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September 2012

DEPARTMENT OF HOMELAND SECURITY

Oversight and Coordination of Research and Development Should Be Strengthened

GAO-12-837

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Oversight And Coordination of Research and Development Should Be Strengthened

GAO Accountability * Integrity * Reliability

Highlights

Highlights of GAO-12-837, a report to congressional requesters

Why GAO Did This Study

Conducting R&D on technologies for detecting, preventing, and mitigating terrorist threats is vital to enhancing the security of the nation. Since its creation, DHS has spent billions of dollars researching and developing technologies used to support its missions including securing the border, detecting nuclear devices, and screening airline passengers and baggage for explosives, among others. Within DHS, S&T conducts R&D and is the component responsible for coordinating R&D across the department, but other components, such as the Coast Guard and DNDO, also conduct R&D to support their respective missions. GAO was asked to identify (1) how much DHS invests in R&D and the extent to which DHS has policies and guidance for defining R&D and overseeing R&D resources and efforts across the department, and (2) the extent to which R&D is coordinated within DHS to prevent overlap, fragmentation, or unnecessary duplication. GAO reviewed information on DHS R&D budgets, contracts, and DHS spending on R&D at DOE national laboratories for fiscal years 2010 through 2012. GAO also reviewed DHS R&D plans and project documentation, and interviewed DHS headquarters and component officials.

What GAO Recommends

GAO recommends that DHS develop policies and guidance for defining, reporting and coordinating R&D activities across the department; and that DHS establish a mechanism to track R&D projects. DHS concurred with GAO's recommendations.

View GAO-12-837. For more information, contact David C.Maurer at (202) 512-9627 or maurerd@gao.gov.

What GAO Found

The Department of Homeland Security (DHS) does not know the total amount its components invest in research and development (R&D) and does not have policies and guidance for defining R&D and overseeing R&D resources across the department. According to DHS, its Science & Technology Directorate (S&T), Domestic Nuclear Detection Office (DNDO), and U. S. Coast Guard are the only components that conduct R&D and, according to GAO's analysis, these are the only components that report budget authority, obligations, or outlays for R&D activities to the Office of Management and Budget (OMB) as part of the budget process. However, GAO identified an additional $255 million in R&D obligations by other DHS components. For example, S&T reported receiving $50 million in reimbursements from other DHS components to conduct R&D. Further, 10 components obligated $55 million for R&D contracts to third parties and $151 million to Department of Energy (DOE) national laboratories for R&D-related projects, but these were not reported as R&D to OMB. According to DHS, it is difficult to identify all R&D investments across the department because DHS does not have a department wide policy defining R&D or guidance directing components how to report all R&D spending and activities. As a result, it is difficult for DHS to oversee components' R&D efforts and align them with agency wide R&D goals and priorities. Developing specific policies and guidance could assist DHS components in better understanding how to report R&D activities, and better position DHS to determine how much the agency invests in R&D to effectively oversee these investments.

S&T has taken some steps to coordinate R&D efforts across DHS, but the department's R&D efforts are fragmented and overlapping, which increases the risk of unnecessary duplication. R&D at DHS is inherently fragmented because S&T, the Coast Guard, and DNDO were each given R&D responsibilities in law, and other DHS components may pursue and conduct their own R&D efforts as long as those activities are coordinated through S&T. S&T uses various mechanisms to coordinate its R&D efforts including component liaisons, component R&D agreements, joint R&D strategies, and integrated R&D product teams composed of S&T and component officials. However, GAO identified 35 instances of overlap among contracts that DHS components awarded for R&D projects. For example, S&T and the Transportation Security Administration both awarded overlapping contracts to different vendors to develop advanced algorithms to detect the same type of explosive. While GAO did not identify instances of unnecessary duplication among these contracts, DHS has not developed a policy defining who is responsible for coordinating R&D and what processes should be used to coordinate it, and does not have mechanisms to track all R&D activities at DHS that could help prevent overlap, fragmentation, or unnecessary duplication. For example, S&T did not track homeland security-related R&D activities that DHS components contracted through DOE national laboratories from fiscal year 2010 through 2013; thus, it could not provide information on those contracts. Developing a policy defining the roles and responsibilities for coordinating R&D, and establishing coordination processes and a mechanism to track all R&D projects could help DHS mitigate existing fragmentation and overlap, and reduce the risk of unnecessary duplication.

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Abbreviations

ASOA	Acquisition Support and Operations Analysis
ATD	Advanced Technology Development
CBP	U.S. Customs and Border Protection
CFO	Chief Financial Officer
C-TPAT	Customs Trade Partners Against Terrorism
DHS	Department of Homeland Security
DNDO	Domestic Nuclear Detection Office
DOD	Department of Defense
DOE	Department of Energy
FAR	Federal Acquisitions Regulation
FEMA	Federal Emergency Management Agency
FFAS	Federal Financial Accounting Standards
FMR	Financial Management Regulation
FPDS-NG	Federal Procurement Data System Next Generation
FRG	First Responder Group
HSARPA	Homeland Security Advanced Research Projects Agency
ICE	U.S. Immigration and Customs Enforcement
IED	Improvised Explosive Device
IPT	Integrated Product Team
NAPA	National Academy of Public Administration
NASA	National Aeronautical and Space Administration
NPPD	National Protection and Programs Directorate
NSF	National Science Foundation
OHA	Office of Health Affairs
OMB	Office of Management and Budget
ONL	Office of National Laboratories
OSTP	Office of Science and Technology Policy
PARM	Program Accountability and Risk Management
R&D	research and development
RDT&E	Research, Development, Testing, and Evaluation
S&T	Science and Technology Directorate
SDD	System Development and Demonstration
STICs	Science and Technology Investment Councils
STORE	Science and Technology Operational Research and Enhancement
TSA	Transportation Security Administration
TTA	technology transition agreements
USCIS	U.S. Citizenship and Immigration Services

GAO
Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

September 12, 2012

The Honorable Joseph I. Lieberman
Chairman
The Honorable Susan Collins
Ranking Member
Committee on Homeland Security
and Governmental Affairs
United States Senate

The Honorable Daniel Akaka
Chairman
Subcommittee on Oversight of Government
Management, the Federal Workforce,
and the District of Columbia
Committee on Homeland Security
and Governmental Affairs
United States Senate

Conducting research and development (R&D) on technologies for detecting, preventing, and mitigating terrorist threats is vital to enhancing the security of the nation. The Department of Homeland Security (DHS) conducts research, development, testing, and evaluation of new technologies that are intended to strengthen the United States' ability to prevent and respond to nuclear, biological, explosive, and other types of attacks within the United States. The department's Science and Technology (S&T) Directorate conducts research, development, demonstration, testing, and evaluation activities and also has responsibility for coordinating and integrating all such activities of the department, as provided by the Homeland Security Act of 2002.[1] Although S&T conducts R&D and has responsibility for coordinating R&D, other DHS components, including the Domestic Nuclear Detection Office (DNDO) and the U. S. Coast Guard, conduct R&D in support of their respective missions.

[1]Pub. L. No. 107-296, § 302,116 Stat. 2135, 2163-64 (codified as amended at 6 U.S.C. § 182).

Since it began operations in 2003, DHS, through both S&T and other components, has spent billions of dollars researching and developing technologies used to support a wide range of missions, including securing the border, detecting nuclear devices, and screening airline passengers and baggage for explosives, among others. In May 2004, we reported that DHS had not completed a strategic plan to identify priorities, goals, objectives, and policies for the R&D of homeland security technologies, and gaps remained in its efforts to coordinate with other federal agencies that conduct homeland security R&D.[2] We recommended that DHS complete a strategic R&D plan and ensure that the plan was integrated with homeland security R&D conducted by other federal agencies. DHS agreed with our recommendation but has not yet implemented it. In June 2009, the National Academy of Public Administration (NAPA) reported on S&T's structure, processes, and the execution of its cross-government leadership role.[3] NAPA reported that although S&T was charged by statute to provide a leading role in guiding homeland-security related research, S&T has no authority over other federal agencies that conduct homeland-security related research, and was in a relatively weak position to carry out its leadership role. NAPA further reported that the weaknesses in S&T's strategic planning increased the risk for duplication of efforts and recommended, among other things, that S&T follow the Office of Management and Budget (OMB) and GAO guidance in formulating a strategic plan to guide its work. In July 2012, S&T provided a draft strategy that identifies the roles and responsibilities for coordinating homeland security science and technology related functions across the U.S. government to the White House's Office of Science & Technology Policy for review, but the White House had not yet approved that draft.[4]

In November 2011, we reported that while S&T developed a 5-year R&D plan in 2008 to guide its efforts and was finalizing a new strategic plan to align its own R&D investments and goals, DHS had not yet completed a

[2]GAO, *Homeland Security: DHS Needs a Strategy to Use DOE's Laboratories for Research on Nuclear, Biological, and Chemical Detection and Response Technologies,* GAO-04-653 (Washington, D.C.: May 24, 2004).

[3]National Academy of Public Administration, *Department of Homeland Security Science and Technology Directorate: Developing Technology to Protect America* (Washington D.C.: June 2009).

[4]We did not review this draft strategy as part of our work on DHS R&D efforts.

strategic plan to align all R&D efforts across the department, as we previously recommended in 2004.[5] We also reported that S&T had undertaken a series of efforts related to its organizational structure and underwent a new strategic planning process, developed new strategic goals, and conducted a reorganization intended to better achieve its strategic goals as a result of the NAPA study. We also reported that these efforts had only recently been initiated, so it was too early to assess their effectiveness.[6]

Not having a department-wide strategy for managing R&D has raised questions about the extent to which R&D investments and efforts are being overseen and coordinated effectively across DHS. As a result, you requested that we conduct a review to determine how DHS oversees R&D resources and coordinates R&D efforts across the department. Specifically, this report addresses the following two questions:

1. How much does DHS invest in R&D and to what extent does it have policies and guidance for defining R&D and overseeing R&D resources and efforts across the department?

2. To what extent is R&D coordinated within DHS to prevent overlap, fragmentation, and unnecessary duplication across the department?[7]

To determine how much DHS invests in R&D and the extent to which it has policies and guidance for defining R&D and overseeing R&D resources, we reviewed DHS's budget and congressional budget justifications to identify R&D investments reported from fiscal years 2011 through 2013. To identify DHS's reported R&D budget authority, we analyzed R&D budget authority included in budget submissions to OMB

[5]GAO, *DHS Research and Development: Science and Technology Directorate's Test and Evaluation and Reorganization Efforts*, GAO-12-239T, (Washington, D.C.: Nov. 17, 2011).

[6]We did not assess the effectiveness of S&T's strategic planning process or reorganization as part of this review.

