

**IAC Working Session
DDC Digital Dayton
Roundtable
4 March 2024**

Agenda

- 1230-1235: Intro/Welcome/Everyone Take your Seats
- 1235-1300: Context setting: Kyle Hurst & Vicky O'Sullivan (IDE) / Steve Turek & Dean Bucher (Data)
- 1300-1400: Breakout 1 – User Stories: Workforce Development Considerations
- 1400-1430: BREAK (and data collection/processing)
- 1430-1600: Breakout 2 – User Stories → Use Cases Transition!
- 1600-1630: Out brief and Closing

How we Got Here



SUMMARY REPORT

Department of the Air Force and Army Digital Materiel Management (DMM)

Industry Association Consortium (IAC) Kickoff

November 2-3, 2023

IAC Kickoff Summary Report



- DMM Infrastructure and Environment
- Data Standards, Ontologies, and Style Guides
- Policy and Enforcement—Intellectual Property (IP) Policy and Rights
- Integration of Acquisition Functions
- DMM Workforce Development and Culture

SESSION 5 TAKEAWAYS

The IAC can serve as a forum to pull together all stakeholders, and in particular industrial groups that work in the same areas, to build upon effective practices in workforce development and address challenges. The human resource function is organization-specific, and there is a need for this workforce to use digital processes across industries and segments, although they often do not possess the technical background or skills. Identified challenges included:

- Achieving individual and organizational commitment to training.
- Achieving learning at scale as it shifts toward virtual training, which places more of a demand on supervisors to guide employee development.
- No targeted DE curriculum exists, and these digital competencies should be developed through existing methods. Succinctly put, “Digital engineering is just engineering.”
- Tools, such as software, need to be put into students’ hands for effective training.
- The roles, responsibilities, and expected skillsets of a digital engineer need to be clearly defined, and new roles continue to emerge (e.g., digital curators, tool and platform process/quality managers).



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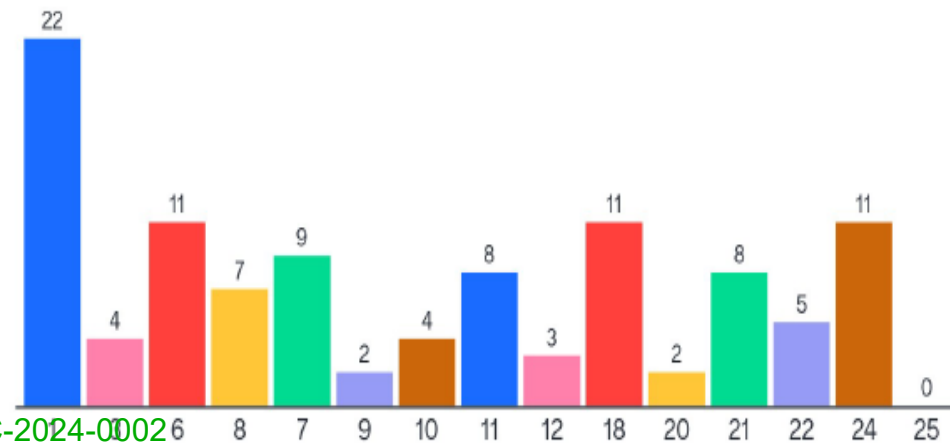
10-11 Jan IAC Focus Areas

