

Improving Collaboration with Cabin Suppliers

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GLOBAL PRODUCT DATA INTEROPERABILITY **S U M M I T** 2014



ELYSIUM

Parker

NORTHROP GRUMMAN

BOEING

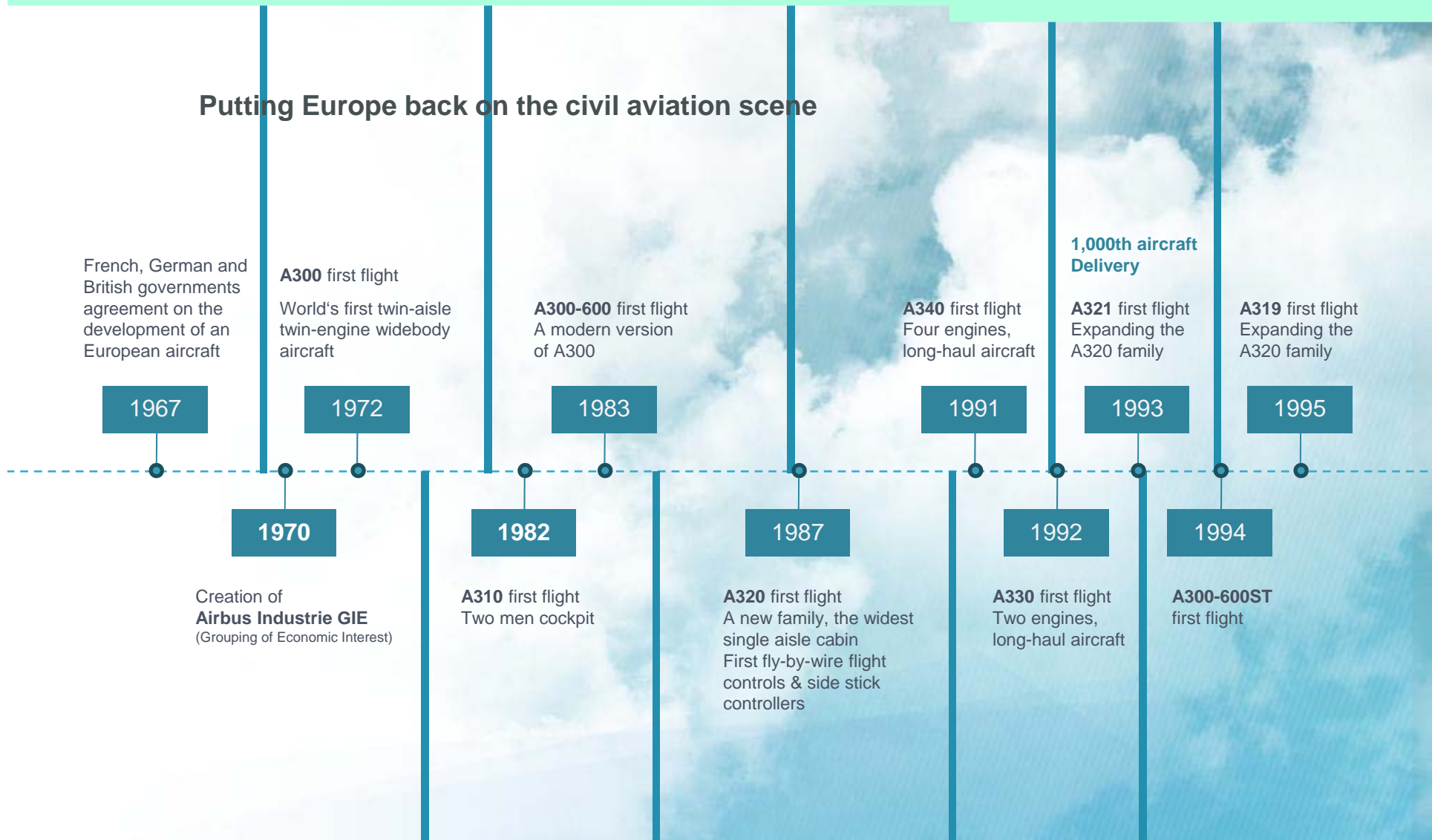
Agenda

Global Product Data Interoperability Summit | 2014

- **Company Overview**
- Airbus Toolset
- Cabin Customization
 - Airline
 - Design Agencies
 - Equipment Suppliers
- Airbus 3D Representation Formats
- Collaboration within Cabin
- ProSTEP iViP activities
- STEP AP242
- JT Open TRB
- Summary/Conclusion

