

Testimony of

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House Committee on Homeland Security
Subcommittee on Cybersecurity, Infrastructure Protection, and Innovation

April 30, 2019

Good Afternoon Chairman Richmond, Ranking Member Katko, and distinguished members of the subcommittee. Thank you for inviting me here today to testify on the President's Budget Request for Fiscal Year (FY) 2020, which includes a request of \$582.1 million for the Science and Technology Directorate (S&T) within the U.S. Department of Homeland Security (DHS).

The Department's research and development (R&D) activities support a broad range of DHS missions, including domain threat awareness, delivering mitigation strategies, and creating novel technology and approaches for the Components, first responders and other partners across the homeland security enterprise. Our customers put their lives on the line every day to keep our nation safe, and having the correct tools, techniques, and/or technologies can be vital to the operators' safety and success.

We must enable efficient, effective, and secure operations across all homeland security missions by applying timely scientific, engineering, and innovative solutions through research, design, test and evaluation, and acquisition support. This is how we deliver results. Technology innovation cycles are rapidly changing and the nature of the threats we see is dynamic. This combination presents a significant challenge to traditional R&D approaches.

Therefore, it is my mandate to ensure an efficient, effective, and nimble organization is in place to address R&D needs of Homeland Security front line operators, particularly the DHS operational Components and first responders, today and into the future. Either through the identification of existing technologies or the timely development of new technology, S&T can provide them with the tools they need to safely and effectively protect the Homeland and the American people. In order to accomplish this, we have revitalized our structures, processes and procedures to ensure that S&T provides impactful solutions to the ever-changing threats faced by our nation. We will solidify and strengthen S&T's core capabilities and provide a deliberative approach to program execution that ensures timely delivery and solid return on investment for our nation's taxpayers.

Over the past few months, we have set the foundation for S&T to be more agile and responsive, ready to move quickly in response to changes in the threat environment, and to make use of existing technologies, when available, that can be adapted and leveraged to expedite the development of vital capabilities. S&T has significantly enhanced its ability to transfer

capabilities to where they are most needed by working closely with operators, component partners, and industry to deliver effective solutions. The revitalization strengthens our relationships to DHS components, first responders, and other customers, and results in a more integrated approach to innovation, requirements gathering, and problem solving.

In the FY 2020 request, S&T reorganizes the Apex thrust area to, Innovative Research and Foundational Tools, which realigns current R&D projects and funding, enabling the efficient management and execution of knowledge products and capabilities to better support DHS Components and front line operators. This reorganization will focus on identifying optimal approaches and solutions that address the operators' needs through our Technology Centers (formerly Apex Engines), Technology Scouting, and initiatives that foster S&T's partnerships with industry and universities. R&D investments under this thrust area will improve requirements generation by conducting more thorough operational analysis and mission prioritization. These tools support S&T's operational blueprint model by enabling a matrixed approach to meeting customer requirements, either through identifying existing technology and innovation or by initiating new R&D efforts.

S&T is dedicated to developing or adopting innovative tools for DHS Components, and the FY 2020 budget request supports that effort. For example, the S&T Opioid Detection project will pilot advanced technologies, including narcotics anomaly detection algorithms and chemical sensing technologies, in CBP international mail facilities in FY 2020. Additionally, the Next Generation Explosives Trace Detection (Next Gen ETD) program will support TSA's 2017 Strategic Five-Year Technology Investment Plan for Aviation Security, which calls for the deployment of Next Gen ETDs in 2020 and the development of technologies and concepts of operation that enhance passenger experiences during screening.