[7]Fragmentation occurs when more than one federal agency (or more than one organization within an agency) is involved in the same broad area of national interest. Overlap occurs when programs have similar goals, devise similar strategies and activities to achieve those goals, or target similar users. Duplication occurs when two or more agencies or programs are engaged in the same activities or provide the same services to the same beneficiaries.

from fiscal years 2010 through 2013.[8] We also analyzed S&T, DNDO, and Coast Guard budgets to identify budget authority for R&D activities in non-R&D budget accounts. Further, we analyzed data from the Federal Procurement Data System Next Generation (FPDS-NG) to identify DHS R&D-related contracts for fiscal years 2007 through 2011. We also obtained data from the Department of Energy's (DOE) national laboratories from fiscal years 2010 through 2012 to identify how much DHS components obligated for R&D-related work at the national laboratories. We assessed the reliability of the data we used by reconciling it with published data, and interviewing officials responsible for overseeing the relevant data systems about, among other things, applicable quality control procedures to maintain the integrity of the data. We determined that these data were sufficiently reliable for the purposes of this report. Further, we interviewed S&T, Coast Guard, and DNDO budget officials to determine what portions of their budgets would appropriately capture total R&D activities, as well as DHS budget officials to discuss R&D spending, how DHS oversees R&D funding, and DHS's policies and guidance related to defining, overseeing, and coordinating R&D efforts. We also interviewed other DHS component officials to discuss the extent to which components conducted R&D, captured R&D activities in their budgets, and coordinated with S&T. We compared DHS efforts to develop policies and guidance with GAO's *Standards for Internal Control in the Federal Government*.[9]

To determine the extent to which R&D is coordinated within DHS to prevent overlap, fragmentation, and unnecessary duplication, we reviewed data on about 15,000 federal procurement contract actions coded as R&D in FPDS-NG made by DHS components from fiscal years 2007 through 2011 to identify contracts that were overlapping or duplicative of other contracts issued by different components.[10] We selected 50 R&D contracts that appeared to contain overlap and interviewed the officials of the six components that issued them to discuss the nature of those contracts. We could not determine the full extent of

[8]Budget authority is authority provided by federal law to enter into financial obligations that will result in immediate or future outlays involving federal government funds.

[9]GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (Washington, D.C.: Nov. 1999).

[10]This was the total number of DHS contract actions taken from fiscal years 2007 through 2011.

duplication or overlap occurring in the department, because, among other things, the FPDS-NG data system captures only a portion of the total R&D activities occurring at DHS. We also used our past work on fragmentation, overlap, and duplication across the federal government,[11] *Standards for Internal Control in the Federal Government*,[12] and our prior work related to federal collaboration to assess DHS's coordination of R&D across the department.[13] We also interviewed S&T leadership, technical division directors, and DHS component officials to discuss S&T and DHS's R&D coordination processes. More details on our scope and methodology can be found in appendix I.

We conducted this performance audit from September 2011 through September 2012 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.

[11] GAO, *2012 Annual Report: Opportunities to Reduce Duplication, Overlap and Fragmentation, Achieve Savings, and Enhance Revenue*, GAO-12-342SP (Washington, D.C.: Feb. 28, 2012); *Follow-up on 2011 Report: Status of Actions Taken to Reduce Duplication, Overlap, and Fragmentation, Save Tax Dollars, and Enhance Revenue*, GAO-12-453SP (Washington, D.C.: Feb. 28, 2012); *Employment for People with Disabilities: Little Is Known about the Effectiveness of Fragmented and Overlapping Programs*, GAO-12-677 (Washington, D.C.: June 29, 2012); *and Justice Grant Programs: DOJ Should Do More to Reduce the Risk of Unnecessary Duplication and Enhance Program Assessment*, GAO-12-517 (Washington, D.C.: July 12, 2012).

[12] GAO/AIMD-00-21.3.1.

[13] GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, GAO-06-15 (Washington, D.C.: Oct. 21, 2005); *Cybersecurity: Key Challenges Need to Be Addressed to Improve Research and Development*, GAO-10-466 (Washington, D.C.: June 3, 2010) and *Homeland Security: DHS Needs a Strategy to Use DOE's Laboratories for Research on Nuclear, Biological, and Chemical Detection and Response Technologies*, GAO-04-653 (Washington, D.C.: May 24, 2004).

Background

Definition of R&D in the Federal Government

OMB requires agencies to submit data on R&D programs as part of their annual budget submissions. Specifically, agencies are to provide data on investments for basic research, applied research, development, R&D facilities construction, and major equipment for R&D. OMB provides one definition of R&D that all federal agencies are to use to prepare budget estimates (see app. II for a list of federal R&D definitions). According to OMB, R&D activities comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture, and society, and the use of this stock of knowledge to devise new applications.[14] R&D is further broken down into the following three stages, as defined by OMB.[15]

Example of Basic Research

DNDO is funding a basic research project to advance radiation detection through focused research in sensor materials, front-end electronics, signal processing, modeling, and supporting technologies.

Example of Applied Research

S&T funded an applied research project to acquire biometric capabilities to identify individuals who exit the United States. This project is to describe the technology, scenario, and operational test and evaluation and result in a prototype.

Example of Development

The Coast Guard is funding a project that will evaluate a range of contraband marker systems to assist Coast Guard law enforcement vessels tag and track jettisoned contraband for later recovery. The project is to validate operational requirements and performance parameters for a potential future acquisition.

- **Basic research** is a systematic study directed toward a fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind.
- **Applied research** is a systematic study to gain knowledge or understanding to determine the means by which a recognized and specific need may be met.
- **Development** is a systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

[14]OMB Circular No. A-11 Section 84.4. This definition includes administrative expenses for R&D, but excludes physical assets for R&D (such as R&D equipment and facilities), routine testing, quality control mapping, collection of general-purpose statistics, experimental production, routine monitoring and evaluation of an operational program and the training of scientific and technical personnel.

[15]OMB Circular No. A-11 Section 84 Character Classification (Schedule C) (2011). OMB has used these or similar categories in its collection of R&D data since 1949 (OMB, *Fiscal Year 2013 Analytical Perspectives, 2013 Budget of the U.S. Government*, pg. 368).

DHS R&D Investment

There are several mechanisms by which agencies such as DHS are required to report their investments in R&D, and investments can be described in the following ways:

- *Budget authority* is the legal authorization to obligate funds.
- *Obligations* are binding agreements for the government to make a payment (outlay) for goods and services ordered or received.
- *Outlays* are payments to liquidate obligations and represent the amount actually expended.

For R&D activities, OMB directs agencies to submit information on budget authority and outlays for each year. Because the executive branch and Congress generally make budget decisions in terms of budget authority, budget authority can provide insight into relative priorities within the annual budget process and changes in budget policies.[16] Agencies report obligation data to OMB by object classification. Object classes are categories that present obligations for items or services purchased according to their initial purpose. For R&D-related obligations, OMB has a separate category for R&D contracts (object class 25.5). OMB also includes some advisory and assistance services for R&D in a separate object class category (object class 25.1).[17]

DHS is one of nine federal agencies that reported a total of $5 billion in budget authority in fiscal year 2011 for homeland security R&D.[18] According to DHS, S&T, DNDO, and the Coast Guard are the three components that conduct R&D within the department, with S&T by far

[16]GAO, *Budget Account Structure: A Descriptive Overview*, GAO/AIMD-95-179 (Washington, D.C.: Sept 18, 1995).

[17]GAO has reported in the past that using object class data is not reliable because the categories are not mutually exclusive. GAO, *Budget Object Classification: Origins and Recent Trends*, GAO/AIMD-94-147 (Washington, D.C.: Sept 13, 1994). Although OMB defines a separate category for R&D contracts (25.5), there is some overlap with the Advisory Services category (25.1). OMB object class 25.1 for advisory and assistance services is not exclusive to R&D and can be used for other types of services.

[18]The other agencies conducting homeland security R&D included the Departments of Agriculture, Commerce, Defense, Energy, and Health and Human Services; the National Aeronautical and Space Administration; the Environmental Protection Agency; and the National Science Foundation.

being the largest R&D entity. DHS reported $512 million in budget authority and $752 million in outlays for R&D in fiscal year 2011.[19]

R&D Roles and Responsibilities at DHS

The Homeland Security Act of 2002 established S&T within DHS and provided it with responsibility for, among other things:

- conducting basic and applied research, development, demonstration, and testing and evaluation activities relevant to any or all elements of DHS;
- establishing and administering the primary R&D activities of the department, including the long-term research and development needs and capabilities for all elements of the department; and
- coordinating and integrating all research, development, demonstration, testing, and evaluation activities of the department.[20]

S&T has six technical divisions responsible for managing S&T's R&D portfolio and coordinating with other DHS components to identify R&D priorities and needs.[21] As of September 2012, S&T had approximately 79 active R&D projects. Most of S&T's R&D portfolio consists of applied and development R&D projects for its DHS customers. It also conducts other projects for additional customers, including other federal agencies, first responders, and industry, among others.

[19]Because outlays are payments to liquidate obligations, they may not occur in the same fiscal year as the budget authority under which the obligation was made. As a result, outlays generally do not equal budget authority in any given fiscal year. In addition, for the purpose of this report, we do not include outlays or budget authority for R&D facilities.

[20]Pub. L. No. 107-296, § 302, 116 Stat. 2135, 2163-64 (codified as amended at 6 U.S.C. § 182).

[21]These divisions are the Borders and Maritime Division, Chemical/Biological Defense Division, Cyber Security Division, Explosives Division, Human Factors/ Behavioral Sciences Division, and the Infrastructure Protection and Disaster Management Division. In addition, S&T's First Responder Group (FRG) identifies, validates, and facilitates the fulfillment of first responder requirements through the use of existing and emerging technologies, knowledge products, and the development of technical standards, according to S&T FRG officials.

In addition to S&T, DNDO and the Coast Guard conduct R&D activities.[22] After its establishment in 2005, DNDO assumed responsibility from S&T for certain nuclear and radiological R&D activities. DNDO is the primary federal organization responsible for developing, acquiring, and supporting the deployment of an enhanced domestic system to detect and report on attempts to import, possess, store, transport, develop, or use an unauthorized nuclear explosive device, fissile material, or radiological material in the United States.[23] As of August 2012, DNDO officials estimated that they have 30 R&D projects and plan to obligate $75.9 million for R&D in fiscal year 2012. According to Coast Guard officials, the Coast Guard R&D Center conducts R&D projects to support the Coast Guard's priorities, primarily focusing on maritime safety-related projects. As of August 2012, Coast Guard officials estimated that they have 60-70 applied research projects and have spent about $30 million on R&D in fiscal year 2012 so far.

