



AEROSPACE & DEFENSE PLM ACTION GROUP

Standards Working Group

*Status for
the AIA – ASD Interoperability 25 Nov. 2019 conference call*

AIRBUS



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A&D PLM Action Group

Antitrust statement

All Aerospace & Defense PLM Action Group (AD PAG) meetings shall be conducted in strict accordance with applicable antitrust laws, which exist to preserve and promote competition. It is the responsibility of all AD PAG member companies to ensure this compliance with the antitrust laws. To that end, meeting participants, who are business competitors, must be careful to avoid any mention or discussion of topics that might raise potential antitrust issues or concerns.

In particular, there shall be no mention or discussion of individual company pricing or marketing plans; terms and conditions of sale negotiations; changes in capacity, production or inventory; market share; allocation of customers or markets; company boycotts or refusals to deal; matters concerning individual suppliers; or contract bidding or bidding procedures. Should any question arise about the appropriateness of a meeting topic, discussion of that topic should stop immediately and the members' legal counsels contacted for further direction.



Aerospace & Defense PLM Action Group

Mission

An association of aerospace & defense companies within CIMdata's globally recognized PLM Community Program, which functions as a **PLM advocacy group** to:

- Set the direction for the aerospace & defense industry on PLM-related topics that matter to members
- Promote common industry PLM processes and practices
- Define requirements for common interest PLM-related capabilities
- Communicate with a unified voice to PLM solution providers
- Sponsor collaborative PLM research on member-prioritized industry and technology topics



Aerospace & Defense PLM Action Group

Membership eligibility

As per the charter, eligible for membership are:

Commercial aircraft OEMs

Defense OEMs – Aeronautics and space sectors only

Aircraft engine providers

Other Tier 1 commercial aircraft suppliers aren't included in the current scope

PLM solution providers cannot be members, but may participate as guest attendees at specific Group meetings in the future



Current Projects

Descriptions and project leaders

Global Collaboration – Cyd Watts, Boeing & Ken Versprille, CIMdata

- Define A&D collaboration patterns between airframe and engine OEMs, determine best practices for sharing electronic data throughout the lifecycle, and create a template to facilitate data standard formats and exchange practices for setup and connection of OEMs and their suppliers

Model-Based Definition (MBD) and Bill of Material Definition – Brandon Sapp, Boeing & Ken Versprille, CIMdata

- Define the minimum data content in Model Based Definition type design required to meet manufacture, inspect, and regulatory certification requirements. Evaluate existing standards and tools to provide an industry standard data delivery process to regulatory agencies.

Multiple View Bill of Material (Multi-BoM) – Javier Reines, Airbus & Chris Gregory, CIMdata

- Define scope (e.g. eBoM, mBoM, sBoM) and use cases (e.g. reconciliation, consistency-traceability, add-replace-suppress part); and agree on high level objectives and requirements.

Model-based Systems Engineering (MBSE) – Jennifer Bacon, Boeing & Don Tolle, CIMdata

- Evaluate current capabilities of a typical aerospace supplier and an aerospace OEM to produce, exchange, and consume digital information via a collaborative shared data site using commercial MBSE software tools (i.e., SysML) and related data exchange standards.

Standards – Kenny Swope, Boeing & Jean-Yves Delaunay, Airbus

- Coordinate A&D PLM AG WGs to reinforce consistency of PLM standardization activities. Identify relevant PLM Interoperability standards for development & usage. Identify relevant Forums to accelerate deployment. Issue recommendations for relevant standards



Collaboration with PLM Software Providers

Four-step process to achieve member objectives

Step1: Intention

- Inform PLM software providers of topic as an A&D PLM Action Group priority
- PLM software providers participate in 1st round of research

Step 2: Direction

- Conduct 2nd round of projects; Formulate direction statement
- Inform PLM software providers of direction and request response
- PLM software providers respond in writing and in person at A&D PLM Action Group meeting
- Revise direction statement and distribute to PLM software providers

