



Aerospace and Defence Interoperability – Collaboration between AIA and ASD Teleconference 2017-01-24

0900-1200 EST, 1400-1700 GMT and UTC, 1500-1800 CET

In attendance

Yves Baudier	Airbus	ASD SSG Chair, AP239e3
Howard Mason	BAE Systems	AIA BTIC Chair, SC 4 Chair
Adrian Murton	Airbus	MoSSEC
Randy Ramsey	Raytheon	AIA BTIC
Tom Bluhm	Boeing	AP242
Rick Zuray	Boeing	LOTAR
Evelyn Thompson	LM	AIA BTIC – WAWF, X.12
Henry Caffrey	Boston Consulting	AIA BTIC
Kenny Swope	Boeing	SC 4 Chair-elect
Brad Sumner	RR inc	AIA SGB Chair
Rusty Rentsch	AIA	AVP Technical Operations and Workforce
Robin Thurman	AIA	Director, Workforce Policy
Samy Scemama	BoostAero	ASD SSG
Jean-Yves Delaunay	Airbus	ASD SSG, LOTAR
Brian Chiesi	Boeing	AIA BTIC
Dave Ehinger	RR inc	AIA CSC
Nicolas Figay	Airbus	ASD SSG
Mike Jahadi	LM	Technical Fellow, President of PDES, inc.
Jean Brange	Boost	AP242, SC 4 3D Visualisation
Matt Gomez	Bell Helicopter	AIA BTIC
Stefano Tedeschi	AIAD	ASD SSG
Ramon Somoza	Airbus	ASD SSG, S5000F, Sx000i
Bill Luk	BAE Systems inc	AIA EMC

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1. Introductions and welcome

Within the scope of the memoranda of understanding governing collaboration between the AIA and ASD on matters related to interoperability, the chairs of the AIA Business Technology Interoperability Committee (Howard Mason) and the ASD Strategic Standardization Group (Yves Baudier) convened the teleconference to review status and progress on existing collaborative efforts and explore the potential for undertaking further tasks to address product and supply chain interoperability to meet the requirements of the aerospace and defence industry.

2. Existing collaborations – status, five year plan and issues

- **LOTAR** – Parts 120, 121, 125, etc (Rick Zuray – AIA/Jean-Yves Delaunay – ASD)

See presentation [P01 LOTAR](#)

Need extensions to STEP to cover continuously expanding scope of systems, with priority for Model-based Systems Engineering (MBSE), Engineering Analysis and Simulation, and Electronics starting in 2017. The ISO STEP schedule needs to be driven to meet these needs.

- **ILS suite of specifications** (Ramon Somoza– ASD/Rusty Rentsch – AIA)

See presentation [P02 ASD-AIA ILS Suite](#)

Three year plan for development, based on common core data model linked to PLCS

- Links with ATA eBusiness activities

The only formal link beyond AIA and ASD to ATA covers the S1000 specification. There is a growing business need to address a common approach to maintenance planning across civil and military markets, implying convergence between MSG-3 and S4000. It was emphasised that AIA is open to working on further developments after resolution of the dispute between A4A and ASD over alleged copyright infringement, although the S4000P spec had been written from scratch and included Airbus-patented material – available under FRAND conditions. ASD noted that it was awaiting a response from A4A. The publication of AP239e3 could provide a focus for renewed collaboration.

Attention was drawn to the proposed ATA development of their own approach to configuration management, and it was agreed that requirements should be harmonised to avoid the creation of different data models.

- **STEP AP242e2** (Jean Brange – ASD/Tom Bluhm – AIA)

See presentation [P03 AP242 ed2](#)

Focus is on additional scope and corrections identified to date, delivered through a set of incremental Change Requests.

- **STEP AP239e3** (Yves Baudier – ASD/Rick Zuray – AIA)

See presentation [P04 AP239 ed3](#)

Updates to meet requirements from implementations plus alignment with STEP New Architecture. The plan is to deliver the Committee Draft (CD) to ISO by August.

- **STEP New Architecture** (Jean Brangé ASD/)

See presentation [P05 STEP New Architecture](#)

Main principles of the STEP New Architecture were presented. It was emphasised that continued investment would be required to sustain the development and automated production infrastructure to ensure the quality of the standard and the underlying STEP Module and Resource Library (SMRL).

3. Potential areas of future collaboration – functional requirements for next 5 years

- **MBSE (Peter Pan – AIA) including MoSSEC (Adrian Murton)**

See presentation [P06 ASD Opportunity MoSSEC](#)

MoSSEC is focused on the definition of simulation data for systems, in support of System Engineering requirements such as those emerging in the AIA MBSE CONOPS work. Projects also exist in PDES,inc and ASD, and there is an opportunity to bring together the various experts to collaborate in a dedicated telecon to ensure a coherent approach. The opportunity to collaborate with other sectors was noted.

- **Geometric Dimensioning and Tolerancing (Jean-Yves Delaunay – ASD)**

See presentation [P07 ASD Opportunity GD&T, P7 PMI_Entity_Comparison.xls](#)

The different development paths in the ISO and US environments were noted, with the implications of divergent requirements in CAD systems and STEP. Rick Zuray provided the results of an exercise to identify where the ISO and ANSI definitions were equivalent or different. It was recognised that aerospace industry involvement in the basic work in ASME and ISO/TC 213 would be required in order to ensure common solutions at the data model level for exchange, sharing and archiving purposes. The opportunity to collaborate with other sectors was noted, recognising this was not an aerospace specific requirement.

