



LOTAR
LONG TERM ARCHIVING AND RETRIEVAL

LOTAR International project status

AIA –ASD Interoperability conference call
: 30th of Jan. 2019

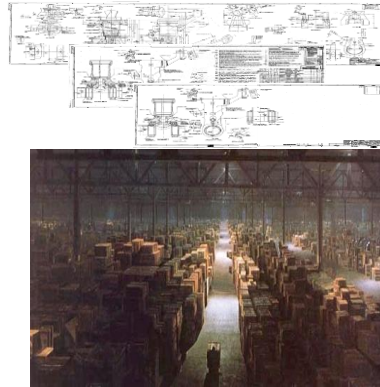
Rick ZURAY: Boeing – LOTAR AIA Co-chair

Jean-Yves DELAUNAY: Airbus Group – LOTAR ASD Stan Co-chair

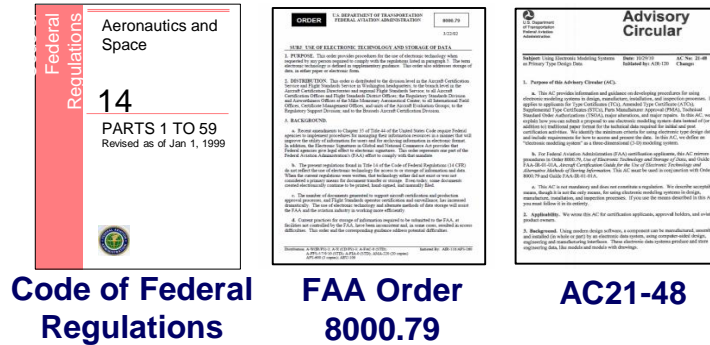
- LOTAR Member Companies 2019
- LOTAR international meetings in 2019
- LOTAR International project WBS
- Overview of NAS / EN 9300 LOTAR parts (Status Apr. 2018)
- Launch of a NWI ballot for creation of the LOTAR MBSE WG
- Access to LOTAR 2017 annual report, to Dec. 2017 and 2018 March meeting reports
- Overview of 2018 activities
- General comments , issues

Problem Statement

With the emergence of digital data based processes, including model based definition, requirements were identified which predicate the need for a long term data retention solution(s) to meet the regulatory and business requirements. Traditional legacy retention and retrieval methods do not support complex digital product definition data.



Paper-based process
Past



Requirements



Digital-based process
Future

Project Description

The project goal is to *develop, publish and maintain standards* designed to provide the capability to *archive and retrieve* digital product and technical information, including 3D CAD and PDM data, in a *standard neutral form* that can be read and reused throughout the product lifecycle.

The standards are published as NAS 9300 US, (EN9300 Europe), series and cover both the information content as well as the processes required to ingest, store, administer, manage and access the information.

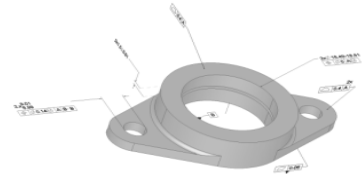
Key Team Members:

Team Leads and Represented Companies:

- R. Zuray, J. Draper, J. Klein, M. Williams
- JY Delaunay, P. Duchier, S. Herail, A. Levy, F. Darré, A. Murton
- J. Holmlund, M. Jahadi, C. Johnson
- Ed Hall
- Lee Nash, Dan Ganer
- G. Mras, R. Lum, H. Mason, Y. Baudier
- J. Boy, M. Jahadi, J. Brange



LOTAR International project WGson a page : launch of the LOTAR MBSE WG in S2 2018



Mechanical 3D CAD with Product and Manufacturing Information (PMI)

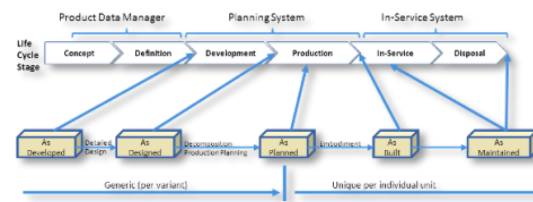
EN/NAS 9300-1xx series

STEP AP203 ed2

STEP AP214 ed3

STEP AP242 ed1 & ed2

2004 launch



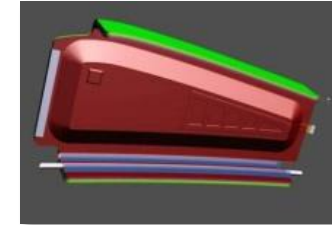
Product Data Management (PDM)