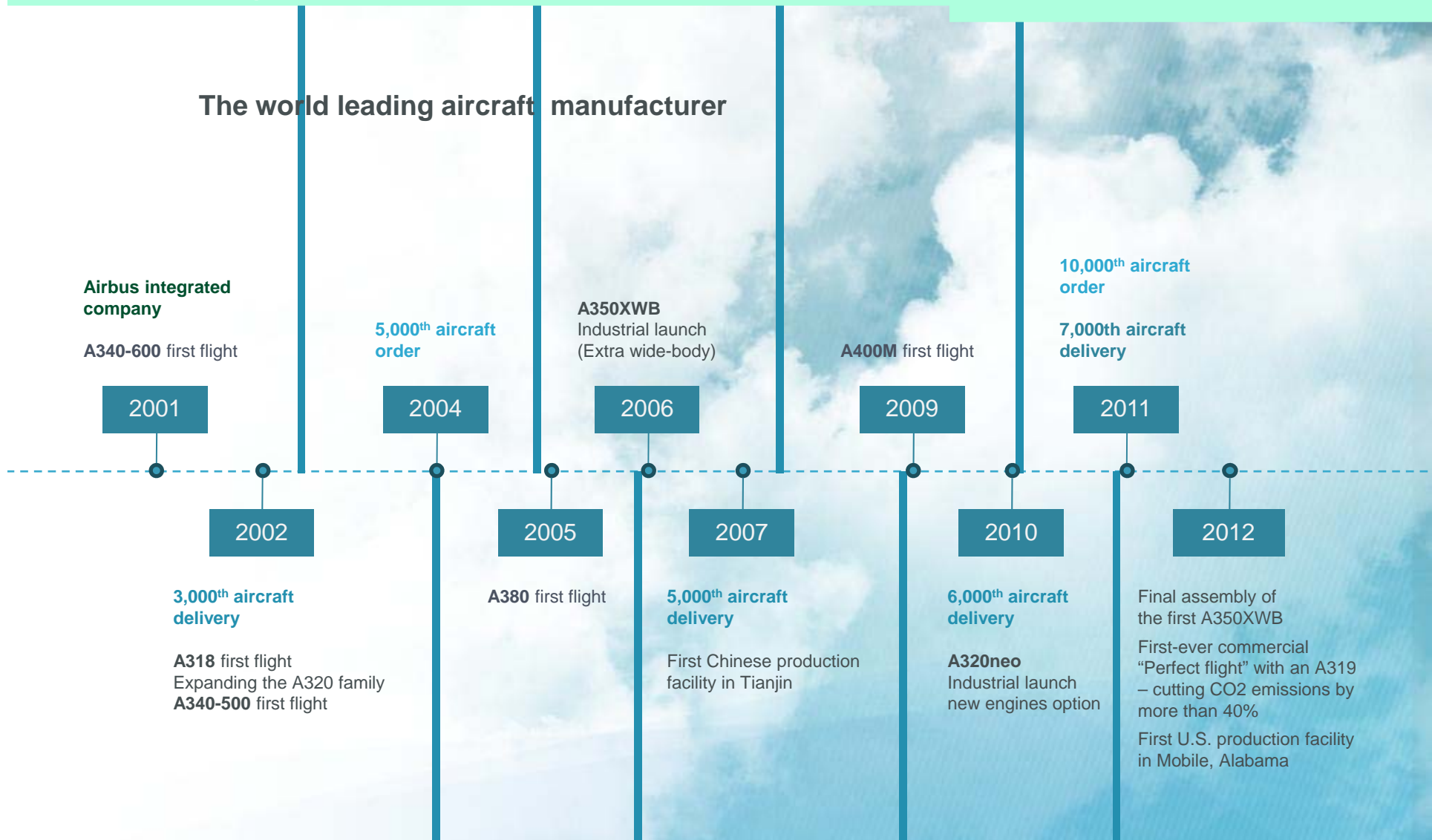
History

Putting Europe back on the civil aviation scene



History

The world leading aircraft manufacturer



Airbus: a global company

- > Part of Airbus Group
- > The world's leading aircraft manufacturer
- > One integrated company
- > More than 7 600 aircraft in operation
- > 59,000 Employees -more than 100 nationalities


