

MBSE Workshop

Agenda and Objectives

September 18th, 2017

2017 GPDIS Workshop

Mark Williams, Boeing
Greg Pollari, Rockwell Collins

GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2017



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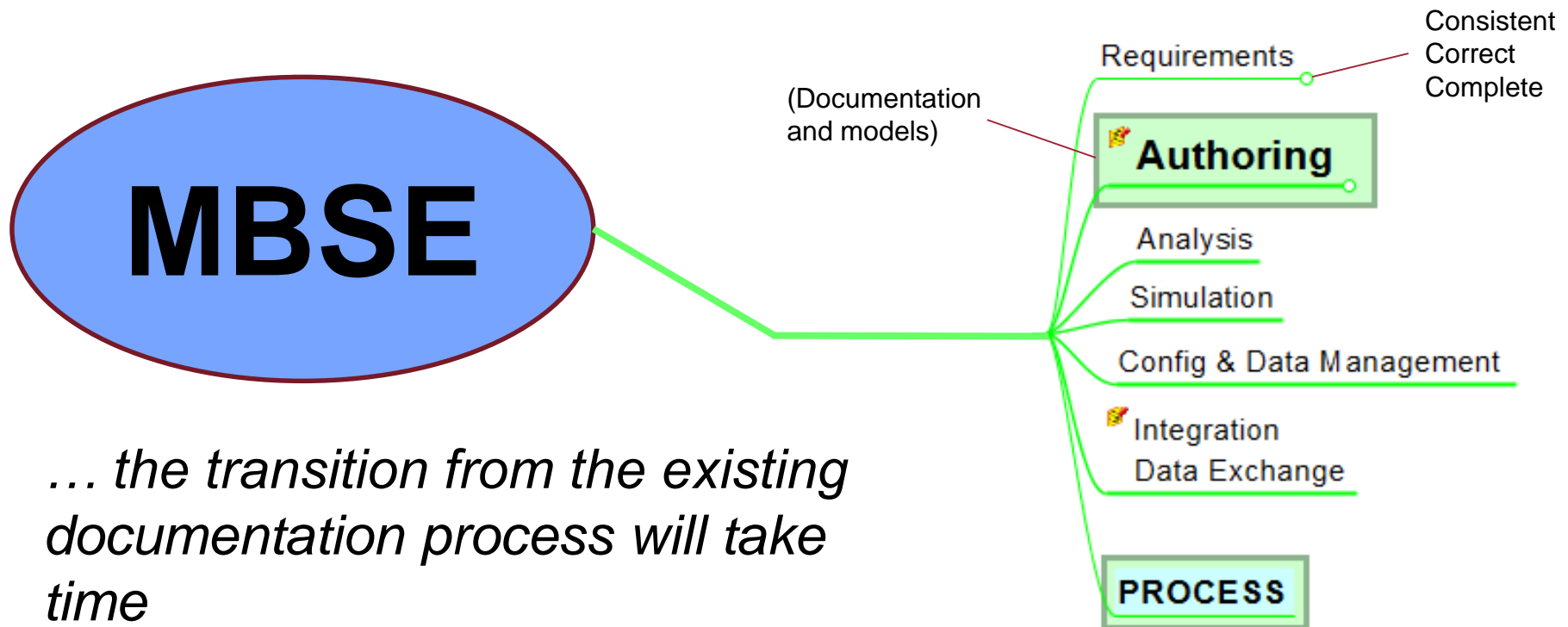
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What is MBSE?

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Architecture and analysis defined as integrated digital models that are explicit, coherent, and consistent.



- **Mark / Greg Intro**
- **Tom Hedberg, The significance of NIST**
- **The Transition to MBSE - Maturing the Analysis and Simulation Process, Williams-Tummescheit**
- **Discussion Groups – 1st deliverable**
- **MBSE Multi-Model and Multi-Domain Interoperability, Pollari-Shaw**
- **Discussion Groups – 2nd deliverable**

GPDIS is all about interoperability

- **What facilitates interoperability both between and within our companies?**
- **Identify a set of industry standards, tools, and processes that improve the technical deliverables and communication between the OEMs and their Suppliers (RFLPM).**
- **Point out opportunities to our Vendor, and Service Providers on how they can help us**

Who Are We?

