DHS SCIENCE AND TECHNOLOGY

TSA – S&T Consolidated Technology Roadmap Development

September 17, 2019

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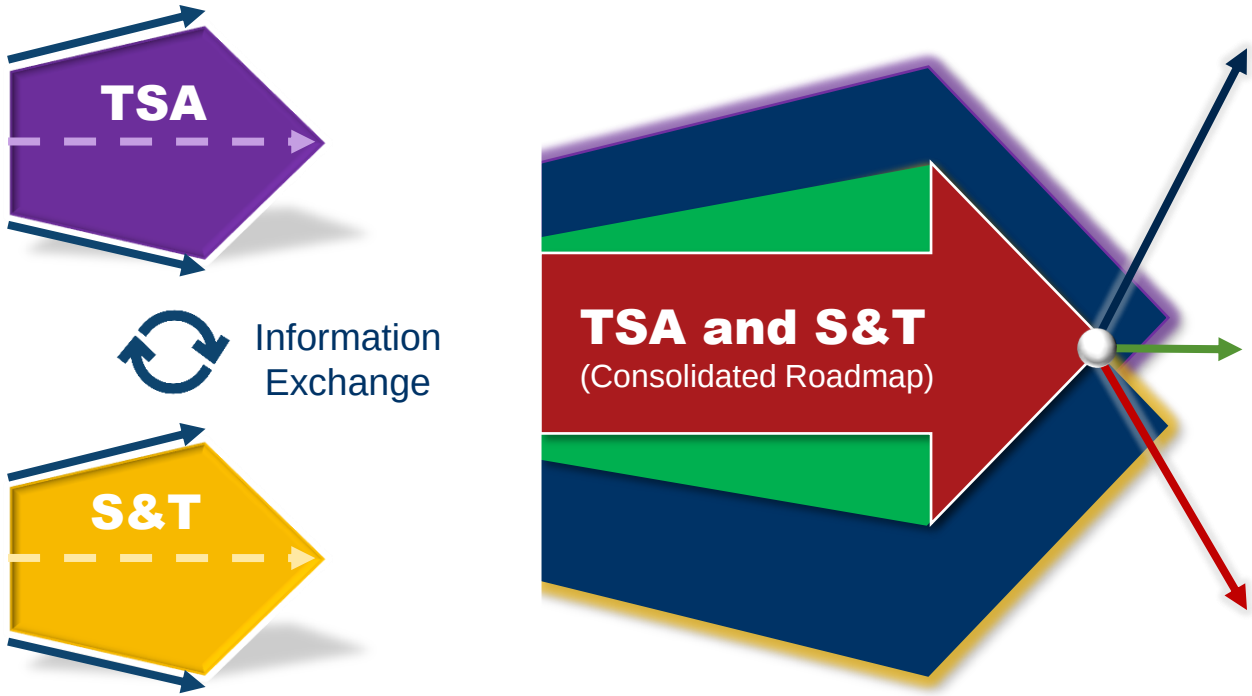
Homeland Security
Science and Technology

Transportation Security Administration

Consolidated Technology Roadmap Development Goals



Strategy

- Develop a consensus on technology needs
- Align development and acquisition strategies
- Prioritize and target technology development

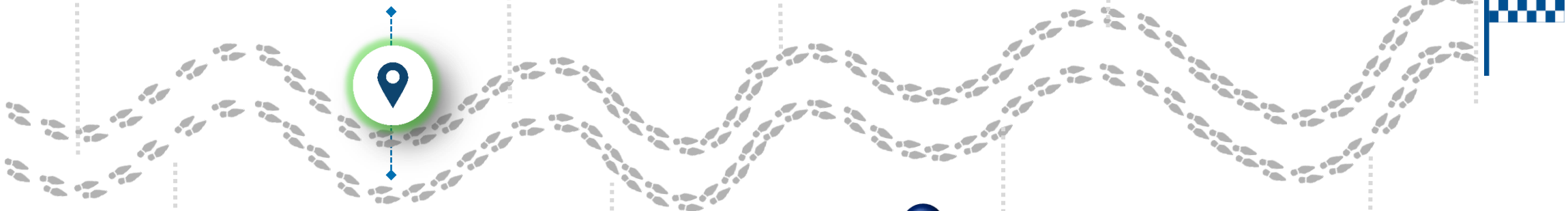
Acceleration

- Identify pilot and technology transition opportunities
- Identify R&D dependencies

