ARMAMENT DIRECTORATE
DIGITAL ACQUISITION & SUSTAINMENT OFFICE

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Armament Directorate
Air Force Life Cycle Management Center
AFLCMC/EBZ
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VISION

To arm the defenders of freedom through the discovery and employment of knowledge, skills, and tools on acquisition programs for the armament enterprise family.

MISSION

Provide armament acquisition programs with digital training, tools, and expertise that enable agility and modularity in order to increase speed to field and prove disruptive to the armament building machines of our competitors.

PHILOSOPHY

To move decisively forward through digital uncertainty and realize the fourth industrial revolution in Armament; recognizing that "perfect solutions" take excessive resources to materialize, steps may be mistaken and dead ends realized. We will lead into the uncharted utilizing action and implementation to inform and improve.

- Acq program independent service provider

- Informs programs of digital/agile possibilities

- Takes program requirements and $

- Delivers w/positive handoff:
  - Contract Language
  - Software
  - IT solutions/hardware
  - Training
  - Butts in Seats (Digital SMEs)

IT

Open System Architectures and Implementation

Digital Tools

Modeling and Simulation
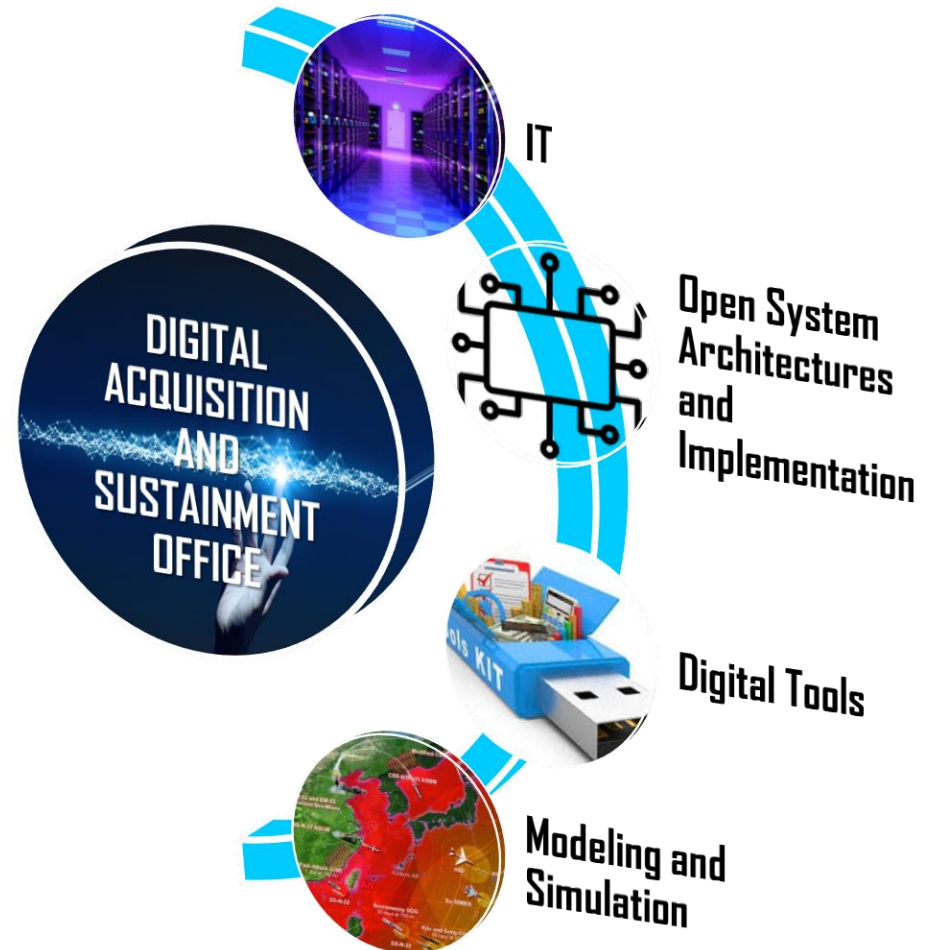
Responsible for Armament Directorate's Digital implementation

Overview:

-Traditional Air Force acquisition programs do not field capability at the speed or cost required to outpace the capabilities of our near-peers. Lengthy procurements delay the fielding of capability and much of the Air Force's funding is consumed by the sustainment phase.