Step 3: Requirements

- Conducts 3rd round of projects; Formulate requirements
- Inform PLM software providers of requirements and request response
- PLM software providers respond in writing and in person at A&D PLM Action Group meeting
- Revise requirements and distribute to PLM software providers

Step 4: Procurement policy (individual members)

- Convert requirements to procurement policy language



2019-20 Plan

Goals and priorities

1. Publish process protocols and technical requirements, based on joint projects, to the PLM software providers and other industry entities
2. Publish direction statements, based on research/joint projects, to the PLM software providers and other industry entities
3. Establish formal cooperative relationships with other industry entities
4. Significantly impact one standard by forming cooperative relationship with a key standards body
5. Define and execute a communication strategy to influence the direction of the aerospace & defense industry on PLM-related topics
6. Achieve 10-12 fully committed memberships



A&D PLM AG: Standards Working Group

Mission

The Standards Working Group enables the mission of the PLM Action Group through advocacy of standards deemed important to its members. The Standards Working Group exists to:

- Coordinate A&D PLM AG Working Groups to reinforce consistency of PLM Standardization activities according to business requirements
- Identify relevant PLM Interoperability Standards for development and usage
- Identify relevant PLM Interoperability Implementer Forums to accelerate deployment
- Issue recommendations for PLM Interoperability Standards for development and usage

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Administered by CIMdata



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A&D PLM AG: Standards Working Group

Activities

Coordinate all A&D PLM AG WGs activities regarding PLM Interoperability Standards

- Identify PLM interoperability related activities in each Working Group
- Support them when necessary (guidelines, recommendations, technical support,...)
- Understanding by each WG of the interdependencies of the PLM standards
- Ensure that actions are consistent
- Identify needs for influencing
- Support the setting up of consistent and complementary test cases to be used for illustrations of business requirements by each WG when meaningful

Communicate

- A&D PLM AG Radar Chart (Including summaries and recommendations)
- A&D PLM AG priorities for use cases, test cases, etc. to Implementer Forums