Our Work on Fragmentation, Overlap, and Duplication

In 2010, Congress directed us to identify programs, agencies, offices, and initiatives with duplicative goals and activities within departments and government-wide and report annually to Congress.[24] In March 2011 and February 2012, we issued our first two annual reports to Congress in response to this requirement.[25] The annual reports describe areas in which we found evidence of fragmentation, overlap, or duplication among federal programs. Using the framework established in our prior work on addressing fragmentation, overlap, and duplication, we use the following definitions for the purpose of assessing DHS's R&D efforts:

[22]DNDO was established by National Security Presidential Directive 43 - Homeland Security Presidential Directive 14 and the Security and Accountability for Every Port Act of 2006 (SAFE Port Act). Pub. L. No. 109-347, § 501(a), 120 Stat. 1884, 1932 (codified at 6 U.S.C. § 591). When the Homeland Security Act of 2002 transferred Coast Guard to the newly established DHS, it provided that the Coast Guard is to be maintained as a distinct entity within the department and that the authorities, functions, and capabilities of the Coast Guard to perform its missions are to be maintained intact. Pub. L. No. 107-296, § 888, 116 Stat. 2135, 2249 (codified at 6 U.S.C. § 468).

[23]Pub. L. No. 109-347, § 501(a), 120 Stat. 1884, 1932 (2006) (codified at 6 U.S.C. § 592).

[24]Pub. L. No. 111-139, § 21, 124 Stat. 29 (2010), 31 U.S.C. § 712 Note.

[25]See GAO, *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue*, GAO-11-318SP (Washington, D.C.: March 1, 2011) and GAO-12-342SP.

- *Fragmentation* occurs when more than one federal agency (or more than one organization within an agency) is involved in the same broad area of national interest.
- *Overlap* occurs when multiple programs have similar goals, engage in similar activities or strategies to achieve those goals, or target similar beneficiaries. Overlap may result from statutory or other limitations beyond the agency's control.
- *Duplication* occurs when two or more agencies or programs are engaging in the same activities or providing the same services to the same beneficiaries.

DHS Does Not Know Its Total Investment in R&D, and Policies and Guidance Could Help Define and Oversee R&D Efforts

DHS Does Not Know Its Total Investment in R&D

DHS does not know how much all of its components invest in R&D, making it difficult to oversee R&D efforts across the department. According to DHS budget officials, S&T, DNDO, and the Coast Guard are the only components that conduct R&D and, according to our analysis, they are the only components that report budget authority, obligations, or outlays for R&D activities to OMB as part of the budget process. However, we identified an additional $255 million in R&D obligations by other DHS components. Further, we found that DNDO did not report certain R&D budget data to OMB, and R&D budget accounts include a mix of R&D and non-R&D spending, further complicating DHS's ability to identify its total investment in R&D.

R&D Obligations Not Reported as R&D

Our analysis of the data that DHS submitted to OMB found that DHS's R&D obligations were underreported because other DHS components obligated money for R&D contracts that were not reported to OMB as R&D. Specifically, for fiscal year 2011, our analysis identified $255 million in obligations for R&D that DHS did not report as R&D contracts in the object classification tables. These obligations included DHS components

providing S&T with funding to conduct R&D on their behalf and components obligating funds through contracts directly to industry, universities, or with DOE's national laboratories for R&D. Specifically:

- S&T reported receiving $50 million in reimbursements from other DHS components, such as U.S. Citizenship and Immigration Services, the Secret Service, the Office of Health Affairs, Customs and Border Protection (CBP), and the Transportation Security Administration (TSA) to conduct R&D projects.[26] These obligations were not identified as R&D in these components' budgets.

- Our analysis identified 10 components, including CBP, TSA, U.S. Immigration and Customs Enforcement (ICE), and the Federal Emergency Management Agency (FEMA), that obligated approximately $55 million for R&D contracts that were not reported as R&D.[27]

- Our analysis identified that DHS components, outside of S&T, DNDO, and the Coast Guard, obligated $151 million to DOE national laboratories for R&D-related projects (44 percent of total DHS spending at the national laboratories in fiscal year 2011).[28] For example, the National Protection and Programs Directorate (NPPD) obligated $83 million to DOE national laboratories in fiscal year 2011 (see app. III for R&D obligations by component).

R&D Outlays and Budget Authority

Our analysis of the data that DHS submitted to OMB also showed that DHS's R&D budget authority and outlays were underreported because DNDO did not properly report its R&D budget authority and outlays to OMB for fiscal years 2010 through 2013. Specifically, for fiscal years 2010 through 2013, DHS underreported its total R&D budget authority by at least $293 million and outlays for R&D by at least $282 million because DNDO did not accurately report the data.[29] In fiscal year 2011, S&T and

[26]This figure excludes reimbursements from DNDO and the Coast Guard to S&T.

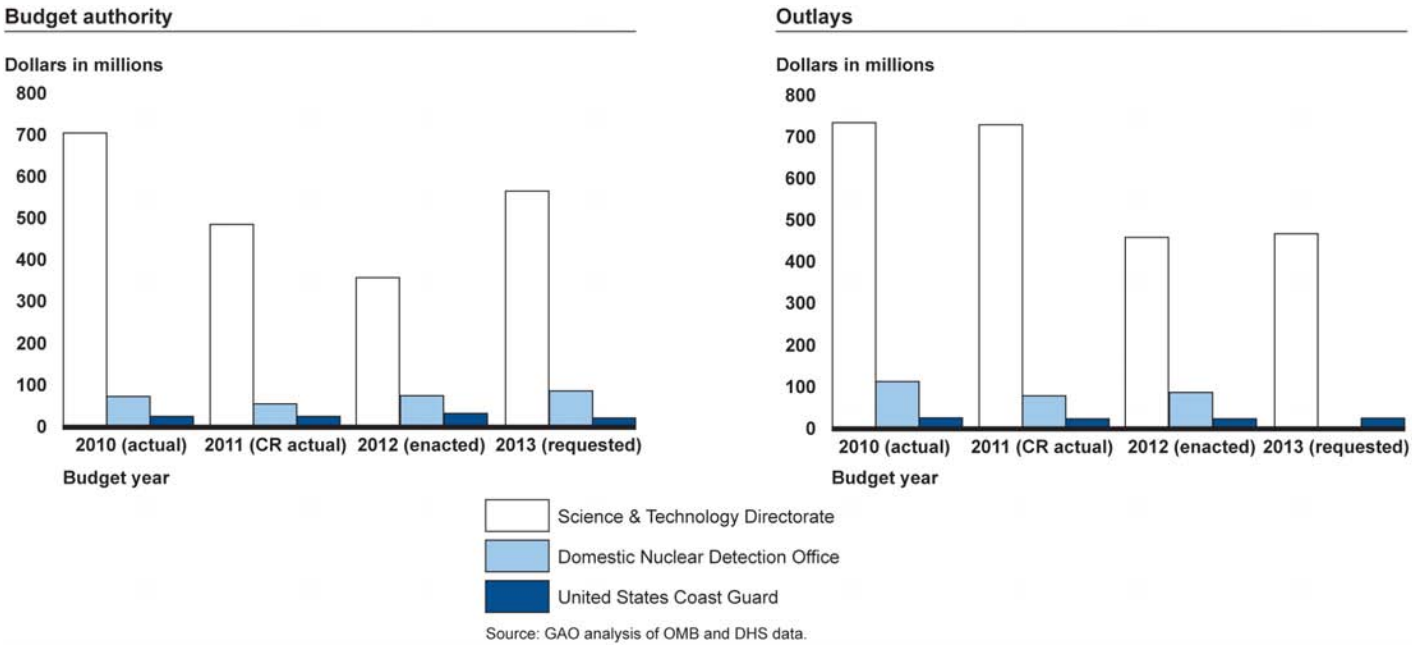
[27]We analyzed and identified DHS R&D contracts in FPDS-NG categorized as basic research, applied research and exploratory development, and advanced development.

[28]DHS provided data on obligations to DOE national laboratories.

[29]DNDO budget officials told us that they accounted for their R&D spending in the object class codes of Schedule O of MAX A-11, but did not enter it into Schedule C of MAX. OMB reports the R&D budget authority and outlays from Schedule C.

the Coast Guard reported $512 million in R&D budget authority and $752 million in outlays, but DNDO did not report $56 million in R&D budget authority or $80 million in outlays.[30] DNDO officials gave us the data for the missing years as depicted in figure 1 along with S&T and Coast Guard data.

Figure 1: DHS R&D Budget Authority and Outlays, Fiscal Years 2010 through 2013



Source: GAO analysis of OMB and DHS data.

Notes:

Figures do not include spending on R&D facilities.

Outlays are actual expenditure of funds and may occur many years after the funds were authorized and obligated.

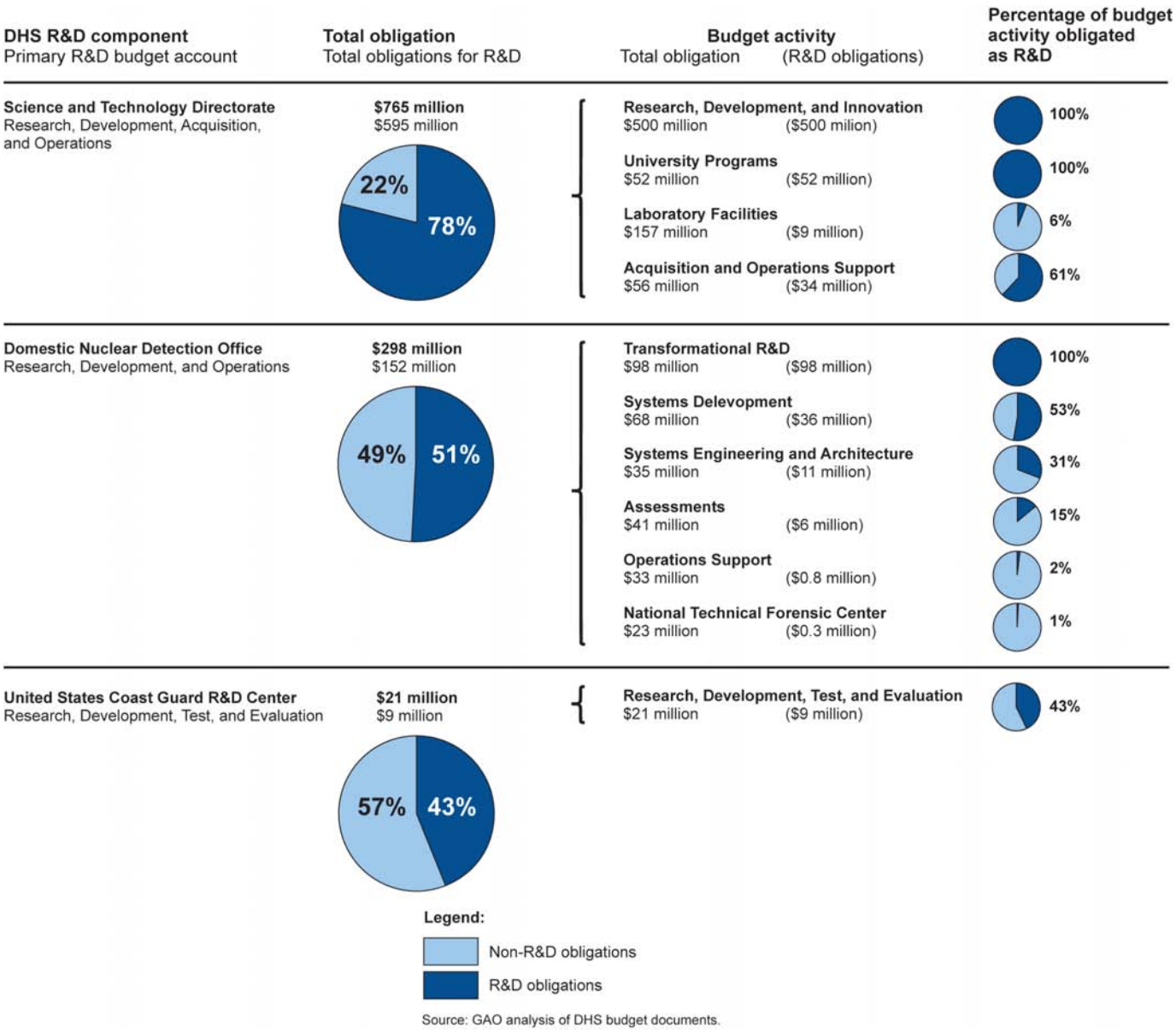
DNDO budget officials told us that they are aware of the omission and confirmed that the OMB submission will be corrected in fiscal year 2013. DHS budget officials agreed that DHS underreported its R&D spending

