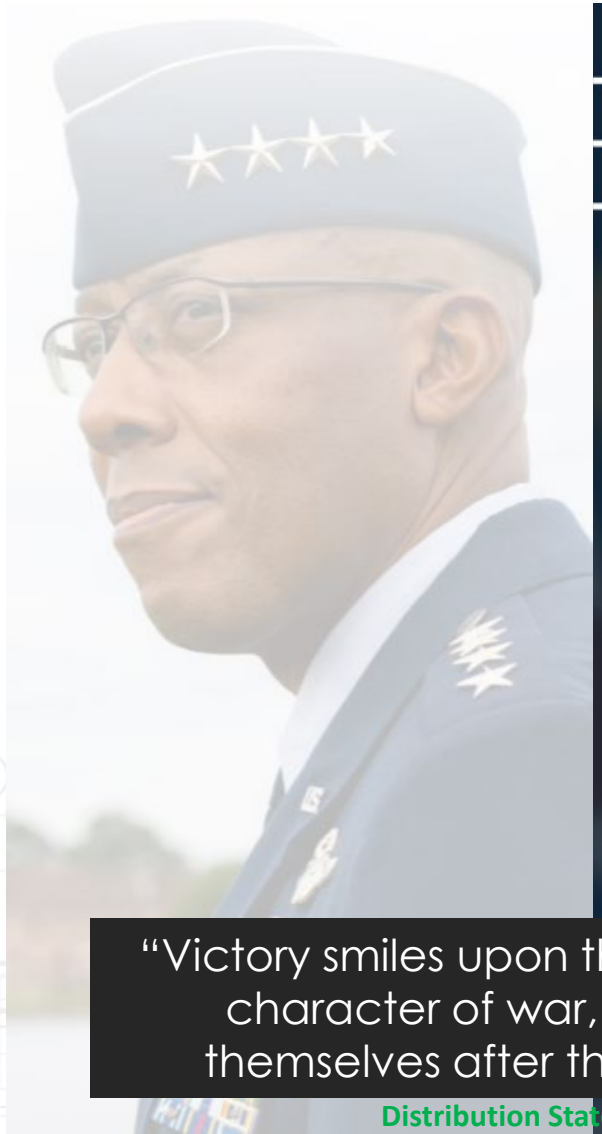
DAF Digital Transformation:
An Accelerated Future State

DTO

DAF Vision



ACCELERATE CHANGE OR LOSE

"The current acquisition process is not built to maintain our advantage in tomorrow's fight"

"We are seeing competitors outpace our current fielding timelines"

"Good enough today will fail tomorrow"