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**OEMS – Boeing, Northrop Grumman, Airbus, Waymo,
Lucid Motors, KHI, Yamaha**

**SUPPLIERS – Rockwell Collins, Parker Hannifin,
Honeywell, Models and Tools**

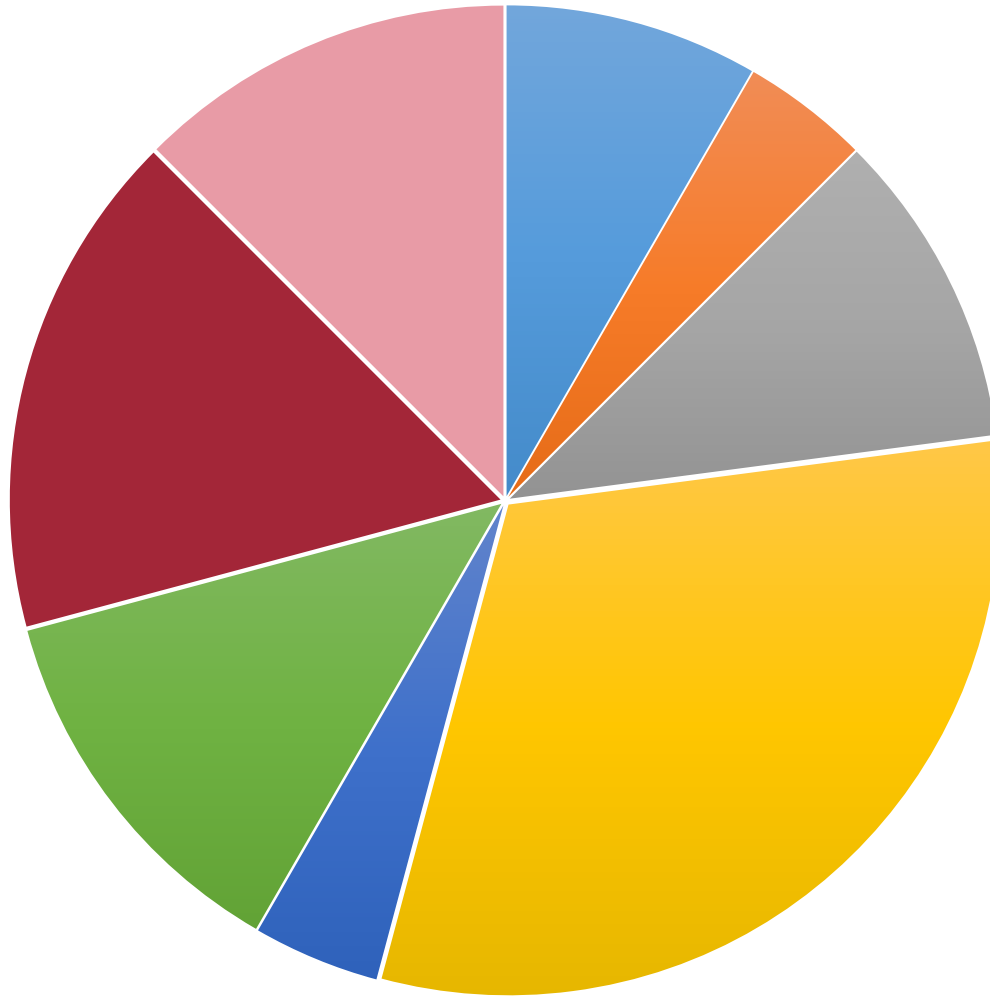
26 different COTS Vendors and Service Providers

Academia/Gov – Georgia Tech, Purdue, NIST, NASA

**This opportunity is made possible due to the support
of the GPDIS partners, sponsors, software vendors,
sub-tier suppliers, and academia who all attend our
conference.**

