrative, oversight, and contract processing costs in fiscal years 2013 through 2015.⁵ This "administrative pilot program," as outlined in the reauthorization and policy directives, allows agencies to use not more than 3 percent of the funding allocated to the SBIR program for new activities, including program administration; outreach; commercialization; standardization and simplification of program procedures; prevention of waste, fraud, and abuse; and reporting. The SBIR and STTR policy directives specifically note that funding under the pilot program may not replace current agency administrative funding support for SBIR or STTR activities. Instead the administrative pilot program is intended to supplement the agency's existing administrative efforts.

The 2011 reauthorization mandates that GAO review the participating agencies' compliance with spending and reporting requirements for the programs, as well as other aspects of the programs. We have issued two reports in response to this mandate. The first report, issued in September 2013, covered fiscal years 2006 through 2011, and the second report,

⁴SBA's Office of Investment and Innovation is responsible for overseeing and coordinating the participating agencies' efforts for the SBIR and STTR programs by setting overarching policy and issuing policy directives, collecting program data, reviewing agency progress, and reporting annually to Congress, among other responsibilities.

⁵National Defense Authorization Act for Fiscal Year 2012, Pub. L. No. 112-81, § 5141, 125 Stat. 1298, 1852, codified at 15 U.S.C. § 638(mm) (2012).

issued in June 2014, covered fiscal year 2012.⁶ This report examines for fiscal year 2013 (1) the extent to which agencies met SBIR and STTR program spending requirements, (2) the extent to which agencies and SBA complied with certain program reporting requirements, (3) the potential effects of basing the spending requirements for the programs on an agency's total R&D budget instead of its extramural R&D obligations, and (4) what is known about how much agencies spent to administer the programs.

To address these objectives, we generally followed the methodology that we used for our previous two reports on these issues. Specifically, to examine the extent to which participating agencies met the programs' spending requirements in fiscal year 2013, we used the data that agencies submitted to SBA and calculated each agency's spending requirement by applying the mandated percentages to the agency's reported extramural R&D obligations for fiscal year 2013. We then compared the spending requirements we calculated with the total program obligations data the agency submitted to SBA for fiscal year 2013. We reported that an agency complied with its spending requirement if the agency's spending for these programs was greater than or equal to the spending requirement we calculated.⁷ To assess the reliability of these data, we interviewed agency officials about the source of and quality control procedures for the data, examined the integrity of the data, which included looking for outliers and obvious errors, and reviewed relevant documentation. We discussed any discrepancies with program officials and made corrections as needed. We found these data to be sufficiently reliable for the purposes of the report. We discussed agencies' compliance with the spending requirements, including reasons agencies did not meet the spending requirements, with program managers at each of the participating agencies. We also discussed agencies' efforts to follow new guidance issued by SBA, including the requirement to report total extramural R&D obligations rather than budget, as well as practices

⁶GAO, *Small Business Research Programs: Actions Needed to Improve Compliance with Spending and Reporting Requirements*, [GAO-13-421](#) (Washington, D.C.: Sept. 9, 2013) and *Small Business Research Programs: More Guidance and Oversight Needed to Comply with Spending and Reporting Requirements*, [GAO-14-431](#) (Washington, D.C.: June 6, 2014).

⁷If an agency's spending for the SBIR or STTR programs as a percentage of its extramural R&D budget was within a rounding error of the required level, we considered that agency to be in compliance.

that agencies follow to help them more consistently meet their annual spending requirements.

To examine the extent to which participating agencies and SBA complied with certain reporting requirements for fiscal year 2013, we compared information in the methodology reports that each agency submitted with requirements in the Small Business Act and program policy directives. We also discussed agencies' efforts to follow new guidance issued by SBA. Additionally, we requested SBA's report to Congress for fiscal year 2013 and discussed the status of that report with SBA program officials.

To examine the potential effects of basing spending requirements for the SBIR and STTR programs on agencies' total R&D budgets instead of their extramural R&D obligations, we used fiscal year 2013 data on total R&D budget authority from the President's budget to calculate potential spending requirements for each federal agency under alternate scenarios, assuming that the same spending percentages currently required by the Small Business Act would apply to total R&D budgets.⁸ We also assumed that current spending thresholds that require agencies to participate in SBIR and STTR programs when applied to extramural R&D budgets would apply to the total R&D budgets. As in our previous reports, we compared the spending requirements from the alternate scenarios with those under current law to determine the potential effects that changing this methodology would have had in fiscal year 2013. We also analyzed additional scenarios using smaller percentages than those currently required by the Small Business Act to determine if they would lead to different outcomes. We spoke to program managers at all participating agencies about how potential changes to the methodology for calculating the spending requirements could affect their programs.

To examine what is known about how much agencies spent to administer the programs, we collected administrative cost data and data associated with the administrative pilot program from agencies and discussed the data with program officials. We determined that the administrative cost

⁸Office of Management and Budget, *Fiscal Year 2015 Analytical Perspectives, Budget of the U.S. Government* (Washington, D.C.: Mar. 4, 2014). Because agencies did not include information on their total R&D budgets in their data submitted to SBA, and we were seeking information across all government agencies, we relied on the amount of budget authority reported in the *Analytical Perspectives* volume for calculation of the spending requirements for the alternative scenarios.

data were too incomplete and from such varied sources that an assessment of the available data was not possible. For the administrative pilot program data, we reviewed the agencies' proposals for the administrative pilot program, calculated the total amount that agencies spent on the administrative pilot program in fiscal year 2013, and compared these totals with the amount agencies estimated they would spend on the pilot. To ensure the reliability of the data associated with the administrative pilot program, we discussed the completeness and accuracy of the data with the six agencies that participated in the program. We determined that the data were sufficiently reliable for the purposes of this report.

We conducted this performance audit from August 2014 through April 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the 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.

Background

The SBIR program was initiated in 1982 and has four main purposes: (1) stimulate technological innovation, (2) use small businesses to meet federal R&D needs, (3) encourage participation in technological innovation by small businesses owned by women and disadvantaged individuals, and (4) increase commercialization of innovations derived from federal R&D efforts. The purpose of the STTR program—initiated about a decade later in 1992—is to stimulate a partnership of ideas and technologies between innovative small businesses and research institutions through federally funded R&D. Legislation enacted in 2011 reauthorized the programs from fiscal year 2012 through fiscal year 2017.⁹ The Small Business Act requires agencies to spend a certain percentage on programs each year. The spending requirements for SBIR and STTR are to be calculated as a percentage of each agency's extramural R&D obligations, provided their extramural R&D obligations exceed the participation thresholds of \$100 million for SBIR and \$1 billion for STTR. Under the 2011 reauthorization, the SBIR extramural spending requirement was set at 2.7 percent for fiscal year 2013 and will increase

⁹National Defense Authorization Act for Fiscal Year 2012 §§ 5001-5168.

incrementally to 3.2 percent of extramural R&D obligations by fiscal year 2017, and the STTR allocation was set at 0.35 percent for fiscal year 2013 and will increase incrementally to 0.45 percent by fiscal year 2017.

The SBIR and STTR programs each include the following three phases:

- In phase I, agencies make awards to small businesses to determine the scientific and technical merit and feasibility of ideas that appear to have commercial potential. Phase I awards normally do not exceed \$150,000. For SBIR, phase I awards generally last 6 to 9 months. For STTR, these awards generally last 1 year.
- In phase II, small businesses with phase I projects that demonstrate scientific and technical merit and feasibility, in addition to commercial potential, may compete for awards of up to \$1 million to continue the R&D for an additional period, normally not to exceed 2 years.
- Phase III is for small businesses to pursue commercialization of technology developed in prior phases. Phase III work derives from, extends, or completes an effort made under prior phases, but it is funded by sources other than the SBIR or STTR programs. In this phase, small businesses are expected to raise additional funds from private investors, the capital markets, or from funding sources within the agency that made the initial award other than its SBIR or STTR program. While SBIR or STTR funding cannot be used for phase III, agencies can participate in phase III by, for example, purchasing the technology developed in prior phases.¹⁰

SBA's Office of Investment and Innovation is responsible for overseeing and coordinating the participating agencies' efforts for the SBIR and STTR programs. As part of SBA's oversight and coordination role, the agency has issued SBIR and STTR policy directives to explain and outline requirements for agencies' implementation of these programs. The policy directives include a list of the data that agencies must submit to SBA annually—such as their extramural R&D obligations amount and the amount obligated for awards for the programs.

¹⁰For examples of how one agency has used phase III awards, see GAO, *Small Business Innovation Research: DOD's Program Supports Weapon Systems, but Lacks Comprehensive Data on Technology Transition Outcomes*, [GAO-14-96](#) (Washington, D.C.: Dec. 20, 2013).

Each participating agency must administer its SBIR and STTR programs in accordance with program laws, regulations, and the policy directives issued by SBA. In general, the programs are similar across agencies. All of the agencies follow the same general process to obtain proposals from and make awards to small businesses for both the SBIR and STTR programs. However, each participating agency has considerable flexibility to design and manage the specifics of their programs, such as determining research topics, selecting award recipients, and administering funding agreements. At least annually, each participating agency issues a solicitation requesting proposals for projects in topic areas determined by the agency. Each agency uses its own process to review proposals and determine which proposals should receive awards. For those agencies that have both SBIR and STTR programs, agencies usually use the same process for both programs. Also, each agency determines whether the funding for awards will be provided as grants or contracts. According to an agency program administrator, agencies such as the Department of Defense (DOD), the Department of Homeland Security (DHS), and the National Aeronautics and Space Administration (NASA) typically issue contracts that address highly focused topics and include a number of requirements that small business must comply with, while agencies like the Department of Energy (DOE) and the National Science Foundation (NSF) often issue grants for less specified topics that allow for more flexibility.