Efficiency

- Identify areas that are under- or over- invested
- Optimize resource allocation
- Coordinate investment & transition (TSA and S&T)
- Eliminate duplications

Development Process for Consolidated TSA and S&T Technology Roadmap



1 **TSA Capability Roadmap Development**
May 2019 – Ongoing

2 **Identify Current Active Projects for the Capability**
June 2019 – August 2019

3 **Technology Capability Roadmap Gap Analysis**
Not Started

4 **"Final Draft" Consolidated Roadmap**
Not Started

5 **TSA Internal Stakeholder Review**
Not Started

6 **S&T Internal Stakeholder Review**
Not Started

7 **Updated…Based on Stakeholder Feedback**
Not Started

8 **TSA and S&T Leadership Briefing**
Initial Briefing: September 17, 2019

9 **Baseline**
Not Started

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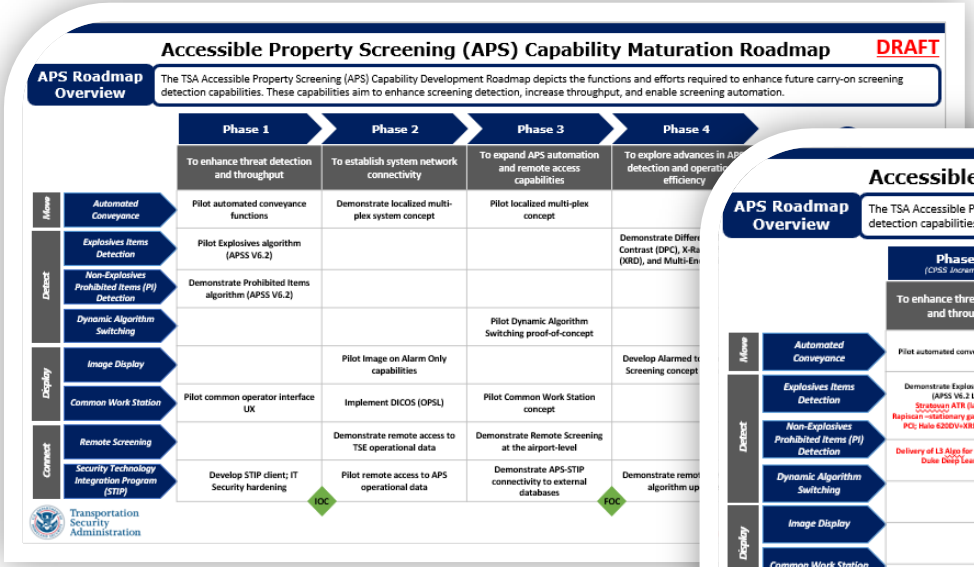
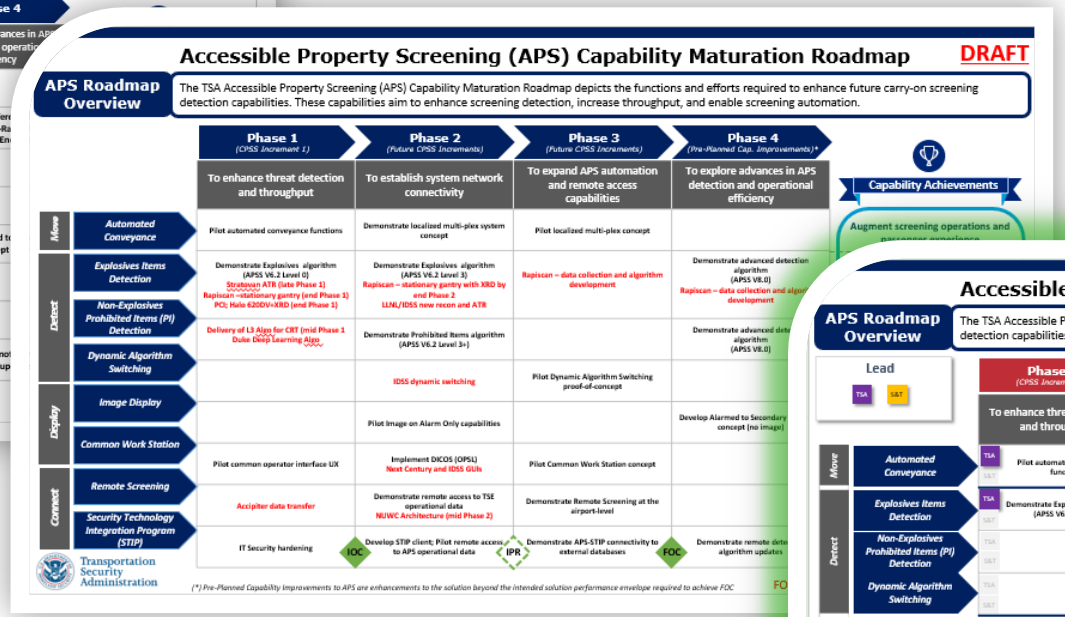
Current state

