

Digital Dominance

From falling behind, to leaping ahead

Presenter: Scott Thompson, DAF Digital Transformation Office

Click or Scan to connect



digital
transformation

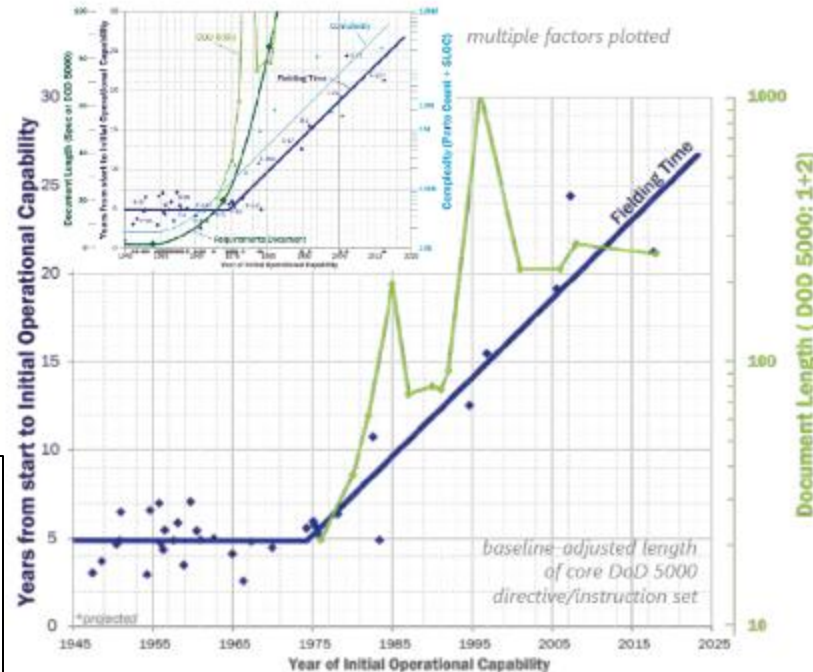
starts
from
within

Strategic ‘Why’: Competing in Time

- “takes the US on average sixteen years to deliver an idea to operational capability, fewer than seven for China”
- “Defense acquisition process struggle to accommodate timely adoption of emerging technologies”

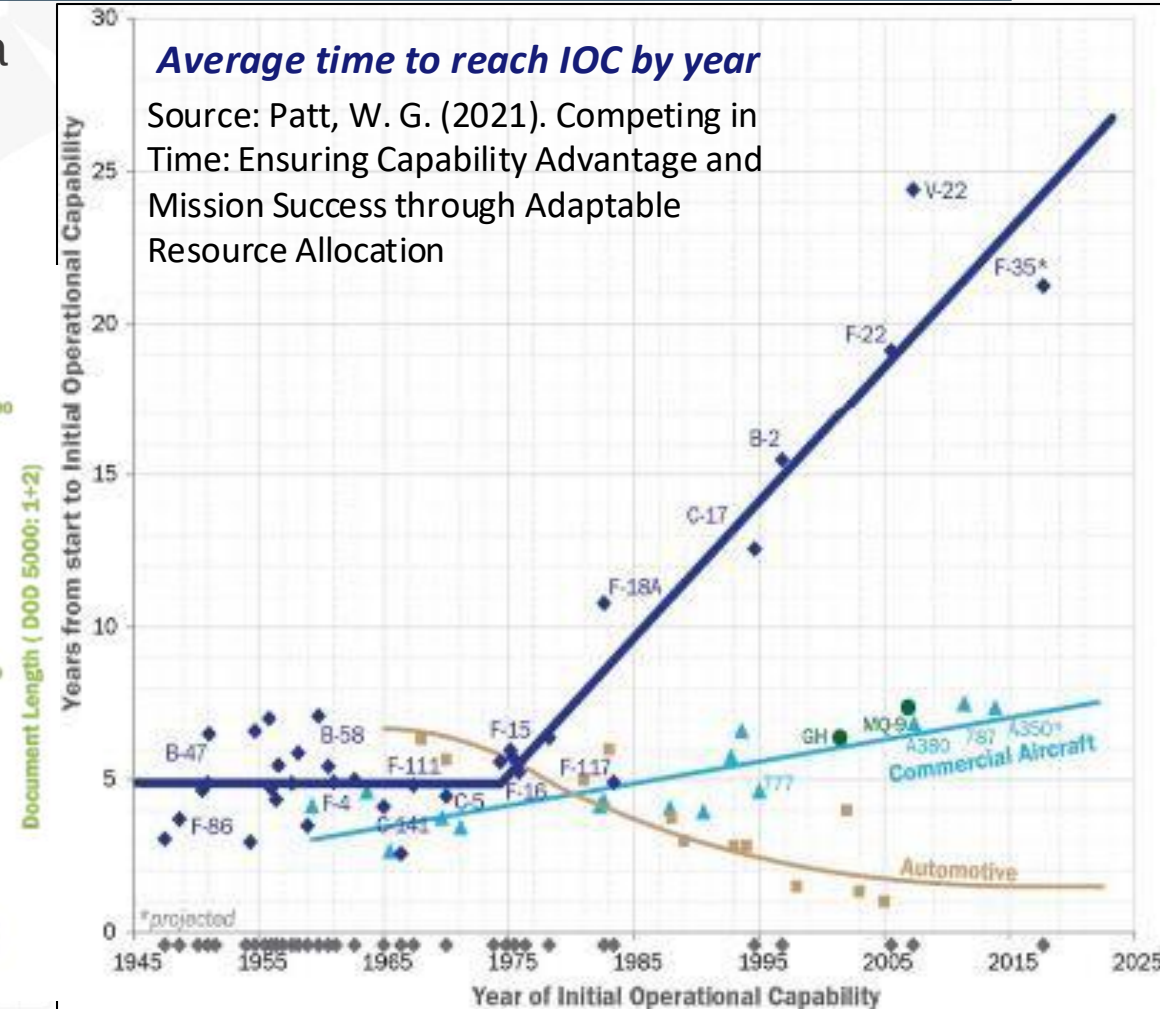
- “length of the DoD 5000.1 and 2 instructions ... shows a remarkable correlation, suggesting that process complexity is a key driver”

Figure 5: Effect of DoD 5000 on time-to-market



Average time to reach IOC by year

Source: Patt, W. G. (2021). Competing in Time: Ensuring Capability Advantage and Mission Success through Adaptable Resource Allocation



Competing in Time: Ensuring Capability Advantage and Mission Success through Adaptable Resource Allocation

DMM Across the Lifecycle

Mission Engineering

Research

Develop

Design

Test

Supply

Sustain

Maintain

Modernize

Prototype

Requirements

Analysis

DT & OT

SLEP

Modernize

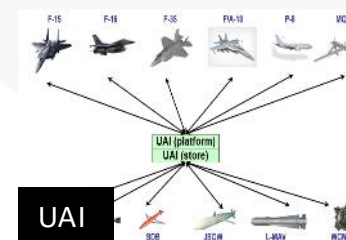
DMSMS

Tradespace/
CONOPS dev

Skyborg

Sentinel

B-52 CERP



A-10 Re-Wing

- Requirements owners and acquisition professionals collaborating in a common environment
- Warfighting requirements and use cases communicated in a data-driven, model-based way

- 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

- >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

Warfighter use
case modeling

Agile requirements
collaboration

Model Based System
Engineering (MBSE)