SBA Cannot Fully Determine Compliance with Spending Requirements, but Data Submitted to SBA Indicate Most Agencies Met the Requirements

SBA cannot fully determine if all 11 agencies met their spending requirements for fiscal year 2013, as 9 of the 11 participating agencies did not follow SBA's guidance in submitting data on their total extramural R&D obligations. Nevertheless, data the agencies submitted to SBA indicate that most agencies complied with their SBIR and STTR spending requirements for fiscal year 2013.

SBA's Ability to Determine Compliance Is Limited by Incorrect Data

SBA cannot fully determine whether the participating agencies complied with their fiscal year 2013 spending requirements using the data that agencies submitted to SBA because 9 of the 11 agencies provided incorrect data.¹¹ The Small Business Act requires agencies to calculate their spending requirements based on their extramural R&D budget, but it defines the extramural R&D budget as the actual obligations over the course of the year—which are not fully known until the end of the year—rather than the amount that agencies propose to spend on the program early in the fiscal year. For years before fiscal year 2013, most agencies provided the amount that they proposed to spend on extramural R&D and not the amount they actually obligated in their data submitted to SBA after the end of the fiscal year. SBA issued a revised template for data submission for fiscal year 2013 to clarify what information was needed to calculate spending requirements and directed agencies to submit data on their extramural R&D obligations. SBA officials said that they changed the template for data submission to respond to our past recommendations to provide additional guidance to agencies about submitting data and calculating spending requirements. SBA provided agency program managers with new guidance describing how to submit the relevant data and information to SBA. In addition, SBA officials told us that they discussed this issue at length with the agencies. However, SBA's efforts did not fully address the problem, as NASA and the Department of Health and Human Services (HHS) are the only agencies that submitted data on extramural R&D obligations to SBA for fiscal year 2013, as requested by SBA in accordance with the law. The remaining nine agencies submitted incorrect data by providing their extramural R&D budget estimates.¹²

Program officials said that the requirement to use extramural R&D obligations rather than extramural R&D budget makes it difficult for agencies to comply with spending requirements because extramural R&D obligations are not known until the end of the fiscal year. Several program managers told us that they believe it is unfair or impractical to hold their agency to a target that is not known until the end of the year, when it is not possible to obligate additional money. In addition, some program

¹¹At the time of our review, SBA officials told us that they were still working with agencies to verify the data that the agencies provided, explain what was expected, and request that agencies provide extramural R&D obligations instead of budget amounts.

¹²SBA officials told us that they are continuing to work with agencies to obtain extramural R&D obligations data for fiscal year 2013.

officials told us that they do not have systems in place to easily calculate extramural R&D obligations. For example, DOD officials said that it would likely not be possible to determine a final extramural R&D obligations figure until 6 months after the end of the fiscal year. Furthermore, some agency officials told us that their agency does not calculate total extramural R&D obligations. For example, officials at the Environmental Protection Agency (EPA) said that their financial system did not provide the level of detail necessary to calculate extramural R&D obligations, and modifying the current system would require a level of effort beyond what is justified for an agency with a small extramural R&D budget. Nevertheless, the Small Business Act requires agencies to use extramural R&D obligations to calculate their annual spending requirements. Moreover, SBA's guidance for fiscal year 2013 continues to direct agencies to use this approach, and SBA officials told us that the best way to ensure compliance with spending requirements is to use obligations.

SBA's ability to conduct an accurate assessment of whether agencies are complying with spending requirements is dependent on agencies submitting the correct data. For example, during fiscal year 2013, NASA estimated its extramural R&D budget to be about \$4.9 billion, and it developed a spending plan for the SBIR and STTR programs based on this budget. However, according to data submitted to SBA, NASA's end-of-year extramural R&D obligations totaled about \$5.2 billion, causing NASA's actual spending requirements for the programs to be higher than anticipated at the beginning of the year, as shown in table 2. NASA spent \$132.5 million on its SBIR program, which would have been enough to comply with its estimated spending requirement, but it was less than the actual spending requirement. NASA officials told us that they did not know what the final extramural R&D obligations would be until after the end of the fiscal year and, therefore, were unable to spend more to meet the higher-than-anticipated spending requirements. Consistent with our findings for fiscal year 2012, this increase in extramural R&D obligations compared with the budget contributed to NASA's noncompliance with SBIR spending requirements in fiscal year 2013, according to program officials. NASA submitted the correct data to SBA, and our analysis showed it did not meet the spending requirements in fiscal year 2013. However, had NASA provided SBA with its extramural R&D budget rather than extramural R&D obligations, as other agencies provided, NASA would have—incorrectly—appeared to have met its SBIR spending requirement.

Table 2: Comparison of NASA’s Spending Requirements Using Budget Data and Extramural Research or Research and Development Obligations for Fiscal Year 2013 (dollars in millions)

Program	Amount spent on the program	Estimated spending requirement based on budget	Spending requirement based on extramural research or research and development obligations
Small Business Innovation Research Program	\$132.5	\$131.7	140.9
Small Business Technology Transfer Program	\$18.8	\$17.1	18.3

Sources: GAO analysis of agencies’ data submitted to SBA. | [GAO-15-358](#)

Note: Calculations may be affected by rounding. “Budget” refers to the amount NASA estimated it would spend on extramural R&D in the fiscal year and “extramural R&D obligations” refer to the amount that NASA actually obligated for extramural R&D through the end of the fiscal year.

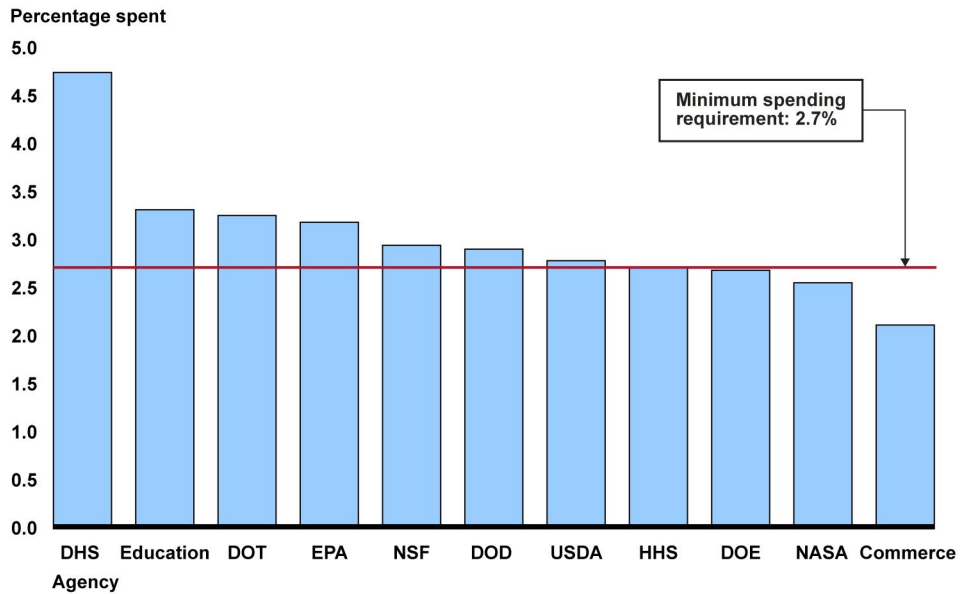
Other agencies that appeared to have met their spending requirement based on extramural R&D budget data may not actually have complied with their spending requirement if their extramural R&D obligations were higher than the amount they budgeted for the year. Conversely, an agency that appeared to spend less than the required amount on the programs could have actually met the spending requirements if the agency’s extramural R&D obligations at the end of the year were lower than the amount the agency budgeted at the beginning of the year. As discussed earlier, most agencies did not provide extramural R&D obligations data to SBA, which is a key piece of data for determining whether an agency met the spending requirements. SBA uses the data that agencies submit to determine the agencies’ compliance with spending requirements and reports this information to Congress as part of its annual report on the programs. However, without the correct data on the amount that agencies obligated for extramural R&D, SBA cannot fully determine agencies’ compliance with the spending requirements and cannot accurately report to Congress on their compliance. If SBA cannot fully determine agencies’ compliance based on data those agencies are submitting, then notifying Congress of this limitation would be important to help ensure that Congress receives critical information for overseeing these programs. Further, if SBA determines that calculating spending requirements based on extramural R&D obligations is not feasible, then developing a proposal for Congress to change the requirement could better position SBA and the agencies in determining requirements to help ensure that the intended benefits of these programs are being attained.

Agency Data Indicate Most Agencies Met SBIR and STTR Spending Requirements

While it was generally the wrong data, the data agencies did submit to SBA indicate that 9 of the 11 participating agencies met or exceeded their fiscal year 2013 spending requirements for the SBIR program, while the remaining 2 agencies did not meet the requirements. According to the agencies' data, the 9 agencies that appeared to meet or exceed the requirements spent from 2.7 percent to 4.7 percent of their extramural R&D obligations for the program, and the remaining 2 agencies spent from 2.1 to 2.5 percent.¹³ In comparison, agency data indicated that 8 of the 11 agencies met or exceeded spending requirements in fiscal year 2012, 10 of the 11 agencies met or exceeded spending requirements in fiscal year 2011, and 3 of the 11 agencies met spending requirements each fiscal year from 2006 through 2011, as we found in our two prior reports. Figure 1 shows the percentage of extramural R&D obligations that agencies spent on the SBIR program, based on the data the agencies submitted to SBA. Appendix I provides additional detail.

