Summary of the LOTAR International Workshop

March 7th to 10th, 2016 – Gaithersburg, USA

30 on-site participants plus an additional 7 persons via teleconference. Parallel meeting with the CAx Implementor Forum + presentation of the status of STEP AP242 CAD interfaces of CAD vendors and CAD integrators to the CAx-IF and LOTAR members on the 10th of March.

Project Management

- Status of payment of LOTAR 2016 fees by Aerospace and defense manufacturers members, and launch of first LOTAR orders for external subcontractors for Q2 2016 (e.g. 3D PMI pilots).

- Publication of the 2015 LOTAR annual report in the LOTAR web site (LINK).

- Publication before end of March 2016 by AIA and ASD Stan of NAS/EN 9300 part 110 edition 2 "CAD mechanical 3D explicit geometry information" and part 200 "Common Concepts for Long term Archiving and Retrieval of Product Structure Information".

- Preparation of ballots in Q2 2016 of part 007 edition 3 "Terms and references", part 020 "Governance and preservation planning", and part 120 edition2 "CAD 3D explicit geometry with product and manufacturing information - graphic presentation".

- Follow up of LOTAR standards consistency. Close monitoring of LOTAR coordination with ISO STEP standardization projects and related Implementer Forums:

  o Preparation of launch of STEP AP239 e3 project. After the successful ISO ballot of AP239 e3 New Work Item in January 2016, start of bi-weekly calls to prepare the project, and organization of a meeting on March 2nd at Gaithersburg to review the main project management topics (scope, WBS, links with AP242 e2…). Planned kick off meeting on June 15 – 17, 2016, Toulouse. This project is essential to support LOTAR standards for LT archiving of PDM information for the full product life cycle.

  o Organization of a joint meeting (3 – 4 March) to prepare the final harmonization of PDM and requirement management information models between STEP modular APs: strong participation of technical experts of the AIA – ASD ILS suite, AP242 e2 and AP239 e3 projects.

  o Summary of STEP AP242 e2 project: preparation of the documentation for AP242 e2 Committee Draft, planned to be published end of March 2016, which will include the new information model for electrical harness and enhanced functionalities for 3D geometry. Progress in the proposed method to use SysML for electrical harness information modelling, but there are still some issues to be solved. Good progress in the preparation of other extensions or enhancements: for 3D PMI (welding, screw and threads), additive manufacturing (basic), and composite (rosettes) to be included in the Draft International Standard in 2017.

  o New STEP architecture project: increasing effort to ensure the longevity of the infrastructure supporting the development and publication of the STEP standards. Need to prioritize the industry requirements, in order to plan a phased approach, preserving the consistency with the legacy STEP framework and supporting the new modelling practices and interoperability requirements. Pilot to demonstrate the use of SysML for activity and information modelling, formal mappings, and derivation to implementation forms.

  o STEP AP238 project: presentation of the project scope, in close relationship with US DMDII, and STEP-NC projects. The objective is to prepare an infrastructure supporting 3D web based manufacturing information via Apps hosted on tablets or small computer devices. AP238 ed2 is planned to reuse subsets of STEP AP242 for 3D model based design (geometry and PMI).

  o PDF Engineering. Presentation of the scope of the PDF E standard (ISO 24517), which defines a container for Engineering documents, such as 2D drawing or 3D models, with authentication and access right management. PDF E references other 3D visualization standard, such as U3D or ISO PRC. PDF E provides dynamic functions, based on the use of Java scripts. The edition 2 (DIS ballot in progress) adds specific restrictions to support long term archiving functionalities for PDF-E documents. It is supported by the 3D PDF consortium and of the 3D PDF Implementer Forum activities.

  o Overview of AFNeT – ProSTEP iViP STEP AP242 benchmark N2 for 2016 (LINK): Summary of the planning of the benchmark, organized in 2 work packages: CAD, PDM assembly structure.

Summary of the February conference call with vendors for the CAD interoperability WP: planned start of the test in May 2016.