Robust IT Infrastructure

Threat Informed
Mission Modeling

Automated Certification Processes

Workforce Training

Acquisition Data Management

Authoritative Sources of
Truth (ASoT)

Enterprise Policy & Governance

Open Standards

Enterprise Tools

Reference Architectures

PLM & linkage
to Log-IT

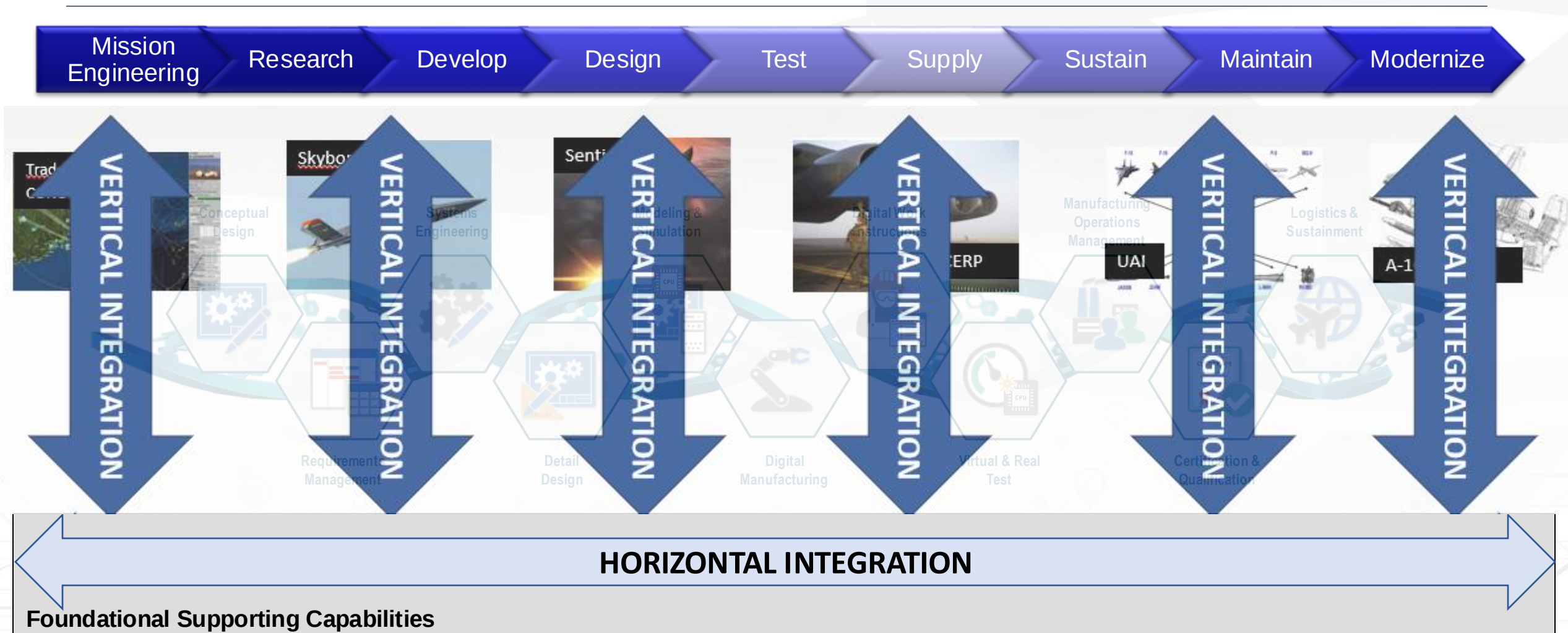
Digital Culture

Foundational Supporting Capabilities

DTO

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DMM Across the Lifecycle



MISSION

AFMC Strategy Map

VISION

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.
- **Entrust Decisions to Lower Levels (Internal):** Push responsibilities and decision-making to trained-and-ready lower levels.
- **Develop Leaders (Internal):** Develop leaders to lead our workforce to achieve our mission and ensure our workforce can professionally and personally thrive.

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

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

One AFMC--integrated, innovative, trusted, and empowered... Indispensable to our nation, disruptive to our adversaries.

Digital Materiel Management:

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



[DMM: An Accelerated Future State Whitepaper](#)



[Video OV-1](#)



DMM Tomorrow: Realizing the Vision

Today's Tools

Survey

- Nascent enterprise tool offerings
- Heavy program by program tool deployment
- Slowly improving bureaucratic tool assessment and deployment processes

LaunchPad

Providing Airmen and Guardians with free, easy, and secure access to cloud-based tools at IL-5 and IL-6 so you can take a digital-first approach to your work

Efficiently interact with data

Collaborate with colleagues

Deliver leading-edge capabilities

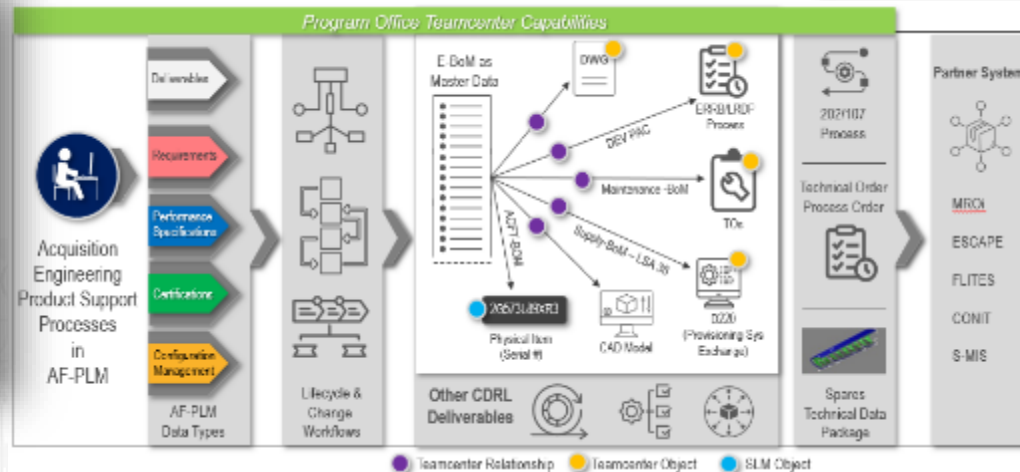
Learn more at dafdto.com/launchpad

\$50MM+
cost avoidance for the enterprise

1,100+
active users

190+
three-letter organizations represented

130+
project spaces created



SW Reciprocity
Memo

DTO

Providing Access to Engineering Toolsets

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Today's Tools

- Nascent enterprise
- Heavy program by deployment
- Slowly improving by assessment and de

Survey



LaunchPad

Guardians with free, easy, and secure access to cloud-...-6 so you can take a digital-first approach to your work

Collaborate with colleagues

Deliver leading-edge capabilities

Teamwork Cloud

IBM DOORS

MATLAB

ANSYS ModelCenter

Connecting system requirements to engineering analysis

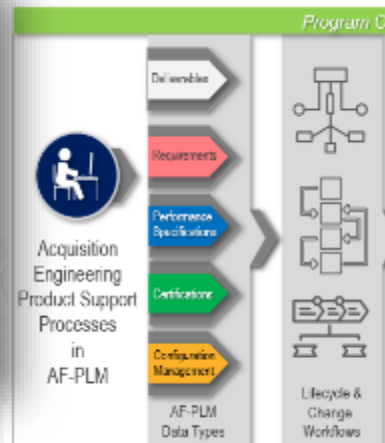
ASSURANT

Learn more at dafdto.com/launchpad

190+ three-letter organizations represented

130+ project spaces created

1,100+ active users



SW Reciprocity
Memo

DTO

Providing Access to Engineering Toolsets

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LaunchPad Vision

Increase speed of adoption of DMM methods needed to accelerate the digital transformation by lowering the barrier of entry by providing access to critical tools