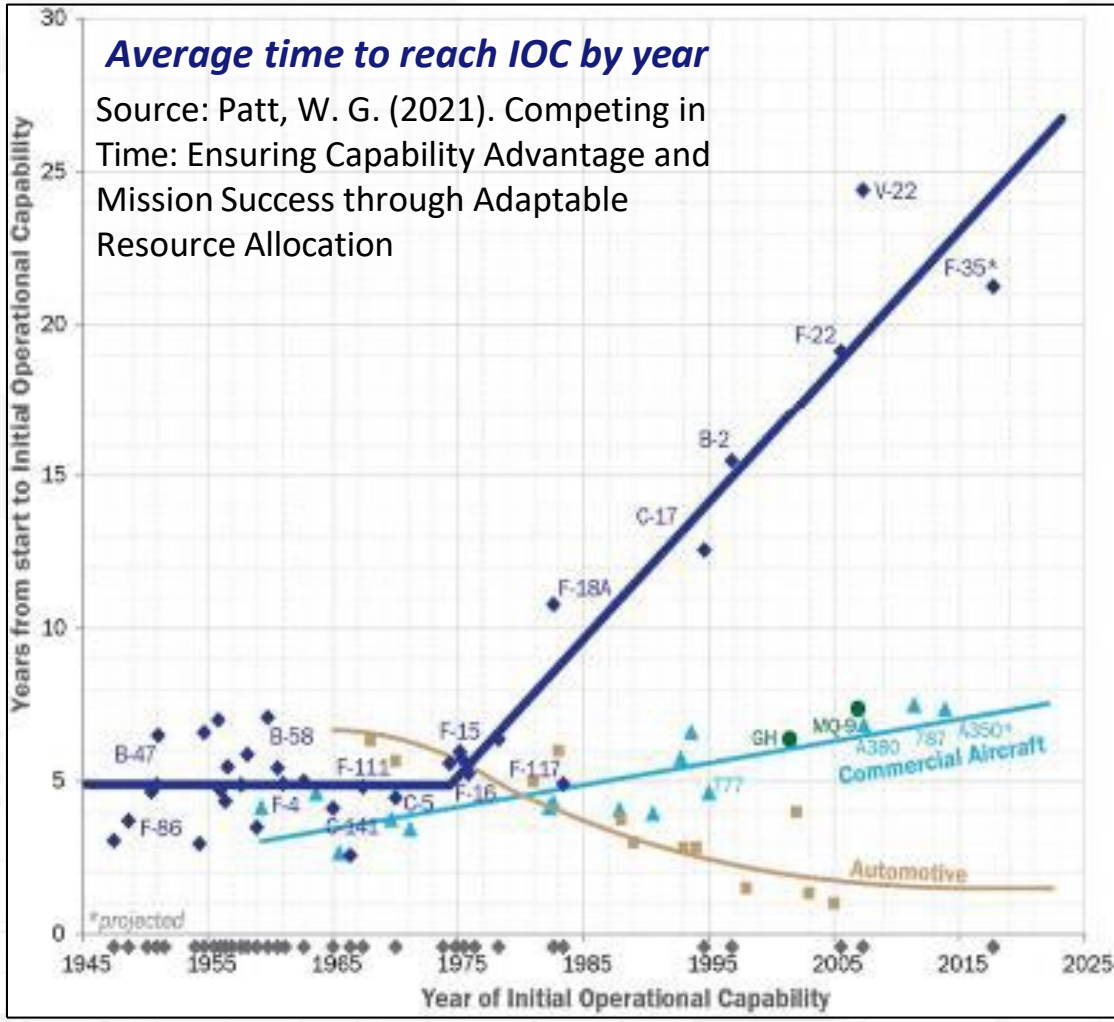
AUGUST 2020

"Victory smiles upon those who anticipate the change in the character of war, not upon those who wait to adapt themselves after the changes occur." — Giulio Douhet

DTO

Strategic 'Why': Competing in Time

- "it takes the **US on average sixteen years** to deliver an idea to operational capability, versus **fewer than seven for China**"
- "Defense acquisition process and legacy defense industrial base approach struggle to accommodate timely adoption of these emerging technologies"
- "**Competitive advantage comes from the scale of available options, tempo of decision- making, and superior decision processes**"



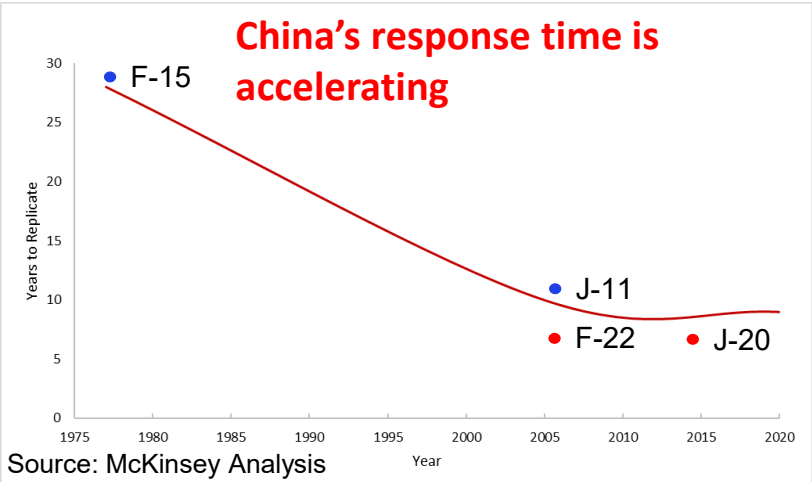
China iterates twice as fast through military development and fielding cycles

