



FED DEF
FEDERAL DIGITAL
ENGINEERING FORUM

Federal Digital Engineering Forum

Model Integration and Standards Working Group
9 July 2025 Out-brief

Co-Chairs:

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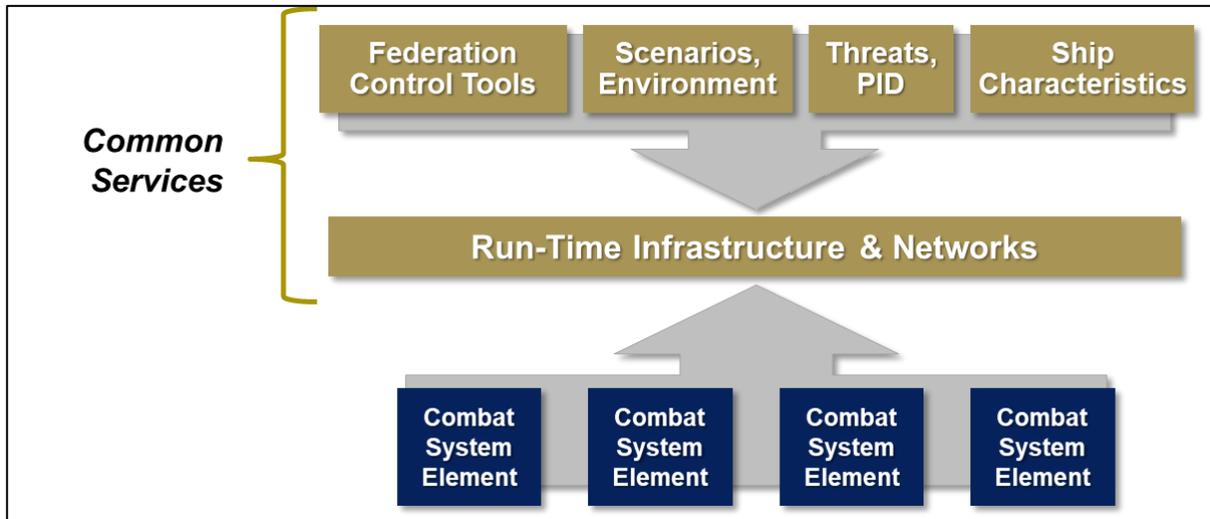


- **Challenge Questions:** *How are you ensuring seamless model integration across different levels (system, subsystem, component) and across different stakeholders? What standards and frameworks guide your approach?*
- 3 x TEAMS sessions on 28 May, 11 June and 25 June
- Combination of presentation from leadership, practitioners, and developers
 - Air Force - M&S Gateway
 - Navy - Integrated Modeling Environment
 - NASA - Model Readiness Levels
 - MDA – Combat Systems Test Bed
 - OMG & INCOSE highlights
- TEAMS Chat / Working Group Data Call / Collaboration & Awareness Info Sheet
 - <https://fed-def.org/model-integration-survey/>



Model Integration & Standards

- **Missile Defense Agency (MDA) – Combat System Test Bed**



- **M&S Shared Technical Framework impacts system engineering: requirements, conceptual modeling, design, functional allocation, infrastructure, integration, data analysis, Verification, Validation & Accreditation (VV&A)**
 - Persistent SE process and artifacts carry learning forward and support contemporaneous model use in multiple Testbeds
 - Common Services provide consistent threat, environment, scenarios
- **Requirements traceability draws value from every empirical data point across Programs to support M&S development and validation**



Air Force M&S Gateway Functional Architecture

Software Manager

- Common repository for software development and deployment
- Access to tools and data to manage, document and deploy models and software



Knowledge Manager

- System to create, store and share "tribal knowledge" across the community of users.



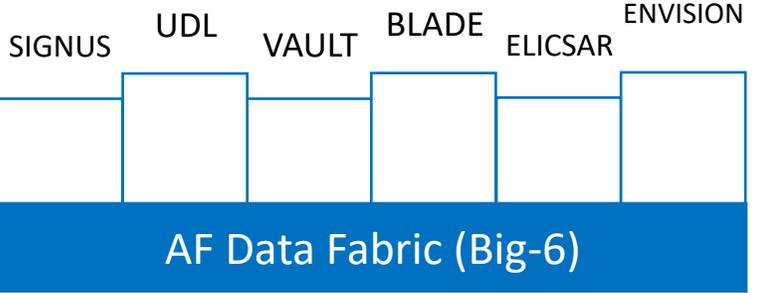
Tool Manager

- Management of local and enterprise application licensing and use
- Access to common tools across the M&S Community