Goal:

-Transition the Armament Directorate's Acquisition Strategy from document based to a model-centric approach

Challenges:

-Procuring the Tech Stack/Agile Contracting
-User Buy-in/Resistance to change

There is No Spoon: _The New Digital Acquisition Reality

Jan – Apr '21 Major Events

- Acquired SysML modeling experience – hire 4 LinQuest contractors; attend AFIT Training, 3DS provided course etc.

- Coordinated with various entities across the AF to gather lessons learned on successful DA implementations

- Procured 100 Cameo Enterprise Architecture floating licenses for shared EB use

- Researched PLM tools and their utility to support DA efforts

- Worked with EBX, EBD and JASSM to define their DA implementation

- Briefed Armament Industry Roundtable; Industry is engaged/tracking EB's Digital efforts

May – Dec '21 Projected Events

- Support ASP events; Supplement individual SPO's manpower to help define & achieve their DA goals

- Apr/May: Establish Cameo License server and Collaborative Cloud environment on NIPR or CloudONE

- May: Hire additional EPASS contractors to increase our manpower across all LOE's with a focus on EN & PM

- July: Finalize PLM tool trade study/analysis; Determine which tool(s) will help EB with all DA efforts

- Aug: Develop competency in all SW products in the EB tech stack; Identify capabilities, dependencies and required training

Overview:

Goals:

-Ensure all EB understands "Why Digital?"
-Provide EB awareness of the digital transformation
-Give all EB the tools, training, and insight to make them successful

Next Steps:

-Establish training tracks appropriate for each functional area
-Establish agile/digital training program
-Identify and procure additional training for MBSE, PLM, and Agile
-Create organic training capability
-Create consortium where digital acquisition professionals can discuss issues, breakthroughs, and share lessons learned

Challenges:

-Starting from zero...must fast track finding/developing training
-Managing strategy to start down multiple parallel paths
and then adopt winning approaches/solutions

Jan – Mar '21 Major Events

- Coordinated/sponsored 1st Dassault Intensive 5-day Cameo, SysML for Managers, AFIT W1 4-day, NAVAIR SysML Lite (25+)

- Stood up EB Digital Awareness Working Group and Campaign (EBDAWG)

- Stood up DASO Training Landing Page

- Finalized Dassault 5-day Intensive Cameo classes through August

- Published 1st DASO article – ACE Newsletter

- Finalized SSA video-based training purchase for 30 students

- Fully engaged with AFMC Digital Campaign

Apr – Dec '21 Projected Events

- Courses : 3 Dassault Intensive 5-day Cameo classes (May, Jun, Aug) 2 GTRI SysML 101/201 (Aug, Nov),

- Courses: 3 AFMC & AFIT SysML Classes, 60 SSA modules

- April: Finalize training tracks through Basic for Non-Tech, Intermediate Tech

- April: Complete construction on DASO Landing Page (DASO Drop Zone)

- May: Expand EBDAWG to include liaison from each EB program/Division

- Jun – Oct: Expand training to include Agile Systems, Agile S/W, PLM, OSA

- Jul – Dec: Expand training to "Train the Trainer" to start building organic capability

Goal:

		CONTINUOUS DESIGN & DEVELOPMENT
ENSURE WARFIGHTER DOMINANCE		VIABLE TECH REFRESH PATH
		DELIVER CAPABILITY AS IT'S READY (DON'T WAIT FOR REQUIREMENTS)
INCREASE COMPETITION		MOVE AWAY FROM LARGE BUYS TO SMALL LOTS WITH CAPABILITY IMPROVEMENT
		LEAPFROG DESIGNS AT REGULAR PERIODS, CONTINUOUS UPGRADES IN-BETWEEN
SAVE MONEY		INCREASE COMPETITION FOR REFRESH TECHNOLOGIES BEYOND PRIMES
		ENTIRE INDUSTRIAL BASE ENGAGED IN CONTINUOUS PRODUCTION

Next Steps:

- Develop common contract language to capture current (Data Format) WOSA ICD for FY22
- Build out electrical and physical modularity aspects using UAI/OMS with existing consortia
- Establish government validation requirements and means for UAI/OMS modeled after MOATEL

Challenges:

- MOATEL Transition
- Implementing within current vendor lock environment

Jan – Mar events

- Coordinated receipt of SysML Model-based WOSA 2.0 file from AFRL WOSA Team

- Led Effort to Create WOSA Transition Plan for Signature at EB level

- Created WOSA IPT Charter to work Transition by end of CY 2021

Apr – Dec events

- 6 Apr: Interface Control Working Group #12 for WOSA held via ZoomGov

- 14 May: Initial EB WOSA Transition Plan Ready for Signatures

- 16 July: Interface Control Working Group #13 for WOSA

- 15 Oct: Develop common contract language to capture current (Data Format) WOSA ICD for FY22

- 22 Oct: Interface Control Working Group #14 for WOSA

- 13 Dec: Develop build out of electrical and physical modularity aspects to prepare for WOSA ICWG #15

- 31 Dec: WOSA Transition Complete (includes MOATEL and support for program offices)

Goal:

ENSURE WARFIGHTER DOMINANCE	**COMMON LANGUAGE**
	COMMON MODEL STRUCTURE
STABILIZE INDUSTRIAL BASE	**COMMON OPEN INTERFACES/STANDARDS**
	FACILITATES RE-USE (of requirements, products, verification models)
	RE-USE FACILITATES RAPID ACQUISITION
SAVE MONEY	**RE-USE ESTABLISHES STRONG MARKET FOR 2D TIER SUPPLIERS**
	RE-USE FACILITATES OPTIMIZATION

Next Steps:

-Expand EB Armament GRA to include External Interfaces & Detailed RMF Requirements

-Further refine 90% Implementation Model guidance w/ feedback from SMEs across EB

Challenges:

-Defining common 90% Requirements w/ terminology applicable across Directorate programs

-Establishing common 90% Implementation Model all contractors will comply with

Jan – Apr events

- Coordinated receipt of SysML Model-based WOSA 2.0 file from AFRL WOSA Team

- Gathered inputs/strategies from multiple sources for best-of-breed GRA
  - Multiple SME inputs on Physical Decomposition
  - Multiple SME inputs on Requirements and Use Cases
  - Leveraging EBZA, W1 and other GRAs
  - Leveraging Style Guides from multiple programs (~6)

- 16 Apr: L-3 Harris on contract to contribute to development of EB GRA

- 3 May: Released Draft 0.9 EB GRA Release (WOSA + requirements strategy + implementation model guidance)

May – Dec events

- 1 Jun: Release Initial 1.0 EB GRA (WOSA Update)

- Jun – Jul: Cybersecurity/RMF Requirements model; Airworthiness Requirements model

- ~15 July: Updated EB GRA w/ L-3 inputs (1 Jun GRA + RMF/Air Worthiness + refined implementation model)

- July - Oct:

    Air-to-Ground UAI Aircraft/Weapon Interface model; Air-to-Air Aircraft/Weapon Interface model; Aircraft/Weapon Datalink Interface model; Long Range Kill Chain Interface model; Weapon Reprograming Interface model; Mission Planning Interface model

- ~15 Oct: Release updated EB GRA (15 July GRA + feedback + lessons learned + TBD)

Goals:

-Have multi-level security IT solutions available/implemented that support digital program management/engineering engagement

-Enable "big data" transmission

-Enable direct connection with industry (looking at same live models)

Next Steps:

-Finalize Fences architecture; get accurate cost data

-Take initial steps to on-board Summit

Challenges:

-Resources

-Building the SEITaaS team that will develop the Fences environment

-Competition amongst "needing" communities for HNJ support

Jan – Mar '21 Major Events

- Took EN's Fences framework and added EB/DASO vision to it

    - Multiple meetings with HNJT and Novetta to iterate closer to the initial S-Fences environment solution

- Stood Up DASO/EBO working team that meets weekly, venue to work issues

- Defined the phased approach for EBZ Wi-FI capability with EBO and the 96th Comm group

- Developed a working relationship with AFRL on Cloud 1, set in motion initial capability, set up initial meeting with HN on CUI Cloud 1 requirements

