

Summary of the LOTAR International Workshop March 16th to 19th, 2021 – Online

More than 40 attendees participated by teleconference including parallel meetings with the CAX Interoperability Forum and the EWIS Interoperability Forum

Project Management

- Reviewed the status of payment of LOTAR 2021 fees by the European and American members and the associated budget plan; started the preparation of 2021 statements of work based on current budgets. LEONARDO was welcomed as a new LOTAR project member.
- **Status on the progress of associated projects and programs was provided:**
 - **AP239 ed3 PLCS:** technical documentation of AP239 ed3 Committee Draft (CD) sent to the ISO /TC 184 /SC4 convener for review; planned approval of the AP239 ed3 New Work Item as a Technical resolution of the next of the SC4 (status as of 16 March).
 - **AP243 MoSSEC ed1:** technical documentation of the AP243 Draft International Standard (DIS) sent to the convener of ISO /TC 184 /SC 4 for final review before launch of the DIS ballot. Planned start of the AP243 DIS ballot in May, 2021.
 - **STEP AP242 ed3 project.** The project is still not started; PDES Inc association is reviewing internally the list of capabilities.
 - **Standards WG of the A&D PLM Action Group:** Preparing a position paper “Key interoperability Standards to support A&D PLM action group activities ed.1”.
 - **MBx-IF MoU:** final review by the boards of the hosting organizations of the MBx IF Memorandum of Understanding between PDES Inc, AFNeT and prostep ivip: expected signature in Q2 2021.
 - **PDM-IF:** Need for additional users and implementers. Two test rounds planned for 2021. New use cases in preparation: Product Configuration - to preserve the filtering criteria on a product structure based on configuration; association of requirements with as designed product structure, as build product structure, and verification (measurements); Alternate / Substitute part: focusing on in-operation maintenance and supersession of spares parts.
- The **Summary of OAIS V3 draft** was reviewed, the OAIS Interoperability Framework which will help to serve as the basis for the LOTAR Functional Architecture.
- **The Increasing importance of the LOTAR cross domain part for Meta data was discussed**, which has links with the OAIS Interoperability framework based for the LOTAR functional architecture.
- **The ballot of part 7 edition 2 was prepared for 2021**, in parallel developing access to part 7 on the LOTAR web site.
- **Next LOTAR online meeting will be (14) 15 – 18 of June 2021**; hosted by PDES, Inc, in parallel of the online technical workshop with the CAX IF and EWIS IF.

WG “LOTAR of 3D CAD Mechanical and PMI” (Parts 1XX):

- Coordination between LOTAR 3D mechanical CAD WG with the CAX IF user group:
 - to define CAX IF user stories related to PMI to support advanced functions for EN 9300 - 120 and 125,
 - to prioritize CAX IF user stories related to Assembly/Installation with fastener EN 9300 – 132,
 - to review the pilot 2020 Hole in part: Datakit and Core Technologie
- Start to plan the LOTAR mechanical pilots for 2021: Global Unique Identifier (GUID) , Unicode, Mated part relationship
- The team reviewed two topics of the Part 100 “Fundamentals and concepts”: - CAD generations, - and metadata for archival package.

WG “LOTAR of PDM information” (Part 2XX):

- Progress was provided on the development of the LOTAR Part 210/230 drafts:
 - Added “Step Relationship” column to tables to show the mapping to the STEP PDM entities,
 - Discussed an opportunity to prepare a statement of work for a review of the mapping to ISO 10303 Part 4000,
 - Provided clarification on relationship between “Instance” and “Occurrence”
 - Reviewed Part 200 against Part 100 and 110, specifically Conformance Classes, and progress in the clarification of the Conformance Class section in Part 200,
 - Reviewed the OAIS Interoperability Framework draft artifacts to understand potential impacts to the PDM WG, “Functional Architecture” and “Meta Data” Parts,
 - Reviewed Part 200/210/230 for add terms in the part 7 “Terms and references”,
 - Reviewed proposal for new cross-domain /- Interoperability Forums use-case to test dissemination & ingestion of Information Packages – to test validation properties for each domain as fixity metadata, both separately & when combined in a package of cross domain information.
- Conducted joint meetings with the Functional Architecture and Meta Data working Groups.