- PDES, Inc. – ProSTEP iViP CAx-IF Implementer Forum ([LINK](#)): presentation of the results of the 37th round of testing. (First test round to comprise a Composites test case, in continuation of LOTAR pilots. Scope extensions for validation properties and AP242 XML)

- Presentations to the LOTAR and CAx-IF projects of the CAD vendors and integrators roadmaps of support of STEP AP242 interfaces: CT CoreTechnologie, Dassault Systèmes, Datakit, International TechneGroup, PTC, Siemens PLM, Autodesk, Elysium, Techsoft 3D.

- AFNeT – ProSTEP iViP PDM Implementer Forum ([LINK](#)): summary of activities since December 2015. Summary of the first conference call of the User Group and description of uses cases. Launch of the first test round of the Implementer Group, in Feb. 2016 with CT CoreTechnologie, Dassault Systèmes, Datakit, PTC, T-Systems, ProSTEP AG, EPM Jotne, ARAS).

- Next LOTAR workshop: 21st – 23rd of June 2016, in Toulouse, France.

WG "LOTAR of CAD 3D PMI" (Parts 110, 120, 121, 125):

- The team reviewed and discussed support to the AP242e2 PMI activity.

- Support of Manufacturing Form Features was discussed. The focus was on Threads and Fits, Counterbores, and Countersink attributes. This is a critical path item and needs to be worked into AP242e2.

- Reviewed part 110e2 "3D explicit shape" comment and reconciled it with the EN/NAS 9300 documents; preparation of the publication of the document.

- Reviewed part 121 "3D PMI representation" and completed some work on sections 6 & 7. Plan to have a draft ballot by June of 2016.

- Reviewed part 125 "assembly with PMI graphic presentation" and completed several sections. Worked on Appendix A and the document is 90% complete. Plan to have a draft ballot by June of 2016.

- Presentation of vendor status reports by: DataKit, ITI, Dassault Systèmes, Core Technologie and PTC.

WG "LOTAR of PDM information" (Part 2XX)

- Reviewed and discussed support to the Functional Architecture (Part 006) which is based on the OAIS standard. Will create use cases based on archival access needed to retrieve packages, assess where further specialization is needed and iterate until complete.

- Structure validation properties TS-9300-200-1: Based on pilot feedback and from GAC usage, edition 2 is in work.

- Meta-Data for Archive Packages: Refined concepts and interactions with Functional Architecture and organized meta-data into categories needed for each part.

- Close to completion of Part 210 "As-Designed". Evaluating the need for Parts 240 & 250 as they may be included in Part 210.

- Proposal by the PDM WG to complete the Technical Specification by end of 2016, and disperse the WG until AP239 Edition 3 is mature Q4/2017. Team members will support other WGs as needed.

WG "LOTAR of Composite design" (Part 3XX)

- Launched the first test round for composite parts by two different CAD vendors in the CAx IF. No working sessions during this meeting.

- Working on the third comprehensive test model (Pressure Bulkhead).

- Part 300 – Internal Draft scheduled for Q4 2016, and Part 310 – Q4 2017

- Deepened ASME Relationship for composite definitons

- Update of the Recommended Practices for Composites is in work

- Seven Rosette "types" have been defined

- Working with Software vendors to insure needed data types.

WG "LOTAR of Electrical Harness" (Part 4XX)

- Joint workshop with STEP AP 242 ED2 "electrical harness" WG for the finalization of the electrical harness information model for AP242 e2 Committee Draft.
- Review of the tutorial of AP242 e2 electrical harness model, prepared by LKSoft, to be published end of March 2016. Illustration of a simple example of harness with the associated instantiated STEP XML file.
- Presentation of the initial results of the proof of concept of AP242 e2 electrical harness interface, developed by Core Technologie: final results planned for Q2 2016.
- Preparation of extensions to be included for the DIS, such as minimum description of signals in wires.
- Preparation of actions for Q2 2016: organization of conference calls with 4 electrical software vendors.

WG "LOTAR of Engineering Analysis and Simulation" (EAS)

- Received in-depth briefing on CAx-IF way of working for conducting test rounds and pilot studies.
- Built incremental approach for pilot testing and refined plan for AP209 recommended practices documents update accordingly.
- Shared detailed presentation of the ULG test model.
- Shared feedback on LOTAR EAS recent presentations to NAFEMS and applied lessons learned to CAE vendor's presentation.
- Planned near term goals and objectives.