Evolution of Roadmap To Date

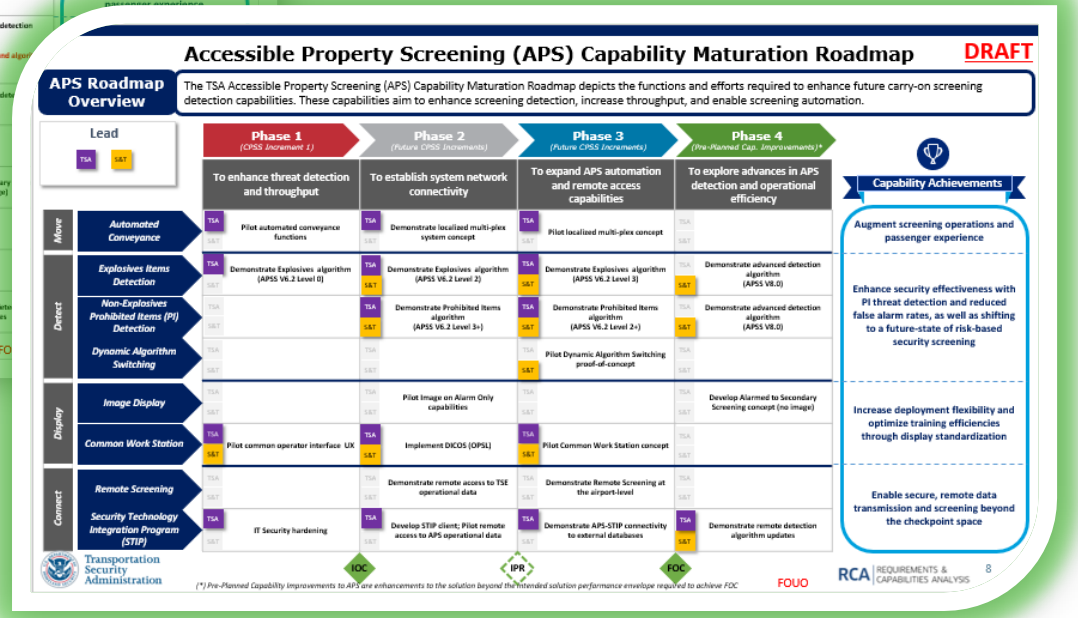


Original APS Capability Maturation Roadmap



Began to incorporate S&T Touchpoints

Today: Integrated TSA and S&T Involvement and Progress



Accessible Property Screening (APS) Capability Maturation Roadmap

DRAFT

APS Roadmap Overview

The TSA Accessible Property Screening (APS) Capability Maturation Roadmap depicts the functions and efforts required to enhance future carry-on screening detection capabilities. These capabilities aim to enhance screening detection, increase throughput, and enable screening automation.