¹³For the purposes of this report, we defined compliance as spending at least 2.7 percent of an agency's reported extramural R&D obligations on the SBIR program in fiscal year 2013, as required in the Small Business Act. This method is consistent with SBA's approach for calculating spending requirements in its reports to Congress on the program. If an agency's spending for the SBIR program as a percentage of its extramural R&D obligations was within a rounding error of the required level, we considered that agency to be in compliance with the spending requirement.

Figure 1: Percentage of Extramural Research or Research and Development (R&D) Obligations Spent on the Small Business Innovation Research (SBIR) Program in Fiscal Year 2013, according to Agency Data



Sources: GAO analysis of agencies' data submitted to SBA. | GAO-15-358

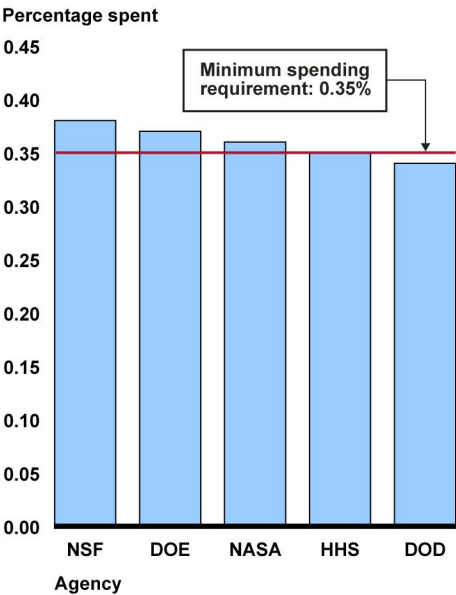
Note: We defined compliance as spending at least 2.7 percent of an agency's reported extramural R&D obligations on the SBIR program in fiscal year 2013. This method is consistent with SBA's approach for calculating spending requirements in its reports to Congress on the program. SBA officials told us that they have not completed verification of the data submitted by the agencies. According to data provided by DOE, its SBIR program obligations were within a rounding error of the required amount. Therefore, we considered DOE to have complied with the spending requirement.

The data agencies submitted to SBA indicated that four of the five participating agencies met or exceeded their fiscal year 2013 spending requirements for the STTR program, while the remaining agency did not meet the requirements.¹⁴ According to the agencies' data, the four agencies that complied with the requirements spent from 0.35 percent to 0.38 percent of their submitted extramural R&D obligations on their STTR

¹⁴For the purposes of this report, we defined compliance as spending at least 0.35 percent of an agency's reported extramural R&D obligations on the STTR program in fiscal year 2013, as required in the Small Business Act. This method is consistent with SBA's approach for calculating spending requirements in its reports to Congress on the program. If an agency's spending for the STTR program as a percentage of its extramural R&D obligations was within a rounding error of the required level, we considered that agency to be in compliance with the spending requirement.

programs, and the agency that did not comply spent 0.34 percent. In comparison, as we reported in the past, the data that agencies submitted to SBA indicated that two of the five agencies complied in fiscal year 2011 and 2012, and only one of the agencies complied with spending requirements each fiscal year from 2006 through 2012. Figure 2 shows the percentage of extramural R&D obligations that agencies spent on STTR, based on the data the agencies submitted to SBA. Appendix II provides additional detail.

Figure 2: Percentage of Extramural Research or Research and Development (R&D) Obligations That Participating Agencies Spent on the Small Business Technology Transfer (STTR) Program in Fiscal Year 2013, according to Agency Data



Sources: GAO analysis of agencies' data submitted to SBA. | GAO-15-358

Note: We defined compliance as spending at least 0.35 percent of an agency's reported extramural R&D obligations on the STTR program in fiscal year 2013. This method is consistent with SBA's approach for calculating spending requirements in its reports to Congress on the program. SBA officials told us that they have not completed verification of the data submitted by the agencies. According to data provided by HHS, its STTR program obligations were within a rounding error of the required amount. Therefore, we considered HHS to have complied with the spending requirement.

Program managers told us that one reason agencies did not comply with spending requirements in fiscal year 2013 is because they reserved program funds that were appropriated in fiscal year 2013 and plan to spend those funds in future years. Specifically, program officials from one agency that did not comply with SBIR spending requirements—Commerce—and the agency that did not comply with STTR spending requirements—DOD—told us that they reserved the required amount for

the program and spent the remaining funds in fiscal year 2014. In addition, agency officials told us that extenuating circumstances, such as late appropriations and spikes in funding related to natural disasters, also affected their ability to meet annual spending requirements in fiscal year 2013. For example, Commerce officials said that in fiscal year 2013 the National Oceanic and Atmospheric Administration received additional funding from supplemental appropriations related to Super Storm Sandy late in the fiscal year—after the agency’s internal deadline for issuing new contracts—which kept them from obligating enough money to meet the spending requirement that increased due to the supplemental funding. They said that the money not obligated in fiscal year 2013 was obligated in fiscal year 2014. Consistent with the findings from our June 2014 report, some program managers said their agency did not meet spending requirements, but the officials said they will spend all of the funding that was budgeted for the programs before the funding expires. However, they did not spend the minimum required amount in fiscal year 2013 and, therefore, did not comply with the spending requirements.¹⁵

SBA officials agree that meeting the spending requirements for the SBIR and STTR programs requires agencies to spend at least the minimum required percentages on the programs each fiscal year. However, we found in our June 2014 report that SBA’s most recent SBIR policy directive states that agencies must reserve the minimum percentages for awards to small business, and we recommended that SBA revise its policy directives to correctly summarize the law.¹⁶ In October 2014, SBA officials told us that they are planning to review and clarify the language in future policy directives, but, as the officials told us in January 2015, they disagree that the policy directive inaccurately summarizes the law. The officials told us that the inclusion of the word “reserve” in the policy directive does not lead agencies to reserve money for multiple years. However, we found that agencies continue to reserve money, and we continue to believe that a clarification is needed to help minimize this practice.

¹⁵Some agencies receive multiyear appropriations which may, generally, be carried forward from one year to the next. However, according to the Small Business Act, agencies must, nonetheless, spend the required amount on the programs in each fiscal year.

¹⁶[GAO-14-431](#).

Several agencies have also implemented certain practices designed to help ensure they meet their spending requirements. Examples of such practices include the following:

- **Budgeting more than the minimum required amount for the program.** Education officials told us that they budget more than the minimum amount they calculate as required for the SBIR program, which increases the likelihood that the agency will meet or exceed the spending requirement. In addition, if appropriations are higher than anticipated, the officials review their planned budget for the SBIR program and determine if the program budget should be increased. DHS officials told us that their agency also obligates additional funds beyond those budgeted for the SBIR program. For example, DHS officials said that the agency obligated nearly \$2.8 million in addition to the amount originally budgeted for the program for fiscal year 2013.
- **Tracking program obligations and centralizing funds.** Officials from DOE and one component in DHS said that they review how much the agency has obligated for the programs each month to help ensure that they obligate all of the SBIR and STTR funds. DOE components also transfer funds directly to the centralized SBIR and STTR program office, making it easier for the program office to ensure that all funds are obligated.
- **Allowing voluntary participation.** DOD officials said that some components within the agency voluntarily participate in the SBIR program even though they are not required to by law because the components see benefit in the program.¹⁷ Including these other components increases the total amount obligated toward the program.¹⁸

¹⁷Agencies are not required to include subunits in the intelligence community when calculating their extramural R&D obligations. 15 U.S.C. §§ 638 (e)(2), (f)(1) (2012).

¹⁸According to agency data, DOD met its SBIR spending requirement in fiscal year 2013, but did not meet the spending requirement for STTR.

Agencies Did Not Comply with All Methodology Reporting Requirements

Each of the agencies participating in the SBIR and STTR programs submitted the required reports describing the methodology used for calculating the amount of their extramural R&D budgets to SBA for fiscal year 2013, but agencies did not comply with all methodology reporting requirements. The act also requires SBA to include an analysis of the agencies' methodology reports in its annual report to Congress. SBA has not yet issued its required report to Congress on the programs for fiscal year 2013, but the fiscal year 2012 report to Congress, which SBA submitted in November 2014, did not include the required analysis of agencies' methodology reports.

Some Agencies Did Not Provide All Required Information, and Most Submitted Methodology Reports Late

As we found for previous years in past reports, some agencies did not provide all the information required in their methodology reports for fiscal year 2013. As discussed in the SBIR policy directive, agencies are required to submit reports to SBA each year that itemize the programs excluded from their extramural R&D calculations and explain the reasons for the exclusions.¹⁹ SBA also requested that agencies provide the dollar amounts of the programs excluded from their extramural R&D.

For fiscal year 2013, all 11 agencies submitted a methodology report to SBA. However, three agencies did not itemize the specific programs they excluded from their extramural R&D, or did not explain the reasons for the exclusions from their calculations of extramural R&D, or both. Specifically, DOD, EPA, and NSF either did not itemize the specific programs that they excluded, did not explain the reasons why they excluded the programs, or both. Two of these three agencies' methodology reports—DOD and EPA—included general categories of exclusions but did not itemize the programs that were excluded. For example, DOD's fiscal year 2013 report stated that some of its programs were exempted by the Small Business Act, which exempts programs in the intelligence community. However, DOD's report did not itemize the specific programs or subunits that were excluded, as required by the policy directives. In addition, four agencies did not indicate to SBA whether they had exclusions for some or all of their programs. Specifically, the Departments of Agriculture (USDA),

¹⁹Under the Small Business Act, certain subunits or programs must or can be excluded in calculating agencies' extramural R&D. For example, agencies are not required to include subunits in the intelligence community, and the Department of Transportation (DOT) is required to exclude the Federal Highway Administration's State Planning & Research Program.

