



Testimony

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TSA ACQUISITIONS

Opportunities Exist to Enhance Efficiency of Screening Technology Test and Evaluation

Statement of Michele Mackin, Director
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Accessible Version

Chairman Katko, Ranking Member Rice, and Members of the Subcommittee:

Thank you for the opportunity to discuss the Transportation Security Administration's (TSA) test and evaluation process for passenger and baggage screening technologies. TSA is responsible for overseeing security operations at the nation's roughly 440 commercial airports as part of its mission to protect the nation's civil aviation system. TSA screens individuals, their carry-on luggage, and their checked baggage to deter, detect, and prevent carriage of any prohibited items, such as explosives and contraband, on board commercial aircraft. To carry out these activities, the agency relies to a large extent on security-related screening technologies, such as explosives detection systems and advanced imaging technology devices. As of August 2015, TSA had deployed approximately 15,000 units of security-related technology to airports nationwide. In our past work, we have found that TSA encountered challenges in effectively acquiring and deploying passenger and baggage screening technologies and had not consistently implemented Department of Homeland Security (DHS) policy and best practices for procurement.¹

My statement today draws from our report on TSA's test and evaluation of security-related technologies, which we issued last month.² We examined the extent to which (1) TSA's test and evaluation process helps meet mission needs through the acquisition of passenger and baggage screening technologies; and (2) TSA's planned actions to improve the test and evaluation process address factors contributing to inefficiencies in acquiring those technologies. Based on our findings, we recommended that TSA (1) finalize certain aspects of its revised testing approach before implementing it; and (2) conduct and document a comprehensive assessment of testing data to identify key factors contributing to any acquisition inefficiencies and potential areas for reform.

¹In GAO, *Advanced Imaging Technology: TSA Needs Additional Information before Procuring Next-Generation Systems*, [GAO-14-357](#) (Washington, D.C.: Mar. 31, 2014), we recommended that TSA establish protocols to facilitate capturing operational data on passenger screening at the checkpoint. TSA concurred with this recommendation and stated that it will monitor, update, and report the results of its efforts to capture such data and evaluate any cost impacts. In addition, in GAO, *Aviation Security: TSA Has Enhanced Its Explosives Detection Requirements for Checked Baggage, but Additional Screening Actions Are Needed*, [GAO-11-740](#) (Washington, D.C.: July 11, 2011), we found that TSA's explosives detection systems were not configured to meet the most current requirements.

²GAO, *TSA Acquisitions: Further Actions Needed to Improve Efficiency of Screening Technology Test and Evaluation*, [GAO-16-117](#) (Washington, D.C.: Dec. 17, 2015).

To conduct this work, we reviewed DHS and TSA acquisition and testing documentation for passenger and baggage screening technologies tested since June 2010 and conducted our own analyses of the information. We also met with relevant TSA and DHS officials, which included site visits to the two primary testing facilities for TSA's security-related technologies—the TSA Systems Integration Facility in Arlington, Virginia and the DHS Transportation Security Laboratory in Atlantic City, New Jersey. Additionally, we met with industry representatives to obtain their views on the test and evaluation process. More detailed information on our scope and methodology can be found in our December 2015 report.

In addition to our report on TSA's test and evaluation process, we have other ongoing work for this subcommittee pertaining to TSA's acquisitions of screening technologies. First, we are assessing TSA's implementation of our prior recommendations related to the acquisition of security-related technologies. And secondly, we are assessing TSA's progress in implementing key provisions of the Transportation Security Acquisition Reform Act, which was enacted in December 2014. We plan to issue both reports this winter.

We conducted the work on which this statement is based 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.

Test and Evaluation Critically Informs Acquisition Decisions, but Failures during Testing Have Decreased Acquisition Efficiency

Consistent with departmental guidance and acquisition best practices, TSA's test and evaluation process supports its acquisition decisions by providing DHS and TSA officials with information regarding the ability of passenger and baggage screening technologies to meet mission needs prior to a decision to procure the technologies. Before DHS makes a procurement decision, vendors submit potential systems—vendors' versions of a specific technology type—to TSA for consideration. If TSA accepts systems for testing, they undergo a three phase test and evaluation process.

