



Conception Assistées par Ordinateurs, Gestion des données et besoins en Visualisation 3D

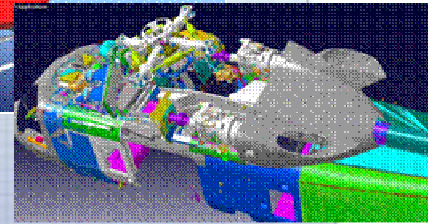
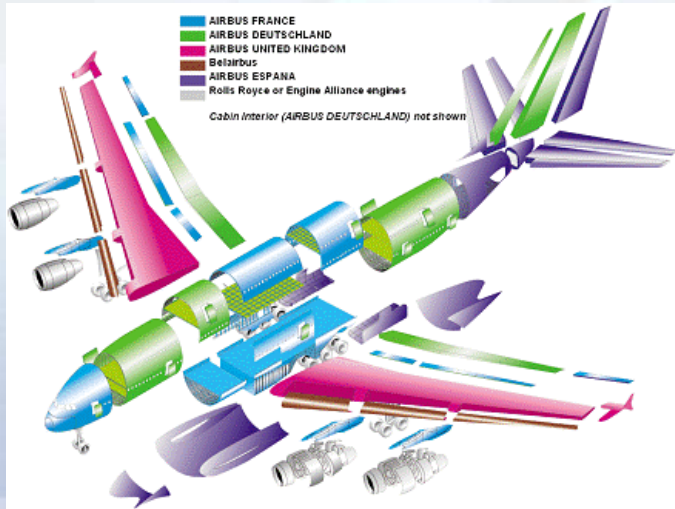
3D visualisation needs for CAD and PDM

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Global Context



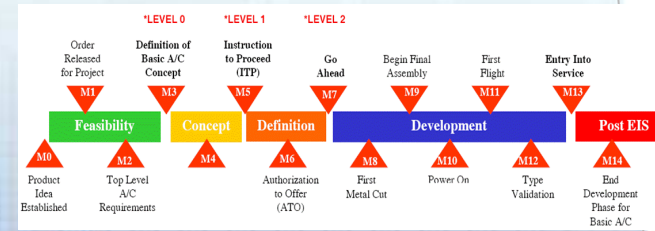
- Globalization and Virtualization of enterprises
- Computer used everywhere
 - Digital artifacts, information and communication
 - Computer aided activities with automated services
- Secured eBusiness collaboration
- Collaborative tools and environments



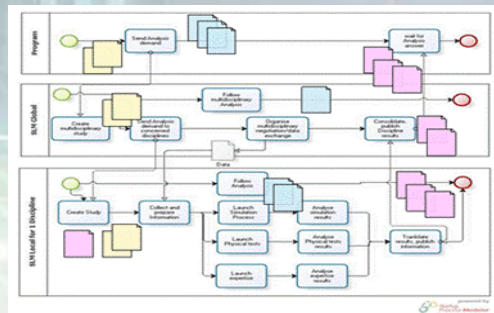
Multi Geometries viewers

Examples of Product Models and associated visual representations

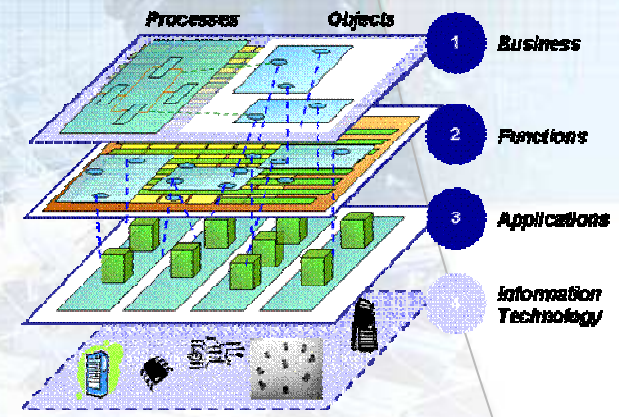




Examples of Organisation Models and associated visual representations



Semantic Cartography



Addressed problematic



- How to achieve “**pragmatic**” and **continuous** interoperability between PDM and CAD **applications** in order to support **digital collaboration** within **networked organizations** in an **evolving global environment**?
- How to **take advantage of existing and relevant standards, interoperability tools, emerging technologies and paradigms**, and to **combine** them?
- **How to define** an **overall framework** allowing to achieve targeted interoperability for an **eBusiness ecosystem**, building a **collaborative infrastructure** and **mature composite community**?

Needs of Information exchange & communication

- Automate to People
 - In particular drawing and visual representations
 - For different mathematical models and physics
 - For different purposes

- Automate to Automate
 - Formal representation allowing to
 - An automate to obtain same visual representation
 - Enrich the drawing with Product Information
 - Tolerance Data
 - Product Components and their relationship

- Static or dynamic (growing importance of simulation)

Importance of open standards

- Open standards
 - Defined at Standardization organizational level
 - Open for specification, development and access
 - Not a proprietary de facto standard
- Strategic Importance
 - Business enabler
 - In order to preserve investment
 - In order to be able to collaborate at an acceptable price, within an industrial global environment
- In order to respond to Business Constraints
 - Product Data exchange, sharing and long term retention
 - Certification of 3D models as contractual models of reference
 - Traceability...

Current standardization initiatives

- Proprietary formats pushed as standards
 - JT
 - PAS at ISO SC4 TC184 - done
 - New version of JT as ISO standard – under development
 - COLLADA
 - PAS at ISO SC4 TC184 – running
 - 3D XML?
- Open standards
 - ISO STEP (10303)
 - Geometry Integrated resources
 - 2D, 3D, meshes,
 - Links with Product Data, such as GD&T
 - Current projects
 - PMI, tessellated data

Issues



- Global coherency of overlapping/complementary standards
- Availability of implementations, support by Software providers
- Heterogeneous Interoperability maturity level of the concerned stakeholders and communities
- Standard easy or difficult to implement
 - <= direct impact on standard maturity level
- Impact of the emerging 3D Web Technologies
 - Maturity level and support of Business Scenarios
 - Preservation of the legacy



Thanks for your attention

About authors



- **Nicolas Figay** is an expert in the area of Information Technologies , in EADS Innovation Works (the new name of the former EADS Corporate Research Centre).He is involved in research and industrial projects dealing with PLM Enterprise Applications Interoperability and Data Exchange, to support collaboration within Extended and Virtual Enterprises. He has been involved in research projects dealing with usage of STEP (RISESTEP, SAVE) and interoperability of enterprise application (IDEAS FP5 Roadmap, ATHENA FP6 Program, OpenDevFactory). He is currently involved in several Aerospace & Defense industrial projects (EADS Phenix, SEINE, BoostaAerospace) as standard expert, but also as a dissemination expert who at the same time collects emerging needs and challenges, in order to produce accurate specifications for starting research projects such as CRESCENDO. At the same time, he is involved in standardization activities (AFNOR IDMI and CN DSTI - French counterpart of ISO TC4 SC184 - , ASD Strategic Standardization Group and EADS Strategic Standardization Committee. Finally, he's also teaching at I.T.I.N. (Institut des Techniques Informatique) for a course dedicated to interoperability of enterprise application, based on usage of both manufacturing standards and ICT standards.
- **Jean Brangé**