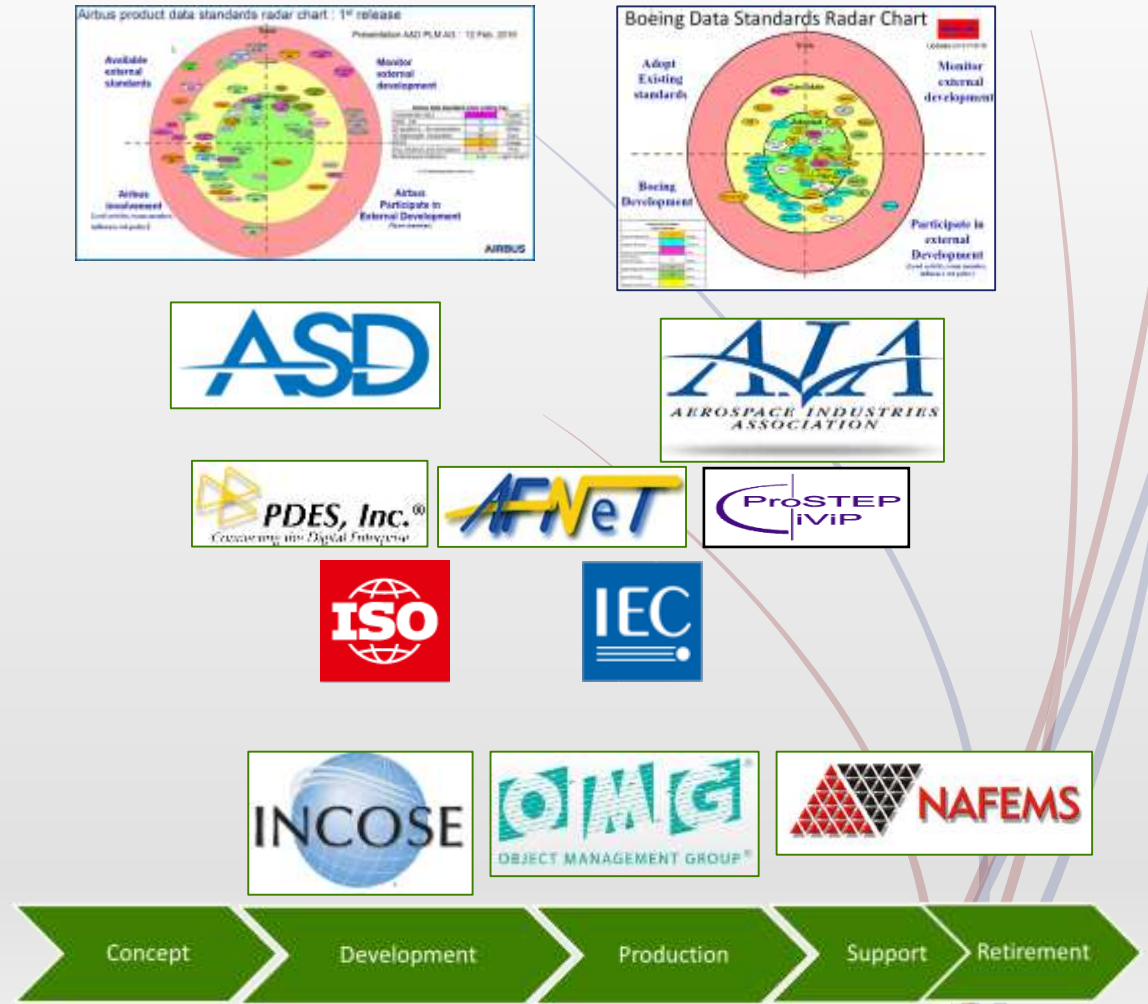


A&D PLM AG: Standards Working Group

Deliverables

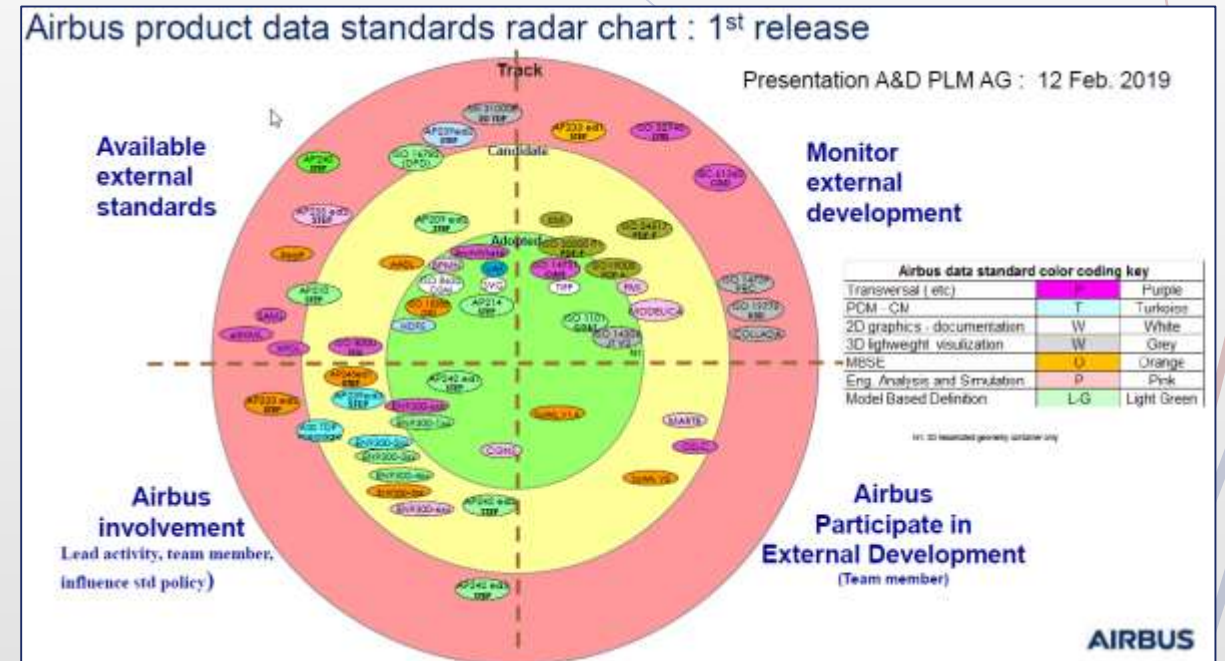
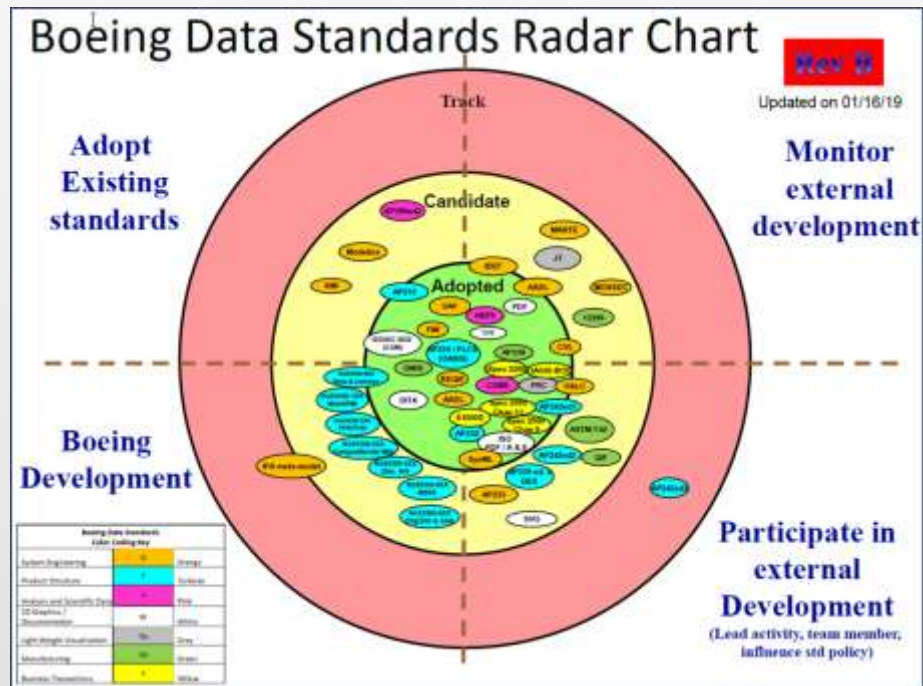
Coordination of the Members through:

- Standards Maps by member
 - Trade Associations
 - Standards Bodies
 - Relevant Consortia and Societies
- Integrated testing status
 - Implementation Forums
 - Member activities
- Communication Plan of group priorities



A&D PLM AG: Standards Working Group

Company specific standards radar chart



A&D PLM AG: Standards Working Group

: Monitoring means to be developed List of Standards & interoperability forums

- List of open interoperability Standards of interest for A&D PLM AG

- Level of Development
- Supporting Associations
- A&D PLM AG WG interested

- List of Interoperability Forums of interest for A&D PLM AG

- Per technical Discipline
- Tests status
- Supporting Associations
- A&D PLM AG WG interested
- Summary of input of the A&D PLM AG WGs to the different IFs

Name	Technical discipline	standard tested	Start	Sta.
CAx IF	mechanical design (metallic, composite, Additive manuf., kinematics, etc)	AP242 Ed1 & +	1999	Run
	mechanical manuf.	AP238 E2	2018	In prep.
EWIS IF	Electrical	AP242 Ed2 & +	2019	In prep.
-	PCB assembly design	AP210 Ed3 ?	?	5 Y roadmap
CAE IF	Struct. Analysis	AP209 Ed2	2017	In prep.
PDF Forum	3D visualization in PDF	PDF E / PDF 3D		
JT IF	3D Visualization	JT	2011?	Run
PDM IF	PDM/CM	AP242 E1 (AP239)	2015	Run
-	Simulation Data Mngt	AP209 E2	2021?	5 Y roadmap
RV&V IF	Req. V&V Mngt.	AP242 Ed2 & +	2019	In prep.
MBSE IF	FMI Simulation Model	FMI		In prep.
	Collab. Multi Disc. Sim	MoSSEC V1	2020	Target