Education, and Commerce, and HHS did not indicate in their methodology reports to SBA whether they had exclusions for some or all of their programs. Agencies are not explicitly required to state if they have no exclusions, but without that information it will be difficult for SBA to determine whether these agencies may have had exclusions that were not included in their reports to SBA. Two of the participating agencies—the Department of Transportation (DOT) and DHS—provided the dollar amounts associated with each of their exclusions, consistent with SBA guidance.

Additionally, 10 of the 11 agencies submitted their methodology reports for calculating extramural R&D to SBA later than the date required in the Small Business Act. According to the Small Business Act, agencies must submit their methodology reports to SBA within 4 months of enactment of their annual appropriations. Fiscal year 2013 appropriations for each of the participating agencies were enacted in March 2013, so the methodology reports were due in July 2013.²⁰ However, for fiscal year 2013, nine of the agencies provided their methodology reports to SBA as a part of their annual data submissions to SBA, which were generally submitted to SBA from June through September 2014—about a year after the deadline for the methodology reports. One agency, HHS, met the deadline by submitting its methodology report to SBA in July 2013. Most agency officials told us that they submitted their methodology reports late because SBA did not request the reports at an earlier date. Officials from 9 of the 10 agencies that submitted their reports late said that they could have provided the reports to SBA within 4 months of their appropriation if SBA had requested them. SBA is not required to request the reports from agencies, and SBA officials told us that they did not request the methodology reports for fiscal year 2013 sooner because they were focused on updating the template that the agencies used to submit program data to SBA.

The agencies' late submission of the methodology reports makes it difficult for SBA to promptly analyze their methodologies and provide agencies with timely feedback to assist them in accurately calculating their spending requirements. Without such review and feedback, agencies may be calculating their extramural R&D incorrectly, which

²⁰See Consolidated and Further Continuing Appropriations Act, 2013, Pub. L. No. 113-6, 127 Stat. 198.

could lead to agencies spending less than the required amounts on the programs. We previously recommended in June 2014 that SBA request that the agencies submit their methodology reports within 4 months of the enactment of appropriations, as required by the Small Business Act and the program policy directives, and SBA agreed with the recommendation.²¹ However, SBA has not yet taken action to address this recommendation. We continue to believe this recommendation has merit and should be fully implemented. Doing so could better position SBA to analyze agencies' methodologies and provide timely feedback.

SBA Has Not Submitted Its Required Report to Congress for Fiscal Year 2013

SBA has not issued its report to Congress on the programs for fiscal year 2013. The Small Business Act requires SBA to report to certain congressional committees on the SBIR and STTR programs not less than annually, but the act does not specify a date that the report is due. In October 2014, SBA officials told us that they had recently begun reviewing the agencies' annual data submissions for fiscal year 2013 and anticipated that it would take 6 to 9 months to complete their report and submit it to Congress. Officials said that their review of the data submissions was delayed because of changes SBA had made to the data submission template, which prompted SBA to extend the reporting date for agencies from March 2014, as required by SBA's policy directives, to June 2014. We previously concluded in September 2013 that, without more rigorous oversight by SBA, and more timely and detailed reporting on the part of both SBA and participating agencies, it would be difficult for SBA to ensure that intended benefits of these programs are being attained and that Congress was receiving critical information to oversee these programs.²² In our September 2013 report, we recommended that SBA provide Congress with a timely annual report that includes a comprehensive analysis of the methodology each agency used for calculating the SBIR and STTR spending requirements.²³ SBA agreed with our recommendation and stated in its comments on that report that it planned to implement the recommendation. Although SBA officials told us in January 2015 that they were still in the process of verifying the data they had requested from agencies for SBA's fiscal year 2013 report to

²¹[GAO-14-431](#).

²²[GAO-13-421](#).

²³[GAO-13-421](#).

Congress, they said that that they plan to provide a more timely report to Congress in the future.

The information in the agencies' methodology reports may not be adequate for SBA to provide Congress with its required analysis of how agencies calculated their extramural R&D for fiscal year 2013. The Small Business Act requires agencies to submit a report to SBA describing the methodology used for calculating the amount of their extramural R&D budgets. The act also requires SBA to include an analysis of the agencies' methodology reports in its annual report to Congress. The fiscal year 2012 report to Congress, which SBA submitted to Congress in November 2014 and is the most recent report available, did not include the required analysis of agencies' methodology reports. SBA officials told us that they did not provide clear guidance to the agencies about the information to submit to SBA in their fiscal year 2012 methodology reports and, therefore, it could be unclear how agencies calculated their extramural R&D. For fiscal year 2013, SBA provided agencies with additional guidance requesting the identification of all R&D programs excluded from the determination of extramural R&D and the dollar amounts of those programs, but they have not yet assessed whether the information is adequate to determine whether agencies are calculating their extramural R&D correctly. Currently, each of the agencies submits methodology reports of varying detail, with some providing limited information on how they calculated their extramural R&D budgets that make it difficult for SBA to determine how the agencies are calculating their extramural R&D. For example, one agency submitted a methodology report that states that agency budget officers estimate funds available for extramural R&D and use a formula to calculate the spending requirement. The methodology report does not provide additional information on how the budget officers made the calculation. Program officials from this agency told us that they need SBA to tell them whether additional information is needed in the methodology report before they can obtain it from their budget office. Without assessing whether the information it collects is adequate to analyze agencies' methodology reports, SBA cannot provide Congress with an accurate analysis of how agencies calculate their extramural R&D.

In January 2015, SBA officials told us that they had begun to analyze the methodology reports for fiscal year 2013 and said that they plan to include an analysis of the methodology reports in the fiscal year 2013 report, but the officials did not provide GAO with any documentation of the analysis and did not discuss their preliminary findings. In addition, officials from most of the agencies told us that their methodologies for

determining their extramural obligations have not changed for years, and they report similar information to SBA every year. We previously concluded in September 2013 that, without guidance from SBA, participating agencies are likely to continue to provide SBA with broad, incomplete, or inconsistent information on their methodologies for calculating their extramural R&D, and we recommended that SBA provide timely annual feedback to each agency following the submission of its methodology report.²⁴ SBA agreed with our recommendation and stated in its comments on our report that it planned to implement the recommendation but, as of January 2015, it has not provided agencies substantive feedback on their fiscal year 2013 methodology reports. We continue to believe our recommendation has merit and should be fully implemented.

Changing the Calculation Methodology for Determining Spending Requirements Could Increase Spending Requirements and Participation with Potential Benefits and Drawbacks

Potential effects of changing the methodology to calculate the SBIR and STTR spending requirements based on each agency's total R&D budget instead of its extramural R&D obligations include an increase in the amount of each agency's spending requirement—for some agencies more than others—and an increase in the number of agencies required to participate. Agency officials identified several benefits and drawbacks that changing the calculation methodology could have on their agencies' SBIR and STTR programs.

²⁴[GAO-13-421](#).

Changing the Calculation Methodology to Use an Agency's Total R&D Budget Could Increase Spending Requirements and Participation in the Programs

Changing the methodology for determining SBIR and STTR spending requirements to use an agency's total R&D budget rather than its extramural R&D obligations could increase spending requirements. For example, if the spending requirements were calculated based on an agency's total R&D budget rather than its extramural R&D obligations using the same percentages and participation thresholds defined in current law, total spending requirements in fiscal year 2013 would have increased from \$2.3 billion to \$3.9 billion, an increase of roughly \$1.6 billion or 70 percent, according to our analysis of budget data and data submitted to SBA. This increase would have occurred both because agencies that currently participate would be required to spend more on the programs—because an agency's total R&D budget is larger than its extramural R&D budget—and because additional agencies would be required to participate. Figure 3 shows the effects of changing spending requirements at each agency from current law, which is based on a percentage of extramural R&D obligations, to an alternative scenario that applies the same percentages to total R&D budgets. These effects are consistent with our findings in previous reports on these issues.²⁵

²⁵[GAO-13-421](#) and [GAO-14-431](#).

Figure 3: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and an Alternative Scenario Using Current Percentages

	Agency's budget			Small Business Innovation Research Program				Small Business Technology Transfer Program			
Agency	Total research and development budget ^a	Extramural research or research and development obligations ^b		Spending requirement under current law ^c	Spending requirement under alternative scenario ^d	Percentage difference between current law and alternative scenario		Spending requirement under current law ^e	Spending requirement under alternative scenario ^f	Percentage difference between current law and alternative scenario	
Dollars in millions											
DOD	\$63,767	\$33,879		\$915	\$1,722	88%		\$119	\$223	88%	
HHS	29,753	23,322		630	803	28		82	104	28	
NASA	11,113	5,217		141	300	113		18	39	113	
DOE	10,169	5,899		159	275	72		21	36	72	
NSF	4,947	4,877		132	134	1		17	17	1	
USDA	2,038	682		18	55	199		g	7	g	
Veterans Affairs	1,164	g		g	31	g		g	4	g	
Commerce	1,143	258		7	31	344		g	4	g	
DOT	808	253		7	22	220		h	h	h	
Interior	782	g		g	21	g		h	h	h	
DHS	572	414		11	15	38		h	h	h	
EPA	527	139		4	14	279		h	h	h	
Education	319	303		8	9	5		h	h	h	
Total	\$127,102	\$75,243		\$2,032	\$3,432	69%		\$256	\$434	70%	

Agency did not participate in the program in fiscal year 2013, but it would be required to do so if participation was based on the total research and development budget, and the thresholds for participating in the programs remained the same.

