Testimony of Reginald Brothers
Under Secretary for Science and Technology
U.S. Department of Homeland Security

U.S. House of Representatives
Committee on Science, Space, and Technology

October 27, 2015

Good morning Chairman Smith, Ranking Member Johnson, and distinguished members of the Committee. Thank you for the opportunity to testify before you today on the role of the Department of Homeland Security's (DHS) Science and Technology Directorate (S&T). S&T's mission is to deliver effective and innovative insight, methods, and solutions for the critical needs of the Homeland Security Enterprise (HSE). Technology simultaneously enables both homeland security operators and malevolent actors and, as a result, has a significant and expanding impact on current and future threat environments. In light of this, I will use this testimony to update the Committee on how S&T has evolved to more effectively and efficiently achieve its mission. I look forward to sharing S&T's recent successes with operators and responders and the ways in the last year and a half that we reshaped our approach to research and development (R&D).

It is important to frame the conversation today within the context of modern R&D. Many of the constraints that S&T and other federal R&D organizations face result, often indirectly, from processes and authorities suited to a past 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 (e.g., in cyber or aviation environments) that evolve quickly and strain operational capabilities running on traditional, multi-year development and acquisition cycles. From my first day at S&T, one of my main focuses was 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 widespread use.

To foster this approach to R&D and to take advantage of opportunities for improvement within S&T, I came to the Directorate with 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.

Those five priorities grew out of feedback from staff within S&T, from around the Department when I joined, and from Congress during my confirmation. I am proud to say that as an

organization, S&T has progressed across the board in each of these areas, and we are beginning to reap significant benefits inside the Directorate, across the Department, and with a growing group of homeland security stakeholders. I look forward today to sharing some of our more significant organizational milestones and accomplishments.

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 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.

S&T shared draft goals with the Department and the public through a crowd-sourcing website where we received more than 1,000 comments and suggestions. Participants from all of S&T's major stakeholder groups were represented including state and local entities, academic and nonprofit groups, industry, and international partners. The final S&T Visionary Goals, with input from the entire HSE, are the following:

- *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 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 connections, 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. Resilient communities struck by disasters will not only bounce back, but bounce forward.

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 nationwide 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.

National Conversation

Based on our successful online, enterprise-wide conversations, it became clear to us that the public desires an opportunity for involvement and input. That was the basis for S&T's launch last year of the National Conversation on Homeland Security Technology. The National Conversation is a public engagement strategy to connect partners and the public on R&D supporting the homeland security missions. It is a series of online and in-person discussions across the Nation to drive dialogue between the public as well the Nation's first responders, industry representatives, academia, and government officials that shapes the future of homeland security technology.

We turned what was typically a one-way exchange of information with our stakeholders into a multi-directional exchange. The National Conversation is an enabler for the work we do. It helps us get real-time insight into the work we are doing and stimulates innovative thinking informing future work. The fact that DHS Components including the Federal Emergency Management Agency (FEMA) and U.S. Customs and Border Protection (CBP) used S&T's National Conversation to reach and connect with stakeholders reflects the traction the program gained. The National Conversation's discussions, to date, have included the following:

- Responder of the Future
- Enable the Decision Maker
- Screening at Speed
- A Trusted Cyber Future
- Transforming Airport Borders
- Resilient Communities
- Bio/Agro Security Innovation

The Apex Program

Grounded in our Visionary Goals and working in mission areas that cut across our DHS Component partners, S&T launched six new Apex projects. These ambitious programs 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 CBP 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 and enable cross-cutting R&D across that moves S&T's entire portfolio forward. 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
- Manufacturing

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.

Because Engine services, solutions, and knowledge will be applied, reapplied, and repurposed across multiple projects, as opposed to starting from scratch with each new effort, S&T is also able to realize efficiencies compared to previous S&T approaches. As the Engines mature, the collective experience and awareness of emerging technology trends will result in a robust knowledge base and network to continually serve the dynamic needs of S&T and the DHS enterprise.

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 FEMA on the U.S. Fire Administration's National Fire Incident Records System, has a highly successful program underway with ICE's Homeland Security Investigations, and continues to support customer projects like TSA's third-party pre-screening by providing technical evaluation of analytics software.