EN/NAS 9300-2xx series

STEP AP239

STEP AP242 ed1 & ed2

2004 launch



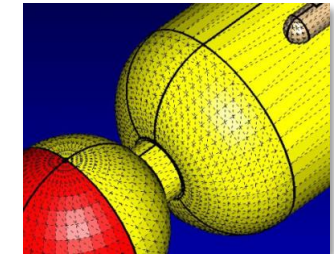
Composites and Advanced Manufacturing

EN/NAS 9300-3xx series

STEP AP203 ed2

STEP AP242 ed1 & ed2

2009 launch



3D Visualization

Requirements and
Compliance
Documents

2012 launch

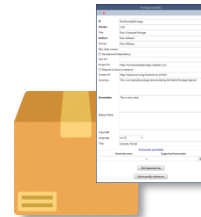


Wiring Harness

EN/NAS 9300-4xx series

STEP AP242 ed2

2012 launch



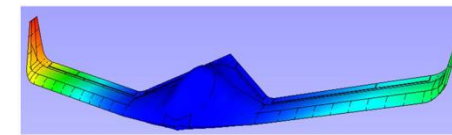
Meta Data for Archive Packages

EN/NAS 9300-21

STEP AP239 ed3

STEP AP 242 ed2

2012 launch

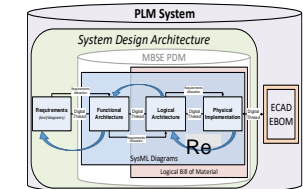


Engineering Analysis and Simulation

EN/NAS 9300-6xx series

ISO STEP AP209 ed2

2014 launch



Model-Based System Engineering

EN/NAS 9300-5xx series

STEP AP233 ed2

STEP AP239 ed3

FMI, SysML, etc