- Funded in perpetuity
- Impact Level (IL)-5, Common Access Card (CAC) required for access
- IL-6, CAC and Secure Internet Protocol Router (SIPR) token for access
- Hosted on CloudOne

1,500 users
500 three-letters organizations & OSD
300 project spaces



DPaaS

LAUNCHPAD

LaunchPad IL-5 Offering

Current



Teamwork Cloud



IBM DOORS



Visual Studio Code



Ansys STK

Ansys ModelCenter

Connecting system requirements
to engineering analysis



ASSURANT Cyber
Attack Survivability
Suite

Provide Access to DMM Tools



<https://dafdto.com/launchpad>

Roadmap:

IBM
IBM
- IBM DOORS Next Gen - Engineering Requirements Management, Family Edition

creo®
PTC
Creo Computer Aided Design

TEAMCENTER
Team Center Desktop App

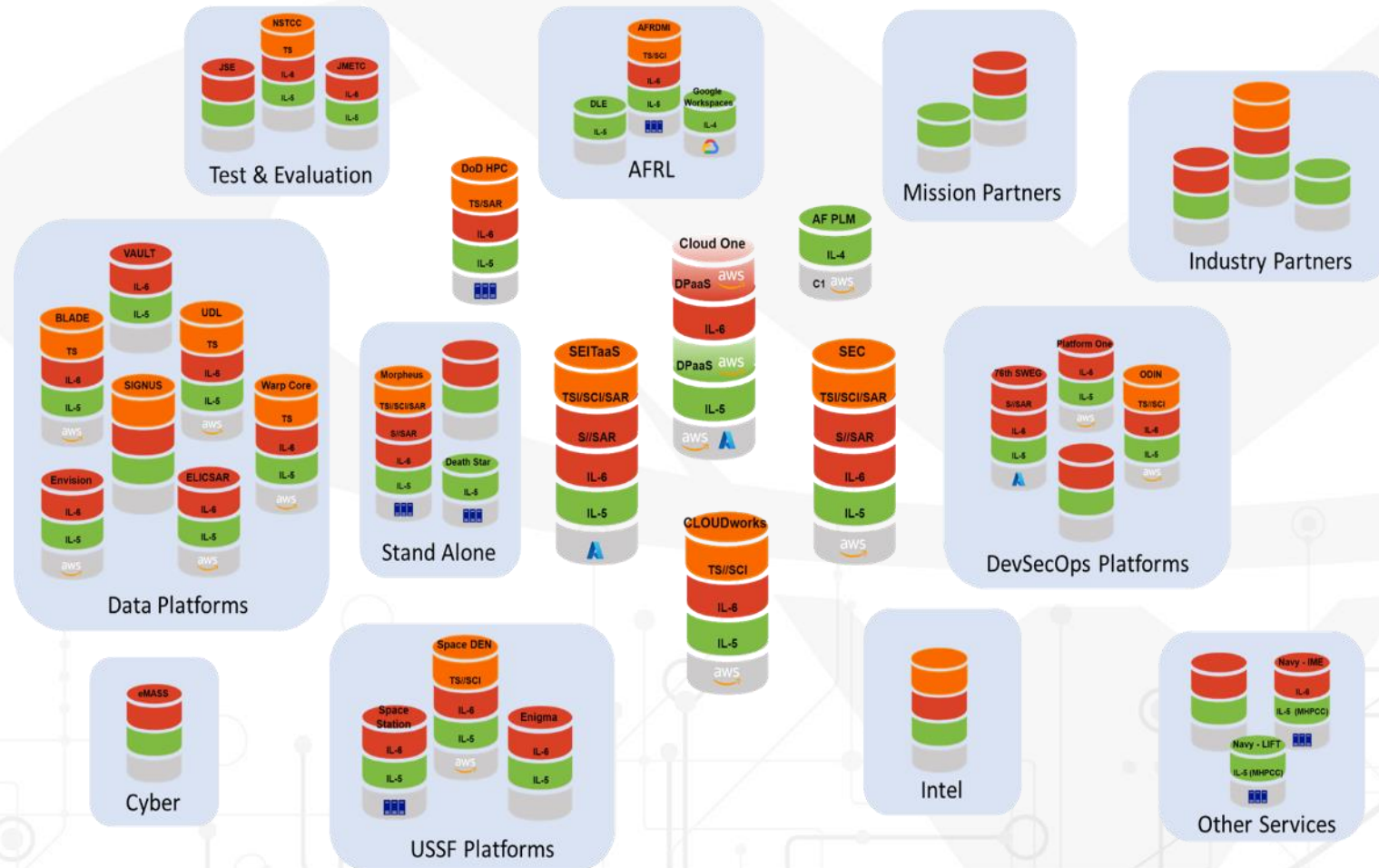
SOLIDWORKS
SolidWorks

AFSIM
AFSIM

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Today's Digital Infrastructure

- Silo'd, disconnected networks and data platforms
- Improving understanding of user stories and use cases



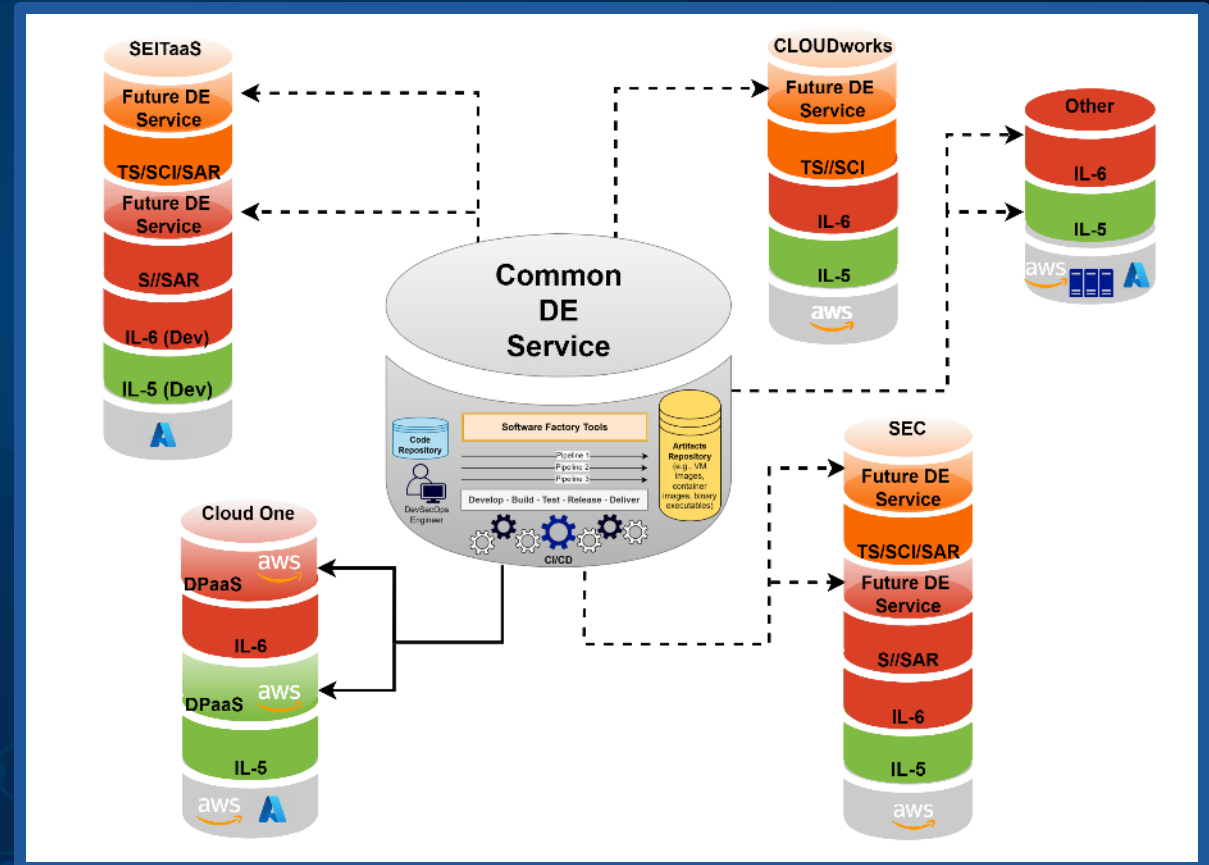
Isolated Networks Restrict DMM's Promise of Speed and Agility

