

DHS SCIENCE AND TECHNOLOGY

Apex Screening at Speed Program

ACC/TSA Security Capabilities Workshop

July 18, 2017



**Homeland
Security**

Science and Technology

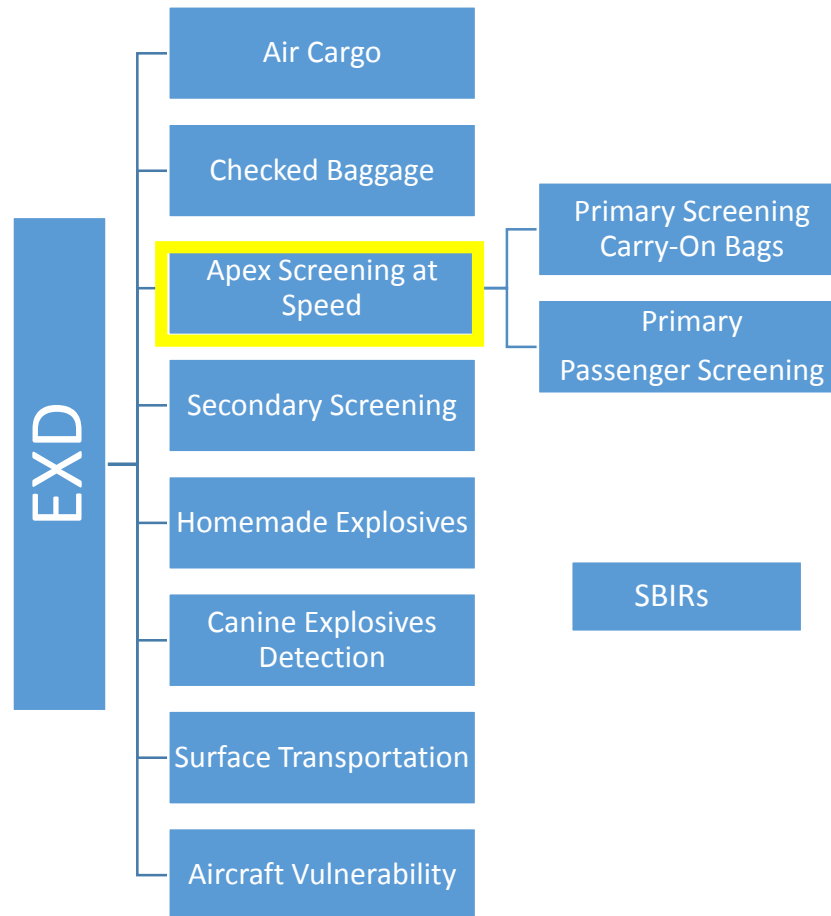
John M. Fortune, Ph.D.

HSARPA/Explosives Division

DHS Science and Technology Directorate

Explosives Division

The Explosives Division (EXD) promotes the development of effective techniques to protect our citizens and our country's infrastructure against the devastating effects of explosives by seeking innovative approaches in detection and in countermeasures. It provides the concepts, science, technologies and systems that increase protection from explosives and promotes the development of field equipment, technologies, and procedures to interdict explosives.



Screening At Speed

Secure, High-Throughput Checkpoint Screening for TSA

Program Goal

- Efficiently detect more advanced aviation threats while outpacing the growing population of travelers

Requirements

- Detect threats at TSA's highest security standards
- Double passenger checkpoint throughput
- Extend security architecture beyond the checkpoint
- 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

Results

- Reduce crowding at checkpoints
- Redeploy checkpoint staff to support other critical tasks
- Develop technology applicable to other missions (stadium security, mass transit, etc.)

