



Testimony

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DEPARTMENT OF HOMELAND SECURITY

Oversight and Coordination of Research and Development Efforts Could Be Strengthened

Statement of Dave C. Maurer, Director
Homeland Security and Justice

Chairman Carper, Ranking Member Coburn, and Members of the Committee:

I am pleased to be here today to discuss our prior work examining the Department of Homeland Security's (DHS) research and development (R&D) efforts. Conducting R&D on technologies for detecting, preventing, and mitigating terrorist threats is vital to enhancing the security of the nation. DHS, through its Science and Technology Directorate (S&T), 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. S&T 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.

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 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.² 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 that the weaknesses in S&T's strategic planning increased the risk for duplication of efforts. NAPA 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

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

²National Academy of Public Administration, *Department of Homeland Security Science and Technology Directorate: Developing Technology to Protect America* (Washington D.C.: June 2009).

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. As of July 2013, the White House had not yet approved that draft.

DHS uses several mechanisms to report R&D spending, including budget authority (the legal authorization to obligate funds), obligations (binding agreements to make a payment for services), and outlays (payments to liquidate obligations representing amount expended). Further, OMB requires agencies to submit data on R&D programs as part of their annual budget submissions on investments for basic research, applied research, development, R&D facilities construction, and major equipment for R&D using OMB's definition of R&D. 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.³ R&D is further broken down into the categories of basic research, applied research, and development.⁴ 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.⁵ Moreover, GAO is statutorily required to identify and report annually to Congress on federal programs, agencies, offices, and initiatives that have duplicative goals and

³ 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.

⁴ According to OMB, 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. OMB Circular No. A-11 Section 84.

⁵ The other agencies conducting homeland security R&D included the Departments of Agriculture, Commerce, Defense, Energy, and Health and Human Services; the National Aeronautics and Space Administration; the Environmental Protection Agency; and the National Science Foundation.

activities.⁶ The annual reports describe areas in which we found evidence of fragmentation, overlap, or duplication among federal programs.⁷

My statement today is based on our September 2012 report, including selected updates conducted in June 2013 and July 2013 related to DHS's R&D efforts and its oversight of R&D efforts across the department.⁸ Like the report, this statement addresses (1) 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 and efforts across the department, and (2) the extent to which R&D is coordinated within DHS to prevent overlap, fragmentation, and unnecessary duplication across the department. For our September 2012 report, among other things, we analyzed data related to DHS's R&D budget authority for fiscal years 2010 through 2013 and R&D contracts issued by components to private industry and universities for fiscal years 2007 through 2011. Further, we analyzed 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. For the selected updates, we interviewed agency officials on DHS's progress in implementing our recommendations. More detailed information on the scope and methodology appears in our September 2012 report. We

⁶ Pub. L. No. 111-139, § 21, 124 Stat. 29 (2010), 31 U.S.C. § 712 Note.

⁷Fragmentation 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. GAO, *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue*, [GAO-11-318SP](#) (Washington, D.C.: March 1, 2011). 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). GAO, *2013 Annual Report: Actions Needed to Reduce Fragmentation, Overlap, and Duplication and Achieve Other Financial Benefits*, [GAO-13-279SP](#) (Washington, D.C.: April 9, 2013).

⁸GAO, *Department of Homeland Security: Oversight and Coordination of Research and Development Should Be Strengthened*, [GAO-12-837](#) (Washington, D.C.: Sept. 12, 2012). [GAO-13-279SP](#). GAO, *Department of Homeland Security: Opportunities Exist to Strengthen Efficiency and Effectiveness, Achieve Cost Savings, and Improve Management Functions*, [GAO-13-547T](#) (Washington, D.C.: April 26, 2013). GAO, *Government Efficiency and Effectiveness: Opportunities to Reduce Fragmentation, Overlap, and Duplication through Enhanced Performance Management and Oversight*, [GAO-13-590T](#) (Washington, D.C.: May 22, 2013).

conducted this work 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 the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

DHS Does Not Know Its Total Investment in R&D, and Policies and Guidance Could Help Strengthen Oversight of R&D Efforts

In September 2012, we reported that DHS does not know how much 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 U.S. Coast Guard are the only components that conduct R&D and we found that 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 reported that the data DHS submitted to OMB underreported DHS's R&D obligations because DHS components obligated money for R&D contracts that were not reported to OMB as R&D. Specifically, for fiscal year 2011, we identified an additional \$255 million in R&D obligations by other DHS components. 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.

Further, we reported that the data for fiscal years 2010 through 2013 DHS submitted to OMB also underreported DHS's R&D budget authority and outlays because DNDO did not properly report at least \$293 million in R&D budget authority and at least \$282 million in R&D outlays.⁹ We reported that DHS budget officials agreed that DHS underreported its R&D spending and when asked, could not provide a reason why the omission was not flagged by DHS review.

In addition, we reported that DHS's R&D budget accounts include a mix of R&D and non-R&D spending. 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. As a result, this further complicates DHS's ability to identify its total investment in R&D.

⁹ At the time of our report, budget figures for fiscal year 2013 were agency estimates.

We also reported in September 2012 that 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, in accordance with Standards for Internal Control in the Federal Government.¹⁰ 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. We found that 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.

Officials at DHS's Program Accountability and Risk Management office, responsible for DHS's overall acquisition governance process, agreed the department had not developed policies or guidance on how components should define and oversee R&D investments and efforts. At the time of our report, they stated that they were in the process of updating Acquisition Management Directive 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.¹¹ We recommended that DHS develop and implement policies and guidance for defining and overseeing R&D at the department that includes 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. DHS agreed with our recommendation stating that it planned to evaluate the most effective path forward to guide uniform treatment of R&D across the department in compliance with OMB rules and was considering a management directive, multi-component steering committee, or new policy guidance to help better oversee and coordinate R&D. DHS planned to complete these

¹⁰ *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. GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: Nov. 1999).