Lead: TSA, S&T

		Phase 1 (CPSS Increment 1)	Phase 2 (Future CPSS Increments)	Phase 3 (Future CPSS Increments)	Phase 4 (Pre-Planned Cap. Improvements)*
		To enhance threat detection and throughput	To establish system network connectivity	To expand APS automation and remote access capabilities	To explore advances in APS detection and operational efficiency
Move	Automated Conveyance	TSA: Pilot automated conveyance functions	TSA: Demonstrate localized multi-plex system concept	TSA: Pilot localized multi-plex concept	
Detect	Explosives Items Detection	TSA: Demonstrate Explosives algorithm (APSS V6.2 Level 0)	TSA: Demonstrate Explosives algorithm (APSS V6.2 Level 2)	TSA: Demonstrate Explosives algorithm (APSS V6.2 Level 3)	S&T: Demonstrate advanced detection algorithm (APSS V8.0)
Detect	Non-Explosives Prohibited Items (PI) Detection	TSA, S&T	TSA, S&T: Demonstrate Prohibited Items algorithm (APSS V6.2 Level 2+)	TSA, S&T: Demonstrate Prohibited Items algorithm (APSS V6.2 Level 3+)	S&T: Demonstrate advanced detection algorithm (APSS V8.0)
Detect	Dynamic Algorithm Switching	S&T	S&T	S&T: Pilot Dynamic Algorithm Switching proof-of-concept	
Display	Image Display		Pilot Image on Alarm Only capabilities		Develop Alarmed to Secondary Screening concept (no image)
Display	Common Work Station	TSA, S&T: Pilot common operator interface UX	TSA, S&T: Implement DICOS (OPSL)	TSA, S&T: Pilot Common Work Station concept	
Connect	Remote Screening	S&T	S&T: Demonstrate remote access to TSE operational data	S&T: Demonstrate Remote Screening at the airport-level	
Connect	Security Technology Integration Program (STIP)	TSA: IT Security hardening	TSA: Develop STIP client; Pilot remote access to APS operational data	TSA: Demonstrate APS-STIP connectivity to external databases	TSA, S&T: Demonstrate remote detection algorithm updates