DRAFT to be reviewed & completed



A&D PLM AG: Standards Working Group

Surveys in work

Level of adoption (usage) of PLM interop Standards and blocking points

- First - for each member
- Second – consolidation with AIA and ASD in order to include Small and Medium-sized Enterprises (SMEs) and Supply chain

Level of adoption (implementation) of Standards by PLM Editors

- Participation to the related Implementer Forums
- Support to the associated benchmarks



A&D PLM AG: Standards Working Group

Membership

First Name	Last Name	Company	Title	Role	Email Address
Kenneth	Swope	Boeing	Senior Manager	Co-Chair	kenneth.a.swope@boeing.com
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Aerospace & Defense PLM Action Group

Further information

For further information or to inquire regarding membership

please contact **CIMdata**

Charles Ditchendorf, Senior Business Development Manager, email: c.ditchendorf@cimdata.com

or

James Roche, A&D Practice Director, email: j.roche@cimdata.com

or

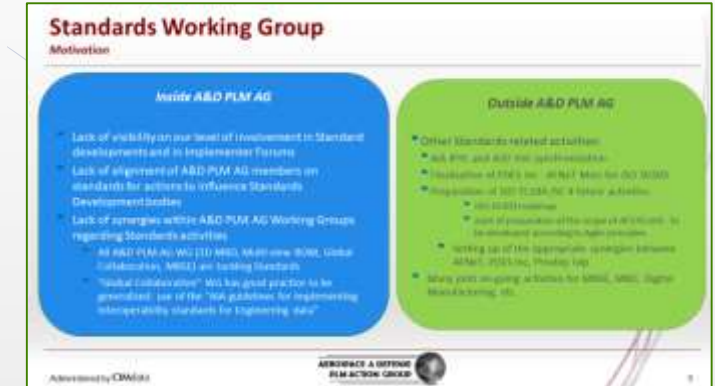
any A&D PLM Action Group member



Standards Working Group

Status

- Kick Off Held 15 July, 2019
- Strong support of members
- Initialization phase
 - Membership
 - Concept of Operations
 - Schedule
- Portfolio review of A&D PLM AG projects for standards harmonization.



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TBC			Multi-view WG focal point	
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Standards Working Group

Motivation

Inside A&D PLM AG

- Lack of visibility on our level of involvement in Standard developments and in Implementer Forums
- Lack of alignment of A&D PLM AG members on standards for actions to influence Standards Development bodies
- Lack of synergies within A&D PLM AG Working Groups regarding Standards activities
 - All A&D PLM AG WG (3D MBD, Multi-view BOM, Global Collaboration, MBSE) are tackling Standards
 - “Global Collaboration” WG has good practice to be generalized: use of the "AIA guidelines for implementing interoperability standards for Engineering data"

Outside A&D PLM AG

- Other Standards related activities:
 - AIA BTIC and ASD SSG synchronization
 - Finalization of PDES Inc - AFNeT MoU for ISO 10303
 - Preparation of ISO TC184 /SC 4 future activities:
 - ISO 10303 roadmap
 - start of preparation of the scope of AP242 ed3 - to be developed according to Agile principles
 - Setting up of the appropriate synergies between AFNeT, PDES Inc, Prostep ivip
- Many joint on-going activities for MBSE, MBD, Digital Manufacturing, etc.