Sources: GAO analysis of agencies' data. | GAO-15-358

Notes: Calculations may be affected by rounding

^aAgencies' total Research and Development (R&D) budget authority is derived from the Analytical Perspectives volume of the President's budget. We excluded the "facilities and equipment" category that is included in the Analytical Perspectives volume from the total R&D amount because agencies do not include this information in their calculation.

^bAgencies' extramural R&D obligations are derived from data submitted by the agencies to the Small Business Administration (SBA).

^cAgencies' spending requirements for the Small Business Innovation Research (SBIR) program are calculated as 2.7 percent of the amount reported by agencies as their extramural R&D obligations, as required by the Small Business Act.

^dThis alternate scenario calculates agencies' SBIR spending requirements as 2.7 percent of their total R&D budget authority, which is the percentage required by the Small Business Act under the current law and assumes no reductions for excluded programs.

^eAgencies' spending requirements for the Small Business Technology Transfer (STTR) program are calculated as 0.35 percent of the amount reported by agencies as their extramural R&D obligations, as required by the Small Business Act.

^fThis alternate scenario calculates agencies' STTR spending requirements as 0.35 percent of total R&D budget authority, which is the percentage required by the Small Business Act under the current law and assumes no reductions for excluded programs.

^gAgency did not participate in the program in fiscal year 2013.

^hAgency's total R&D budget authority did not meet the threshold for participating in STTR under the alternative scenario.

As shown in figure 3, some agencies' spending requirements would increase more than others under the alternative scenario. This variation is due primarily to differences in the relative proportions of the agencies' extramural and intramural R&D obligations, but also affected by the inclusion of programs in total R&D that were excluded from extramural R&D by statute. Agencies that fund primarily extramural research would see smaller increases to their spending requirements under the alternative scenario, while agencies that fund more intramural research would see larger increases in their spending requirements, a finding consistent with those of our previous reports. Examples are as follows:

- NSF used more than 95 percent of its total R&D budget to fund extramural research in fiscal year 2013 and was required, based on data submitted to SBA, to spend \$131.7 million on its SBIR program that year. Under the alternative scenario, NSF's SBIR spending requirement would have been \$133.6 million, an increase of about 1 percent.
- The Department of Commerce, on the other hand, used more than 20 percent of its total R&D budget to fund extramural R&D in fiscal year 2013 and was required to spend about \$7 million on its SBIR program in that year. Under the alternative scenario, Commerce's spending requirement would have more than quadrupled to \$30.9 million. Furthermore, assuming that the thresholds for participating in the program did not change, this scenario would have required Commerce to spend \$4 million on a new STTR program in fiscal year 2013. Consequently, the alternative scenario would have required Commerce to spend an additional \$27.9 million on SBIR and STTR programs in fiscal year 2013, an increase of about 400 percent.

As noted above, changing the calculation methodology from basing the spending requirement on extramural R&D obligations to total R&D budget would also require additional agencies to participate in SBIR and STTR, assuming that the dollar thresholds for participation remain the same. Two additional agencies—the Departments of Veterans Affairs and the

Interior—would have been required to participate in SBIR during fiscal year 2013 under the alternative scenario.²⁶ Adding these agencies to the SBIR program would have increased total federal SBIR spending requirements by \$52.5 million, in addition to the \$1.3 billion increase in spending requirements at the 11 agencies that currently participate in the SBIR program. Likewise, three additional agencies—USDA and the Departments of Commerce and Veterans Affairs—would have been required to participate in STTR under the alternative scenario.²⁷ Adding these three agencies to the STTR program would have increased total federal STTR spending requirements by \$15.2 million, in addition to the spending requirement increases of \$163 million at the five agencies that currently participate in STTR.

Basing the SBIR and STTR spending requirements on an agency's total R&D budget, and applying a lower percentage than under current law, could result in a total federal commitment to the programs that is similar to what would result under current law. However, such a scenario would lower spending requirements at some agencies and raise them at others. As shown in figure 4, if the percentage applied to an agency's total R&D budget had been 1.6 percent for SBIR and 0.2 percent for STTR in fiscal year 2013, and the thresholds for participating had remained the same, total required federal spending on the programs would be similar to required federal spending under current law. Using these lower percentages, spending requirements would have increased at agencies that primarily fund intramural research, such as EPA or the Department of Commerce. In contrast, spending requirements would have decreased at agencies, such as HHS and NSF, which primarily fund extramural research. In this scenario, spending requirement reductions, including \$175.8 million at HHS and \$59.7 million at NSF, were large enough to offset increases in spending requirements at other agencies.²⁸

²⁶Based on the data in the President's budget, both agencies had total R&D budgets in excess of \$100 million. Under current law, federal agencies with more than \$100 million in extramural R&D obligations are required to establish and operate an SBIR program.

²⁷Based on the data in the President's budget, these three agencies had total R&D budgets in excess of \$1 billion. Under current law, federal agencies with more than \$1 billion in extramural R&D obligations are required to establish and operate an STTR program.

²⁸In this scenario, spending requirements would also be reduced at Education (\$3.1 million) and DHS (\$2 million).

Figure 4: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and a Second Alternative Scenario Using Lower Percentages

Agency	Agency's budget		Small Business Innovation Research Program			Small Business Technology Transfer Program		
	Total research and development budget ^a	Extramural research and development obligations ^b	Spending requirement under current law ^c	Spending requirement under alternative scenario ^d	Percentage difference between current law and alternative scenario	Spending requirement under current law ^e	Spending requirement under alternative scenario ^f	Percentage difference between current law and alternative scenario
Dollars in millions								
DOD	\$63,767	\$33,879	\$915	\$1,019	11%	\$119	\$129	8%
HHS	29,753	23,322	630	476	-24	82	60	-27
NASA	11,113	5,217	141	178	26	18	22	23
DOE	10,169	5,899	159	163	2	21	20	-1
NSF	4,947	4,877	132	79	-40	17	10	-42
USDA	2,038	682	18	33	77	g	4	g
Veterans Affairs	1,164	g	g	19	g	g	2	g
Commerce	1,143	258	7	18	163	g	2	g
DOT	808	253	7	13	89	h	h	h
Interior	782	g	g	12	g	h	h	h
DHS	572	414	11	9	-18	h	h	h
EPA	527	139	4	8	125	h	h	h
Education	319	303	8	5	-38	h	h	h
Total	\$127,102	\$75,243	\$2,032	\$2,032	0%	\$256	\$250	-2%

Agency did not participate in the program in fiscal year 2013, but it would be required to do so if participation was based on the total research and development budget, and the thresholds for participating in the programs remained the same.

Sources: GAO analysis of agencies' data. | GAO-15-358

Notes: Calculations may be affected by rounding

^aAgencies' total research and development (R&D) budget authority is derived from the Analytical Perspectives volume of the President's budget. We excluded the "facilities and equipment" category that is included in the Analytical Perspectives volume from the total R&D amount because agencies do not include this information in their calculation.

^bAgencies' extramural R&D obligations are derived from data submitted by the agencies to the Small Business Administration (SBA).

^cAgencies' spending requirements for the Small Business Innovation Research (SBIR) program are calculated as 2.7 percent of the amount reported by agencies as their extramural R&D obligations, as required by the Small Business Act.

^dThis alternate scenario calculates agencies' SBIR spending requirements as 1.6 percent of their total R&D budget authority and assumes no reductions for excluded programs.

^eAgencies' spending requirements for the Small Business Technology Transfer (STTR) program are calculated as 0.35 percent of the amount reported by agencies as their extramural R&D obligations, as required by the Small Business Act.

^fThis alternate scenario calculates agencies' STTR spending requirements as 0.2 percent of total R&D budget authority and assumes no reductions for excluded programs.

^gAgency did not participate in the program in fiscal year 2013.

^hAgency's total R&D budget authority did not meet the threshold for participating in STTR under the alternative scenario.

Program Managers Identified Potential Benefits and Drawbacks to Changing the Calculation Methodology

As we found in our previous review of these programs, agencies identified several potential benefits and drawbacks to changing the calculation methodology for their SBIR and STTR spending requirements from extramural R&D obligations to total R&D budget.²⁹ For example, several program managers said that basing the SBIR and STTR spending requirements on total R&D would reduce the complexity of calculating spending requirements since agencies would no longer have to identify the extramural portion of their total R&D budgets. Some agency officials said that extramural R&D obligations are not calculated for any purpose beyond determining SBIR and STTR spending requirements. DOD program managers also told us that changing the calculation method would significantly simplify administration of their program. Currently, DOD's program managers receive funding for SBIR and STTR from the comptrollers of all 3 military departments and about 21 other components that conduct R&D. According to DOD program officials, receiving money from all of these components can take months. If the spending requirements were calculated based on total R&D budgets, DOD program officials said that the SBIR program could receive funding from a single comptroller, which would allow DOD to make awards faster and better align SBIR and STTR awards with DOD-wide priorities.

Program officials also identified potential drawbacks to changing the methodology, as we found in our previous reviews. In particular, several program managers said that increasing the amount of money that goes to SBIR could potentially reduce the amount of resources directed toward intramural research and extramural research outside of the SBIR and STTR programs. Program managers at one agency told us that the goals of extramural and intramural R&D spending are different since spending on intramural R&D is driven directly by an agency's mission, while spending on extramural R&D provides special expertise that may not exist in the agency. These officials said that shifting money away from intramural R&D to small businesses that may not have the necessary expertise could diminish an agency's ability to address specialized areas of R&D. Furthermore, program officials at another agency said they did not think it would make sense to calculate spending requirements for

²⁹[GAO-14-431](#).