¹¹ Acquisition Management Directive 102-01 defines policy and provides guidance for managing and tracking DHS's acquisition programs,

efforts by May 1, 2013, but as of June 2013, the department had not yet determined which approach it would implement to address our findings and recommendations. We will continue to monitor DHS's efforts to develop its approach for defining and overseeing R&D at the department.

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 Taken Some Actions to Coordinate R&D across DHS

We reported in September 2012 that S&T has 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, as discussed below.

S&T component liaisons. In September 2012, we reported that 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. According to S&T officials, these component liaisons have been integral to S&T's coordination efforts. We reported that S&T had eight liaisons from the Transportation Security Administration (TSA), Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), National Protection and Programs Directorate (NPPD), the Secret Service, and the U.S. 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 Federal Emergency Management Agency (FEMA) and DHS's Office of the Chief Financial Officer.

R&D agreements between component heads and S&T. We reported that S&T signed high-level agreements with CBP and the Secret Service to help coordinate activities and address components' strategic operational

problems within 2 years of initiation. S&T also had three memorandums of agreement and 42 technology transition agreements with DHS components as a means to coordinate R&D efforts.

Joint R&D strategies between S&T and components. We reported that S&T and TSA issued a joint R&D strategy for aviation security that identified TSA's R&D priorities based on gaps in TSA's current capabilities. We reported that S&T intended to work with the Secret Service, CBP, ICE, and FEMA to build component-specific R&D strategies linked to component acquisition programs, but we did not receive information on when S&T planned to complete those strategies at the time of our report.

R&D coordination teams. In September 2012, we reported that S&T's previous Under Secretary instituted the Capstone Integrated Product Teams (IPT) process as the primary mechanism for coordinating R&D efforts between S&T and components. Additionally, the IPT process included teams to coordinate R&D at the project level by soliciting input from components to identify and address technology gaps and needs, among other things. We reported that the IPT process was no longer in place to coordinate R&D activities at the component level, but IPTs were being used by the division directors to coordinate R&D activities at the project level. Additionally, we reported that, in the fall of 2011, S&T began implementing two new coordination teams—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 division, to focus on components' operational needs. According to S&T division directors, these new teams were not fully implemented at the time of our September 2012 report, and they used established relationships with components through the IPT process to identify components needs and coordinate R&D. In July 2013, we requested information from DHS on when these coordination teams would be fully implemented but did not receive that information.

R&D Activities are Fragmented and Overlapping

Despite S&T's efforts to coordinate R&D activities, in September 2012, we reported that 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. Specifically, we found at least six department components involved in R&D activities in our review of data on about 15,000 federal procurement contract actions coded as R&D taken by DHS components from fiscal years 2007 through 2012. We examined 47 R&D contracts awarded by these components and found 35 instances among 29 contracts in which the contracts overlapped with activities conducted elsewhere in the department. Taken together, these 29 contracts were worth about \$66 million. In one example of the overlap, we found that two DHS components awarded five separate contracts that each addressed detection of the same chemical.

While we did not identify instances of unnecessary duplication among these contracts, DHS has not developed a policy defining who is responsible for coordinating R&D activities at DHS that could help prevent overlap, fragmentation, or unnecessary duplication. We reported in September 2012 that DHS did not have tracking mechanisms or policies to help ensure that overlap is avoided and efforts are better coordinated consistent with Standards for Internal Control in the Federal Government.¹² 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. We reported that the existence of overlapping R&D activities coupled with the lack of policies and guidance defining R&D 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. Furthermore, we reported in September 2012 that neither DHS nor S&T tracked all ongoing R&D projects across the department, including R&D activities contracted through the national laboratories. As part of our review, we identified 11 components that reimbursed the national laboratories for R&D from fiscal years 2010 through 2012, but S&T's Office of National Laboratories could

¹² GAO's *Standards for Internal Control in the Federal Government* state 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.

not provide us with any information on those activities and told us it did not track them. According to S&T, the Office of National Laboratories' ability to provide information on activities across the department is limited by components inconsistently operating within the defined process for working with the national laboratories.¹³ As a result, we recommended that DHS develop and implement policies and guidance for overseeing R&D that includes 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. DHS agreed with our recommendation stating that S&T is implementing a collaborative, end-user focused strategy to coordinate and interact with components to better ensure S&T's efforts align with components' needs and that it is considering developing new policy guidance for R&D activities across the department. As of June 2013, DHS has not developed new policy guidance but is conducting portfolio reviews across the department, as directed in committee reports accompanying the fiscal year 2013 DHS appropriation act, aimed at coordinating R&D activities.¹⁴ 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. We will continue to monitor DHS's efforts to develop a policy to better coordinate and track R&D activities at the department.

Chairman Carper, Ranking Member Coburn, and Members of the Committee, this completes my prepared statement. I would be happy to respond to any questions you may have at this time.

¹³ 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 to be responsible for coordinating and using the national laboratories. Pub. L. No. 107-296, § 309, 116 Stat. 2135, 2172 (2002) (codified at 6 U.S.C. § 189). 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.

¹⁴ See S. Rep. No. 112-169, at 15-16 (2012).

GAO Contact and Staff Acknowledgments

If you or your staff have any questions about this statement please contact Dave Maurer at (202) 512-9627 or Maurerd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Other individuals making key contributions to this testimony include: Emily Gunn, Tracey King, Gary Malavenda, and Linda Miller.

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