Standards Working Group

Team Principles & Approach

Team Principles: Working Together

- Work together, avoid defending individual member company interests
- Balance the solution that maximizes value for the industry, not for the individual member companies
- One member, one position
- Consensus is our method

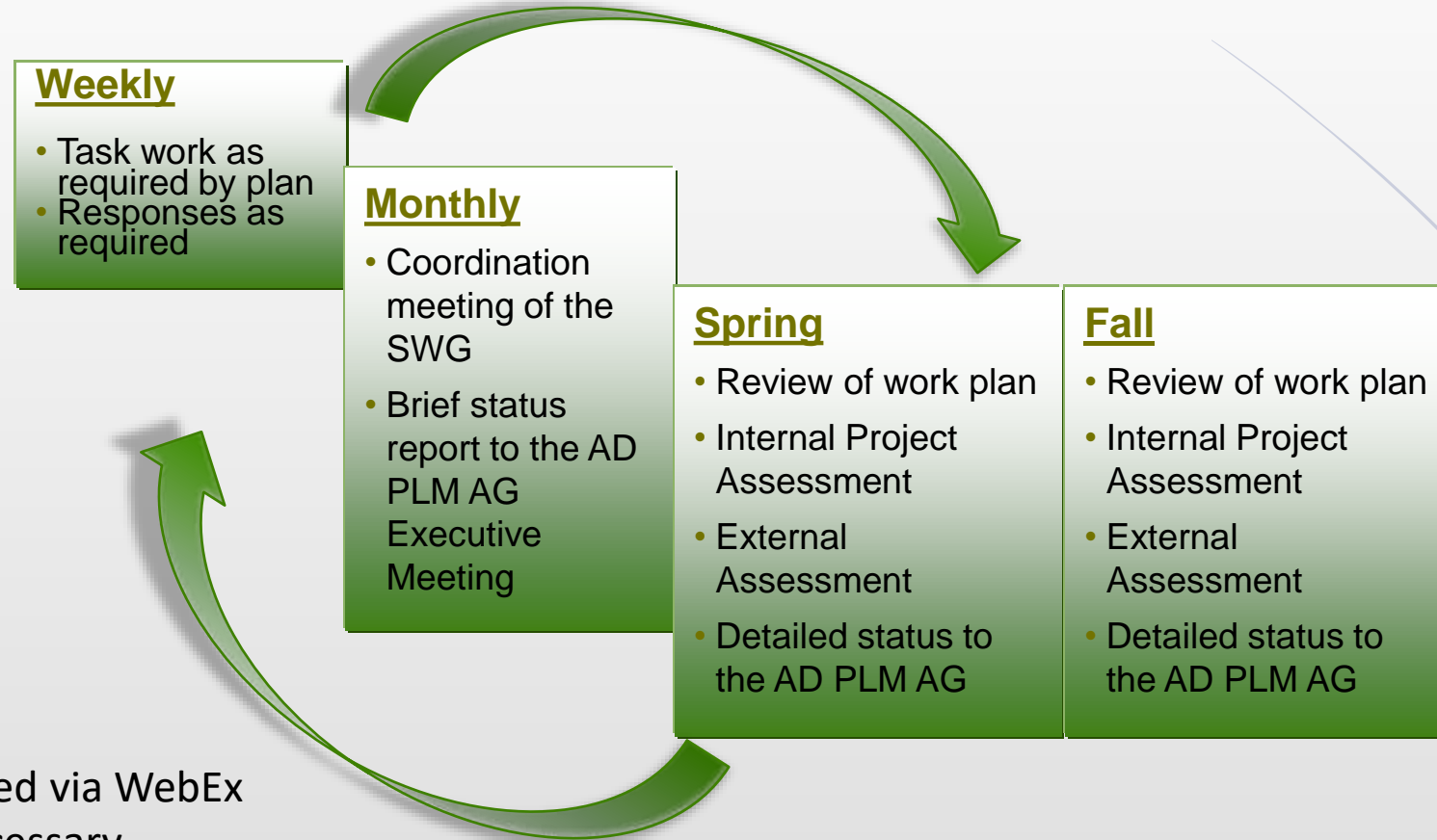
Approach: Solutions for the A&D industry

- Common product that represents the deliverable to be agreed to
- Member companies maintain their own versions
- Refresh as dictated by driving schedules



Standards Working Group

Operating Cadence



- Meetings conducted via WebEx
- F2F only when necessary
- Spring and Fall meetings align to leadership offsite and support agendas

