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TRANSPORTATION SECURITY ACQUISITION REFORM ACT: EXAMINING REMAINING CHALLENGES

HEARING

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION SECURITY

OF THE

COMMITTEE ON HOMELAND SECURITY HOUSE OF REPRESENTATIVES

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TRANSPORTATION SECURITY ACQUISITION REFORM ACT: EXAMINING REMAINING CHALLENGES

Thursday, January 7, 2016

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON TRANSPORTATION SECURITY,
Washington, DC.

The subcommittee met, pursuant to call, at 2:08 p.m., in Room 311, Cannon House Office Building, Hon. John Katko [Chairman of the subcommittee] presiding.

Present: Representatives Katko, Carter, Walker, Ratcliffe, Rice, Keating, and Payne.

Also present: Representative Hudson.

Mr. KATKO. The Committee on Homeland Security Subcommittee on Transportation Security will come to order.

The subcommittee is meeting today to examine the remaining challenges to transportation security acquisition reform. I now recognize myself for an opening statement.

Taxpayer dollars should never be wasted on technology that is not effective or meeting our needs. Unfortunately, this is a problem with which the TSA has struggled for many years. Our Government relies upon private-sector innovation to develop security technologies. However, that innovation comes with a price tag and we cannot reasonably expect the private sector to spend millions of dollars into research and development of new and emerging technologies without greater transparency, communication, and interaction from both the TSA and the Department of Homeland Security as to what their future needs and technology investments will be.

In the agency's short history, TSA has exhibited a number of deficiencies in its procurement process. However, the acquisitions challenges facing TSA are not insurmountable. It is incumbent upon this subcommittee to provide the necessary oversight to streamline the agency's policies and procedures while ensuring that taxpayer dollars are appropriately spent on technologies that are proven to be effective at protecting our Nation's transportation systems.

I recently sat down with Administrator Neffenger, and I know that he is acutely aware of some of the challenges TSA faces in this regard. I look forward to continuing to support him in his efforts to lead and reform this agency along with Ms. Vaughan and others. The purpose of today's hearing is to examine the challenges that

TSA faces in their research and development of security technologies and how those challenges affect TSA's acquisitions practices.

On December 18, 2014, before we were sworn in for this Congress, President Obama signed the Transportation Security Acquisition Reform Act into law, which was introduced by Congressman Hudson, my predecessor last year. This bipartisan bill was passed on the premise that TSA must be more transparent and strategic in identifying its technology investment needs by working closely with industry stakeholders to develop and procure future technologies.

In addition, this legislation required TSA to submit to Congress a strategic, 5-year technology investment plan. This plan, which was provided to this committee in August of this year, lays out the—last year, rather, lays out the agency's vision for near-term technology investments while providing a clearer vision of the agency's often opaque acquisition strategy. Producing a 5-year plan is a meaningful step in the right direction and includes a number of pragmatic observations and goals. However, more must be done to build on the strategy and turn words on paper into more efficient and streamline procurement process. I will note that Ms. Vaughan was sworn in as a new director of this project a few weeks before it became incumbent upon her to come up with a strategy. So good luck, Ms. Vaughan.

Earlier this year, Ranking Member Rice and I visited the TSA integration facility to observe how TSA tests and evaluates existing and emerging screening technologies. Additionally, we have met with a number of industry stakeholders offering a range of impressive technologies and innovations to better secure our Nation's transportation systems. These stakeholders, like TSA, share a desire to improve the security of the traveling public and mitigate threats from a rapidly-evolving threat landscape and have talked frankly about the state of existing technologies and the challenges facing the agency.

However, many of them also have shared troubling anecdotes about the bureaucratic difficulties they have encountered in attempts to partner with TSA in the Department of Homeland Security's Science and Technology Directorate. I am concerned that bureaucracy and stagnation are preventing TSA and DHS from being responsive to legitimate security threats facing our Nation.

Indeed, while it is critical that any acquisition process includes safeguards to prevent wasting taxpayer dollars on poor investments and unproven technology, it is just as critical that we are not failing to meet our most basic mission, and that is to prevent terror attacks against transportation targets.

This is, no doubt, a challenge and I am intent on holding both TSA and industry accountable to reasoned effective investment strategy. I am concerned about whether TSA is making procurement and investment decisions in a vacuum without leveraging sufficient support from other Government experts and stakeholders.

Additionally, I remain unconvinced that TSA and Homeland Security's Science and Technology Directorate are working closely enough to develop and test existing and future technology. A lack

of cross-pollination and communication between these entities is, I believe, hindering our ability to meet mission needs.

I look forward to hearing different perspectives from our witnesses today on how DHS and TSA work together to make their procurement decisions; how this committee's legislation has informed this process; and what more needs to be done to ensure that taxpayer dollars are being spent in a deliberate and strategic manner with an eye towards keeping us safe. I would like to thank all of you for being here today and we have a two-paneled hearing.

I will note that prior to preparing here today, I have been encouraged about what I have heard about some of the improvements being made at TSA and I am looking forward to hearing about similar improvements at DHS if, in fact, they do exist. Note that we are not here to indict anybody. We are here to just find out how we can make the process better. It has gotten better. It needs to get better, and that is what this whole goal today is about.

We will begin by hearing testimony from a panel of Government witnesses followed by a panel representing the security technology industry.

[The statement of Chairman Katko follows:]

PREPARED STATEMENT OF CHAIRMAN JOHN KATKO

JANUARY 7, 2016

Taxpayer dollars should never be wasted on technology that is not effective or meeting our needs—unfortunately, this is a problem with which the Transportation Security Administration has struggled for many years. Our Government relies upon private-sector innovation to develop security technologies. However, that innovation comes with a price tag, and we cannot reasonably expect the private sector to spend millions of dollars in the research and development of new and emerging technologies without greater transparency and communication from both TSA and the Department of Homeland Security as to what their future needs and technology investments will be.

In the agency's short history, TSA has exhibited a number of deficiencies in its procurement processes. However, the acquisitions challenges facing TSA are not insurmountable, and it is incumbent upon this subcommittee to provide the necessary oversight to streamline the agency's policies and procedures, while ensuring that taxpayer dollars are appropriately spent on technologies that are proven to be effective at protecting our Nation's transportation systems. I recently sat down with Administrator Neffenger, and I know that is he is acutely aware of some of the challenges TSA faces in this regard. I look forward to continuing to support him in his efforts to lead and reform this agency.

The purpose of today's hearing is to examine the challenges the Transportation Security Administration faces in their research and development of security technologies and how those challenges affect TSA's acquisitions practices. On December 18, 2014, President Obama signed the "Transportation Security Acquisition Reform Act" into law, which was introduced by Congressman Hudson last year. This bipartisan bill was passed on the premise that TSA must be more transparent and strategic in identifying its technology investment needs, while working closely with industry stakeholders to develop and procure future technologies. In addition, this legislation required TSA to submit to Congress a strategic 5-year technology investment plan. This plan, which was provided to this committee in August of this year, lays out the agency's vision for near-term technology investments, while providing a clearer vision of the agency's often opaque acquisitions strategy. Producing a 5-year plan is a meaningful step in the right direction and includes a number of pragmatic observations and goals.

However, more must be done to build on this strategy and turn words on paper into a more efficient and streamlined procurement process. Earlier this year, Ranking Member Rice and I visited the Transportation Systems Integration Facility to observe how TSA tests and evaluates existing and emerging screening technologies. Additionally, we have met with a number of industry stakeholders offering a range of impressive technologies and innovations to better secure our Nation's transpor-

tation systems. These stakeholders, like TSA, share a desire to improve the security of the traveling public and mitigate threats from a rapidly-evolving threat landscape and have talked frankly about the state of existing technologies and the challenges facing the agency. However, many of them also have shared troubling anecdotes about the bureaucratic difficulties they have encountered in attempts to partner with TSA and the Department of Homeland Security's Science and Technology Directorate.

I am concerned that bureaucracy and stagnation are preventing TSA and DHS from being responsive to legitimate security threats facing our Nation. Indeed, while it is critical that any acquisitions process include safeguards to prevent wasting taxpayer dollars on poor investments and unproven technology, it is just as critical that we are not failing in our most basic mission—to prevent terror attacks against transportation targets. This, no doubt, is a challenge, and I am intent on holding both TSA and industry accountable to a reasoned, effective investment strategy. I am concerned about whether TSA is making procurement and investment decisions in a vacuum, without leveraging sufficient support from other Government experts and stakeholders. Additionally, I remain unconvinced that TSA and the Department of Homeland Security's Science & Technology Directorate are working closely enough to develop and test existing and future technology. A lack of cross-pollination and communication between these entities is, I believe, hindering their ability to meet mission needs. I look forward to hearing different perspectives from our witnesses today on how DHS and TSA work together to make procurement decisions, how this committee's legislation has informed this process, and what more needs to be done to ensure that taxpayer dollars are being spent in a deliberate and strategic manner.

I would like to thank all of you for being here today. We have a two-panel hearing here today. We will begin by hearing testimony from a panel of Government witnesses, followed by a panel representing the security technology industry.

Mr. KATKO. With that, I now recognize the Ranking Member of the subcommittee, the gentlewoman from New York, Miss Rice for any statements she may have.

Miss RICE. Thank you, Mr. Chairman. First I want to thank you for convening this hearing and I want to thank the witnesses for coming to talk with us about TSA's technology acquisition process, its strengths, and weaknesses, and what TSA is doing to make the process more effective and more efficient.

The Transportation Security Acquisition Reform Act was signed into law just over 1 year ago. Among other things, the law requires the administrator to establish a strategic 5-year technology investment plan and submit its intentions to Congress. The administrator, with the approval of the Secretary, published the 2015 report to Congress in August of last year. This 5-year plan shows us the full scope of TSA's investment objectives and it is a good start. But there are clearly some challenges that need to be addressed.

In December GAO released a report assessing TSA's acquisition process, specifically, its process for testing and evaluating screening technology. This test and evaluation process is a necessary step that allows TSA and DHS to determine whether technologies meet mission needs before proceeding with procurement and deployment which saves the agency time and money. The GAO report acknowledges that TSA has come up with ways to improve the test and evaluation process in part by developing a third-party testing strategy in order to determine whether or not a vendor's technology is immature before TSA and DHS begin the test and the evaluation process.

Unfortunately, we have learned from this report that TSA has yet to implement that strategy. Allowing third-party testing and evaluation would determine early on if a certain technology is ma-

ture enough to deploy which will save, obviously, time and money, and prevent wasteful spending.

So I hope to hear from our witnesses today why that strategy has not yet been implemented and when we can expect that it will be. While third-party testing has yet to be finalized, I am pleased to learn that TSA has been highly responsive to GAO's recommendations. I agree with the Chairman, Ms. Vaughan, you are not in an enviable position, but you were kind enough to take some time to meet with me yesterday and as a result of that, I think that this is going to be a very fruitful hearing.

So with TSA's screening more than 1 million passengers and checked bags, and more than 3 million carry-on bags every single day, it is critical that TSA utilize taxpayer dollars as efficiently as possible to procure the most effective technology available. We know that those numbers will only keep growing. The Federal Aviation Administration aerospace forecast for fiscal years 2015 to 2030 projects the number of passengers on U.S. carriers to increase 2 percent each year over the next 20 years.

So TSA clearly needs technology that will cater to such growth, and as new threats emerge there is no question that we need to prioritize certain security-related technologies over others. That is why it is so important that TSA do the work now to establish and finalize all of the components of a straightforward and cost-efficient acquisition process in order to ensure that the agency can continue to fulfill its mission and keep passengers safe.

I appreciate the fact that TSA has been so responsive to the GAO report. I truly do appreciate the opportunity to talk with our witnesses today about TSA's efforts to improve their acquisition processes. Among other things, I look forward to learning more about how TSA works with DHS to evaluate the different technologies.

I am also interested in the ways in which TSA incentivizes small businesses to be able to innovate and compete with larger companies that provide screening technology. That is probably one of the biggest challenges I think that we face today.

TSA's acquisitions process has been described as too long and too expensive for large businesses, so I can only imagine the issues that arise with small businesses, other start-ups that are trying to break into a field, that are obviously at a competitive disadvantage, and may endure a lengthy process only to learn their products aren't mature enough for deployment. So I hope our witness can speak to that point as well.

Mr. Chairman, thank you again for convening this hearing. I look forward to a productive conversation today. I yield back the balance of my time.

[The statement of Miss Rice follows:]

STATEMENT OF RANKING MEMBER KATHLEEN RICE

JANUARY 7, 2016

The Transportation Security Acquisition Reform Act was signed into law just over 1 year ago. Among other things, the law requires the administrator to establish a strategic 5-year technology investment plan and submit its intentions to Congress. The administrator, with the approval of the Secretary, published the 2015 report to Congress in August of last year. This 5-year plan shows us the full scope of TSA's investment objectives, and it's a good start—but there are clearly some challenges that need to be addressed.

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So I hope to hear from our witnesses today why that strategy has not yet been implemented, and when we can expect that it will be. While third-party testing has yet to be finalized, I am pleased to learn that TSA has been highly-responsive to GAO's recommendations. With TSA screening more than 1 million passengers and checked bags and more than 3 million carry-on bags every day, it's critical that TSA utilize taxpayer dollars as efficiently as possible to procure the most effective technology available.

We know that those numbers will only keep growing. The Federal Aviation Administration Aerospace Forecast for fiscal years 2015–2035 projects the number of passengers on U.S. Carriers to increase 2 percent each year over the next 20 years. So TSA clearly needs technology that will cater to such growth, and as new threats emerge, there's no question that we need to prioritize certain security-related technologies over others.

That's why it's so important that TSA do the work now to establish and finalize all the components of a straightforward and cost-efficient acquisition process, in order to ensure that the agency can continue to fulfill its mission and keep passengers safe. Again, I appreciate the fact that TSA has been so responsive to the GAO report, and I appreciate the opportunity to talk with our witnesses today about TSA's efforts to improve their acquisition processes.

Among other things, I look forward to learning more about how TSA works with DHS to evaluate technologies. I'm also interested in the ways in which TSA incentivizes small businesses to be able to innovate and compete with larger companies that provide screening technology.

TSA's acquisitions process has been described as too long and too expensive for large businesses—so I can only imagine the issues that arise with small businesses that may be at a competitive disadvantage, and may endure a lengthy process only to learn their products aren't mature enough for deployment. So I hope our witnesses can speak to that point as well.

Mr. KATKO. Thank you, Miss Rice.

Our first witness is Mr. Steven Wallen, who currently serves as the director of the Explosives Division in the Department of Homeland Security Science and Technology Directorate. Previously Mr. Wallen worked for the United States Secret Service for 20 years where he managed the Science and Technology Group, including the Engineering Research and Development Branch. The Chair now recognizes Mr. Wallen to testify.

STATEMENT OF STEVEN WALLEN, DIRECTOR, EXPLOSIVES DIVISION, HOMELAND SECURITY ADVANCED RESEARCH PROJECTS AGENCY, SCIENCE AND TECHNOLOGY DIRECTORATE, U.S. DEPARTMENT OF HOMELAND SECURITY

Mr. WALLEN. Good afternoon, Chairman Katko, Ranking Member Rice, and distinguished Members of the subcommittee.

Thank you for the opportunity to testify alongside my colleague from TSA on the ways the Science and Technology Directorates' work on transportation security technology supports the aviation security mission. In this testimony I will discuss S&T's approach to research and development and how our partnerships with TSA

and others are leading to new aviation security in explosive detection and mitigation solutions.

S&T's mission is to deliver effective and innovative insight, methods, and solutions for the critical needs of the Homeland Security enterprise. Under Dr. Brothers' leadership as Under Secretary, S&T has focused the last 2 years on reshaping S&T's approach to R&D. To achieve this, S&T set up interdisciplinary teams to work closely with field operators, to identify challenges and develop user-driven solutions. S&T has initiated several programs to advance technology development and reach operational goals. Our Apex projects represent some of the highest profile and most revolutionary projects in the directorate. These ambitious projects look at the Nation's security strategically and address future challenges while continuing to support today's operational needs.

The Apex screening and speed project is tailored to address maximizing the effectiveness of screening while minimizing inconvenience to travelers. S&T's Apex program is supported by a new category of resources called Apex Technology Engine Teams. These engines provide expertise in focused topic areas and enable cross-cutting R&D that moved S&T's entire portfolio forward.