[30]DNDO's R&D budget authority for fiscal year 2011 does not include the funding for the DNDO Transformational and Applied Research (TAR) Programs because the TAR program had been proposed to be transferred to S&T, but the Department has since reexamined that position and TAR has remained in DNDO, as reflected in the fiscal year 2012 and 2013 budgets.

and when asked, could not provide a reason why the omission was not flagged by DHS review.

In addition, within S&T, the Coast Guard, and DNDO, it is difficult to identify all R&D funding because their R&D budget accounts fund both R&D and non-R&D investments. For fiscal year 2011, we estimated that 78 percent of S&T's Research, Development, Acquisition, & Operations account, 51 percent of DNDO's "Research, Development, & Operations" account, and 43 percent of the Coast Guard's R&D budget account fund R&D activities. Figure 2 provides the various S&T, DNDO, and Coast Guard budget accounts and budget activities and what percentage of each account was obligated for R&D in fiscal year 2011.

Figure 2: DHS R&D Obligations, Fiscal Year 2011



Source: GAO analysis of DHS budget documents.

Notes:

Percentages might not be exact due to rounding.

For budget activities that officials told us were solely for R&D, such as S&T's Research, Development and Innovation and University Programs and DNDO's Transformational R&D, we counted the total

obligations from the activity as R&D obligations. For budget activities with both R&D and non-R&D obligations, we analyzed object classification tables, specifically object class 25.5 R&D contracts, to identify obligations for R&D from each budget activity.

A portion of Coast Guard's obligations for research, development, test, and evaluation (RDT&E) is made for personnel compensation and benefits. Obligations for this purpose are identified in the object classification tables in the budget justification. For FY2011, Coast Guard obligated $11.4 million for personnel compensation and benefits. Subtracting this from total obligations for the RDT&E budget account gives us the total obligations for Coast Guard mission R&D activities, $9 million.

DHS's budget director recognized that spending in areas that cut across the department, like R&D, are difficult to manage and told us that DHS does not have oversight of R&D across the department. DHS is taking some steps to address this, including identifying R&D as a budget line in DHS's proposed unified account structure, which was submitted to Congress in the fiscal year 2013 budget for approval.

In 2007, we reported that appropriators rely on budget exhibits to inform the decision to authorize and appropriate funds for many programs; thus, accurate classifications of program and projects by budget activity are needed for decision makers to readily understand how projects are progressing and how money is being spent.[31] Specifically regarding R&D, we reported that decision makers use the Department of Defense's (DOD) budget reports, which detail a project's stage of development, to assess how much is being invested in fundamental science and technology and to determine the future capabilities of U.S. military forces.

Policies and Guidance for Defining and Reporting R&D Could Improve Oversight

DHS does not have a departmentwide policy defining R&D or guidance directing components how to report R&D activities. As a result, it is difficult to identify the department's total investment in R&D, which limits DHS's ability to oversee components' R&D efforts and align them with agencywide R&D goals and priorities. DHS officials told us that DHS uses OMB's definition of R&D, but the definition is broad and its application may not be uniform across components, and thus, R&D investments may not always be identified as R&D. For example, DHS officials told us that test and evaluation is generally not considered R&D because the purpose is to test how an existing technology fits into an operational environment. However, S&T's Chief Financial Officer (CFO) told us that S&T reports test and evaluation activities as part of its R&D budget authority.

[31]GAO, *Defense Acquisitions: DOD's Research and Development Budget Requests to Congress Do Not Provide Consistent, Complete, and Clear Information*. GAO-07-1058 (Washington, D.C.: Sept. 5, 2007).

Further, DHS officials told us that there is no distinct line between capital investments and the R&D for technology development. For example, NPPD officials told us they consider its cybersecurity system to be a capital investment, and not R&D, but they consider R&D of new technologies as an important aspect of this system. The variation in R&D definitions may contribute to the unreliability of the reporting mechanisms for R&D investments in budget development and execution, as discussed above. *Standards for Internal Control in the Federal Government* state that policies and mechanisms are needed to enforce management's directives, such as the process of adhering to requirements for budget development and execution and to ensure the reliability of those and other reports for internal and external use.[32] Additionally, we previously reported that agencies can enhance and sustain their collaborative efforts by defining and articulating a common outcome and establishing compatible policies, procedures, and other means to operate across agency boundaries.[33] Such definitions could help DHS better identify its R&D investment.

Other agencies that have conducted R&D longer than DHS, like DOD and the National Aeronautical and Space Administration (NASA), have recognized the need to develop policies to better define what efforts constitute R&D and manage their R&D activities. For example, DOD's Financial Management Regulation defines seven stages of technological maturity for R&D activities and links them to the budget process to increase transparency and oversight of R&D throughout the department.[34] Similarly, NASA has a directive that outlines its "cohesive management process" for its R&D activities, which illustrates program and project life cycles and defines the roles and responsibilities of key management personnel.[35] DHS officials stated that the Chief Financial Officer's (CFO) office has oversight of R&D across the department through monthly reports submitted by components. For example, S&T provides monthly reports on R&D obligations to the CFO that detail obligations by individual

[32]GAO/AIMD-00-21.3.1.

[33]GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies,* GAO-06-15 (Washington, D.C.: Oct. 21, 2005).

[34]DOD FMR, DoD 7000.14-R, Volume 2B, Chapter 5.

[35]NASA Procedural Requirements: NASA Research and Technology Program and Project Management Requirements. NPR 7120.8 (Effective Date February, 05, 2008).

appropriation accounts for R&D activities. However, those reports include R&D that is reported as R&D obligations in the budget process and do not provide financial details for the R&D investments made by components other than S&T, DNDO, and the Coast Guard, as described earlier in this report.

The challenges DHS faces in managing its R&D efforts are similar to the challenges the department has faced in managing its acquisitions. In September 2008, we reported that DHS had not integrated the acquisition function across the department and did not have adequate oversight of all of its acquisition programs.[36] DHS officials agreed with our findings and the agency has taken steps to implement policies and guidance to ensure that components follow consistent acquisition practices and that a process exists to oversee acquisition programs, as outlined in Acquisition Management Directive 102-01 (AMD 102-01).[37] Officials at DHS's Program Accountability and Risk Management office (PARM) agreed the department has not developed policies or guidance on how components should define and oversee R&D investments and efforts. They stated that they are in the process of updating AMD 102-01 to include additional sections pertaining to nonacquisition investments and that such R&D policy and guidance could be incorporated into such updates in the future. (See App. IV for an illustration of how R&D supports all four phases of DHS's Acquisition Life Cycle as defined by AMD 102-01). Such an update could establish policy and guidance for defining R&D consistently across the department and outline the processes and procedures for overseeing R&D, which would provide more oversight into the R&D investments across the department.

[36]GAO, Department of Homeland Security: *Progress and Continuing Concerns with Acquisition Management,* GAO-08-1164T, (Washington, D.C.: Sept. 17, 2008), and *Department of Homeland Security: Assessments of Selected Complex Acquisitions*, GAO-10-588SP (Washington, D.C.: June 30, 2010).

[37]AMD 102 defines policy and provides guidance for managing and tracking DHS's acquisition programs.

S&T Coordinates Some R&D at DHS, but DHS R&D Is Fragmented and Overlapping, Increasing the Risk of Unnecessary Duplication

S&T has coordinated R&D efforts across DHS to some extent, but the department's R&D efforts are fragmented and overlapping, which increases the risk of unnecessary duplication. We identified 35 instances of overlap among contracts that DHS components awarded for R&D projects, but did not identify instances of duplication among these contracts. Additionally, DHS has not developed a policy defining who is responsible for coordinating R&D and what processes should be used to coordinate it, and S&T does not have mechanisms to track all R&D activities at DHS. Developing a policy defining the roles and responsibilities for coordinating R&D, and establishing coordination processes and a mechanism to track all R&D projects could help DHS mitigate existing fragmentation and overlap, and reduce the risk of unnecessary duplication.

S&T Has Taken Some Actions to Coordinate R&D across DHS

The Homeland Security Act of 2002, among other things, requires that S&T coordinate and integrate all research, development, demonstration, testing, and evaluation activities within DHS and establish and administer the primary R&D activities of the department.[38] To carry out these responsibilities, S&T developed coordination practices that fall into four general categories: (1) S&T component liaisons, (2) R&D agreements between component heads and S&T, (3) joint R&D strategies between S&T and components, and (4) various R&D coordination teams made up of S&T and component project managers.

S&T Component Liaisons

S&T officials stated that one of the primary ways that S&T mitigates the risk of overlap and duplication is through component liaisons staffed at S&T and S&T officials staffed at component agencies. Component liaisons became a primary coordination mechanism under the former Under Secretary who requested a Coast Guard official to work at S&T as a deputy division director. According to S&T officials, these component liaisons have been integral to S&T's coordination efforts. As of July 2012, S&T had eight liaisons from TSA, CBP, ICE, NPPD, the Secret Service, and the Coast Guard. In addition, S&T had seven employees detailed to other components, including CBP, the Secret Service, DHS's Office of Policy, DHS's Tactical Communications Program Office, DNDO, and TSA, as well as two liaisons at FEMA and DHS's Office of the Chief Financial Officer. According to S&T, liaisons help S&T maintain

[38] 6 U.S.C. § 182.

communication with components on R&D needs and related activities. For example, CBP requested an S&T liaison to provide technical expertise to its acquisition division. However, S&T does not have liaisons with every component.