2013 Aircraft orders (net) valued at:
US\$225 billion

2013 deliveries valued at:
US\$81.2 billion

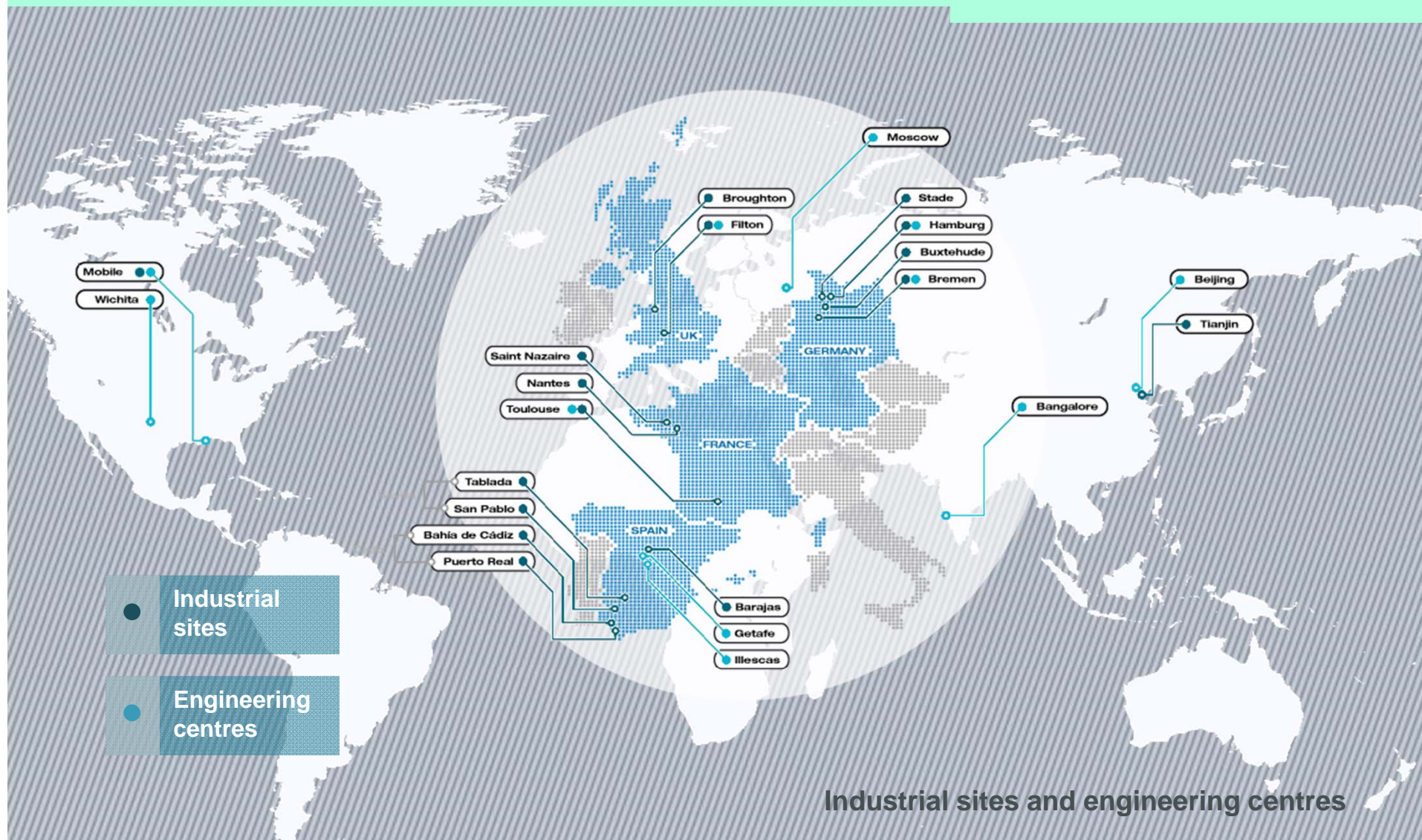
More than
13 815 orders

Over
380 operators

More than
8 256 deliveries

 Airbus presence

Airbus today



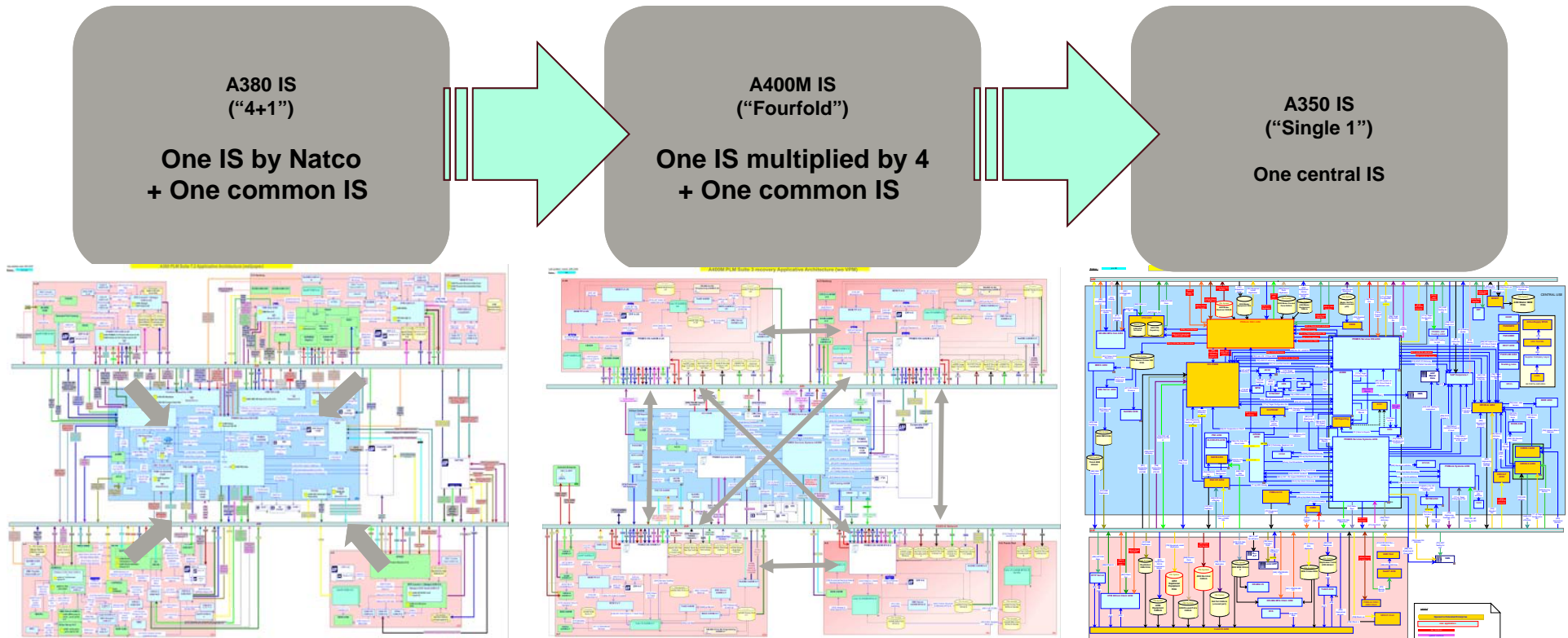
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Collaboration within Cabin – Airbus Toolset

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Collaboration within Cabin – Airbus Legacy cDMU