Source: Acquisition Talk

AMERICAS | ARMS | ASIA PACIFIC | POLITICS

China Weapons Acquisition Five Times Faster Than US: Defense Official

Source: The Defense Post

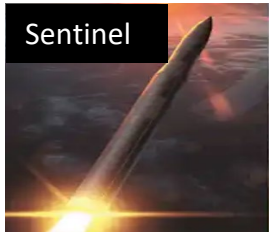


Better Capability, Faster

Research | Develop | Design | Test | Supply | Sustain | Maintain | Retire

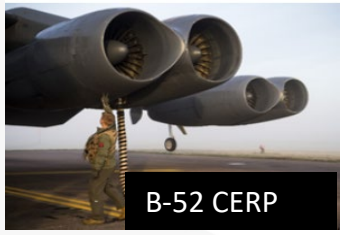
Prototype | Requirements | Analysis | DT & OT | SLEP | Modernize | DMSMS

- First flight in 36 mo from concept dev.
- Modularity enables >10 variations
- Digital models enables rapid design/test/validate cycles w/warfighter feedback

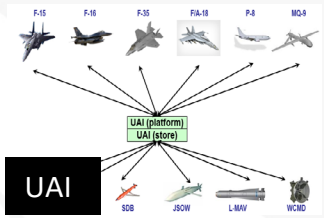


- >6B design variants analyzed to optimize performance
- ~6 month reduction in time to SRR
- VR based training for operators/MX

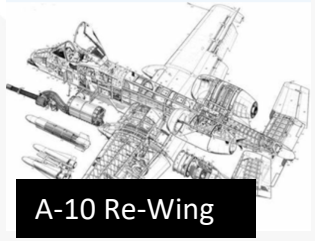
- Months → Days for software development & release
- 1000's of high fidelity design iterations
- Months → Weeks prep time for acq. reviews
- Pivot w/evolving threat



- >60 day reduction in time to PDR w/shared digital tool environment
- Months saved in virtual validation of assembly & MX
- Virtual training opportunities for crews/MX



- >2 yrs, $2M saved in ICD dev't and SIL testing for F-15/SDB II integration
- For NATO munitions: 19 & 15 months saved on wpn integration compared to 5 year nominal avg



- ~1 yr saved in design qualification
- ~60% reduction in sustainment eng response time
- 2000 hrs or A/C downtime reduced to 700 hrs

Foundational Supporting Capabilities

- Model Based System Engineering (MBSE)
- Threat Informed Mission Modeling
- Acquisition Data Management
- Open Standards
- Reference Architectures
- Automated Certification Processes
- Authoritative Sources of Truth (ASoT)
- Enterprise Tools
- PLM & linkage to Log-IT
- Robust IT Infrastructure
- Workforce Training
- Enterprise Policy & Governance
- Digital Culture

Overcoming silo's and enabling enterprise scale requires enterprise investment

AFMC Strategy Map

MISSION

Powering the world's greatest Air and Space Forces… We develop, deliver, support, and sustain war-winning capabilities.

VISION

One AFMC--integrated, innovative, trusted, and empowered…

Indispensable to our nation, disruptive to our adversaries.

Our Cross-Cutting Attributes

Speed • Strength • Endurance • Balance • Flexibility • Coordination

Our Commitments

Enable DAF Priorities • Support the Warfighter & Respect the Taxpayer • Focus on Enterprise Solutions & Digital Materiel Management • Provide All Airmen the Opportunity to Reach Full Potential • Embrace Innovation

Our Lines of Effort

LOE 1 — Deliver Integrated Capabilities

Integrate research, development, test, sustainment, support, and infrastructure to maximize readiness and lethality for each individual capability and across all capabilities.

- **Sustain the Legacy Force (Internal/External):** Integrate all efforts within and across our centers by working together as One Team to ensure the current force structure is ready anytime and anywhere against any adversary.
- **Deliver the Future Force (Internal/External):** Create future capabilities that deter and disrupt our adversaries using the same integrated intra- and inter-center One Team approaches.
- **Seek DAF Enterprise Solutions (Internal/External):** Through intra- and inter-center integration and coordination, deploy DAF enterprise solutions to the max extent and defer to unique solutions only when necessary.
- **Responsive Support (Internal/External):** Deliver AFMC materiel capability and combat support; integrate to ensure operational surge and sprint capabilities meet warfighter and humanitarian requirements

LOE 2 — Strengthen Our Team

Advance the professional and personal development, retention, and resiliency of our entire workforce so every AFMC Airman can achieve their full potential.