S&T has also recently reinstituted Integrated Product Teams. The IPTs are initially addressing 6 topic areas: Aviation security, biological threats, counterterrorism, border security, cybersecurity, and first responder resources. Through the IPTs S&T is implementing a formal process for identifying, validating, and prioritizing technical capability needs to help guide future R&D investments within DHS.

The aviation security IPT is designed to address a wide array of topics including checkpoint check baggage, air cargo, systems architecture and integration, and emerging threats. The aviation security IPT is chaired by TSA, and has subgroups that are jointly chaired by TSA and S&T and include members from other DHS and non-DHS organizations.

Beyond the IPT process, S&T works with TSA in two significant ways. One of those ways is through my division of S&T, the Explosives Division. We are devoted to protecting citizens and our country's infrastructure against the devastating effects of explosives, by taking innovative approaches to detection and countermeasures. Through our work with TSA, industry, academia, and other Government agencies, S&T delivers concepts, science, technologies, and systems that increase the country's ability to detect explosives and mitigate the effects of an explosive blast.

The Explosives Division's portfolio is divided into three operational areas: Aviation solutions, intermodal solutions and facilities protection, and foundational science. Aviation solutions develops cost-effective systems for screening air cargo, checked baggage, carried item, and people at checkpoints.

Intermodal solutions and facilities protection develops technologies capable of screening high throughput areas where traditional checkpoints are neither effective nor efficient. Additionally, they developed tools to improve current canine capabilities and screening methods. Vehicle screening methods.

Foundational science evaluates homemade and conventional explosives, and blast phenomenology that makes applied R&D pos-

sible. S&T's Explosives Division regularly interacts with various offices in TSA and works closely with TSA's Office of Security Capabilities. Our organizations share information on goals, requirements, and current and proposed projects. Both organizations frequently offer to hold joint meetings with vendors to evaluate the status of projects, discuss new technology, or discuss proposals.

Another significant way in which S&T works to further TSA's mission is through the Transportation Security Lab in Atlantic City, New Jersey. TSL is 1 of 5 S&T labs and has a specialized campus and a highly-experienced staff who are dedicated to advancing detection technology from conception to deployment.

In addition to its research and assessment activities, TSL houses an independent test and evaluation group that advances TSA's mission by conducting certification and qualification tests on detection technologies. TSL also provides technical assistance to help industry mature their concepts in preparation for certification and qualification testing. S&T brings to bear a range of capabilities and expertise in support of TSA in the explosives detection and mitigation portfolio. The aviation security IPT, my division and the TSL, we are investing with TSA and other stakeholders in both evolutionary and revolutionary improvements in transportation security.

I thank you for the opportunity to testify before the committee today and welcome your questions and the opportunity to further discuss our work.

[The prepared statement of Mr. Wallen follows:]

PREPARED STATEMENT OF STEVEN WALLEN

JANUARY 7, 2016

Good afternoon Chairman Katko, Ranking Member Rice, and distinguished Members of the subcommittee. Thank you for the opportunity to testify before you today on the Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) work on transportation security technology. In this testimony, I will discuss S&T's approach to research and development (R&D) and how our partnerships with the Transportation Security Administration (TSA), the private sector, and universities are leading to new explosives detection and mitigation solutions.

S&T's mission is to deliver effective and innovative insight, methods, and solutions for the critical needs of the Homeland Security Enterprise (HSE). Many of the constraints that S&T and other Federal R&D organizations face result, often indirectly, from processes and authorities suited to a previous era of relatively less competition for technical expertise and less emphasis on organizational agility and responsiveness to rapid change. The homeland security mission encompasses numerous complex threats that evolve quickly and strain operational capabilities running on traditional, multi-year development and acquisition cycles. Under Dr. Reginald Brothers' leadership as Under Secretary, S&T has focused the last 2 years on reshaping S&T's approach to R&D to overcome those constraints. That meant finding ways to mine sources of innovation like start-ups that may not traditionally work with Government. To achieve this, we set up interdisciplinary teams working closely with field operators to accelerate translation of operational challenges into real, user-driven solutions. And that meant speeding up our internal processes to the maximum extent possible to ensure long-term relevance of solutions that become operational and enter wide-spread use.

To foster that approach to R&D, we have focused on five priorities:

- Develop visionary goals for the organization.
- Produce an actionable strategy.
- Foster an empowered workforce.
- Deliver force-multiplying solutions to homeland security stakeholders.
- Energize a Homeland Security Industrial Base.

VISIONARY GOALS

In the past, S&T had a very operational focus in helping to bridge capability gaps identified by component partners and stakeholders. While S&T continues to work daily with component partners, first responders, and other stakeholders on immediate issues, the organization undertook an effort last year to create comprehensive, far-reaching visionary goals that look 20 or more years into the future. These visionary goals serve as our strategic direction and will ultimately improve DHS's capabilities and make our Nation more secure.

- *Screening at Speed: Security that Matches the Pace of Life*.—Noninvasive screening at speed will provide for comprehensive threat protection while adapting security to the pace of life rather than adapting life to security. Unobtrusive screening of people, baggage, or cargo will enable the seamless detection of threats while respecting privacy, with minimal impact to the pace of travel and speed of commerce.
- *A Trusted Cyber Future: Protecting Privacy, Commerce, and Community*.—In a future of increasing cyber connectivity, underlying digital infrastructure will be self-detecting, self-protecting, and self-healing. Users will trust that information is protected, illegal use is deterred, and privacy is not compromised. Security will operate seamlessly in the background.
- *Enable the Decision Maker: Actionable Information at the Speed of Thought*.—Predictive analytics, risk analysis, and modeling and simulation systems will enable critical and proactive decisions to be made based on the most relevant information, transforming data into actionable information. Even in the face of uncertain environments involving chemical, biological, radiological, or nuclear incidents, accurate, credible, and context-based information will empower the aware decision maker to take instant actions to improve critical outcomes.
- *Responder of the Future: Protected, Connected, and Fully Aware*.—The responder of the future is threat-adaptive and cross-functional. Armed with comprehensive physical protection, interoperable tools, and networked threat detection and mitigation capabilities, responders of the future will be better able to serve their communities.
- *Resilient Communities: Disaster-Proofing Society*.—Critical infrastructure of the future will be designed, built, and maintained to withstand naturally-occurring and man-made disasters. Decision makers will know when disaster is coming, anticipate the effects, and use already-in-place or rapidly-deployed countermeasures to shield communities from negative consequences.

These goals will serve as our strategic direction and will ultimately improve DHS's capabilities and make our Nation more secure. S&T will continue to provide operational support and help stakeholders Nation-wide meet near-term requirements while, with the Visionary Goals as a guide, also facilitating longer-term R&D opportunities with public and private-sector communities.

FORCE-MULTIPLYING SOLUTIONS

The Apex Program

Grounded in our Visionary Goals and working in mission areas that cut across our DHS component partners, S&T launched 6 new Apex projects including 1 in direct partnership with TSA. These ambitious programs—which are based on vetted, long-term requirements of DHS operational components—look strategically at the Nation's security and address future challenges while continuing to support today's operational needs. It is worth noting that in order to create the new Apex projects, we reduced the overall number of programs at S&T to have fewer, but more impactful, projects. New Apex project areas include the following: Biothreat awareness, aviation screening, next-generation cyber infrastructure, flood awareness, next-generation first responder, and border situational awareness. In addition to existing Apex projects with U.S. Customs and Border Protection on passenger screening (the Apex Air Entry/Exit Re-Engineering Program) and U.S. Immigration and Customs Enforcement (ICE) on data analytics (the Apex Border Enforcement Analytics Program), Apex projects represent some of the highest-profile and most promising projects in the Directorate.

Engines

S&T's Apex program is supported by a new category of projects called Apex Technology Engine Teams (Engines) that provide expertise in focused topic areas, enable cross-cutting R&D, and benefit S&T's entire portfolio including our work with TSA. Engines represent a novel approach in S&T for realizing S&T's Visionary Goals and powering innovation. The first wave of Engines includes the following:

- Data Analytics

- Situational Awareness and Decision Support
- Communications and Networking
- Behavioral Economics and Social Sciences
- Identity and Access Management
- Modeling and Simulation

Our Engines harness subject-matter expertise and capabilities across the Department and leverage technological, scientific, industrial, and academic communities to provide continuous support in areas of need common to multiple, and sometimes all, DHS component agencies. S&T's Engines identify and share subject-matter expertise, technical solutions and tools, best practices, lessons learned, and reusable products and solutions on behalf of Apex and other S&T projects. Collaboration to leverage knowledge from the DHS enterprise and external stakeholders are core components of the Engine approach.

In less than a year, the Engines model has already begun to take root. As one example, the Data Analytics Engine works with nearly every operational component in DHS. It recently won an award for work with the Federal Emergency Management Agency on the U.S. Fire Administration's National Fire Incident Records System and has a highly successful program underway with ICE's Homeland Security Investigations. Additionally, the Data Analytics Engine continues to support customer projects such as TSA's third-party pre-screening by providing technical evaluation of analytics software.

Integrated Product Teams

Science and technology are near-universally acknowledged as critical elements to future operational success. By prioritizing solutions that substantially multiply the effects of manpower and other existing assets, components and customers are more likely to recognize S&T's value and integrate a jointly-developed R&D portfolio into their procurement cycles and, ultimately, their operations. In the last year, we have made significant strides in this area including, most significantly, re-establishing the Department's Integrated Product Teams (IPT) as part of the Secretary's April 2014 Unity of Effort initiative.

In August, the Secretary directed S&T to reinstitute these cross-departmental IPTs for the purpose of identifying technological capability gaps and coordinating R&D to close those gaps across the mission areas of the Department. The overall effort is led by S&T, but the individual IPTs are led by senior representatives from the operational components with representation from the Joint Requirements Council (JRC) and support from S&T.

One of the first 5 topic areas for IPTs is Aviation Security and is chaired by TSA. The remaining 4 topic areas are Biological Threats, Counterterrorism, Border Security, and Cyber Security. S&T will also continue its on-going IPT supporting our Nation's first responders through the First Responders Resource Group, and the IPT will create additional sub-IPTs to address key issues such as resilience. Going forward, the IPTs will be one mechanism by which the Department identifies and coordinates its R&D efforts to align DHS's priority missions.

Acquisition Support in the Department

S&T's Office of Test and Evaluation oversees test and evaluation (T&E) for DHS major acquisitions including at TSA, ensuring homeland security technologies are reliable, interoperable, and effective. S&T provides test and evaluation oversight for the Department's major acquisition programs housed by the DHS components. In this capacity, S&T develops DHS-wide T&E policies and procedures, acts as principal advisor on operational T&E to the Office of the Secretary and the component heads, and manages a T&E Center of Excellence to support the Department. As an independent T&E organization within DHS, the objective is to help every program plan and execute robust T&E throughout the acquisition life cycle, bringing credible assessments to all acquisition decisions.

For pre-acquisition requirements development, S&T has also been an active participant in the Department-wide JRC, a part of the Secretary's Unity of Effort Initiative. The JRC identifies common capability needs and challenges across DHS components and will work as an essential input into S&T's own R&D process. In addition to JRC membership, S&T currently provides the JRC's primary analytic resources. As such, S&T is helping develop and refine JRC analysis, methodology, and process in addition to partnering with topic-specific teams to conduct capabilities-based assessments. Working under the direction of the JRC chair and with the other JRC stakeholders, S&T will establish a lasting and functional framework for the Department's requirements process.

HOMELAND SECURITY INDUSTRIAL BASE

In many cases, DHS—more than many Federal agencies such as the Department of Defense—is dependent on commercially-available, off-the-shelf products to achieve its mission. As a result, partnership with industry, specifically in product development, is essential. R&D projects can yield isolated, one-off solutions, but a truly successful portfolio must strategically shape the shelf by inserting homeland security applications, if not as primary use cases or applications, at least as considerations during companies' product development cycles. If successful, that approach results in numerous products on the shelf that operators may use.

S&T has enjoyed considerable success expanding and refining outreach to industry including in the area of explosives detection and mitigation. We continue to host industry days to inform and educate the private sector on our direction and available opportunities for partnership, including one last June dedicated to checkpoints and S&T's screening-focused Apex project. We published a new S&T Strategic Plan and overhauled S&T's website to be more informative and transparent to potential private-sector partners. Additionally, we launched innovative accelerator and prize competition platforms to reach innovators and communities that may have never heard from or worked with Government before. S&T expanded our Silicon Valley presence with a pilot program that aims to maintain constant, face-to-face contact with venture capital and start-up communities outside the Beltway, including in the Silicon Valley area. By combining these efforts with willing partners within the Department, including in the Management Directorate and Office of General Counsel, we are beginning to see real interest in private-sector participation in a Homeland Security Industrial Base.

R&D AND T&E IN EXPLOSIVES DETECTION AND MITIGATION

S&T's Explosives Division is devoted to protecting citizens and our country's infrastructure against the devastating effects of explosives by seeking innovative approaches in detection and countermeasures. Through our work with operational partners like TSA and with industry, S&T delivers concepts, science, technologies, and systems that increase the HSE's ability to detect explosives and mitigate the effects of an explosive blast. The Explosives Division's portfolio is divided into three operational areas:

- Aviation Solutions, developing cost-effective systems for screening air cargo, checked baggage, carried items, and people at checkpoints that will improve detection capabilities, reduce false alarm rates, and improve the overall customer experience.
- Intermodal Solutions and Facilities Protection, developing technologies capable of screening in high-throughput areas where traditional checkpoints are neither effective nor efficient and enhancing tools to improve current canine and trace detection screening methods.
- Foundational Science, determining explosives and blast phenomenology that makes applied R&D possible, including the study of explosive material characteristics relevant to discrimination and detection and the assessment of blast effects on aircraft and infrastructure.

In addition to the broader approaches and capabilities in S&T described above, below are descriptions of a number of elements that are specifically contributing to the success of the explosives R&D portfolio.

Partnership with TSA

Through the Aviation Security IPT, S&T is implementing a formal process for identifying, validating, and prioritizing technological capability gaps to help guide future R&D investments within DHS S&T. The Aviation Security IPT includes 5 Sub-IPTs: Checkpoint, Checked Baggage, Emerging Threats, Air Cargo, and System Architecture and Integration. Although the primary IPT is chaired by TSA, the Sub-IPTs are jointly chaired by TSA and DHS S&T and include members from other organizations such as Customs and Border Protection, the U.S. Secret Service, the Federal Protective Service, and the Federal Bureau of Investigation. The Aviation Security IPT charter was signed on October 15, 2015, and the results of the capability gaps evaluation, program crosswalk, and R&D plan are currently being combined and prioritized by a cross-component body of senior leaders, known as the S&T Research Council.

S&T's Explosives Division regularly interacts with various offices in TSA and often works closely with TSA's Office of Security Capabilities. The organizations share information on goals, requirements, and current and proposed projects. Both organizations frequently offer to hold joint meetings with vendors to evaluate the status of projects, discuss new technology, or discuss proposals. The organizations

are evaluating the means by which to use proposals submitted to the other organization's Broad Agency Announcements to expedite the procurement process.

Aviation Checkpoint Screening at Speed Apex project

Our Aviation Checkpoint Screening at Speed Apex project is developing next-generation, leap-ahead screening hardware with potential to substantially improve the security and passenger experience at checkpoints. The Screening at Speed Apex specifically focuses on developing the technologies and framework that is compatible with TSA's vision for an Aviation Checkpoint of the Future while at the same time enhancing TSA's ability to reliably detect smaller and evolving threats and to distinguish potential homemade explosive (HME) threats from items commonly carried by passengers. S&T envisions a future where TSA screeners are able to spend less time on complicated images and more time observing and assisting passengers and resolving alarms. The technology being developed as part of the Screening at Speed Apex will strengthen security and lead to expedited passenger and baggage screening.

Transportation Security Laboratory (TSL)

Located in Atlantic City, New Jersey, TSL is one of S&T's 5 labs and is dedicated to advancing detection technology from conception to deployment through applied research, test and evaluation, assessment, certification and qualification testing. TSL's Independent Test and Evaluation group provides certification and qualification tests. Additionally, they create laboratory assessments that provide DHS components, including TSA, with critical information about equipment and its ability to detect explosives and other contraband. TSL also provides system developers and manufacturers with a range of explosive test articles to help them develop software to locate explosive threats artfully concealed on passengers or in their luggage. With a specialized campus; a highly-experienced staff including physicists, chemists, engineers, and mathematicians; and numerous cooperative research and development agreements with industry and academia, TSL is a National asset for transportation security.