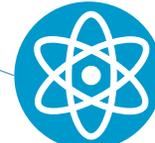
Data Manager

- Holistic approach includes data framework, search & discovery, governance



Job Manager

- Cost controlled access to computational resources for Modeling and Simulation applications



Learning Manager

- Management and dissemination of learning content across the community





Standard Development Organizations (SDO)



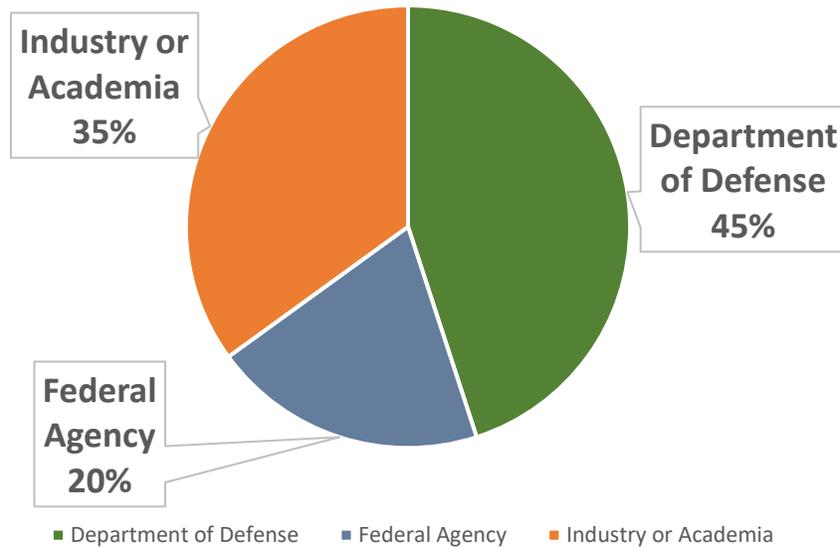
- **Model-Based Acquisition (MBAcq) Community**
- **Digital Engineering Ecosystem (DEE) Working Group**
- **Reusable Asset Cards**

- **Object-Oriented Systems Engineering Method (OOSEM) Working Group**
- **Model Based Capability Matrix (MBCM)**
- **Model Portfolio Management Guide**