- **Build Full Potential Airmen (Internal):** Provide intentional opportunities for military, civilian team members to achieve their professional and personal goals, ensuring diversity, equity, inclusion, and accessibility.
- **Intrust Decision to Lower Levels (Internal):** Push responsibilities and decision-making to trained-and-ready lower levels
- **Develop Leaders (Internal):** Develop leaders able to create environments where team members professionally and personally thrive

Digital Material Management - DMM

LOE 3 — Revolutionize Our Processes

Implement AFMC Enterprise Solutions and Digital Materiel Management, revolutionizing critical processes in support of mission execution and the warfighter.

- **Build One AFMC Business Enterprise (Internal):** Inculcate internal processes that activate speed, strength, endurance, balance, flexibility, and coordination in AFMC's ability to deliver capabilities on relevant timelines in spite of fluid threat environments.
- **Employ Digital Materiel Management (Internal):** Ensure critical processes employ digital methods across the entire lifecycle--from invention to retirement--for both warfighting capabilities as well as installation and mission support capabilities.

LOE 4 — Amplify Warfighting Culture

Connect every Airman to the mission and focus the materiel enterprise on delivering capabilities and services in support of operational execution and deterrence.

- **Connect to the Mission (Internal):** Ensure every team member and unit understands their role, value, and connection in materiel capability delivery to the operational units we support.
- **Be the Trusted Partner (Internal/External):** Drive toward the speed of trust with one another, the warfighter, industry, and our mission partners

DIGITAL MATERIEL MANAGEMENT

Enterprise Digital Dominance

Video OV-1

DMM: An Accelerated Future State Whitepaper

DMM: An Accelerate Future State

Lifecycle DMM

Invention

Systems Engineering and Requirements Decomposition

Performance Modeling and Design

Test and Performance Verification

Production

Product Support Data Cataloging

Sustainment

Modifications

Installation and Mission Support

[DMM: An Accelerated Future State Whitepaper]

DMM: An Accelerate Future State

Functional DMM

Program Management

Contracting

Engineering

Logistics

Financial Management

Test and Evaluation

[DMM: An Accelerated Future State Whitepaper]

FINANCIAL MANAGEMENT

DMM means instant access to current budget, cost, and program execution data for financial managers. System performance models can rapidly reflect cost considerations in design trade-space analysis, allow financial professionals to execute a series of 'what-if' analyses to work towards an optimal solution for the enterprise, and streamline Financial Improvement and Audit Readiness (FIAR) compliance for all lifecycle phases.