Component R&D Agreements

S&T signed agreements with two components—CBP and the Secret Service—to help coordinate R&D activities. Under those agreements, S&T is working with the components on high-level "Apex projects" that are intended to solve components' strategic operational problems within 2 years. For example, S&T and the Secret Service have an Apex project called the Science and Technology Operational Research and Enhancement project that was initiated in June 2010 to provide technology solutions for the Secret Service to define, establish, and document the near- and long-term R&D strategy for the protection of national leaders, visiting heads of state and government, designated sites, and national special security events. S&T officials stated that the Apex project required development and testing of about seven technologies which the Secret Service plans to incorporate into its operations. As of July 2012, S&T officials reported that all seven technologies were in the developmental stage and will undergo testing in late 2012. For the CBP Apex project, S&T is overseeing the development and evaluation of new technology and infrastructure to help CBP create Secure Transit Corridors.[39] S&T officials stated that, as of July 2012, the project was on track to be completed in 1 year. S&T officials stated that it can accommodate only three or four Apex projects at any given time because of the time and resources required, but that it anticipates starting future Apex projects with FEMA and ICE. As a result, these high-level partnerships are not intended to address all customer needs at DHS.

Further, S&T provided us with three memorandums of agreement it entered into with DHS components as a means to coordinate R&D efforts. Specifically, S&T has agreements with CBP to develop a rapid response

[39]The Secure Transit Corridors will allow Customs Trade Partners Against Terrorism (C-TPAT) Tier III members with supply chain routes originating in Mexico or Canada. The C-TPAT is part of CBP's approach for overseeing the security of containerized cargo and the flow of international goods by developing a voluntary antiterrorism partnership with importers; customs brokers; air, sea, and land carriers; and other logistics service providers such as freight consolidators and nonvessel common carriers. Tier III members receive certain program benefits, such as expedited release of cargo in U.S. ports, upon validation that members demonstrate sustained commitment to maintaining security measures and supply chain security practices.

prototype, the Coast Guard to develop a test bed, and TSA to coordinate the transition of the Transportation Security Laboratory from TSA to S&T which, was completed in 2006. S&T is also currently working with TSA on an Aviation Security agreement that is to result in S&T supporting TSA in various areas (as outlined in the agreement) and providing technology to address capability gaps. S&T plans to initiate similar partnerships first with CBP, then with ICE and FEMA.

S&T also works with DHS components to ensure that it meets their R&D needs by signing technology transition agreements (TTA) to ensure that components use the technologies S&T develops. S&T has 42 TTAs with DHS components. For example, TSA agreed to integrate automated intent detection technologies to better detect unknown threats before they enter the country into its behavior detection-screening program once S&T successfully demonstrated that the technologies met performance requirements. Additionally, the U.S. Citizenship and Immigration Service (USCIS) agreed to deploy rapid DNA-based screening technologies to determine kinship to use in the refugee and asylum eligibility determination process upon S&T demonstrating that the technology meets certain performance criteria. According to S&T officials, none of these TTAs has yet resulted in a technology being transitioned from S&T to a component.

Component R&D Strategies

In March 2011, S&T and TSA issued a joint R&D strategy for aviation security that identifies TSA's R&D priorities. That plan was a result of an internal planning process that prioritized capability gaps and focused on the work between TSA and S&T's Explosives and Human Factors/Behavioral Sciences Divisions. According to TSA officials, the joint R&D strategic plan does not represent a TSA-wide R&D strategy because it does not include surface transportation security capability gaps. Rather, the officials said that TSA uses the National Infrastructure Protection Plan and an R&D working group with S&T to identify those capability gaps. S&T officials stated that it is currently updating its R&D Strategy with TSA. S&T is also planning to work with the Secret Service, CBP, ICE, and FEMA to build component-specific R&D strategies that are linked to component acquisition programs.[40]

[40]We did not receive information on when S&T planned to complete those R&D strategies.

R&D Coordination Teams

S&T's previous Under Secretary instituted the Capstone Integrated Product Teams (IPT) process to coordinate R&D efforts between S&T and components. IPTs served as S&T's primary mechanism for coordinating R&D and consisted of members from S&T and component agencies. In S&T's 5-year R&D plan for fiscal years 2008 through 2013, S&T identified 12 IPTs, each of which was focused on a different topic and brought together decision makers from DHS components and S&T, as well as end users of technologies.[41] Additionally, the IPT process included teams to coordinate R&D at the project level among S&T and components. IPTs solicited input from components to identify and address technology gaps and needs and were intended to assist operational units in making decisions about technology investments, based on S&T's understanding of technology and the state of applicable technology solutions. For example, members of the cargo security IPT determined that the capability gap that should be addressed was enhancing cargo screening and examination systems through detecting or identifying terrorist contraband items, like drugs or illegal firearms. As a result, S&T identified CanScan, a nonintrusive inspection system as a means for addressing that gap.

According to S&T division directors and officials we interviewed, the IPT process is no longer in place to coordinate R&D activities at the component level, but IPTs are being used by the division directors to coordinate R&D activities at the project level.[42] In July 2011, S&T announced the creation of a new process, called Science and Technology Investment Councils, which would coordinate R&D activities at the most senior levels of each component, rather than at the program manager level. However, S&T later decided not to implement the councils and instead began implementing two new coordination teams in the fall of 2011—a cross-functional team composed of S&T personnel focusing on strategic priorities and an integral partner team—led by S&T's newly created Acquisition Support and Operations Analysis (ASOA) division to

[41]IPT areas were border security, cargo security, chemical/biological defense, cyber security, counter improvised explosive device (IED), transportation security, incident management, infrastructure protection, information sharing/management, interoperability, maritime security, and people screening.

[42]We interviewed directors of divisions responsible for coordinating R&D activities throughout the department. These included Borders and Maritime Division, Chemical and Biological Division, Cyber Security Division, Explosives Division, Human Factors/ Behavioral Sciences Division, and Infrastructure Protection Division.

focus on components' operational needs.[43] According to S&T division directors, these new teams are not yet fully implemented and they are still using established relationships with components through the IPT process to identify components needs and coordinate R&D. Additionally, S&T still maintains IPTs with TSA on surface transportation.

DHS R&D Is Fragmented and Overlapping, Increasing the Risk of Unnecessary Duplication

R&D at DHS is inherently fragmented because several components within DHS—S&T, the Coast Guard, and DNDO—were each given R&D responsibilities in law, and other DHS components may pursue and conduct their own R&D efforts as long as those activities are coordinated through S&T. Fragmentation among R&D efforts at DHS may be advantageous if the department determines that it could gain better or faster results by having multiple components engage in R&D activities toward a similar goal; however, it can be disadvantageous if those activities are uncoordinated or unintentionally overlapping or duplicative.

To illustrate overlap and the potential for unnecessary duplication, we reviewed data on about 15,000 federal procurement contract actions coded as R&D taken by DHS components from fiscal years 2007 through 2012.[44] See appendix 1 for details on our methodology for identifying overlap. Of those, we identified 50 R&D contracts issued by six DHS components—S&T, TSA, FEMA, the Office of Health Affairs (OHA), the Coast Guard, and CBP—that appeared to have similar activities with another contract and interviewed component officials about those R&D activities. We obtained 47 of those 50 contracts and reviewed their statements of work.[45] On the basis of that analysis and our interviews with components, we identified 35 instances of overlap where components awarded R&D contracts that overlapped with R&D activities conducted

[43]ASOA works with the Under Secretary for Management to aid the components in developing high-fidelity, testable operational requirements for their acquisitions; aid in executing an analysis of alternatives to ensure that the most appropriate technical approach is taken; and partner with the components throughout an acquisition so that user needs are translated into real capabilities that can be validated upon delivery and deployed without delay.

[44]In some cases, contracts were initially awarded prior to 2007 but had contract actions taken—whether changes to contracting officials, extended period of performance, changes to tasks requested, or other modifications—during fiscal years 2007 through 2012. These modifications to initial contracts were included in our analysis.

[45]The Coast Guard, OHA, and DHS were unable to provide 3 contracts that we requested.

elsewhere in the department. We also found that DHS did not have tracking mechanisms or policies to help ensure that this overlap be avoided and better coordinated.[46] For example:

- S&T awarded four separate contracts to develop methods of detecting ammonium nitrate and urea nitrate for the counter-IED program. TSA also awarded a contract to a private vendor to investigate the detection of ammonium nitrate and ammonium nitrate-based explosives. These contracts were similar in that they all addressed the detection of the same chemical.

- S&T awarded four separate contracts to develop advanced algorithms for explosives detection, while TSA also awarded contracts to develop algorithms to evaluate images for explosives. We determined that these R&D contracts overlapped because both components were involved in developing algorithms for explosives detection.

- S&T awarded a contract to a private vendor for support and analysis for seismic hazards, while FEMA also awarded a contract to a private vendor to develop seismic guidelines for buildings in the event of an earthquake. These contracts overlapped because they were both similar in scope.

Although the contracts we selected overlapped, we determined that they were not duplicative based on our analysis and our interviews with component officials. For example, TSA officials stated that all TSA R&D contracts we requested were initially awarded when TSA still conducted transportation security-related R&D and were managed by the Transportation Security Laboratory (TSL), which moved into S&T in 2006.[47] As a result, TSA did not have oversight into those contracts. Additionally, TSA officials stated that some of the contracts may have overlapped in the scope of work but were focused on different operational missions. S&T officials agreed with TSA, stating that some of this overlap occurred during a period of time when TSA was still conducting R&D

[46]We also examined about 1,000 task orders sent to the national laboratories by DHS components, but the data did not include sufficient detail to use for this analysis.

[47]The conference report accompanying the fiscal year 2006 DHS appropriations act provided that certain funding was for consolidating all of DHS's R&D efforts except the Coast Guard's R&D efforts into S&T. H. Rep. No. 109-241, at 82 (2005). That consolidation took place in 2006.

through TSL and during a time when S&T did not have the level of contract oversight that it has now. FEMA officials stated that FEMA's research projects are related to earthquake hazards, rather than to multiple hazards like S&T's research projects. They stated that FEMA's coordination with S&T is dependent on prior personal relationships rather than through an established coordination process.

According to S&T officials, a process does not exist at DHS or within S&T to prevent overlap or unnecessary duplication but that relationships with components mitigate that risk. They also stated that S&T has improved interactions with components over time. For example, S&T officials stated that when CBP requested mobile radios to improve communication among its field staff, S&T knew that the Secret Service and ICE were already working in that area. To address this technology need, S&T provided a senior official to lead the Tactical Communication Team to address communication among different operational components and better coordinate those efforts.