DHS Tyndall Reactive Materials Group (TRMG)

Another important DHS S&T asset which supports the work of TSA and furthers aviation security is the TRMG. The TRMG is an explosives data collection facility located at Tyndall Air Force Base in Panama City, Florida, which collects and maintains data on explosive materials using specialized facilities and equipment under the oversight of DHS S&T. One of the key ways in which the TRMG supports DHS S&T and TSA programs is by collecting large amounts of data on HME materials. TRMG personnel work to meet the needs of the Electronic Baggage Screening Program (EBSP) and the Passenger Screening Program (PSP), by providing vendors with information and a test platform for algorithm development to detect new threats. Their work is designed to keep pace with the dynamic and expanding requirements and threats at transportation screening portals and to maintain the capacity to conduct testing on systems and technologies to detect improvised explosives.

Center of Excellence for Awareness and Localization of Explosives-Related Threats (ALERT)

Led by Northeastern University in Boston, Massachusetts, ALERT is 1 of S&T's 10 university-based Centers of Excellence (COE) and is dedicated to transformational research, technology, and educational development surrounding explosives-related threats. The COE network is an extended consortium of hundreds of universities conducting groundbreaking research to address homeland security challenges. S&T's COEs work closely with the homeland security community to develop customer-driven, innovative tools and technologies to solve real-world challenges. ALERT's researchers bring strengths in designing advanced sensors; detecting weakly-defined targets from a stand-off distance; signal processing and sensor integration; characterizing explosives; understanding improvised explosive device (IED) detonator signatures; shock physics; and material science.

PATH FORWARD

S&T brings to bear a range of capabilities and expertise in support of TSA and the explosives detection and mitigation portfolio. Through the Aviation Security IPT and routine formal and informal interactions, we are investing with TSA and our stakeholders in both evolutionary and revolutionary improvements. I thank you for the opportunity to testify before the committee today, and welcome your questions and the opportunity to further discuss our work.

Mr. KATKO. Thank you, Mr. Wallen. Before I proceed further, I ask unanimous consent that the gentleman from North Carolina, my predecessor, Mr. Hudson, be allowed to sit on the dais and participate in this hearing.

Without objection, so ordered.

I do want to note before we go any further and thank Mr. Hudson because he was the one who propounded the bill, the Transportation Security Acquisition Reform Act of 2014, and it is why we are here, and why we are trying to get some reform to the acquisition process at TSA. I commend you for your work, Mr. Hudson, on that.

Our second witness is Ms. Jill Vaughan, who currently serves as the assistant administrator within the Transportation Security Administration's Office of Security Technologies. Previously, Ms. Vaughan served as deputy chief information officer and deputy assistant administrator for TSA's Office of Information Technology. The Chair now recognizes Ms. Vaughan to testify.

STATEMENT OF JILL VAUGHAN, ASSISTANT ADMINISTRATOR, OFFICE OF SECURITY TECHNOLOGIES, TRANSPORTATION SECURITY ADMINISTRATION, U.S. DEPARTMENT OF HOMELAND SECURITY

Ms. VAUGHAN. Chairman Katko, Ranking Member Rice, and Members of the subcommittee, I am pleased to appear before you today to discuss the TSA's use of technology to meet our mission of protecting the Nation's transportation system.

TSA utilizes a range of technological capabilities to screen passengers and accessible property. Checkpoint screening technologies include: Advanced imaging technology, metal detectors, bottled liquid scanners, explosive trace detection technologies, and advanced technology X-ray. Checked baggage technologies include: Explosive detection systems and explosive trace detection technologies. These technologies represent a substantial improvement in detection capability over the previous technologies. For example, they strengthen TSA's ability to detect nonmetallic explosives which current intelligence identifies an active threat to aviation security.

TSA continues to pursue advanced concepts and capabilities to meet our mission demands. Our industry partners are developing technology solutions to close capability gaps, optimize existing technologies, and drive towards future screening innovations. TSA is updating existing technology as new capabilities become available instead of requiring complete system replacements. TSA closely partners with the DHS Science and Technology Directorate on Research and Development.

TSA has also partnered with Science and Technology through the Aviation Security Integrated Product Team to plan for the fiscal year 2018 through 2022 resource allocation plans to further align research and development projects to meet security needs. This critical process enables our enterprise to identify capability gaps and to coordinate research and development to close those gaps. The Transportation Security Acquisition Reform Act, or TSARA, signed into law December 2014 has helped TSA to increase transparency in the use of best practices for security technology acquisitions. This mandate offered an opportunity to expand our partner-

ship with industry and aviation security stakeholders, communicate future focus areas and themes, and articulate planned technology initiatives through the development of a 5-year strategic technology investment plan.

TSA has worked to enhance transparency and partnerships with its stakeholders. TSA does so through a range of industry forums such as the Security Manufacturers Coalition, the Washington Homeland Security Roundtable, and regular Industry Days.

In addition, TSA is developing an Innovation Lane concept to enable early capability demonstrations and to allow industry access to stream-of-commerce data and real-time user feedback, a key request of industry.

TSA is investing in the future of aviation security by pursuing enhanced technology to enable a flexible, adaptable approach. Key to this vision is a system-of-systems approach which integrates technology, data, and processes within and across airports. TSA is developing a system architecture that will expand risk-based security through an integrated security screening system. TSA will continue to collaborate with stakeholders to develop a shared vision for the future state of aviation security where business data and next generation platforms combine to address emerging and evolving threats. TSA is also working to secure the current and future fleet against cybersecurity vulnerabilities and threats by integrating cybersecurity considerations into current and future capabilities.

TSA published information assurance requirements and socialized them with industry through Industry Days and a series of technical interchange meetings. Continued focus on cybersecurity will safeguard our transportation security equipment against the continuously-evolving cyber threat.

I also want to thank the Government Accountability Office for their continuing efforts to enhance security of the transportation system, particularly as a result of the report on our testing and evaluation process. This report resulted in two recommendations with which we fully concur. We are eager to continue working with industry to finalize aspects of our third-party testing strategy and further assess testing data to identify additional areas for efficiency.

One year after TSARA was signed into law, TSA has increased transparency and alignment across security technology acquisitions to promote an effective, adaptive, and flexible system of security capabilities to safeguard the American public from terrorist attacks on transportation systems.

Chairman Katko, Ranking Member Rice, I want to thank the subcommittee for your continued partnership on this issue, and I look forward to answering your questions.

[The prepared statement of Ms. Vaughan follows:]

PREPARED STATEMENT OF JILL VAUGHAN

JANUARY 7, 2016

Chairman Katko, Ranking Member Rice and distinguished Members of the subcommittee, I am pleased to appear before you today to discuss the Transportation Security Administration's (TSA) use of technology to meet key mission objectives.

TSA was created in the wake of the attacks on September 11, 2001, to protect the Nation's transportation systems and ensure freedom of movement for people and commerce. Our operations use a range of capabilities in a risk-informed approach

to screen nearly 660 million passengers and nearly 2 billion carry-on items and checked bags annually. As a result, Transportation Security Officers (TSOs) were able to prevent 119,000 dangerous items from being carried onto airplanes in fiscal year 2015. Our screening technology evolves to meet the dynamic threat through our extensive partnerships across Government, academia, and industry.

PASSENGER SCREENING

Congress established TSA through the Aviation and Transportation Security Act (ATSA) (Pub. L. 107–71), which designated passenger screening as a Federal responsibility. TSA prioritizes its technology investments based on intelligence community assessments concerning the evolving nature of terrorist capabilities, tools, and intent. TSA performs risk analyses as the foundation for deriving operational needs and requirements, taking into consideration potential threats, vulnerabilities to those threats given current system capabilities, and the consequences in the event of an attack. To meet these challenges, passenger screening technology, processes, and systems must continually adapt and evolve. TSA utilizes a range of technological capabilities to screen passengers and accessible property. Passenger screening technologies include Advanced Imaging Technology (AIT), metal detectors, explosives trace detectors (ETD), and bottled liquids scanners (BLS). Carry-on baggage is screened using Advanced Technology X-Ray, BLS, and ETD technologies.

Prior to the development and fielding of AIT and dual view AT X-ray, metal detection and single view X-ray were the most common methods for screening passengers and carry-on baggage, respectively. These new AIT and AT X-ray technologies provide a substantial improvement in detection capability for the most significant concealments over the previous generation, and specifically strengthen TSA's ability to detect non-metallic explosives, which current intelligence has identified as an ongoing threat to aviation security.

TSA closely partners with the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) on Research and Development (R&D) to ensure development efforts align with program goals and expectations for achieving and implementing higher levels of performance detection. DHS S&T is assisting TSA in the advancement of detection capabilities by characterizing new threats to aviation. These efforts will assist TSA, as well as small and large business equipment manufacturers, in the development of enhanced future systems. TSA is seeking to acquire a robust adaptive passenger screening system that builds upon existing capabilities while advancing functionality to ensure a higher level of system effectiveness and efficiency.

TRANSPORTATION SECURITY ACQUISITION REFORM ACT (TSARA) BACKGROUND

The TSARA was signed into law on December 18, 2014 (Pub. L. 113–245) and mandated increased transparency and the application of acquisition best practices for security technology acquisitions. The law includes provisions for TSA to advance small business contracting goals, adhere to acquisitions and inventory policy and procedures, and develop a Five-Year Strategic Technology Investment Plan. Building on a previously-developed strategic and capability investment plans, TSA developed the Five-Year Strategic Technology Investment Plan, which the agency found to be an opportunity to further our partnership with industry and aviation security stakeholders, communicate future focus areas and themes, and articulate planned technology initiatives and purchases.

In developing the Five-Year Plan, TSA augmented on-going Industry Days and vendor communication with a series of Industry Forum Working Groups and released a Request for Information (RFI) to solicit industry input. TSA then incorporated this industry feedback into a draft copy of the Plan. This report was also reviewed by the Aviation Security Advisory Committee (ASAC) before being finalized and submitted to Congress on August 12, 2015. The Plan was published on the *FedBizOpps.gov* website on September 2, 2015.

TSA received thoughtful insight from stakeholders throughout the development of the report, which provided a strong framework for TSA's Five-Year Strategic Technology Investment Plan. Four key themes anchor the Plan:

- Integrating principles of Risk-Based Security (RBS) in capabilities, processes, and technologies;
- Enhancing core mission delivery by focusing on a system (or systems) that analyzes threats, risks, and opportunities across the aviation security environment;
- Streamlining acquisitions, requirements, and test and evaluation processes; and
- Increasing transparency in engagement with stakeholders to enable innovation.

Streamlining acquisitions and increasing transparency of the acquisition process is an area of focus for TSA. TSA is continuing to pursue advanced concepts and ca-

pabilities to enable TSA's vision of the future of security screening. To better focus these investments, TSA generates a list of capability gaps to drive continued technology development and enhancement using a structured, repeatable process. Technology solutions are developed by industry to close capability gaps, strengthen aviation security, and drive toward future screening innovations. Recognizing that the threat environment is constantly evolving, TSA actively pursues enhanced capability development to address capability gaps, optimize existing technologies, and develop future technologies. Capability development occurs in tandem with recapitalization and enables TSA to upgrade existing platforms with new capabilities. This allows TSA to upgrade existing technology by improving detection algorithms (or other similar methods) as new capabilities arise, instead of requiring complete system replacements. In addition to the upgrade process, TSA also outlined planned technology recapitalization. Transparency about the acquisition process as well as technology priorities provides stakeholders better insight on how to partner with TSA.

Since enactment of TSARA, TSA has worked to enhance transparency and partnerships with stakeholders and execute technology initiatives as identified in the Five-Year Strategic Technology Investment Plan. TSA's end goal is accelerated capability development through rapid identification, testing, prototyping, and piloting with the ability to quickly evaluate products and push forward promising capabilities. TSA continues to engage with industry through forums such as Washington Homeland Security Roundtable, Security Manufacturer's Coalition and ASAC, in addition to regular Industry Days. TSA is also developing a concept to enable early capability demonstration and allow industry access to data and real-time user feedback, which has been a frequent request from industry.

TEST AND EVALUATION PROCESS UPDATES

When a vendor fails a Qualification Test (QT) and Operational Test (OT) multiple times, TSA's acquisitions deadlines are extended and the Government's Test & Evaluation (T&E) and acquisition costs increase. To alleviate some of these concerns, TSA is pursuing Third-Party Testing as an opportunity to allow vendors to refine their products with an outside entity, which reduces TSA's cost and time from test delays.

TSA is working with the National Institute of Science and Technology (NIST) to develop a Third-Party Test Program to ensure capabilities are mature enough to enter TSA's formal T&E process. To support the implementation of third-party testing, TSA approved the Third-Party Test Strategy on April 21, 2015. TSA plans to begin implementing the Third-Party Test Program in a phased approach by December 31, 2016.

TSA also created a Policy and Guidebook to standardize TSA roles, responsibilities, and policy and provide vendors guidance on how to prepare a Qualification Data Package. This will assist in reducing the acquisition time line and the amount spent on retest costs. Additionally, TSA developed a Master Tracker to better manage and monitor testing events and information. The tool delivers a comprehensive understanding of all T&E events and will aid TSA in closing a Government Accountability Office's (GAO) recommendation to conduct a root-cause analysis of testing challenges and their impact on the acquisition processes. The incorporation of a Third-Party Test Strategy reduces cost and time associated with test delays, shortens the acquisition time line, and streamlines the incorporation of future technology initiatives.

FUTURE TECHNOLOGY INITIATIVES AND SYSTEM ARCHITECTURE

TSA has invested in the future of aviation security by pursuing enhanced technology to enable a flexible, adaptable, and robust multi-capability approach to detecting and disrupting an evolving range of threats. The key to this vision is a holistic "system-of-systems" perspective, which integrates technology, data, and processes within and across airports. TSA is developing a system architecture that will enable expanded implementation of RBS by developing an integrated security screening system that defines business rules, equipment functionality, information exchange, and decision making. This system architecture approach will allow TSA to proactively identify gaps and define capabilities at a system level. TSA will continue to collaborate with stakeholders to develop this shared vision for the future state of aviation security where business, data, and next-generation platforms combine to enable near-real-time decision making and response capabilities to address emerging and evolving threats.

TSA has determined functional enhancements that will address existing capability gaps over the next 5 years outlined in the technology initiatives in the Five-Year Plan. Technology enhancements will enable a future system defined by:

- Enhanced algorithms for Explosives Detections Systems that decrease false alarm rates to minimize officer resolution and the removal of items from passenger bags;
- Dynamic algorithm switching and the application of risk profiles facilitate the evolution of RBS, ensuring passengers and baggage are screened at the appropriate risk level;
- Biometrics to enable real-time identity verification of passengers at the checkpoint; and
- Next generation carry-on screening capabilities to more precisely screen carry-on baggage, improving detection capabilities and false alarm rates.

CONCLUSION

TSARA mandated certain best practices for procuring and using best available technology to meet critical mission needs. The Five-Year Strategic Technology Investment Plan mandated by the law presents a forward-looking investment plan that supports best practices and improved transparency in security technology acquisition programs. Now, 1 year after TSARA was signed into law, TSA has increased transparency and alignment across security technology acquisitions to deploy an effective, adaptive, and flexible system of security capabilities to safeguard the American public from terrorist attacks on transportation systems.

I want to thank the subcommittee for your continued partnership on this and other important issues, and I look forward to answering your questions.

Mr. KATKO. Thank you, Ms. Vaughan. We appreciate your taking your time to be here today.

Our third witness, Ms. Michele Mackin, has served as the director of the Office of Acquisition and Sourcing Management—that is quite a title—at the Government Accountability Office since 2012. Previously, Ms. Mackin served as assistant director of GAO from 2001 to 2012. The Chair now recognizes Ms. Mackin to testify.

STATEMENT OF MICHELE MACKIN, DIRECTOR, OFFICE OF ACQUISITION AND SOURCING MANAGEMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Ms. MACKIN. Thank you, Mr. Chairman. Good afternoon, Ranking Member Rice and Members of the subcommittee. Thank you for having me here today to discuss TSA's test evaluation and acquisition of security-related systems. My statement is based on our December 2015 report which stems from a mandate in the Transportation Security Acquisition Reform Act.