- **New STEP capabilities – target requirements (Jean-Yves Delaunay – ASD)**

See presentation [P08 ASD Opportunity New STEP capabilities](#)

The only major action outstanding from the previous call in March 2014 was the proposed establishment of a PLM Interoperability Council, but it was generally considered that this was not necessary given the other links that were already in place.

The various requirements already identified in the meeting indicated a requirement for an updated AP 233 to support MBSE, support for the new edition of AP238 for manufacturing, and for new editions of AP209 for simulation and AP210 for printed circuit assemblies.

- **XML strategy for transactions (Evelyn Thompson – AIA/Samy Scemama – ASD)**

See presentation [P09 ASD Opportunity Boostaero](#)

The US DoD is increasingly using XML data for exchanging contracts, and in other internal systems. It would seem useful to avoid converting this to and from X.12 for external transactions. The various BoostAero messages were in use in the BoostAeroSpace hub after adoption through UN/CEFACT, and were also being adopted by the Japanese automotive industry. A conference call will be convened to explore a common statement of direction.

- **Visualisation – 14306, PRC, 3D-PDF, X3D (Jean Brange – Global view + ASD)**

See presentation [P10 ASD Opportunity Visualisation](#)

The range of existing 3D visualisation initiatives and the work to permit them to consume STEP geometry was noted. Work was also starting in ISO/IEC/JTC 1 to coordinate standards for 3D printing and scanning.

- **Linked data eg OSLC – (Nicolas Figay - ASD)**

See presentation [P11 ASD Opportunity Linked data](#)

The availability of new technologies such as OSLC opens the way for new data models and scenarios. It was noted that there was a risk of data models being recreated.

- **Additional comments**

- AIA is planning to look at the implications of Smart Manufacturing strategy work in ISO and IEC. It was agreed that the aerospace industry needed to highlight its requirements.
- ISO 8000 Data quality is potentially applicable to all data exchange, sharing and archiving activities
- The current ISO/IEC Database of Product Properties and Classifications work is seeking to expand the existing IEC common data dictionary to support all types of product characteristics, based on the ISO PLIB standard, and potentially using the ISO 22745 Open Technical Dictionary approach. This could impact on the full range of product standards in both ASD and AIA, as well as ISO/TC 20

4. Adoption strategies – vendor, business

- **Status of existing Implementer Forums:** CAX-IF, PDM-IF, ...(Jean-Yves – ASD)

See presentation [P12 ASD Adoption strategies – Implementer Forums](#)

The original CAX-IF is well used, but the more recent PDM-IF was only operating in Europe, although it was seen as necessary for LOTAR. It was noted that the IFs performed testing and validation functions that could not be undertaken in standards bodies or trade associations. It was agreed that implementation was important, but that the business value of investing in these Fora needed to be clearly articulated, with a clear statement of the resources required. It was suggested that academic resources could be leveraged.

- **Requirements for Implementer Forums (All)**

There is an opportunity for organisations such as AFNET and PDES, inc to promote the services for implementer forums. The need for a Forum for requirements management was proposed by Europe, and the scope of PDM-IF could expand to xDM-IF.

- **Coordination with other Aerospace and Defence activities**

The role of the Aerospace and Defense PLM group was noted, with the aim to rapidly respond to industry needs to fill gaps in deploying industry standards.

5. Conclusions and next actions (Howard Mason/Yves Baudier)

The key messages of the meeting were summarized for feedback into the AIA and ASD structures.

Within the context of existing active collaborations:

- Collectively influence the development of STEP standards to support the LOTAR project and the information requirements of implementations such as MoSSEC and the ILS specifications, using the existing mechanisms. Key areas include:
 - MBSE
 - Engineering Analysis and Simulation
 - Electronics
- Support the STEP New Architecture to facilitate implementation and deployment
- Need to sustain resources for supporting the STEP publication infrastructure
- Converging requirements for civil and military markets across MSG-3 and S4000P should be used to drive a common process and data model
- Opportunity to interact with A4A over a planned development of configuration management messages, in order to avoid conflict/duplication
- Opportunity to bring together MBSE interests from AIA EMC, MoSSEC, PDES inc, AFNeT and the ASD SSG for a more detailed technical assessment
- May be a need to ensure a consistent approach to GD&T standards between the US and ISO activities, in order to allow a single approach within STEP

A number of new opportunities should be explored:

- Direction set for AIA/ASD collaboration on XML transactions
- Common approach to be pursued for definition of 3D visualisation scenarios and solutions for enterprise applications and standard parts (ISO standards mapped to STEP backbone)
- Standards bodies should actively promote the ISO work on open technical dictionaries, component libraries and data quality in both AIA and ASD to explore exploitation
- Opportunity exists for adopting common recommendations on Smart Manufacturing.
- The topic of Linked data should be monitored to identify relevant business scenarios, and testing requirements
- Opportunities exist for the industrial consortia to make proposals to support Implementation Forums

In all cases, opportunities for alignment with other industry sectors should be evaluated.

Those present considered that the meeting had been a very useful exchange leading to a number of follow-up actions. It was agreed that such exchanges should take place twice a year.