DHS SCIENCE AND TECHNOLOGY

Apex Screening at Speed

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Dr. John Fortune

Program Manager

Science and Technology Directorate

Homeland Security

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Apex Screening at Speed

Enlisting traditional and new performers to promote innovation, solve tough problems, and improve security and the passenger experience over the next 5, 10, 20 years.

Requirements

- Detect threats at TSA's highest security standards
- Double passenger checkpoint throughput [1]
- Reduce number of personal items separated for scanning
  - No divestiture of outerwear / clothing
  - No removal of liquids, aerosols, gels, or electronics from carry-on bags
- Extend security architecture beyond the checkpoint

Objectives

- Efficient detection of more advanced aviation threats while outpacing the growing population of travelers
- Reduction of crowding at checkpoints, lowered soft target risk
- Effective deployment of screening resources
- Mature technology that is applicable to other missions
  - Stadium security, mass transit, etc.

Artist's concept of future passenger checkpoint

Security, Speed, and Passenger Convenience

[1]: TSA Full Operational Capacity, 2014

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Apex Screening at Speed Core Capabilities

Modularization

- Upgrade detection components as capabilities become available

Integration

- Share data across sensors, fused with passenger metadata

Open Architectures

- Independently develop and upgrade hardware and algorithms

Identity Management

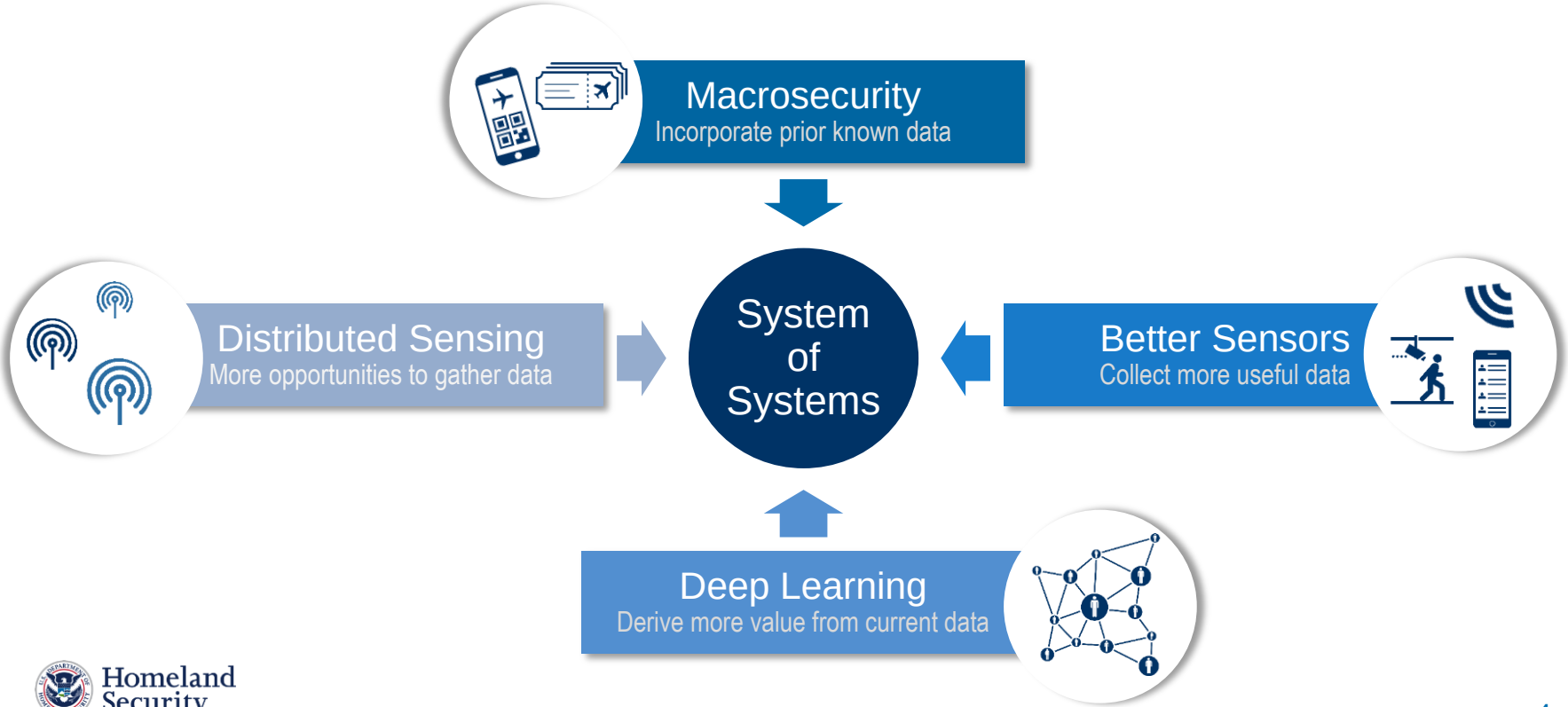
- Leverage identity while respecting privacy to inform algorithms and implement risk-based security within a single lane