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CATIA V4,
CATIA V5
VPM

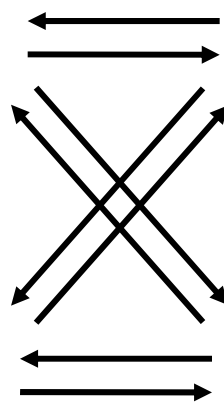


A - D



A - UK

CADDS5,
CATIA V4,
CATIA V5
Optegra
PRIMES



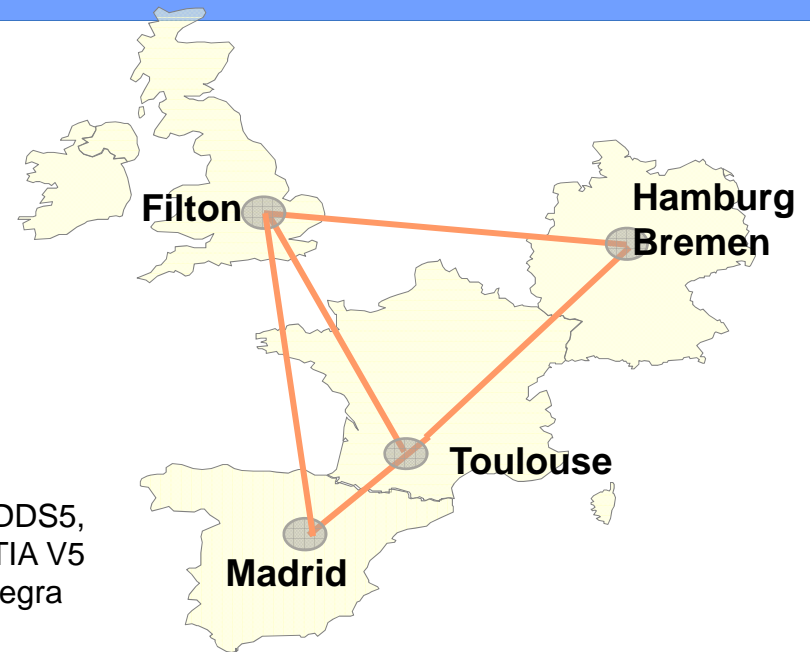
A - F



A - E

CADDS5,
CATIA V5
Optegra

CATIA V4,
CATIA V5
Optegra



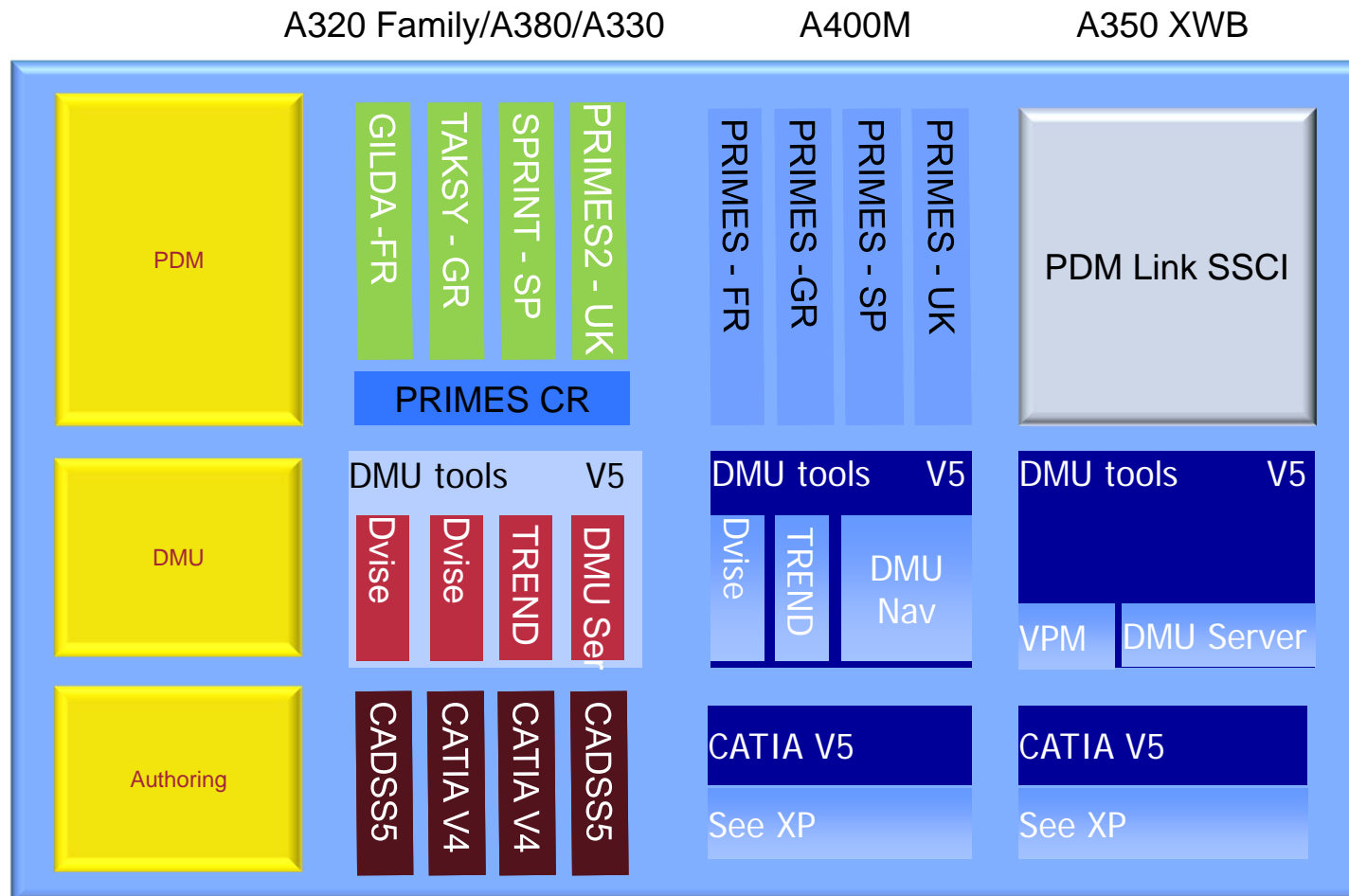
Interfaces: $n * (n-1) = 12$

With Harmonization of

- Processes
- Data
- IT Architecture and formats

Collaboration within Cabin – Airbus Toolset

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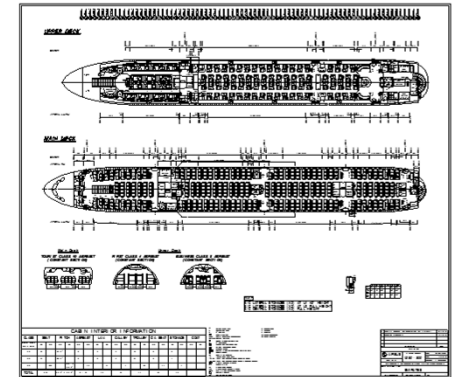
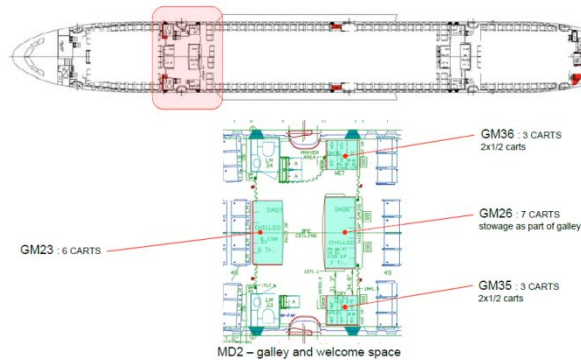
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Cabin Customization

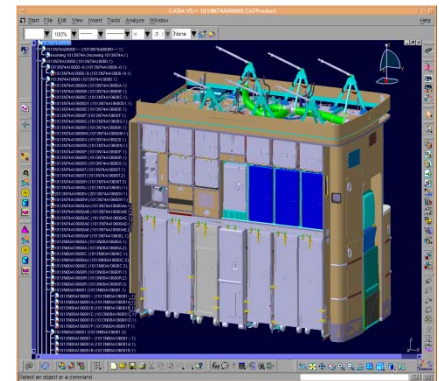
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- Airline

- Design Agency

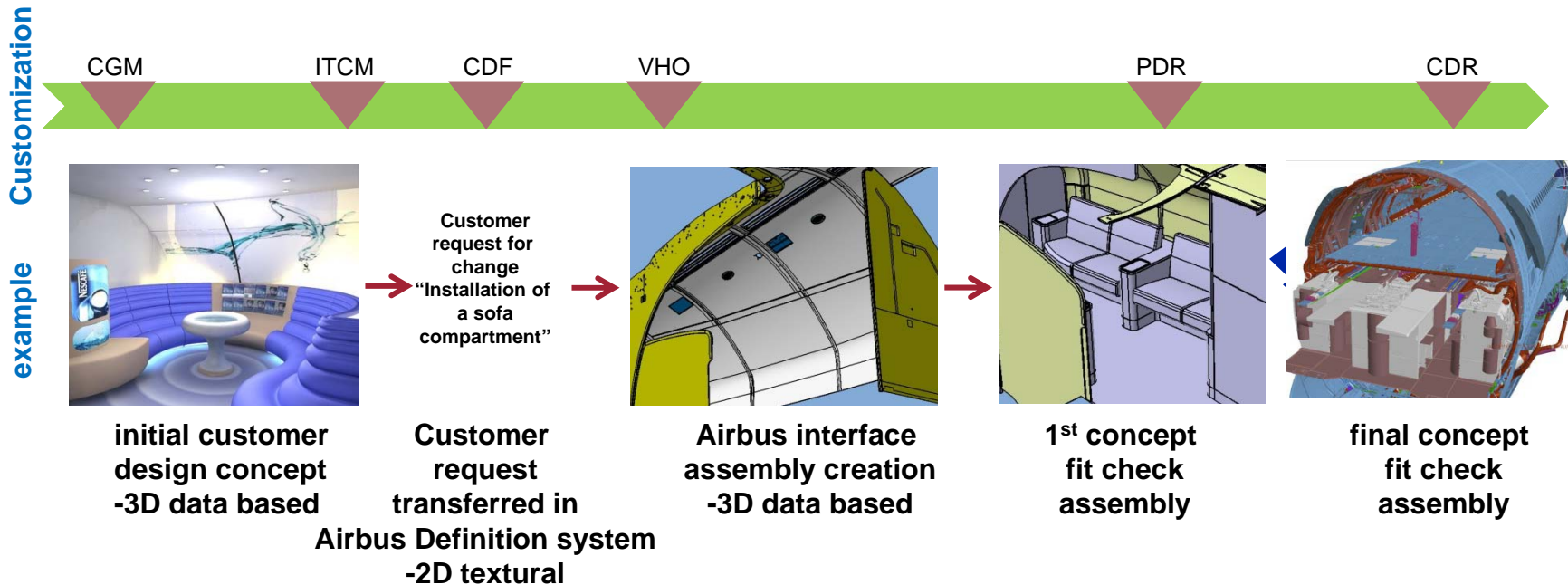


- Equipment Supplier/Manufacturer



Cabin Customization

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- **CGM** Customer Guidance Meeting
- **ITCM** Initial Technical Coordination Meeting
- **CDF** Contractual Definition Freeze
- **VHO** Version Hand Over
- **PDR** Preliminary design review
- **CDR** Critical design review

