

Présentation des travaux du domaine PLM du programme ATLAS, dont la stratégie PLM, et de l'importance des solutions d'interopérabilité basées sur des standards

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Agenda

Aviation & Airbus at a glance

PLM domain strategy: requirements and context

PLM domain: SWOT

SMART Standards

PLM domain: roadmap

PLM domain strategy: delivering value to the industry



Aviation: An irreplaceable force

4.5 billion

passengers

+48,000

routes served
globally

+3,700

airports with
scheduled
services

82.5%

cabin occupancy



We make it fly!



20,501

Aircraft sold

400+

Customers

13,651

Delivered

Leading the way in the decarbonisation of aviation



Ambition to be the first to offer a zero-emission commercial aircraft by 2035
ZEROe concept aircraft powered by hydrogen

PLM domain strategy : requirements and context

Needs

- Interoperable solution for : PDM, Electrical wiring systems, tolerancing, composite, structural join for assembly and installation and through life cycle
- Extended enterprise and collaboration using technical data package or based on API and/or services
- Data classification and filtering for export control, privacy and intellectual property
- Certification needs such as long term archiving
- Ontology and semantics data model for each technical discipline

Trends

- Collaborative platforms
- Data sharing based on web services between federated PLM systems
- Increase use of Machine Readable Standards (SMART) - *slide following*
- Digital twins
- Traceability of the information across engineering, manufacturing and operation to support certifications
- Integration of structure and systems with electronics devices



PLM domain strategy : SWOT analysis (i)

STRENGTHS

- Leading companies and industrial sectors (aerospace, automotive) at high digital maturity
- Strong maturity of the implementation on certain areas (CAD)
- A rise in digital maturity of product technological domains (electrical, additive manufacturing, NC, ...)
- A clear desire on the part of manufacturers to digitalize the entire industrial chain and cover the entire product life cycle
- Collaboration with other ATLAS domains (SE, IPS, Digital Twin)

WEAKNESSES

- Insufficient cooperation between European and national ecosystems
- Insufficient cooperation between French manufacturers to share the efforts (standards development, deployment)
- Disruptions in the continuity through the life cycle, especially between upstream (design/manufacturing) and downstream (support)
- Incomplete implementation of standards by all editors



PLM domain strategy : SWOT analysis (ii)

OPPORTUNITIES

- Significant progress potential for certain sectors and for SMEs
- Acceleration in the preparation of European industrial data space (eg GAIA-X)
- Aligned support of French and European institutions
- Collaborative platforms more affordable to SMEs
- Acceleration of demand for collaborative solutions with Covid
- Involvement in defining new way of working based on digital twin
- Development of agile standards, based on incremental updates

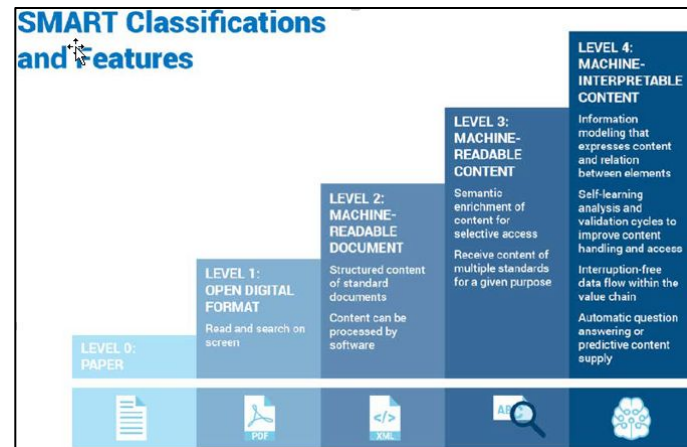
THREATS AND CHALLENGES

- Key users involved in the AFNeT PLM policy belonging mainly to aerospace and automotive industries
- Complexity of the digitalization covering the full product lifecycle and different technical disciplines
- American ecosystem leadership: cooperation and competition
- Mid term challenge of Asian industry
- Ecological transition and need to transform industrial products, industrial chain and operating methods
- Possible scope extension of certification
- Cyber security



SMART = Standards Machine Applicable, Readable & Transferable, working in the system without human effort

- SMART standards are a new generation of innovative standards that can be used by machines and COTS applications, without human intervention
 - Databases, PLM, ERP, AI, Customer Support, Digital factories
- SMART standards are described as a set of structured information rather than documents for visualization by human
- SMART standards will progressively cover:
 - Requirements – quality rules (certification)
 - Standardized sub processes / activities
 - Dictionaries / Information models / ontologies
 - (web) services / transactions / access to databases
 - (web) visualization
- SMART standards are the foundation for specifications and digital communication of
 - **New products** : aircraft information model, standard part libraries
 - **Next generation of PLM applications**: communication / interoperability and ownership of Company digital assets





SHORT TERM

- 1- Onboard companies of other sectors in an interoperability forum
- 2- Take advantage of the digital maturity of electrical data interoperability to consolidate digital integration across technical sectors

PLM domain strategy : roadmap

MID TERM

- 1-Reduce digital discontinuities along the life cycle => **through life cycle strategy & participation in PDM-IF**
- 2- Strengthen the competitiveness of extended enterprise through collaborative platforms based on open standards
=> **Support BoostAeroSpace**
- 3- **Strengthen the development of agile PLM standards and of related interoperability tests rounds of implementor forums (deliver quicker business value)**
- 4- **Apply digital vision of French Industry sectors**

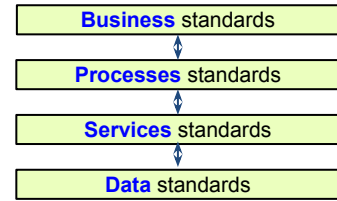
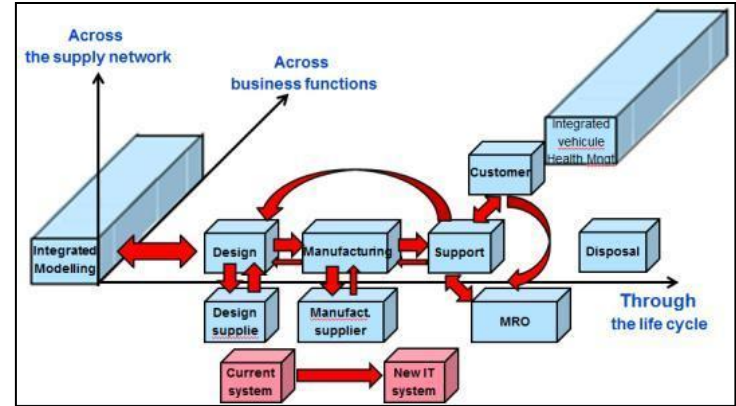
LONG TERM

- 1- **Support the implementation of new information system enabling sustainable transports**
- 2- Support digital continuity between PLM domain and MBSE, SMART Manufacturing and Digital twins => **need of development of related SMART-machine processable interoperability standards**
- 3- PLM interoperability activities based on open standards in the context of cooperation / competition at national, regional and international levels => **consolidate key relationships of ATLAS/AFNeT with PDES Inc. and prostep ivip**
- 4- Contribute to the implementation of **cyber security rules** within industry



PLM domain strategy : delivering value to the industry

- **Optimize Costs** in the product life cycle, throughout the internal functions of the Company, and with the extended enterprise (supply chain)
- **Increase Quality** through digital continuity strengthening
- Contribute to **Certification requirements**
- Minimize customization & maximize **COTS capabilities**
- Increase **obsolescence resilience**
- Enable **future technologies introduction**
- Ensure sustainability for long term Company **digital assets**



Digital interoperability Standards ecosystem