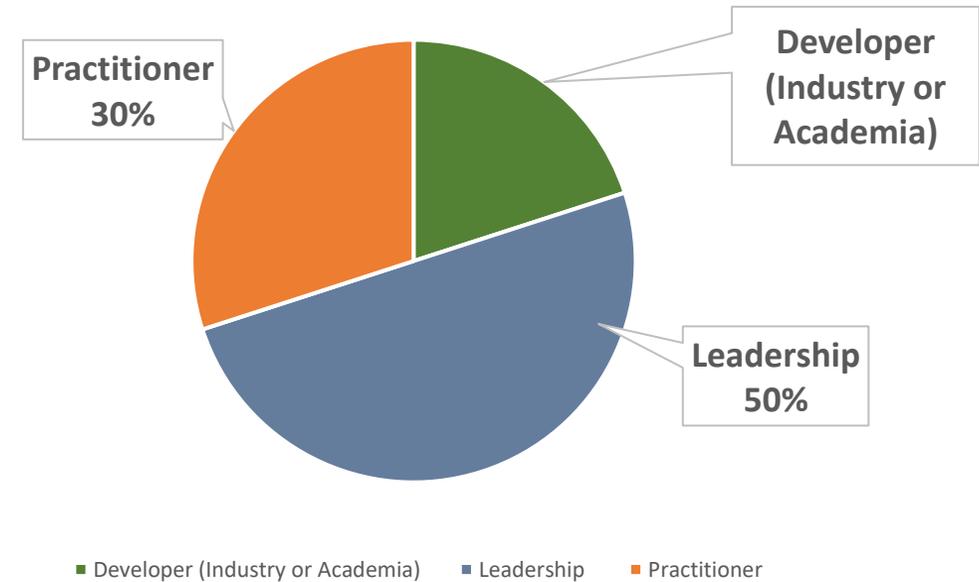


Model Integration & Standards WG Data Call – Website Questionnaire

Your Organization



Your Role





Model Integration & Standards WG Data Call – Website Questionnaire

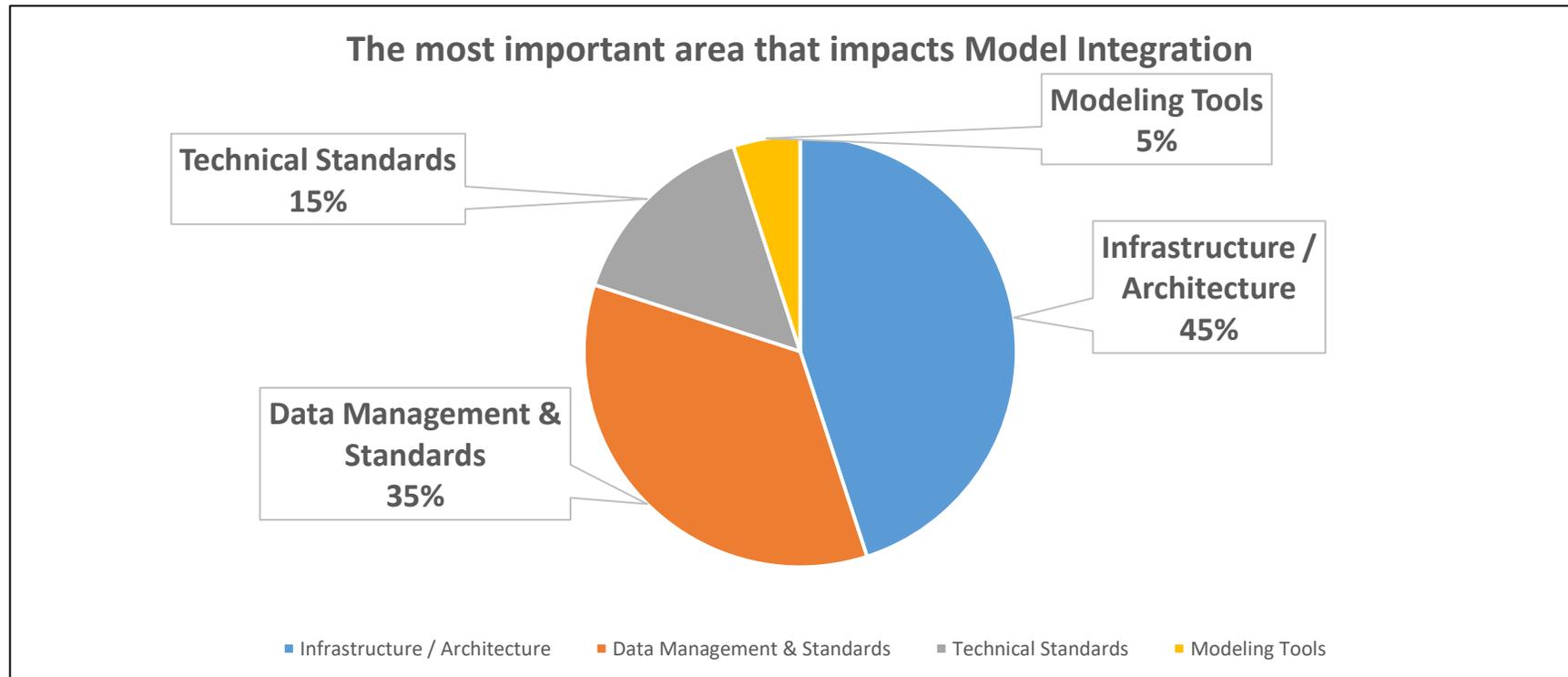
➤ Assess the current capabilities and priorities in the following areas that impact Model Integration:

* **Infrastructure / Architecture**

* **Tools**

* **Data**

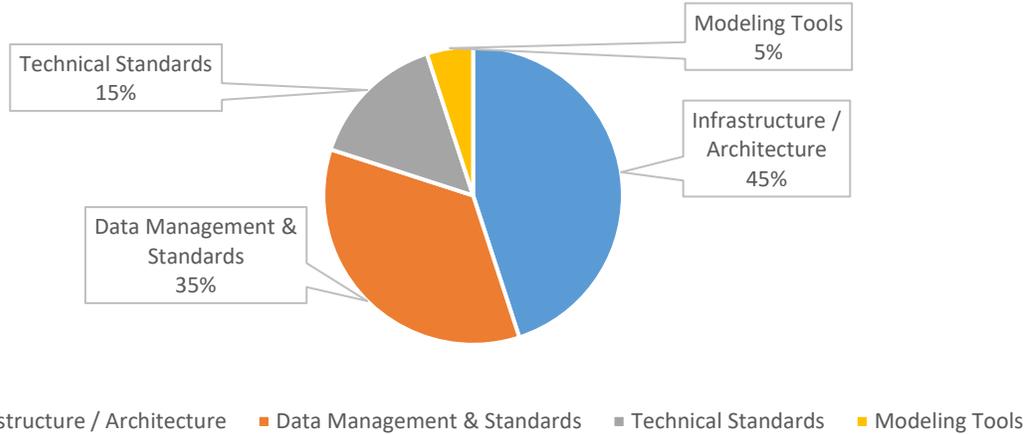
* **Technical Standards**



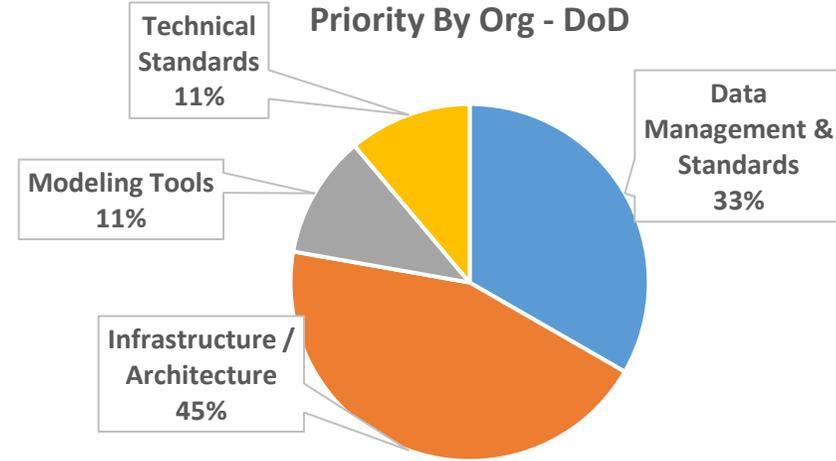


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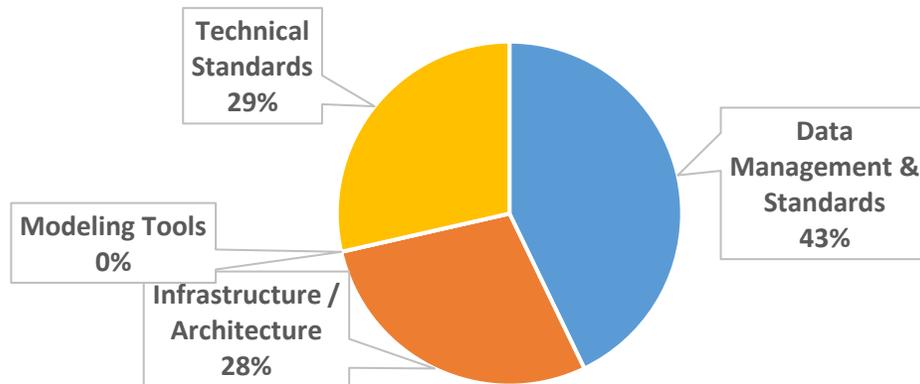
The most important area that impacts Model Integration



