

# Apex Screening at Speed

## Secure, High-Throughput Checkpoint Screening for TSA

**Program Vision:** Apex Screening at Speed is pursuing 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.

### Requirements

- Detect threats at TSA's highest security standards
- Double passenger checkpoint throughput <sup>[1]</sup>
- 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

- Efficiently detect more advanced aviation threats while outpacing the growing population of travelers
- Reduce crowding at checkpoints, lower soft target risk
- 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

[1]: TSA Full Operational Capacity, 2014

# Program Overview

## Passenger Analysis

- Video Analysis and Passenger Tracking
- Passenger and Bag Correlation

## Passenger Screening

- High-Definition Advanced Imaging Technology (HD-AIT)
- AIT Automatic Threat Recognition
- Millimeter Wave (MMW) Shoe Scanner
- Walk-by MMW

## Carry-on Screening

- Computed Tomography (CT) Automatic Threat Recognition
- Gratings-based Phase Contrast Imaging
- X-ray Diffraction

## Future Capabilities

- Optical Trace Detection
- Adaptive Threat Detection, Deep Learning
- Augmented Reality Human Systems Integration

## Overarching Architecture

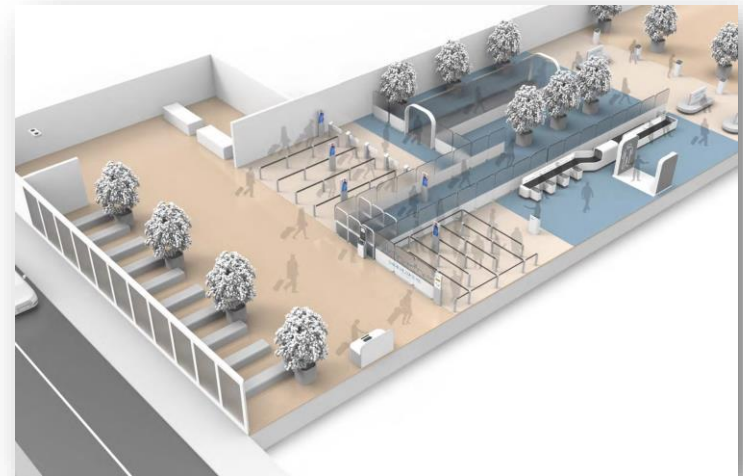
- Open Threat Assessment Platform (OTAP)
- Airport Risk Assessment Model

## Test & Evaluation

- T&E: Baggage, Passenger, Secondary Screening
- Testbed development

## Future State

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



# Future State Concepts

The ultimate goal of the Program's future state concepts is moving people through the airport checkpoint more efficiently. Faster throughput is a data issue that requires a system of systems approach.

