DHS Science &Technology Directorate

Borders and Maritime Security Division:
State of Relevant Technology for Container Security

Presentation to:
Conference on Maritime Container Security
European Commission

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Homeland Security

From Science and Technology…
Security and Trust

Borders and Maritime Security Division

Our Mission

Develop and transition technical capabilities that enhance U.S. border security without impeding the flow of commerce or travel

- Area of responsibility encompasses all air, land and maritime borders, including U.S. ports-of-entry and inland waterways

Our Customers

- Customs and Border Protection (CBP)
- United States Coast Guard (USCG)
- Immigration and Customs Enforcement (ICE)
- Transportation Security Administration (TSA)
- Citizenship and Immigration Services (CIS)

Our Vision

We are the shepherd of Borders & Maritime Security science & technology

- Understand the technical dimension of homeland security challenges
- Provide customers with new and/or better options to accomplish their mission
- Promote and develop future workforce with expertise in Borders and Maritime Security S&T

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Borders and Maritime Security Division

Our Challenges

- Long borders with difficult and varied operational environments
- Diverse technology users including industry and international entities
  - *Diverse mindsets, motives, regulations and modes of operation*
- Deployed technologies must be affordable, robust, reliable, low-maintenance and, in the case of cargo, ISO-compliant

Our Strategy

- Develop and deliver interim, engineering solutions ASAP while systematically conducting R&D to meet long-term, complete solutions
- Build and use customer relationships to clarify/refine requirements and pursue technology transitions

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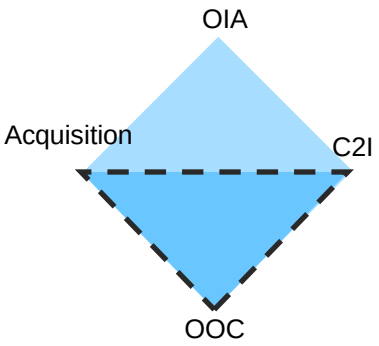
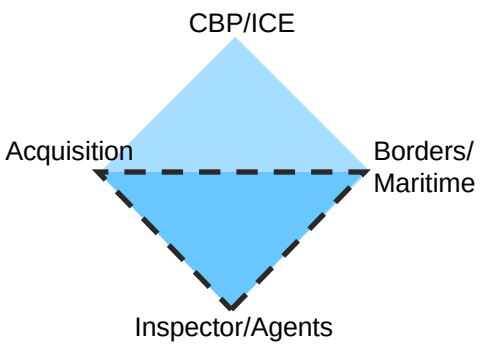
DHS S&T Capstone IPTs