Digital Guidance and Policy

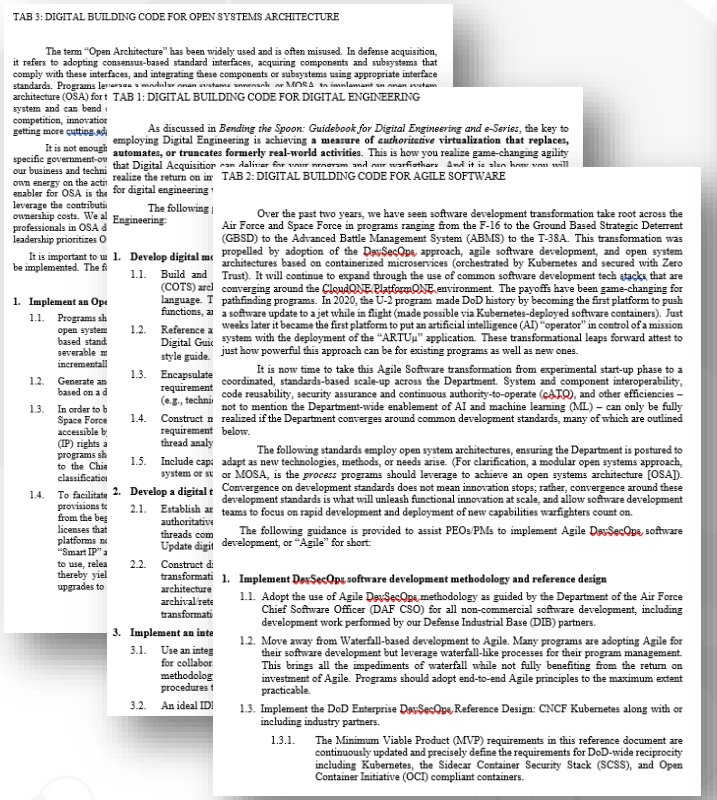
WELCOME TO THE DEPARTMENT OF THE AIR FORCE DIGITAL GUIDE

Overview

The Air Force must accelerate our enterprise to deliver war-winning capability. While USAF and USSF quality and effectiveness is excellent, the increasing time it takes us to field new capabilities is our greatest hindrance to maintaining dominance in the future.

1. Background +
2. Digital Enterprise Processes +
3. Data Standards and Architecture +
4. Digital Enterprise Resources +

[Department of the Air Force Digital Guide (pubic facing)]

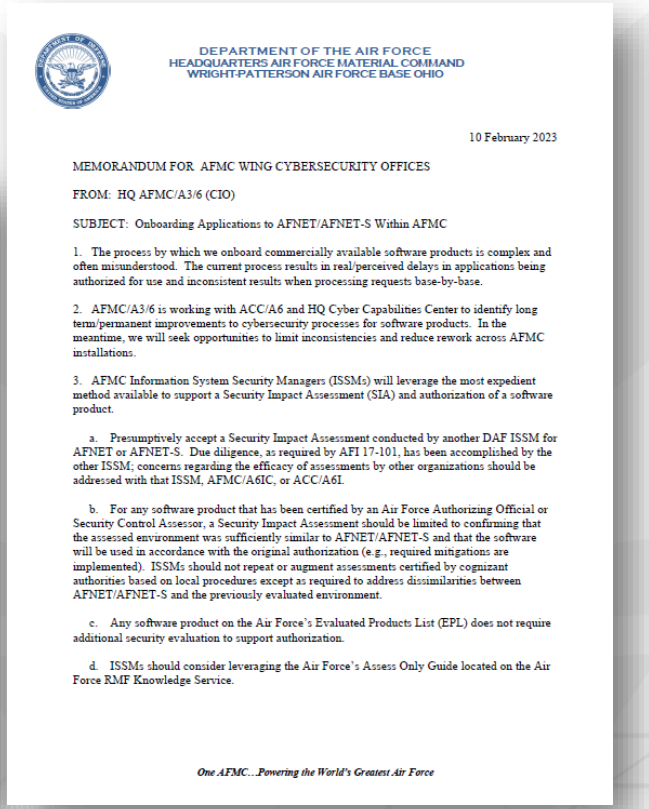


TAB 3: DIGITAL BUILDING CODE FOR OPEN SYSTEMS ARCHITECTURE

TAB 1: DIGITAL BUILDING CODE FOR DIGITAL ENGINEERING

TAB 2: DIGITAL BUILDING CODE FOR AGILE SOFTWARE

Digital Building Code:
(a) Digital
(b) Agile
(c) Open



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MATERIAL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE OHIO

10 February 2023

MEMORANDUM FOR AFMC WING CYBERSECURITY OFFICES

FROM: HQ AFMC/A3/6 (CIO)

SUBJECT: Onboarding Applications to AFNET/AFNET-S Within AFMC

1. The process by which we onboard commercially available software products is complex and often misunderstood. The current process results in real/perceived delays in applications being authorized for use and inconsistent results when processing requests base-by-base.

2. AFMC/A3/6 is working with ACC/A6 and HQ Cyber Capabilities Center to identify long term/permanent improvements to cybersecurity processes for software products. In the meantime, we will seek opportunities to limit inconsistencies and reduce rework across AFMC installations.

