DHS Science & Technology Directorate

Maritime Security Science &Technology, Trends and Challenges

AAPA Port Security Seminar and Exposition
Miami, FL

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Borders & Maritime Security Division
Homeland Security Advanced Research Project Agency

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Science and Technology

Science & Technology Directorate
Mission

Strengthen America's security and resiliency by providing knowledge products and innovative technology solutions for the Homeland Security Enterprise

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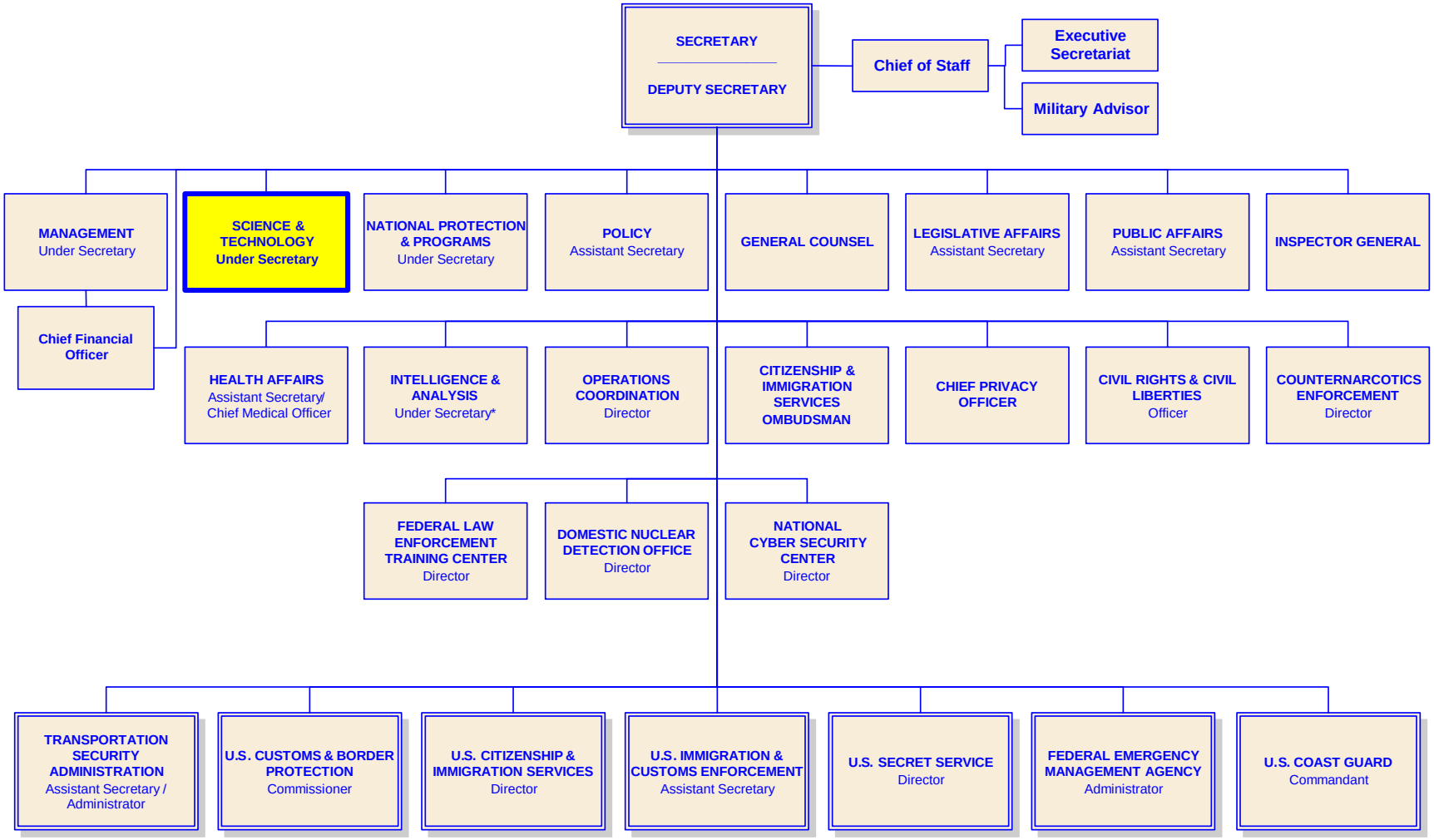
U.S. Department of Homeland Security



