

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)

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AFEE

Priorities & Governance

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 (SEs 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

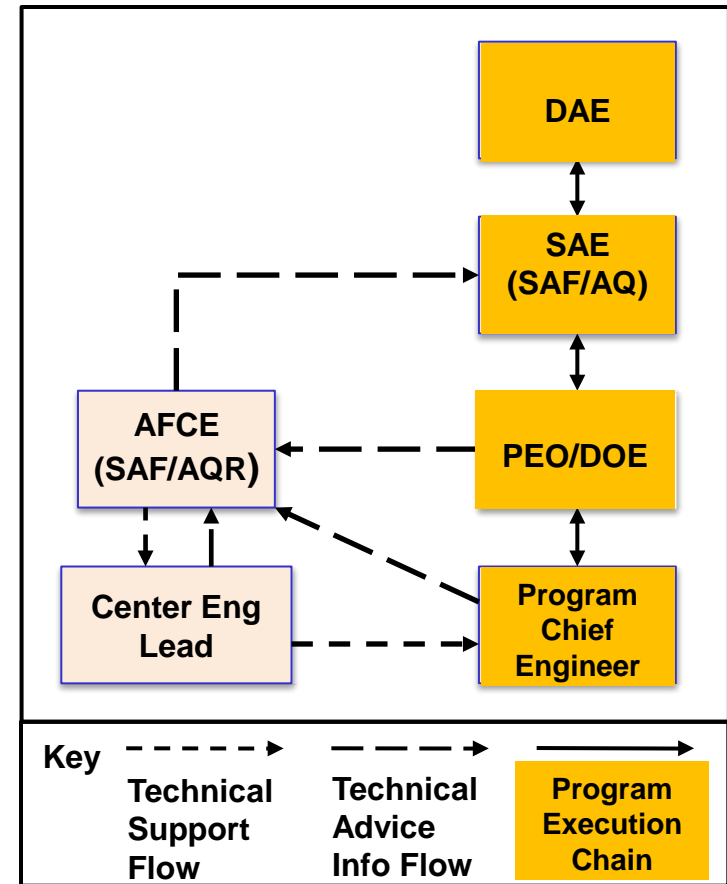


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AFEE Technical Authority

- 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



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Digital Thread/Digital Systems Model

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Digital Thread / Digital Twin

The Analytical Framework

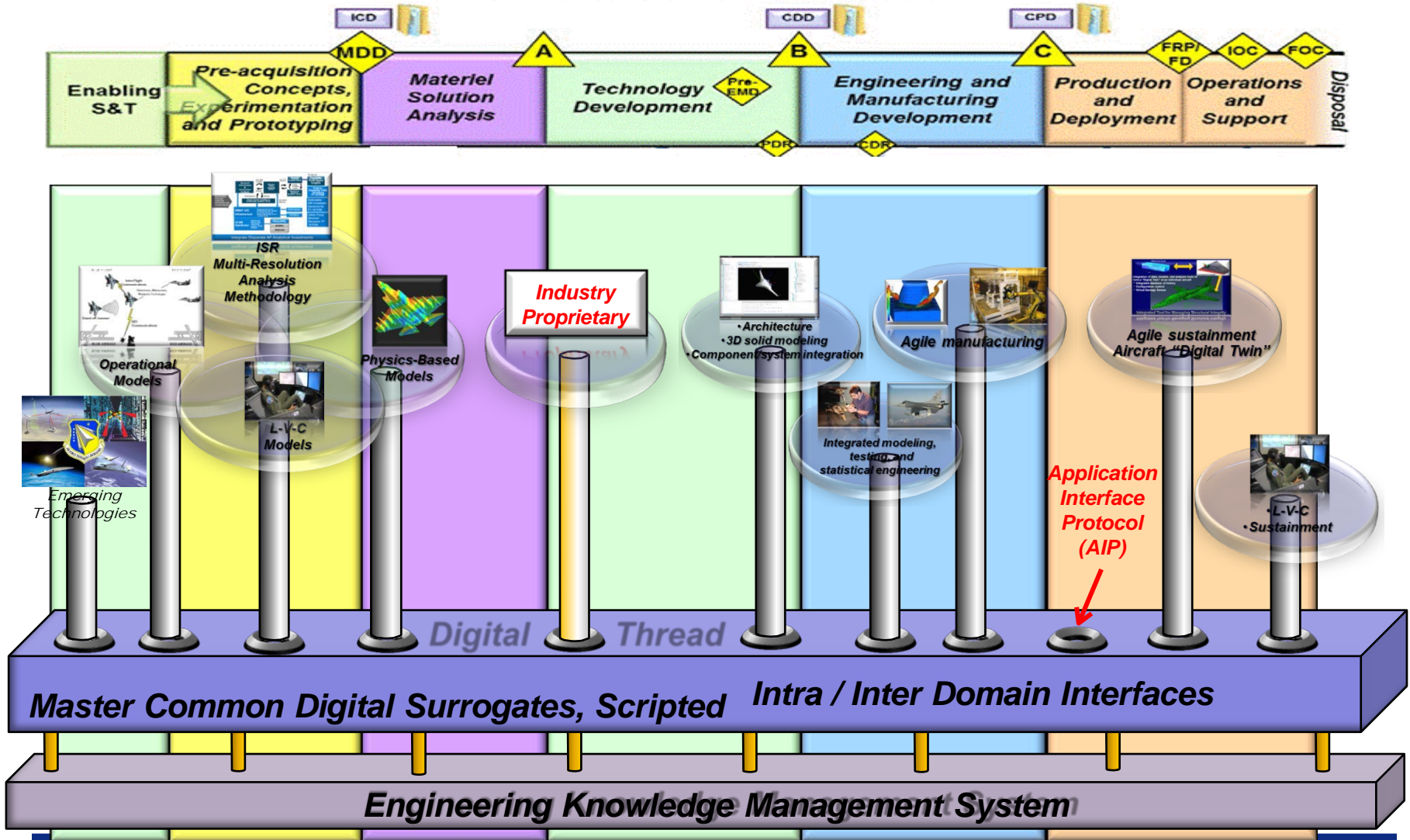
- **Digital Thread** - An extensible, configurable and enterprise-level framework that seamlessly expedites the controlled interplay of authoritative data, information, and knowledge to inform decisions during a system's life cycle by providing the capability to access, integrate and transform disparate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