

Collaboration & **INTEROPERABILITY**

Congress - May 21-23, 2012

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LOng Term Archival & Retrieval of Digital Product & Technical Data (LOTAR)

LOTAR activities, interoperability framework
and overall consistency between Work Groups



3D PDF Consortium

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MCADCafé.com. **DE**

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What is LOTAR?

- The LOTAR International Consortium is a working group, sponsored under a four party Hosting Organization made up of the Aerospace Industries Association (AIA), PDES Inc., Aerospace & Defense Industries of Europe – Standardization (ASD-STAN) and ProSTEP iViP.





With the onset of Model Based Definition (MBD) development in mid 1990's, a Boeing team was chartered to evaluate and develop a process to address the storage, retention and retrieval of 3D Product Definition produced by MBD methodologies.

September 1998 an internal process was developed and accepted by the Certificate Management and the Aircraft Certification Offices of the FAA. The FAA requested that the team meet with the Aerospace Industries Association (AIA) and charter a project to write a standard that to address the storage, retention and retrieval of 3D Product Definition Data that would be applicable to all civil aviation across America.

The AIA Project was chartered under the Civil Aviation Council (CAC) under the Manufacturing Maintenance & Repair Committee (MMRC) in May 2000. The AIA team was formed and held it's first meeting in August 2000. The AIA Standard was completed and released as ARP-9034 in Sept 2002.

This initial activity led to the development of FAA Order 8000.79 which, in part, provides the requirements to use and store data in electronic form.





In October 2002 at the International Aerospace Quality Group (IAQG) meeting in Cincinnati, OH, Rick Zuray was asked to work with Jean-Yves Delaunay and the European LOTAR effort, and together develop a single set of harmonized standards that addressed the storage, retention and retrieval of 3D Product Definition Data across the entire Aerospace Industry.

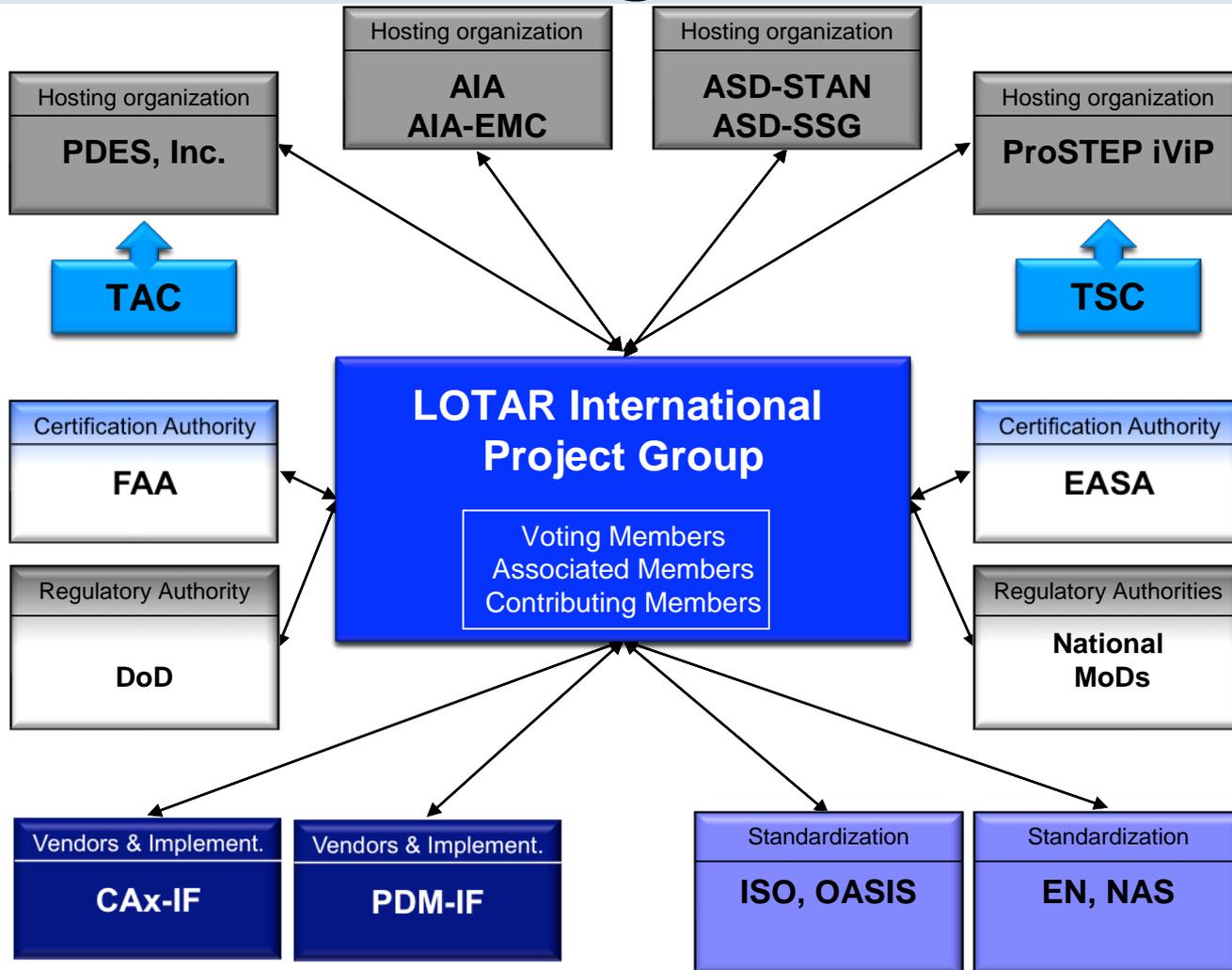
The Team was chartered in January 2003, co-chaired by Rick Zuray, from Boeing, and Jean-Yves Delaunay, from Airbus. The International team meets several times a year and has developed multiple parts to the base Standard which will be released under the name EN9300-Part-xx for Europe and NAS 9300-Part-xx for the US. Since that pivotal moment, the LOTAR activity has grown across the aerospace industry and continues to grow exponentially.