Data from the Last Workshop

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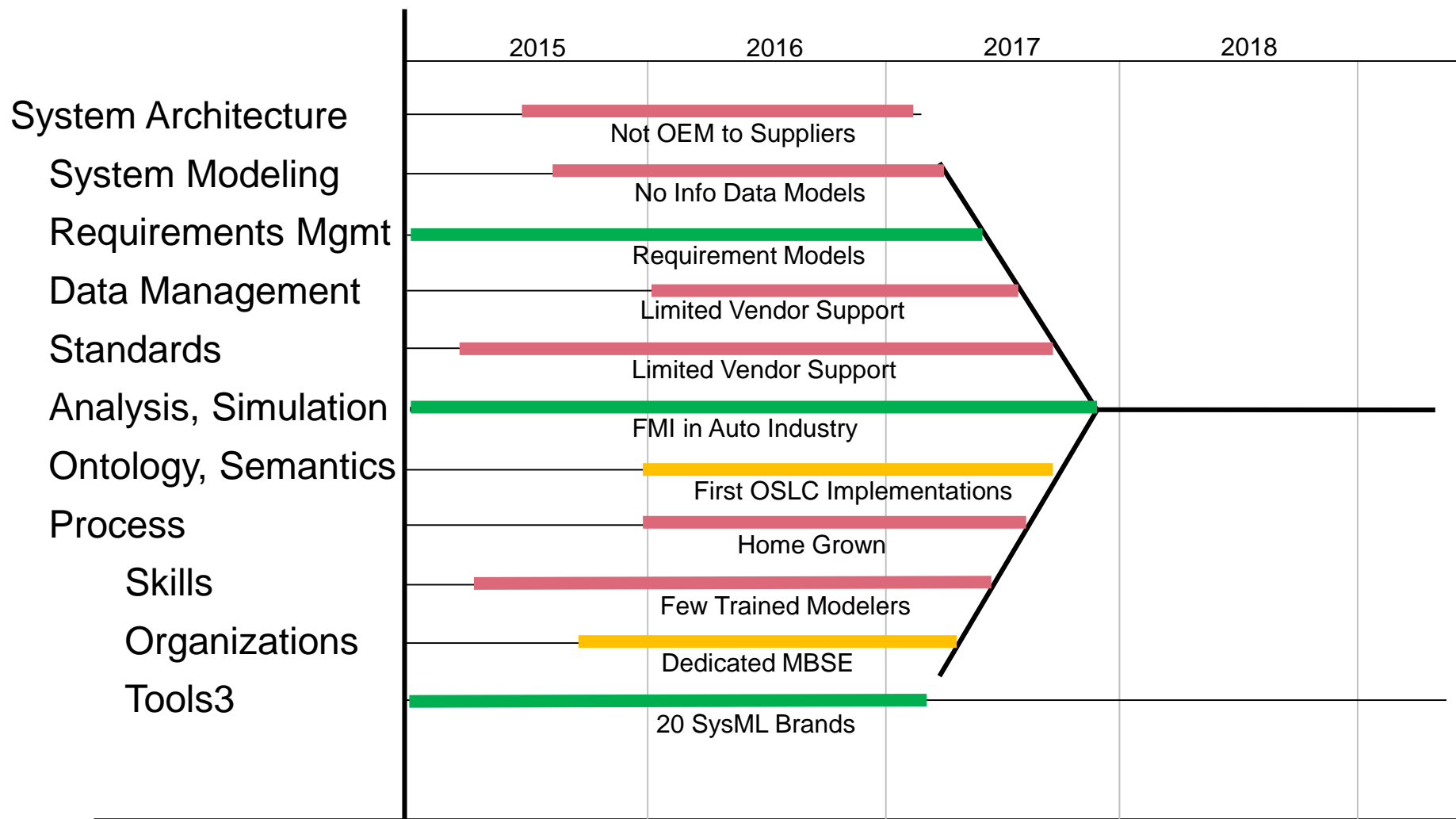


- Define/Justify MBSE
- Training-Implementation
- Integrate with PLM
- Standards - Interoperability
- Vocabulary
- Tool Integration (Vendors)
- Roadmap
- Modeling