The *2018 DHS Cybersecurity Strategy* emphasizes the importance of robust cross-Departmental cybersecurity R&D. I believe that having a strong cybersecurity R&D program is critical for DHS. The FY 2020 President's Budget Request proposes that most of DHS's cyber research and development resources are included in Cybersecurity and Infrastructure Security Agency's (CISA) request. Over the last eight months, CISA and S&T have collaborated on a plan for execution of the FY 2019 funding, in addition to the future-year portfolio planning for FY 2020 and beyond. CISA and S&T have jointly decided on cybersecurity R&D focus areas and requirements to foster partnerships and coordinate efforts between government, industry, academia, national laboratories and international entities to improve the global cybersecurity posture. CISA and S&T are working together to collectively leverage our knowledge, capabilities and technology to protect our Nation's infrastructure from being undermined by our adversaries. To accomplish this, CISA and S&T leadership have identified, prioritized and validated research and development priorities for the S&T work program – each of which can be mapped to a Departmental cybersecurity priority. To do so, CISA has included S&T program managers in discussion of CISA technology road maps and technical areas in emerging risk; and S&T has included CISA in its domestic and international work programs. CISA has identified cybersecurity R&D areas where there is a need for cyber analytics as well as “big data” and “data lake” applications for cyber operations. Additionally CISA has requested that S&T focus a significant percentage of its current Cyber Security R&D portfolio on mobile devices, mobile

application security, and emergency communications, to include emerging 5G LTE security requirements.

The FY 2020 request continues support for S&T's Silicon Valley Innovation Program (SVIP), which leverages innovative commercial capabilities from across the country through non-traditional government contractors to rapidly deliver technology to fulfill DHS component defined requirements. This program fosters rapid development and delivers tested technology into the field in a much shorter timeframe than is possible under traditional vehicles. S&T's SVIP collaborates with DHS operational components to provide solutions that enhance overall situational awareness, detection, tracking, interdiction, and apprehension. To date, over 400 small businesses have applied to participate in SVIP solicitations. S&T has worked with 35 small start-up companies and leveraged over \$400 million in private sector investment that aligns ongoing private sector activity with DHS operational component requirements.

The budget will allow S&T to continue our commitment to First Responder and Disaster Resilience R&D with an additional \$10.9M to fund programs requested by FEMA that will increase resiliency, preparedness, and risk mitigation in support of the FEMA Strategic Plan. Specifically, this proposed funding increase will establish a program to support a public safety and broadband implementation through research, development, testing and evaluation of technologies that support end user implementation.

The FY 2020 President's Budget Request includes \$7.1M to restore funding for Chemical Security Analysis Center (CSAC) operations. CSAC identifies and assesses chemical threats and vulnerabilities in the United States and develops the best responses to potential chemical hazards. CSAC will continue directly supporting ongoing work with customers, including work on chemical multifunction detectors, analysis and response to chemical incidents, and development of mitigation strategies to protect the public. CSAC has been instrumental in supporting the nation with research and development for the rapid detection of synthetic opioids.

The FY 2020 President's Budget request maintains S&T's Test and Evaluation (T&E) program at \$7.7 million. T&E helps DHS acquisition programs to be completed at a lower cost and on schedule. While many factors determine the success of an acquisition, conducting T&E allows DHS program managers to identify issues earlier and address concerns faster based on a scientific and independent evaluation. S&T's T&E efforts support every major program on the Department's Major Acquisition Oversight List (MAOL) by providing valuable independent and scientific based input at each Acquisition Review Board before a program advances to initial or full production or deployment decisions.

The FY 2020 budget request allows for the continuation of the University-based Centers of Excellence (COE) that are focused on homeland security mission needs. COEs that will receive funding in Fiscal Year 2020 will conduct research and development that aligns with the Administration's priorities to strengthen border security, cyber security and infrastructure protection, and prioritize trans-national criminal investigations. S&T conducts rigorous evaluations of each Center's performance using established criteria to help inform project funding decisions that meet operator needs, and are focused on transferring or transitioning research and technology outputs into field use.

S&T's mission is to deliver effective and innovative insight, methods, and solutions for the critical needs of DHS Components and our operational partners in homeland security. Through our revitalization efforts and within the available resources provided by the FY 2020 President's Budget, S&T plans to continue and build upon that mission.

Chairman Richmond, Ranking Member Katko, and members of the Committee, thank you again for the opportunity to appear before you today and for your continued support of S&T.

I look forward to answering your questions.