SBIR and STTR based on total R&D budgets since small businesses are only involved in extramural R&D, and total R&D budgets include funding for both intramural and extramural R&D. These officials said that structuring the spending requirements in this way could result in intramural research programs paying to support research at small businesses that does not directly benefit the programs, depending on how agencies decide to implement the change. In addition, some program managers raised concerns that a significant increase in the funding for the programs could be a challenge in the short term because they do not currently receive enough quality applications to meet the potential increased spending requirements, and it could take several years before they would have enough quality applications to meet the new spending requirements.

Total Administrative Spending in Fiscal Year 2013 Is Unknown, but Six Agencies Spent \$12.3 Million on the Administrative Pilot Program

Little is known about total administrative spending for fiscal year 2013 because the agencies that participate in the SBIR and STTR programs are not required to and do not fully track these costs.³⁰ Agencies participating in the administrative pilot program reported spending \$12.3 million on various new administrative and oversight activities in fiscal year 2013, but this amount does not represent total administrative spending. Furthermore, officials at some agencies expressed concern about the temporary nature of the pilot.

Little Is Known about Total Administrative Spending

Little is known about the total amount that agencies spent to administer their SBIR and STTR programs for fiscal year 2013 because the agencies are not required to and do not fully track these costs. For example, officials we interviewed told us that they do not have systems in place to accurately track the cost of all personnel who participate in the SBIR and STTR programs on a part-time basis, such as those who review applications or monitor contracts. Officials at three agencies said that tracking total administrative costs for the SBIR and STTR programs would

³⁰Prior to the implementation of the pilot program, agencies were generally prohibited from spending program funds on program administration.

require that they develop a more accurate time accounting system with codes for the programs. In response to our requests for data on their fiscal year 2013 administrative costs, most agencies provided information on some categories of administrative costs and partial estimates of costs. We received estimates for administrative costs from 9 of the 11 agencies participating in the programs.³¹ These estimates ranged from about \$388,000 to \$27 million. As with the data for fiscal years 2011 and 2012 provided for our previous reports, these data were incomplete and unverifiable.

Six Agencies Participated in the Administrative Pilot Project in Fiscal Year 2013 and Spent \$12.3 Million

Six agencies—DOD, DOE, HHS, NSF, USDA, and the Department of Transportation—participated in the administrative pilot program in fiscal year 2013, and these agencies reported spending \$12.3 million on administrative and oversight activities as part of the program.³² Under the 2011 reauthorization of the SBIR and STTR programs, agencies could spend up to 3 percent of SBIR funds on program administration and similar costs beginning in fiscal year 2013.³³ According to the programs' policy directives, funding for the pilot program cannot replace current agency administrative funding.³⁴ SBA's policy directives require each agency to submit a work plan to SBA that includes, among other information, a prioritized list of initiatives, the estimated amounts to be spent on each initiative, and the expected results to be achieved. The policy directives require SBA to evaluate the work plan and provide initial comments within 15 calendar days of receipt of the plan. If SBA does not provide initial comments within 30 calendar days of receipt of the plan, the work plan is deemed approved. SBA is supposed to use the information to report on the pilot program to Congress.

³¹We did not receive estimates from DOD or HHS.

³²The administrative pilot program provided agencies with new flexibility to undertake activities they otherwise would not have been able to take, but five agencies chose not to participate in the program in fiscal year 2013. The agencies that did not participate were the Departments of Commerce and Education, DHS, EPA, and NASA.

³³National Defense Authorization Act for Fiscal Year 2012, Pub. L. No. 112-81, § 5141, 125 Stat. 1298, 1852.

³⁴The policy directives state that the purpose of the pilot program is to assist with the substantial expansion in commercialization activities; prevention of fraud, waste, and abuse; expansion of reporting requirements by agencies; and other agency activities required for the programs.

Program officials at four agencies that participated in the pilot program said they used funding from the administrative pilot program to, for example, hire new staff; conduct outreach to previously underserved populations such as minority-owned small businesses; take steps to reduce fraud, waste, and abuse; and upgrade internal data systems. Of the five agencies that chose not to participate in the administrative pilot program—Commerce, Education, EPA, DHS, and NASA—three said that participation in the program would take money away from making awards to small businesses. Another agency that chose not to participate, DHS, submitted a program proposal to SBA for the administrative pilot program, but agency officials told us that they decided not to participate because internal policies kept them from hiring a dedicated contracting officer/specialist, and a conference they planned to attend to conduct outreach to underserved communities was cancelled.

Program officials at most of the agencies that participated in the pilot program told us that SBA's approval of the work plans after the fiscal year started or late appropriations from Congress contributed to agencies spending less than they planned to spend in fiscal year 2013.³⁵ In fiscal year 2013, agencies estimated that they would spend \$58.2 million on the administrative pilot program, but our analysis of the agencies' work plans and data provided to SBA shows that agencies obligated \$12.3 million or 21 percent of the proposed amount (see table 3). Of the six agencies that participated, DOE obligated most of what it estimated it would spend. One program manager said that the small amount of money the agency spent through the administrative pilot program in fiscal year 2013 is somewhat misleading, as many of the agency's activities were just getting started, and agency officials expected to spend more in the future on allowable administrative pilot activities. Another agency official told us that the agency did not participate in the administrative pilot program in fiscal year 2013 because the agency drafted its plan late in the fiscal year and could not make planned expenditures, but that the agency participated in the pilot program in fiscal year 2014. Finally, officials at one agency raised concerns that it was challenging to find new activities, in part because the agency was already doing or had recently done some things that they wanted to fund. For example, program managers for one agency told us that they wanted to use funds from the administrative pilot program to

³⁵Fiscal year 2013 appropriations for the SBIR and STTR programs were enacted in March 2013.

reinstate in-person award review panels, which were discontinued due to lack of funding. However, SBA refused to allow it, stating that funds from the administrative pilot program could only be used to support new activities. The agency officials said that they understand SBA's reasoning but believed that restoring discontinued administrative activities should be considered new activities and allowed.

Table 3: Proposed Spending and Actual Obligations for Fiscal Year 2013 Administrative Pilot

Agency	Proposed spending for fiscal year 2013 administrative pilot program	Obligations for fiscal year 2013 administrative pilot program	Percentage of proposed spending obligated in fiscal year 2013
Department of Agriculture	\$480,000	\$7,048	1%
Department of Commerce	10,500	0	N/A
Department of Defense	30,100,000	2,427,884	8%
Department of Education	0	0	N/A
Department of Energy	1,445,000	1,295,000	90%
Department of Health and Human Services	19,700,000	7,388,589	38%
Department of Homeland Security	250,720	0	N/A
Department of Transportation	165,000	6,330	4%
Environmental Protection Agency	0	0	N/A
National Aeronautics and Space Administration	3,070,000	0	N/A
National Science Foundation	3,000,000	1,166,006	39%
Total	\$58,221,220	\$12,290,857	21%

Sources: GAO analysis of agencies' data. | GAO-15-358

Note: N/A = not applicable.

In fiscal year 2013, SBA requested that agencies submit data on the total amount spent on the administrative pilot program, but it did not request agencies to submit information on how they used the funds. The 2011 reauthorization of the programs requires SBA to provide Congress with a report on the use of administrative pilot program funds.³⁶ Fiscal year 2013 was the first year of the pilot program, and SBA officials said they were still determining the information they needed to report to Congress. SBA officials told us that they did not have information about how agencies used their funds for the administrative pilot program and acknowledged

³⁶National Defense Authorization Act for Fiscal Year 2012, § 5141.

that it would be useful to have. A list of the activities agencies initiated and the costs of each of these activities is one way that SBA could obtain further information on the use of funds. In response to our questions, SBA officials sent an e-mail to the 11 participating agencies requesting that they provide SBA with a summary of how funds for the administrative pilot program were used. In March 2015, the SBA officials said that they were in the process of receiving and clarifying the agency responses. Ten of the agencies told us that they could provide the information to SBA if requested.³⁷ Because SBA has not required agencies to submit information on how they used the funds, SBA cannot undertake a comprehensive evaluation of the performance of the administrative pilot program and provide greater transparency when reporting to Congress.

Some program managers told us that they planned to spend more money on the administrative pilot program in fiscal years 2014 and 2015, but there is concern about the future of the pilot beyond fiscal year 2015. Specifically, officials at 7 of the 11 agencies that participated in the SBIR and STTR programs told us that they would prefer that the administrative pilot program were either extended or made permanent. Some officials said that the program should be extended to give SBA enough time to track whether pilot-funded initiatives were successful, while other officials were concerned about hiring new staff when the funding for the positions might not be available after fiscal year 2015.

Conclusions

Federal agencies have awarded billions of dollars to small businesses under the SBIR and STTR programs to develop and commercialize innovative technologies. In our previous reports on these issues, we identified some areas where SBA could take actions to better ensure agencies' compliance with spending and reporting requirements. For example, in our last report, we recommended that SBA clarify in the SBIR and STTR policy directives that agencies are supposed to spend the required amount each year, rather than reserving funds for future years to meet spending requirements. We also recommended that SBA request that agencies submit their methodology reports within 4 months of appropriations, as required by law. SBA officials said that they plan to take actions to address both of these recommendations but had not done

³⁷ Officials from one agency told us that they did not participate in the Administrative Pilot Program, and therefore, were not in a position of comment on whether they could provide SBA with the information.

so before agencies submitted their fiscal year 2013 data, and we found that these issues continue. Thus, we continue to believe the recommendations have merit and should be fully implemented.