In general, the goal of test and evaluation is to find as many problems as possible so failure can be a good thing as long as knowledge is gained. A rigorous testing protocol is the best way to ensure that TSA is buying effective screening technologies. We found that TSA's test and evaluation processes followed DHS requirements and comport with best practices in industry. The process involves multiple layers of laboratory testing and importantly, operational testing at airports with actual transportation security officers. But, if extensive retesting is needed, it can create inefficiencies in the acquisition system, and that is what we found.

We analyzed the outcome of all 22 security-related systems that TSA tested over a 5-year period. All of these systems have either been deemed fit to procure, or were ultimately rejected. The 22 systems were evenly split between passenger and baggage screening systems. We found that of the 22 systems exactly half, 11, passed all rounds of testing and were qualified for procurement.

So why did so many systems not make the cut? The bottom line is that the systems vendors submitted to TSA were not technologically mature when testing began. They often needed significant

fixes and had to be retested often multiple times. Extensive retesting increases costs to TSA and to the vendors. Importantly, it means it takes longer to field these systems to end-users at airports. In one example the planned acquisition schedule for an explosive detection system slipped by 5 years while multiple rounds of testing occurred.

TSA's 2015 technology investment plan states that policies have been implemented to ensure system maturity at the start of testing. Based on our work, however, they are not there yet. TSA is taking actions to improve the situation. For example, they are sharing test plans with industry and taking steps to better define requirements and to share those requirements with industry earlier so vendors can be better prepared for the testing. Industry representatives told us they have seen some improvement in the sharing of test plans and requirements but would like to see more. They are also very concerned about the time and investment they are having to make to get their systems through multiple rounds of testing and qualified for procurement.

Another key effort underway is to require third-party testing before vendors ever enter the formal TSA testing arena. TSA planned to implement this requirement early this year. We found, however, that aspects of the plan were not fully understood. For example, TSA did not know how many potential third-party testers were out there, or what the costs could be to Government or to vendors. We recommended that the approach be more fully developed before implementation and TSA now plans to roll this out in phases starting at the end of this calendar year.

Finally, we found that TSA was not comprehensively assessing the test data across all systems. It had the information for each system, but wasn't collecting or analyzing the data across all systems. This includes time frames for testing, reasons for any delays, the costs, and the results of the testing.

Based on our recommendation, TSA has begun to collect this data. Once complete, TSA will have a better picture of key factors contributing to delays in acquiring screening systems, but now the question is how will TSA use this information to improve the acquisition process going forward? Assessing the data and using it, along with the planned actions to improve technology maturity at the start of testing, those are the critical next steps to help inject more efficiency into the acquisition process.

Mr. Chairman, Ranking Member Rice, this concludes my prepared remarks. Thank you.

[The prepared statement of Ms. Mackin follows:]

PREPARED STATEMENT OF MICHELE MACKIN

JANUARY 7, 2015

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 Nation-wide. 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.

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 2 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 3-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.

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[1] In GAO, *Advanced Imaging Technology: TSA Needs Additional Information Before Procuring Next-Generation Systems*, GAO–14–357 (Washington, DC: 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, DC: July 11, 2011), we found that TSA's explosives detection systems were not configured to meet the most current requirements.

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

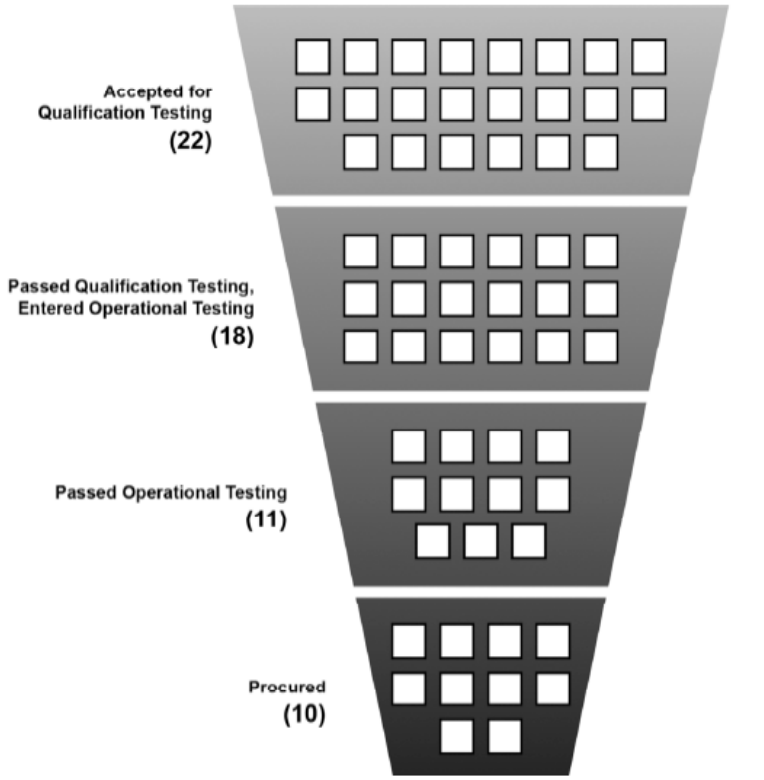
- Systems that have successfully passed testing at the TSA Systems Integration Facility then undergo operational testing at selected airports, where TSA evaluates their operational effectiveness and suitability in a realistic environment.

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 on-going. In addition, during this period 1 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.

[3] GAO, *Best Practices: A More Constructive Test Approach Is Key to Better Weapon System Outcomes*, GAO/NSIAD–00–199 (Washington, DC: 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 3 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 5 years required at least 2 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 time frames 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, time frames, 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 time frames for each of the 22 systems tested in the past 5 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 performance information is only fully realized when this information is actually used by agencies to make decisions oriented toward improving results.[6]

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[4] GAO, *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, DC: Sept. 9, 2009).

[5] While TSA was unable to provide us with testing time frames 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.

[6] GAO, *Managing for Results: Enhancing Agency Use of Performance Information for Management Decision Making*, GAO–05–927 (Washington, DC: Sept. 9, 2005).

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 time frames for completing testing, costs incurred, and testing delays across all technology areas to identify key factors contributing to any acquisition inefficiencies and 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.

Mr. KATKO. Thank you, Ms. Mackin, for your testimony. We appreciate you taking the time to be here today. I now recognize myself for 5 minutes for questions.

It is presumed that TSA had problems in their acquisition process because we had this bill passed by former Chairman Hudson, but I don't think it is productive for me to go back into an analysis of what has gone on because we already know what has gone on.

My biggest concern with TSA since I got this chair, was that for a young agency it has all of the tell-tale signs of well-entrenched bureaucracy. Miss Rice and myself and others on this committee are dead-set to make sure that we fix that. I think this bill is a good start in the right direction. It is a somewhat dry topic to some, but it is critically important to the future of this agency, and the future of our air traffic and the safety of our passengers in the airline industry. So it is a really, really important topic.

So my biggest concern in this realm is that there is always the incentive in a great democracy like ours for someone to build a better mouse trap. Sometimes those ideas don't get to the people they want to at TSA, at least that is the way it has been in the past because it became more insular, I believe, in its acquisition process, and if you didn't have your nose under the tent already, it is very hard to get your nose under the tent, especially for a new vendor. But, you know, if that was the case in the past, people like Apple may not have had an opportunity to show their products to people and get them to market.

We need to have a process whereby good, innovative ideas even, if they aren't from someone you are comfortable with as a vendor, should at least be taking a look at. You should at least kick the tires. You should at least see if that is a good idea that can be implemented. That is one of the things I am very concerned about with respect to this, why this exercise we are undertaking today is so important.

Of course, this is the beginning of the oversight process and we are going to continue it moving forward as long as I am Chairman.

Now, with that being said, Ms. Mackin, I understand your study was a 5-year study. You went back and looked at things. Could you tell me what in the last year or so you can tell me that is most encouraging and the thing that is most concerning with you about the acquisition process that we are discussing today?

Ms. MACKIN. You are right. We assessed the test data over a 5-year period to end in July 2015. So our information was rather current. I think that I am encouraged absolutely by the response we got from TSA, not only when we provided them with our draft recommendation, but even during the course of our audit, they were very open to our comments about assessing the test data across the systems, for example, and taking a little more time to work out this third-party testing strategy before requiring vendors to undergo it.

I think my concern might be that TSA was not proactive in doing these things on their own. I think we have a history of GAO making recommendations that TSA implements, which is a good thing. But we have had issues in the past and this could be an issue now too of, they could have taken steps to assess the test data, or recognize that maybe the third-party test strategy wasn't quite ready to roll out. So I think that's the next bag I would respond with.

Mr. KATKO. Thank you, Ms. Mackin. Ms. Vaughan and Mr. Wallen, you have a colossal responsibility and that is to reform a process that has not been very impressive in the past. I applaud you for your efforts thus far, and this is not criticism. I want to just find out how we can help you make the process better, and make sure we are not missing great ideas, great technologies, and that we are keeping up with the technological advances instead of trying to play catch-up like I think TSA has done in the past.

So again, I will ask you a similar question, Ms. Vaughan and Mr. Wallen afterwards, if time permit, and that is simply, what can you point to in the last year that you have changed that you think is the most significant, and what are the most significant things you need to work on to continue to make this process a better process?

Ms. VAUGHAN. So thank you for your question. I acknowledge what Ms. Mackin indicated. We are eager to take a proactive approach in addressing some of the things she recognized. I think some of the things that are very significant in the response in our 5-year plan, we did for the first time ever disclose and provide what we indicate are our capability gaps in the overall system, which is significant.

So we went through, we developed a very rigorous process over the last year or 2 to develop what we called the Transportation Security Capability Analysis Process. Through that process, we have identified and socialized through our 5-year strategic framework plan, what those capability gaps are to try to give industry better

early indicators of where we would like to see them generate their investments when they are looking at how they would like to structure what type of capability they would like to work on. So I think that is a significant step forward.

In addition, an alignment with Science and Technology and my counterpart, Mr. Wallen, we have under the Secretary's direction established the Aviation Security Product Team. It is a team that meets and we basically have taken those capability gaps that we have developed, and S&T, Science and Technology is leveraging those to inform how they will resource the problems we are trying to solve.

So we are very interested in further alignment with Science and Technology to take the capability gaps to inform how research and development will be resourced moving forward.

I think those are very positive steps for us.

Mr. KATKO. Mr. Wallen, briefly the same question.

Mr. WALLEN. Okay. I am agreeing with my other witnesses. Moving forward, the IPT process has been very good in helping us work even more closely together, and it has been a good step in the right direction in identifying needs and solutions to fill those needs.

You had mentioned working closely, more closely with innovators and not losing that. One of the other things that S&T is doing is opening an office in Silicon Valley to be closer to innovators out on the West Coast to have more insight into what they are doing, and working with other communities in the Government, in industry, and in academia, to be closer to innovation and to get ideas outside of the normal ideas and to be able to get more of the creative innovation.

Mr. KATKO. Thank you very much. My time has expired. I just want to urge you with the strongest words possible, Mr. Wallen, and Ms. Vaughan, to continue down this track. I mean, you are at the beginning of a long overhaul process, and I encourage you to keep doggedly pursuing making this a better process, because it is—I can't think of anything more important that TSA could be doing and Homeland Security could be doing than that type of stuff, to give the proper tools to the people out in the field to make the airlines safer.

So with that, I recognize Miss Rice for 5 minutes of questioning.

Miss RICE. Thank you, Mr. Chairman. So I think that if we were to focus on two things that I think the general public expects from agencies like DHS and TSA, in their everyday travel, it is to have the best, most sophisticated technology to ensure safe travel, and that we develop that and procure that in as efficient a time frame as possible.

It sounds like you are attempting to make the process more efficient, but my question is, where did the creative ideas come from in terms of what is the hot new technology? I mean, is it DHS or TSA calling, you know, whoever the big companies are that are in this atmosphere, and say, okay, this is what we want you to work on, or you saying to them what are you seeing out there, and what are you developing in the private sector that may be something that we like?

How does that information flow go? Either Mr. Wallen, or Ms. Vaughan.

Ms. VAUGHAN. I can start. Thank you for your question. I would say it depends on the maturity of the technology. So vendors have an opportunity to reach out. We do a lot of coordination with Science and Technology, and I would say depending on the maturity of the technology is where we make recommendations to that particular vendor to begin their journey.

In terms of looking for new ideas, the TSA and Science and Technology both do what we call a targeted broad agency announcement process. What that this is is, it is us providing our set of requirements out to industry to say we are interested in receiving more information to try and solve this sort of problem.

Industry has an opportunity to provide feedback through a series of proposals. We then evaluate those proposals and provide, depending on the solutions that are presented, we will provide funding to those entities to provide kind of their investment to try to get them up and running, so to speak.

Miss RICE. Let me just stop you right there, Ms. Vaughan, because you and I spoke yesterday—and what I am going to talk about now preceded your tenure, but we sat and had a roundtable with some of the contractors, and they expressed a level of frustration that is, you know, expected, obviously. That it's not an efficient process, that we are told to develop this, and then when we finally do, we don't want that anymore.

You are talking about a system that really benefits only those companies that have the resources to invest their own money until they can get a contract. Small businesses, there is no space for small businesses. So first of all, can cooperative research and development agreements be expanded to cover both Science and Technology and TSA activities? Is that already being done, or is there a way to do that?

Mr. WALLEN. Could you repeat that, please?

Miss RICE. Do the two agencies, DHS and TSA actually get together and coordinate what research and development they ask various companies to do? Do you do that already?

Mr. WALLEN. Yes, the broad agency announcement that Ms. Vaughan had mentioned, we coordinate our responses to those. We talk to each other about the proposals that we see. So that is coordinated.

Miss RICE. Those are direct lines of communication because what we have heard is that it is very difficult to get an answer where someone is accountable for the communication.

Mr. WALLEN. So I can look into that. Our program managers, I know, talk to the director of the Mission Assurance Division, so I do know that they converse.

Miss RICE. I think that there just needs to be a system by which the communication is more direct and that there is clear accountability.

The other thing is, I just think that we need to support as much innovation as possible and a lot of that innovation is coming from smaller businesses that just don't have the capital to invest that kind of up-front money. I mean, they are funded by private equity but they don't have the kind of money. So I know that, depending on the proposal, I mean, or do you have proposals that are put out

specifically to small business innovators to give them a chance to kind of break into this world?

Ms. VAUGHAN. So I would say from a TSA perspective, we acknowledge small businesses. This is a difficult market. What I would say to that is, one of the things I am working very diligently on is developing what we call a new systems architecture. What that really means is, it basically will provide for more of an open architecture that will allow for interoperability and more commonality so that we can look at the checkpoint as an entire system and an entire framework.

I think if we can move into that sort of system architecture where systems have more commonality associated with how they talk to each other, it will allow for the entrance of new, smaller companies to play in that particular space.

Miss RICE. Well, and also, and I don't know if you have this, but maybe an effective mentor kind of protégé program that encourages small, innovative technology companies to partner with, you know, larger businesses. I mean, that obviously is something that I would think you would want to promote. Right?

Ms. VAUGHAN. Yes, absolutely. We are, as I mentioned in my opening statement, establishing an Innovation Lane concept which this would really allow for products that are in development after they have gone through kind-of a level of testing to validate that they meet the minimum security standards, but it would allow industry to actually see how their capabilities play out in the operations environment.

Miss RICE. So my time is up. I thank you all, and I just want to leave you with this one thought. Terrorists, ISIL, ISIS, all of them, they are innovating every day, and if we do not keep pace with that, shame on us. We have the ability to stay ahead of them. But we cannot let an overly-bloated bureaucratic process stymie that.

So I thank you all for your efforts that you are making to streamline that, and Ms. Mackin, for your input which I am happy to hear was well-received by TSA. Thank you. I yield back.

Mr. KATKO. Thank you, Miss Rice. The Chair will now recognize other Members of the subcommittee for 5 minutes for questions they may wish to ask the witnesses.

In accordance with our committee rules and practices, I plan to recognize Members who were present at the start of the hearing by seniority on the subcommittee. Those coming in later will be recognized in the order of arrival.

The next person to ask questions is a gentleman with the best-looking tie on the dais, and that is Buddy Carter from Georgia.

Mr. CARTER. Thank you, Mr. Chairman. Thank each of you for being here today. We appreciate it very much. Ms. Vaughan, I want to start with you because I am concerned about the approval process that TSA has and especially when it comes to new technology. Let's say, for instance, that there is a new technology that is being tried out and is working through the approval process and all of a sudden, you come to a requirement that TSA feels like is not being met. What happens then?