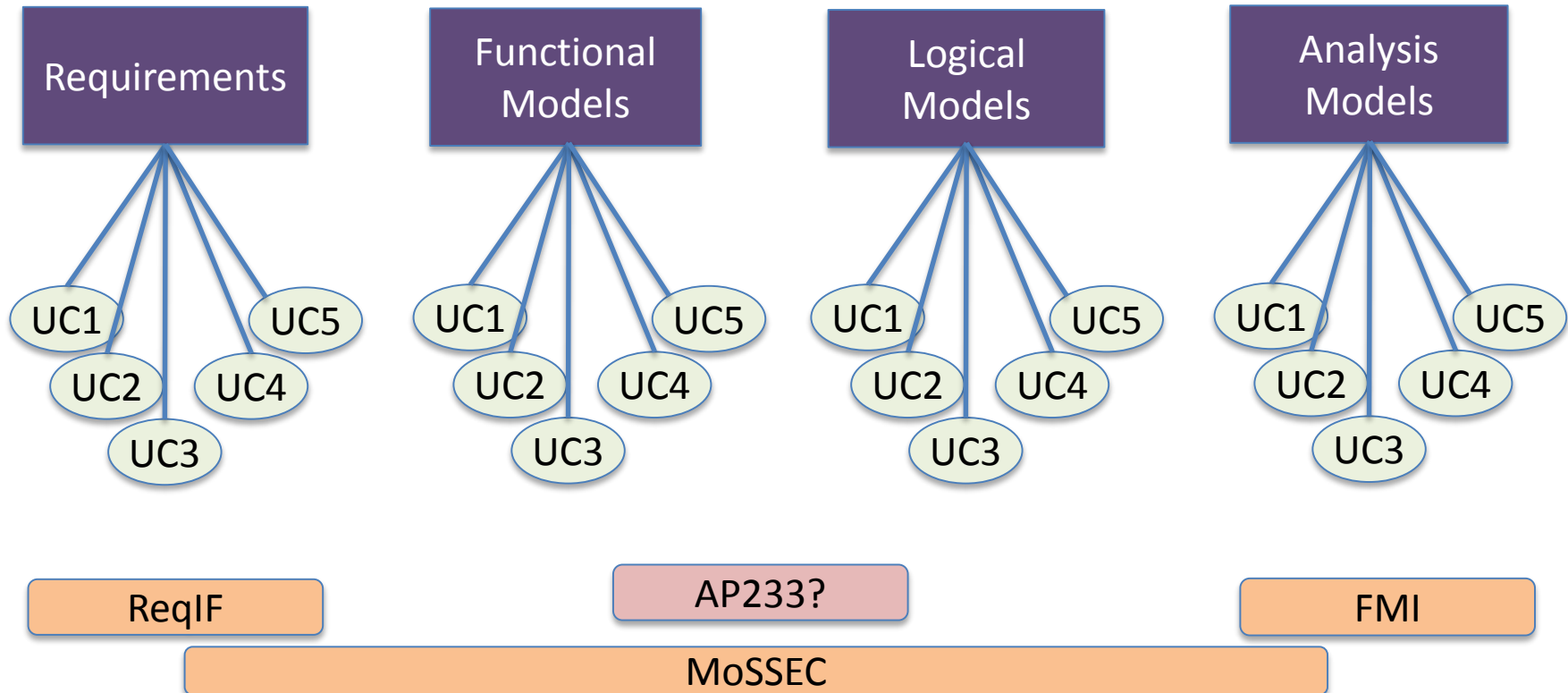
33 submissions and 104 comments

MBSE Roadmap

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Use Cases for MBSE



Standards Potential Industry Standard
UCx Subject Use Case

*Add tools, models, or
formats to this pic*

MBSE Standards for PDES

Requirements Mgmt

Requirements

- V&V distinctions
- Product design specific
- Tool Exchange
- Lifecycle states
- Derivation and linking
- Hierarchy/history
- OEM-Supplier Mgmt
- As model or doc

System Models

System Models

- Industry stds (SysML, AADL)
- Architecture Rep Definition (leaves)
- Architecture Views
- Architecture Context (tree)
- Data Exchange
- Requirements development
- Other modeling languages (UML, Modelica)
- Model mgmt.
- Integration,
- Consistency verification
- Analytical/performance models
- Unified data model for design iterations
- Analysis, Sim, test, logistics, training

Process Compatibility

- Artifacts, e.g. Views, products, deliverables
- Security and IP protection
- Recipe for lifecycle states
- Status, milestone, measurement for completeness, quality, and closure
- Task goals and Tool applicability
- Business data exchange type/timing/agreements
- Versioning, ConfigMgmt
- BPMN – Business Process Modeling Notation