The team is now supported across 6 countries and by over 100 companies. With the formation of the AIA, PDES, Inc., Aerospace & Defense Industries of Europe – Standardization (ASD-STAN) & ProSTEP Consortium in August 2008, the ground work was set up for more aerospace companies to participate financially under three levels of membership.





LOTAR Organization





LOTAR Organization

Process
Steering
Council

Hosting Organization

AIA
AIA-EMC



B. Scheidhauer
R. Rentsch

Hosting Organization

PDES Inc.



J. Harris
M. Jahadi

Hosting Organization

ASD-STAN
ASD-SSG



G. Lessmann
Yves Baudier

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ProSTEP iViP.



R. Pohl
S. Vettermann

Americas Sector

European Sector

Americas
Sector Chair

Rick Zuray

Americas
Sector Project
Coordinator

Jeff Holmlund

Americas
Sector Project
Coordinator

Barry Hess

Europe Sector
Chair

JY Delaunay

Europe Sector
Project Coord.

Jochen Boy

Leadership
Team

PDES Inc
Board Chair

Mike Jahadi

PDES Inc
MBS Chair

David Williams

CAX-IF
Chair

Phil Rosche





Goal

The long-term archival of technical data is driven by:

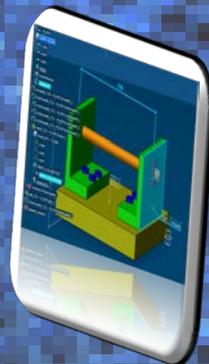
- Business cases (e.g. longevity of aerospace & defense products)
- Regulatory requirements (e.g. FAA/DoD–EASA/MoD)

The ultimate goal of LOTAR is standardization:

- Create EN/NAS 9300-xxx series standards for long-term archiving
- Promote the use of International Standards (i.e. ISO) as data formats

LOTAR works on various domains (Mech. Design, PDM, Electrical, Composites, Visualization...)







Scope and Objectives

The project is initially scoped to provide a long term archive and retrieval solution within the standards mechanism (EN / NAS 9300 Standards Documents). It does not develop application or hardware solutions except for prototyping and validation purposes. Further, the project is scoped to product data and practice standards and recommendations in the aerospace and defense industries.