2018 launch

Europe

- AFNeT
- Airbus
- Airbus Helicopter
- Airbus Defense & Space
- SAFRAN Engine

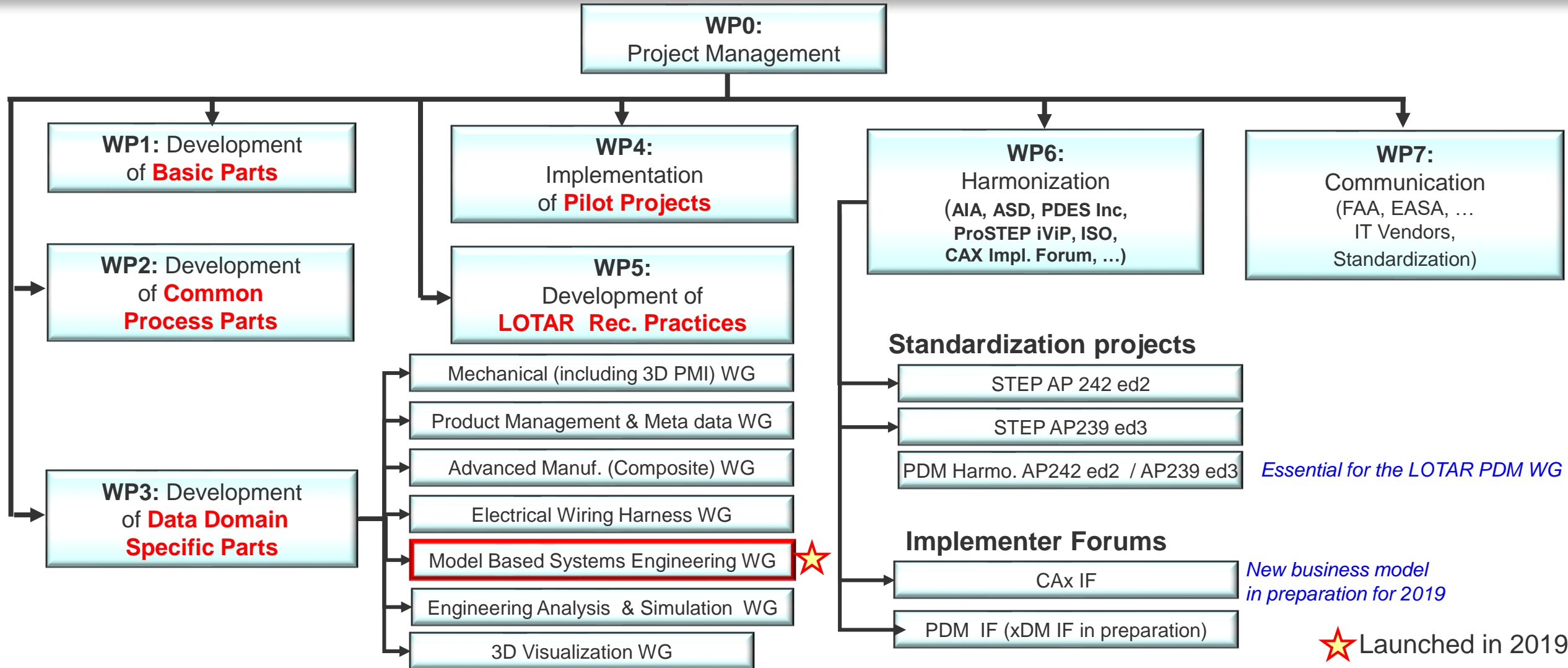
Americas

- Boeing
- Embraer
- General Electric
- Gulfstream
- Lockheed Martin
- Sandia National Labs
- + Candidates under study

- 1st meeting: (10) 11th – 14th of March, Asheville – NC, USA
- 2nd meeting: (20) 21st – 23rd of May, Toulouse, France
(After ISO /TC 184 /SC 4 “Industrial Data” meeting in Toulouse: 13th – 17th of May)
- 3rd meeting: (8) 9th – 12th of September, Atlanta, USA
- 4th meeting: (19) 10th – 12th of December, Darmstadt, Germany

LOTAR International project

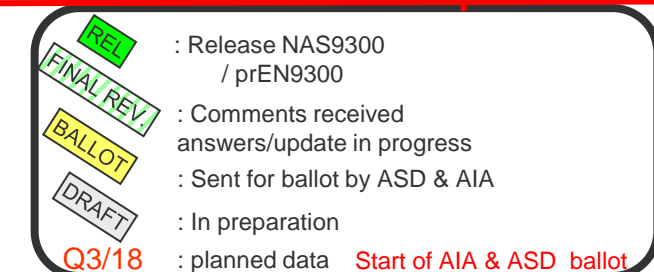
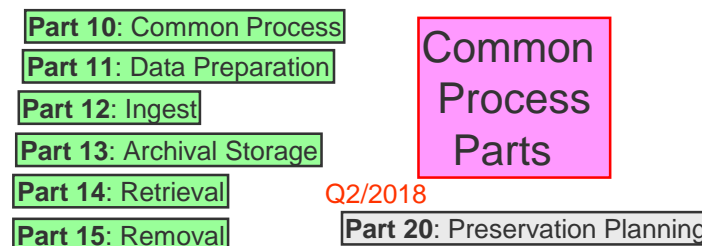
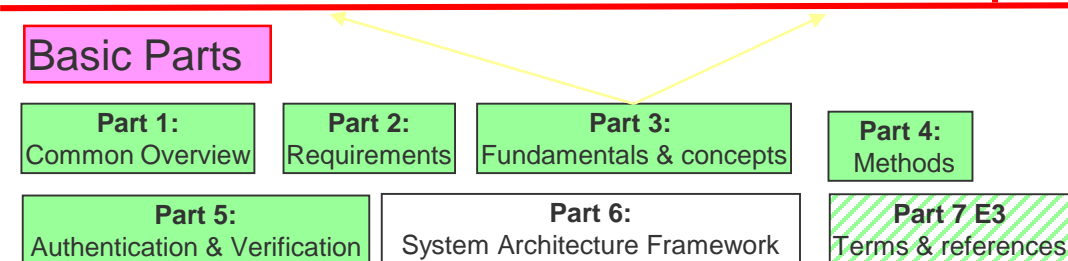
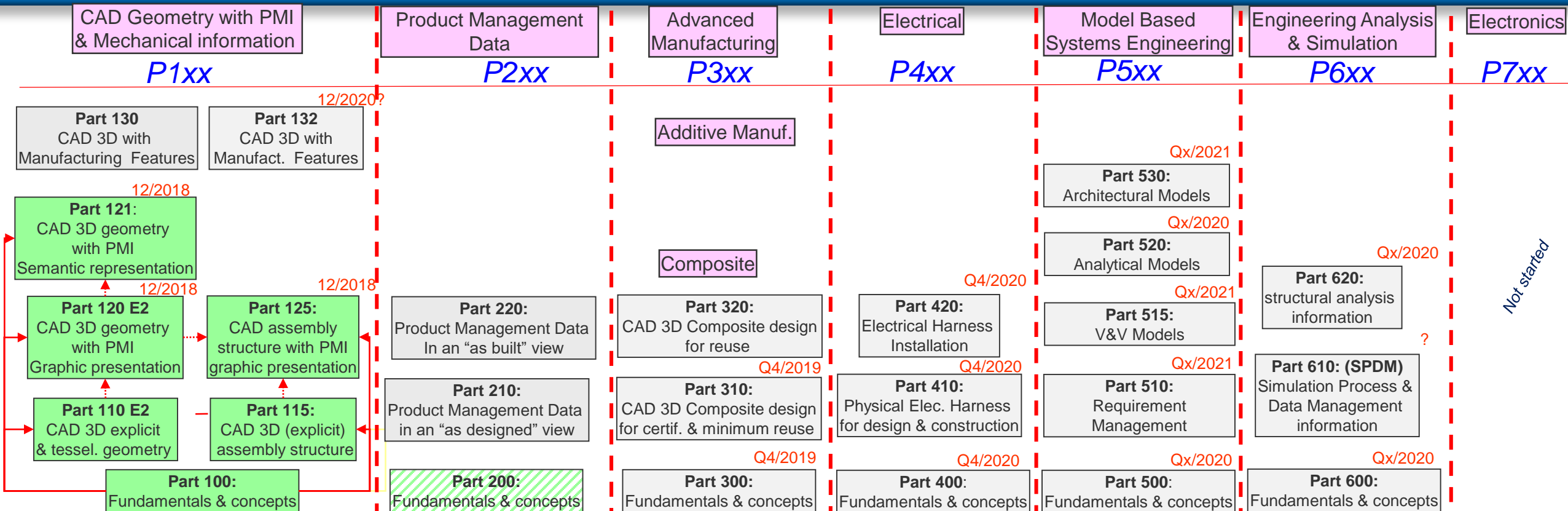
2019 WBS