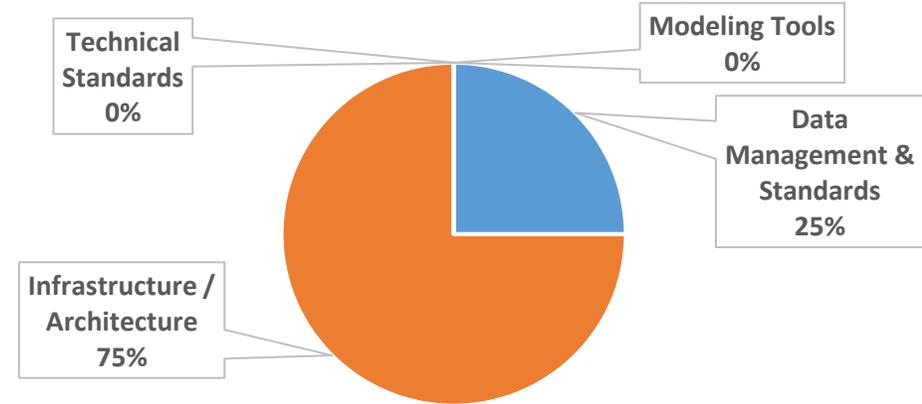
Priority By Org - DoD



Priority Priority By Org - Industry or Academia

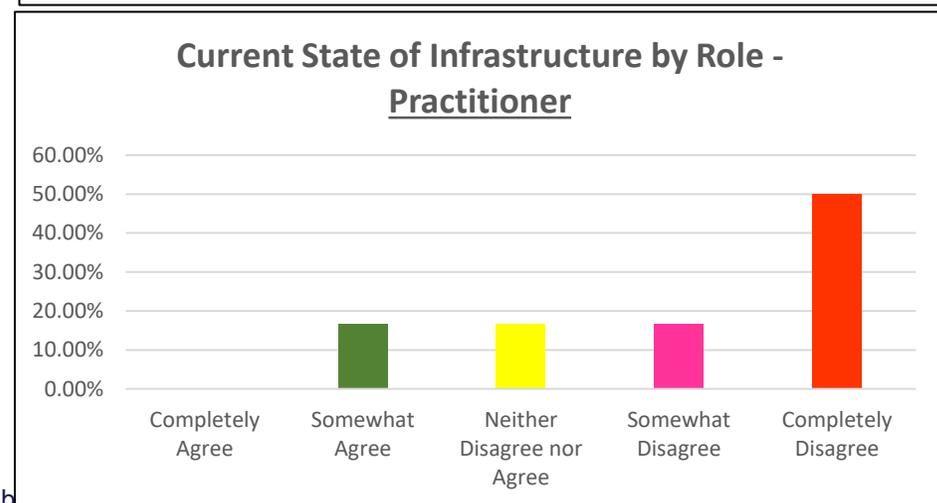
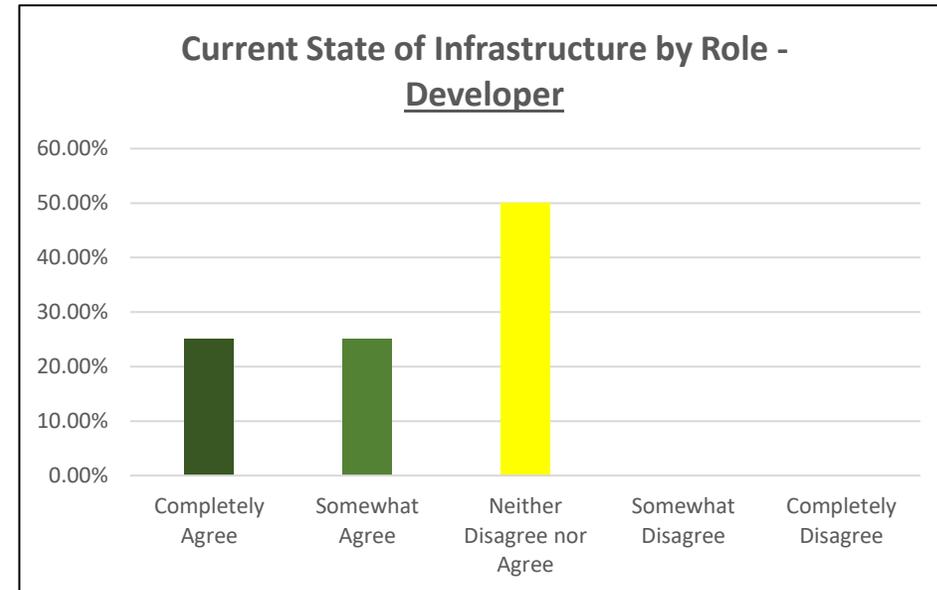
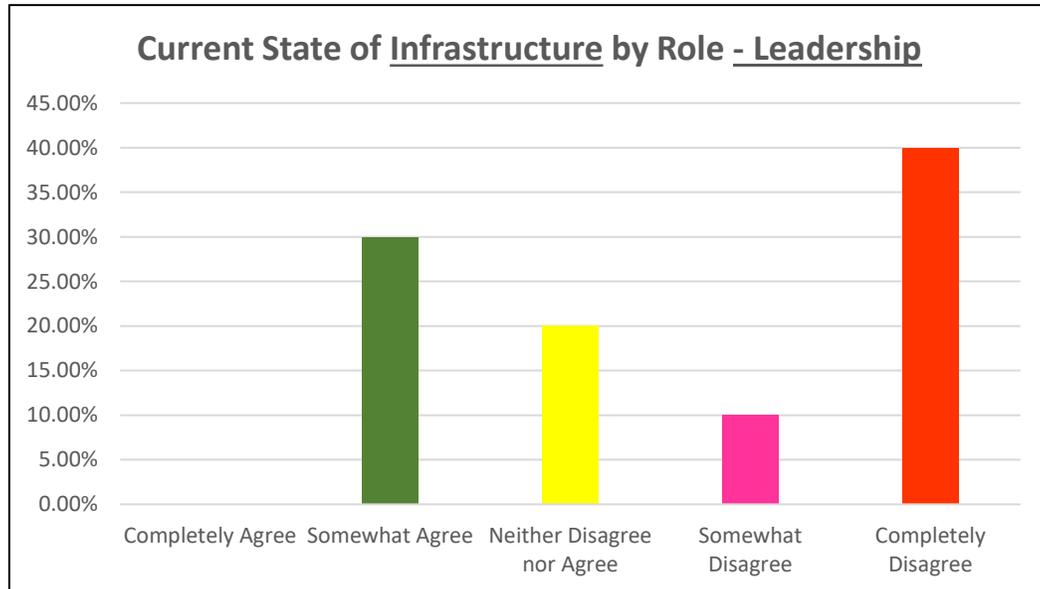