In conducting this analysis, we recognize that overlapping R&D activities across similar areas may not be problematic. However, the existence of overlapping R&D activities coupled with the lack of policies and guidance defining R&D (as mentioned previously) and coordination processes is an indication that not all R&D activities at DHS are coordinated to ensure that R&D is not unnecessarily duplicative. As a result, DHS could increase oversight of R&D, and improve coordination of R&D activities to ensure that any duplication in R&D activities is purposeful rather than unnecessary, as discussed later in this draft. Overlap and the associated risk of unnecessary duplication occur throughout the government, as we have reported previously, and are not isolated to DHS.[48] However, when coupled with consistent programmatic coordination, the risk of unnecessary duplication can be diminished.

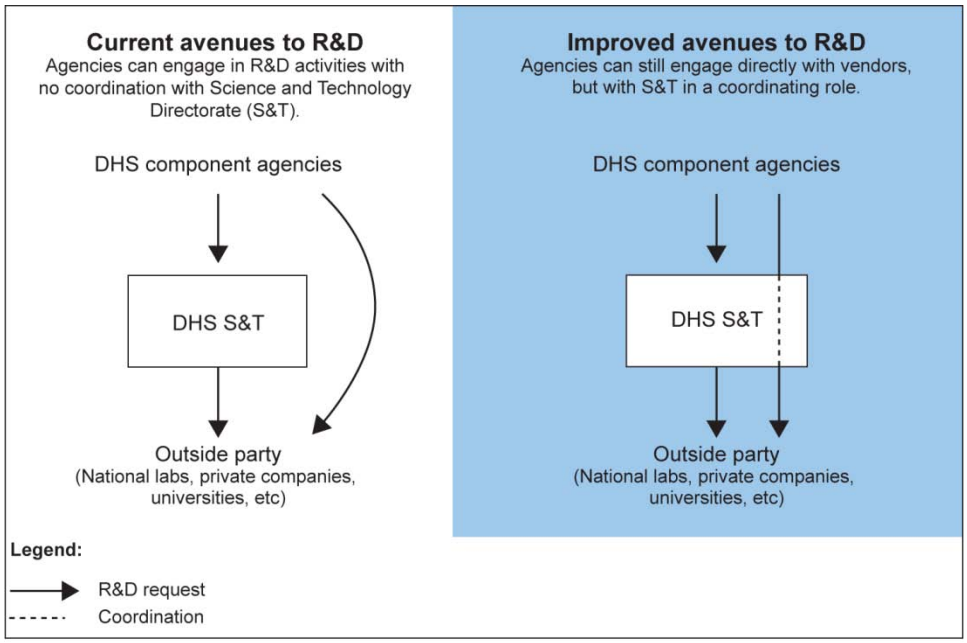
[48]GAO-12-342SP.

Policy and Tracking Mechanism Could Improve Coordination and Reduce Risk of Unnecessary Duplication

DHS and S&T do not have the policies and mechanisms necessary to coordinate R&D across the department and reduce the risk of unnecessary duplication. First, as noted earlier in this report, DHS does not have the policies and guidance necessary to define and oversee R&D investments across the department. While S&T has taken steps to coordinate R&D, DHS has not developed a policy defining who is responsible for coordinating R&D and what processes should be used to coordinate it. Specifically, while S&T has R&D agreements with some components, S&T officials rely on the former IPT process to coordinate with components. For example, S&T division directors cited the IPT process and personal relationships as the primary means to coordinate R&D activities with components and generally felt that they were coordinating effectively.

However, other component officials we interviewed did not view S&T's coordination practices as positively. Specifically, we interviewed six components to discuss the extent to which they coordinated with S&T on R&D activities. Four components stated that S&T did not have an established process that detailed how S&T would work with its customers or for coordinating all activities at DHS. For example, one component stated that S&T has conducted R&D that it thought would address the component's operational need but, when work was completed, the R&D project did not fit into the operational environment to meet the component's needs. In addition, without an established coordination process, the risk for unnecessary duplication increases, because components can engage in R&D activities without coordinating them through S&T (see fig. 3).

Figure 3: Avenues for Components to Engage in Department of Homeland Security's (DHS) Research and Development (R&D) Activities



Source: GAO.

Standards for Internal Control in the Federal Government states that policies and procedures ensure that the necessary activities occur at all levels and functions of the organization—not just from top-level leadership. This ensures that all levels of the organization are coordinating effectively and as part of a larger strategy. Additionally, internal control standards provide that agencies should communicate necessary information effectively by ensuring that they are communicating with, and obtaining information from, external stakeholders that may have a significant impact on the agency achieving its goals. DHS and S&T could be in a better position to coordinate the department's R&D efforts by implementing a specific policy outlining R&D roles and responsibilities and processes for coordinating R&D.

Furthermore, S&T and DHS have not developed a mechanism to track all ongoing R&D projects conducted across DHS components. Specifically, neither DHS nor S&T tracks all ongoing R&D projects across the department, including R&D activities contracted through the national laboratories. The Homeland Security Act of 2002 gave DHS the authority to use DOE laboratories to conduct R&D and established S&T's Office of National Laboratories (ONL) to be responsible for coordinating and using

the DOE national laboratories.[49] Additionally, DHS Directive 143 further directs ONL to serve as the primary point of contact to recommend contracting activity approval for work by the national laboratories, and review all statements of work issued from DHS and directed to the national laboratories. According to S&T, the purpose of that review is to ensure the proposed work is within the scope, and complies with the terms and conditions, of the prime contract between DOE and the national laboratories. We identified 11 components that reimbursed the national laboratories for R&D between fiscal years 2010 and 2013, but ONL could not provide us with any information on those activities and told us it did not track them.[50] According to S&T, ONL's ability to provide information on activities across the department is limited by components inconsistently operating within the DHS Directive 143 process for working with the national laboratories. According to the Director of ONL, to identify activities not reported through the DHS Directive 143 process, S&T uses other means such as relationships with components and S&T, as well as reviewing task orders sent to the laboratories from DHS, visiting laboratories, and laboratories self-reporting their work to ONL.

We previously reported in 2004 that DHS faced challenges using DOE's laboratories and balancing the immediate needs of users of homeland security technologies with the need to conduct R&D on advanced technologies for the future.[51] DHS agreed with our recommendation to create a strategic R&D plan to identify and develop countermeasures to chemical, biological, radiological, nuclear, and other emerging terrorist threats and to ensure that it detailed how DHS would work with other federal agencies to establish governmentwide priorities, identify research gaps, avoid duplication of effort, and leverage resources. DHS noted that such a plan was critical to the success of the department, and stated that S&T would complete a strategic planning process in 2004 that would be reviewed and updated annually. To date, DHS has not yet developed a departmentwide strategic plan for managing R&D, although S&T has developed its own plan.

[49]Pub. L. No. 107-296, § 309, 116 Stat. 2135, 2172 (2002) (codified at 6 U.S.C. § 189).

[50]We received obligations data for fiscal year 2010 and 2011; funding data for fiscal year 2012, and projected funding data for fiscal year 2013.

[51]GAO, *Homeland Security: DHS Needs a Strategy to Use DOE's Laboratories for Research on Nuclear, Biological, and Chemical Detection and Response Technologies,* GAO-04-653 (Washington, D.C.: May 24, 2004).

Standards for Internal Control in the Federal Government states that controls are needed to provide reasonable assurance that, among other things, reliable data are obtained, maintained, and fairly disclosed in reports and agencies comply with laws and regulations. In addition, in June 2010, we reported that R&D information should be tracked in a consolidated database in order to fully coordinate cybersecurity R&D activities to provide essential information about ongoing and completed R&D.[52] We recommended that the Director of the Office of Science and Technology Policy (OSTP) direct its subcommittee on Networking and Information Technology Research and Development to exercise its leadership responsibilities by, among other things, establishing and using a mechanism to keep track of federal cybersecurity R&D funding.[53] OSTP agreed with our recommendation. Additionally, we previously reported that agencies can enhance and sustain their collaborative efforts by, among other things, agreeing on roles and responsibilities and developing mechanisms to monitor, evaluate, and report on results.[54]

DHS officials agreed that such mechanisms to track R&D activities were necessary, and said they have faced similar challenges in managing investments across the department. DHS has attempted to address those challenges by, among other things, creating a database called the Decision Support Tool that is intended to improve the flow of information from component program offices to the DHS Management Directorate to support its governance efforts.[55] The Decision Support Tool could provide an example of how DHS could better track ongoing R&D projects

[52]GAO, *Cybersecurity: Key Challenges Need to Be Addressed to Improve Research and Development,* GAO-10-466 (Washington, D.C.: June 3, 2010).

[53]The Networking and Information Technology Research and Development Subcommittee is a multiagency coordination body responsible for providing leadership in coordinating cybersecurity R&D.

[54]GAO-06-15.

[55]The Decision Support Tool collects data from existing data systems, including information technology, capital investment data and out-year planning and budget data from all component agencies' data systems in order to centralize and standardize the management of resources. This includes information technology data from the Next Generation Periodic Reporting System, capital investment planning data from the Investment Management System, and financial data from the Future Years Homeland Security Program. The Future Years Homeland Security Program provides a summary and breakdown of DHS program resources over a 5-year period, including resource alignment by goals, component appropriations, and component programs, as well as program descriptions, milestones, performance measures, and targets.

occurring in the department. DHS's PARM officials stated that they recently added new data fields to capture more detailed information on component activities, such as additional financial data, at a low cost to DHS, and that such data fields could be added to collect information and track R&D activities across DHS, such as contracts with private companies or universities and the associated costs. However, we reported in March 2012 that DHS executives were not confident enough in the data to use the Decision Support Tool to make acquisition decisions, and that DHS's plans to improve the quality of the data in this database were limited.[56] We also reported that DHS had limited plans to improve the quality of the data because PARM only planned to check the data quality in preparation for key milestone meetings in the acquisition process. That could significantly diminish the Decision Support Tool's value, because users cannot confidently identify and take action to address problems meeting cost or schedule goals prior to program review meetings. As a result, improvements to the Decision Support Tool's data quality before expanding its use could improve the collecting and tracking of R&D information and could be used as an example of how to better track information occurring across components. DHS is taking actions to address the limitations to the Decision Support Tool's data quality by working to validate the Decision Support Tool's associated acquisition data. A policy that defines roles and responsibilities for coordinating R&D and coordination processes, as well as a mechanism that tracks all DHS R&D projects, could better position DHS to mitigate the risk of overlapping and unnecessarily duplicative R&D projects.

Conclusions

Conducting R&D on technologies is a key component of DHS's efforts to detect, prevent, and mitigate terrorist threats and is vital to enhancing the security of the nation. Multiple entities across DHS conduct various types of R&D in pursuit of their respective missions, but DHS does not have a department-wide policy defining R&D or guidance directing components how to report R&D activities and investments. As a result, DHS does not have the ability to maintain oversight of its total investment in R&D across the department, which also limits its ability to oversee components' R&D efforts and align them with agencywide R&D goals and priorities. Establishing policies and guidance for defining R&D across the department and outlining the processes and procedures for overseeing

[56]GAO, *Department of Homeland Security: Continued Progress Made Improving and Integrating Management Areas, but More Work Remains,* GAO-12-365T (Washington, D.C. Mar. 1, 2012).