Overview of NAS / EN 9300 LOTAR parts (Status Jan. 2019)



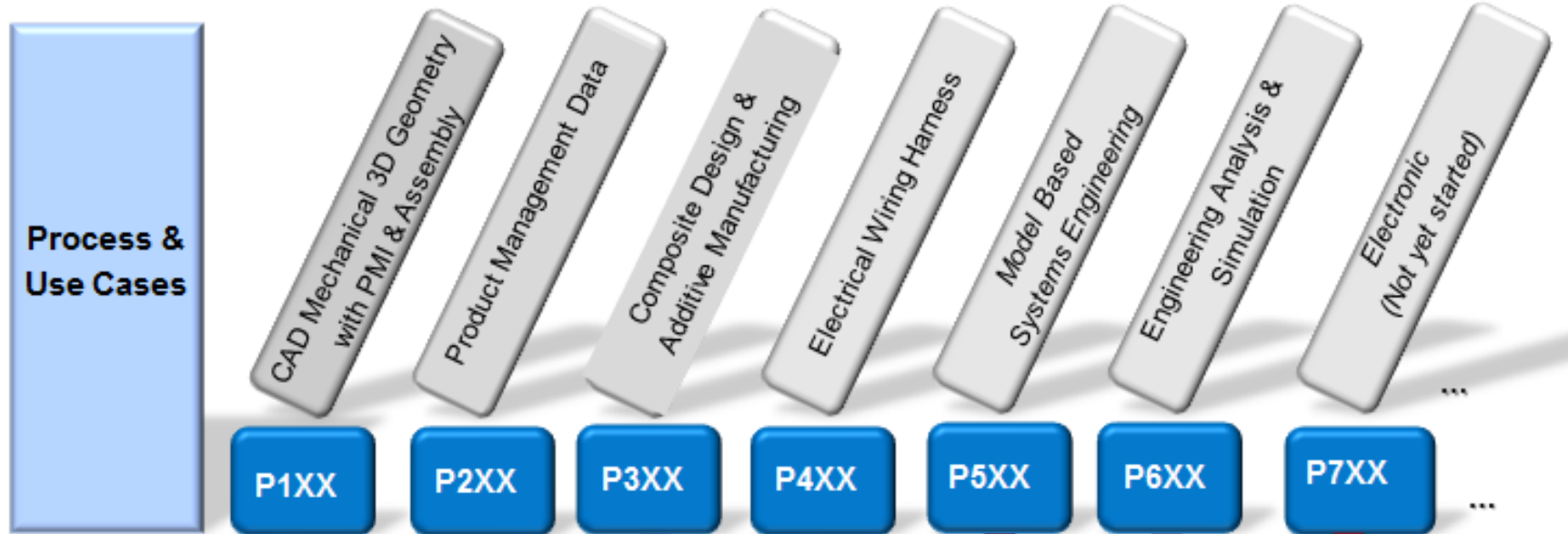
Data Domain Specific Parts



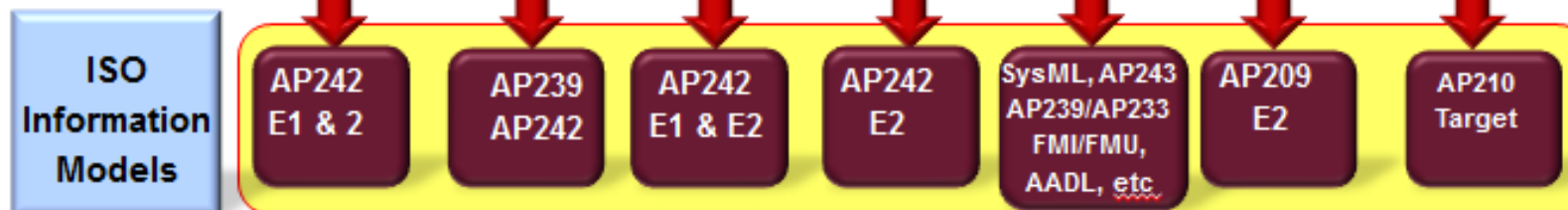
3 parts send for publication to ASD Stan and AIA: P120 ed2, part 121, part 125.

Overview of LOTAR standards & links with associated ISO standards for information models

NAS / EN 9300
LOTAR standards
per technical domains



ISO
Information models



STEP library &
Devel. infrastructure

STEPMod
Legacy architectue
(EXPRESS based)

STEPLib
STEP extended Architecture
(SysML based)

Need to ensure the longevity / enhancement of the STEP standards development infrastructure as part of the preservation plan, and the managemen of interdependancies with other standards

Overview of 2019 activities

- **Preparation of the ballots:** P300 and 310 for composite design, part 500 and 520 for Structural Analysis, new editions of part 1, part 2, part 3, part 4
- **Mechanical & PMI WG:** will continue to take into account new types of GD&T defined by ISO and ASME standards. Will prepare new parts for 3D definitions including machining features. Will monitor the progress of AP242 works for holes & fasteners, with 2 pilots planned in 2019, Preparation of draft part 132 for “installation with holes & fasteners”
- **PDM WG:** prepare the parts 210 and 230 for ballot, taking into account the results of the harmonization of AP242 ed2 and AP239. Support of the meta data WG; continuation of contributions to the PDM-IF.
- **Composites workgroup** will finish the Part 300 “Fundamental concepts”, and the part 310, to be sent for ballot before end of 2019. Work on validation properties, and conduct pilots in this domain.
