Headquarters U.S. Air Force

Integrity - Service - Excellence

Air Force Engineering

THOMAS F. CHRISTIAN, SES
Associate Deputy Assistant Secretary
(Science, Technology and Engineering)

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Discussion Topics

- Air Force Engineering Enterprise
- Own the Technical Baseline
- Digital Thread
- Summary

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Air Force Engineering Enterprise (AFEE)

SecAF Direction: Fix Engineering

- Creates four priorities
  1 - Enterprise Governance & Policy
  2 - Engineering Decisions & Communication
  3 - Technical Information Management & Standardization
  4 - Workforce Core Competencies, Structure, Development & Deployment

- Strategic governance structure

  Senior Advisory Group (SAF/AQ, AFMC/CA, AFSPC/CA, AF/ST)
  EE Executive Council (SAF/AQR, AFMC/EN, SMC/EN, AF SE SL)
  EE Priority Champions (SESs from across EE)

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AFEE
Strategic Planning & Implementation

AFEE strategic planning model

- Strategic Plan: Signed by SecAF May 14
- Roadmap: Formal coordination complete; ECD 1QFY15
- Action Plans: In work; ECD 2QFY15

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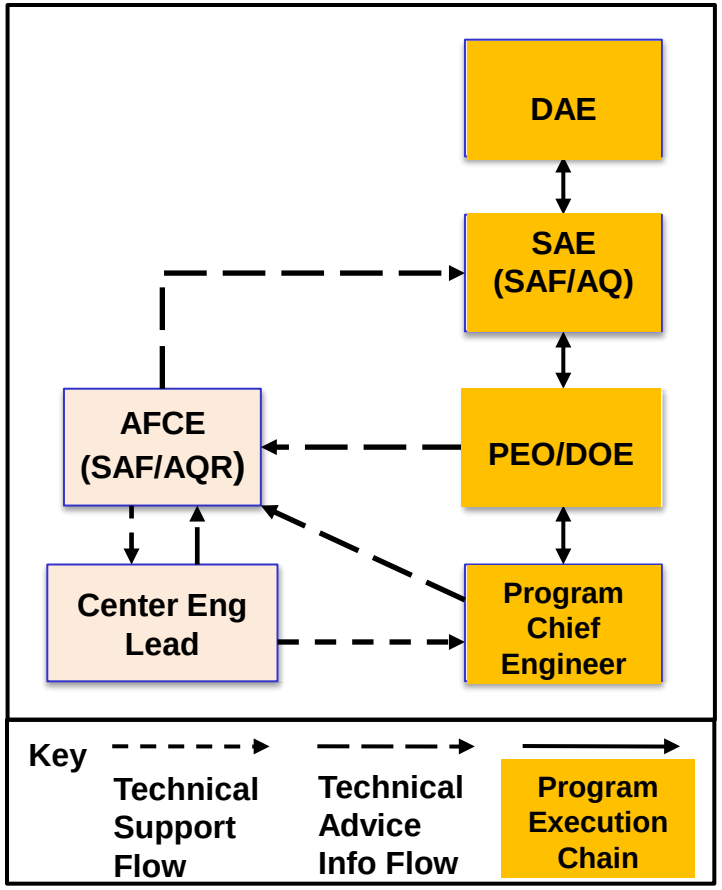
AFEE
Technical Authority

- Oct 13 AF Tech Authority memo signed by SAE:
  - Air Force Chief Engineer (AFCE) will:
    a) Provide tech advice to SAE
    b) Engage DOEs, Chief Engineers, and Center-level engineers on tech matters
    c) Oversee engineering policy and guidance
    d) Direct program assessments as needed
- Expectations:
  a) AFCE may delegate to Center/ENs:
     i. OSD PSA Support, and
     ii. Participation in principal tech reviews
  b) AFCE may direct program assessments
  c) Program engineering will discuss tech status w/ AFCE prior to SAE reviews



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Own the Technical Baseline (OTB)

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OTB
Genesis and Goal

- Dr. LaPlante acquisition enterprise priorities:
  1. Program execution
  2. Transparency
  3. *Own the Technical Baseline for Important Programs*
  4. Improve Business Acumen and Small Business
  5. Build the Future Air Force

- OTB Goal: Ensure government engineers have access to and can apply the level of knowledge needed to make informed decisions which can improve program performance

- Dr. LaPlante on OTB:
  - "Government is the decision maker and owns the knowledge"
  - "OTB may seem like a new idea; it's going back to our roots
  - "Better to work for a strong program office"

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OTB
Implementation

- Knowledge to be measured by access & application of key attributes of the technical baseline:
  1. System Design
  2. Interface Controls
  3. End-to-End System model and ability to exercise it
  4. Development and Operational Performance Data
  5. Data rights and open architectures
  6. Cost Data
  7. Technical Risks & Issues

- AQR working across Engineering Enterprise (AFMC, SMC, DOEs and MITRE) to implement OTB on four pilots and ACAT I programs
  - Measure access to/application of knowledge and technical skills gaps
  - Pilots to periodically report metrics, balance to be baselined