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Common DE Service Offering

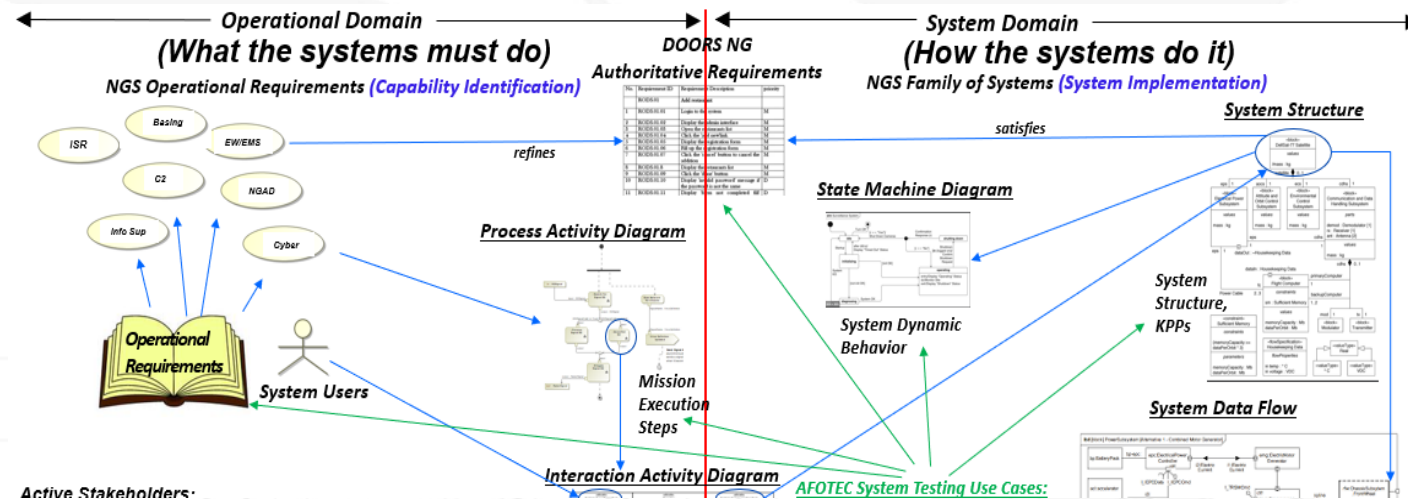
A common DE service offering is critical to establishing and managing an Enterprise IDE

- IDE software factory to develop and manage the common IDE code baseline
 - Software vendors deliver and maintain containerizes in a repository like Iron Bank
- Enterprise contract to manage the DE service offerings
- Governance structure to manage the content of the common DE service
- Flexibility for users to customize the toolset beyond the standard offerings
 - Add to common DE service baseline as demand increases



Tomorrow's Tools

- Integration across critical enterprise tool environments
- Scaled enterprise funded/deployed offerings
- Shared collaborative environments across full-lifecycle spectrum teams



Researchitecting the Enterprise for Exponential Growth

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DPaaS



DPaaS

LAUNCHPAD



DOD
HPC
MODERNIZATION PROGRAM

**ANALYTICS
GATEWAY**



Provide Access to DMM Tools



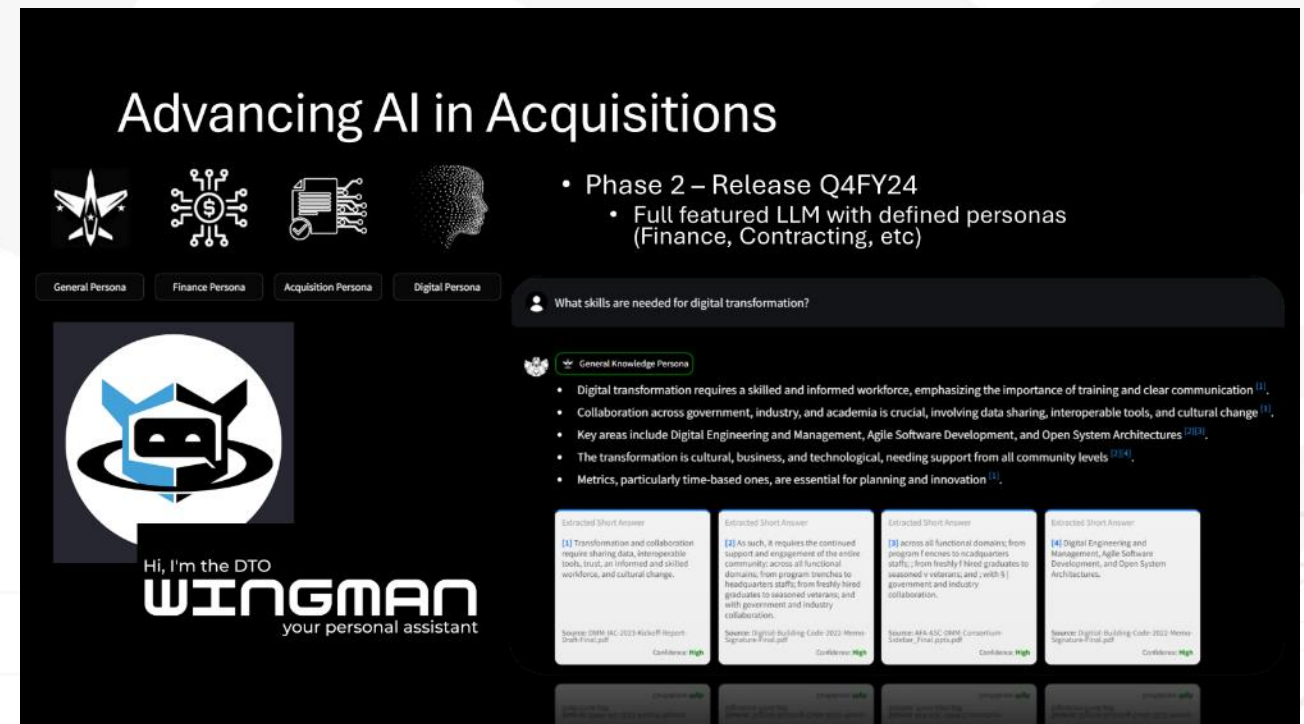
Power BI PRO licenses

Desktop application approval and release on
Software Center

Other activities:

- Working to get Anaconda approved on the AF EPL
- [RAVEPAD](#) AFNet Software certification environment

DTO Wingman personal assistant



DAF Digital Guide



<https://guide.dafdto.com>

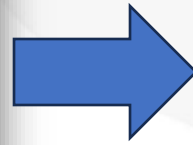


AIR FORCE MATERIEL COMMAND

An Accelerated Future State

- Build a Digital First Culture**
AFMC will make a cultural shift to collaboration across mission areas, as DMM capabilities provide war-fighting information and support across the industry.
- Develop Digital Strategies**
AFMC will ensure programs and capabilities align to common vision of achieving digital first strategies to their work across all functional disciplines.
- Structure and Secure Our Data**
AFMC will develop data standards, protocols, and reference architecture for DMM capabilities.
- Provide Access to DMM Tools**
AFMC will ensure interoperable access to DMM tools, systems, and processes across all functional disciplines.
- Train Our Digital Workforce**
AFMC will ensure the workforce is up to date and understand the power of DMM tools.
- Modernize IT Infrastructure**
AFMC will upgrade IT infrastructure (cloud, data, security, connectivity) and modernize the foundation for DMM capabilities across the PRC/COM.

Dr. Hurst
Gen. A. Turck
Lt. Col. M. Steipp
Lt. Col. Z. Richardson



Welcome to the DAF's digital knowledge-sharing hub

Check out the white paper or video below to learn more about key initiatives behind our transition to DMM.

[Read the white paper](#) [Watch the video](#)

DAF Digital Guide

Digital Guide Home

- 1. Background
 - Air Force vision
- 2. Digital enterprise processes
 - Digital strategy considerations
 - Digital maturity assessment
 - Digital considerations for acquisition documents
 - Model-based strategic contract guidance
 - Model-based systems engineering (MBSE) guidebook and style guide
 - Digital aliveness team
 - DoD and DAF policy in model form
- 3. Digital enterprise resources, data standards, and architecture
 - Acquisition and sustainment data package
 - Government reference architectures
 - Best practices and lessons learned
 - Integrated digital environment
- 4. Cultural training
 - Digital awareness training
 - Benefits of digital engineering
 - General digital engineering guidelines
 - Air Force Institute of Technology digital literacy program

How we win

Today, the People's Republic of China (PRC) is outpacing the U.S. in fielding warfighting capability. The U.S. averages sixteen years to deliver a major weapons system. The PRC delivers systems in approximately seven years. The difference means nine more years of production, nine more years of modernization, and nine more years of practicing tactics, techniques, and procedures for the PRC. That's nine years of the PRC being in the game before the U.S. even takes the field. This disparity in integrated capability delivery timelines must change—or the U.S. will lose.

There is no time for antiquated serial processes, inadequate training, or lifecycle and functional stovepipes. The Air Force relies on Air Force Materiel Command (AFMC) to deliver war-winning capabilities. AFMC must shatter existing paradigms and adopt enterprise Digital Materiel Management (DMM) capabilities to radically accelerate our fielding, sustainment, and modernization. Models must replace documents. Structured data must replace disparate information. Digital collaboration must break down decision stovepipes. Through these practices, AFMC will execute DMM to accelerate integrated capability delivery across the materiel lifecycle and functional disciplines to counter the PRC's pace and win.



Lifecycle DMM

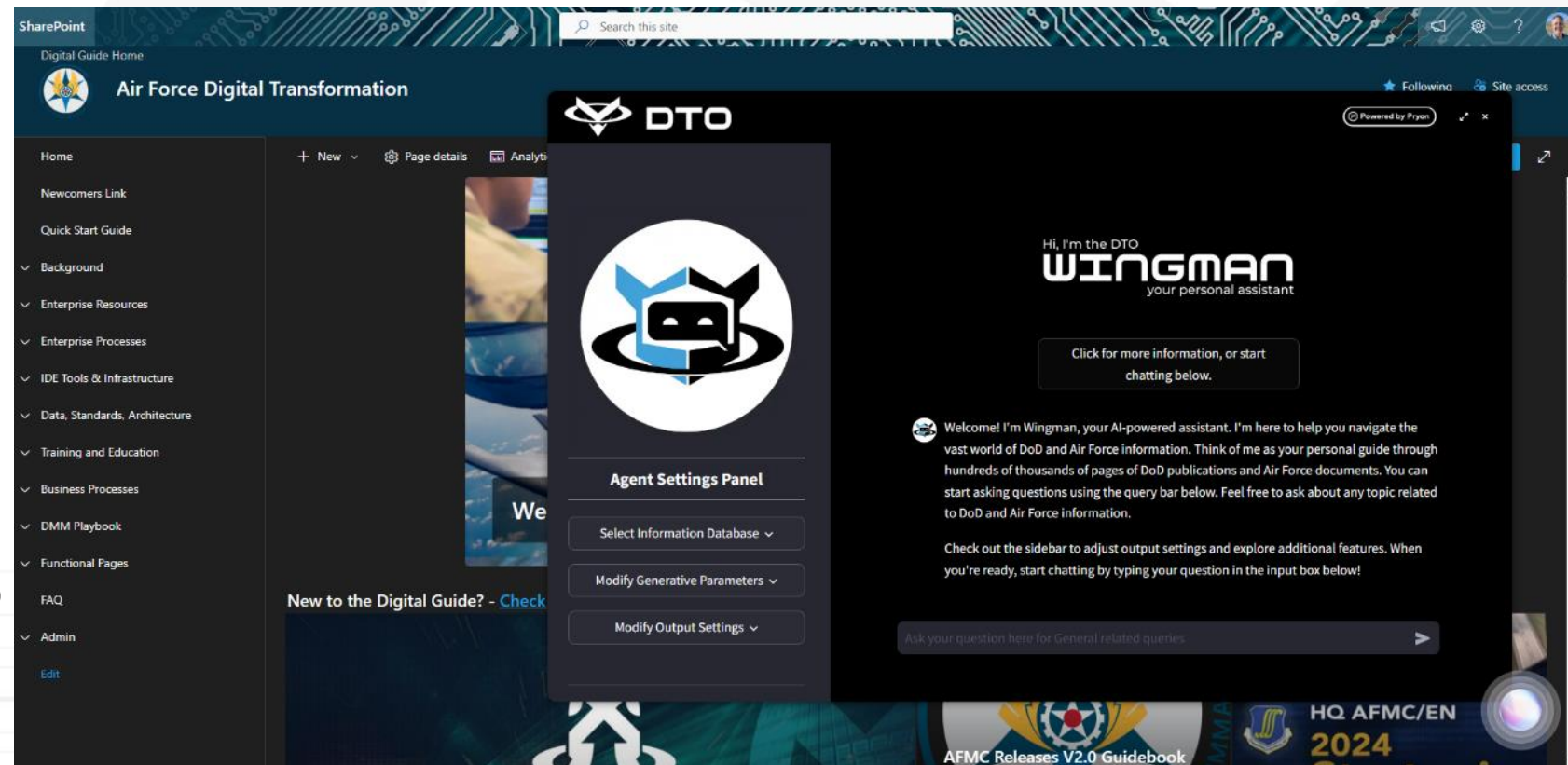
DMM accelerates all phases of the materiel lifecycle from invention to modification. Every phase and AFMC organization

Digital Guide Overhaul & AI

Try it out!