Breakout 1 - Ideation

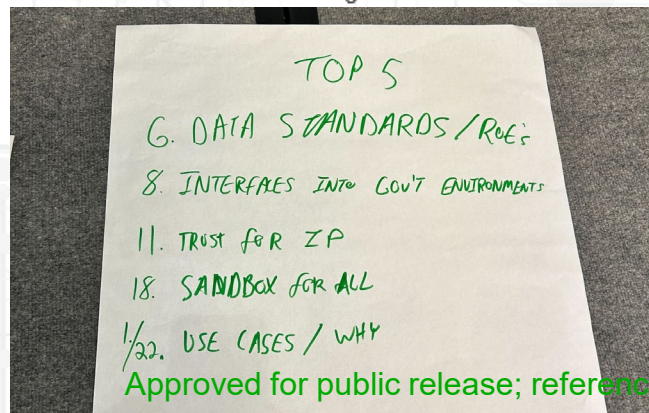
1. Define high value use cases/business cases (personal/functional/phase of the lifecycle)
2. Pilot use cases
3. Develop common taxonomy/language (functionally broken down)
4. Identify policy regarding environments (inhibitors/roadblocks)
5. Artifact translations – what’s the new things I need to ingest into my environment
6. Data standards/sharing RoEs
7. Tool Integration/common formats (not standards....)
8. What interfaces into gov’t environments (need commonality)
9. Data Tagging for enterprise data repository
10. Defining prioritized list of CDRLs to update
11. Trust for data sharing – what does gov’t and industry need to see in an environment to feel comfortable on IP
12. Data services standards (min standards we need to start – “what is it we are trying to share”)
13. Study/position paper for how industry protects their IP (feed towards what would industry need to see from an environment to feel comfortable sharing)
14. Plan to monetize R&D strategies
15. SysML v1 to v2 transition plan
16. Standards that are relevant selection/listing
17. Process flow industry can follow
18. Wide reaching sandbox environment for all of us
19. End goal in mind – collective definition of the end state and what data we need to get there
20. Curate list of existing *things* we can scale/leverage (to include outside DoD and DIB)
21. Capture/agree on “what” and “why” (tie to use cases and taxonomy ones above)
22. Educate/communicate the “why”
23. Defining set of shared and flexible requirements for environments prior to ATO
24. Collectively defined reference architecture for IDEs
25. Draft a Service Level Agreement for IDEs



Select your top 3 priorities for working groups



DTO



10-11 Jan IAC Focus Areas

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10-11 Jan IAC User Story Dev.

USER STORY 1	
Story:	As a ... I want to ... so that ...
Acceptance Criteria:	<ul style="list-style-type: none"> - Condition/Requirement #1 - Condition/Requirement #2 - ...
Future Capability:	<ul style="list-style-type: none"> - Capability #1 - Capability #2 - ...
Picture (if you're bold enough to draw it):	

Focus user story on Government/industry interactions

Conditions that a product must meet to be accepted by the user, customer, or consuming system(s)

Details on new capability not widely available today

Single large sticky note for each user story

specifics of user stories

Not solutioning... what needs to be accomplished, features, and functions



[User Stories Raw Data \(github\)](#)

Now What?

User Stories → Use Cases

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- No targeted DE curriculum exists, and these digital competencies should be developed through existing methods.
- Tools, such as software, need to be put into students' hands for effective training.
- The roles, responsibilities, and expected skillsets of a digital engineer need to be clearly defined, and new roles continue to emerge (e.g., digital curators, tool and platform process/quality managers).

User Story

Defines the who, what and why of a product feature

Use Case

Focuses on the functionalities of a feature or a process



User Story

The focus is on value

Less important details are overlooked

Easy for business to understand

Use Case

The focus is on behavior

The complete scenario is described

Created to be understood by the team

Simplified User Format

User Story

As a

{{user persona}}

I want to

{{perform this action}}

So that

{{I can accomplish this goal}}

User Story 1 (Data, Installation and Mission Support)

CE Base Optimization

As a

Civil Engineer

I want to

optimize the workflow & efficiency of the base by understanding the tasks required vs available resources (situational awareness)

So that

we can maintain & exercise (analysis) a digital twin of the base to decrease uncertainty and improve base ops.

User Story 2 (Data, Installation and Mission Support)

Logistics Deployment Response

As a

Logistics Readiness Lead

I want to

Have complete visibility into inventory, real-time

So that

We have a rapid response force deployment packages

User Story 3 (Data, Invention)

Government Research Transition

As a

Government Researcher

I want to

Develop & transition tech to program using models & data

So that

There is clear understanding between prime/integrator & gov researcher regarding gaps, requirements, and opportunities.

User Story 4 (Data, Invention)

Industry Data Receipt

As a

Industry Partner

I want to

Access real-world performance data

So that

I can do M&S and design more accurately for next gen systems.