R&D would provide more oversight of R&D investments across the department. Furthermore, DHS has taken some steps to coordinate R&D efforts across the department, but does not have a cohesive policy defining roles and responsibilities for coordinating R&D and mechanisms to track all DHS R&D projects. A policy that defines roles and responsibilities for coordinating R&D and coordination processes, as well as a mechanism that tracks all DHS R&D projects, could better position DHS to mitigate the risk of overlapping and unnecessarily duplicative R&D projects.

Recommendations for Executive Action

To help ensure that DHS effectively oversees its R&D investment and efforts and reduces fragmentation, overlap, and the risk of unnecessary duplication, we recommend that the Secretary of Homeland Security develop and implement policies and guidance for defining and overseeing R&D at the department. Such policies and guidance could be included as an update to the department's existing acquisition directive and should include the following elements:

- a well-understood definition of R&D that provides reasonable assurance that reliable accounting and reporting of R&D resources and activities for internal and external use are achieved,
- a description of the department's process and roles and responsibilities for overseeing and coordinating R&D investments and efforts, and
- a mechanism to track existing R&D projects and their associated costs across the department.

Agency Comments and Our Evaluation

We provided a draft of this report to DHS for its review and comment. DHS provided written comments, which are reproduced in full in appendix V, and concurred with our recommendation. DHS also described actions it plans to take to address the recommendation. Specifically, according to DHS, it plans to evaluate the most effective path forward to guide uniform treatment of R&D across the department in compliance with OMB rules and is considering a management directive, multi component steering committee, or new policy guidance to help better oversee and coordinate R&D. DHS plans to complete these efforts by May 1, 2013. Such actions should address the overall intent of our recommendation. However, it will be important that whatever DHS chooses to do, its actions address the specific elements we outlined in our recommendation, including

developing a definition of R&D, defining roles and responsibilities for oversight and coordination, and developing a mechanism to track existing R&D projects and investments.

DHS also provided written technical comments, which we incorporated as appropriate.

We are sending copies of this report to the Secretary of Homeland Security, appropriate congressional committees, and other interested parties. This report is also available at no charge on GAO's website at http://www.gao.gov.

If you or your staffs have any questions about this report, please contact me at (202) 512-9627 or maurerd@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix VI.

David C. Maurer
Director, Homeland Security and Justice Issues

Appendix I: Objectives, Scope, and Methodology

This report answers the following questions:

1. How much does the Department of Homeland Security (DHS) invest in research and development (R&D) and to what extent does it have policies and guidance for defining R&D and overseeing R&D resources and efforts across the department?

2. To what extent is R&D coordinated within DHS to prevent overlap, fragmentation, and unnecessary duplication across the department?

To determine how much DHS invests in R&D and the extent that it has policies and guidance for defining R&D and overseeing R&D resources and efforts across the department, we reviewed DHS's budget and congressional budget justifications to identify R&D investments reported from fiscal years 2011 through 2013. We analyzed R&D budget authority, outlays, and obligations included in budget submissions to the Office of Management and Budget (OMB) reported for fiscal years 2010 through 2013. We also analyzed Science and Technology Directorate (S&T), Domestic Nuclear Detection Office (DNDO), and Coast Guard budgets to identify obligations for R&D funded by non-R&D budget activities as identified in object class tables that present obligations by the items or services purchased (e.g. personnel compensation and benefits, contractual services and supplies, acquisition of assets, grants and fixed charges). In addition, we assessed DHS's management and oversight of its R&D spending against criteria in GAO's *Standards for Internal Control in the Federal Government*.[1]

We analyzed data from the Federal Procurement Data System Next Generation (FPDS-NG) to identify R&D-related contracts across DHS for fiscal years 2007 through 2011. We filtered these contracts to include only those R&D stages coded as basic research, applied research, and exploratory development and advanced development, which align more closely with recognized definitions of R&D. We excluded the other four stages (engineering development, operational systems development, management/support, and commercialization) of R&D because these activities are linked more closely to procurements rather than R&D activities. We also analyzed data from the Department of Energy's (DOE) national laboratories from fiscal years 2010 through 2012 to identify how

[1]GAO, *Standards for Internal Control in the Federal Government,* GAO/AIMD-00-21.3.1 (Washington, D.C.: Nov. 1999).

much DHS components obligated for R&D-related work at the national labs.

To determine the extent that R&D is coordinated within DHS to prevent overlap, fragmentation, and unnecessary duplication, we

- Reviewed component R&D plans and project documentation. We also reviewed department and S&T division strategic plans.
- Interviewed officials from DHS, DNDO, the Coast Guard, the Transportation Security Administration (TSA), the Office of Health Affairs (OHA), U.S. Customs and Border Protection (CBP), the National Protection and Programs Directorate (NPPD), and the Secret Service to discuss, among other things, their R&D efforts, R&D budgets, and coordination with S&T. We interviewed DHS budget and acquisition oversight officials to discuss how DHS oversees and manages its R&D resources.
- Interviewed S&T's budget official and Homeland Security Advanced Research Projects Agency (HSARPA) officials, including directors from each of the six technical divisions, to discuss how they coordinated with components and prioritized R&D resources.
- Used a data-collection instrument to collect information on S&T R&D projects, associated costs of R&D projects, and division customers from each HSARPA director and interviewed the Director of S&T's Office of National Laboratories, responsible for coordinating S&T and DHS's R&D work conducted at the DOE national laboratories to discuss DHS's spending at and use of these laboratories.
- Compared DHS's coordination efforts against the relevant legislation and criteria, including federal internal control standards as well as GAO's recommended practices for collaboration and coordination to identify efforts to meet certain provisions and potential areas for improvement.[2]

To seek examples of potential overlap and duplication, we

[2]GAO/AIMD-00-21.3.1 (11/99) and Results-*Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, GAO-06-15 (Washington, D.C.: Oct. 21, 2005).

- Reviewed data on about 15,000 federal procurement contract actions coded as R&D in the Federal Procurement Data System Next Generation (FPDS-NG) made by DHS components from fiscal years 2007 through 2012 to identify contracts that were potentially overlapping or duplicative of other contracts issued by different components. This was the total number of DHS contract actions taken from fiscal years 2007 through 2011.

- Established 32 key words based on our knowledge of the likely areas of overlapping R&D related to component missions in order to identify areas where components may have issued contracts that were similar in scope and to eliminate areas where duplicative activities were likely to be present but acceptable (e.g., personnel support and management services). We searched for the key words in the FPDS-NG data set to identify contracts containing the same key words issued by more than one component.

- Independently analyzed the contract descriptions and identified 50 R&D contracts issued by six components—S&T, the Coast Guard, TSA, CBP, OHA, and the Federal Emergency Management Agency (FEMA)—that appeared to overlap and interviewed officials from those components to discuss the nature of those contracts.[3]

- Obtained 47 out of 50 contracts and analyzed each contract's statement of work and objectives to determine the type of R&D activity and to identify whether each contract was overlapping or duplicative of any of the other 46 contracts. Two analysts independently reviewed each contract and then came to agreement regarding the presence of overlap and duplication.

We could not determine the full extent of duplication or overlap in the department, because the FPDS-NG data system captures only a portion of the total R&D activities occurring at DHS and we did not review the documentation for, or conduct a random sample of, all 15,000 R&D contract actions. However, the results from our analysis illustrate overlap and the potential for unnecessary duplication. We also used our past work on fragmentation, overlap, and duplication across the federal government; *Standards for Internal Control in the Federal Government*;

[3]We did not interview officials responsible for the one contract in our sample issued by the Coast Guard, because they were unable to locate the contract.

and our prior reports to assess DHS's coordination of R&D across the department.[4]

We assessed the reliability of the data we used by reconciling the data with published data and applicable quality control procedures to maintain the integrity of the data, and interviewing DHS budget and procurement officials responsible for overseeing the data systems. In addition, we reviewed available FPDS-NG documentation, such as the user manual, and OMB guidance to identify related quality control mechanisms. We also assessed the reliability of data on DOE's national laboratory work for others by interviewing DOE officials responsible for compiling and reporting those data. We concluded that these data were sufficiently reliable for the purposes of this report.

We conducted this performance audit from September 2011 through September 2012 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.

[4]*2012 Annual Report: Opportunities to Reduce Duplication, Overlap and Fragmentation, Achieve Savings, and Enhance Revenue*, GAO-12-342SP (Washington, D.C.: Feb. 28, 2012); *Follow-up on 2011 Report: Status of Actions Taken to Reduce Duplication, Overlap, and Fragmentation, Save Tax Dollars, and Enhance Revenue*, GAO-12-453SP (Washington, D.C.: Feb. 28, 2012); *Employment for People with Disabilities: Little Is Known about the Effectiveness of Fragmented and Overlapping Programs*, GAO-12-677 (Washington, D.C.: June 29, 2012); *Justice Grant Programs: DOJ Should Do More to Reduce the Risk of Unnecessary Duplication and Enhance Program Assessment*, GAO-12-517 (Washington, D.C.: July 12, 2012); GAO/AIMD-00-21.3.1 (11/99); and GAO-06-15.

Appendix II: Federal Government Definitions of Research and Development

Source	Basic research	Applied research	Development
Office of Management and Budget	Systematic study directed toward fuller knowledge or understanding of the fundamental aspects of phenomena and observable facts without specific applications toward processes or products.	Systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.	Systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.
Federal Financial Accounting Standards (FFAS)	Systematic study to gain knowledge or understanding of the fundamental aspects of phenomena and observable facts without specific applications toward processes or products.	Systematic study to gain knowledge or understanding necessary for determining the means by which a recognized and specific need may be met.	Systematic use of the knowledge and understanding gained from research for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.
Federal Acquisitions Regulation (FAR)	Research directed toward increasing knowledge in science with the primary aim being a fuller knowledge or understanding of the subject under study, rather than any practical application of that knowledge.	The effort that (1) normally follows basic research, but may not be severable from the related basic research; (2) attempts to determine and exploit the potential of scientific discoveries or improvements in technology, materials, processes, methods, devices, or techniques; and (3) attempts to advance the state of the art.	Systematic use of scientific and technical knowledge in the design, development, testing, or evaluation of a potential new product or service (or of an improvement in an existing product or service) to meet specific performance requirements or objectives.
National Science Foundation (NSF) Survey of Federal Funds for R&D	Systematic study directed toward fuller knowledge or understanding of the fundamental aspects of phenomena and observable facts without specific applications toward processes or products.	Systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.	Systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.
Department of Defense Research, Development, Testing, and Evaluation (RDT&E) Budget Activities (1-7)	(1) Systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or precuts in mind. It is farsighted high payoff research that provides the basis for technological progress.	(2) Systematic study to understand the means to meet a recognized and specific need. Systematic expansion and application of knowledge to develop useful materials, devices, and systems or methods. May be oriented, ultimately, toward the design, development, and improvement of prototypes and new processes to meet general mission area requirements. Applied research may translate promising basic research into solutions for broadly defined military needs, short of system development.	DOD divides development into 5 budget activities: (3) Advanced Technology Development (ATD) (4) Advanced Component Development and Prototypes (ACD&P) (5) System Development and Demonstration (SDD) (6) RDT&E Management Support (7) Operational System Development

Source: National Science Foundation and the Office of Management and Budget.

