

# S&T INNOVATION STRATEGY 2017



Homeland  
Security

Science and Technology

# OVERVIEW

## **Purpose and Scope**

This Science and Technology Directorate (S&T) Innovation Strategy (“Strategy”) guides and integrates S&T’s efforts to identify and leverage technology innovation to address homeland security challenges. The scope of the Strategy encompasses the entire innovation ecosystem, to include Federal departments and agencies, academia, national laboratories, Federally Funded Research and Development Centers (FFRDCs), State and local governments, international partners, and industry. In implementing this Strategy, S&T is focused on expanding engagement with entrepreneurs, startups, small businesses, and others characterized as non-traditional partners.

Executing this Strategy will help S&T achieve its goals to provide solutions that enhance homeland security and/or support safer, more efficient, and cost-effective operations within the Homeland Security Enterprise (HSE).

## **Strategic Context**

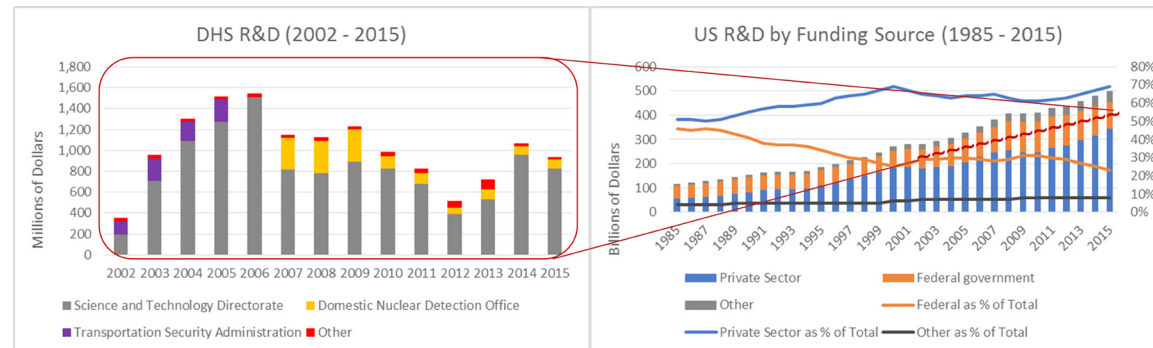
To support DHS missions, S&T must be able to identify, develop, or adapt the best technologies to meet the most pressing needs of DHS Components and first responders. S&T strives to meet this responsibility through innovation and the discovery and development of new, creative ideas that result in effective, game-changing technologies to address homeland security challenges.

The Homeland Security Act of 2002 gives S&T responsibility for encouraging technological innovation in facilitating the mission of the Department. This Strategy

outlines S&T’s approach to fulfilling that responsibility by connecting with innovative partners and performers (“innovators”) to discover novel concepts and cutting-edge technologies and to support the development and transition of effective solutions to the HSE. This approach is consistent with priority initiatives identified in S&T’s Strategic Plan to engage the homeland security industrial base and increase collaboration with innovative companies.

It is important to note that a majority of end users in the HSE acquire commercial off-the-shelf (COTS) solutions to address their security needs. Therefore, it is critical for S&T to identify, influence, and leverage innovative COTS solutions and emerging technologies.

Finally, technology innovation requires resources. Analysis of R&D funding sources informs S&T’s implementation of this Strategy. As indicated in Figure 1, the major funding for R&D in the U.S. is sourced from the Federal Government and private industry, with industry investment growth significantly outpacing that of the Federal Government. By implementing this Strategy, S&T aims to leverage those investments by engaging innovative partners in industry and government to develop technologies that are relevant to the HSE.



**Figure 1:** DHS S&T Budget as a Portion of the Total US R&D Expenditure; Sources: AAAS (left) and NSF (right)

## Organizational Context

This document represents an S&T-wide strategy for leveraging technology innovation in support of DHS missions. While S&T’s Homeland Security Advanced Research Projects Agency (HSARPA) and First Responders Group (FRG) play critical roles in identifying and leveraging innovation occurring throughout the broader R&D community, the Capability Development Support Group (CDS) and the Research and Development Partnerships Group (RDP) play key support roles in executing the Strategy. RDP facilitates S&T partnerships with the private sector, academia, national laboratories, other departments and agencies, FFRDCs, and international entities that drive innovation. These partnerships provide the other S&T Groups with direct pathways to inform investments; sponsor cutting-edge technology and capability development; and enable the transition of impactful solutions to end users. Within RDP, the Office of Public-Private Partnerships (P3) has the lead for developing and coordinating S&T’s implementation of this Strategy.

## Definitions

For purposes of this Strategy, the following definitions apply:

**Innovation** describes the multi-stage process by which creative ideas are transformed into new or improved technology products, systems, or services that meet the needs of the homeland security enterprise.

**Innovation ecosystem** describes the large and diverse range of public and private entities that contribute to creating innovation in the economy. The following stakeholder groups comprise the innovation ecosystem for S&T: industry, academia, national laboratories, other Federal departments and agencies, FFRDCs, State and local governments, and international partners.