3. AFMC Information System Security Managers (ISSMs) will leverage the most expedient method available to support a Security Impact Assessment (SIA) and authorization of a software product.

a. Presumptively accept a Security Impact Assessment conducted by another DAF ISSM for AFNET or AFNET-S. Due diligence, as required by AFI 17-101, has been accomplished by the other ISSM; concerns regarding the efficacy of assessments by other organizations should be addressed with that ISSM, AFMC/A6IC, or ACC/A6I.

b. For any software product that has been certified by an Air Force Authorizing Official or Security Control Assessor, a Security Impact Assessment should be limited to confirming that the assessed environment was sufficiently similar to AFNET/AFNET-S and that the software will be used in accordance with the original authorization (e.g., required mitigations are implemented). ISSMs should not repeat or augment assessments certified by cognizant authorities based on local procedures except as required to address dissimilarities between AFNET/AFNET-S and the previously evaluated environment.

c. Any software product on the Air Force's Evaluated Products List (EPL) does not require additional security evaluation to support authorization.

d. ISSMs should consider leveraging the Air Force's Assess Only Guide located on the Air Force RMF Knowledge Service.

One AFMC…Powering the World's Greatest Air Force

SW Reciprocity Memo

DTO

Tools and Training

DPaaS
DIGITAL PLATFORM AS A SERVICE

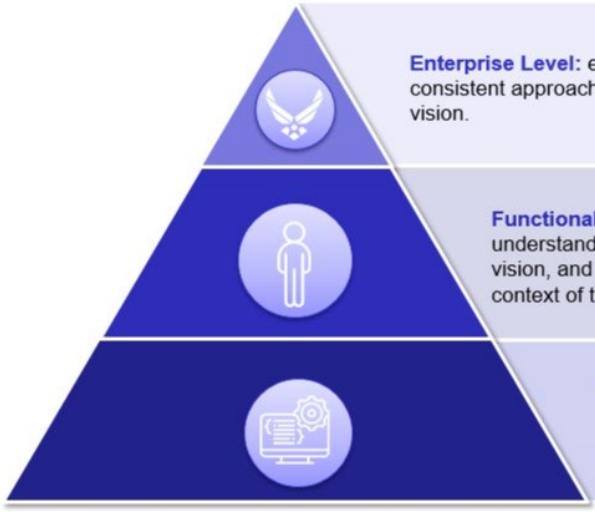
DPaaS
LAUNCHPAD

DIGITAL UNIVERSITY

AVOLVE

AFIT D I C E
Digital Integration & Innovation Center of Excellence

Successful implementation and roll-out of digital capabilities requires preparation and action at three levels: the **Enterprise,** the **Functional,** and the **Program**.