Ms. VAUGHAN. Thank you for your question. So the testing process, it is likened to a 3-step process. When a technology is making

its way to the testing process, it first starts out at the Transportation Security Laboratory located in New Jersey. If it passes the detection standard, meaning it can detect a threat against a set of requirements, then it moves to our testing facility near Reagan airport in a lab environment. There it is tested for things like safety standards, reliability, maintainability, and the like.

If it passes those tests, then we move it into an operations environment which to me is critical because the technology really needs to, you know, operate within the construct of an airport and the officer, most importantly. So during the course of that, there are certain requirements that are considered, I would say significant. So it depends on the failure of what was happening during the course of testing. But if a piece of technology does fail during the course of testing, the manufacturer, the vendor, is immediately notified so we can discuss what types of steps need to be taken for the vendor to remediate the situation, whether that be they take their product back and they make the necessary changes if it is a hardware fix, or if it is failing a safety standard there may be some hardware modifications that have to be made to that piece of technology.

So it really depends on the nature of the change. Then from there, once they submit back their product after they believe they have remediated the failures or the issues that occurred during testing, they would notify us and we would work with them to get them back into the testing process to resume testing.

Mr. CARTER. Okay, you know, 2 questions here. First of all, what time line are we talking about here? I mean, from start to finish, how long are we talking about?

Ms. VAUGHAN. Sir, it honestly depends.

Mr. CARTER. Just an average.

Ms. VAUGHAN. Well, as Ms. Mackin indicated, we have some products that we demonstrated during the course of her testing review of our process where we had certain technologies that were going back and forth for several years.

We have other issues where a piece of technology fails, and it is a rather simple fix, I will call it, and it gets right back into the process. So I think it depends on how significant the failure is during the course of testing.

Mr. CARTER. But from start to finish, on average, there is no average? I mean——

Ms. VAUGHAN. I would say from start to finish it could be approximately about a year time frame if I had——

Mr. CARTER. A year time frame.

Ms. VAUGHAN. Yes, sir.

Mr. CARTER. That seems like a long time. Let me ask you this: When there is an instance where you have to go back to the manufacturer and say, hey, you need to fix this because it is not working, do you stop at that point and then resume at that point, or do they have to start all over again in the process?

Ms. VAUGHAN. No, sir. They don't have to start over again. We do what is called regression testing which is essentially where we kind-of pick up where we left off, but we also have to validate that when they implemented the new changes, it didn't inadvertently change something else that had already passed. Those are very normal testing procedures.

So anything they would implement as a fix, we have to go back and validate that it didn't inadvertently modify something and now something else is failing as a result of the fixes they put in place.

Mr. CARTER. Does the Department ever use third-party testing? I mean, do you ever have third parties to do the testing for you, or is this all hands-on, the Department has got to do it?

Ms. VAUGHAN. Sir, right now, the testing—the 3-step process I described is performed by the Government. That is why we are very interested in working with industry to establish a third-party testing process. We think it will greatly increase the level of transparency so manufacturers and industry can better understand how mature their product is before they enter our formal testing process.

Mr. CARTER. Okay, so where are you at in that discussion with the third parties?

Ms. VAUGHAN. So we have an Industry Day coming up next month that we are coordinating with the Security Manufacturers Coalition and the Washington Homeland Security Roundtable. We have been working with the National Institute of Standards and Technology to develop the third-party testing framework and we will socialize that with industry to obtain their feedback on where we are in the process.

Mr. CARTER. You feel like that will streamline the process and perhaps even speed up the process?

Ms. VAUGHAN. Yes, sir, I do. I liken it to an Apple iPhone.

Mr. CARTER. Sure.

Ms. VAUGHAN. I don't think Apple would sell us an iPhone before they had internally tested it and checked it to make sure a consumer would buy it.

Mr. CARTER. Well, I am glad to hear you say that. It sounds like you are making progress, and I am encouraged by that. So thank you again. Thank you, Mr. Chairman, I yield back.

Mr. KATKO. That was absolutely perfectly 5 minutes. That is amazing. The Chair now recognizes Mr. Payne from New Jersey for 5 minutes of questioning.

Mr. PAYNE. Thank you, Mr. Chairman, and to our Ranking Member. I think the gentleman has the best-looking straight tie on.

You know, Ms. Vaughan, in my other committee responsibilities, I am on Small Business, and so I think the topic today is very, very poignant in terms of the continuity of the things that I am looking at. You know, with regard to small and disadvantaged company participation, aside from learning of the procurement opportunities through *fedbizopps.gov,* is there any other type of outreach conducted? For instance, a small and disadvantaged company technology fair, or procurement opportunities newsletter distributed via electronic mailing on a list?

Ms. VAUGHAN. So, sir, I acknowledge your concerns about small business. We actually have a small business fair coming up next month and there will be a specific component focused on technology. That is a TSA-wide small business fair. So we are always looking for other opportunities to increase the level of small business participation.

I do believe the third-party testing strategy will give industry and small businesses more access and transparency into our proc-

esses so that the overall process, hopefully, doesn't seem as cumbersome as it may have seemed in the past.

We also do those targeted broad-agency announcements that I discussed earlier, which is really where we really go out with a set of requirements to see what is available and it gives anybody an opportunity to respond in which we would award proposals to those folks where it looks like it may meet the need or the problem we are trying to solve.

Mr. PAYNE. Well, that is great because I am always looking for opportunities to partner with different agencies for opportunities for small businesses lying in my district and my State. So I will be reaching out to you with respect to that.

I want to know, has TSA considered allowing small business to perform portions of the qualification process in parallel to reduce costs? For example, a new technology is received. The appropriate safety certification, can the testing at the laboratory at TSL be done in parallel with operational tests and evaluation at TSL—TSIF, I am sorry.

Ms. VAUGHAN. Sir, yes, I think that's absolutely something we can look into. I think as we further develop our third-party testing strategy, and looking at the roles and responsibilities of that process with industry, that is absolutely something we can explore.

Mr. PAYNE. Okay. All right. Chair, thank you. I yield back.

Mr. KATKO. Thank you, Mr. Payne. The Chair now recognizes Mr. Walker from North Carolina for 5 minutes of questioning.

Mr. WALKER. Thank you, Mr. Chairman. My Joseph Bank signature collection tie is starting to feel a little slighted in the room, but we will work through it.

I am still not overly confident in some of the implementations of the GAO and I just want to revisit that to make sure that we are passing along to our constituents that there is something that is being—some action steps being taken.

Ms. Mackin, I would like to go back to you just if I could, please, for just a moment. Who is accountable to make sure that these recommendations are being implemented at a timely pace? Is that something that you are responsible for?

Ms. VAUGHAN. Yes.

Ms. MACKIN. Yes. We have a very active recommendation follow-up process at GAO. In this case it will be easy because the Department concurred, agreed to implement both recommendations, and we have actually seen actions they are taking already, even before our report was issued. So we will definitely be following up on the concrete steps they are taking for both recommendations.

Mr. WALKER. Sure. I am thrilled to hear that. Are there any recommendations that are outstanding that are still yet to be implemented that you guys are continuing to work on?

Ms. MACKIN. Of the security-related TSARA-type recommendations we have made 58 over the years; 51 have been fully implemented. There are, I think, about 3 that are still outstanding, all pertaining to the AIT system. We, of course, are continuing to track TSA's progress in implementing those recommendations.

Mr. WALKER. When you say over the years, what kind of time line are we looking at?

Ms. MACKIN. October 2003 to present, essentially.

Mr. WALKER. Okay, and those 3, are we working in some kind of proactive manner to finalize it? Is there a gap? Is there an issue—help me understand, why are we——

Ms. MACKIN. TSA is making progress on those 3. As I said, they all pertain to the Advanced Imaging Technology program. One has to do with tracking the false alarm rates of that system across all of the systems at all of the airports, and making sure that the security officers are doing patdowns, as appropriate, when an alarm does go off.

Again, TSA has agreed with the recommendation. It is just a matter of taking all of the steps to get it in a place where we would consider it fully implemented.

Mr. WALKER. I appreciate both your knowledge and your articulation of those remaining implementations. A 2012 Congressional report detailed that TSA was housing equipment at the Transportation Logistics Center in Dallas. This created a significant cost, as you might imagine, to the American taxpayer without a proper tracking system. Is there any indication this practice has been updated, changed, modified? Can one of you speak to that? Ms. Vaughan.

Ms. VAUGHAN. Yes, sir, I can speak to that. Yes, I acknowledge the issues that were encountered in the past. We have worked—I have worked with our counterparts in the Office of Finance and Administration to establish an inventory asset management policy to track the duration, the age of the equipment in the warehouse, as well as the total dollar threshold of the equipment in the warehouse. I review those metrics with the chief financial officer on a biweekly basis.

Mr. WALKER. Okay, and how does this equipment storage affect TSA's recapitalization plan? Can you speak to that?

Ms. VAUGHAN. The equipment in the warehouse is essentially into different categories. So some of it is associated with maintenance, or if we have recently bought a newly-procured system and we are in the process of recapitalizing and moving things from the warehouse or out of an airport, it is the staging environment to validate that all of the appropriate software and everything is on the machines. So it is constantly an evolving situation depending on the state of recapitalization or the use of safety stock out of that particular warehouse.

Mr. WALKER. All right. Ms. Mackin, Ms. Vaughan, thank you very much for your answers. With that, I yield back, Mr. Chairman.

Mr. KATKO. Thank you, Mr. Walker. The Chair now recognizes Mr. Keating for 5 minutes of questions.

Mr. KEATING. Thank you, Mr. Chairman. Just following up briefly on a couple of the other points made regarding small business that Miss Rice and Mr. Payne mentioned as well.

What we are hearing from some of our small businesses in the Massachusetts area is the flexibility because they are small, and some of the fairs and other things are important, but is there an incorporation of web seminars, and conference calls, and those things to provide more flexibility in reaching out and communicating with small business as well, some of the major ways of doing it?

Ms. VAUGHAN. So from a TSA perspective, we are always interested in looking—I am always interested in looking for new and different opportunities to engage small business. I think they are a critical player, especially from an innovation perspective. They have some of the best ideas.

I would say from a TSA perspective we did publish as part of the TSARA, the Transportation Security Acquisition Reform Act, a small business process guide. We do host Industry Days and things like that. I personally meet with many different small businesses to try and look for different opportunities for them.

I do believe the Innovation Lane concept of establishing capabilities at a particular airport will be another avenue as well as the third-party testing strategy. I think that will open up additional opportunities for small businesses to enter into this marketplace, and expand our industrial base.

Mr. KEATING. Yeah, for some time I have been trying to promote as much as possible, a stronger collaboration with academic institutions and for many reasons. One of them is innovation. You are getting, you know, clearly some of the most creative minds involved in the process.

No. 2, in terms of some staffing from time to time it is great to build bridges. It is one of our concerns with TSA is just recruitment and maintenance of people, and I think if you build those kind of associations, that is helpful as well.

I know that some of the institutions that are really specializing in different area, explosives. I know Northeastern University, for instance, has done a lot of work on explosives, and I know there are a lot of academic, you know, resources that are available. How far have you reached the academic communities?

The other thing I think is also important, sometimes when you are dealing strictly with vendors, they are just pushing their own products and perhaps you don't get as objective a viewpoint as you might through some academic avenues too. So what are you doing with the academic institutions to try and help and use as a resource?

Ms. VAUGHAN. So I can speak from a TSA perspective, and then I am sure Mr. Wallen would like to inject as well. But we do work with the National Labs on a regular basis to explore other opportunities. We also work with our counterparts at Science and Technology and the relationships that they have with academia.

Mr. WALLEN. To continue on with Ms. Vaughan's comments, we work with National Labs frequently. We also work with the Centers of Excellence. You mentioned ALERT up at Northeastern University. We work with them to look for new innovation, new creation of new devices, new topics, new areas. So they are very helpful in bringing forward technology.

Mr. KEATING. Yeah, and just lastly, you know, the airports are so different the way they are managed, the way they are operated. That creates challenges in and of itself. How successful—I know you are going to try out some of the possible procurement, you know, products at individual airports, but how does that create challenges for you? How are you working with the different airports, the different size airports, the differently-structured airports, in this whole process?

Is there anything you can inform us about in terms of perimeter security needs that you think might be—I know we do a lot of concentration on the gate and getting through, but what about perimeter security? Are there, you know, are there devices? Is there technology that can be more helpful around perimeters of airports as well? I know I asked 3 or 4 things, but just jump in.

Ms. VAUGHAN. Absolutely. Thank you for your question.

So from an airport perspective as we look at trying to establish these Innovation Lanes, some of the airports that we have been in discussions with are in the middle of an airport recapitalization where they are looking to really make some modifications to the way the airport is laid out. Those present wonderful opportunities to try and inject an innovation concept and some of those folks are very eager to do that.

I think as we look at how we potentially could design a checkpoint of the future, you know, looking at what that looks like in working with the airport, we could involve some discussions around perimeter security and some of the capabilities that might benefit.

So it is really taking it from a system-of-systems approach and looking at the entire system and the framework and the checkpoint.

Mr. KEATING. Okay, I yield back.

Mr. KATKO. Thank you, Mr. Keating. The Chair now recognizes Mr. Ratcliffe from Texas for 5 minutes of questioning.

Mr. RATCLIFFE. Thank you, Mr. Chairman. I want to thank the witnesses for being here, for your testimony, and giving us an opportunity to fulfill our obligation with respect to oversight. I want to follow up in that regard with respect to some of the things that the GAO and DHS IG found about deficiencies in the acquisition of new technology. I am sure this has been talked about earlier in the hearing.

One example is the acquisition of trace portal or puffer machines that were designed to blow air on the passengers in order to detect explosive particles. From my understanding, TSA didn't really adequately test these in the environments that they would be, in airports with ambient humidity and dirt particles. The bottom line is after spending $30 million, those machines were removed.

You know, I know we all want to be better stewards of taxpayer dollars. I am pleased to hear about some of the developments through the testimony that has been given here today. But I want to follow up, and I want to start with you, Ms. Vaughan, I know that technology is ever-evolving. I look at what has happened with regard to our cell phones in the last 10 years. So I can only imagine where airport security can be in the next 10 years.

But in some prior Congressional testimony, TSA Administrator Neffenger talked about getting to a place from a technology standpoint where passengers become their own boarding passes through the use of biometrics, like fingerprint scans, to verify identities. I am all in favor of making the passenger experience safer, and more efficient, and innovative approaches to security. But that being said, I would like to hear a little bit more in that regard about your plans, the plans of TSA to be able to secure databases of biometric information that can be used to confirm passenger identities.

Ms. VAUGHAN. Yes, sir. Thank you for your question. Having been the former chief information security officer for TSA, cybersecurity is core to my heart. So before we do anything in terms of capabilities or rolling out technologies, I will absolutely ensure which is why cybersecurity was one of the common themes associated with my 5-year plan, we will absolutely ensure that cybersecurity requirements, as well as privacy considerations are considered and wrapped into whatever capabilities we would be fielding, including any biometric solutions.

Mr. RATCLIFFE. So can you elaborate a little bit about that plan with regard to comprehensive IT security, a framework for these security technologies?

Ms. VAUGHAN. Absolutely. So I worked with my counterpart in the Office of Information Technology, who is the chief information officer. We essentially are leveraging the Department's policies around IT security. So moving forward, all procurements for new capabilities of transportation security equipment will include cybersecurity requirements so that we can ensure that our capabilities maintain pace with ever-evolving cybersecurity requirements and the threat as we move forward in the cyber environment.

Mr. RATCLIFFE. So, does that plan include testing methodologies both during the qualification and operational testing?

Ms. VAUGHAN. Yes, sir. So our counterparts at the Department have also, as part of their oversight authority, are also including cybersecurity testing as these capabilities move through the process. So not only will we be tested from a security authorization perspective in accordance with the Federal Information Security Management Act, FISMA, they will also receive additional sets of testing from the Department in their oversight testing role.

Mr. RATCLIFFE. Terrific. So one of the other things that Administrator Neffenger talked about was that he would like to screen at the speed of life. In that regard talked about a goal of combining metal detection with non-metallic anomaly detection, shoe X-rays, vapor detection, all which sounds great but it is very ambitious goal. So in that respect, does TSA or should I say how does TSA communicate its needs to industry partners since the report here calls for mutually-beneficial dialogue and communication on that front?