Actionable Strategy

When I joined S&T, I recognized a need to promote openness and transparency between S&T and the public, particularly with industry stakeholders. An S&T Strategic Plan would serve as an ideal starting point for our interaction inside the Department, with industry and academia, as an interagency contributor, and with non-federal government partners.

I am proud to say that earlier this year, we published the S&T Strategic Plan. Importantly, we do not see the plan as something that will be published every four years. Rather, I asked that we keep it regularly updated and aligned to our organizational direction, allowing the document to serve as an anchor for outside stakeholders. We already updated the document once within

months of its initial publication by adding an appendix with more detailed technology roadmaps and descriptions of investment areas, visions, and strategic drivers across the Directorate. As we move forward, we are exploring an even more interactive web-based capability that we can continuously update for an even more current product.

Empowered Workforce

During my confirmation hearing, I shared my commitment and dedication to empowering the S&T workforce and focusing on improving the Directorate's morale. In pursuit of this goal, we have enacted several initiatives:

- Commissioning a root cause analysis
- Acting on the findings of the root cause analysis
- Establishing an Employee Council to facilitate staff and leadership engagement and communications
- Enhancing our internal collaborations and communication between our groups and divisions to foster more innovation and cooperation

Organizational Health Assessment and Root Cause Analysis
In late March, S&T completed its Root Cause Analysis. The complementary Organizational Health Assessment was tailored specifically to S&T and was a multi-phased effort to determine root causes and drive action and results. It included a combination of questionnaires, focus groups, and interviews of staff at every level of the organization. The study identified multiple areas in which we can improve as a leadership team – decentralizing power and decision making, improving leadership communications tone, and improving communication around strategic vision and direction for the organization. The study raised several excellent points and provided a blueprint for actions that S&T leadership – and staff – can take to improve the culture of the Directorate.

S&T Employee Council
A key part of our implementation for the report was the stand-up of the S&T Employee Council. The Council is a vehicle for communication between staff and leadership; it provides input into S&T initiatives, programs, processes, and strategic investments; and it creates and assists with the implementation of action plans to address priority focus areas. It is a voluntary body comprised of federal non-supervisory employees with 38 staff currently serving.

S&T leadership leverages the Council in a variety of ways. The Council has several Action Planning Teams responsible for implementing specific actions related to the Organizational Health Assessment. For example, the Decentralizing Authority Action Planning Team is evaluating ways in which decisions and authority can be devolved to lower levels of management while maintaining accountability and traceability for decisions made. Additionally, the Deputy Under Secretary, S&T Chief of Staff, and I use the Employee Council as a means for staff input in management challenge areas. In one recent case, we used the Council to help us understand how to most effectively communicate with staff, which existing methods are successful, and how information sharing and communication can improve going forward. I am grateful for the extra time and efforts put in by Council members and believe their participation

has been a useful vehicle for expanding communication, participation, and transparency between leadership and staff.

Finally, to foster a more effective team environment, I asked my leadership team to actively break down internal barriers that may hamstring or prevent collaboration. The results so far are promising. To use one example, our recently-launched Silicon Valley presence is a collaboration between every group within S&T – from our R&D program staff, to our partnership team, to human resources, to our finance and budgeting staff. Another encouraging example is S&T's Partnering for Innovation and Operational Needs through Embedding for Effective Relationships (PIONEER) program for embedding staff with operators. The program (described in greater detail below) was conceived, designed, and marketed by S&T staff at their own initiative to address an area where they identified potential for significant positive change. We also now offer new ways for employees to engage each other, such as through academic lectures delivered by staff to internal groups on topics of personal and professional interest. Taken as a whole, examples like these indicate emergence of a more open and collaborative culture within S&T.

Federal Employee Viewpoint Survey scores
I am pleased to report that the Directorate is making tangible progress with all of these efforts. While the Directorate still has a long way to go, I am personally heartened to see that we have seen significant gains in our Federal Employee Viewpoint Survey (FEVS) scores. I believe actions above have contributed to a significant positive impact on morale within the Directorate, and our most recent scores saw substantial increases in several key indices.

Across FEVS scores, S&T saw ten point or higher gains in a variety of questions related to recognition, policies and practices of senior leaders, respect for senior leaders, and creativity and innovation being rewarded. While I am pleased with the upward trend, the job is not finished. S&T will continue to execute the efforts outlined here while also seeking and developing new ways to engage employees and build on our positive momentum.