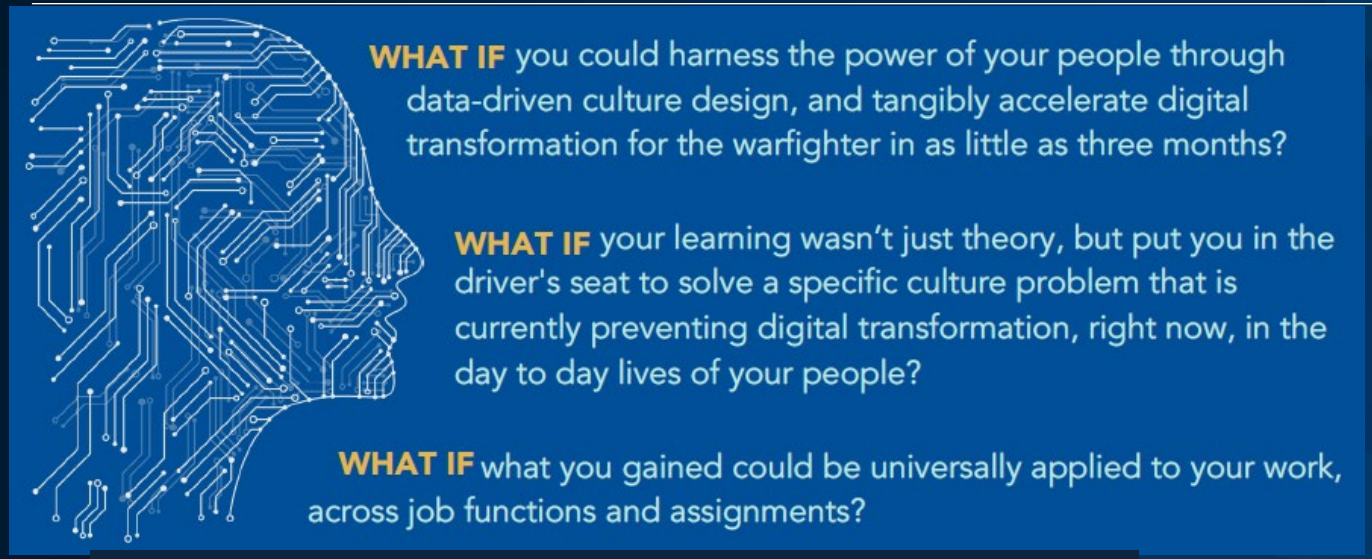


Enterprise Level: establishes the infrastructure, defines a consistent approach and lexicon, and communicates the holistic vision.

Functional Level: The Individual Employee understands impacts to their role, how they fit into the vision, and develops the required skills within the context of their functional community.

Program Level: defines its acquisition and digital strategy, determines the required workforce skills, selects the tools and tech stack, and provides program-specific learning.

Culture Design and Engagement



Hero Recognition Campaign

Outreach and Ongoing Efforts

"Tools for All" Business Model Exploration

Category	Metric	Metric Component
Infrastructure	Model Environment	Tool Access and Governance
		Data and Tool Interoperability
	Collaboration	Capability
		Security
Modeling / Analysis	Quality	Authoritative Sources of Truth
		Metrics
		Model-Based Verification and Validation of Systems
		Digital Management Strategy
		Model-Based Systems Engineering

