Who became part of DHS?

- U.S. Customs Service (Treasury)
- Immigration and Naturalization Service (Justice)
- Federal Protective Service
- Transportation Security Administration (Transportation)
- Federal Law Enforcement Training Center (Treasury)
- Animal and Plant Health Inspection Service (partial, Agriculture)
- Office for Domestic Preparedness (Justice)
- Federal Emergency Management Agency
- Strategic National Stockpile and the National Disaster Medical System (Health and Human Services)
- Nuclear Incident Response Team (Energy)
- Domestic Emergency Support Teams (Justice)
- National Domestic Preparedness Office (FBI)
- U.S. Secret Service (Treasury)
- U.S. Coast Guard (Transportation)
DHS Core Mission Areas

- Preventing Terrorism and Enhancing Security
- Securing and Managing our Borders
- Enforcing and Administering our Immigration Laws
- Safeguarding and Securing Cyberspace
- Ensuring Resilience to Disasters
The DHS Acquisition Portfolio

- 135 Major Programs representing > $150B investment

- Significant Diversity (Products and Approaches)
  - Products include ships, aircraft, IT business systems, facilities, command and control, sensor/detectors,
  - Approaches include full development / production, Commercial Off the Shelf (COTS) integration, commodity purchase, and mission / mission support services.

- Acquisition is performed by DHS Operating Components and some HQ organizations

- Need for a more robust PPBE process
INTEGRATED INVESTMENT LIFE CYCLE MANAGEMENT

**Strategy Phase**
- Articulates the Secretary’s key priorities and proposed “end state”
- Produces quantifiable strategic outcomes and measures
- Informed by QHSR and high level Strategic Plans
- Produces Integrated Planning Guidance (IPG) and Mission Strategies

**Capabilities & Requirements Phase**
- Develops future target operational state
- Identifies and prioritizes existing gaps and overlaps in the Department’s capabilities
- Determines alternative courses of action to address capability shortfalls

**Programming & Budgeting Phase**
- Weighs strategic guidance (IPG) and capability requirements against available resources
- Allocates resources to ensure a balanced and credible DHS budget and Future Year Homeland Security Program

**Investment Oversight Phase**
- Ensures overall oversight of investment execution
- Assesses investments against expected outcomes
- Informs future strategies, capabilities and resource decisions

**Mission and Function Portfolio Teams**
- Provide cross-Component expertise to perform analysis across IILCM phases
- PILOT PORTFOLIOS: Bio-Defense, Screening & Vetting, Cyber Security

**DATA MART / BUSINESS INTELLIGENCE**

Feedback Loop
We define the problem.

We develop and evaluate capabilities.

We produce and maintain those capabilities.

2A: Approve Program
2B: Approve Supporting Projects/Contracts
2C: Approve Low Rate Production

Collection Point for Gaps & Needs
Validate Needs

Field and Support Program Products

= Acquisition Decision Event
**DHS Acquisition Lifecycle & SELC Framework**

**Purpose:** Establish a common System Engineering Life Cycle Framework and ensure appropriate activities are planned and implemented to comply with Federal Acquisition Regulations (FAR), the Clinger-Cohen Act, and other Federal Laws.

**Acquisition Lifecycle Framework (ALF)**

**Systems Engineering Lifecycle (SELC)**

**ALF Acquisition Decision Events**
- 0: Collect Needs
- 1: Validate Needs
- 2A: Approve Program
- 2B: Approve Supporting Acquisitions
- 2C: Low Rate Initial Production (hardware)
- 3: Approve Produce/Deploy/Support

**SELC Stage Reviews**
- SPR: Study Plan Review
- SER: Solution Engineering Review
- PPR: Project Planning Review
- SDR: System Definition Review
- PDR: Preliminary Design Review
- CDR: Critical Design Review
- TRR: Test Readiness Review
- PRR: Production Readiness Review
- ORR: Operational Readiness Review
- PIR: Post Implementation Review
- LRIP: Low Rate Initial Production
Updated SELC Guidebook Philosophy

- Developed to help identify appropriate SE activities are planned and implemented
- Incorporates “Best Practices” and guidance from DoD, NASA, INCOSE, DHS Component processes, and industry leaders
- Provides clear message that programs/projects need to engage in critical thinking
- No longer focuses on policy or mandates, but on actual SE activities to be performed
- Establishes requirement for development of a Systems Engineering Plan (SEP)
- Tailoring is expected
- Contributes to commitment to “one ALF” and “one SELC” across DHS
- Focus is on the Government PM in a role of overseeing when appropriate
- Provides cross-references to other Sections to show process linkages across activities
- Stresses early evaluation/development of advanced technology along with continuous Technology Maturation and Assessment
- Leverages annexes to provide more detailed information and examples
Updated SELC–Focus on Technical Execution

- Provides more detail on the steps and analysis necessary to execute a program
  - Extensive cross-referencing and links to Annexes, and applicable policies/procedures to minimize duplication and show the interrelationships of activities throughout the life cycle

- Consolidated Systems Engineering, supporting activities, and resulting artifacts from DHS and applicable statutes, regulations, and policies into an integrated usable Guidebook
  - Integrates critical compliance activities based on various federal laws/regulations and other SELC considerations throughout the SELC to provide a direct understanding of when and how they were to be applied to the program
    - Privacy, Security, Section 508 Accessibility, Human Systems Integration, EOSH, etc…
Emphasizes Critical Thinking and Planning