Source: National Science Foundation and the Office of Management and Budget

Appendix III: Department of Homeland Security Research and Development Obligations, Fiscal Year 2011

	Obligations			
DHS R&D components	**Reimbursements to S&T**	**FPDS-NG R&D contracts**	**DOE national laboratories**	**Component total R&D obligations**
Science and Technology Directorate		$78,678,160	$93,427,396	**$172,105,556**
Domestic Nuclear Detection Office	$2,429	28,529,786	95,427,232	**123,959,446**
United States Coast Guard R&D Center		5,876,014	100,000	**5,976,014**
Subtotal	**2,429**	**113,083,959**	**188,954,628**	**302,041,016**
Other DHS components				
National Protection and Programs Directorate	4,359,000	705,926	82,882,861	**87,947,787**
Customs and Border Protection	17,593,000	754,979	25,109,607	**43,457,585**
Federal Emergency Management Agency	450,000	8,732,100	28,895,596	**38,077,696**
Transportation Security Administration	15,143,000	5,594,421	1,833,858	**22,571,279**
United States Coast Guard-non R&D-Center		22,046,643		**22,046,643**
Office of Health Affairs	390,000	1,275,977	9,246,228	**10,912,205**
U.S. Immigration and Customs Enforcement		10,534,536		**10,534,536**
U.S. Citizenship and Immigration Services	7,026,000			**7,026,000**
Headquarters Operations	4,429,000			**4,429,000**
Federal Law Enforcement Training Center		2,716,215		**2,716,215**
United States Secret Service	88,000	1,816,506	250,000	**2,154,506**
Operations Coordination and Planning			2,000,000	**2,000,000**
Federal Protective Service			850,000	**850,000**
Intelligence and Operations		380,230		**380,230**
Subtotal	**49,478,000**	**54,557,532**	**151,068,150**	**255,103,682**
Total DHS R&D obligations	**$49,480,429**	**$167,641,491**	**$340,022,777**	**$557,144,698**

Sources: GAO analysis of DHS budget documents and the Federal Procurement Data System-Next Generation.

Notes:

1. Totals may not add up due to rounding.

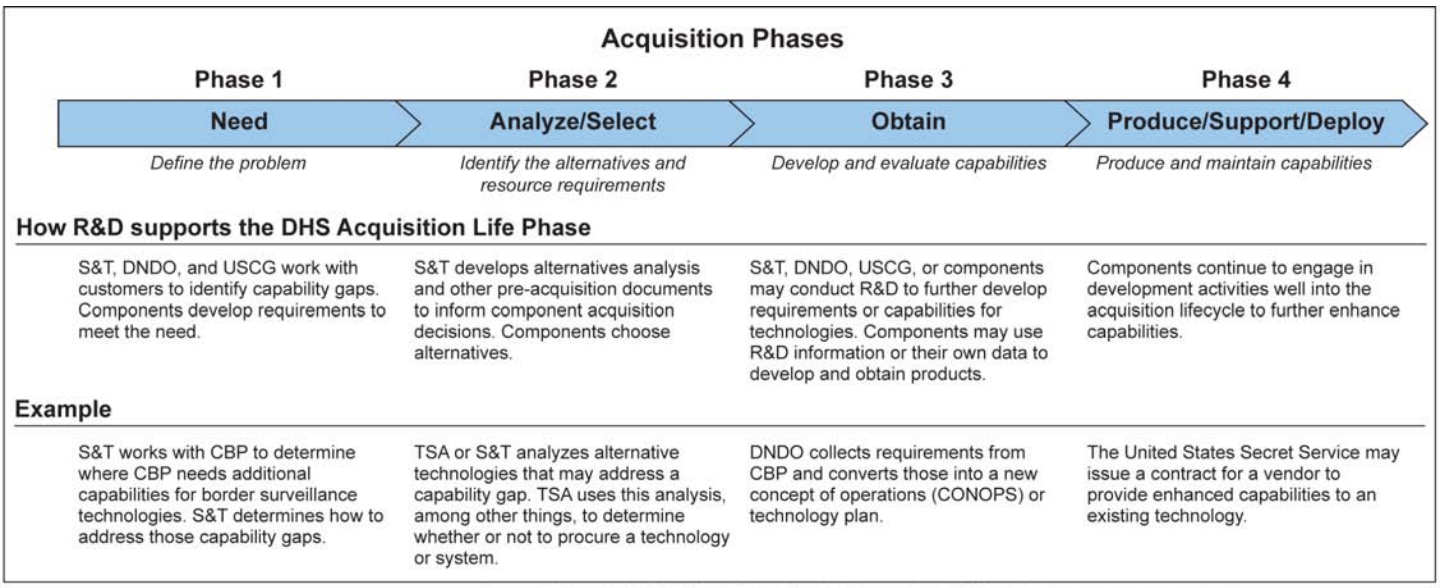
2. We analyzed DHS contract obligations coded as basic research, applied research and exploratory development, and advanced development in the FPDS-NG.

3. DHS conducted a data call to all components for obligations made to the Department of Energy National Laboratories.

3. We omitted from U.S. Customs and Border Protection FPDS-NG R&D contracts a deobligation of $12 million for the SBInet program.

4. For the analysis of FPDS-NG R&D contract obligations, we isolated contract obligations made from the Coast Guard's R&D Center and the rest of Coast Guard. We were not able to do this for the national laboratory or reimbursement data because obligations were identified only at the component level.

Appendix IV: Role of Research and Development in Supporting the Department of Homeland Security Acquisition Life Cycle



Source: GAO analysis of DHS Acquisition Lifecycle Framework and R&D activities.

Appendix V: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

September 6, 2012

David Maurer
Director
Homeland Security and Justice Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

RE: Draft Report GAO-12-837, "Department of Homeland Security: Oversight and Coordination of Research and Development Should be Strengthened"

Dear Mr. Maurer:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO's) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's positive recognition that the Science & Technology Directorate (S&T) has taken steps to coordinate research and development (R&D) in the Department by establishing Component liaisons, R&D strategies and joint agreements between S&T and Components, and R&D coordination teams.

The draft report contained one recommendation with which the Department concurs. Specifically, GAO recommended that the Secretary of Homeland Security:

Recommendation: Develop and implement policies and guidance for defining and overseeing R&D at the department. Such policies and guidance could be included as an update to the department's existing acquisition directive and should include the following elements:

- a well-understood definition of R&D that provides reasonable assurance that reliable accounting and reporting of R&D resources and activities for internal and external use are achieved,
- a description of the department's process and roles and responsibilities for overseeing and coordinating R&D investments and efforts, and
- a mechanism to track existing R&D projects and their associated costs across the department.

Response: Concur. The Department of Homeland Security is operationally focused, which creates a challenging, non-traditional environment for R&D activities. Within the Department's operational space, legitimate gray area exists between R&D–as defined by GAO or the Office of Management and Budget (OMB)–and operational research, pilots for proven prototypes, and other operational improvements that non-R&D agencies typically perform and implement

without specific R&D budget lines. In defining R&D and ensuring more uniform treatment of R&D across the Department, DHS will work to strike the necessary balance that acknowledges this ambiguity and does not limit Components' flexibility to continue improving their effectiveness and efficiency without adding additional or unnecessary hurdles.

Successful R&D is much more than lists or formulas and depends on a continuous assessment of strategic priorities, operational needs, and technical capability against constantly shifting threats and unstable budgets. S&T understands the need for a more rigorous analytic and technical systems approach and coordinates R&D investments with the Components at multiple levels. As discussed in the report, the Integrated Product Teams (IPTs) were an important step in linking S&T activities to Component needs. While IPTs were useful from a project management perspective, they were unable to consistently and strategically link S&T with Components. As a result, S&T moved from the IPT approach to the highly collaborative, end-user focused S&T Resource Allocation Strategy (STRAS), an analytically driven systems analysis and engineering method for coordinating and interacting with Components that ensures S&T's efforts align with the Components' operational mission needs.

In addition to STRAS, S&T is helping DHS implement the Integrated Investment Lifecycle Model (IILCM), a new process for managing the Department's acquisitions, which injects analytical discipline into the acquisition process from start to finish. S&T's contribution to the ILLCM is to assure that DHS has clearly articulated needs and requirements, that decision makers have data-driven analytics, and to ensure that developed and transitioned solutions are consistent with the needs of the operational user. Between STRAS, IILCM, and other existing formal and informal relationships with Components, S&T will have the tools to continue to improve R&D coordination. In an effort to better coordinate R&D across the Department, S&T has also hosted a meeting, with all Components present, on the appropriate use of Department of Energy Laboratory facilities, and will begin to more methodically track these efforts.

Finally, the portfolio review process will be an important mechanism for ensuring a transparent and shareable view of R&D investments and enabling strategic, longer-term budget decisions. S&T is working with DHS leadership to facilitate adoption of the portfolio review process across the Department, beginning with the U.S. Coast Guard, whose leadership is working closely with S&T to serve as a pilot for a Component portfolio review process. As these reviews are fully implemented across the Department, tracking and transparency of R&D projects will improve significantly.

On the basis of the report, DHS will evaluate the most effective path forward to guide uniform treatment of R&D across DHS in compliance with OMB rules. Options under consideration include a Management Directive, a multi-Component steering committee, and/or new policy guidance. These actions will complement the IILCM's continued development and implementation and will contribute to oversight, coordination, and the overall success of DHS's R&D investments.

Estimated Completion Date: May 1, 2013.

Again, thank you for the opportunity to review and comment on this draft report. Technical comments were provided under separate cover. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,

for Jim H. Crumpacker
Director
Departmental GAO-OIG Liaison Office

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

David C. Maurer, (202) 512-9627 or maurerd@gao.gov

Staff Acknowledgments

In addition to the contact named above, Chris Currie, Assistant Director, and Gary Malavenda, Analyst-in-Charge, managed this assignment. Emily Gunn and Margaret McKenna made significant contributions to this report. Also contributing to this report were Katherine Davis, Michele Fejfar, Eric Hauswirth, Carol Henn, Richard Hung, Julia Kennon, Tracey King, Nate Tranquilli, Katherine Trimble, and Sarah Veale.