



Homeland
Security

Science and Technology

S&T IMPACT: BORDERS & PORTS OF ENTRY

The **Department of Homeland Security (DHS) Science and Technology Directorate (S&T)** is the primary research and development arm for DHS's operational components and the nation's first responders. S&T helps improve the safety and effectiveness of homeland security professionals by developing innovative solutions with public and private sector partners. **Our approach involves:**



1. IDENTIFYING NEEDS

by discussing operational challenges with DHS components and first responders



2. DEVELOPING PROTOTYPES

or leveraging existing technologies to quickly find solutions



3. TESTING AND EVALUATING

potential solutions to ensure they meet end user needs

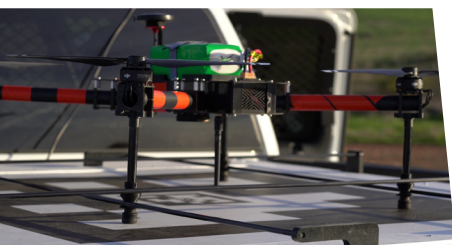
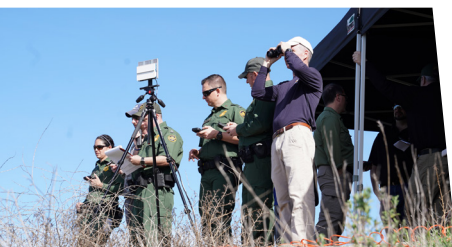


4. DEPLOYING SOLUTIONS

to the field within a short timeframe

S&T supports border and port of entry security with technology and knowledge products that improve the nation's ability to detect, interdict and prosecute illegal activity. These solutions assist DHS components and law enforcement agencies across the United States as they facilitate legitimate trade and travel across air, land and sea. Read more below about how S&T strengthens the nation's security!

PREVENTION



S&T makes sure technology meets operational requirements

- **Camp Shelby** provides a dedicated open environment to test unmanned aerial systems before they're deployed to the field.
- **Predictive models** assess and quantify a radar's ability to detect, identify, and classify aircraft, which ultimately helps to better secure the border.
- The **Technical Assessment of Counter Unmanned Aerial Systems Technologies in Cities (TACTIC)** helps public safety and industry officials identify potential methods for countering nefarious uses of small unmanned aerial systems.
- The **Wall System Design Support Tool Independent Verification and Validation (IV&V)** helped strengthen the U.S. Border Patrol's decision analysis model used to identify the areas of the border where a wall would be most beneficial.
- The **Border Research in Instrumented Construction Project** identifies cameras, sensors and other technology that can be applied on or near a smart wall via ground, surface/air, subsurface and water to enhance border security and agent safety.

S&T streamlines information sharing

- The **Apex Border Situational Awareness** program helps U.S. Customs and Border Protection access more data sources, develop decision support tools and share information with partner law enforcement agencies to improve situational awareness.
- The **Integrated Maritime Domain Enterprise** is a platform that bridges disparate data systems to make it easier for DHS components to share information and collaborate.

DETECTION



S&T supports real-time decision making

- The **Adaptive Sensor Analytics Project (ASAP)** provides automated data analytics to process satellite imagery, identify patterns of nefarious activity and alert DHS officials.
- **Ground Based Technologies Program** improves the ability to detect illegal activity at the border through stronger situational awareness, automated detection and alerts, target classification and tools to promote agent safety.



S&T helps officials access hard-to-reach areas on land and at sea

- **Air Based Technologies Program** identifies, tests and evaluates unmanned and manned aircraft platforms and sensors for law enforcement, search and rescue, and disaster response in both land and maritime environments.
- The **Expert Tracker** training program helps U.S. Border Patrol agents improve their ability to track movement in rough terrain along the nation's borders.



S&T helps make legitimate trade more efficient

- **Port-of-Entry Based Technology Program** improves illicit cargo detection and legitimate cargo throughput by upgrading legacy scanning systems and linking them to new analysis and information sharing tools that make the most of personnel resources.
- The **Port-of-Entry People Screening Program** identifies, evaluates and implements combinations of process and technology improvements that facilitate the movement of people through the nation's air, land and sea ports of entry.

INVESTIGATION



S&T improves evidence-gathering efforts

- **Autopsy** is an open-source digital forensics platform that helps law enforcement determine how electronic devices were used in a crime and recover evidence.
- **Voice Forensics** helps identify individuals who make hoax rescue calls to the U.S. Coast Guard, which makes it easier to find and prosecute suspects.



S&T strengthens the fight against trafficking

- **Child Exploitation Image Analytics (CHEXIA)** reduces the amount of time it takes to identify and rescue children from exploitation, as well as identify perpetrators, through automated face recognition algorithms and forensic tools.
- The **Tunnel Detection and Surveillance Program** helps border officials detect and locate clandestine tunnels, as well as gather forensic data to support investigation and prosecution of drug smuggling activities.
- The **Port of Entry Forensics and Investigations program** helps combat transnational crime and investigate child exploitation and human trafficking through open source data and forensic analysis of material collected from suspicious packages and cargo.

S&T relies on partnerships with industry, academia and technology developers to continue providing **next-generation solutions** that improve responder safety and effectiveness. If you're interested in helping strengthen the nation's homeland security, visit our Business Opportunities page to discover the many ways to work with S&T. Then, check out the rest of our website and follow S&T on Facebook, Twitter, YouTube, and LinkedIn for the latest updates on our work.



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