User Story 5 (Data, Performance Modeling and Design)

Modeling Entirety

As a

Performance Modeling Analyst

I want to

Access and utilize MSL data

So that

I can model the entirety of the system

User Story 6 (Data, Performance Modeling and Design)

Industry ATO Consistency

As a

Industry Partner

I want to

Have accurate Authorization to Operate (ATO) and Risk Management Framework (RMF) models

So that

I leverage consistent reciprocity, policies, and procedures across industry partners and different programs

User Story 7 (Data, Production)

Product Line Visibility

As a

Production Manager

I want to

Have full operational visibility of my product lines & schedules

So that

I can accurately forecast schedule and delivery impacts

User Story 8 (Data, Production)

Industry/Supplier Data Exchange

As a

Industry Partner

I want to

interoperability for data exchange with suppliers

So that

improved visibility of part status/schedule/quality

User Story 9 (Data, Production)

Informed AoAs (Production)

As a

Program Manager

I want to

Leverage production data from previous acquisitions

So that

I have better informed AoA's and risk analyses

User Story 10 (Data, Systems Engineering and Requirements Decomposition)

Common Data Architecture

As a

Program Engineer

I want to

Use a common data architecture for contracting

So that

I know what I'm buying and can acquire faster, more accurate, and interoperable by design

User Story 11 (Data, Systems Engineering and Requirements Decomposition)

Semantic Informed Certification

As a

Industry Engineer

I want to

Search and find information in any ecosystem via semantics & context

So that

deliver design & certification acceptance criteria faster

User Story 12 (Data, Systems Engineering and Requirements Decomposition)

Analysis Informed Decisions

As a

Government Engineer

I want to

Be able to accomplish tech analysis & evaluation of a system design

So that

I can make fast, confident, traceable decisions regarding airworthiness, cyber analysis, safety, risk, and other considerations

User Story 13 (Data, Systems Engineering and Requirements Decomposition)

Digital Thread Based Reviews

As a

Industry Acquisition Professional

I want to

A digital thread with consistency & traceability

So that

I can conduct model-based tech & milestone reviews

User Story 14 (Data, Sustainment)

Early Acquisition Availability

As a

Product support manager in early acquisition

I want to

Optimize requirements for reliability/maintainability

So that

Maximize operational availability

User Story 15 (Data, Sustainment)

Tail # specific Maintenance

As a
Sustainment professional

I want to
Have tail number specific flight and maintenance data

So that
I can conduct predictive, individualized tailored maintenance

User Story 16 (Data, Product Support Data Cataloging)

Preventative Maintenance

As a

Operations Research Analyst

I want to

Efficiently build predictive failure models with standard data formats

So that

Preventative maintenance can be the norm

User Story 17 (Data, Test)

Industry OT Representation

As a

Lead OT tester of a prime

I want to

Align system users & designers

So that

Testing represents user requirements (not only design requirements)

User Story 18 (Data, Test)

Production Digital Twin Informed Test

As a

Government Tester

I want to

Understand uncertainty in a production digital twin

So that

I can develop test & acceptance criteria to craft optimal test programs, and understand test envelopes

User Story 19 (IDE, Installation and Mission Support)

Installation Commander SA

As a

Installation Commander

I want to

Have real-time situational awareness of base infrastructure

So that

I know what models/data are in the IDE and I can manage mission capable status

User Story 20 (IDE, Installation and Mission Support)

Pre-formalized Sandbox Innovating

As a

Pre-contract Digital Developer

I want to

Have access a sandbox that mimics the government / industry environment that I will need to work within

So that

I can innovate and test solution pathways without ATO, cyber, etc. approval (possibly reusing already approved aspects)

User Story 21 (IDE, Invention)

Inclusive AoA/Investment Alignment

As a

Research Program Manager

I want to

Collaborate across industry and government in the same environment on a developing technology (e.g. system models, behaviors, scenarios)

So that

I can have inclusive tradespace analysis (AoA) with aligned investments

User Story 22 (IDE, Performance Modeling and Design)

IP Protection/Information Sharing

As a

Industry partner

I want to

Know how my IP is secure when collaborating with government or industry partners

So that

I can improve interdependent activities and deliver more information to the government.

