

# U.S. Coast Guard Innovation Expo

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DHS Science & Technology Directorate  
Maritime Security Program

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*From Science and Technology... Security and Trust*

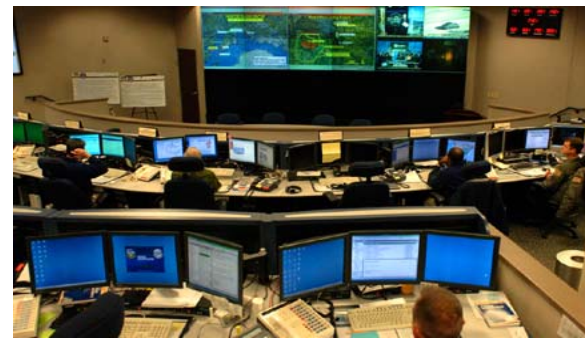
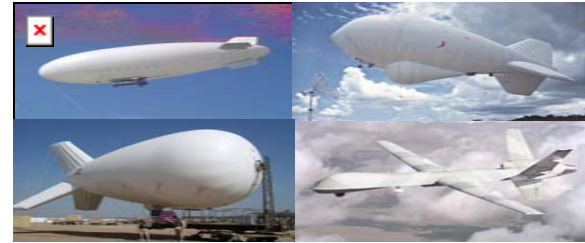


# Homeland Security



# Representative Technology Needs

- Wide-area surveillance from the coast to beyond the horizon; port and inland waterways region – detect, ID, and track
- Data fusion and automated tools for command center operations
- Vessel compliance through non-lethal compliance methods
- Enhanced capability to continuously track contraband on ships or containers
- Improved ballistic personal protective equipment for officer safety
- Improved WMD detection equipment for officer safety; improved screening capability for WMD for maritime security checkpoints



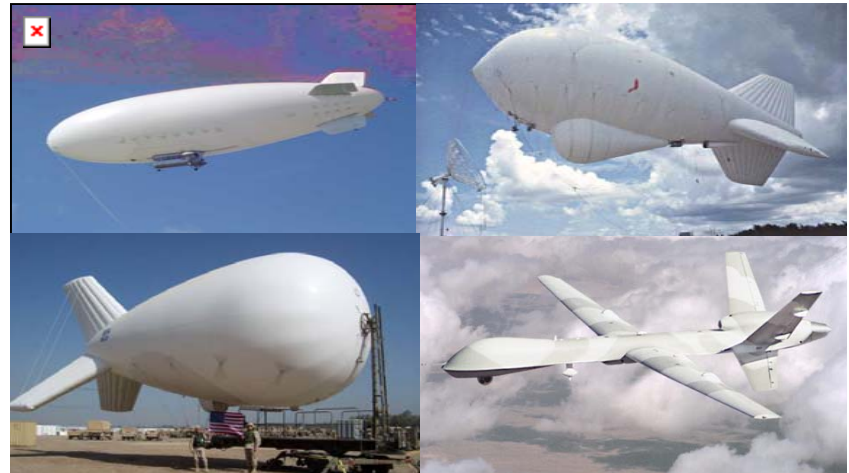
# Wide-Area Surveillance

## “Wide” area

- From the coast to beyond the horizon
- Port region
- Inland waterways

## Technology shortfall

- Three capability areas:
  - Detection
  - Identification
  - Tracking



## Operator issues/concerns

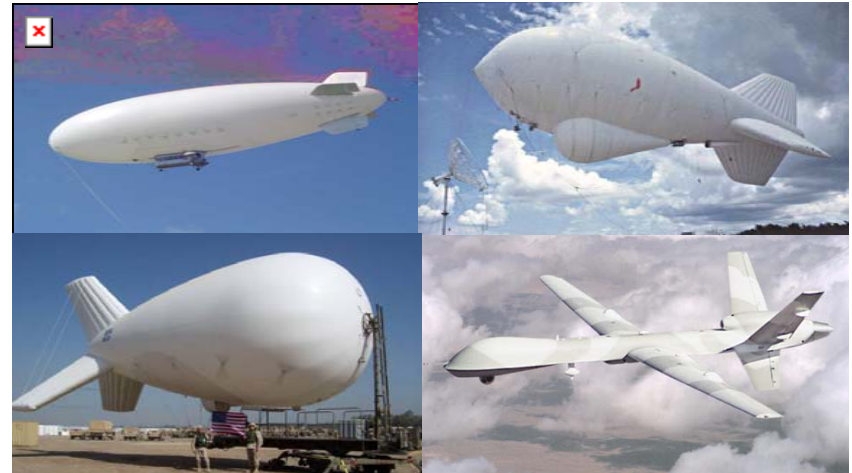
- Legacy surveillance tools designed for supporting pre-9/11 mission set (response-oriented)
- Need for *persistent* surveillance capability
- Classification of small, stealthy vessels
- Ability to access and fuse intelligence data into actionable information