* Under Secretary for Intelligence & Analysis title created by Public Law 110-53, Aug. 3rd, 2007

Approved 3/20/2008

DHS S&T Borders and Maritime Security Division

Mission Space & Investment Scope

- Provide technical knowledge and solutions that address DHS operational capability gaps in border, maritime, and cargo security
- Two operational settings:
  - Areas between Ports of Entry (POEs)
  - At the POEs
- All domains:
  - Air
  - Ground
  - Underground
  - Water
  - Underwater

Federal, State & Local Common Goals

- Keeping U.S. ports secure and functioning
- Preventing disruptions due to terrorist activity
- Balancing throughput and security
- Preventing illegal activity

Maritime Security

Challenges:

- Persistent wide area surveillance for detecting, tracking and interdicting vessels that might carry illicit goods and people (potential conduit for WMD and other terrorist-related activities)
- Electronic monitoring of security exclusion zones surrounding critical infrastructure and or resources in U.S. ports and harbors and in U.S. coastal zones and beyond

Maritime Security

DHS S&T Goals:

- Create environment that enables data and information sharing
- Network existing open source databases and information services that provide DHS maritime components and first responders (national, regional, local) maritime situational awareness
- Develop/field new data and information sources (as necessary)
- Real time situational awareness via a common operating picture for DoD/DHS and other operational commands

Pictures of interdicted vessels

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Maritime Security

DHS S&T Current Efforts:

- Investing in Enhancing Maritime Domain Awareness (especially addressing small vessels, semi- and fully submersibles)
  - Creates new data fusion engine (Open Mongoose) for unclassified, law-enforcement sensitive data
  - Facilitating info sharing between DoD/DHS Intel fusion centers and other govt fusion centers
  - Networks USCG Vessel Traffic Services with national global vessel tracking systems
  - Creates new data sources on small vessels and submersibles
  - Tampa Bay and LA/LB Port Security Test Beds
- Engaging Nationally
  - DHS Small Vessel Security Strategy and Implementation Plan
  - Strong partnership with DOD, USCG and CBP (Office of Air & Marine)
  - Delivered new technologies to Joint Interagency Task Force - South
- Engaging Internationally
  - Canada (Beyond the Border Initiative)
  - NATO

Port Security Testbed
(Los Angeles/Long Beach)

Command Centers
- SCC LA (USCG)
- OFO (CBP)
- Port Authorities (LA & LB)
- AMOC (CBP)
- LA Emergency Ops Center (EOC)
- Joint Regional Intelligence Center (JRIC)
- CHP / State Police
- Local Police & Sheriff Dept
- Local Fire Dept including Lifeguards

Integrated Existing Sensors/Systems
- LA/LB Port Cameras
- LA/LB Port Radars
- VTS
- SCORE (Navy radars)
- AIS
- AMOC (Air Picture)
- Other State & Local (traffic, harbor pilots)
- Blue Force Tracking
- Electro-Optics / Infrared Camera
- Automated Scene Understanding

Potential Additional Systems to Integrate
- Open Mongoose (data fusion engine)
- Port and Coastal Radar
- Offshore Deepwater Buoy Sensor Network
- Offshore Wide Area Surveillance
- Underwater Swimmer / Diver Detection
- Underwater Mapping of Port & Harbor
- Next Generation Situational Awareness Visual Tools
- Next Generation Mission Planning Toolset

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Cargo Security

DHS Science & Technology Current Efforts:

- Investing mainly in Supply Chain Security
  - Container Security Device (CSD)
  - Marine Asset Tag Tracking System (MATTS)
  - Electronic Chain-of-Custody Device
  - Hybrid Composite Container
  - Secure Transit Corridor Pilot
  - Maritime Cargo Security Pilot
- Engaging Nationally
  - Leading White House/National Security Staff Global Supply Chain Technology Working Group
  - Collaborating with DOS, DOD and DNI
- Engaging Internationally
  - Canada • European Union • Singapore
  - WCO • WSC
  - Shippers • Insurance Companies

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Cargo Security

Challenges:

- Providing cargo security w/o impeding commerce
- Providing cargo security w/o undue costs
- Industry Acceptance of improved security measures
- Determining the return-on-investment of additional security measures

Where AAPA can help:

- Data and information to build business case
- Insight/advice to:
  - facilitate user acceptance
  - find Commercialization path

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Container Security Device (CSD)
Marine Asset Tag & Tracking System (MATTS)

- Pursuing a **Performance Specification** incorporating Open Standards and Open Architecture

- Key Features
  - Detection of door opening and door removal
  - Sensor monitoring and notification through event logging and alarming
  - Performance to maximize detection of door breaches while minimizing false alarms
  - “Point of stuffing” to final destination monitoring
  - Reliable and secure communications
  - Seamless security data transition between industry and DHS systems
  - Power Management

Secure Transit Corridors
Technology Demonstration Project

Description:

- Demonstrate a rail and truck security device that will monitor unauthorized door openings or anomalies and provide encrypted in-transit tracking for C-TPAT* Tier III members supply chains routes originating from Mexico and Canada** and ending in the U.S.
- Joint effort with CBP

Objective:

- Increase conveyance security without impacting and potentially improving the flow of commerce

Deliverables:

- A leave-behind capability to operate four supply chain routes (three truck and one rail).
- Phased cost estimates for full-scale data server implementation and acquisition planning for 100 truck, and 34 rail Points of Entry (POEs) – will also provide estimates for 228 Maritime and Air POEs.
- Technical performance standards and test plans for certifying future ECoC-like devices from open market.

*Customs – Trade Partnership Against Terrorism , a voluntary importer based program to secure the supply chain of goods entering the United States.

**Coordinating with the Canada Border Services Agency (CBSA) at the Ambassador Bridge Detroit, MI Port of Entry.

Secure Transit Corridors

Creating a More Secure Supply Chain for Truck and Rail Conveyances…

…Using an Electronic Chain of Custody Security Device, a Multi-layered Approach to Conveyance Security