Scope and Objectives

- The wide range of digital product and technical information is divided up into 3 technical work phases:

Phase 3

Create EN / NAS standard documents and recommended practices regarding system engineering, simulation, 3D CAD with parametric & form features, PLM (as extended PDM) and analysis.

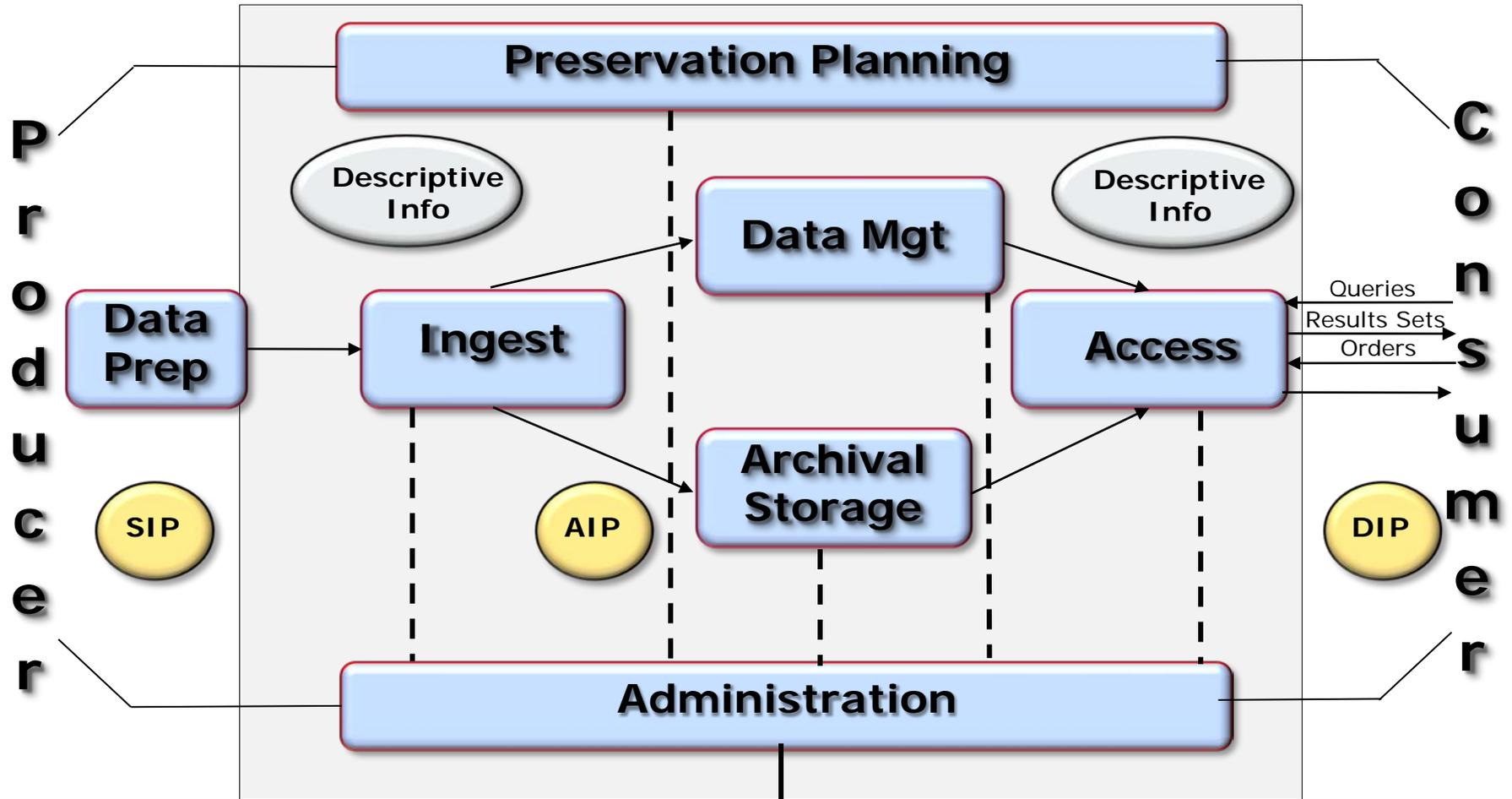
Phase 2

Create EN / NAS standard documents and recommended practices regarding long term archive and retrieval of 3D CAD with PMI, PDM, 3D CAD composite, 3D CAD electrical harness, 3D Light Visualization, governance and planning, functional architecture, security and LOTAR certification for aerospace and defense companies to be measured against.

