

DHS SCIENCE AND TECHNOLOGY

Improving DHS Acquisition through Systems Engineering



**Homeland
Security**

Science and Technology

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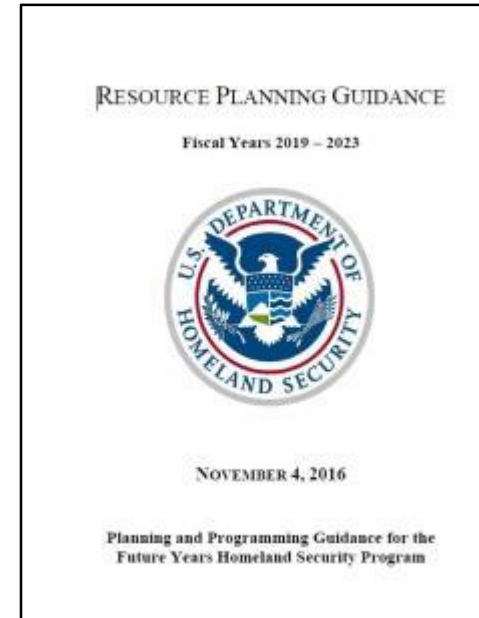
DHS Components with Major Acquisitions

- U.S. Citizenship and Immigration Services (USCIS)
- U.S. Customs and Border Protection (CBP)
- U.S. Coast Guard (USCG)
- Federal Emergency Management Agency (FEMA)
- U.S. Immigration and Customs Enforcement (ICE)
- Transportation Security Administration (TSA)
- U.S. Secret Service (USSS)
- Management (MGMT)
- National Protection and Programs Directorate (NPPD)
- Science & Technology (S&T)
- Countering Weapons of Mass Destruction (CWMD)

Reflects major acquisition programs listed on the DHS Master Acquisition Oversight List, effective April 15, 2018

Systems Engineering & Standards Division – What We Do

- Conduct Technical Assessments of major Acquisition programs
- Provide systems engineering support directly to Acquisition programs, including:
 - Standards
 - Human Systems Integration
- Develop/Refine DHS systems engineering policy and guidance
- Build the DHS systems engineering workforce through training and other initiatives
- Coordinate DHS's strategic use and development of standards and conformity assessment



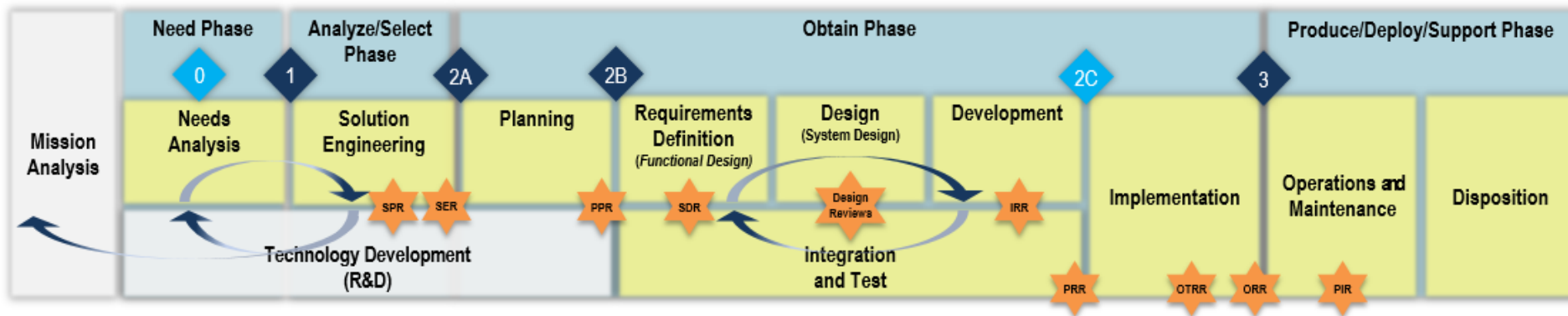
S&T Sponsored Resource
Planning Priority:
Strengthen Systems Engineering
Capabilities to Reduce
Acquisition Program Risk

Systems Engineering & Standards Division – Addressing Acquisition Challenges

- Identifying major technical risks before programs begin design/development activities (through technical assessments)
- Working directly with Acquisition program to help them address technical risks
- Working with Acquisition oversight to refine the DHS Acquisition framework (i.e., Acquisition Lifecycle Framework)
- Increasing the number of trained systems engineers within DHS

Refining the DHS Acquisition Framework

Current Acquisition Lifecycle Framework



- **SPR:** Study Plan Review
- **SER:** Solution Engineering Review
- **PPR:** Project Planning Review
- **SDR:** System Definition Review
- **IRR:** Integration Readiness Review
- **PRR:** Production Readiness Review
- **OTRR:** Operational Test Readiness Review
- **ORR:** Operational Readiness Review
- **PIR:** Post Implementation Review

Proposed Refinements to the DHS Acquisition Framework

- Acquisition Decision Event (ADE)-1 authorizes limited acquisition funding to conduct *Analyze/Select Phase* activities
 - Enables improved solution analysis, piloting, prototyping, and R&D during *Analyze/Select Phase*
- Expand scope of the *Analyze & Select Phase* to include *Planning* activities
- ADE-2A requires a “General Design”
 - System Boundaries/External Interfaces Defined (Context Diagram)
 - Top level functions the selected material solution is required to perform defined
 - Contracts may be awarded for the entire program, but only funds related to design are released at ADE-2A
- ADE-2B occurs once a sound preliminary design is complete
 - Better definition of costs, maturity of technology, reduction of technical risks
 - Remaining funds for final design/development released at ADE-2B

Formal updates to DHS Acquisition policy are in progress.

Building SE Staff within DHS

- Revisited Systems Engineering (SE) 101 DHS Level I (On-line course)
 - 192 Students trained
- Maintained and taught SE 201 and SE 301
 - SE 201 -111 Students trained
 - SE 301 – 52 Students trained
- Certified DHS Systems Engineers
 - Level I – 151
 - Level II- 63
 - Level III- 105
- FY19-23 Resource Planning Guidance
 - One Level III & One Level II on all major Acquisition Programs
 - One Level II for every four non major Acquisition Programs
 - One Level III & One Level II on all Component Acquisition Staffs

Conclusion

- DHS enterprise has a wide range of mission areas and a civilian/law enforcement culture
- Acquisition still somewhat synonymous with procurement
- DHS realizes SE needs to be institutionalized across the Department and is making headway
- Implemented Technical Assessments for Major Acquisition Programs
- AoA, ORDs, CONOPS, etc. improving as SEs engage
- Refined Acquisition framework to enable better up-front analysis and more informed decision-making
- Looking to continue collaboration across government and industry



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