Priority By Org - Federal Agency



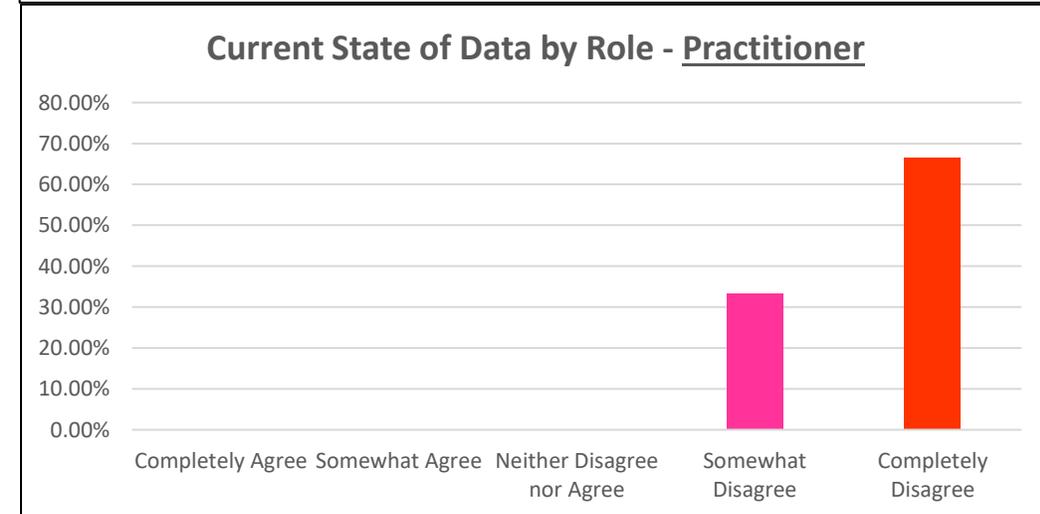
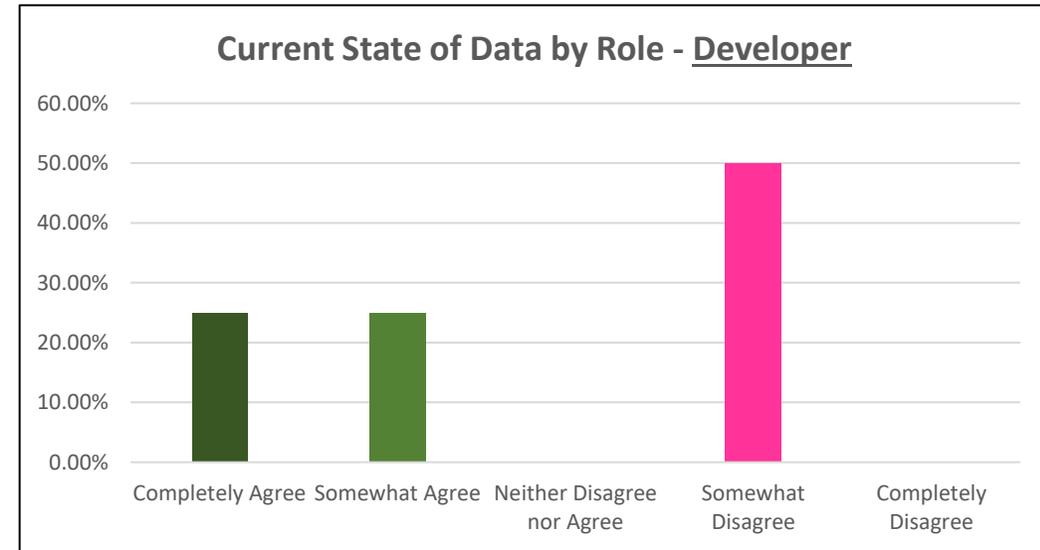
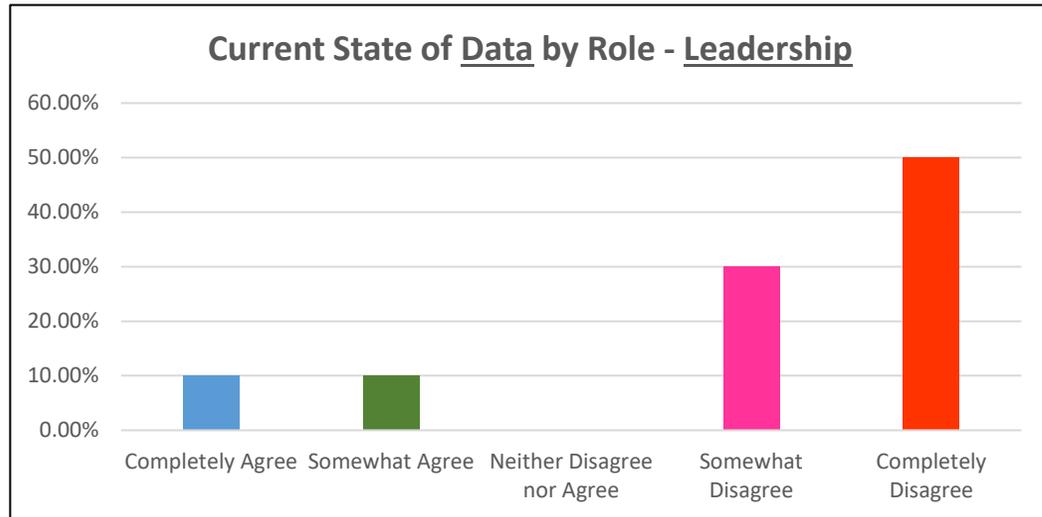