- **Electric Harness WG**: will continue to draft the part 400: “Fundamental & concepts” and part 410 ” Physical Elec. Harness for design & construction”. Continuation of the spec. of validation properties. Will enhance public test cases for the AP242 ed2 pilot project. Support to the launch of the Electrical Implementer Forum in 2019.
- **EAS group:** will finalize the parts 600 and 620, and also support broader testing of STEP AP209 ed2 CAE interfaces, first in LOTAR pilot, then in the CAE Implementor Forum. Support of the STEP AP209 “round trip” demo planned during NAFEMS International conference in June 2019
- **MBSE WG:** refinement of business requirements, associated use cases and priorities; coordination with other related MBSE projects (MBSE PDES Inc, INCOSE, etc.)

- The successful implementation of LOTAR standards by the US and EU A&D industries relies on the governance through the time of the suite of ISO product data exchange standards for A&D:
 - ISO 10303: AP242 e2, AP209 e2, AP239 e3, AP238 e2, etc.,
 - completed by other standards such as QIF, SysML, FMI, etc.
 - ➔ need to prepare 5 years roadmap of these standards and the associated portfolio management
- Need to consolidate the use of the STEP Extended Architecture, using SysML for information modeling, easing the extension to different implementation forms (services)
- Extension of the LOTAR project support to the CAx and xDM Implementer Forums
Importance of the support of PDES, Inc., AFNeT and ProSTEP iViP.
 - New Business model of the CAx IF in 2019.