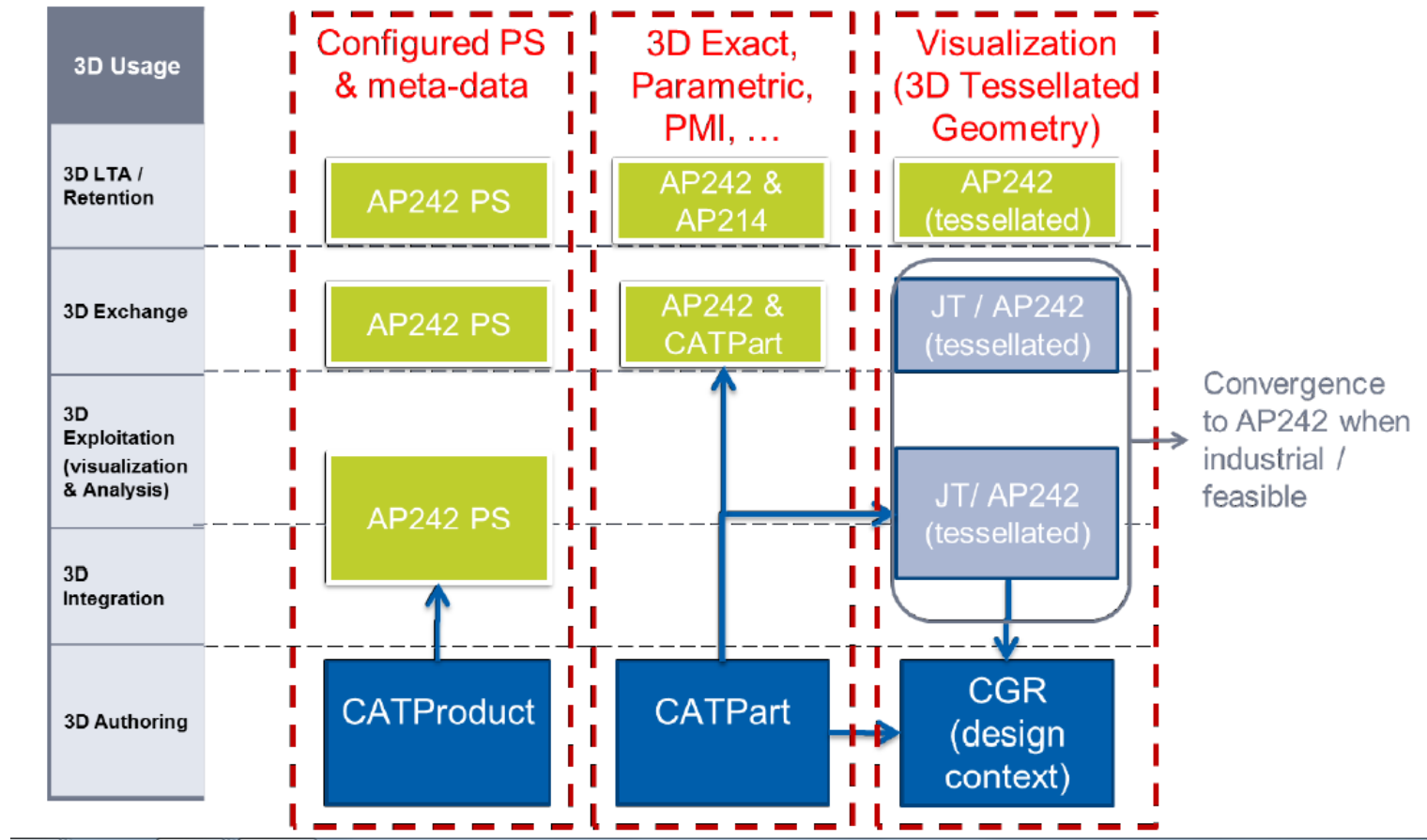
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Airbus 3D Representation Formats

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Collaboration within Cabin – Discussion

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- **Product Structure & Meta Data**
 - **PLM XML, STEP AP214 or STEP AP242 XML (preferred & target)**
 - **Product Structure**
 - **Meta Data**
 - Release Status (in work, publish, released)
 - English Description
 - Original Part ID (for communication in case of renaming)
 - Effectivity (MSN validity)
- **Geometry (JT ISO V1)**
 - JT (incl. 3 LOD's)
 - Material
 - Geometry properties (volume, center of gravity, ...)
 - Always millimeter as unit
- **In case only JT delivered → JT per part or monolithic?**
- **Incremental Exchange should be supported**

Collaboration with Cabin – Challenges

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- **Correct CATIA Version/Release**
- **IP Protection (native CATIA data with History, parametric, constraints etc.)**
- **Naming / Numbering**
- **Level of Details (BoM, moveable parts etc.)**