Digital Thread/Digital Systems Model

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Digital Thread / Digital Twin
The Analytical Framework

- **Digital Thread - An extensible, configurable and enterprise-level framework that seamlessly expedites the controlled interplay of authoritative data, information, and knowledge to inform decisions during a system's life cycle by providing the capability to access, integrate and transform disparate data into actionable information.**

- **Digital Twin - An integrated multi-physics, multi-scale, probabilistic simulation of an as-built system that uses the best available physical models, sensor information, and input data from the Digital Thread and a Digital System Model to mirror the life of its corresponding physical twin.**

Complementary, Integrable Concepts that put Engineering Back Into Systems Engineering

Digital Thread / Digital Twin Architecture

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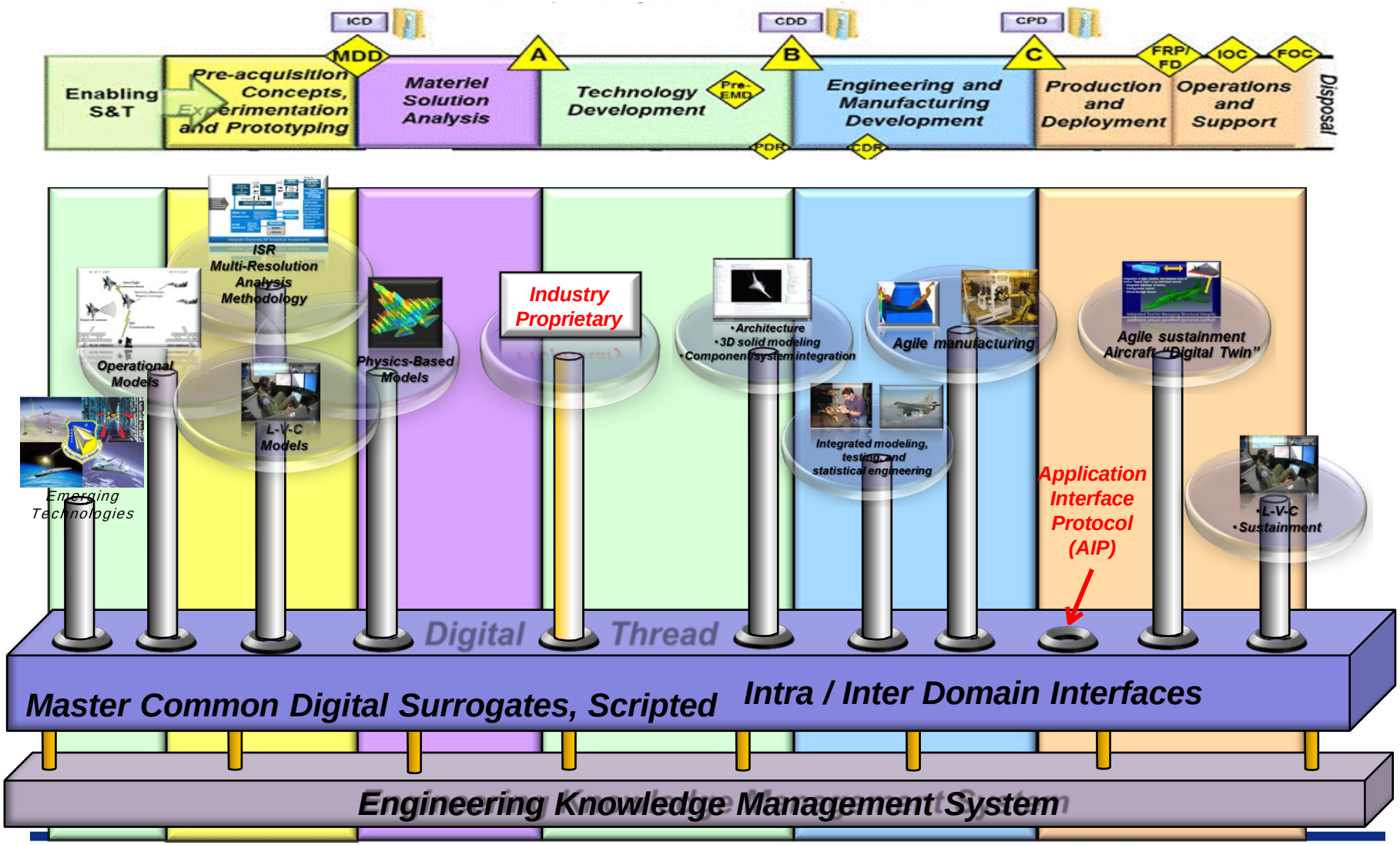

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Summary

- AFEE efforts tied to advancing Better Buying Power 3.0 and SAF/AQ priorities
- Government must be a smart buyer of weapons systems
  - Requires a competent technical workforce
  - Requires that engineers have a voice in the program execution chain
- Long-term effort to rebuild competencies to properly “Own the Tech Baseline”