Ms. VAUGHAN. Absolutely. So there I would go back to the system architecture and a system-of-systems approach that we are coordinating with industry through the Security Manufacturers Coalition and the Washington Homeland Security Roundtable. Very interested in working with them to establish open architecture standards to drive towards Mr. Neffenger's vision of looking at the checkpoint as a system.

Mr. RATCLIFFE. All right. Well thank you, Ms. Vaughan. Mr. Wallen and Ms. Mackin, I had questions for you but didn't talk fast enough. So my time is expired. I will yield back.

Mr. KATKO. Thank you, Mr. Ratcliffe. The Chair now recognizes the former Chair, Mr. Hudson, from North Carolina.

Mr. HUDSON. Thank you, Mr. Chairman. Thank you for hosting this hearing. I appreciate the opportunity to be back here at the subcommittee. It is nice to be here. It is great to see that the subcommittee is in great hands with your leadership and Miss Rice's

leadership. I think your backgrounds uniquely qualify you for this. As I have watched as an interested party, I have appreciated the work you have done so far this year. So thank you for letting me be here with you today. I thank the panel for being here and your time.

This Transportation Security Acquisition Reform Act is a product of several years of work. I was proud to be a part of that, along with Bennie Thompson, Cedric Richmond, Mr. Keating, Mr. Payne. This truly was a bipartisan effort, something where we worked together, worked with outside stakeholders, worked very closely with TSA. I am proud of the product. So it is very gratifying to have the opportunity to come back here in a cameo role and hear some of your testimony. I appreciate the work both with the Government Accounting Office, playing their input, and then your work as well inside the agency. Because these are important issues.

I would like to maybe dive a little deeper on Miss Rice's point that she was making earlier about engaging industry, communicating with industry. One of the issues that we looked at early on that led us to want to develop this bill was this idea that—and, frankly, it started because we stood up an agency and said go solve this problem that is happening right now and come up with technology to solve something that is already happening. So you are playing catch-up from the beginning as an agency.

But in dealing with the outside industry, what we were hearing was they will put out a request for a certain type of technology that isn't feasible. Then they will sort-of pull it back. Then they will put out a request. Then we will start investing money to try to develop a product that we can present. Then they will say actually, we are not going to do that anymore, we are going to go a different direction. So the communication with outside industry was a challenge for industry, because industry does have to invest money, has to invest time if they are going to work with TSA and come up with technology and concepts.

When you talk about the capability gaps, when we talk about innovation, I love to hear what you are saying about that and the way you are trying to address that. But the ability to have predictability, for industry to see where TSA is going, and also to maybe play a role in that. You know, folks, the innovators love the fact that you have got a Silicon Valley office. These are the folks that can help maybe TSA see where we are going to be 5 years from now, what things are possible. So it can speed up the process. But it can also get us to a better outcome.

So I am just curious, if you could maybe give, Ms. Vaughan, an example of how this is working now, and if there is any specific instances where this has happened, or how you have moved to implement this and some of the changes that have been made?

Ms. VAUGHAN. So, thank you for your question. I would say that through our work with Science and Technology, we have made great strides to ensure that the operator, TSA's needs and the capability gaps are aligned with the research and development, so that we can have a more streamlined vision to industry as to where we are going.

I acknowledge, I think, you know, there has been some issues in the past about the Government needing to be additionally trans-

parent to industry. We have made some great strides in trying to both increase transparency through our testing and evaluation process, through sharing all of our process guides, our test plans, and things like that, as well as ensuring that the needs of the operator are aligned to research and development so we can really focus and help industry understand where we are going.

So I am very hopeful that that is the direction we are moving. I also meet with the vendors on a regular basis to talk about where we are and where we are going. I think those conversations have been very helpful for both sides.

Mr. HUDSON. Are they any structural barriers that still exist that prevent you from maybe doing more, whether it is with small business, as has been raised, or just industry specifically? Are there still things that Congress can do to make your job easier? Are there things this committee could work towards to help us all reach that goal?

Ms. VAUGHAN. So I think this act was wonderful because I was in the job about 14 days after it was signed. So for me, it really helped me put together my vision in short order. Looking at what I walked in to see, you know, yes, we need to increase transparency and communication with industry. That only benefits both sides I think from a Government and industry perspective. Then I also think it allowed me to really signal to industry what my vision is, where are key themes, where are we going with cybersecurity and system architecture, and innovation lanes.

So I appreciate the legislation. I do think the legislation you all put forth in terms of allowing TSA to donate equipment overseas is very helpful because I think that will allow us to, you know, strengthen our, you know, work with our foreign airport operators overseas to strengthen security where possible.

Mr. HUDSON. Thank you, Mr. Chairman.

Mr. KATKO. Thank you very much, Mr. Hudson. Many people often say that Government, Congress doesn't get anything done. Well, this is proof positive that you find a problem, you find a solution to it, Mr. Hudson. We are clearly making progress. I commend you for that. I commend all of you for that.

I want to thank all of you for your thoughtful testimony. Members of the committee may have some additional questions for each of you. We will ask you to respond to those in writing. The hearing record will be open for 10 days. The panel is now dismissed.

But before I do so, I want to thank all of you for a great job. The hopefulness of the testimony was good. We have got a long way to go, like I said. Let's keep it going. For those of you testifying for the first time, we all think you did a fine job. So congratulations.

Now, with that being said, I am going to ask you to get away from your desk quickly because we are trying to get this done quickly and transition to the second team. Thank you very much.

We are in a very brief adjournment. We will sit here.

[Recess.]

Mr. KATKO. We are back in session. The Chair now recognizes the second panel.

We are pleased to have a very distinguished second panel before us. Let me remind the witness that his entire written statement will appear in the record.

Our witness is Mr. T.J. Schulz who currently serves as the executive director of the Security Manufacturers Coalition. Mr. Schulz, we recognize you to testify but we do want to caution you that there are 17 votes expected. We have to leave in about 5 or 10 minutes.

So without objection, the committee will recognize the Members for as much questioning as we can possibly handle here. I am not confident that we can do much. If you would like to have a truncated version of your testimony so we can get a little bit of testimony, that is fine too. We will leave it up to you.

In any regard, you have 5 minutes total to testify. Whatever we don't cover today, we can cover in written questions to follow up, okay.

Mr. SCHULZ. Indeed. Thank you.

Mr. KATKO. All right. Mr. Schulz.

STATEMENT OF T.J. SCHULZ, EXECUTIVE DIRECTOR, SECURITY MANUFACTURERS COALITION

Mr. SCHULZ. Chairman Katko, Ranking Member Rice, and Members of the subcommittee, let me thank you for the opportunity to testify on improvements to the TSA acquisitions process.

I am here today representing companies that develop and deliver first-rate threat detection and screening equipment across the country and around the world. We are pleased to provide our views on improving the TSA acquisitions process.

We commend this committee and the Congress for passage of the Transportation Security Acquisition Reform Act which will help establish more accountability and transparency in the process. Having said that, we believe there are a number of challenges facing the TSA and the viability of a robust, competitive, domestic manufacturing base. The TSA's 5-year technology plan shows an agency in sustainment mode with investment focused primarily on recapitalizing systems. We see very little detail in the plan on investments in next generation equipment with improved detection and operational capabilities.

Improving the overall TSA acquisitions process can also enhance competition in the industry. We believe that the greatest opportunity for improvement lies in fixing the current test and evaluation process. The process is vital to ensuring that capable technologies are fielded. But in its current state, it simply takes too long and unnecessarily wastes millions of dollars for both Government and industry.

To that end, we acknowledge and endorse the findings outlined by the GAO on the test and evaluation process. We also share GAO's concerns that the third-party testing process recently instituted by the TSA could, in fact, serve to increase costs and time associated with equipment testing. There really is no certainty as to whether the TSA will accept the findings of that third party.

In the future, Congress should monitor the third-party testing policies and support resources that TSA needs to set up and maintain a workable system. TSA should also endeavor to identify a handful of solid core capability and operational requirements in the involved industry and the development of those requirements. That

will help attain better alignment between the TSA and the vendors.

Moving beyond the T&E process, we urge Congress to monitor and keep updated on the interface between the DHS Science and Technology Directorate and TSA to make sure that they are coordinating the development of newer, higher-capability equipment that can be transitioned to a more effective testing process and eventual deployment.

The plan outlines a desire to transition to a network system-of-systems. A key component of this is our open architecture functionality. Industry must be closely involved as TSA embarks on this goal, as companies have spent tens of millions of dollars in R&D in order to get to higher-capability equipment. Efforts to seek to standardize the equipment could, indeed, stifle innovation.

In closing, this committee's strong oversight and the TSA's efforts to improve the acquisitions process has had positive results. We believe continued oversight and monitoring will ensure TSA stays on track to implement needed reforms and updates to the 5-year plan. I look forward to taking your questions to the extent we have time.

[The prepared statement of Mr. Schulz follows:]

PREPARED STATEMENT OF T.J. SCHULZ

JANUARY 7, 2016

Chairman Katko, Ranking Member Rice, and Members of the subcommittee, on behalf of the 9-member Security Manufacturers Coalition, thank you for the opportunity to share our collective thoughts on potential areas of improvement in technology research, strengthening the TSA test and evaluation process, and bringing clarity and stability to technology acquisitions. Your vigilance and oversight this past year was most welcome, and the SMC stands ready to work with you and the TSA in 2016 to improve the security of the traveling public.

The SMC is the unified voice of leading security technology companies with manufacturing operations and offices in 10 States. The 7,000 direct and 20,000 in-direct jobs generated by SMC members run the gamut of systems engineering and design to advanced product assembly with tested and certified equipment deployed across the transportation network throughout the world. Every coalition member is committed to delivering first-rate threat detection and screening equipment to protect our Nation and our people.

The coalition is primarily focused on: (1) Developing a straight-forward dialogue and collaboration with our key Government partners; (2) improving the TSA test and evaluation (T&E) process, for which this subcommittee just received GAO testimony and on which we largely agree; (3) improving the overall TSA acquisition planning; (4) urging an improved R&D process that ties back to TSA requirements and procurement; and (5) ensuring adequate funding is in place to execute important equipment upgrades and recapitalization.

I am also pleased to serve on the aviation security advisory committee (ASAC) and as the co-chairman of the ASAC's newly-formed security technology subcommittee. Our thanks to the committee again for supporting legislation to codify the ASAC and ensure technology is a key focus of this important industry advisory group to the TSA.

TSA LEADERSHIP

My testimony today will largely focus on TSA's T&E process, the importance of building off of the 5-year acquisition plan requirements of the *Transportation Security Acquisition Reform Act* (TSARA—Pub. L. 113–245), and Congress's important role moving forward. However, first and foremost, any meaningful result today and in the future will only be achieved when industry has an active and purposed seat at the table with Government—not simply to receive information, but to generate a constructive dialogue on the threats we face and vulnerabilities ripe for exploitation by our adversaries. This will enable manufacturers to align private-sector

technology research and capabilities with current and future threats, as well as to ensure a viable domestic security technology industrial base is maintained.

Over the past 4½ years in which the SMC has been operating, we have seen a laudable increase in engagement by TSA with the industry. This trend continues under Administrator Neffenger's leadership and with Office of Security Capabilities Assistant Administrator Jill Vaughan, who has genuinely sought a greater partnership with manufacturers. We are optimistic TSA understands how unpredictable purchasing cycles and multi-year time lines for equipment development, testing, and qualification negatively impact both Government and the industry.

TSA ACQUISITION PLAN

TSARA required TSA to develop a 5-year technology acquisition plan. Released in August, the *Strategic Five-Year Technology Investment Plan for Aviation Security* (henceforth referred to as the "Five-Year Plan"), is a positive step forward in accountability, cross-jurisdictional collaboration and industry engagement. An essential document for industry planning, the Five-Year Plan provides some visibility into TSA's schedule for replacement and upgrades of existing equipment, and projected future capability needs. But this is just a first step. Industry needs a more precise roadmap to know where and when to invest. Ensuring our R&D efforts focus on the capabilities that will meet TSA priorities and address emerging security threats is critical to protect the citizens of this country. Greater partnership between TSA and industry will only help with this process.

The SMC believes the Five-Year Plan can be leveraged to vastly improve TSA's acquisition process and, ultimately, the security of our aviation system. This committee is in a unique position to monitor progress TSA is making on acquisition reform. The SMC supports all efforts to ensure TSA is making necessary changes to: Streamline and strengthen the T&E process; align budget requests to identified requirements; provide clear and consistent details on the threat profile to ensure industry is prepared to respond and TSA is making the right investments; and ensure meaningful engagement with industry.

PLAN DETAILS

The SMC encourages Congress to require future iterations of the Five-Year Plan to provide more specific dollar allocations and investment detail tied to particular equipment type. The spend plan generically suggests a $3.6 billion investment over the 5-year period but fails to align those expenditures along actual programs, projects, and activities. Further, there is virtually no mention of "new" acquisition as opposed to recapitalization. Finally, the acquisition plan should be based on the true needs of the TSA from a technology capabilities standpoint, not an expected budget framework.

This lack of detail creates challenges for industry. By example, "Figure 8. Approved PSP and EBSP Recapitalization" on Page 22 of the Five-Year Plan indicates TSA plans to recapitalize 897 Enhanced Metal Detectors (EMDs) in fiscal year 2016. At this stage, it is unclear whether TSA plans to purchase these machines directly off of the Qualified Equipment List—equipment that has been certified and cleared through the T&E process—or whether new requirements will be introduced requiring additional testing and validation. At present, TSA has not provided vendors a schedule, RFP, or plan to extend the useful life of existing EMDs operating under standing requirements. The SMC is equally concerned that in fiscal year 2017 and beyond order volumes for EMD are less than 10 percent of fiscal year 2016.

Figure 8 also suggests acquisition in fiscal year 2017 of 296 Next Gen Advanced Technology X-ray (AT–2) machines. Industry is awaiting a list of requirements for this technology, which may include cybersecurity hardening. Even under the best possible scenario, if the requirements document were released and a manufacturer provided equipment to TSA for T&E immediately, the likelihood of TSA being able to purchase in fiscal year 2017 is challenging based on the comprehensive testing process.

Overall, industry is concerned about future recapitalization plans outlined in the Five-Year Plan that consist of peaks and valleys on a year-by-year basis. This makes resource allocation and staffing extremely challenging for manufacturers. A more consistent, level spend plan spread out over the 5 years would enable original equipment manufacturers (OEMs) to maintain consistency in staffing and manufacturing plans.

T&E PROCESS REFORM

TSARA is an important first step to meaningful reforms, but while plans are great, it is the implementation of those plans that determines ultimate success. TSA

has outlined a number of initiatives underway at OSC that seek to improve the acquisitions process, particularly relating to the development, testing, and qualification of security equipment. While TSA has done a good job of providing transparency into the process for industry, the fact remains that under the best scenario, it can take 3 years or longer to navigate a piece of equipment through the T&E process. While the bar must be high, this process impacts innovation, competition, improved security and efficiency, as both the Government and industry expend undue time and resources navigating a complicated process.

We believe GAO did an admirable and fair assessment of the state of TSA's test and evaluation process and we offer a few of our perspectives for this committee's consideration.

First, GAO touches on a key challenge at TSA: The need to improve coordination internally in the T&E and overall acquisitions process. The report cites a lack of coordination between program managers and the T&E division, which has led to problems in establishing unrealistic acquisitions schedules and conflicts in the interpretation of test results. Quite simply, the barriers to effective coordination within TSA need to be broken down to facilitate a more coordinated acquisitions process. Breaking down internal barriers and empowering key individuals as well as instituting direct accountability is absolutely required.

Second, as noted in the report, the TSA has begun to share test plans with OEMs for specific transportation security equipment (TSE). The SMC supports this as a means to ensure alignment on the goals and testing procedures between the TSA and vendors. TSA has provided test plans for Explosive Detection Systems (EDS), and they are helpful, but we encourage test plans for other TSE to be shared.

The GAO also notes OSC has implemented plans and policies that would engage third parties to assist in the test and evaluation process. The SMC shares the concerns raised by GAO that the TSA has undertaken third-party testing without a clear vision of what the end-state will truly be. As noted by GAO, the current third-party testing procedures could potentially raise costs and lengthen an already arduous equipment vetting process rather than provide an expedited, focused review that in turn gets equipment to the field.