A380 Flight Crew Rest Compartment

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**ZODIAC
AEROSPACE**



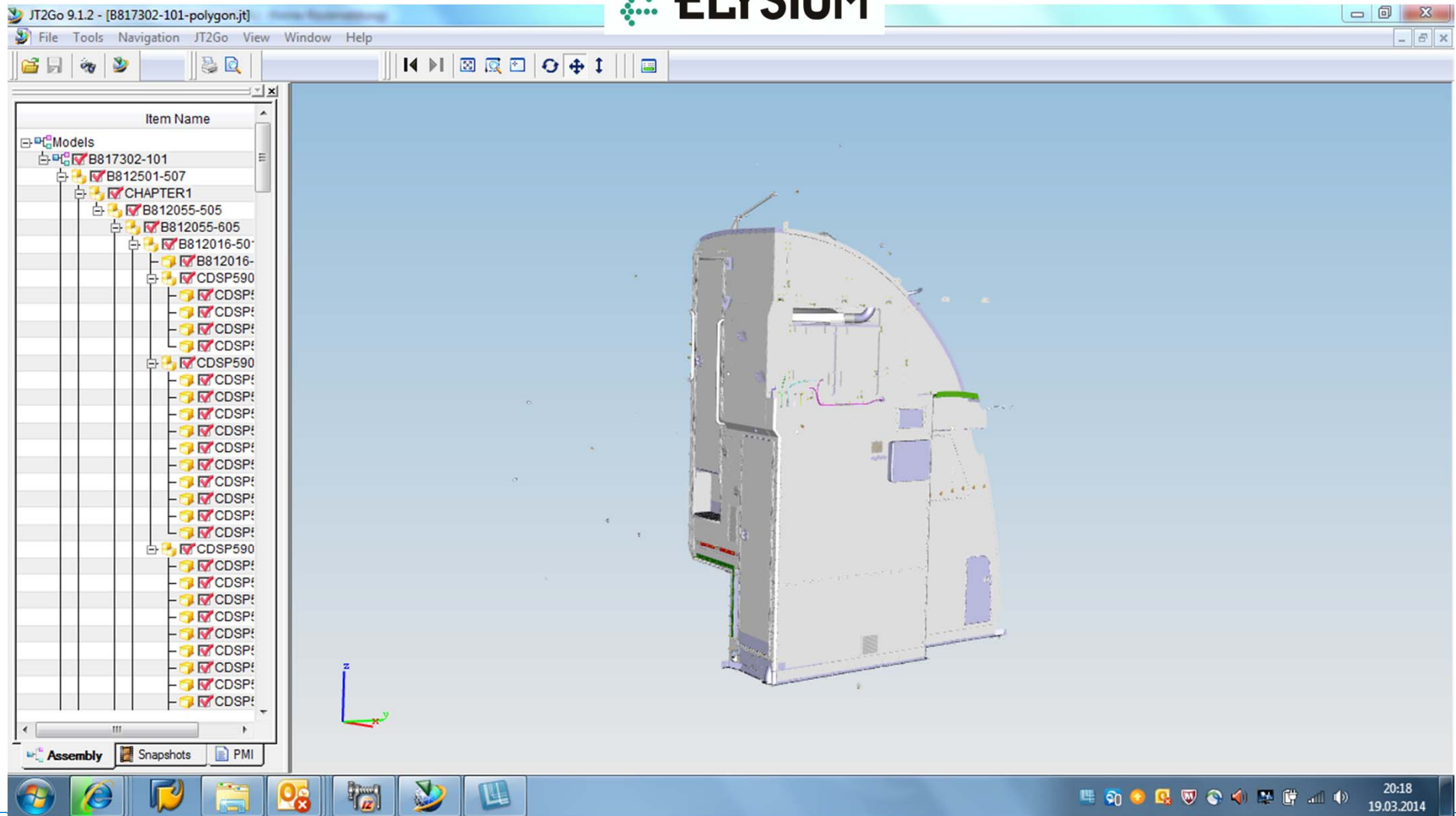
	Reference	Source Data	Elysium Neutral Format	Healing for JT	JT			
	CATIA V4	CATIA V5R17	Exact		LOD	XT	Hybrid	CATIA V5R21
					Polygon	BREP	LOD + XT	
Models	187							
CATparts		2104						1989
CATproducts		664						1421
Processing Time (H:M:S)	weeks		29:19:07	00:18:00	00:10:44	00:06:30	00:10:52	
Size (MB)	1469	943	266	347	49	87	134	301

Objective is to take into account of STEP AP242 as soon as available

A380 Flight Crew Rest Compartment

Global Product Data Interoperability Summit | 2014

ZODIAC
AEROSPACE



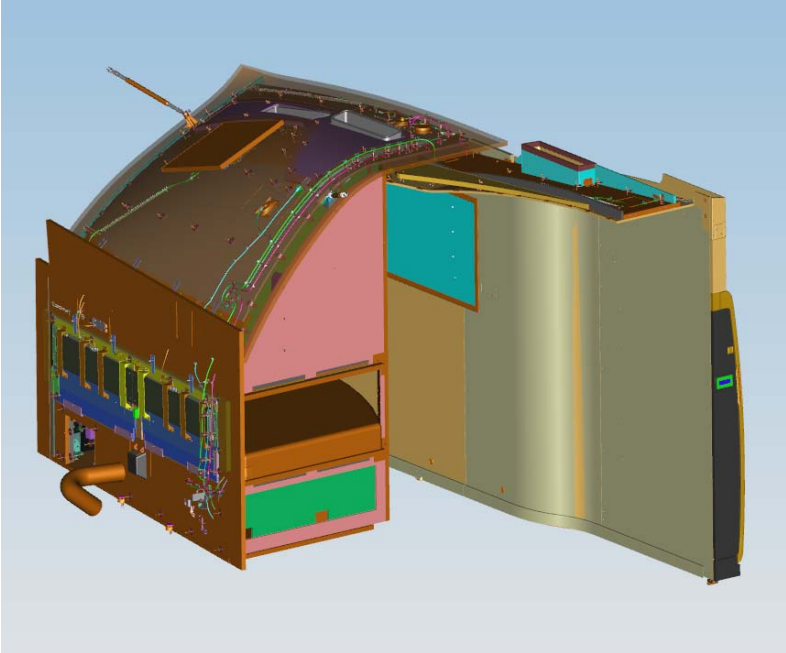
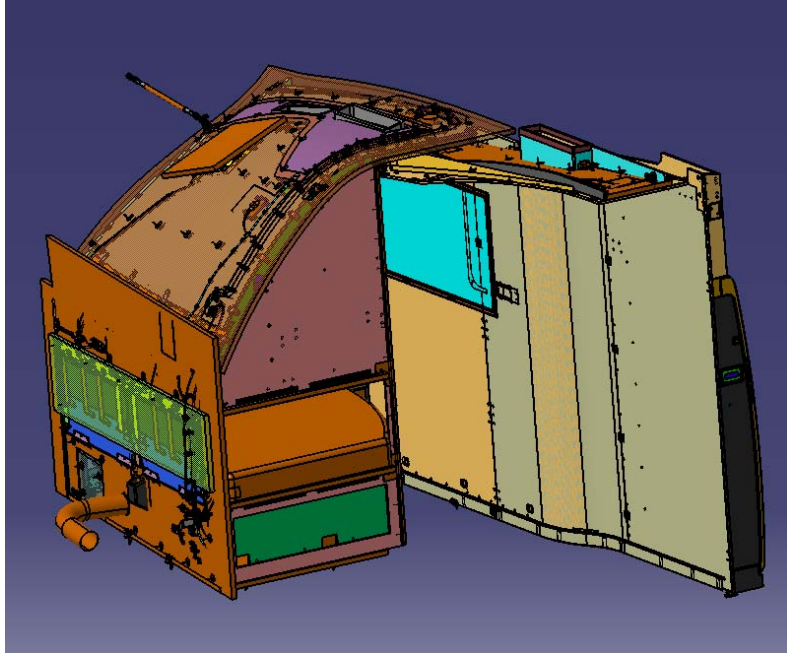
A380 Compartment