- Integrated GenAI chatbot experience to explore:
 - Public Digital Guide
 - DMM
 - Laws
 - Regulations
 - etc...
- Designed with the express intention of acculturating users into the technology.





WE PUT THE DIGITAL ODDS IN YOUR FAVOR



DIICE

Digital Innovation & Integration Center of Excellence

As the Department of the Air Force revolutionizes warfighter capabilities with Digital Materiel Management (DMM), we are seeing DMM as a disruptive enabler, accelerating capability delivery through a digitally empowered workforce. This shift to a digital, model-based systems engineering framework not only enhances understanding and decision-making, but also fosters an unprecedented collaboration between industry and government. Strengthen your DMM capability by partnering with AFIT and DIICE to empower and innovate across your system life cycle:

- Educational Excellence
- Research & Tech Transfer

- Consulting
- Best Practices

Vision

To forge transformative Digital Materiel Management solutions through collaborative partnerships, ultimately accelerating capability delivery to warfighters providing the competitive edge they need.

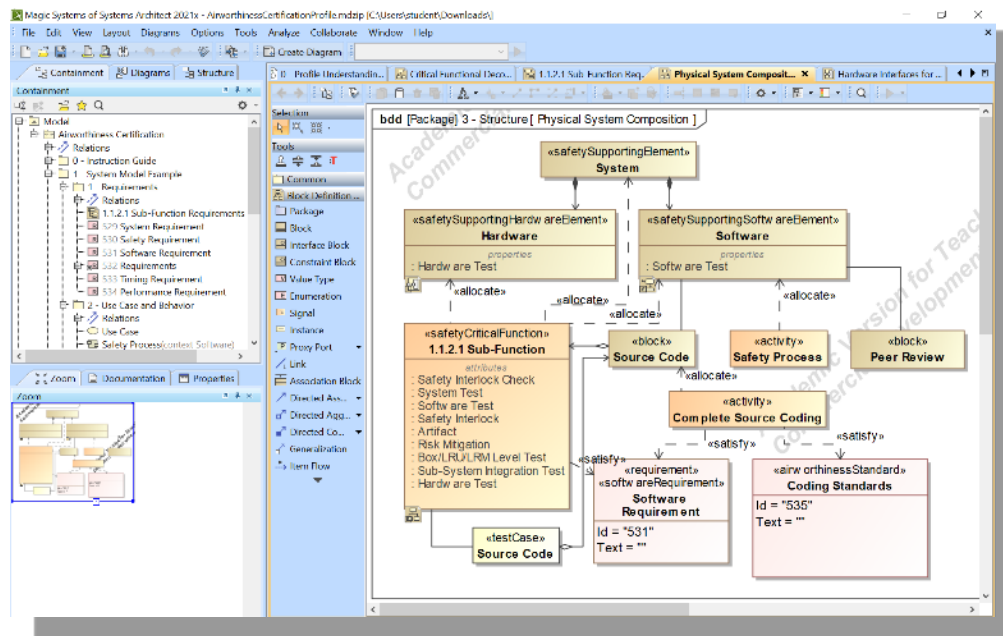
Mission Statement

To enhance digital excellence across the Air Force Materiel Command enterprise, building a more digitally capable team of Airmen and Guardians.

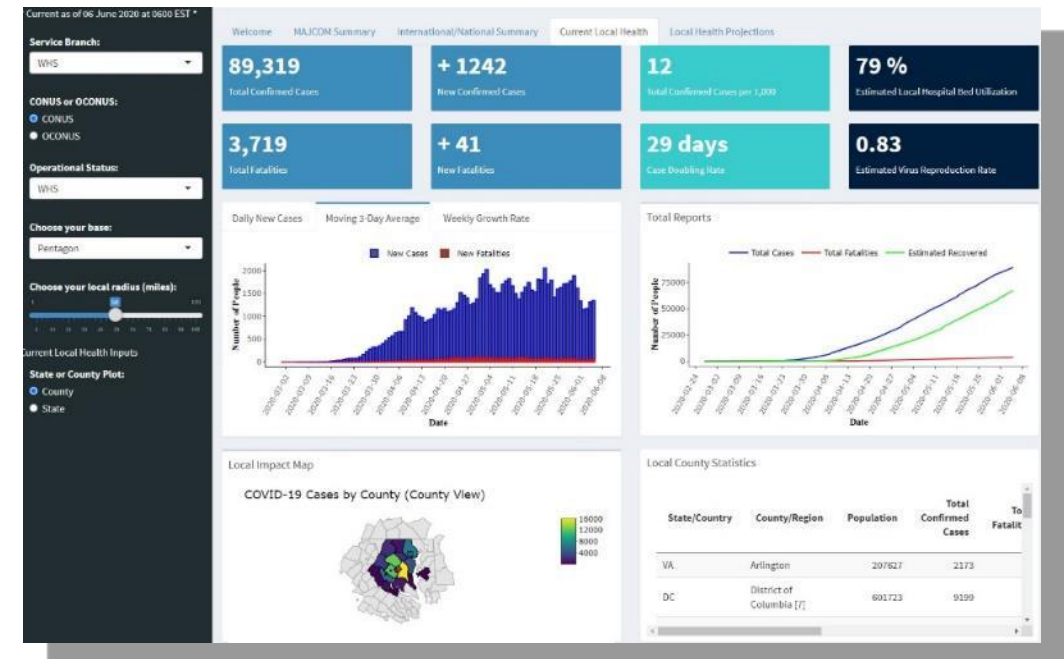
AFIT Digital Academy

- Need for immersive course to produce digitally literate multi-functional AFMC graduates — **Digital Literate Force**
- Integrates education, tool training, exercises to produce specific digital artifacts — **Digital Twin**
- Modelling towards answering program and technical milestone reviews — **Digital Thread**

Digital System Models in SysML



Digital Data Visualization Dashboards



THE DTO FACILITATION ACADEMY

In a time of evolving challenges, mastering facilitation is paramount.
Why? Because superior collaboration drives innovation, streamlines processes, and accelerates our enterprise to deliver war-winning capability.

The DTO is committed to empowering each of us with the skills to drive better collaboration in our virtual meetings.

- **Leading through Facilitation 101:** Learn how to unlock the potential of transformative collaboration by mastering the ability to guide team discussions efficiently, increase participant engagement, and navigate potential distractions to keep focus on objectives.
- **Meeting for Impact 101:** Enter the world of strategic organization by discovering how to build compelling agendas that shepherd your meetings toward desired outcomes, keeping team member engagement high and discussions productive.
- **Storytelling with Data 101:** Delve into the power of data with storytelling by learning how to illuminate patterns and trends hidden in complex data, transforming them into clear, influential narratives that inform decision-making and inspire action.





Digital Badges



- 3 virtual instructor led classes- paid for by the DTO
- Capstone Project Required
- Plan to add different levels in the future



- Skillport classes
- Capstone Project Required
- Plan to add different levels in the future



- 3 Digital U classes
- Capstone Project Required
- Plan to add different levels in the future

- Future Badges planned:

- Teams/SharePoint Expert
- Digital Collaboration Expert
- Agile Program Management
- Becoming a Change Leader
- Digital Transformation for Leaders
- Data Expert

- Planned education partners

- DAU
- Udemy
- AFIT
- Avovle
- Digital u

Badgr is the future of credentialling for digital skills!