The SMC believes that developing a viable and optional third-party testing process could be an example of a collaborative initiative by TSA and industry. Under this process, TSA would select and certify providers in the private sector and conduct proper oversight of these entities. Once this is in place, TSA should then accept the findings and results of the third-party providers and not start the entire testing process over again, particularly on items that are not critical to detection and operational performance. Rather than TSA spending considerable time testing items that can be objectively measured (such as size, weight, lights, basic functions), and then spend weeks in coordination and correction, third-party testing could offer a faster, more cost-efficient alternative by allowing TSA to focus on the critical aspects of threat detection. Overall, third-party testing should be used as an economical way to ensure requirements are met, not as a duplicative, costly measure.

It should be noted that setting up this structure will require substantial resources by OSC, as the initial vetting, approval and certification of third-party testing providers, and the sustained monitoring and oversight, will require considerable support. However, SMC believes the security and industry innovation benefits of a reliable, well-constructed third-party vetting process warrant TSA's attention and Congress' persistent oversight to get this right. Recently, TSA has reached out to SMC to begin framing out a third-party testing program in 2016 and we look forward to this dialogue.

The SMC also endorses GAO's recommendation that the TSA conduct a comprehensive assessment of testing data, including time frames, costs incurred and testing delays across all technologies, to ascertain the factors that lead to recurrent chokepoints in the T&E process. This would provide a good opportunity for industry and TSA to collectively identify and find solutions to address the most prominent stumbling blocks in the process.

Finally, perhaps the single, most critical element for ensuring a successful test and evaluation process is the thoughtful development of equipment requirements. TSA and industry have struggled over the years with requirements that number in the hundreds, many of which have little relevance with the core detection and operational performance of the equipment. There is also the challenge of constantly shifting requirements, which cause significant disruptions in the testing process. We have urged TSA with each procurement to identify the handful of solid, core requirements to test capabilities.

In summary, shortening and streamlining the testing process and collaborating with industry to identify recurrent chokepoints and develop solutions would go a long way to getting newer, more advanced equipment into the field. It will provide

a higher degree of certainty to industry that the process isn't a series of roadblocks, but important, measurable checkpoints on a linear road. It will also help to foster more competition and effective use of Government and industry resources.

S&T INVESTMENT & INTERAGENCY COLLABORATION

The TSA's Five-Year Plan projects a more integrated engagement with the DHS Science & Technology Directorate. We urge the committee to require more detail in future iterations of the Five-Year Plan to include specific examples and plans of S&T investment directly tied to fulfilling TSA identified capability gaps and future requirements; the subsequent transition of TSE from development to the T&E stage; and eventually acquisition. There are substantial opportunities to improve coordination between S&T and TSA to ensure the development of newer, higher-capability equipment that can be transitioned to a more effective testing process and fielded more expeditiously.

The SMC supports the thoughtful investment of research dollars, provided it is tied to addressing real threats identified by TSA as a capability gap and with an eye toward eventual and realistic procurement either by the Government or as a requirement of Government (as in the case of air cargo). Secretary Johnson's efforts to better align S&T Integrated Product Teams (IPT) under the Unity of Effort Initiative is a welcome first step. TSA and OSC needs to have a prominent role in the IPT effort, and ultimately should have a lead role in identifying key R&D needs and activities, as they are responsible for acquiring and operating equipment that will meet new and evolving threats. Further, industry input should be solicited early on in the process to ensure research goals align with achievable, cost-conscious results.

LIFE CYCLE

Along with the T&E process and up and down procurement cycles, there are other notable challenges for industry. In 2014, with no industry input, TSA made a decision to expand the projected life cycle of EDS machinery from 10 to 15 years. This had significant implications on company manufacturing and staffing plans. While the justification by TSA was that detection capabilities for known threats continues to be sufficient, the results are that future threat research and response is stifled and next-generation detection and high-speed capabilities are delayed.

The life-cycle decision may have a very real budgetary and operational impact for TSA, as the ability to maintain and keep equipment fully operational and performing its mission after 10 years of service is increasingly difficult. This means more patches, difficulty finding replacement parts, more service calls, antiquated operating systems, and less efficiencies. Further, trying to bring 10- to 15-year-old equipment into the Age of the Internet of Things is almost impossible as the equipment was designed and built to requirements that never envisioned cybersecurity, internet connectivity, or data conversion capabilities.

Congress should closely watch TSA life-cycle equipment determinations for both delayed security impacts, operational cost increases, and the very real implications for a viable domestic security industrial base. At a minimum, pushing equipment approval time lines to the right delays the next generation of equipment with increased capabilities, hinders current performance and stifles innovation.

A market environment that engenders innovation is our best defense against improvised explosives and thwarting transportation threats. Certainly intelligence is key, but when this fails, if we are not encouraging technological innovation and next-generation investment, we will lose not only our technological edge, but the industrial base that goes with it.

OPEN ARCHITECTURE

Related, the Five-Year Plan touches on a desire by TSA to move to a networked system of equipment, or as Administrator Neffenger refers to, a "system of systems." A key component of this end-state is an open architecture which functionally seeks to better integrate technology applications and apply security countermeasures, "at the system level rather than the component level" (pg. 25).

The SMC appreciates the discussion provided in the Five-Year Plan on this system-of-systems approach and recognizes the security proposition of data sharing. However, industry remains skeptical of this initiative without greater transparency on what could be a significant business disruption and potentially impact security efficacy. With a goal of implementing this concept within the next 5–10 years, the constructive engagement with industry right now is vital.

SMC encourages caution and thoughtfulness in an effort that appears to seek uniformity, commonality, and standardization amongst the various TSE, which could ultimately discourage the drive for innovation and newer capabilities. While indus-

try supports the concepts behind risk-based, layered security, potentially surrendering intellectual property and company-sensitive algorithms developed through tens of millions of dollars of private-sector investment generates another set of risks, including the potential degrading of the competitive nature and vibrancy of the industry. We look forward to discussing this in more detail with TSA in the future to reach a desired state of better capabilities and integration, while maintaining a viable industry base.

TRANSPORTATION SECURITY EQUIPMENT FUNDING

As mentioned in the Five-Year Plan and the GAO Report, TSA is transitioning into a technology sustainment mode focusing on recapitalization of over 2,400 pieces of equipment that are reaching their end of life over the next 5 years. While process is key, it is also absolutely critical to ensure that recapitalization of security equipment is fully funded to keep our transportation system safe and the industry viable.

The SMC is grateful to Congress for its leadership in fully funding the fiscal year 2016 DHS budget request for TSA Checkpoint Support and EDS Procurement/Installation. We encourage the subcommittee to work with your colleagues to continue this trend while reducing the bureaucratic barriers for innovation and deployment.

SMC would encourage this subcommittee to require future TSA budget documents to allot specific funding amounts to various technologies within the Checkpoint Support account and insist the Five-Year Plan provides a lookback on actual equipment purchased during the preceding 3 fiscal years. Because Checkpoint Support funding is not delineated to individual equipment types, industry has had difficulty ensuring Federal funds are truly reaching the intended target and consistent with previous documents. Further, previous EDS procurements have been significantly delayed or cancelled after significant vendor investment. Congress should insist on an accounting for these unspent funds and ensure they are carried over EDS replacement only.

These details would go a long way to informing Congress on the true TSA operational equipment need as opposed to budget-constrained funding requests.

CLOSING

The SMC believes the mission the Chairman and Ranking Member are on is the right one. As equipment begins to phase out, new technologies must be researched, developed, and purchased. New threats cannot be resolved with antiquated solutions.

The SMC encourages continued, vigilant oversight. However, we would encourage the Congress to be mindful of new legislation that could serve to bog down an already ponderous acquisitions process with more requirements and procedures. This could serve to add additional delays and costs. We recommend Congress work with TSA and industry to find efficiencies and make this complicated process more streamlined and effective. Doing so will save time and money, while providing OEMs and emerging companies more certainty to develop and produce a new generation of equipment with better capabilities to meet ever-evolving threats.

Mr. KATKO. Thank you very much. I remind you that you will have an opportunity, given how this is shaking out with our votes, to submit anything to supplement your testimony based on what you heard today in the first panel. I will give you an opportunity to make any comments you want on what you heard today. So, please, I encourage you to do so.

Given all that and given what you have heard today, in addition to what you have stated, is there any one thing that you would point to that remains a systemic, the biggest systemic problem within TSA, even within the last year's adjustments that have been made, what is the biggest systemic problem you see?

Mr. SCHULZ. I think the transparency has gotten much better thanks to the work of this committee and the legislation and the plan. Now is really the time where the rubber hits the road. We need to take this industry engagement to another level. That involves more detail on the plans that TSA has as it relates to new innovation, new innovative technologies, while also recapping the systems that are already in place.

This really involves a test and evaluation process. That is something that absolutely needs to get fixed. It takes way too long. It really inhibits competition in smaller companies as well. The GAO said we need to get more data there. We need to get into that process and see if there are recurrent chokepoints in the system. We need to work with industry and the TSA to identify those and see what we can do to make that better.

Mr. KATKO. Okay. Miss Rice, do you have anything?

Miss RICE. So, what are your thoughts about how third-party testing might—it was clearly the opinion of Ms. Vaughan that third-party testing is going to make this a much more efficient process. Do you agree with that or not?

Mr. SCHULZ. Again, we have stated some concerns about the policy as it is in place right now and that we don't have any guarantee that that is going to save any time or cost. We do think that there can be stood up a viable third-party system. What that would entail is TSA going out and identifying capable entities that would be able to do this testing, to certify them. They would also have to do continual monitoring of these entities as well.

A key component of this is that the TSA, once this third-party finds that the company hit the mark, the TSA should be able to accept that. We shouldn't have to go back and do substantial regression testing back at the TSA.

Miss RICE. How often does that happen?

Mr. SCHULZ. Well, we are not really engaged in that third-party system. But——

Miss RICE. No, but the going back. I mean, if you are saying they not accepting——

Mr. SCHULZ. Ms. Vaughan touched on the fact that there is quite a bit of regression testing that takes place. That does take an awful lot of time because not only do you have to go ahead and do the test and the vendor has to go and find fixes for that problem, but then you bring it back and there is all sorts of paperwork identified all throughout that process.

Miss RICE. It sounds like communication is a problem?

Mr. SCHULZ. It is a problem. It is something that can be solved though. The communications within the TSA itself, the GAO points to the fact that sometimes there is not quite alignment within the TSA from the program managers to the people that are actually doing the testing. Sometimes there is misalignment as it relates to what the requirements mean. Sometimes the test plans and the test results, there isn't alignment there. Then you bring in the vendors. Sometimes the vendor comes into the program thinking that they know what the TSA wants. They are not quite in alignment there.

Miss RICE. Well, that was the point that I was trying to make with the previous panel. What are the lines of communication that are set up and where is the attendant accountability for conversations that are had between agency to agency, not just agency to agency, DHS to TSA, but to the vendors?

Mr. SCHULZ. She mentioned, Jill mentioned the sharing of test plans. To our knowledge, I think for the EDS equipment, that has taken place. I don't know for the other technologies whether those test plans have been shared. That is very helpful because it gives

the vendor an idea of what the TSA is looking for and how they are going to be conducting the testing. There are definitely opportunities to look, work with TSA to, again, find these chokepoints and figure out what the communication implications are.

The requirements is a big topic too. It is a very big topic because really the success of your T&E process is going to be based on how robust those requirements are. Sometimes, as I mentioned before, there might not be complete alignment within the TSA as to what those requirements are.

Miss RICE. Hear you loud and clear. Thank you, Mr. Chairman.

Mr. KATKO. I apologize for the brevity of your testimony. But, again, it is very helpful. I think the colloquy between Miss Rice and yourself really nailed one of the biggest concerns we have in the committee and something we are going to continue to pursue going forward.

Again, I apologize for the brevity of your testimony. But I encourage you strongly to submit anything in writing that you wish to offer in addition to your testimony of any concerns you have.

We want to get this right. We understand we are at the beginning of, this is a marathon, not a sprint. There is a lot more to be done here. So I encourage you to keep the lines of communication open with us, keep the discussions open. If you think more roundtables are helpful as well, we would be happy to have them as well. Because we want to fix this process. We want to make sure it is the best process it possibly can be. We have a long way to go. TSA is a bureaucratic agency that needs to change some of its old habits. Some of the old habits ought to go.

Mr. KEATING. Mr. Chairman, along those lines, in your written testimony, I imagine your clients have some private-sector clients as well they deal with. If you could for the committee contrast the way that they are working with the private side and the public side, I think seeing that side-by-side might be very helpful to us. Thank you.

Mr. KATKO. Yes. That is a great point. We want to thank you very much for your testimony. I thank the Members of the committee for their questions as well. The Members of the committee may have some additional questions for the witness. We will ask you to respond to these in writing.

Pursuant to Committee Rule 7(e), the hearing record will be held open for 10 days. Without objection, this subcommittee stands adjourned. Thank you.

[Whereupon, at 3:26 p.m., the subcommittee was adjourned.]

APPENDIX

QUESTIONS FROM CHAIRMAN JOHN KATKO FOR STEVEN WALLEN

Question 1. Industry stakeholders have previously told the Members of this subcommittee that the relationship between DHS's Science & Technology Directorate and TSA's Research & Development has caused inconsistencies in the development of new technologies.

Can you explain the operational relationship between DHS S&T and TSA R&D?

Answer. Response was not received at the time of publication.

Question 2a. TSA plans to utilize third-party testing for technologies that do not meet the operational standards TSA requires. I understand that there are not any third-party testers that can replicate the explosive testing environment like DHS S&T is able to.

How is DHS S&T involved in the third-party testing?

Question 2b. Was DHS S&T consulted at the point TSA was developing this plan?

Answer. Response was not received at the time of publication.

Question 3a. I have been informed that DHS S&T, specifically the Transportation Security Lab, significantly collaborates with private industry when developing technologies.

Please describe the collaboration and how it has aided in the development of security technologies.

Question 3b. What emerging security technologies is DHS working to develop?

Question 3c. What biometric technologies is DHS testing? Looking to develop in the future?

Answer. Response was not received at the time of publication.

Question 4a. During the hearing, TSA and DHS described progress made through the constitution of an Integrated Product Team (IPT) on Aviation Security. The IPT will identify capability gaps and coordinate R&D program in 2018–2020.

Please provide IPT capability gap recommendations for R&D investment and a current schedule of IPT activities.

Question 4b. What is the projected role of industry stakeholders as part of the IPT process?

Answer. Response was not received at the time of publication.

Question 5. Has TSA procured equipment received basic or transitional S&T investment to address TSA identified capability gaps or overcome technological barriers? Please provide examples.

Answer. Response was not received at the time of publication.

Question 6. Provide examples of S&T-led Broad Agency Announcements that have eventually translated into a TSA aviation security equipment procurement.

Answer. Response was not received at the time of publication.

Question 7. The Strategic Five-Year Technology Investment Plan notes that approximately $75 million has been spent by S&T for university research.

Please provide specific examples of aviation technology upgrades, solutions, or equipment that have been produced and eventually deployed in the field by OSC through these programs.

Answer. Response was not received at the time of publication.

Question 8. What recommendations would you suggest to increase collaboration amongst DHS and TSA and industry?

Answer. Response was not received at the time of publication.

QUESTIONS FROM CHAIRMAN JOHN KATKO FOR JILL VAUGHAN

Question 1a. A provision of the Transportation Security Acquisition Reform Act (TSARA) requires TSA to collaborate with the National Institute of Standards and Technology to develop standardized criteria for testing security screening technologies.

What is the status of the development of the standardized criteria for security-related technologies?

Question 1b. Has the criteria been effective in the R&D of any technologies?

Answer. One of the key themes in the Transportation Security Administration's (TSA) Strategic 5-Year Technology Investment Plan is the focus on a system-of-systems approach rather than procuring independent technologies with specific functions TSA would take a holistic approach moving towards increased interoperability and integration, which would include development of standards for open architecture. TSA is collaborating with the National Institute of Standards and Technology (NIST) on security-related technology interface standards that could promote more interoperable passenger and baggage screening systems. TSA believes the development of these standards and associated architecture will help to streamline technology investment and enhance delivery of security capabilities.