- Systems undergo qualification and certification testing at the DHS Transportation Security Laboratory to qualify or certify that they meet explosives detection requirements.
- If explosives detection requirements are met, the systems undergo additional qualification testing at the TSA Systems Integration Facility, where system performance is verified against additional requirements, such as system

reliability, availability, and maintainability.

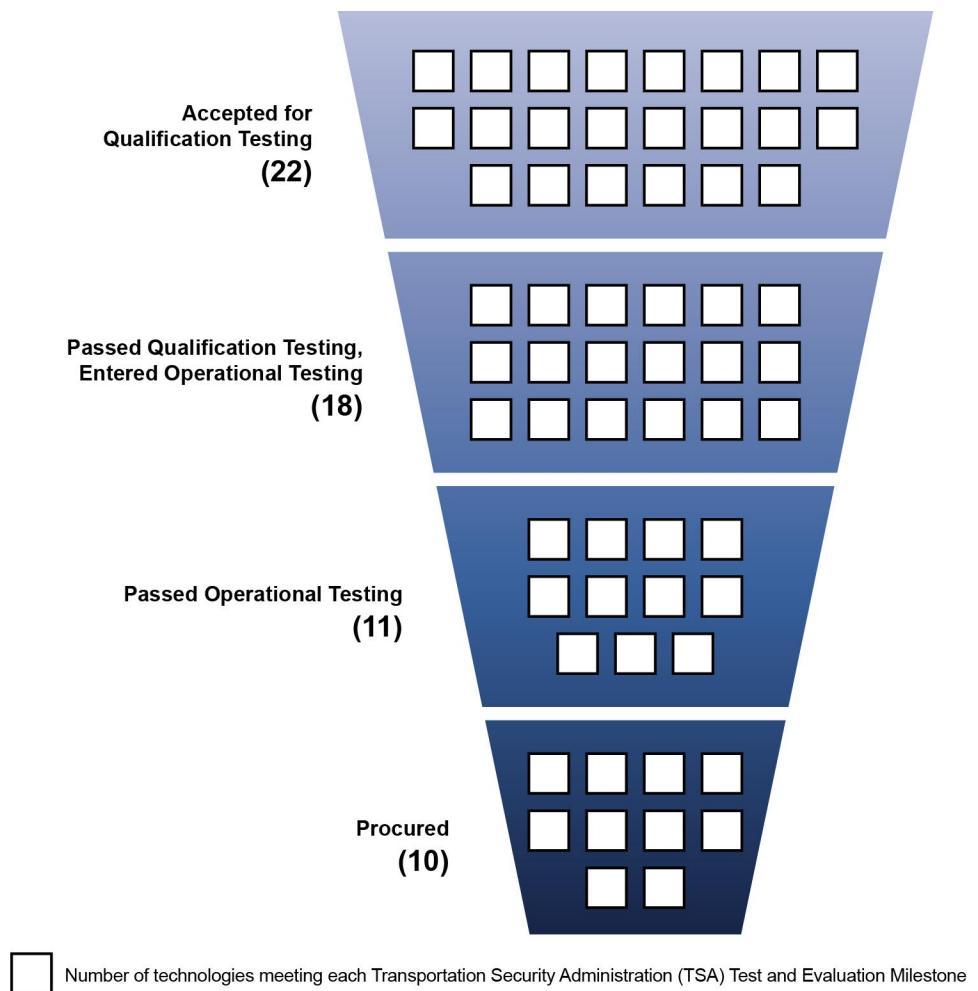
- Systems that have successfully passed testing at the TSA Systems Integration Facility then undergo operational testing at selected airports, where TSA evaluates their operational effectiveness and suitability in a realistic environment.

This phased test and evaluation process provides the agency with critical information regarding system capabilities, saving it from investing in potentially expensive yet ineffective equipment. Such validation of product knowledge early in the acquisition process—before key investments are made—is consistent with best practices used by commercial firms.³ We found in our December 2015 report that from June 2010 to July 2015, only half of the 22 systems that TSA and DHS tested successfully passed qualification and operational testing and were therefore deemed effective and suitable for deployment. TSA procured all but one of the 11 successful systems. The system TSA did not procure was a portable explosives trace detector system that transportation security officers could use to randomly screen passengers' hands and their accessible property for traces of explosives residue. TSA found the system to be operationally effective and operationally suitable with limitations, but a new threat emerged and TSA deferred the procurement, deciding to wait for a system that could meet TSA's new detection requirements.