Digital Maturity Assessment

Program Outreach and Strategy Development

Industry Outreach/Colliders

Data Management Frameworks

ATO/EPL Process Improvement

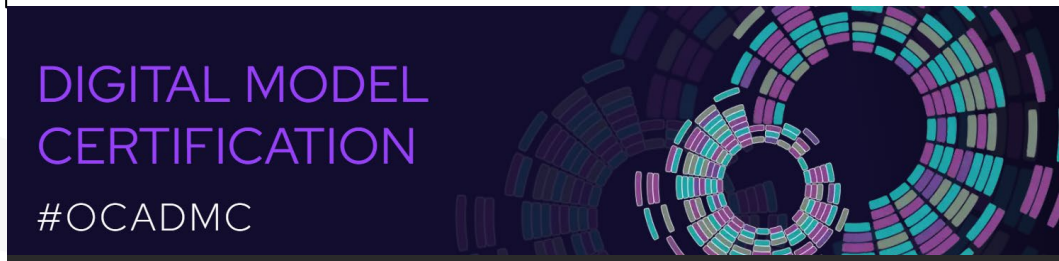
AFIT Digital Center of Excellence

Tool interop/COTS SW use

Open-Source SW inclusion

Certification Pathfinding

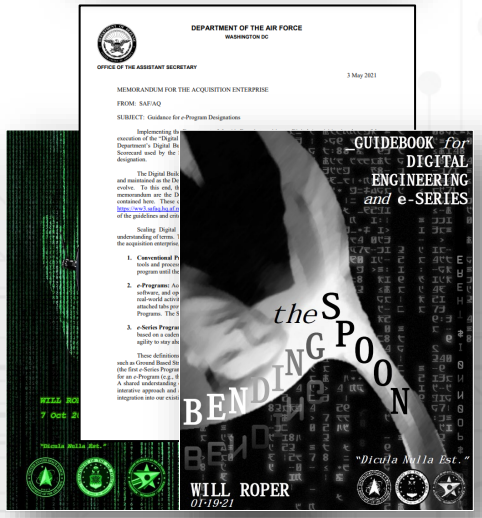
AFMC Digital Airworthiness Team

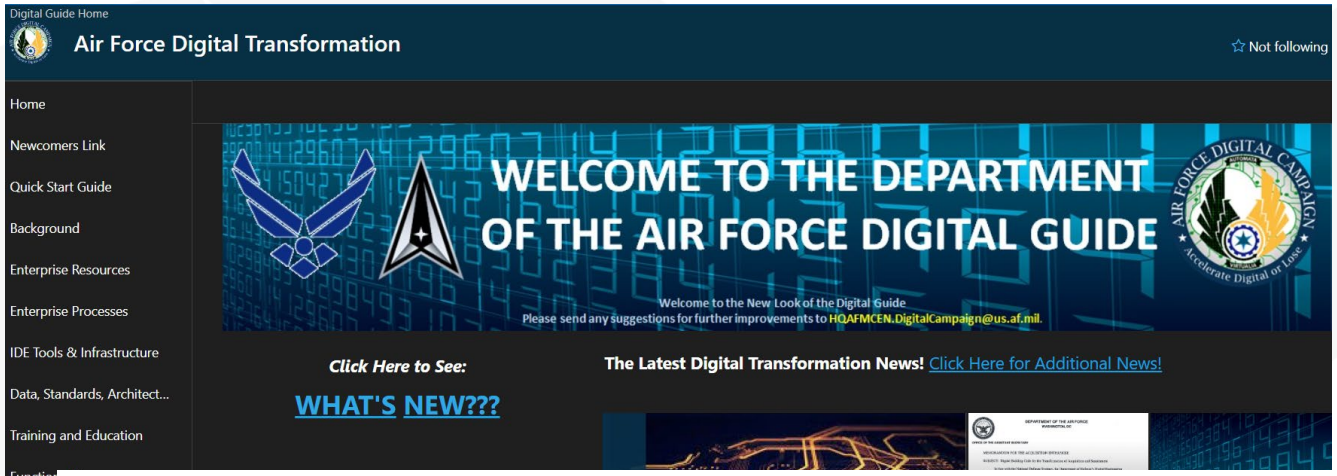


UNITED STATES AIR FORCE

COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA)

Gov't/Industry Interactions





	FY21	FY22	FY23	FY24	FY25	FY26
Infrastructure						
Model Environment		Implement generic governance policies		Appropriately controlled access; Defined governance partially applied across enterprise		
		Define inter-database/tool associations	Data independent from tools; Limited item associations managed		Data portability & all data/item traceability	
Collaboration Space		IDE/MilHub IOC	IDE FOC - partial enterprise usage	Most IPTs integrated into IDE/MilHub	IPTs interacting across enterprise via IDE/MilHub	
		Define permission roles in enterprise	Enforce permissions across enterprise	Apply applicable IP policies	Secure, monitor & control models & data across enterprise	
Process/Policy						
Model Management		Develop digital management strategy		Inconsistent support from DE tools	Infrequent support from DE tools	Mature IDE/consistent spt from DE tools
		Develop full system models across the lifecycle		Consistent institutional approach to integrated system model		
		Define & implement configuration management processes in MilHub		Apply config mgmt in MilHub to some models/data	Apply config mgmt in MilHub to all models/data in enterprise	
		Map & identify standard V&V procedures and programs for limited models & data		Partially implement V&V procedures for identified models & data		
Data Management		Continually update processes to rely on data from ASOT		Update processes via digital thread -- employ limited twins	Decision making using thread/twins	
		Ingest enterprise data into MilHub	Conform data to common architecture -- plan automation techniques		Implement automation & data reuse	
		Employ some visualization tools	Consistently deploy UI & visualization tools that contribute to some enterprise decision making		UI able to interrogate ASOT	
Workforce/Culture						
Workforce Capability		Identify organizational training needs -- identify & promote courses		Develop strategic training plan; hire experts to review modeling methods/data mgmt; plan robust training		
		Identify, use, and promote common lexicons/sources across enterprise		Consistently use common lexicons/sources for lifecycle	Identify, use, and promote authoritative lexicons/sources	
Adoption		Isolated processes across enterprise use digital artifacts and data			Majority of enterprise processes & DM use dig artifacts/data	
		Utilize default architectures and begin customization for enterprise use		Define reference architectures -- plan/identify validation methods		
		Implement limited organizational coordination of digital artifact use as deliverables; Use models to record acceptance of items through model content/data review in modeling environment				
Modeling/Analysis						
Model & Data Quality		Plan/develop ASOT (MilHub)	Implement ASOT	Plan digital thread & limited twins to contribute to ASOT		
		Identify tools that assess model quality; map & define metrics for V&V of models		Implement and monitor metrics		
		Identify standard V&V procedures and programs that require V&V		Establish model dev't processes; select programs for V&V		Partially implement V&V

Legend
Level 0 Level 1 Level 2 Level 3 Level 4