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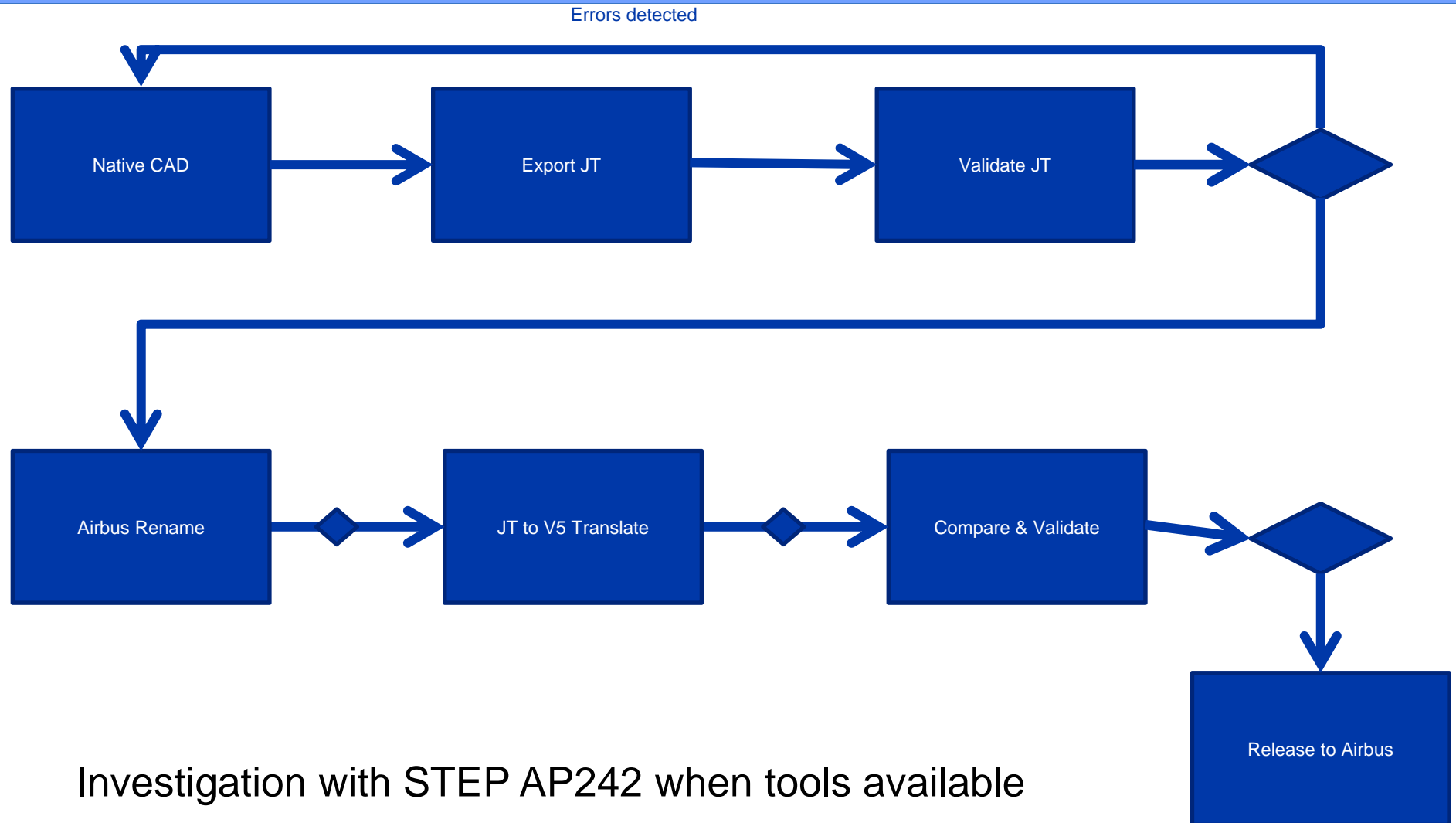
Passion to Innovate.
Power to Deliver.



Input Filename	5zk001bl511_B.jt		
Conversion	NX → JT → CATIA V5R21		
			
Input File Size	Translator	Translation Time	Output File Size
174 MB	JT -> V5 R21	00:15:53	530 MB

Collaboration with Cabin – future way of working in project under discussion

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Investigation with STEP AP242 when tools available

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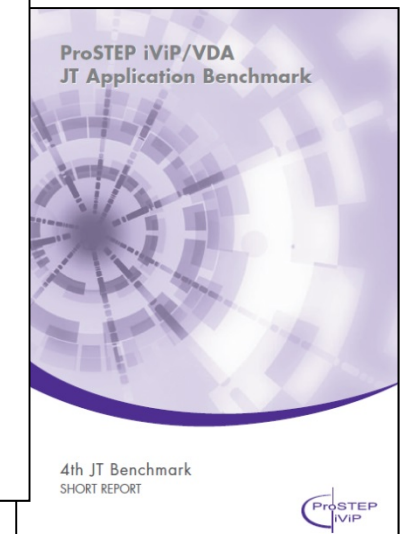
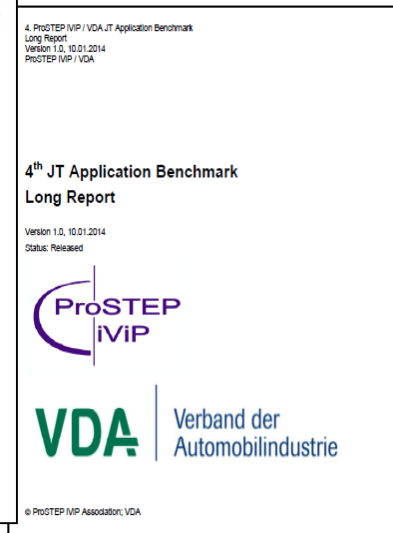
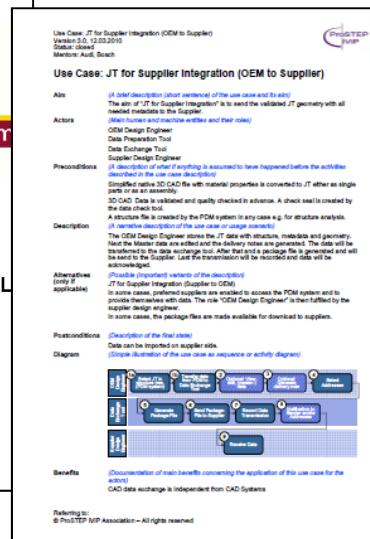
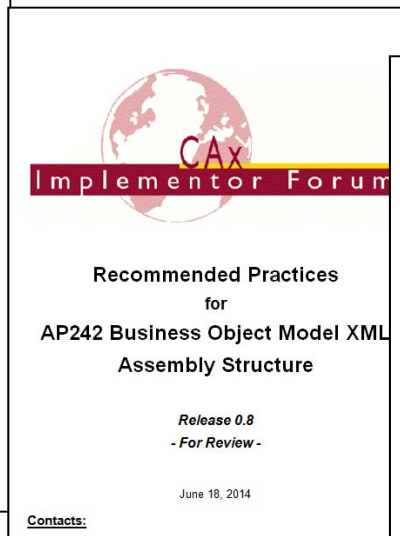
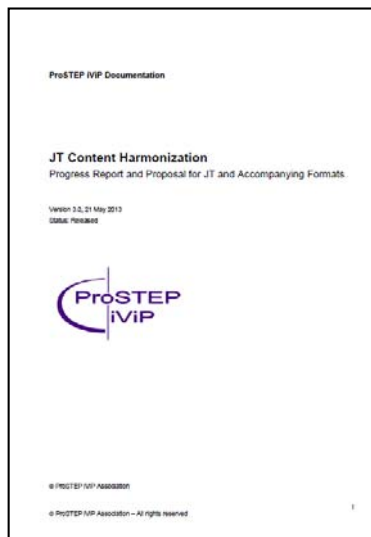
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Collaboration within Cabin – Used Documents