User Story 23 (IDE, Performance Modeling and Design)

Role Based Access IDE Definition

As a

Program Manager, Engineer, and Cost Analyst

I want to

have government & contractors collaborate within a role-based access environment

So that

A perpetual, sufficiently capable environment can be defined (case study of what is MVP) with IP controls to build trust in model-based collaboration

User Story 24 (IDE, Performance Modeling and Design)

IP Protection Aligned w/ASOT

As a

Government and Industry Design Team

I want to

Demonstrate an environment that can control IP while providing an ASOT

So that

a federated, multi-designer model (function, analysis, etc.) can be governed with IP control - MVP demo on ASOT governance & distributed "ownership"

User Story 25 (IDE, Production)

Supply Chain Visibility

As a

Government / Industry Stakeholder

I want to

Have a controlled environment to provide supply chain visibility to real-time status

So that

I can manage production schedules/deliveries through as-designed vs as-built representations (quality-based supply chain optimization)

User Story 26 (IDE, Product Support Data Cataloging)

Bring Your Own Logistics Data

As a

Government / Industry Stakeholder

I want to

Collaborate in the industry /government environment

So that

I can bring my data (e.g. BOMs) into their PLM/LOG-IT/etc. CM or logistics system via standards or an interface layer

User Story 27 (IDE, Product Support Data Cataloging)

Automated Metrics Reporting

As a

Government / Industry Stakeholder

I want to

Analyze data across disparate networks

So that

I can Automate standard reporting and metrics benefitting both parties

User Story 28 (IDE, Systems Engineering and Requirements Decomposition)

Integration for Streamling

As a

Government / Industry Stakeholder

I want to

Integrate system descriptive and analytical/M&S models

So that

I have visibility across system performance analysis and streamline tech reviews (separate IDEs but common data standards, lexicons, validation... mirrors of each other)

User Story 29 (IDE, Systems Engineering and Requirements Decomposition)

Acquisition Risk Management

As a

Program Manager

I want to

Measure and ensure sufficient quality of engineering products

So that

I can validate and manage acquisition risks

User Story 30 (IDE, Sustainment)

3D Models for Maintenance

As a

Program Engineer

I want to

Provide maintainers access to 3D models and repair instructions

So that

There is less ambiguity; and I have a vehicle for maintenance / inspection history & feedback on mx procedures

User Story 31 (IDE, Sustainment)

Operational Data for Better Reliability

As a

Industry Manufacturer

I want to

Access operational maintenance data & configuration

So that

I can enable better support maintainability and reliability

User Story 32 (IDE, Test)

Improved Data Discoverability

As a

Government / Industry Stakeholder

I want to

Have visibility and discoverability of data being used by other functional communities (government and contractor)

So that

Novel data use and data reuse open pathways to better modeling quality and efficiency

User Story 33 (IDE, Test)