In addition to issues that could be addressed by implementing our prior recommendations, we identified three issues that—if left unaddressed—could affect compliance with spending and reporting requirements in the future. First, most agencies continued to provide SBA with data on their extramural R&D budgets, rather than the amounts they actually obligated for extramural R&D. In doing so, agencies have limited SBA's ability to accurately assess whether they complied with program spending requirements. Without information on how much agencies obligated for extramural R&D, SBA cannot accurately determine and report to Congress on compliance with spending requirements. Program managers told us that they face challenges in submitting obligations data to SBA. For example, they cited difficulties in calculating their actual extramural R&D obligations and challenges in complying with spending requirements based on a figure that is not known until after the end of the fiscal year—when it is too late to obligate additional funds to comply with the requirements. Nevertheless, the Small Business Act defines the annual spending requirements as a percentage of their extramural R&D obligations. Without SBA notifying Congress or developing a proposal for Congress to change the requirement, agencies are likely to continue to face challenges in submitting the correct data to SBA and in complying with the law. Second, SBA did not include an analysis of agencies' methodology reports in its most recent report to Congress for fiscal year 2012, and SBA officials told us it was not clear from the methodology reports how agencies were calculating their extramural R&D. Moreover, some program managers told us that the purpose of the methodology reports is not clear. The law requires SBA to include an analysis of the agencies' methodology reports to Congress. However, each of the agencies submits methodology reports of varying detail, with some providing limited information on how they calculated their extramural R&D budgets, making it difficult for SBA to analyze the agencies' methodology reports. Without assessing whether the information it collects is adequate to analyze agencies' methodology reports, SBA cannot ensure that it is providing Congress with an accurate analysis of how agencies calculate their extramural R&D. Third, the administrative pilot program provides agencies with an opportunity to expand their oversight and administration of the programs. In fiscal year 2013, SBA requested the total amount that agencies spent on the administrative pilot program from the agencies but did not require agencies to submit information on how they used the funds. Without this additional information, SBA cannot undertake a

comprehensive evaluation of the performance of the administrative pilot program allowing it to provide greater transparency on the program to Congress.

Recommendations for Executive Action

To ensure full compliance with SBIR and STTR spending and reporting requirements, we recommend that the SBA Administrator take the following three actions:

- Notify Congress in SBA's annual report if it cannot determine agency compliance with program spending requirements when agencies that participate in the SBIR and/or STTR programs do not report extramural R&D obligations data, or develop a proposal to Congress that would change the requirement.
- Assess the methodology reporting requirement to determine whether it generates adequate information for SBA to analyze the accuracy of agencies' calculations of their extramural R&D. If SBA finds that the information is inadequate, SBA should update its guidance to require adequate information.
- Provide greater transparency for the administrative pilot program by requiring participating agencies to provide data on the use of the funds, rather than a total cost for all of the activities under the pilot.

Agency Comments and Our Evaluation

We provided a draft of this report to SBA and the 11 participating agencies for review and comment. In an e-mail response, SBA agreed with our recommendations. SBA also provided technical comments, as did DHS and HHS, which we incorporated as appropriate. Seven of the agencies—Commerce, DOE, DOT, Education, EPA, NASA, and NSF had no technical or written comments. The remaining agencies—DOD and USDA—provided written comments, which were reproduced in appendixes III and IV, respectively.

In its written comments, the DOD Acting Director for the Office of Small Business programs raised two issues. First, DOD recommended that we remove the assertion that the extramural budget is defined as actual obligations over the course of the year. DOD stated that the spending requirement is calculated within 4 months following the enactment of annual appropriations; therefore the spending requirement must be based on the planned extramural R&D budget, which has an obligation period of 2 years, and not over the course of the year as defined in this report. DOD is not required to calculate its spending requirement in the first four

months after it receives its appropriation, but only required to submit its methodology for calculating its spending requirement. In addition, we acknowledge that DOD generally has two years to obligate its R&D funds, but agencies are specifically required to spend it in each fiscal year. Moreover, the Small Business Act defines extramural R&D budget in terms of obligations. Nothing in the act indicates that “obligations” should be construed as “planned obligations.” Therefore, we continue to believe that the extramural R&D budget is defined as actual obligations over the course of the year. In their second point, DOD recommends submitting the extramural budget calculated in the methodology report, rather than actual extramural obligations, to SBA in the annual report. We recognize that using extramural R&D obligations makes it difficult for agencies to comply with spending requirements and we recommend in this report that SBA notify Congress if it cannot determine compliance with spending requirements when agencies do not report extramural R&D obligations data, or develop a proposal to Congress that would change the requirement.

In its written comments, USDA’s Director of the National Institute of Food and Agriculture stated that USDA generally agrees with our report. The official stated that because total obligations for extramural R&D are not known until the end of the fiscal year, it makes it difficult for the agency to ensure that funding targets for SBIR are met every year. USDA agreed with our recommendation that SBA should submit a proposal to Congress to change the requirement.

We are sending copies of this report to the appropriate congressional committees; the Secretaries of Agriculture, Commerce, Defense, Education, Energy, Homeland Security, Health and Human Services, and Transportation; the Administrators of the Small Business Administration, the Environmental Protection Agency, and the National Aeronautics and Space Administration; the Director of the National Science Foundation; and other interested parties. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or neumannj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.

A handwritten signature in black ink, appearing to read 'John Neumann', with a long horizontal flourish extending to the right.

John Neumann
Director, Natural Resources and Environment

List of Committees

The Honorable David Vitter
Chairman
The Honorable Jeanne Shaheen
Ranking Member
Committee on Small Business & Entrepreneurship
United States Senate

The Honorable Lamar Smith
Chairman
The Honorable Eddie Bernice Johnson
Ranking Member
Committee on Science, Space and Technology
House of Representatives

The Honorable Steve Chabot
Chairman
The Honorable Nydia M. Velázquez
Ranking Member
Committee on Small Business
House of Representatives

Appendix I: Agencies' Compliance with Spending Requirements for the Small Business Innovation Research Program for Fiscal Year 2013, according to Agency Data

The data that the agencies submitted to the Small Business Administration (SBA) indicate that 9 of the 11 participating agencies spent amounts for the Small Business Innovation Research (SBIR) program that met or exceeded their fiscal year 2013 spending requirements, while spending for the remaining 2 agencies did not meet the requirements.¹ (See table 4.)

Table 4: Agency Compliance with Small Business Innovation Research (SBIR) Program Spending Requirements for Fiscal Year 2013, according to Agency Data (dollars in millions)

Agency	Extramural research or research and development (R&D) obligations	Amount spent ^a	Calculated spending requirement ^b	Difference between amount spent and spending requirement	Percentage of extramural R&D obligations spent for SBIR
Department of Defense	\$33,879	\$977.7	\$ 914.7	\$ 63.0	2.9 %
Department of Health and Human Services	23,322	630.1	629.7	0.4	2.7%
Department of Energy ^c	5,899	157.7	159.3	(1.6)	2.7%
National Aeronautics and Space Administration	5,217	132.5	140.9	(8.3)	2.5%
National Science Foundation	4,877	142.9	131.7	11.2	2.9%
U.S. Department of Agriculture	682	18.9	18.4	0.5	2.8%
Department of Education	303	10.0	8.2	1.8	3.3%
Department of Homeland Security	414	19.6	11.2	8.4	4.7%
Department of Transportation	253	8.2	6.8	1.4	3.2%
Department of Commerce	258	5.4	7.0	(1.6)	2.1%
Environmental Protection Agency	139	4.4	3.8	0.6	3.2%
Total	\$75,243	\$2,107.4	\$2,031.6	\$75.8	2.8%

Sources: GAO analysis of agencies' data submitted to SBA. | GAO-15-358

Notes: Calculations may be affected by rounding. Cells shaded gray indicate the agency did not meet its spending requirement in fiscal year 2013, according to data that the agency submitted.

^aThe amount spent is the total obligations that the agency submitted to SBA.

¹For the purposes of this report, we defined compliance as spending at least 2.7 percent of an agency's reported extramural R&D obligations on the SBIR program in fiscal year 2013, as required in the Small Business Act. This method is consistent with SBA's approach for calculating spending requirements in its reports to Congress on the program. If an agency's spending for the SBIR program as a percentage of its extramural R&D obligations was within a rounding error of the required level, we considered that agency to be in compliance with the spending requirement.

**Appendix I: Agencies' Compliance with
Spending Requirements for the Small
Business Innovation Research Program for
Fiscal Year 2013, according to Agency Data**

^bWe calculated the spending requirement as 2.7 percent of the agency's extramural R&D obligations, as required in the Small Business Act.

^cIf an agency's spending for the SBIR program as a percentage of its extramural R&D budget was within a rounding error of the required level, we considered that agency to be in compliance with the spending requirement. This was the case with the Department of Energy.

Appendix II: Agencies' Compliance with Spending Requirements for the Small Business Technology Transfer Program for Fiscal Year 2013, according to Agency Data

The data that the agencies submitted to the Small Business Administration (SBA) indicate that four of the five participating agencies spent amounts for the Small Business Technology Transfer (STTR) program that met or exceeded their fiscal year 2013 spending requirements, while one agency did not.¹ (See table 5.)

Table 5: Agency Compliance with Small Business Technology Transfer (STTR) Program Spending Requirements for Fiscal Year 2013, according to Agency Data (dollars in millions)

Agency	Extramural research or research and development (R&D) obligations	Amount spent ^a	Calculated spending requirement ^b	Difference between amount spent and spending requirement	Percentage of extramural R&D obligations spent for STTR
Department of Defense	\$33,879	\$114.4	\$118.6	\$(4.2)	0.34%
Department of Health and Human Services ^c	23,322	81.0	81.6	(0.6)	0.35%
Department of Energy	5,899	21.7	20.6	1.1	0.37%
National Space and Aeronautics Administration	5,217	18.8	18.3	0.5	0.36%
National Science Foundation	4,877	18.4	17.1	1.3	0.38%
Total	\$73,194	\$ 254.3	\$256.2	\$(1.9)	0.35%^c

Sources: GAO analysis of agencies' data submitted to SBA. | GAO-15-358

Notes: Calculations may be affected by rounding. Cells shaded gray indicate the agency did not meet its spending requirement in fiscal year 2013, according to data the agency submitted to SBA.