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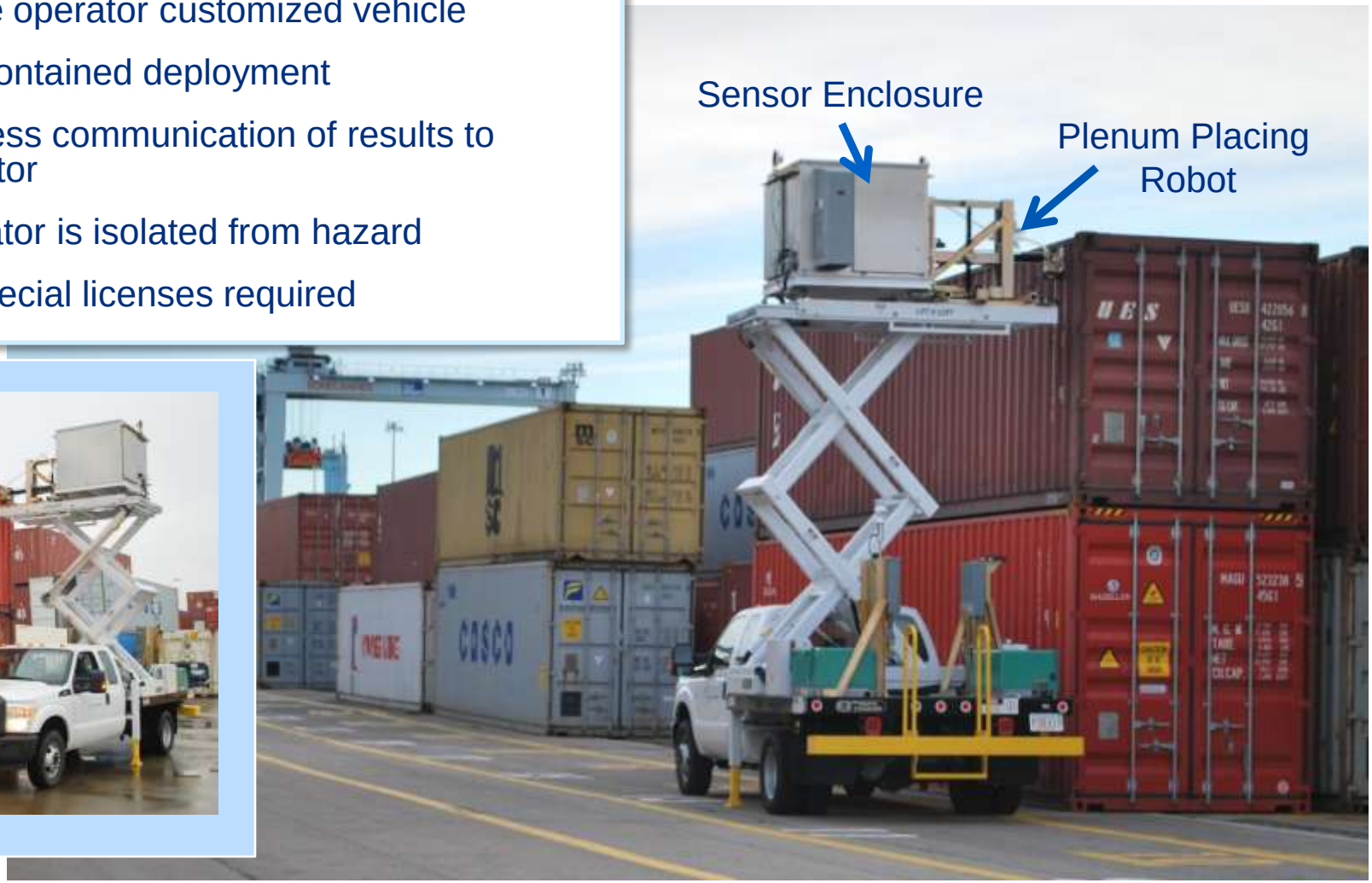
Other S&T Investments
SAFECON: A Cargo Sniffer & Analyzer

Operational Considerations

- Single operator customized vehicle
- Self contained deployment
- Wireless communication of results to operator
- Operator is isolated from hazard
- No special licenses required



Other S&T Investments
Container Security Test Bed

- Located at Transportation Security Lab
- Crane and containers are fully instrumented
- Enables baseline testing and testing of sub-systems and prototypes in a relevant environment
- Can be used to demonstrate/evaluate a wide variety of approaches to improve container security
- Open access to industry and international partners

Doing Business with DHS S&T

- Contact **DHS S&T** - Phone: 202-254-6006; email: **SandT@hq.dhs.gov**
- **www.fedbizopps.gov** - Posts DHS S&T and all U.S. government business opportunities
- **https://baa2.st.dhs.gov** - Solicitations Portal for **Broad Agency Announcements** that address needs of DHS S&T technical divisions
- **https://sbir2.st.dhs.gov** - **SBIR Program** for Small Businesses posts two solicitations annually seeking technical capabilities that cut across DHS S&T divisions
- **https://www.safetyact.gov** - **SAFETY Act** helps facilitate development and use of qualified anti-terrorism technologies by providing limited liability protection to manufacturers
- **www.firstresponder.gov** – A collaborative environment for federal, state, local, and tribal first responders to access and leverage federal web services, information on resources, products, standards, testing and evaluation and best practices
- **www.dhs.gov** *search "SECURE"* - **SECURE** program leverages private sector resources and expertise to develop solutions aligned with DHS operational requirements

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