WG “LOTAR of Composite design” (Part 3XX):

- Met with the CAx IF with discussions on 2 topics:
 - The recommended practices developed with LOTAR funding/resources,
 - Prioritization of the CAx IF user stories related to EN 9300 – 310 regarding the following topics: rosettes, Engineering End of Ply (EOP), material, LLAI, ...

WG “LOTAR of Electrical Harness” (Part 4XX)

- Part 410 (LTA of flexible electrical wiring harness (EWH) for design and construction) was reviewed for expansion of the Essential information, incorporated in the Part 410,
- Core Technology provided status for the pilot for Catia V5 => AP242 ed2 EWH interface, with presentation of the mapping summary of catia V5 – AP242 objects model.
- Datakit provided status for the pilot for NX => AP242 ed2 EWH interface => 3D PDF, including proposed list of validation properties
- Joint meeting with the EWIS Interoperability Forum User Group on the 17 March, to contribute to the preparation of the EWIS IF Test round 3 (March – Sept. 2021) with agreement on the high level scope
- Worked on development of the statement of works for the 2021 LOTAR EWH pilots.

WG “LOTAR of Model Based Systems Engineering” (Part 5XX)

- The Part 520 use case (supported by Modelon) was completed shortly after the December workshop. The documentation included a description of the work undertaken, prototype examples, and a video of the demonstrator.
- The team have been progressing the maturity of the Part 500 and 520 standards documents (the latter reusing much of the use case output).
- The team has continued discussions on the “meta data” topic with the MBSE WG, other WGs and external projects/initiatives
- The Q1 Workshop was well attended with four 1.5 hour sessions held that contained a mixture of “progress tasks” and technical presentations. The latter included presentations on the Requirements V&V project, the ASSESS initiative and the MODDALS methodology
- Adrian Murton (Airbus) is retiring at the end of June. He will be replaced by Peter Schroll (Airbus)

-----Related activities to the LOTAR project -----

Summary of the CAX Interoperability Forum

User Group: the industry members reviewed prioritized items with the CAX IF implementer group, including composite, PMI presentation and assembly with fastener; the User Group coordinated and met with the LOTAR 3D mechanical CAD, LOTAR Composite, and EWIS IF user groups.

Implementer Group: participants from ten different vendor companies gathered to review latest test results and to join other teams to discuss common topics:

- **Composites** were tested again in Round 47J with active participation from two vendors. Detailed technical discussions with the CAX-IF User Group took place with ply angle, ply material identifier, and multiple rosettes being in scope for the next round of testing.
- **Kinematics** is being jointly tested between the CAX-IF and JT-IF. Issues and potential improvements were discussed with the “Gripper” test model provided by Audi. The first public release of the Recommended Practices is planned for this summer.
- For **semantic and graphic PMI**, over 40 files were tested with more than 100 results. Kubotek 3D joined the testing for the first time. New NIST test models provided some implementation challenges. Technical discussions during the week will result in a revision of the PMI Recommended Practices.
- Based on a request from the CAX-IF User Group, **User-Defined Attributes** were tested by two vendors. The distinction between attributes defined by the user in the CAD system and customized PDM properties was successfully preserved.
- Major improvements and extensions to the **CAX-IF Evaluation, Statistics And Results (CAESAR)** database were recently developed, implemented, and presented to the Implementor Group.
- Regular enhancements to NIST’s **STEP File Analyzer** continue to provide a value-added tool to the CAX-IF vendor participants to improve their commercially available software tools.

Summary of the EWIS Interoperability Forum

- **EWIS IF User Group:** Several joint efficient meetings with the EWIS Implementer Group, including the presentation of high levels principles of integration of electrical wiring harness functional and physical definitions. Discussion on the functionalities of the Test Round 3, and preparation of the associated test cases. First meeting of coordination between the EWIS IF User Group and the CAX IF User Group, in order to ensure coordination on common topics.
- **EWIS IF Implementer Group:** Presentation of the results of the Test Round 2, based on 6 units test cases. Preparation of the test round 3, from March to September 2021, with extensions of the test case for the connectivity, including new information such as: coax contacts and cables, shield back-shell connector, filler in connector cavity, additional protective coverage, etc. Planned participation of 5 members: Core Technologie, EMCOS, Datakit, Dassault Systems, and EL-Com.

Summary of the MBx IF User Roundtable on the 19th of March

Presentations are available for the LOTAR members on GlobalX , PDES Inc, AFNeT, and CAX IF web sites members area, with the appropriate access right.