Culture Science Assessment

OVERVIEW



Transformation is a buzzword. And execution can be a mystery. Still, people would be excited if Leadership would lead differently.

The frozen middle prevents ideas from flowing up and resources from flowing down

Collaboration, not competition, is key to successful transformation

Digital transformation is hindered by career focus on job descriptions and titles

Digital transformation is symbolically overlooked or directly rejected at almost every turn

Transformation requires a new way of thinking about the "right" way to do things and adopting new technologies

The Community has outstanding, innovative ideas that need resources/\$

Top cover and clarity around execution goals would accelerate transformation

WORK AREA

*By number of respondents. Note, 5 respondents or less in the following categories: Aircraft Maintenance, Combat Command, Communications, Contracting, Finance, Logistics, Mission Support, Product Support, Weapons Maintenance

Work Area	Count
Engineers	110
Program Mgmt	27
Testing	12
Research	26
Other	13
Operations	10
Life cycle management	8
Leadership	11
Sustainment	6

PERSONNEL GROUP

Personnel Group	Count
Civilian	52
Contractor	19
Enlisted	4
Officer	1
Reservist	1
Other	1

YEARS AT DAF

Years at DAF	Count
< 2 years	25
2-5 years	26
5-7 years	18
7-10 years	12
10-15 years	48
15-20 years	45
20+ years	72

MY STORY IS...

Sentiment	Percentage
Negative	44.9%
Neutral	25.7%
Positive	29.4%

Frequency	Percentage
Very Common	48.8%
A one-time occurrence	1.6%
Rare but happens	6.9%
Somewhat common	28.6%

*84% of negative stories reported it is a very common occurrence

% OF FAILURE DAF ACCEPTS

Acceptance Level	Count
0-24%	170
25-49%	52
50-74%	19
75-100%	4

Tenure (years)

Tenure (years)	0-24%	25-49%	50-74%	75-100%
<2	14	9	0	0
2-5	19	10	2	1
2-7	11	4	2	1
7-10	10	5	1	1
10-15	34	9	6	0
15-20	34	5	3	0
20+	53	12	5	1

Perceived Acceptance of Failure in the DAF

Due to the low response rate, we weren't able to equally assess the lived experiences of each group by tenure, employee sector, or work area.

We need more stories from folks who aren't as close to or familiar with digital transformation to fully understand the barriers we're up against.

Digital First Culture Masterclass

- Inaugural *Digital First Culture Science Masterclass* held Feb – May 2023; included ~25 GO/SES participants
- Follow-on course (3 cohorts of ~25 participants each) ongoing
- Planning additional cohorts through 2024/25

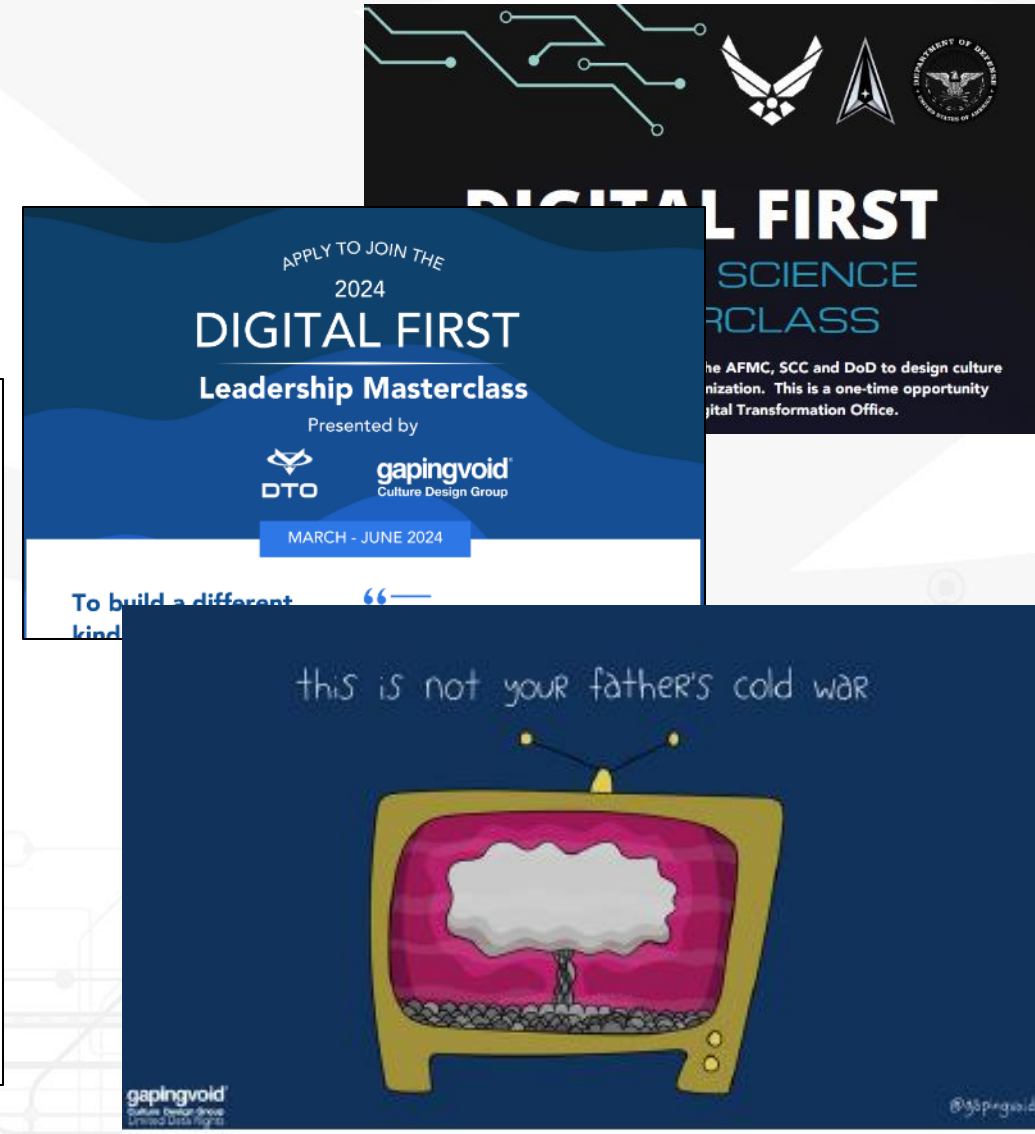
gapingvoid[®]
Culture Design Group



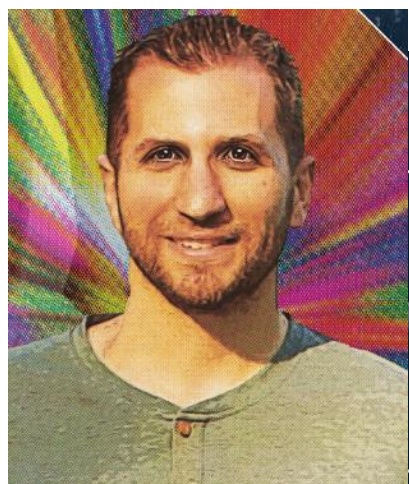
COURSE TOPICS

- Understanding the current state of digital transformation in the DAF through the lens of culture
- Addressing status quo and limiting belief systems within our teams
- Communicating and spreading our visions for change
- Building support for our initiatives
- Developing inter-and-intra-team trust, communication and collaboration
- Implementing systems for accountability and ownership
- And much more!