# Wide-Area Surveillance (continued)

## Cross-functional values of the technology

- Primary customers – USCG, CBP (AMO)
- Planned partnership with other relevant agencies to prototype and evaluate long-term solutions to WAS sensor and platform requirements



## Future anticipated deployments

- Demonstrate a persistent WAS COTS/GOTS capability to explore CONOPS and data integration issues
- Deliverable systems will be driven by the results of the demonstration and in conjunction with customer input throughout the program development process



# Data Fusion and Automated Tools for Command Center Operations

## Example – Response to the terrorist attacks of 9/11

- Internal agency challenges
- Inter-agency coordination challenges

## Technology shortfall

- Situational awareness tools
- Decision support technologies
- Interoperability when not co-located
- Intelligence asset processing technologies
- *Success depends upon interoperability of multiple systems at differing levels of technological sophistication*



## Operator issues/concerns

*Note – S&T is seeking to support the mandate in the Safe Port Act of 2006, Section 108, to establish interagency operational centers for port security at all high-risk priority ports*

- Multiple sources of data → *timely, actionable* information
- Balancing agency-specific capability requirements with those of response partners

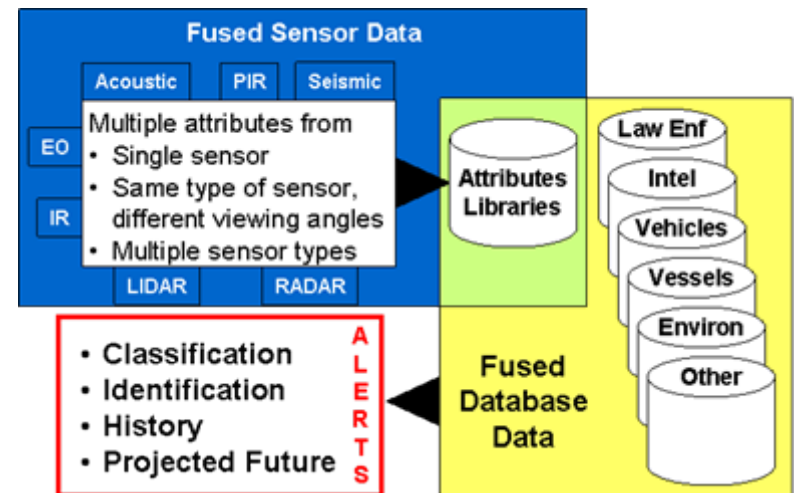


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# Data Fusion and Automated Tools for Command Center Operations (continued)

## Cross-functional values of the technology

- Primary customer – USCG
- “Port partners”: CBP, TSA, Port Authorities, local metropolitan police and fire departments
- Technical challenges inherent in this effort will impact all agencies with operational responsibilities in response to national emergencies, including terrorist events and natural disasters



## Future anticipated deployments

- Pilot program to assess, develop advanced situational awareness and collaboration tools
- Advanced fusion technologies



# Vessel Compliance

**Border enforcement personnel have limited tools to compel the compliance of suspect vehicles/vessels**

\* Border Security IPT crosswalk

## Technology shortfall

- Non-lethal
- Platform compatibility limitations
- Ability to stop multiple boat types
- Limiting collateral damage
- Leveraging technologies used to stop terrestrial vehicles

## Operator issues/concerns

- Compatibility with current CONOPS
- Training and maintenance requirements
- Maximum safety during follow-on interdiction by law enforcement personnel



# Vessel Compliance (continued)

## Cross-functional values of the technology

- Primary customers – USCG, CBP, and ICE
- Seeking technologies deployable from multiple platforms: vehicles, vessels, and aircraft
- Ideal solutions will be deployable against both terrestrial and maritime threats



## Future anticipated deployments

- Investigate EMP approaches for vehicles and vessels
- Investigate and test feasibility of alternative technologies



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# Border Officer Tools & Safety

**Provides technologies that will enable border security law enforcement agents to perform their tasks in a border security operation with a higher level of safety**

## Technology shortfall

- Personal protective equipment (PPE)
  - Effectiveness against increasingly lethal ballistics
  - Weight restrictions
- Detection equipment
  - Handheld
  - “Through-the wall”
  - Humans and contraband



## Operator issues/concerns

- Suitable for use across with full spectrum of operational scenarios (PPE)
- Compatibility with DoD, DoJ, and state-of-the art industry equipment (PPE)
- Ease of use, minimal maintenance requirements (Detection equipment)



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# Border Officer Tools & Safety (continued)

## Cross-functional values of the technology

- Primary customers – USCG, CBP, and ICE
- Seeking solutions that will meet the requirements of all three agencies
- Success will result in the cross-cutting desire to:
  - reduce officer fatalities
  - reduce illegal entry of people and contraband



## Future anticipated deployments

- Improved ballistic protection meeting the needs of multiple DHS enforcement agencies
- Handheld inspection devices suitable for hidden compartments on ships or in vehicles





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