^aThe amount spent is the total obligations that the agency submitted to the SBA.

^bWe calculated the spending requirement as 0.35 percent of the agency's extramural R&D obligations, as required in the Small Business Act.

^cIf an agency's spending for the STTR program as a percentage of its extramural R&D budget was within a rounding error of the required level, the agency was in compliance with the spending requirement. This was the case with the Department of Health and Human Services.

¹For the purposes of this report, we defined compliance as spending at least 0.35 percent of an agency's reported extramural R&D obligations on the STTR program in fiscal year 2013, as required by the Small Business Act. This method is consistent with SBA's approach for calculating spending requirements in its reports to Congress on the program. If an agency's spending for the STTR program as a percentage of its extramural R&D obligations was within a rounding error of the required level, we considered that agency to be in compliance with the spending requirement.

Appendix III: Comments from the Department of Defense



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

APR 7 2015

Mr. John Neumann
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Neumann,

This is the Department of Defense (DoD) response to the GAO Draft Report GAO-15-358, "SMALL BUSINESS RESEARCH PROGRAMS: Challenges Remain in Meeting Spending and Reporting Requirements," dated February 27, 2015 (GAO Code 361591).

1. In the section entitled "SBA's Ability to Determine Compliance is Limited by Incorrect Data" on page 8, the report notes that "The Small Business Act requires agencies to calculate their spending requirements based on their extramural R&D budget, but defines the extramural R&D budget as the actual obligations over the course of the year - which are not fully known until the end of the year -..." The Small Business Act does not specify planned or actuals in 15 U.S.C. 638 (e)(1) for the definition of "extramural budget." In addition, the section 638(e)(1) does not define the "extramural budget" as obligations over the course of the year. The DoD obligation period for R&D funding is over two years. The spending requirement is calculated within the 4 months following the enactment of the annual appropriations; therefore, the spending requirement must be based on the planned extramural R&D budget, which has an obligation period of two years, and not the actual extramural R&D obligations over the course of the year as defined in this report.

DoD recommends removing the assertion that the extramural budget is defined as the actual obligations over the course of the year.

2. The report also notes on page 8 that SBA requests actual extramural obligations be submitted in the annual report.

DoD recommends using the extramural budget calculated in the methodology report submitted within 4 months following the enactment of agencies annual appropriations.

Sincerely,

Kenyata L. Wesley
Acting Director
Office of Small Business Programs

Appendix IV: Comments from the Department of Agriculture



MAR 31 2015

United States
Department
of Agriculture

Research,
Education, and
Economics

National Institute
of Food and
Agriculture

1400 Independence
Avenue SW
Washington, DC 20250

Mr. John Neumann
Director, Natural Resources and Environment
U.S. Government Accountability Office
Washington, D.C. 20548

Dear Mr. Neumann:

The U.S. Department of Agriculture (USDA) appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report titled "*Small Business Research Programs: Challenges Remain in Meeting Spending and Reporting Requirements* (GAO-15-358)" dated April 2015.

The Small Business Innovation Research (SBIR) program was, in part, established to address the difficulty high tech small business firms encountered when competing for federal Research & Development (R&D) funds. The SBIR program is administered in a coordinated manner government-wide. All Federal agencies with an extramural R&D budget over \$100,000,000 must expend a certain percentage of those funds every fiscal year on small business concerns under the SBIR program. GAO has been mandated by Congress to determine if the SBIR programs are meeting these requirements.

As reflected in the most recent draft report, the National Institute of Food and Agriculture (NIFA) met its FY2013 target. USDA generally agrees with the findings in the GAO draft report; but would like to add the following comment.

As the report notes, the Small Business Act requires agencies to calculate their spending requirements based on their extramural R&D budget, but defines the extramural R&D budget as the actual obligations over the course of the year – which are not fully known until the end of the year – rather than the amount that agencies propose to spend on the program early in the fiscal year. For USDA, the National Institute of Food and Agriculture (NIFA) Budget office determines an annual estimate of the amount the SBIR program will receive from NIFA and five to six other USDA agencies. This is based on the statutory percentage in effect for a particular fiscal year (for fiscal year 2013, 2.7 percent). NIFA reports this figure as the amount of funds USDA is required to expend on the SBIR program each year. Because total obligations for extramural R&D are not known until the end of the fiscal year, this makes it more difficult to ensure that funding targets for SBIR are met every year. Accordingly, we concur with the GAO recommendation that the Small Business Administration should consider developing a proposal that would change the statutory requirement currently based on obligations.

Thank you for the opportunity to review and respond to the GAO draft report.

Sincerely,

A handwritten signature in black ink, appearing to read "Sonny Ramaswamy".

Sonny Ramaswamy
Director

An Equal Opportunity Provider and Employer

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

John Neumann, (202) 512-3841 or neumannj@gao.gov

Staff Acknowledgments

In addition to the individual named above, Hilary Benedict, Assistant Director; Jeffrey Barron; Andrew Burton; Antoinette Capaccio; Cindy Gilbert; Marya Link; Perry Lusk; Cynthia Norris; and Dan Royer made key contributions to this report.

Appendix VI: Accessible Data

Data Table for Figure 1: Percentage of Extramural Research or Research and Development (R&D) Obligations Spent on the Small Business Innovation Research (SBIR) Program in Fiscal Year 2013, according to Agency Data

Agency	Percentage
DHS	4.73
Education	3.30
DOT	3.24
EPA	3.17
NSF	2.93
DOD	2.89
USDA	2.77
HHS	2.70
DOE	2.67
NASA	2.54
Commerce	2.10

Data Table for Figure 2: Percentage of Extramural Research or Research and Development (R&D) Obligations That Participating Agencies Spent on the Small Business Technology Transfer (STTR) Program in Fiscal Year 2013, according to Agency Data

Agency	Percentage
NSF	0.38
DOE	0.37
NASA	0.36
HHS	0.35
DOD	0.34

Data Table for Figure 3: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and an Alternative Scenario Using Current Percentages (dollars in millions)

Agency	Agency's budget Total research and development budget ^a	Agency's budget Extramural research_ or research and development obligations ^b	Small Business Innovation Research Program Spending requirement under current law ^c	Small Business Innovation Research Program Spending requirement under alternative scenario ^d	Small Business Innovation Research Program Percentage difference between current law and alternative scenario	Small Business Technology Transfer Program Spending requirement under current law ^e	Small Business Technology Transfer Program Spending requirement under alternative scenario ^f	Small Business Technology Transfer Program Percentage difference between current law and alternative scenario
DOD	\$63,767	\$33,879	\$915	\$1,722	88%	\$119	\$223	88%
HHS	29,753	23,322	630	803	28	82	104	28
NASA	11,113	5,217	141	300	113	18	39	113
DOE	10,169	5,899	159	275	72	21	36	72
NSF	4,947	4,877	132	134	1	17	17	1
USDA	2,038	682	18	55	199	g	7	g
Veterans Affairs	1,164	g	g	31	g	g	4	g
Commerce	1,143	258	7	31	344	g	4	g
DOT	808	253	7	22	220	h	h	h
Interior	782	g	g	21	g	h	h	h
DHS	572	414	11	15	38	h	h	h
EPA	527	139	4	14	279	h	h	h
Education	319	303	8	9	5	h	h	h
Total	\$127,102	\$75,243	\$2,032	\$3,432	69%	\$256	\$434	70%

Data Table for Figure 4: Comparison of Fiscal Year 2013 Spending Requirements under the Current Law and a Second Alternative Scenario Using Lower Percentages

Agency	Agency's budget Total research and development budget /a/	Agency's budget Extramural research or research and development obligations /b/	Small Business Innovation Research Program Spending requirement under current law /c/	Small Business Innovation Research Program Spending requirement under alternative scenario /d/	Small Business Innovation Research Program Percentage difference between current law and alternative scenario	Small Business Technology Transfer Program Spending requirement under current law /e/	Small Business Technology Transfer Program Spending requirement under alternative scenario /f/	Small Business Technology Transfer Program Percentage difference between current law and alternative scenario
DOD	\$63,767	\$33,879	\$915	\$1,019	11%	\$119	\$129	8%
HHS	29,753	23,322	630	476	-24	82	60	-27
NASA	11,113	5,217	141	178	26	18	22	23
DOE	10,169	5,899	159	163	2	21	20	-1
NSF	4,947	4,877	132	79	-40	17	10	-42
USDA	2,038	682	18	33	77	g	4	g
Veterans Affairs	1,164	g	g	19	g	g	2	g
Commerce	1,143	258	7	18	163	g	2	g
DOT	808	253	7	13	89	h	h	h
Interior	782	g	g	12	g	h	h	h
DHS	572	414	11	9	-18	h	h	h
EPA	527	139	4	8	125	h	h	h
Education	319	303	8	5	-38	h	h	h
Total	\$127,102	\$75,243	\$2,032	\$2,032	0%	\$256	\$250	-2%

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (<http://www.gao.gov>). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to <http://www.gao.gov> and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <http://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#). Subscribe to our [RSS Feeds](#) or [E-mail Updates](#). Listen to our [Podcasts](#). Visit GAO on the web at www.gao.gov.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: <http://www.gao.gov/fraudnet/fraudnet.htm>

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548