Throughput

- Deploy high performance computing with high speed interconnects for faster decisions and fewer pat-downs and bag searches

Future State Concepts

A system of systems approach will allow efficient screening to better balance security and passenger throughput.



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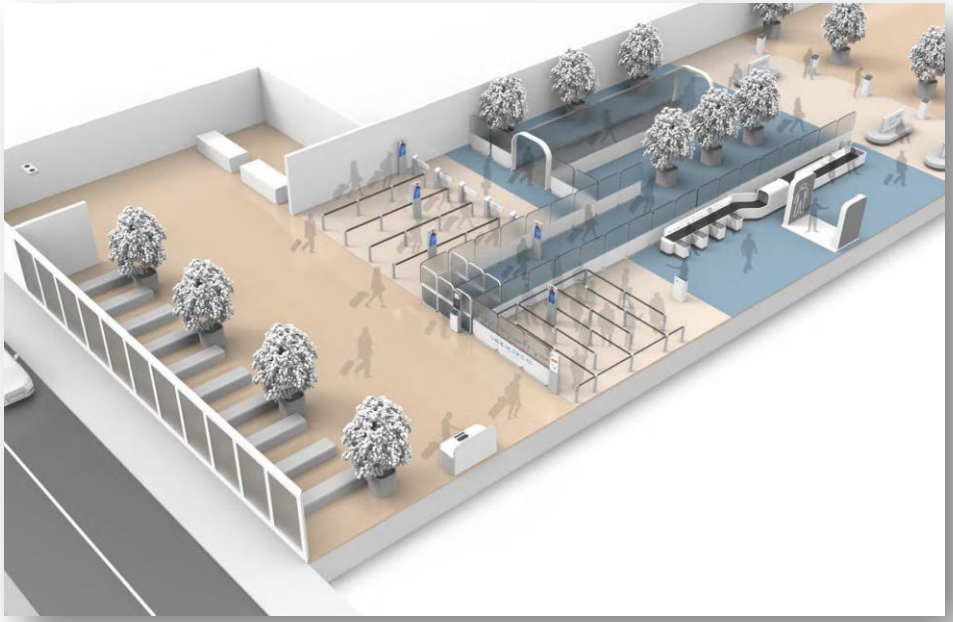
Updated Long-Range Broad Agency Announcement

- The **LRBAA** is our standing, open invitation to the scientific and technical communities to propose novel ideas that address DHS Components' highest priority operational needs.

  - ✓ Transparent, simplified announcement with more details
  - ✓ Streamlined efficient submission procedures
  - ✓ Notification of DHS interest in your research in 10 days
  - ✓ Flexible communications including dialogue with topic program managers, a virtual pitch, and submission of an optional video

https://www.dhs.gov/science-and-technology/st-lrbaa

Program Organization



Apex Screening at Speed pursues transformative R&D activities that support a future vision for increasing security effectiveness from curb to gate while dramatically reducing wait times and improving the passenger experience.

Thrust Area	R&D Areas
Passenger Analysis	• Video Surveillance • Passenger-Bag Correlation • Identity Verification
Passenger Screening	• High-definition Advanced Imaging Technology (AIT) • Walk-by AIT • Shoe Scanner • Automated Threat Recognition (ATR) • Material Discrimination
Carry-On Screening	• Computed Tomography (CT) X-ray • Augmenting X-ray Technologies • ATR Algorithms • CT Human-Systems Interfaces
Enabling Capabilities	• Optical Trace Detection • Adaptive Algorithms • Augmented Reality Human-Systems Interface • Synthetic Data • Low-latency Network Interconnects
Overarching Architecture	• Open Threat Assessment Platform (OTAP) • Airport Risk Assessment Model (ARAM) • Futures Workshop / Systems Architecture Development • Sensor Fusion Open Architectures

Questions?

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DIVERSE PERSPECTIVES + SHARED GOALS = POWERFUL SOLUTIONS