

## DHS Systems Engineering Acquisition Challenges and Issues



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## Major DHS Operating Components

- Transportation Security Administration (TSA)
- U.S. Coast Guard (USGC)
- U.S. Secret Service (USSS)
- U.S. Customs and Border Protection (CBP)
- U.S. Citizenship and Immigration Services (CIS)
- U.S. Immigration and Customs Enforcement (ICE)
- Federal Emergency Management Agency (FEMA)
- Domestic Nuclear Detection Office (DNDO)

## TSA Programs

#### Electronic Baggage Screening Program





#### Passenger Screening Program







### **USCG Air Programs**

C27-J



HC-144



HC-130J



MH-60J



HH-65



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### **USCG Surface Programs**

Fast Response Cutter



**Motor Lifeboat** 



**National Security Cutter** 



Offshore Patrol Cutter

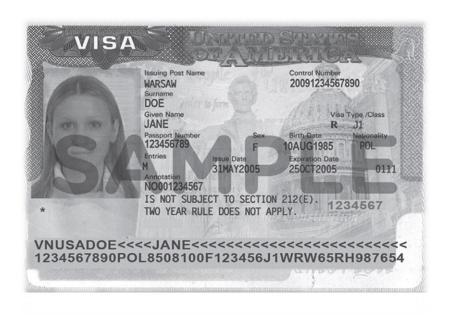


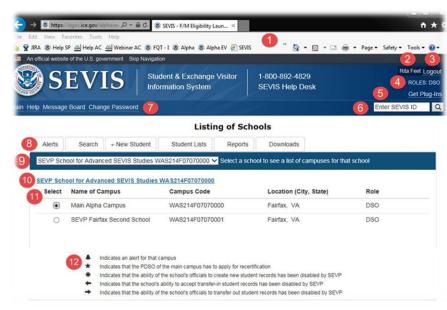
Heavy Polar Icebreaker



### **ICE Programs**

#### Student and Exchange Visitor Information System





### **FEMA Programs**

Integrated Public Alert and Warning System



Grants

Grants

Management

Modernization

Ser-center businest-driven businest



National Flood Insurance Program



Logistics Supply Chain Management System



### **USCIS Programs**

#### **Transformation Program**





### **CBP Programs**

**Biometric Entry-Exit** 





**Border Wall** 



**Cross-Border Tunnel Detection** 





Video Surveillance Systems





Cargo Processing and Inspection







#### SE Challenges in DHS

- Solutions encompass the entire Homeland Security Enterprise (HSE)
  - Diverse customer base, with different rules, restrictions, and users
  - Diverse "mission set" including security, immigration, trade/commerce, disaster planning, and response
- Significant IT and Embedded/Mixed IT Solutions
  - Privacy and security concerns related to sharing data
  - Controlling proprietary, business, or law enforcement-sensitive data
- Flexible and resilient solutions to respond to emergent threats and national disasters
- Procurement vs. acquisition mentality in many parts of the HSE
- Too much focus on compliance/templates vice critical analysis

#### SE Staffing Challenges

- DHS has a Level I, II, III SE Acquisition Certification program and activity instructing courses
  - Inconsistency/limited participation
- No consistent SE staffing within Acquisition programs and Component Acquisition oversight offices
- Secretary directed all major acquisition programs and Component Acquisition oversight offices to resource SE expertise
  - Initiative established in Secretary's FY19-23 Resource Planning Guidance (for Components developing Resource Allocation Plans)

# SE Challenges in DHS Acquisition Programs

Weak Solution Analysis/Analysis of Alternatives prior to approval

AoAs have not been properly scoped and executed

- Frequently focused on all COTS, no COTS, or a mix, vice analyzing the operational and technical solution space
- Poor definition of alternatives and evaluation criteria
- Relative ranking of alternatives among each other vice against actual mission need/requirements
- AoAs often not informed by data from pilots/prototypes/testing
- AoAs as a process to document the acquisition, vice analyze, learn, and modify to enable better decisions

## SE Challenges in DHS Acquisition Programs

#### Poorly developed Operational Requirements and CONOPS

- Limited CONOPS scope
  - Scenarios do not describe the complete operation or even all the tasks the proposed solution must perform (only small mission tasks that need improvement)
  - Boundaries, interfaces, key external stakeholders/systems of the proposed solution not clearly defined/understood
- Limited analysis leading to the actual Operational Requirement
  - · Often not operationally focused
  - Often focused on "user needs" that reflect specific problems
  - Limited analysis to support Threshold and Objective performance values

### SE Oversight Challenges

- HQ oversight has heavily focused on programmatic oversight
  - Focused on checklists and artifact existence
  - Limited evaluation of the quality/substance of artifacts
- In 2015, Secretary directed S&T to conduct Technical Assessments on major acquisition programs
  - SE-based Technical Assessments of major acquisition programs
  - Focused on <u>quality</u>, not quantity
  - Not if a program has operational requirements; are requirements
    - Feasible Testable
    - Clear Backed by objective analysis
  - Complements existing acquisition programmatic oversight processes
  - Conducted prior to commencement of design/development/integration

#### **Technical Assessment Impacts**

- Greater up-front analysis = technically stronger programs
  - Threshold and objective parameters of operational requirements, backed by objective analysis
  - CONOPS that better describe end-to-end system operation, not only parts of the system
  - Trade-off analysis during the Analysis of Alternatives that informs/refines operational requirements and CONOPS
- Holistic (programmatic and technical) perspective for Acquisition executives before design/development/integration activities
- More informed decision-making by Acquisition executives

#### 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
- Developed rigorous SELC Guidance
- Implemented Technical Assessments for Major Acquisition Programs
- AoA, ORDs, CONOPS, etc. improving as SEs engage
- Looking to continue collaboration across government and industry



## Homeland Security

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