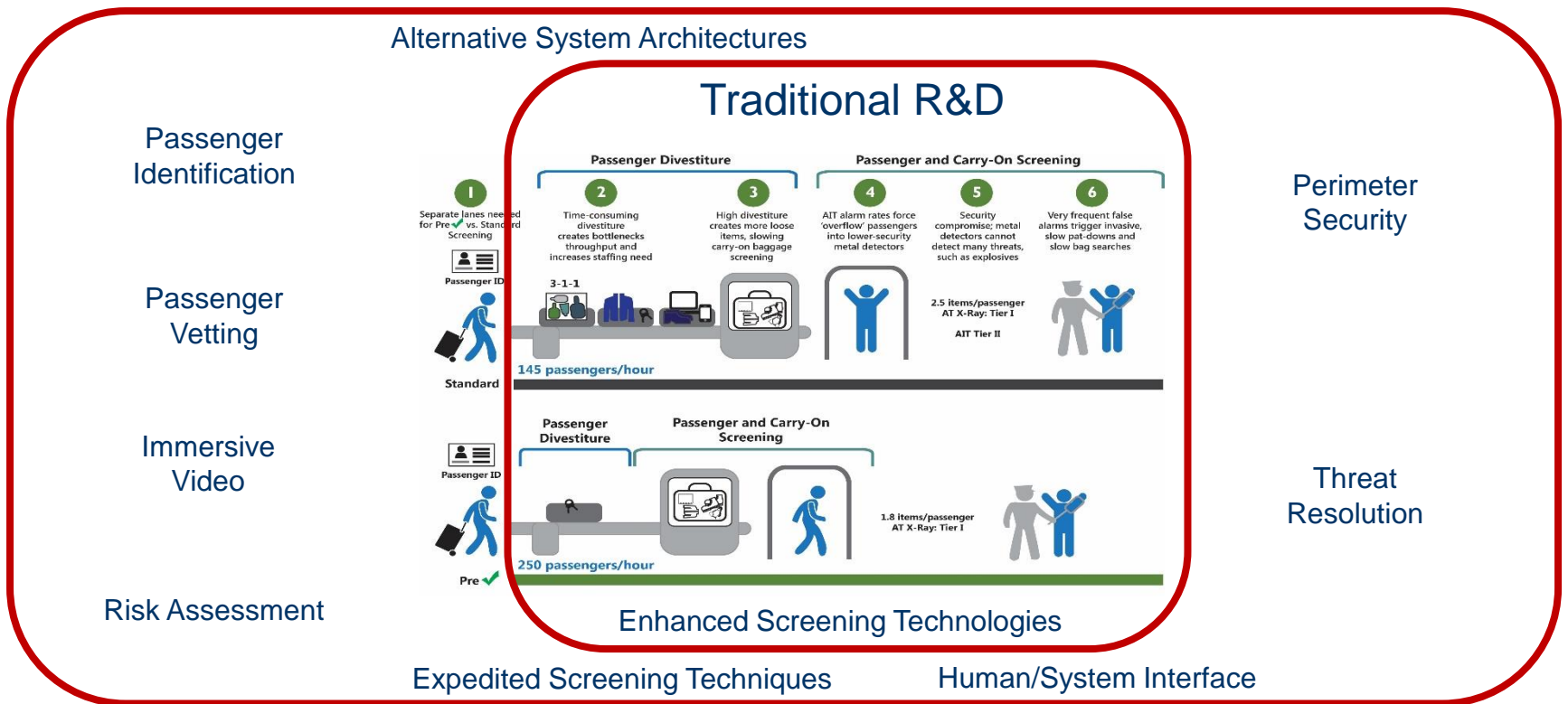


Artist's concept of future passenger checkpoint

**Security, Speed, and Passenger
Convenience**

Screening At Speed

Area of Responsibility



Apex Screening at Speed Capabilities

Apex Screening at Speed programmatic goals will be accomplished through technology development in critical capability areas:

- **Person screening:** High resolution AIT, Walk-by millimeter wave scanning, shoe scanning, AIT algorithms
- **Carry-on bag screening:** High-tier (challenging threat items) CT scanners, phase contrast imaging, x-ray diffraction, integrated trace
- **Passenger analysis:** Curb-to-gate video analytics, advanced surveillance, person/bag correlation, identity verification
- **System of Systems Integrations:** Systems architectures, open platforms, third-party software libraries
- **Future Enabling Components:** Standoff trace detection, adaptive ATR software

Apex Screening at Speed Outcomes

Current State

- Passengers are unknown until the checkpoint
- Passenger divestiture limits throughput
- Limited risk-based screening adaptability
- Significant TSO effort dedicated to alarm resolution (passenger and carry-on baggage)



Future State

- Passenger analysis from “curb-to-gate”
- Passengers do not divest outerwear, shoes, liquids, gases, aerosols and electronics
- Flexible CONOPS, algorithms to adapt to passenger risks and threat environments
- Low false alarms enable efficient TSO assignments