Force Multiplying Solutions

When I joined the Directorate, one message I consistently received inside and outside S&T was that we needed to sharpen our value proposition to homeland security stakeholders. 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. We re-established the Department's Integrated Product Teams (IPT), focused S&T's resources in the most pressing homeland security challenge areas, started the PIONEER program to put more of our technical staff into the field directly with operators, and started a rapid prototyping and experimentation program that will speed up our development and delivery of capabilities.

Integrated Product Teams
To begin with, S&T embraced the Secretary's April 2014 Unity of Effort initiative. S&T leads or participates in a broad range of Unity of Effort-focused activities in the Department. From

providing subject matter and analytical support to the U.S. Coast Guard's (USCG) leadership of the Joint Requirements Council to bringing a technical and R&D-focused perspective to the Deputy's Management Action Group, I believe that Unity of Effort has had an empowering effect on organizations like S&T that by nature work across the entire Department.

A great accomplishment so far under the Unity of Effort umbrella has been the re-establishment of our IPT process. In August, the Secretary approved S&T's plan to reboot these cross-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 will be led by senior representatives from the operational Components with representation from Joint Requirements Council Portfolio Teams and support from S&T.

IPTs will initially address the following five topic areas: Aviation Security, Biological Threats, Counterterrorism, Border Security, and Cyber Security. S&T will also continue its ongoing IPT supporting our Nation's first responders through the First Responders Resource Group, and additional sub-IPTs will be created 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 DHS priority missions. We moved quickly since August to build membership on these teams, and I am proud to say the first (Border Security) has a signed charter and held its first meeting at the end of last month. We continue to move out quickly to populate and stand up the remainder of the teams to begin informing the Department's R&D portfolio.

Reprioritization of R&D programs and funding

A second area we have made progress in since I joined S&T has been prioritizing S&T's budget and R&D programming more effectively. One of the first efforts I initiated when I became Under Secretary was a program review. I realized that S&T had too many projects in too many areas and, as a result, was spreading itself too thin and undermining its investments. Further, the investments the organization made were, though certainly important, not always strategically driven or linked explicitly to homeland security priorities.

Re-establishment of the IPTs will help address this, but I also directed my leadership team to make a concerted effort to explicitly tie S&T's investments to specific areas including the following: national priorities, Secretary priorities, S&T priorities, and other priorities as they arise. In an austere fiscal environment, and at the same time a time of increasing threats, we must be strategic about our R&D work and how we prioritize our investments to make the largest impact in securing the country. By making this shift, we avoid being overly internally-driven or too focused on highly-specific end user requests, instead focusing on investments with greater reach and impact in the most pressing homeland security challenge areas.

This shift is exemplified in S&T's growing attention, including resources as needed, to two urgent areas for the Department: countering unmanned aerial systems (UAS) and countering violent extremism (CVE). Regarding UAS, S&T has grown into a major coordinating role for the Department in the area of countering the systems. As several events in the last year illustrate, the boom in availability of UAS paired with advances in UAS capability pose significant challenges and potential threats to security. Regarding CVE, S&T is able to leverage existing investments in its university-based Centers of Excellence to plug directly into the research

community and characterize and measure the effects of existing CVE programs and to help the Department determine the most appropriate and effective administration of CVE programs. As a result of the prioritization, S&T slated significant resources for each of these two priority areas.

Innovation Centers and the PIONEER program
In industry today, many corporate labs are under increased pressure to prove a direct impact to profits. Some laboratories are seen by business unit leaders as a resource burden, and successful laboratories ensure that their researchers have a baseline understanding of the business context of their work. One way that these laboratories enable this understanding is by cycling researchers between business units and work in the lab. This is a straightforward, deceptively simple-sounding concept, but it can make the difference between a lab disconnected from its customers and one ultimately providing a strong return on investment and expanding business through attunement to operational reality and generation of usable, imaginative solutions. This is the model I intended to implement at S&T for interaction with DHS's operational Components.