IOC | IPR | FOC

Capability Achievements

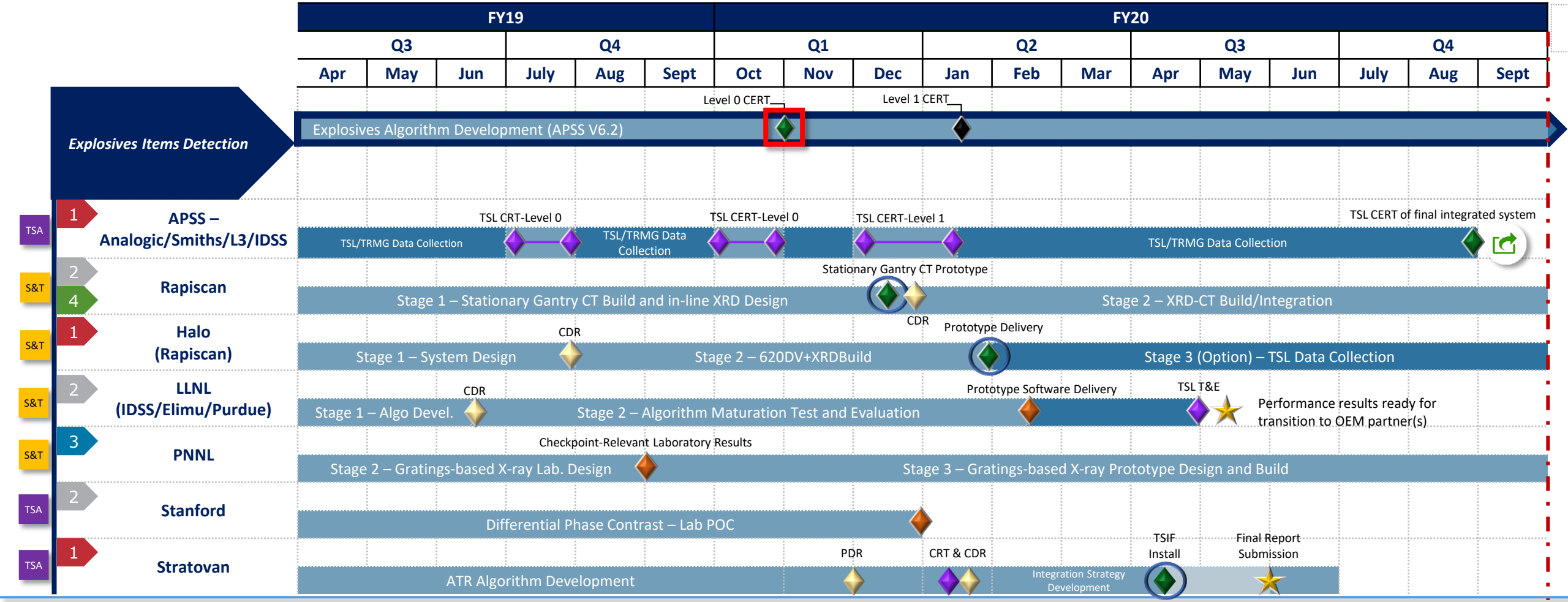
- Augment screening operations and passenger experience
- Enhance security effectiveness with PI threat detection and reduced false alarm rates, as well as shifting to a future-state of risk-based security screening
- Increase deployment flexibility and optimize training efficiencies through display standardization
- Enable secure, remote data transmission and screening beyond the checkpoint space

(*) Pre-Planned Capability Improvements to APS are enhancements to the solution beyond the intended solution performance envelope required to achieve FOC

Accessible Property Screening (APS) Consolidated Technology Roadmap

Phase 1
(CPSS Increment 1)

Phase 1 of the APS Capability Maturation Roadmap will provide a foundation for future enhancements in threat detection and throughput efficiency. The underlying activities include the **development, demonstration, and refinement** of IOC solution capabilities in alignment with CPSS acquisition increment 1.



Key:

S&T Led by S&T

TSA Led by TSA

Target Phase: 1 3 2 4

Proof of Operational Concept/DT&E

Demonstration

Research and Development

Design Review

System Delivery

Test and Evaluation

Data Package

Capability Requirement

Technology Demo Opportunity

IOC (Level 0 CRT)

Final Deliverable (contractual)

RCA handoff to APM

CPSS Increment 1 Contract Award

Benefits of the Consolidated Roadmap

- **Capture the current state, not correct it**
- **Enable alignment of acquisition strategy to technology maturity**
- Enable CM to **identify gaps between current efforts and desired capabilities**
- **Framework for socializing new technology**
- **Enable effective budget planning**
- **Drive solicitation cycle**

Next Steps

- Finalize project deep dives for APS Consolidated Technology Roadmaps Phase I and II
- Support development of other Capability Manager-level roadmaps
  - Begin project deep dive roadmaps for remainder of Capability Managers (Alarm Resolution, Checked Baggage, Identification Management, On Person Screening)
  - Identify appropriate S&T resources for collaboration with TSA Capability Managers
- Develop strategy to expand coordination efforts beyond DHS S&T and TSA RCA
  - e.g., DOE Lab-directed Research and Development

Upcoming Actions

- ✓ Presentation of the consolidated technology roadmap process at TSA RCA All-Hands
- ✓ Use the Roadmap as a tool for demonstrating alignment of TSA and DHS S&T
- ✓ Continue engagement with Capability Managers on roadmap development efforts
- ✓ APS – proceed to step 3 for RM gap analysis (see slide 3)