An additional 8 systems were tested from June 2010 to July 2015 and testing remains ongoing. In addition, during this period one vendor withdrew its system from the testing process. These 9 systems are not depicted in figure 1 below, which shows the number of systems that progressed through each phase of TSA's test and evaluation process during this period.

³GAO, *Best Practices: A More Constructive Test Approach Is Key to Better Weapon System Outcomes*, GAO/NSIAD-00-199 (Washington, D.C.: July 31, 2000).

Figure 1: Number of Passenger and Baggage Screening Systems Completing Transportation Security Administration Test and Evaluation Phases from June 2010 to July 2015



Source: GAO analysis of TSA data. | GAO-16-322T

Note: The 22 systems include upgrades—previously deployed systems for which vendors have upgraded the software to meet, for example, heightened detection standards. Of the 12 systems that did not proceed to the procurement stage, TSA could decide to restart testing for 6 systems if vendors submit revised qualification data packages to reenter the testing process because the testing process has not yet been terminated.

TSA officials emphasized that immature technologies submitted by vendors are a key driver of testing failures and therefore delays in TSA's ability to buy screening systems for use in airports. Because immature technologies often experience multiple failures during testing and require retests, testing takes longer than originally anticipated and costs more. TSA provided us with examples of three explosives detection systems that required multiple retests,

which resulted in acquisition delays of several years. TSA ended up spending over \$3 million in additional costs incurred in retesting to ensure the systems were effective and suitable.

In addition, we found in our December 2015 report that 4 of the 11 systems that successfully passed TSA's testing process in the last five years required at least two formal rounds of qualification or operational testing before TSA qualified them for procurement. According to TSA leadership, the security-related technologies industry is still maturing—since it primarily developed after the terrorist attacks of September 11, 2001—and TSA has had to work extensively to help industry develop systems that will meet the agency's mission needs. Industry representatives involved in testing these systems also told us that systems are not always mature when they enter TSA's test and evaluation process and that they can require significant modifications and retesting before they are ready to be bought and deployed to airports.

TSA's Planned Actions to Improve Test and Evaluation May Not Reduce Acquisition Inefficiencies

Acknowledging the need to better ensure technology maturity at the start of testing to improve the efficiency of its acquisition process, TSA has recently initiated reforms. For example, to increase transparency, TSA officials told us that they are sharing test plans with vendors to better prepare them for testing; however, to maintain the integrity of the test process, they do not intend to provide vendors with detailed information that could be used to "game" the tests. While industry officials agreed that TSA has become more transparent, they said that the number of test plans that TSA has shared thus far has been limited.

Another key action TSA is taking is developing a third party testing strategy, which it has partially implemented for technologies that have already entered the test and evaluation process. Under TSA's interim third party testing guidance, effective July 2014, a vendor experiencing a significant failure during testing is required to fund and undergo third party testing. The results must be provided to TSA demonstrating that the system has met the previously failed requirements before the system is allowed to resume TSA's testing process. To further streamline the acquisition process, TSA is in the process of establishing additional third party testing requirements that will affect vendors proposing new systems to TSA. Under this part of the strategy, vendors will be required to obtain a third party verification that they meet various requirements before they ever enter the test and evaluation process.

TSA plans to implement this strategy in 2016, but it is too soon to tell whether the strategy will reduce acquisition inefficiencies because TSA has yet to finalize key aspects. For example, TSA has not identified whether there are a sufficient number of eligible third party testers or established a mechanism to oversee the testing they will perform. In addition, TSA officials are unsure whether the third

party testing strategy will save overall acquisition costs, which they have highlighted as a potential benefit. Specifically, while vendors will be responsible for funding the third party testing, industry officials told us it is probable that they will reflect these additional costs in their pricing. TSA officials told us they had not assessed potential cost impacts or the possibility that third party testing costs could be a barrier to entering the market for new vendors. As we established in prior work, components of sound planning include, among other items, identifying: problems and causes; resources, investments, and risks; roles, responsibilities, and coordination; and integration among and with other entities.⁴ Without finalizing the strategy before implementation, it may not be as effective as envisioned and TSA risks unintended consequences, such as increasing acquisition costs.