# STRATEGY

**Vision:** S&T functions as an integral component of the innovation ecosystem, catalyzing innovation to benefit the homeland security enterprise.

## Goals and Objectives



### Goal 1: Discover

Identify and engage innovators who have technologies and techniques that can contribute to homeland security solutions.



### Goal 2: Partner

Build and sustain partnerships with innovators to promote and support the development of innovative techniques and technologies for the HSE.



### Goal 3: Transition

Facilitate the transition of innovative scientific techniques and technologies to homeland security end users.



## Goal 1: Discover

Identify and engage innovators who have technologies and techniques that can contribute to homeland security solutions.

The focus of the first goal is discovery. Given the magnitude of investment in technology development by other government agencies and industry, efforts to achieve this goal will lay the groundwork to capitalize on these investments by identifying relevant innovators that have techniques and technologies that can positively impact the homeland security mission. If industry better understands DHS needs and opportunities in the homeland security market, they can make stronger business cases to direct resources into technology developments that address HSE requirements. In addition, S&T supports the demonstration of innovative technologies and capabilities with end users in operational settings. The results of these tests help inform our HSE customers about a new capability and how it can impact operations.

**Objective 1.1:** *Clearly define and communicate HSE needs (e.g., S&T priorities, IPT gaps, intellectual property needs) to a range of innovators and provide information on available funding opportunities anticipated for each need.*

**Objective 1.2:** *Maintain a capability to scout for relevant existing and emerging technologies that can benefit the HSE from a wide variety of sources (e.g., academia, industry, other government agencies, investment community), whether in the U.S. or in foreign countries.*

**Objective 1.3:** *Maintain awareness of emerging technology trends and the HSE market.*

**Objective 1.4:** *Support opportunities to evaluate and demonstrate emerging and novel capabilities for homeland security.*



## Goal 2: Partner

Build and sustain partnerships with innovators to promote and support the development of innovative techniques and technologies for the HSE.

The focus of the second goal is partnering with innovators. Industry and Federal agencies are spending hundreds of billions of dollars on technology development. Part of S&T's Strategy is to leverage that investment by engaging innovative partners to create HSE-relevant technologies. By partnering with organizations to develop impactful solutions, S&T is strategically helping shape the products that emerge as COTS products.

**Objective 2.1:** *Understand the range of innovators and build capabilities that influence those with innovative ideas to engage with S&T.*

**Objective 2.2:** *Provide mechanisms to partner with innovators to develop and incentivize solutions to homeland security challenges.*



## Goal 3: Transition

Facilitate the transition of innovative scientific techniques and technologies to homeland security end users.

The purpose of this goal is to facilitate the transition of innovative solutions to homeland security end users. The S&T Lexicon defines transition as “the assignment of ownership and operation/maintenance of a product or system.” S&T is improving and institutionalizing commercialization and transition support activities, and implementing best practices to increase the success of technologies that are made available to HSE operators.

**Objective 3.1:** *Provide opportunities for the private sector to leverage S&T's intellectual property, unique facilities, and talent through licenses and other agreements.*

**Objective 3.2:** *Provide partnership information, resources, and standards development support to facilitate the commercialization of HSE solutions.*

# IMPLEMENTATION APPROACH

S&T developed an Implementation Plan that details how the S&T Groups will implement this Strategy using a phased three-year approach. The Plan identifies key activities and milestones that link back to the strategic goals and objectives in this document.

## Measuring Progress

To accomplish the objectives of this Strategy, S&T’s implementation activities will focus on achieving four primary outcomes that align to the strategic goals listed above. During the first year of implementing the Strategy, S&T will establish a baseline for measurement and will track progress against FY17 milestones identified in the Innovation Strategy Implementation Plan.

The outcomes and corresponding success indicators are presented in the table below.

Success Outcomes	Success Indicators
S&T grows and strengthens its partner base <b>(Goal 1)</b>	S&T broadens its reach to innovators across the innovation ecosystem
	S&T effectively communicates homeland security needs to technology innovators
S&T is aware of the development of technologies at the forefront of innovation <b>(Goals 1 &amp; 2)</b>	S&T reliably and continuously identifies information on technologies and companies at the forefront of innovation that have applications to homeland security
	S&T routinely incorporates information on innovative technologies and companies into decision-making
	S&T participates in the development of innovative technologies for homeland security applications
S&T helps to refine the HSE market to mitigate risk and increase the likelihood of commercial success <b>(Goal 3)</b>	Industry applies its resources toward meeting the demands of the HSE market
S&T-supported commercial products are available to, bought by, and in use by homeland security end users <b>(Goal 3)</b>	S&T facilitates the transition of more technologies into the commercial marketplace
	Homeland security end users are more satisfied with products available on the commercial market



Learn more about the S&T Innovation Strategy:  
**DHS Science-and-Technology**



Contact S&T:  
**[SandT.Innovation@hq.dhs.gov](mailto:SandT.Innovation@hq.dhs.gov)**



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