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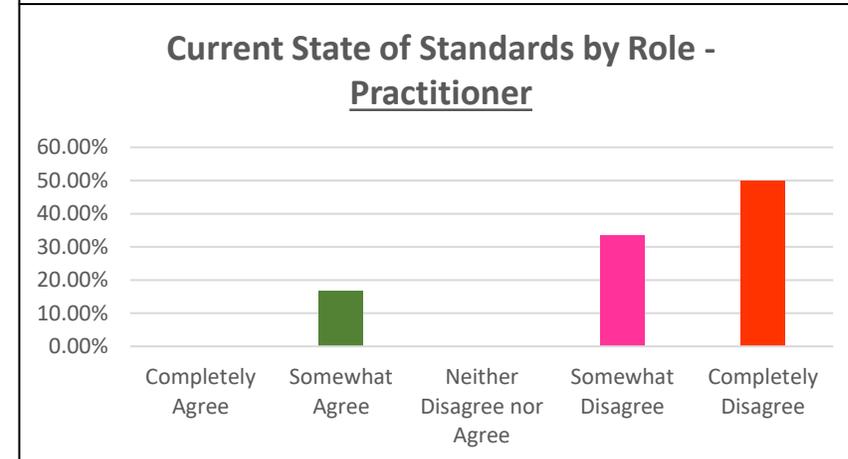
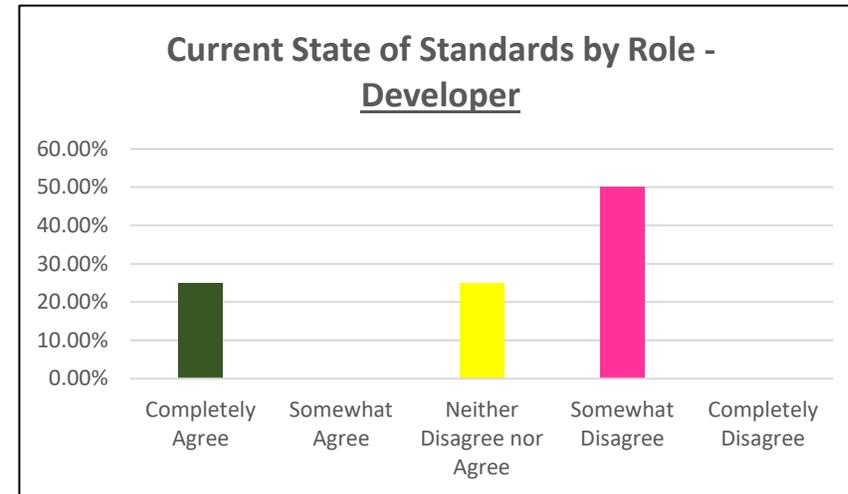
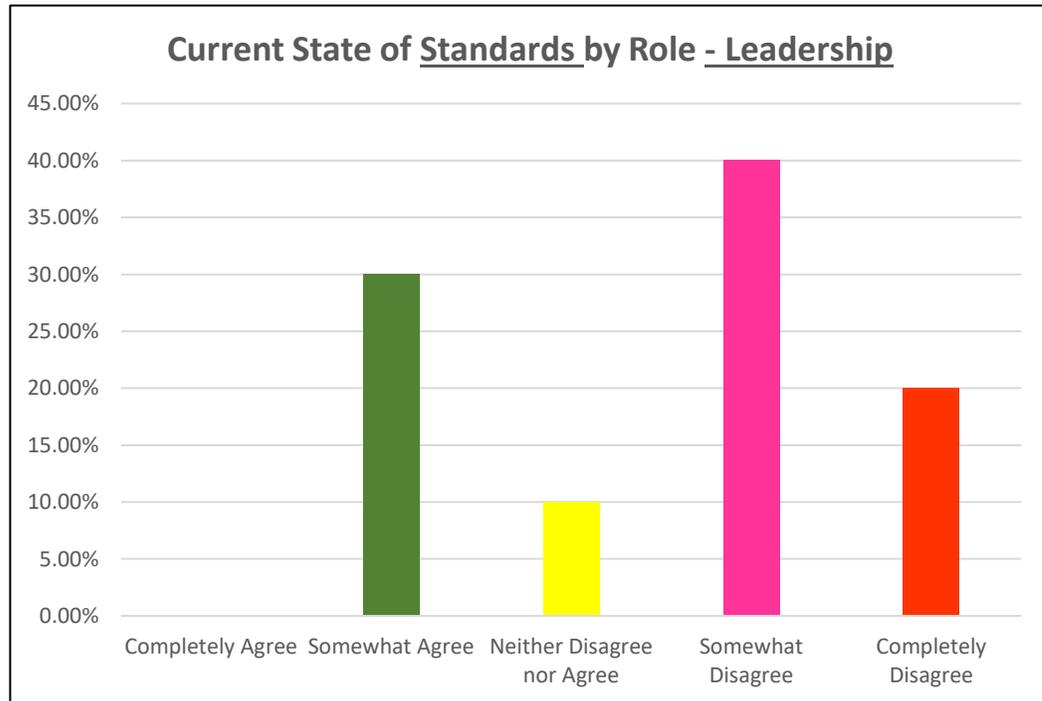