Further, at the time of our 2015 review, TSA had not conducted a comprehensive assessment of testing data—such as timeframes for completing testing and costs incurred—because it lacked a mechanism to track and consolidate testing data across all technologies. This information would include, for example, an overall assessment of testing delays, costs, timeframes, and results across all technologies that were tested. Thus, TSA does not have any documented assessment supporting the decision to implement the third party testing strategy; officials were also not able to provide us with testing timeframes for each of the 22 systems tested in the past five years.⁵ However, after we raised this point during the course of our review, TSA officials developed a master testing tracker to more comprehensively track testing data. While the master testing tracker TSA developed is a positive first step towards more informed decision-making, officials have not established a plan for assessing the information collected from the tracker. We previously found that agencies can use performance information to identify problems in existing programs, to try to identify the causes of problems, and/or to develop corrective actions. The benefit of collecting

⁴GAO, *Social Security Disability: Additional Performance Measures and Better Cost Estimates Could Help Improve SSA's Efforts to Eliminate Its Hearings Backlog*, GAO-09-398 (Washington, D.C.: Sept. 9, 2009).

⁵While TSA was unable to provide us with testing timeframes for the 22 systems, we reviewed test and evaluation plans, test reports, and other documentation to determine the number of systems that passed each phase of TSA's testing progress.

performance information is only fully realized when this information is actually used by agencies to make decisions oriented toward improving results.⁶

TSA's actions to address acquisition inefficiencies—in large part through its third party testing strategy—focus on improving technological maturity and better ensuring readiness for testing. However, TSA and industry officials we spoke with identified additional issues that may be contributing to inefficiencies, which third party testing may not address. Specifically, TSA and industry officials highlighted issues pertaining to optimistic acquisition schedules and how requirements have been defined and interpreted in the past. Without conducting and documenting an assessment of testing data available to date across all technologies and sharing it with key stakeholders, such as TSA's program management offices, DHS, industry, and end users, it is too soon to tell to what extent TSA's actions will reduce acquisition inefficiencies. Specifically, TSA may be missing opportunities to identify other factors, in addition to technology immaturity, that are outside the purview of testing officials, but that also contribute to acquisition inefficiencies.

Concluding Remarks

Due to the significant challenge TSA faces in balancing security concerns with efficient passenger movement, it is important that the agency procures and deploys effective passenger and baggage screening technologies. TSA has acknowledged the need to improve the efficiency of its test and evaluation process and taken steps that could increase the maturity of technologies put forth by vendors and reduce the burden on TSA's own testing resources. However, without further actions, these steps may not reduce acquisition inefficiencies. To help ensure that the actions TSA takes to improve the test and evaluation process address identified challenges and that they are informed by existing information, we recommended in our December 2015 report that TSA (1) finalize all aspects of the third party testing strategy before implementing further third party testing requirements for vendors to enter testing; and (2) conduct and document a comprehensive assessment of testing data available to date, such as timeframes for completing testing, costs incurred, and testing delays across all technology areas to identify key factors contributing to any acquisition inefficiencies and

⁶GAO, *Managing for Results: Enhancing Agency Use of Performance Information for Management Decision Making*, GAO-05-927 (Washington, D.C.: Sept. 9, 2005).

potential areas for reform. DHS concurred with our recommendations and estimated that it would complete both actions by the end of calendar year 2016.

Chairman Katko, Ranking Member Rice, and Members of the Subcommittee, this completes my prepared statement. I would be pleased to respond to any questions.

GAO Contact and Staff Acknowledgments

If you or your staff have any questions about this testimony, please contact Michele Mackin at (202) 512-4841 or mackinnm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. GAO staff who made key contributions to this testimony statement and the report on which it is based include Katherine Trimble, Assistant Director; Charlie Shivers III, Analyst-in-Charge; Peter W. Anderson; Molly Callaghan; William Carrigg; Kristine Hassinger; Mark Hoover; Michael Kaeser; Jean McSween; Lindsay Taylor; and Ozzy Trevino.

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