To accomplish this, S&T developed Innovation Centers as a means to bring together Component operational staff, Component technical expertise, and S&T core technical expertise in a single location. With joint facilities and staffing, Innovation Center activity is Component-driven with S&T support and focuses on later-stage, fast-turn projects. The first Innovation Center is underway with the USCG and located at Research and Development Center in New London, Connecticut. The USCG has been an excellent partner in the Innovation Center conceptualization, and both of our organizations look forward to seeing it in action and demonstrating the value of the model for wider adoption.

As a complement to Innovation Centers, S&T also launched its PIONEER program. As part of the Unity of Effort initiative and reflected in S&T's Strategic Plan, PIONEER was created to assist identification and prioritization of operational requirements and capability gaps through direct collaboration in the field with operators. By merging the technical knowledge of our staff with operators in everyday field environments, S&T would cultivate user-driven solutions based on critical needs. The PIONEER program launched as a pilot in FY15 and included seven short-term embeds with Components. One embed opportunity involved an S&T program manager aboard the USCG cutter Legare on a 10-day north Atlantic fisheries patrol. This short-term embed was highly successful, yielding firsthand understanding of capability gaps faced by the operational Components, a potential test partner for an S&T-developed contraband detection capability, and numerous new relationships with operators. We look forward to implementing the program more broadly in FY16 and 17.

Operational Experimentation
A final area S&T has moved the needle toward force multiplying solutions has been with our rapid prototyping and operational experimentation programs. Operational experiments are a means for rapid, user-driven assessment and adaptation of technologies identified through accelerators, IPTs, prize competitions, and other technology scouting activities. These allow developers to shorten their design cycle and time to market.

One example of this kind of experimentation is our new Collaborative Innovation Experiments (CIX), in which S&T takes existing relationships with traditional partners and combines them

with our programs to reach non-traditional performers. CIX deviate from the Department's traditional approaches to operational experimentation by coordinating with DHS Joint Task Forces, IPTs, and Component leadership to ensure focus on near-term, high-priority operational needs and by creating enduring relationships with technologists to rapidly prototype and experiment with cutting-edge technology. The first CIX occurred on the southwest border over roughly 120 days. It was a whole-of-government effort that leveraged millions of dollars' worth of research at another government agency to create a unique capability. Based on the success of this pilot for the CIX program, we look forward to continuing and expanding the approach in the future.

S&T National Laboratories and Centers of Excellence
S&T offers unique laboratory- and university-focused capabilities to the HSE that contribute to force multiplying solutions for the Department. In the past year and a half, S&T continued to refine and expand these capabilities.

Earlier this year, the Secretary broke ground on the National Bio and Agro-Defense Facility (NBAF) in Manhattan, Kansas. NBAF will replace S&T's Plum Island Animal Disease Center, which is at the end of its lifecycle, with new, cutting-edge capabilities for the study and mitigation of foreign animal, emerging, and zoonotic disease-based threats. NBAF will drive innovation and unify industry, government, and universities around R&D that safeguards the Nation's trillion dollar agriculture industry. NBAF will join S&T's existing laboratory assets, each of which fill unique niches not found elsewhere in the national laboratory system.

In the last year, S&T also stood up three new DHS University Centers of Excellence (COE) including one new COE directed by Congress. These include the Coastal Resilience Center, led by University of North Carolina-Chapel Hill; the Center for Borders, Trade, and Immigration, led by the University of Houston; and the Center for Critical Infrastructure Resilience, led by the University of Illinois. Cumulatively, these COEs represent potential S&T investments of more than $60 million in university research and education supporting homeland security missions. The stand-up of these three new COEs was a true departmental effort and engaged more than 40 senior leaders within DHS Components.

Energized Homeland Security Industrial Base

DHS more than many federal agencies and much more so than the Department of Defense, as one example, is dependent on commercially-available, off-the-shelf products to achieve its mission. Because of this, partnership with industry including 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 produces numerous products on the shelf that operators may use, and to that end, my final and perhaps most critical priority as Under Secretary was to activate a private sector community around homeland security challenges.

I am proud to say that this is an area where we have enjoyed considerable success over the last year. We developed a fresh public face by overhauling S&T's website to be more informative and transparent. 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. Combine these with previously mentioned accomplishments at S&T such as the Strategic Plan publication along with willing partners within the Department including in the Management Directorate and Office of General Counsel, and we are beginning to see real interest in the private sector in participating in a Homeland Security Industrial Base.