- Summit fielding at Eglin now a high priority with HNJ , actively working Summit on-boarding with HNJ/EBO

Apr – Dec '21 Projected Events

- Get initial S-Fences environment up and running by 31 Oct 21

- Model cyber aspects into the GRA, model data flow in S-Fences in Cameo

- Get initial AFRL Cloud 1 Cameo Teamwork Cloud capability up in AFRL environment in summer 21, full CUI cloud capability Dec 21

- Get initial EBZ Wi-Fi working (30 Jun 21); get the two additional ATOs needed for full capability started; Objective req – completed 31 Dec 21

- Set up the various working groups (Cloud Accreditation Wg, AT Wg?, RMF Wg)

- Leverage 96th CTG DREN Network Bandwidth Expansion efforts to enable large data movements

Goal: Consolidate and nurture armament unique modeling & simulation capabilities

Next Steps:
- Consolidate current expertise in lethality and GNC
- Grow survivability M&S competency
- Increase fidelity of armament representation in AF level campaign/mission sims

Challenges:
- Multi-level security needs
- Identifying full scope of M&S requiring "own/manage the technical baseline support"
- Obtaining validated simulations
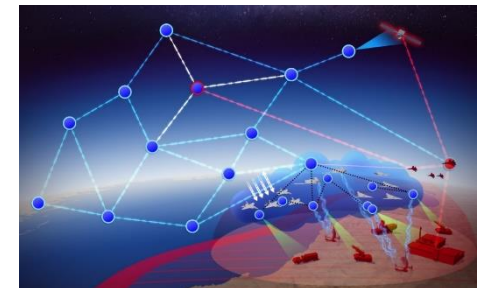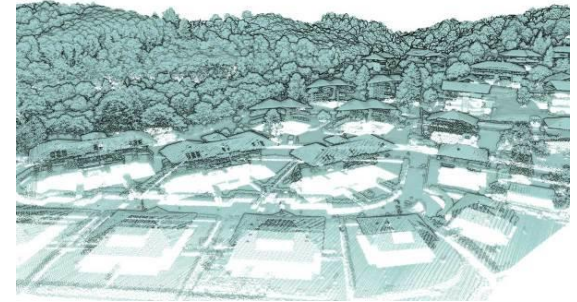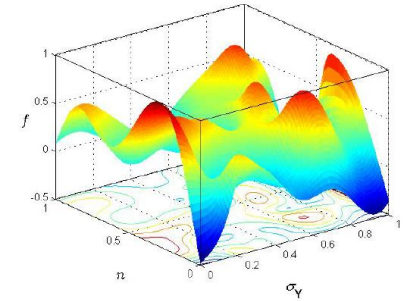
Conduct <u>INDEPENDENT</u>, <u>UNBIASED</u>, <u>OBJECTIVE</u>
Verification & Validation Analysis
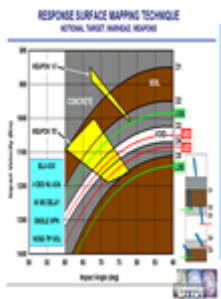**Provide Performance Evaluations to Inform Acquisition Decisions**
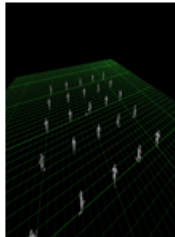
INDEPENDENT EVALUATION

- Unbiased oversight & independent metrics
- Manage common data and ground rules
- Team w/stakeholders & industry partners

M&S TOOL MANAGEMENT

- Proactive Identification of Models
- Cultivate Authoritative Data
- Maintain Execution Environment

CONCEPT DEVELOPMENT

- Research & Quantify Performance Gaps
- Define Concept Attributes / Performance Trade Space

TRANSITION / DIGITAL ENTERPRISE

- Facilitate Reuse of M&S Products
- Preserve History of Performance Changes as Concept Characteristics are Refined
- Provide Reach back/Corporate Knowledge

STRUCTURED EXECUTION PROCESS

- Prioritize and Execute across Multiple Projects and Customers
- Continual Improvement of Products/Services
- *Agile Scrum Framework*

QUESTIONS?