Phase 1

Create EN / NAS standard documents and recommended practices regarding fundamentals & concepts, processes and the first data domain explicit 3D CAD.





**Open Archive Information System - ISO 14721
Management**

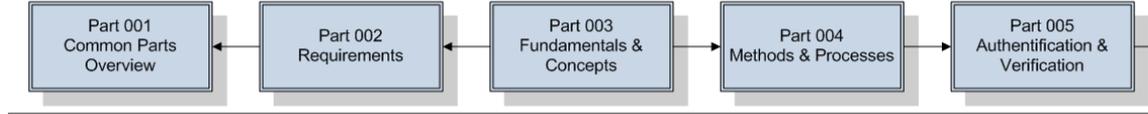


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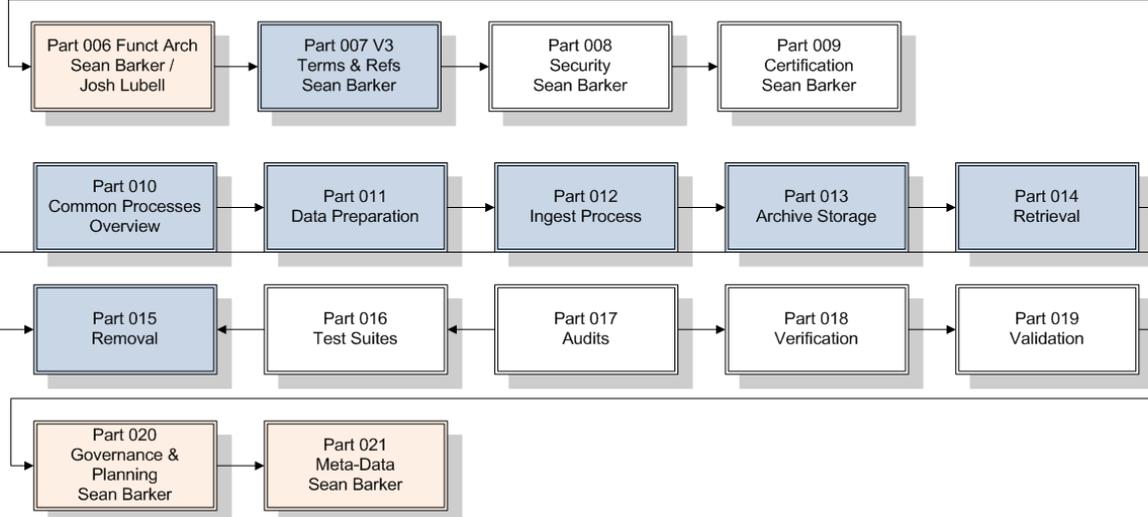
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LOTAR Document Structure

Basic Parts 001 – 009
Overview, Reqs, Methods...

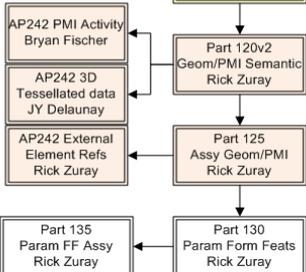
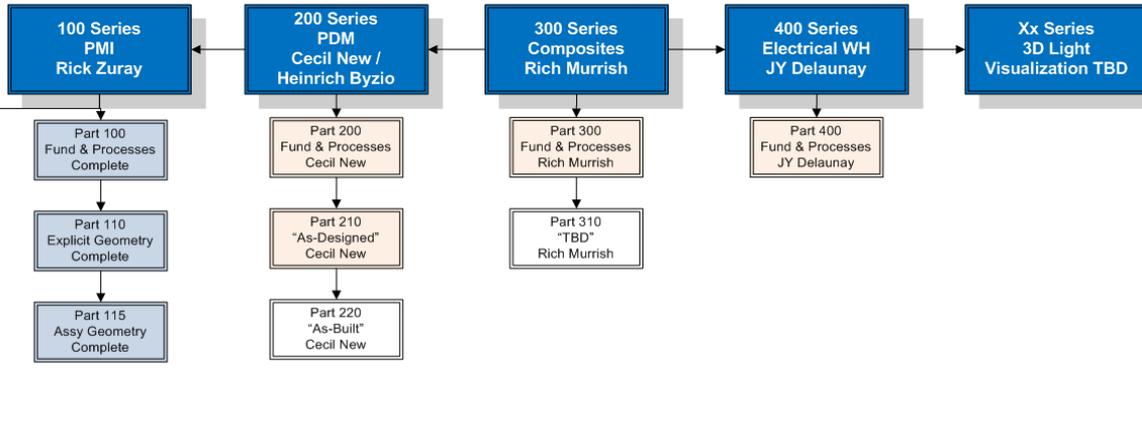