- Emphasizes the need for **Critical Thinking** and early comprehensive planning needed to enable successful system development

- Fundamentally changed the SELC from a **Stage** and **Document** focused process to an **Activity** focused process
  - Recognized that SELC activities are often iterative or concurrent in nature and not strictly performed in a stepwise or sequential manor
  - Enable the program to focus on execution of the activities that will ultimately lead to a delivered capability vice focusing on development of documents
    - Artifacts and reviews are still critical elements of the SELC, but are the result of the activities to document and assess progress

- Integrates the evaluation or development of advanced science and technology into the **early phases of program definition** and provides a constant drumbeat on Technology Maturation and Assessment
Provides detailed guidance so a Program can develop their specific “Tailored plan” based on the unique characteristics of the Program regardless of program type and size

- Encourages, almost demands, tailoring the SELC for every program
  - Proper selection of a development methodology and logical tailoring of the SELC activities, artifacts, and reviews based on the specific characteristic of a program and the program team

- Stresses the important of Program Team to really engage to understand the program, its users/stakeholders, scope and technical challenges to plan to do the “right” work

- Enables executers and oversight to really know what the program will do and what should be expected and when
  - Gets Programs and Oversight on the same page early

Still “one ALF” and “one SELC” across DHS
Guidebook points to a SELC Tailoring Example Annex that provides examples of how the SELC is tailored for various type of programs

- Demonstrates the level of detail and amount of critical thinking a Program should engage in to properly plan the effort for a specific program
- Includes examples tailoring approaches for:
  - Small/less complex development programs
  - COTS/GOTS/NDI programs
  - IT Infrastructure and Services programs
  - Stand Alone Service programs
  - Facilities and Construction Programs
  - Programs utilizing Agile development methods (IT systems)
- Can serve as a starting point and be referenced to minimize the size/content of the SELC Tailoring Plan while still requiring the critical thinking and justification
- Is a living artifact that can grow and change based on actual experience to provide better guidance to future programs

- These processes include:
  - Requirements Engineering
  - Technical Planning
  - Technical Risk Management
  - Technical Configuration and Change Management
  - Interface Management
  - Decision Analysis
  - Technical Assessment
  - Technical Data Management

- Technical Management Processes are integrated into initial Planning activities once the Program is officially designated a Program of Record

- These processes are then applied throughout SELC activities and the Technical Review process evaluates the program use of and adherence to these processes

- Documented in a newly implemented Systems Engineering Plan (SEP)
The New SELC Guidebook recognizes and accounts for the proliferation of IT elements within new systems/capabilities

- Defined “Embedded IT” to describe the IT elements within non-IT systems that enable the system to perform its primary function
  - Many systems such as detectors use embedded IT to enable or enhance their primary function and may even transmit that detection information across networks
  - Non-IT Programs must now consider many IT related activities until it is determined that these activities are not necessary
    - Security Assessment and Accreditation
    - Privacy
    - Section 508 Accessibility
    - Technology Insertion
Establish a professional certification program to train and develop our current workforce and provide mandatory education, training, and experience requirements for each specific acquisition position and specialty.
System Engineering Acquisition Certification

- Develop Core Competencies
- Draft SE Certification Policy
  - Certification Policy defines requirements for Core Competencies
    - Education, Experience and Training
- Develop DHS specific courses to meet Core Competencies
  - Establish which Core Competencies will met with training
  - Develop Learning Objectives and Course Outlines
  - Develop Course
  - Pilot Course
  - Finalize Course

| Level I: Remembering & Understanding |
| Level II: Applying & Analyzing |
| Level III: Evaluating & Creating (Synergizing) |

Knowledge
Skills & Abilities
Focus Interests
Training and Tools
Experience
Education

Homeland Security

DEPARTMENT OF HOMELAND SECURITY

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DHS Systems Engineering FFRDC

**HS SEDI**
Homeland Security Systems Engineering and Development Institute

### Systems Engineering
- Architecture development
- Independent technical assessments
- Risk and opportunity analysis
- Software systems engineering
- Modeling and simulation
- Test and evaluation
- Enterprise Systems Engineering
- Requirements Engineering

### Acquisition SE Support
- Program/Project Management
- RFP development & source selection support
- Cost, schedule, performance, risk trades
- System concept development
- Requirements analysis
- Analysis of Alternatives
- Review/analysis of design, design alternatives
- Organizational Change Management

### Integration & Interoperability
- Proof-of-Concept
- System of systems integration
- Experimentation
- Standards development

Creating mission capability working through needs, opportunities and constraints
Summary

- DHS enterprise is much larger the DHS and has a wide range of mission areas
- DHS has a civilian / law enforcement culture
- Acquisition still somewhat synonymous with procurement
- DHS realizes Systems Engineering needs to be institutionalize
- Stood-up Level I, II, & III SE certification program
- Updated SELC Guidance based on best practices across the Federal government and Industry
- Developing and refining new Integrated Investment Life Cycle Management (IILCM) process
- Looking to continue collaboration with other government agencies