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- **ProSTEP iViP association**
 - **JT Content Harmonization**
 - **Recommended Practices for AP242 XML Assembly Structure**
 - **JT Workflow Forum Use Cases**
 - **4th JT Benchmark**



Collaboration within Cabin – ProSTEP iViP activities

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JT Workflow Forum

- Use Cases with derived Requirements and Guidelines
- Content Harmonization

JT Implementor Forum

- Focus on Interoperability of JT Converters and Applications
- Test Rounds and elaboration of Implementation Guidelines

JT Application Benchmark

- Quality Assurance
- Comprehensive Results

VDA

Verband der
Automobilindustrie

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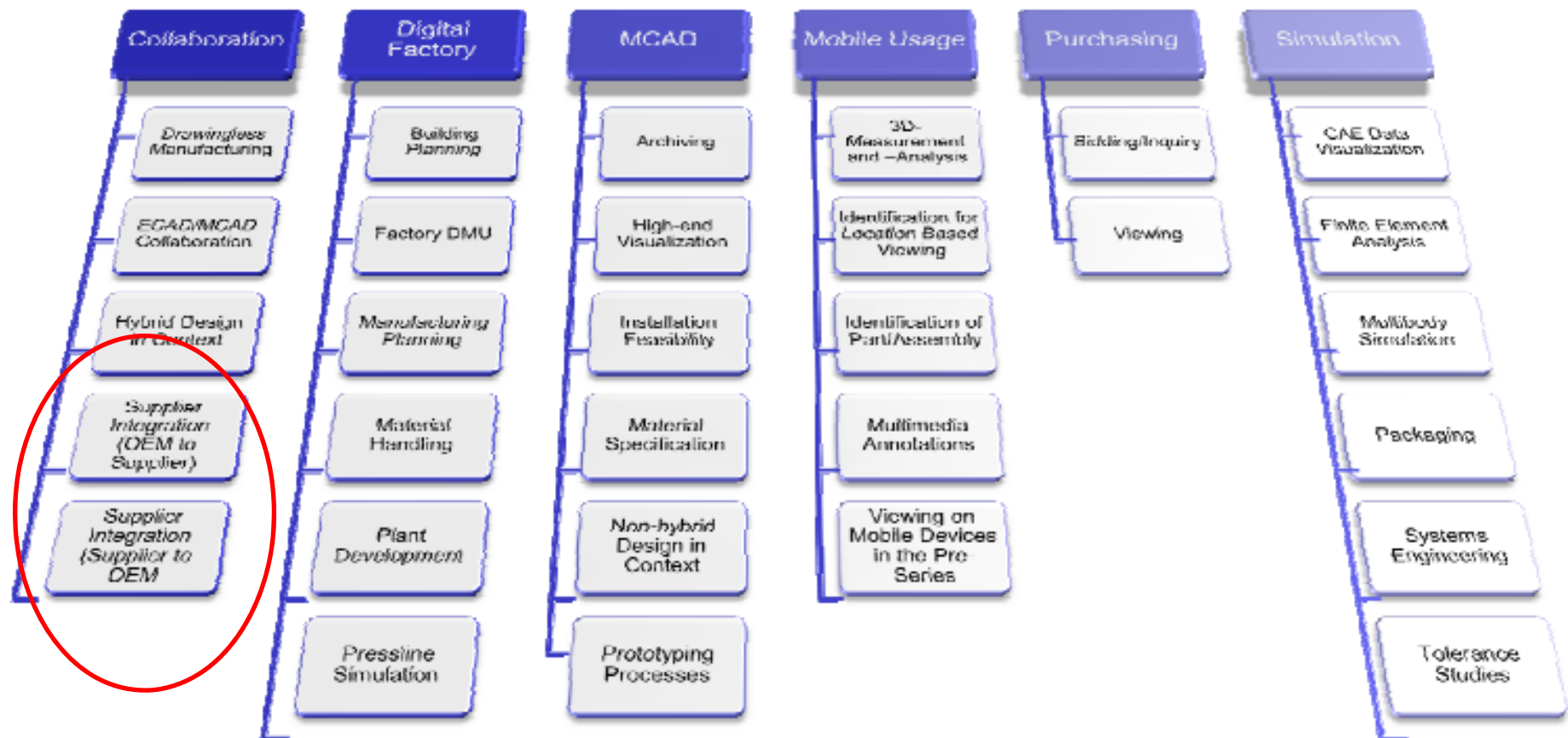
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Collaboration within Cabin – JT Workflow Use Cases



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Collaboration within Cabin – STEP AP 242 status (1/2)

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- **Finalization of the publication by ISO of AP 242 Edition 1 as “International Standard” (2014)**
- **Preparation of STEP AP 242 Recommended Practices for CAD, e.g.: 3D PMI semantic, composite**
- **Finalization of PDM Implementer Forum White paper, focused in priority 1 in the development of recommended practices for AP 242 PDM XML BO model**
- **Preparation of AP 242 benchmark N°1, with the support of several organizations: ProSTEP iViP, AfNet, etc.**
- **Kickoff Confcall of STEP AP 242 ED2 project: 2nd Sept. 2014**

Collaboration within Cabin – STEP AP 242 Cax IF testing

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- **Testing of STEP AP 242 interfaces by the Cax IF**
Example of Test Round 34J, for Apr. – Sept. 2014



CAX Implementor Forum
Round 34J Test Suite
Version 1.0, June 30, 2014



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Collaboration within Cabin – STEP AP242 benchmark

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Scoping

Relevant Documents/Specifications:

- STEP AP 242 IS
- Related AP 242 Recommended Practices (newest releases)

Relevant Software:

- Based on software (COTS) provide by vendors
Benchmark Steering Group has to define which ...
 - CAD-Systems
 - PDM Systems
 - Translators
 - Viewers

Timeframe:

- Preparation: 09 – 12/2014
- Benchmarking: 01 – 06/2015

Project Budget: ≈ 100.000 €

- 80 % in 2015 (2014: 20.000 € for preparation)

ProSTEP iViP – The Future Starts Today



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Collaboration within Cabin – JT Open TRB

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- **JT Supplier Collaboration White Paper**

LEVERAGING JT IN THE GLOBAL SUPPLY CHAIN



Brief Introduction of the topic

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Collaboration with Cabin – Summary/Conclusion

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- Independent of CAD tools (version, release etc.)
- Reduce file sizes
- Improve lead time
- Usage of open international standards
- Improve Quality e.g. by preventing conversions for visualization by viewer

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