Common Process Parts 010 – 099
Common Processes, Data Prep, Ingest, Archive Storage, Retrieval...



Domain Specific Parts

- 100 – series
- 200 – series
- 300 – series
- 400 – series etc



Legend:

- Development
- Initial Ballot Phase
- Final Ballot Phase
- Published Standard



LOTAR Standard Design and Approval Process

**Draft Part
EN/NAS 9300-xx**



**Internal Ballot:
LOTAR Members**



**Comments
Resolution**



**Initial Industry Ballot: AIA / ASD-STAN
4 Month Review Cycle**



**Comments
Resolution**



**Final Industry Ballot: AIA / ASD-STAN
30 Day Review Cycle**



**Standard
Published**





Standards Recently Released

- EN/NAS 9300-002 "Requirements"
- EN/NAS 9300-005 "Authentication and Verification"
- EN/NAS 9300-007 "Terms and References"
- EN/NAS 9300-100 "Common concepts for Long term archiving and retrieval of CAD 3D mechanical information"
- EN/NAS 9300-110 "Long Term Archiving and Retrieval of CAD mechanical 3D Explicit geometry information"
- EN/NAS 9300-115 "Explicit CAD assembly structure"





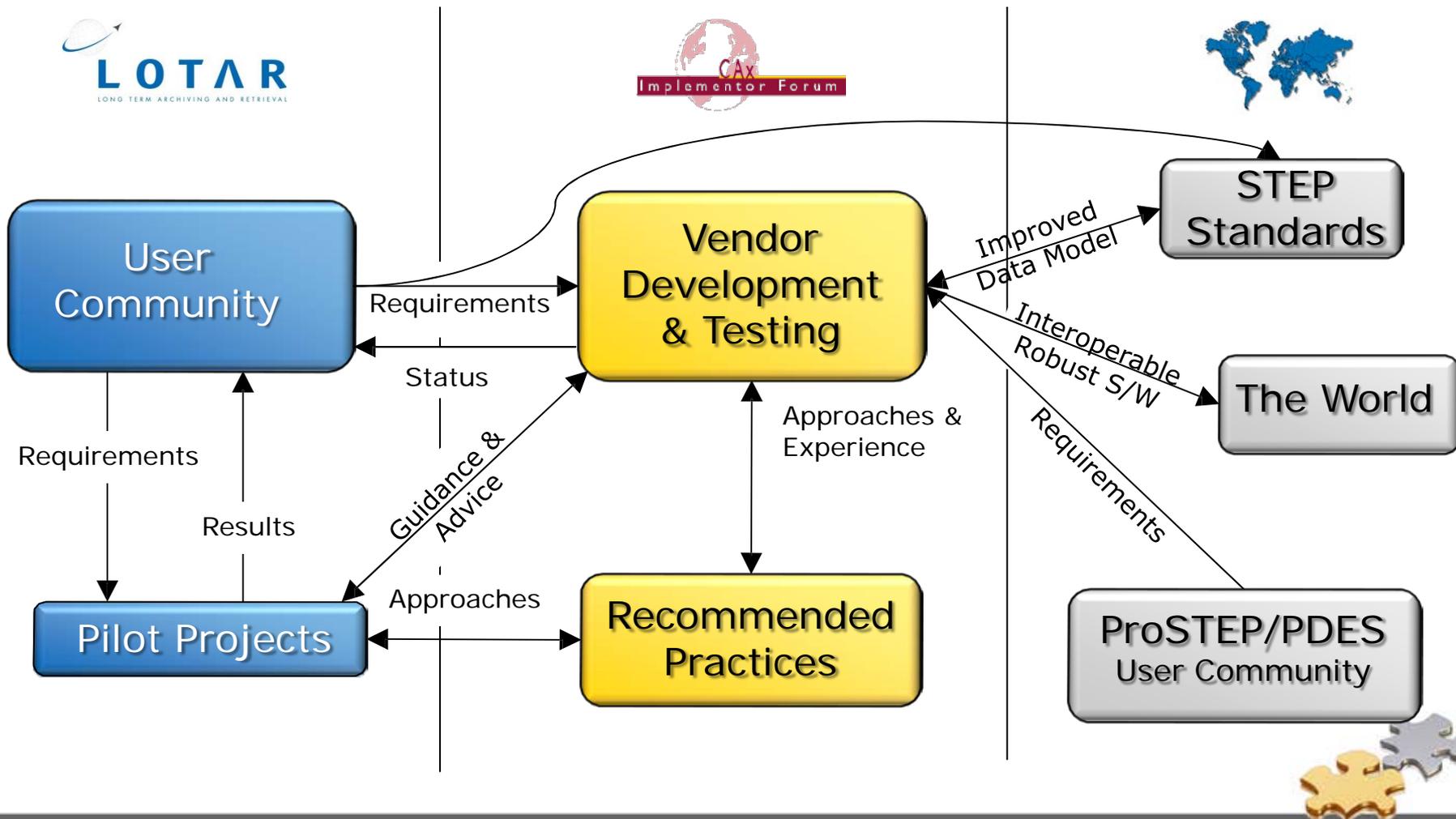
LOTAR - CAX-IF Alignment

- LOTAR provides requirements to the CAD vendor community (e.g., CAX-IF)
- LOTAR provides test models to demonstrate requirements, as in “this is what I need to transfer”
- LOTAR sets up and runs pilot projects to prototype enabling technologies
 - Service providers are contracted to develop and implement solutions to fulfill requirements (typically two CAD vendors per pilot)
 - The CAX-IF provides technical advice to pilot projects
 - New/improved capabilities documented as enhancements to CAX-IF Recommended Practices (and reported to the vendor community)
 - These may become scope candidates for subsequent CAX-IF test rounds to test these capabilities by a wider range of vendors
 - Pilot results are reported back to the LOTAR members