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Hero Recognition Campaign



DAF Digital Agent of Change

Kevin Hadsall

Engineer, AFLCMC/WLNN

D-LINE

- TRAILBLAZING SPIRIT
- SHAPESHIFTING RESOURCEFULNESS
- UNBREAKABLE FORTITUDE

As a fierce advocate for the DAF's digital transformation, Kevin developed a model for airworthiness certification traceability, and also created and integrated MATLAB and Cameo models to accelerate airworthiness approval of system modifications. His colleagues can now tackle analysis and problem solving with improved speed and precision.



DAF Digital Agent of Change

Amy Cox

Col, Program Chair, AFIT/ENV

D-LINE

- HYPERSONIC HUSTLE
- PROBLEM-SOLVING PROWESS
- RAZOR-SHARP KNOWLEDGE

When AFIT needed guidance on evolving its graduate systems engineering and technical continuing education courses and workshops, Amy stepped up. Her work has enabled the promotion of advanced thinkers who confidently embrace the use of digital strategies and tools.



DAF Digital Agent of Change

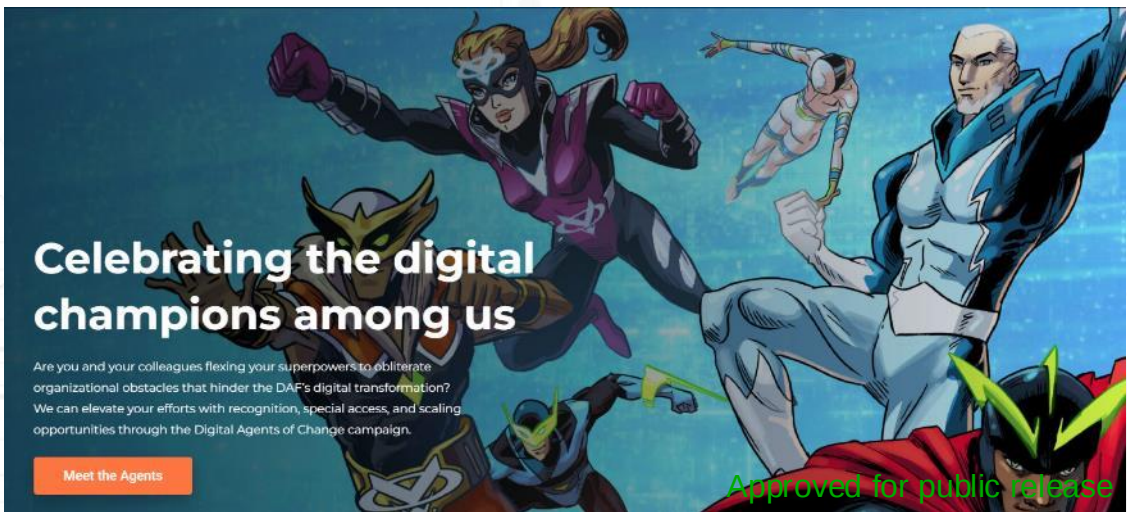
Justin Freitas

Financial Management Specialist, HQ AFMC/FMAI

D-LINE

- INTREPID EXPLORATION
- HYPERSONIC HUSTLE
- DYNAMIC COLLABORATION

Justin spearheaded an effort to automate Status of Funds reporting for AFMC Financial Management. Transforming a long-established process wasn't easy, but Justin made it happen. His perseverance has resulted in increased efficiency, improved accessibility, sharper analysis, and more interactive briefing discussions. Other divisions are now adopting the process Justin championed.



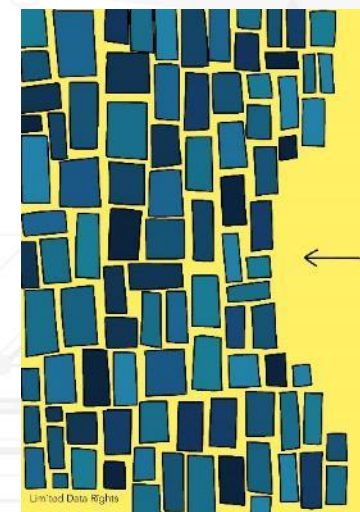
Celebrating the digital champions among us

Are you and your colleagues flexing your superpowers to obliterate organizational obstacles that hinder the DAF's digital transformation? We can elevate your efforts with recognition, special access, and scaling opportunities through the Digital Agents of Change campaign.

Meet the Agents

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Nominate Heroes:

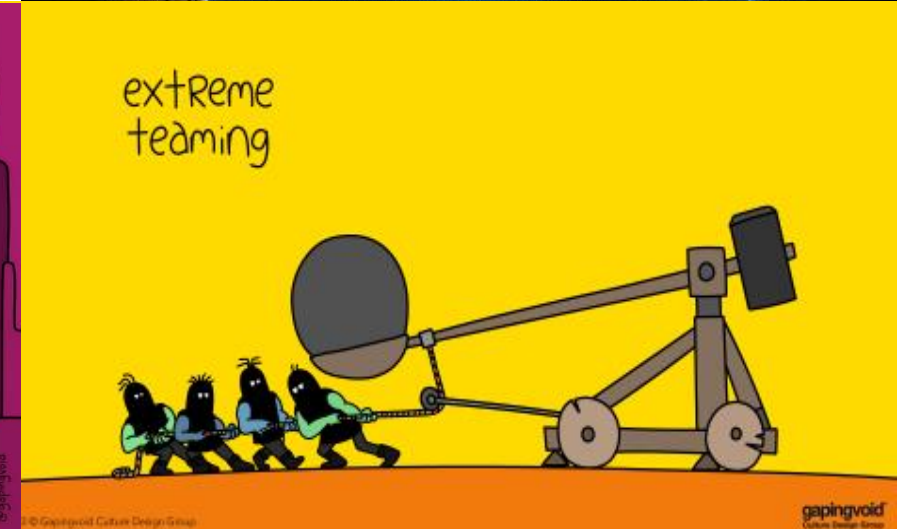
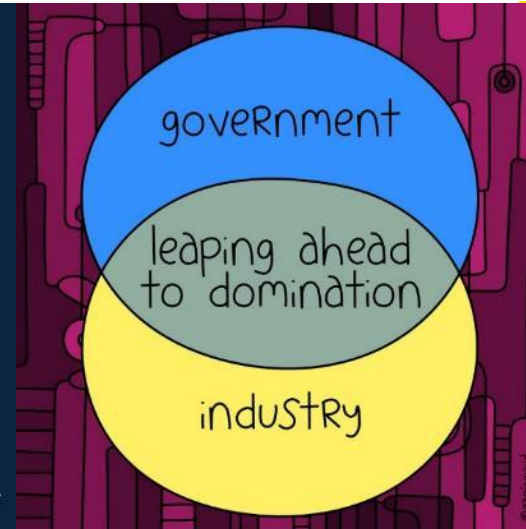


big success is just a lot of little wins scrunched together

United Data Rights

gapingvoid Culture Design Group

Tomorrow's Digital Culture



法

**WE CAN
ACCELERATE
CHANGE**

**OR LEARN
MANDARIN**

DIGITAL

is not an inconvenience.

DIGITAL

is the only future.



@gapingvoid

@gapingvoid

change is hard

war is harder



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Culture Design Group

Survey



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