Gathering Mechanism for Customer Requirements

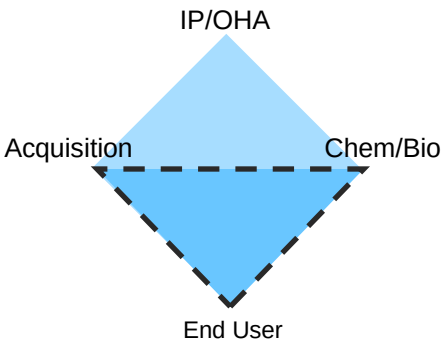
Information Sharing/Mgmt



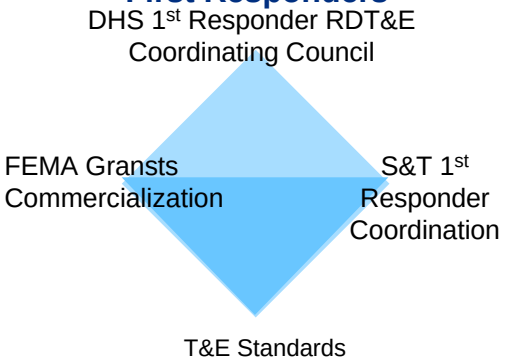
Border Security



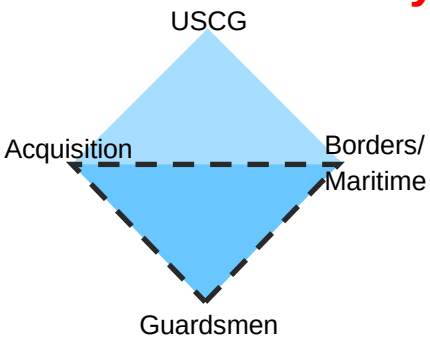
Chem/Bio



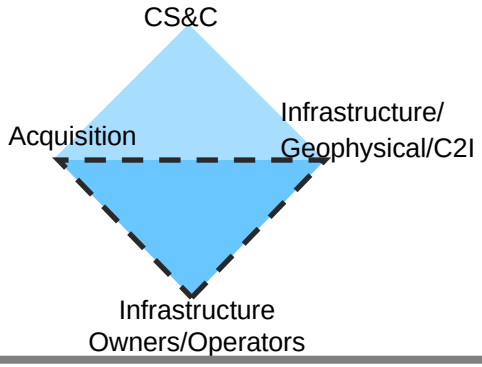
First Responders



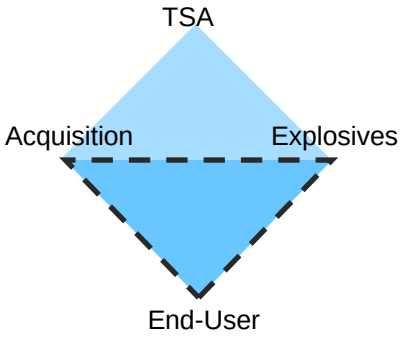
Maritime Security



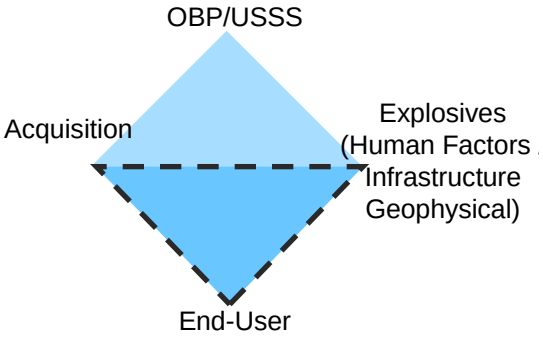
Cyber Security



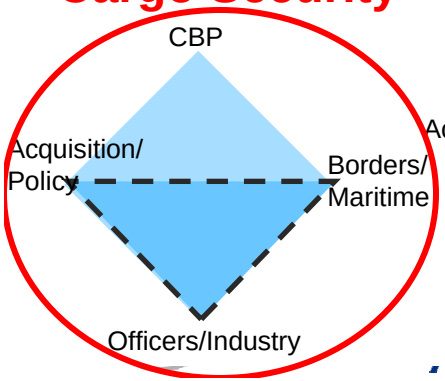
Transportation Security



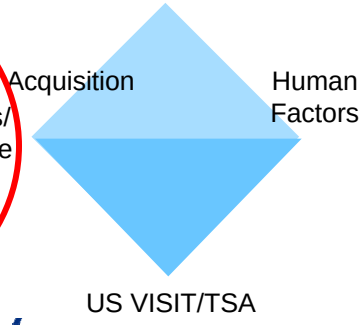
Counter IED



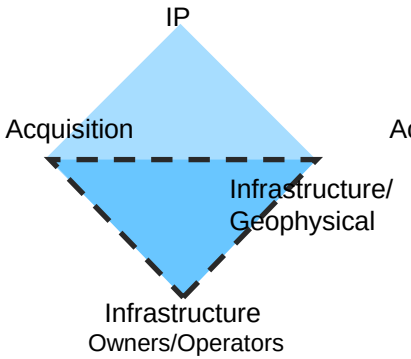
Cargo Security



People Screening

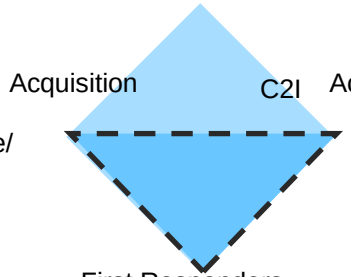


Infrastructure Protection

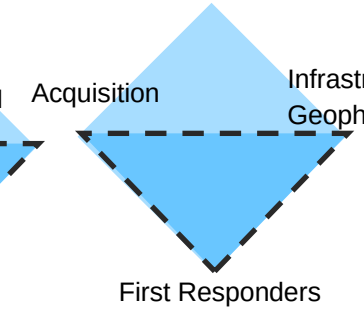


Incident Management

Interoperability



Prep & Response



Cargo Security Requirements

DHS Lead: Customs and Border Protection

- Capability to screen 100 percent of air cargo without disrupting flow of commerce
- Increased information fusion, anomaly detection, Automatic Target Recognition
- Improved scanning and examination by non-intrusive inspection
- Track domestic high-threat cargo
- Positively identify cargo and detect intrusion or unauthorized access
- Reliable container seal security/detect intrusion devices

DHS S&T Lead Performer: Borders and Maritime Security Division

Cargo Security – Overview

- DHS Approach for maritime cargo security
  - Advance information received on 100% of all inbound containers
  - Use analysis tools to identify high-risk cargo
  - Inspect 100% high-risk cargo
  - Secure supply chain
- S&T Efforts
  - Chem/Bio and Explosives Divisions are developing sensors to detect specific threats
  - Borders & Maritime Security Division (BMD) is developing:
    - *Advanced data fusion and algorithms for screening*
    - *Advanced scanning*
    - *Intrusion detection sensors and tracking devices for supply chain integrity*
  - Innovation Portfolio is pursuing high-risk technology for chem/bio/explosives/humans in port (SAFECON) and at sea (TRUST)

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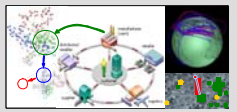
BMD's Ongoing Efforts to Secure Cargo

SCREENING

ASAT/Project SCREEN — Advanced computer algorithms and software that automatically collect data from a broad spectrum of sources, combine, and analyze shipping information to find suspicious relationships and patterns



SCANNING

CanScan — Next-generation non-intrusive inspection system to detect contraband, drugs, currency, firearms, explosives and stowaways incorporating material identification and threat recognition

Automated Target Recognition (ATR) — Automated imagery detection capability for anomalous content applicable to maritime, land and air cargo venues

SUPPLY CHAIN SECURITY

Container Security Device (CSD) — Monitors and reports the opening or removal of container doors (interim capability to ACSD)

Advanced Container Security Device (ACSD) — Monitors all six sides of a container and reports any intrusion or door opening

Marine & Air Hybrid Composite Container — Next generation ISO composite shipping container and Unit Load Device (ULD) with embedded security sensors to detect and report tampering or intrusion from the point-of-consolidation to the point-of-deconsolidation. Lighter but stronger than steel containers.

Marine Asset Tag Tracking System (MATTS) — Enables global tracking and communication through the use of radio frequency (RF), cellular and satellite technologies. MATTS is the communication link for CSD, ACSD, Marine Composite, and Air Composite Containers

Secure Carton — Shipping carton with embedded sensors to detect tampering and transmit alerts when interrogated by inspectors

Secure Wrap — Tamper-indicative wrapping material to secure and monitor palletized cargo after it leaves the point-of-manufacture to the point-of-delivery

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