Predictive Analysis for Optimized Test

As a

Program Manager

I want to

Have the capability to execute predictive analytics

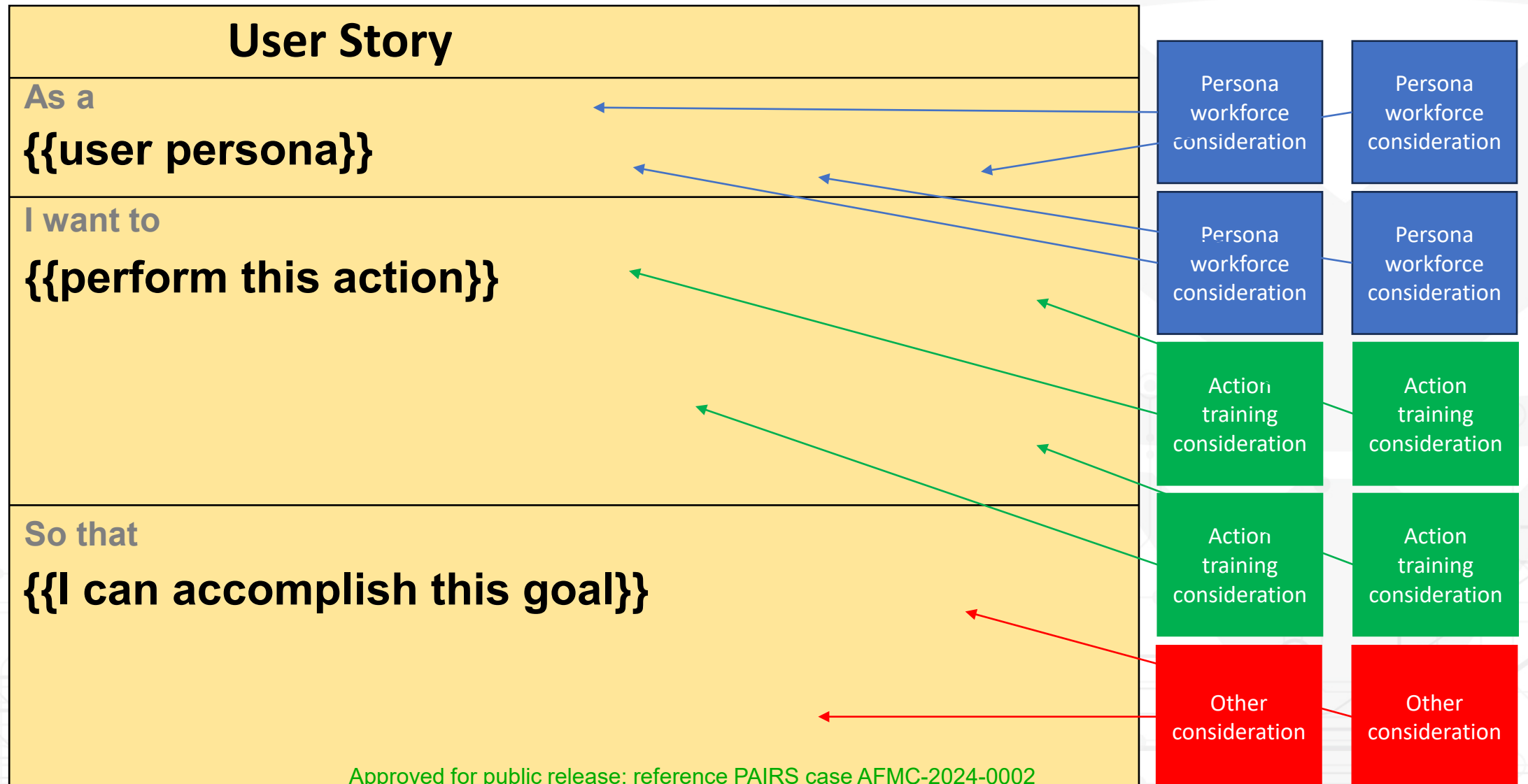
So that

We can execute test faster and optimize testing envelope/test plans to minimize physical testing (not via virtual performance test)

Breakout Session #1

Workforce Development Considerations

Workforce Development Considerations



Breakout Session #2

User Stories → Use Cases

User Stories → Use Cases

User Story	Who is/are the data stewards? Who owns the data?	What existing data repositories do you access or need access?
<p>As a</p> <p>{{user persona}}</p>	<p>Are there specific published standards for the data?</p>	<p>What current processing is required when data is received from external sources.</p>
<p>I want to</p> <p>{{perform this action}}</p>	<p>What data format would accelerate your analysis?</p>	<p>What level of metadata tagging is available? What level is needed?</p>
<p>So that</p> <p>{{I can accomplish this goal}}</p>	<p>How do you receive the data today?</p>	<p>What is preferred data transport?</p>
<p>User story not detailed enough to answer questions?</p> <p>{{Insert additional context as needed here}}</p>		

User Stories → Use Cases

Are there specific software tool requirements?	Current data analysis tools?, e.g. Excel, Python, Power BI, Tableau, KNIME	To what extent Can can the user story be manually implemented today?	Are their existing policies in place related to this user story?
Current Data Management Tools? e.g. Tableau, Informatica, Cloudera	Current Data modeling tools? e.g. Lucidchart, Draw.io, SQuirreL, QL Client, MySQL Workbench	How might existing policies need to be adapted to accommodate this user story?	How might this user story align or conflict with current published policies?
What are your recommended collaboration tools and environments?	Do you expect those to run in the cloud or on your local environment?	What policy-based data privacy/IP and security implications that impact this?	Other Considerations?
What type of data accesses are needed? What approvals are required for this?	How is the data accessed today? Issues? Flaws? What should be different?	Other Considerations?	Other Considerations?