Meta Data

Meta Data

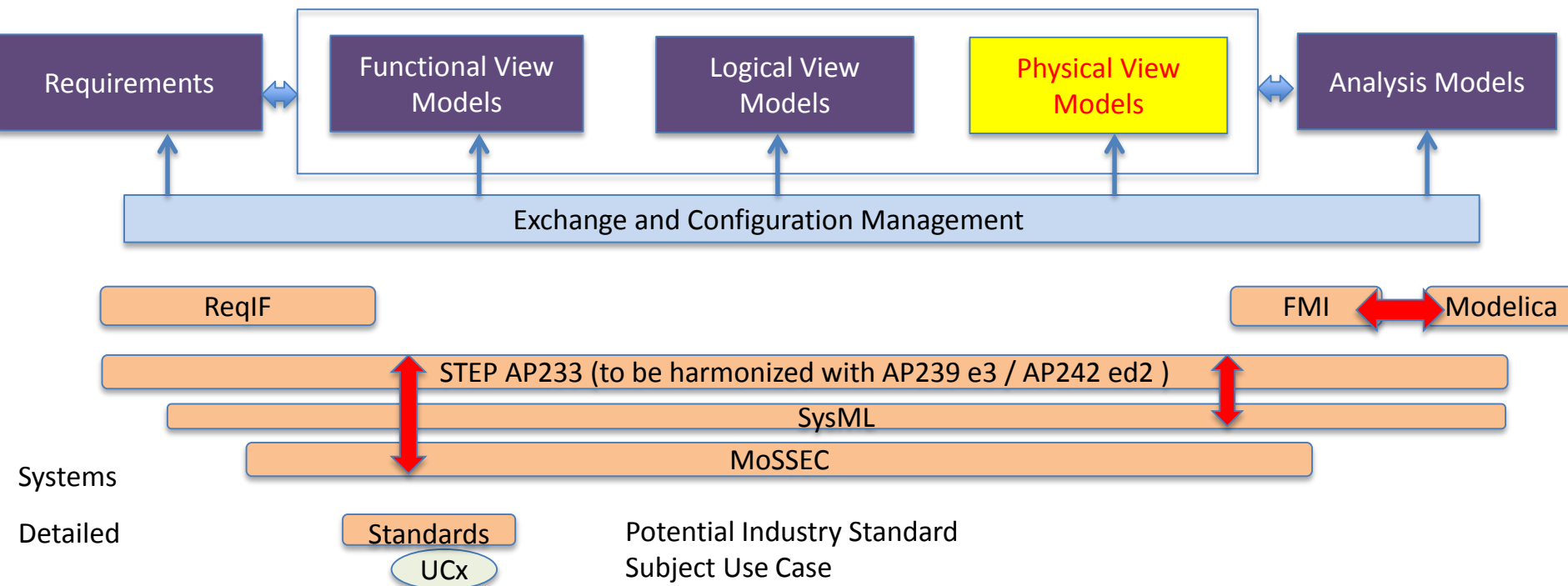
- Model application
- Model Identification/Activity/Mgmt
- Collaboration
- Terminology/taxonomy/ontologies
- Suitability for Exchange
- Who, What, When, Why, Where

Transition from/or maintain document based process

Use Case is process for deliverable (data/doc/model).
Math, data, algorithm is model classifications.

MBSE context (1/2)

AIRBUS suggested changes to previous two charts



Discuss then capture up to three stories that you think are most important for MBSE.

What is working and what isn't?

Who are you talking to (employee, consultant, CEO)?

Which roadmap category needs the most focus and why?

System Architecture

System Modeling

Requirements Mgmt

Data Management

Standards

Analysis, Simulation

Ontology, Semantics

Process

Skills

Organizations

Tools

MBSE Workshop Abstract

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- The emphasis is on interoperability opportunities across our industries with a special focus on demonstrating and discussing the interface options available between the Suppliers and OEMs. Topics will include an overview of the applicable MBSE industry data standards, the state of the MBSE-related standards bodies, and opportunities for influence and cooperation.
- Joint presentations from solutions providers and industry highlight how MBSE model data interoperability plays a role in the supply chain. Breakout sessions provide an opportunity to capture real stories about interoperability challenges.
- Attendees will gain an understanding of how MBSE will affect their company's business, how data standards can address many of our interoperability challenges, and where opportunities for further maturity exist.

MBSE Workshop Marketing

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- **How do you define MBSE? Who's affected? What's driving this change? Where is the value? If you don't have answers to these questions, or you are part of the solution, the GPDIS MBSE Workshop is the place to be.**
- **Industry leading experts, explanations for the layman, and the latest tools for the professional, GPDIS is the only conference focused on the technologies that support interoperability between the Suppliers and OEMs. The biggest companies, the latest standards, and the market leading tools. Come join the organizations building the foundation for the digital thread.**