Accelerators

As has already been clear, identifying and tapping into sources of innovation is critical to our ability to support frontline operators keeping the nation safe, and accelerators (i.e., seed funding and mentorship for entrepreneur teams and start-up companies to help them attract investment) are a valuable tool to do just that. This year, S&T piloted a business accelerator program to see if accelerators would work in the homeland security mission space. Within one year, S&T delivered on our promise to get S&T's first accelerator up and running and to assess the potential for accelerators to succeed in this space.

Last month, S&T hosted the pilot accelerator's graduation and demonstration day to showcase our program and the wide range of innovative technologies discovered in the area of wearables for first responders. There were more than 150 start-up applicants to participate in the program. Eighteen were selected for the first stage, and over half of them already have or will shortly receive investment from the venture or private equity community. This program has successfully passed each of our initial tests, demonstrating interest in the private sector in participating and graduating as well as the ability for companies to successfully develop products that attract private investment and simultaneously meet the needs of homeland security operators. We look forward to future homeland security accelerators in S&T and seeing what additional topics we can leverage the start-up community to address.

Prize Competitions

In March of this year, S&T introduced the InnoPrize Program to assist DHS planning and executing prize competitions as a fresh approach to operational challenges, problem solving, and spurring innovation. The InnoPrize Program utilizes the America COMPETES Act to execute part of President's 2011 Strategy for American Innovation, which made it easier to use competition programs to encourage innovation, solve tough problems, and advance the core missions of the Department. For each competition, a well-defined problem or question is posed to the public along with specific response criteria. Innovative problem solvers are encouraged to contribute promising ideas, products, prototypes, and solutions for judging. Winners are assessed based upon the stated competition criteria using a diverse set of practitioners, end users, engineers, subject matter experts, and other industry or R&D leaders as judges.

S&T announced its first prize competition in March 2015 in support of the DHS S&T First Responders Group's Next Generation of First Responders Apex Program. The winners were announced in May 2015. In the coming months, S&T will work across the Department and its

leaders to assess other programs and identify mission gaps suited for prize competitions. Through S&T, DHS is expanding its collaboration with a new community of innovators and problem solvers. In S&T's most recent prize competition – the National Bio and Agro-Defense Facility Think and Do Challenge – S&T is looking for fresh approaches and unique ideas to jumpstart implementation of a public-private ecosystem around S&T's state-of-the-art facility slated to open in 2022. Future prize competitions will be announced on S&T's website, on Challenge.gov, and through social media announcements.

Silicon Valley Presence
Last Spring, the Secretary announced that DHS will establish an outreach program in Silicon Valley to keep pace with the innovation community and tackle the hardest problems faced by the DHS operational missions. I am pleased to tell you this initiative continues to move forward under S&T's leadership.

The Silicon Valley outreach will expand our ability to find new technologies that strengthen national security and will reshape how government, entrepreneurs, and industry work together to find solutions. Start-ups, incubators, and accelerators have typically been hard for government to attract, but we are beginning to change that. We will co-invest in promising R&D to accelerate transition-to-market and, by the same turn, transition to homeland security operations. Silicon Valley and all of the innovation communities across the Nation like hard challenges. Our outreach with Silicon Valley and other hubs will help us better harness commercial R&D for homeland security applications.

S&T next steps

As I stated, I joined S&T with five priorities and an expectation that those objectives would begin to evolve S&T's approach to homeland security R&D. I believe that we have begun to see significant progress across the board. At S&T, we are trying out numerous new ideas and ways of doing things. We look at what works well, build it up, and stop what does not. In the process, I believe we are reinventing federal R&D and preserving it as an engine of innovation within government. Given the reality of homeland security today, with threats that move quickly and do not wait for government to react, we must keep improving at S&T.

In ten years, I expect S&T to be even better integrated into the Department and the HSE. I expect our technical staff to live and breathe with operators as trusted technical advisers and innovation agents who make operational missions safer and easier to achieve. I see a Homeland Security Industrial Base that rallies around homeland security challenges and helps make the public safer.

I thank you for the opportunity to testify before the Committee today, and I welcome your questions and the opportunity to further discuss how we can work with Congress to make that opportunity a reality.