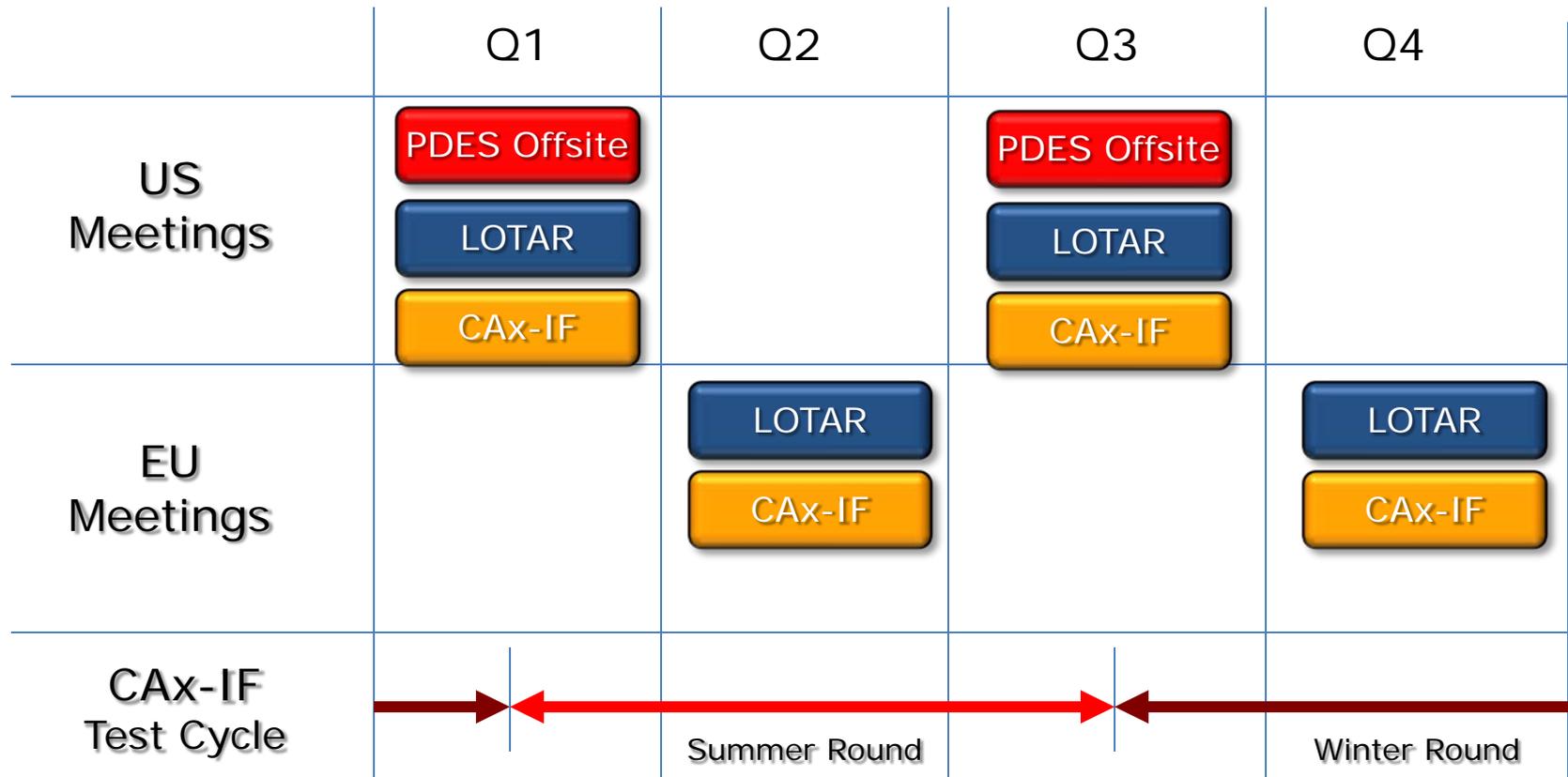


LOTAR - CAX-IF Alignment



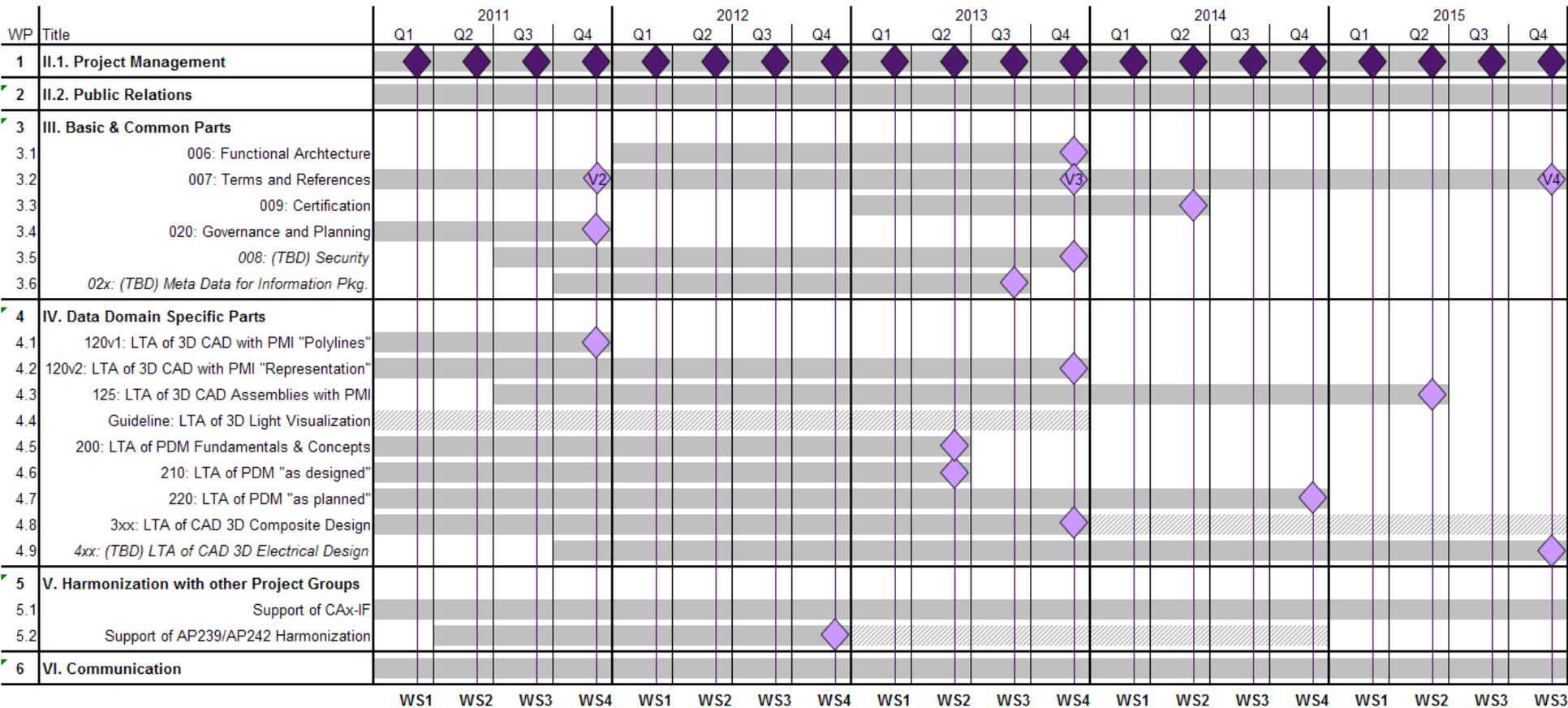


LOTAR - CAX-IF Alignment





LOTAR 5 Year Plan





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LOTAR

LONG TERM ARCHIVING AND RETRIEVAL

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Long Term Archiving and Retrieval - LOTAR

Activities

The objective of LOTAR International is to develop standards for long-term archiving (LTA) of digital data, such as 3D CAD and PDM data. These standards will define auditable archiving and retrieval processes. Use of the standard series by other branches of industry such as the automotive or shipbuilding industry is possible. The results are harmonized with e.g. the Recommendation 4958 for long-term archiving of the German Association of the Automotive Industry (VDA) and are based on the ISO 14721, Open Archival Information System (OAIS) Reference Model. The documents for the standard are published as the EN9300 series and, in cooperation with the AIA, also as the National Aerospace Standard (NAS).

LOTAR International is a project being conducted by leading OEMs and suppliers in the aerospace and defense industry under the joint auspices of ASD-STAN, AIA, PDES Inc. and the ProSTEP iViP Association.

NEWS

LOTAR Workshop: June, 7-9, 2011

2010-06-06

From Tuesday, June 7, through Thursday, June 9, the second LOTAR Workshop 2011 will take place at...

more





Next Steps

- Looking for people to join our working groups
- Provide help in several ways
 - Review documents
 - Develop requirements, use cases and test cases
 - Attend weekly teleconferences and face to face team meetings
- If you can think of things the LOTAR team could benefit looking into or should be focusing on please contact us.
- We want to know what your specific requirements are, especially in the area of Electrical, Mfg & Quality process information which are new areas we are exploring for data storage, retention, management, exchange, archival and retrieval.



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Questions

Rick ZURAY
LOTAR International co-project leader
Technical Principal
Enterprise CAD/CAM Services
The Boeing Company
Phone: 1 (425) 717-2654
Mobile : 1 (206) 778-6730
Mail to : richard.s.zuray@boeing.com



Jean-Yves DELAUNAY
LOTAR International co-project leader
Product & process Information Interoperability
Engineering Methods and Tools architect
Airbus
Phone: (33) (0)5-61-18-31-31
Mobile: (33) (0)6-76-36-50-59
Mail to : jean-yves.delaunay@airbus.com