In addition, TSA is working with NIST, through the Department of Homeland Security (DHS) Standards Executive to enhance interoperability. When developing specifications and solicitations, TSA works with NIST to ensure proper reference to established relevant standards. With sponsorship by the DHS Standards program, NIST and TSA collaborate in order to cross-utilize subject-matter expertise to trace standard explosive materials and to support quality assurance efforts for fielded Explosives Trace Detection systems. NIST has also provided support for TSA's test and evaluation program to develop non-contact scanner testing. The collaboration with NIST has led to a more performance-sensitive, general level of acceptance tolerances, and a more open analysis software tool to move forward from simulant-based acceptance of Explosive Detection Systems. These tools are currently being transitioned to support both Factory and Site Acceptance Testing, once the Project Management Office contractually requests the vendors to update their associated test procedures to implement these American National Standards Institute test kits.

TSA recognizes that further collaboration with NIST may open possibilities, help the agency plan for the future, assist TSA with reducing process delays, and define more precise outcomes in the future. In our work to develop the most accurate and precise screening technology we continue to make great strides to ensure that operational requirements and capability gaps are aligned with research and development efforts.

Question 2a. TSARA mandates that TSA notify the appropriate Congressional committees when making a purchase of security-related technology totaling $30 million or more.

How often does TSA utilize its "other transaction" authority to purchase security-related technologies?

Question 2b. What technologies have been procured under the category of "other transaction"?

Answer. The Transportation Security Administration (TSA) does not use other transactional agreements (OTAs) to acquire Transportation Security Equipment. However, prior to 2005, TSA may have used OTAs to acquire testing services and test equipment from Original Equipment Manufacturers for the Electronic Baggage Screening Program. That test equipment included Explosives Detection Systems and ancillary equipment. One unit may have been installed at the Transportation Security Lab; another unit remained with the Original Equipment Manufacturer to continue development efforts; and perhaps one was placed in the field following the test. All of these units were disposed of after becoming obsolete. Current TSA policies do not allow for the use of OTAs to purchase Transportation Security Equipment.

Question 3. I understand that DHS has mandated new cybersecurity requirements for all networked equipment, and that TSA has communicated 9 critical cybersecurity requirements to vendors.

Has compliance with these cybersecurity requirements resulted in any delays to TSA's deployment schedule for security equipment?

Answer. TSA is currently in the process of sharing proposed Department of Homeland Security (DHS) requirements with the transportation security equipment (TSE) vendors to enhance current and future systems' cybersecurity. However, TSA will not know the full cost and associated time lines until responses from the TSE vendors are evaluated against the cost and benefits of the proposed enhancements. While these activities are being pursued, TSA has mitigated the cybersecurity risk to TSE by disconnecting them from the Security Technology Integrated Program (STIP) network pending these programmatic decisions.

These efforts to address cybersecurity requirements have impacted the test and evaluation schedule for the development of Credential Authentication Technology (CAT). In January 2016, TSA released a request for proposal to the CAT vendor for the implementation of the cybersecurity requirements, and held a technical inter-

change meeting with the vendor to discuss technical specifications and requirements for personal identity verification integration and the other cybersecurity requirements. Once the cybersecurity requirements are met, then the CAT vendor can resume testing. Procurement and deployment decisions and time lines are dependent upon successful completion of testing activities. In that regard, TSA has already notified DHS of a schedule breach and is preparing the Congressional report identifying a schedule breach for CAT pursuant to 6 U.S.C § 563b, as enacted by the Transportation Security Acquisition Reform Act (Pub. L. 113–245). Such occurrences could impact milestones and disrupt time tables in the future.

Question 4a. I understand that DHS cybersecurity mandates requiring PIV card access could delay the deployment of the Credential Authentication Technology.

How is TSA working to rectify these delays?

Question 4b. When will CAT be deployed, if at all?

Answer. The time line for testing and deployment of Credential Authentication Technology (CAT) has been impacted by the efforts to address several cybersecurity requirements, such as Personal Identity Verification (PIV) enabling. The Transportation Security Administration is working to meet all cybersecurity requirements to enable CAT to proceed to final Operational Testing and Evaluation (OT&E).

In January 2016, TSA released a request for proposal to the CAT vendor for the implementation of the cybersecurity requirements, and held a technical interchange meeting with the vendor to discuss technical specifications and requirements for PIV and the other cybersecurity requirements. Once cybersecurity requirements are met, then the CAT vendor can resume testing. Procurement and deployment decisions and time lines are dependent in part upon successful demonstration of system effectiveness, suitability, and cybersecurity readiness through Initial Operation Test and Evaluation (IOT&E).

Question 5a. GAO has reported that TSA fails to adequately monitor the maintenance of its security screening technologies which would ensure the equipment's effectiveness, and yet TSA found it appropriate to lengthen the life span of the EDS machines.

What is the current maintenance strategy for security-related technologies?

Question 5b. How is the maintenance of security-related technologies tracked?

Question 5c. What prompted TSA to elongate the life span of some security-related equipment? Was it from information derived from the maintenance records?

Answer. The Department of Homeland Security (DHS) Office of the Inspector General report found that, in some cases, local Transportation Security Administration (TSA) personnel at the airports were not aware of the status of corrective maintenance actions, or the schedule for preventive maintenance being conducted by contracted technicians. Since then, TSA has implemented measures to improve visibility of maintenance actions and schedules at the local level.

TSA has detailed and accurate maintenance data on all of its Transportation Security Equipment (TSE). TSA centrally manages the Performance-Based Logistics contracts under which TSE is maintained. As part of these contracts, the maintenance contractors' capture and report detailed information for each corrective maintenance action, and this information is reported to TSA for validation and analysis.

TSA's operational experience has indicated that deployed technologies have the ability to operate longer without a negative operational impact or requiring increased maintenance. TSA equipment is in a constant state of maintenance and refurbishment, and is tested or calibrated on a daily basis to ensure proper functioning prior to use. As a result, the TSE in the field has exceeded initial service life estimates and consistently achieves Operational Availability rates at or above 98 percent. Because the material condition and functionality of the equipment does not justify replacement, TSA deemed it fiscally responsible and operationally sound to extend the service life of the equipment.

Most importantly, the deployed fleet of Explosives Detection Systems has shown the capability to be upgraded with and to run enhanced algorithms. Therefore, the TSE will reach the end of its useful life and need to be replaced when next generation technologies with improved detection or efficiencies are available, or when the current fleet has reached technical obsolescence (i.e., inability to run enhanced algorithms to detect the threat). TSA will ensure that future considerations of any service life extensions will include engagement with industry.

Question 6a. TSA's recent failures have been well-publicized and prompted TSA to conduct a massive re-training effort.

Has TSA collected data on failure rates since the re-training has taken place? Have failures rates gone down?

Question 6b. Did the failure rates and retraining process inform any decisions regarding future technology purchases?

Answer. Screening operations are the core mission of the Transportation Security Administration (TSA). Our Transportation Security Officers (TSOs) screen hundreds of millions of passengers and approximately 2 billion carry-on and checked bags each year to prevent dangerous and/or prohibited items from being carried onto aircraft.

In response to the results of the recent DHS Inspector General covert testing of airport checkpoints and the subsequent TSA Action Plan, TSA has developed and delivered Mission Essentials—Threat Mitigation (ME–TM) training to the entire TSO workforce plus a number of TSA Headquarters and Federal Security Director staff. The overall objective of Mission Essentials training is to instruct the screening workforce on the link between intelligence information regarding the current threat, capabilities within checkpoint technologies, operational procedures, and the role of the TSO in mitigating those threats. These principles will be reinforced through additional offerings in the Mission Essentials training series scheduled for quarterly release, and the principles are being incorporated into the TSO Basic Training Program for newly-hired officers.

Training the workforce is a priority for TSA. Collection of data for validating the effectiveness of training is on-going and among several measures being implemented as part of the TSA Action Plan. Total assessments conducted have increased over the previous year to approximately 14,000 annually. As a result, TSA has observed improvements in covert test assessments since the completion of ME–TM training. This Classified aggregated National data can be shared with the committee in the appropriate environment.

The TSA Office of Inspection regularly conducts covert "Red Team" testing to measure the effectiveness of TSA security systems and identify vulnerabilities in the people, processes, and technology. The "Red Team" tests are developed and deployed based upon an insider-level of knowledge and current intelligence regarding threats against transportation systems. Once tests are completed, a Classified report is prepared which includes the results, findings, and recommendations for mitigating identified vulnerabilities. TSA can provide a briefing to the committee in a Classified setting if further information regarding testing procedures and results is requested.

Another element of TSA's response includes assessing areas where screening technology equipment can be enhanced. This includes new software, new operating concepts, and technology upgrades in collaboration with our private-sector partners. TSA will ensure more emphasis is given to human factors in the development of requirements used for future procurements.

TSA recently hosted equipment manufacturer representatives at the TSA Academy on the Glynco, Georgia, campus of the Federal Law Enforcement Training Center (FLETC). The purpose was to facilitate coordination between the vendors and Academy instructors and staff, as well as to address gaps in awareness about technology training. A significant focus has been placed on ensuring that TSOs understand both the capabilities and the limitations of the technologies deployed so they can be used most effectively. The relationship between equipment vendors and instructors is vital to ensuring that TSOs remain up-to-date on the capabilities of TSA technology.

Question 7. GAO points out that TSA will now include third-party testing for technologies that do not meet the TSA requirements and need additional development but TSA did not account for several factors that will impact the effectiveness of the third-party testing and, therefore, not be as cost-effective.

Has TSA made improvements to the third-party testing process as a result of the GAO report?

Answer. The Transportation Security Administration (TSA) has observed challenges with transportation security equipment passing qualification testing and operational testing, resulting in delayed acquisition processes and increased test and evaluation costs. TSA is working to address these challenges by developing its Third-Party Test Program, which is intended to streamline the acquisition process by requiring vendors to provide more mature systems in response to procurement opportunities.

TSA initiated its Third-Party Test Program in July 2014, with an announcement on the Federal Business Opportunities website. To support the implementation of this program, TSA approved the Third-Party Test Strategy on April 21, 2015. The strategy was developed with support from the National Institute of Standards and Technology (NIST). It provides a high-level overview of TSA's Third-Party Test Program and the associated roles and responsibilities for TSA stakeholders.

In addition, TSA is also working with NIST to develop Third-Party Test Procedures. This document will identify standardized testing criteria, testing requirements, and standardized test scenario templates for transportation security equip-

ment. In support of this effort, TSA conducted a detailed analysis of each technology's historical rate of failures for qualification testing and operational testing, and is leveraging this analysis to help define the requirements for third-party testing. The priority for developing each technology's third-party test requirements and templates are based on acquisition time lines and then the historical rate of failures.

Furthermore, TSA continues to work with NIST to leverage industry best practices and international conformity assessment standards in the development of its Third-Party Test Program. The program will allow TSA to receive applications for potential third-party test organizations and will enable TSA to ensure the organization is capable of testing to TSA's requirements.

Finally, TSA is continuing to ensure transparency throughout the process of developing its Third-Party Test Program. TSA hosted an industry day on February 25, 2016, to engage with industry on the detailed updates of the program and solicit feedback on the processes. In support of the industry day, TSA distributed a Request for Information through the Federal Business Opportunities website on January 26, 2016. The purpose of this request is to gather an understanding for the potential market of available third-party test organizations and generate feedback from industry on their concerns and ideas for TSA's program. TSA will leverage responses to the request to drive discussion during the industry day, and will ensure to incorporate industry's feedback into the continued development of its Third-Party Test Program.

Question 8. TSARA required TSA to develop a 5-year technology investment plan, which TSA defined as an investment plan for aviation security.

Why did TSA's Five-Year Technology Investment Plan not encompass other transportation sectors?

Answer. The Transportation Security Administration (TSA) does not procure, deploy, or maintain security technology for other transportation sectors; therefore, the plan does not encompass them. Pursuant to 49 U.S.C § 44901(1) TSA must screen all passengers and property that will be carried aboard a passenger aircraft operated by an air carrier or foreign air carrier.

TSA, in collaboration with other transportation sector stakeholders and the Government Coordinating/Sector Coordinating Councils, does develop capability gap analyses for other transportation sectors. TSA also maintains several robust programs to assess the marketplace, promote developing security technologies, and provide security technology data and information to industry and other Government departments and agencies.

Question 9. Does TSA capture and utilize secondary screening data to assist in the development of security screening equipment in terms of lowering false alarm rates, as GAO suggests?

Answer. The Transportation Security Administration actively utilizes secondary screening data to directly influence Detection Standards, including false alarm rates for both Advanced Imaging Technology systems and Advanced Technology X-ray systems.

Secondary screening data is often used to inform a variety of performance metrics through Modeling & Simulation tools and the requirements development process (e.g., Detection Standards are directly incorporated into requirement documents). Analysis of data, including false alarm rates, on how the equipment is affecting the system is used to model staffing needs. Networking of Transportation Security Equipment will also provide real-time performance data.

Question 10. During testimony, it was identified that the process for security-related technologies to be tested and evaluated is, approximately, 1 year.

How is TSA working to improve the average time span to T&E and procure security-related technologies?

Answer. The Transportation Security Administration (TSA) works closely with the Department of Homeland Security (DHS) Science and Technology Directorate to identify new and emerging technologies to safeguard our Nation's transportation network. TSA follows DHS Acquisition Directive 102 (AD–102) for the procurement of new capabilities or procurement of capability upgrades (either hardware or software) to existing transportation security equipment.

The amount of time it takes for a technology to pass through the procurement process varies widely depending upon the complexity of or enhancement to the system, and the technology's readiness for testing. TSA is proactively working towards accelerating the acquisition process, reducing procurement delays, and reducing the overall time-to-deploy, while at the same time ensuring that required detection capabilities are achieved.

TSA is working to increase communications with the transportation security equipment vendors and is revamping current processes to ensure more collaboration and their earlier involvement. Additionally, TSA is increasing transparency into its

testing and procurement strategies to allow vendors the opportunity to create long-term development strategies to support TSA's acquisition plans. Finally, TSA is conducting a comprehensive assessment of Test and Evaluation (T&E) processes to identify challenges and their impact on the acquisition process, and to identify continued areas for improvement.

TSA is currently exploring opportunities to increase the "up-front" communication between TSA and the vendor by revamping the Qualification Management Plan (QMP) and Qualification Data Package (QDP) process. The purpose of a QMP is to provide guidance to vendors on how to prepare a QDP with sufficient detail and substantiation to enable TSA to determine whether a system is ready to enter into TSA's formal T&E process. This process will allow TSA to better communicate system requirements to the vendor.

Question 11. Please identify which locations TSA has identified for potential implementation of "innovation lanes".

What is the time line for implementation of "innovation lanes"?

Question 11b. What locations does TSA plan to utilize for the "innovation lanes"?

Question 11c. What are TSA's priorities for test and evaluation as part of this initiative?

Answer. The Transportation Security Administration (TSA) is pursuing the establishment of Innovation Lanes at various airports. An Innovation Lane would be a partnership with manufacturers and industry to demonstrate emerging capabilities in an airport environment.

TSA is in the early stages of defining Innovation Lanes and is just beginning to have discussions with airports. Innovation Lanes could provide an opportunity for TSA and vendors to gather data in an operational environment, while potentially enabling manufacturers to mature technologies before entering into the formal acquisition process, thereby reducing the overall time it takes for TSA to introduce new technologies. Innovation Lanes could also help TSA develop detection requirements, Concept of Operations, and testing methodologies.

QUESTIONS FROM CHAIRMAN JOHN KATKO FOR MICHELE MACKIN

Question 1. How would GAO categorize the changes TSA has enacted since the implementation of the Transportation Security Acquisition Reform Act?

Answer. Response was not received at the time of publication.

Question 2. How do the acquisition processes of DHS and TSA compare to other Government agencies' best practices?

Answer. Response was not received at the time of publication.

Question 3. Given the findings of GAO's latest report, were there any issues identified that would warrant future investigation?

Answer. Response was not received at the time of publication.

Question 4. GAO, in its latest report on TSA acquisitions, identified that 11 of 22 security-related technologies failed the TSA testing and evaluation process.

What steps can TSA take to develop a more efficient process to prevent such high failure rates in their testing and evaluation process?

Answer. Response was not received at the time of publication.

Question 5. A 2012 Congressional Report detailed that TSA was housing equipment at the Transportation Logistics Center in Dallas, Texas, at significant cost to the American taxpayers without a proper tracking system.

How does the equipment in storage affect TSA's recapitalization plan?

Answer. Response was not received at the time of publication.

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