Model Integration & Standards WG Data Call – Website Questionnaire





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Model Integration & Standards Synergy Capture

Effort / Project / Working Group NAME:	Organization:	Abstract Description
ReadyOne	SAIC	ReadyOne is SAIC's Digital Engineering Ecosystem that employees and customers can use as a services to perform Digital Engineering.
Resilient MW/MT MEO	USSF / SSC / SNR	Our program is path finding "standards" to enable federation of multi-contractor models. We developed Style guide and Metamodel with validation suite, diagram patterns, taxonomy, containment tree, model navigation, a model-based GRA (in UAF) that contains mil hnbk 520 compliant SRD, ICDs, CONOPS, an acquisition model that contains RPP docs, common libraries and more
ISRU System Modeling / SIMA	EP/EX	Module system models that directly addresses STMD shortfall ISRU-581 (ISRU System Modeling)
Modeling and Simulation Standards Book of Knowledge	SISO	The purpose of the M&S Standards BoK Standing Study Group (SSG) is to investigate the need for and possible standardization of a central digital hub (or BoK) for identifying, and in some cases, accessing core resources for M&S standards and related information supporting M&S standards. These will include resources from government, industry, and academia. Besides the early technical work discussing and determining the necessary content, the SSG will develop and execute a strategy for community awareness of the effort and encourage new and existing SISO members to join the SSG team.
Space Systems MOSA Interface Standards Alliance	Space Systems Command, NASA, and NRO	An alliance of SSC, NASA, NRO, and about two dozen prime contractors in the space industry are collaborating on the development of consensus standards to achieve interoperability. The scope of this standards activity will shortly be expanded to include standards for models to support MBSE.
NDIA Systems Engineering's Digital engineering Environments subcommittee	NDIA	The Digital Engineering Environments Committee (DEE) provides a forum where government, industry, and academia can share lessons learned, promote best practices, address issues, and advocate for digital engineering solutions and environments to support digital transformation in systems engineering
Digital Transformation Office - DTO	BAE Systems, Inc.	FUSION capability that automates the processing of mission engineering models into simulations and visualizations for leadership views.
DAF M&S Gateway	SAF/SA	
NASA Digital Engineering Leadership Team	NASA	
Model-Based Definition/Enterprise (MBD/MBE) Team	NASA Kennedy Space Center	



Model Integration & Standards Conclusion

- The stepping stones to continued improvement require more emphasis on (1) collaboration, (2) advocacy, and (3) shared solution space.
- Solutions require integration of infrastructures, interoperability of systems, and composability of models. Successful standards for interoperable solutions must address all three categories.

Considering the depth & breadth of standardization activities by DEM&S Stakeholders, the capability to achieve model integration will be driven by continued collaboration across the acquisition lifecycle, and advocacy for the awareness, development and prioritization of technical standards.