

# JT OPEN

## It's all about Interoperability

ProSTEP iViP Standardization Activities: JT & STEP

Dr. Steven Vettermann



ProSTEP iViP Association

SEPTEMBER 12 -14

2010 International Conference

VISUALIZING THE FUTURE

Hosted by

SIEMENS

# Overview

- Introducing ProSTEP iViP
- Some Thoughts & Essentials
- ProSTEP iViP / VDA JT Activities
- Generate added value
- Summary

# Introducing ProSTEP iViP

Establishing Leadership in IT-Based Engineering



# ProSTEP iViP: A Strong Community Since 1993

Building a stable basis for business

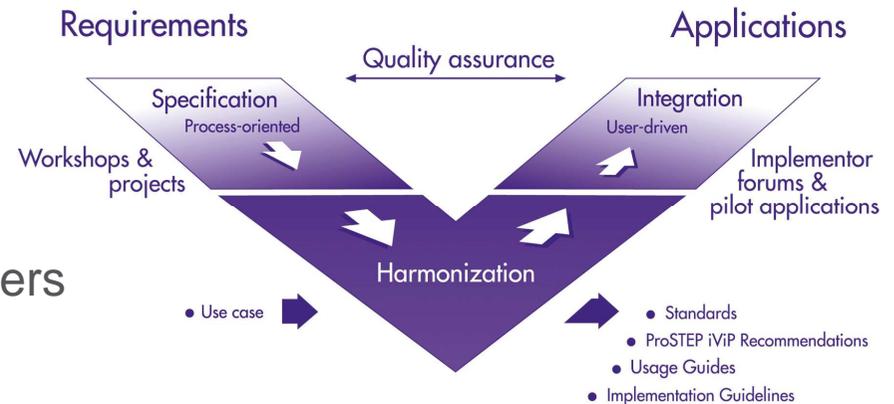
- Product data and process standards
- Realization support

A community of 160 international members

- Industry (Users)
- Software and Service Providers
- Research Institutions
- Other Bodies (e.g. VDA, GALIA, JAMA, OMG, ENX)

ProSTEP iViP projects

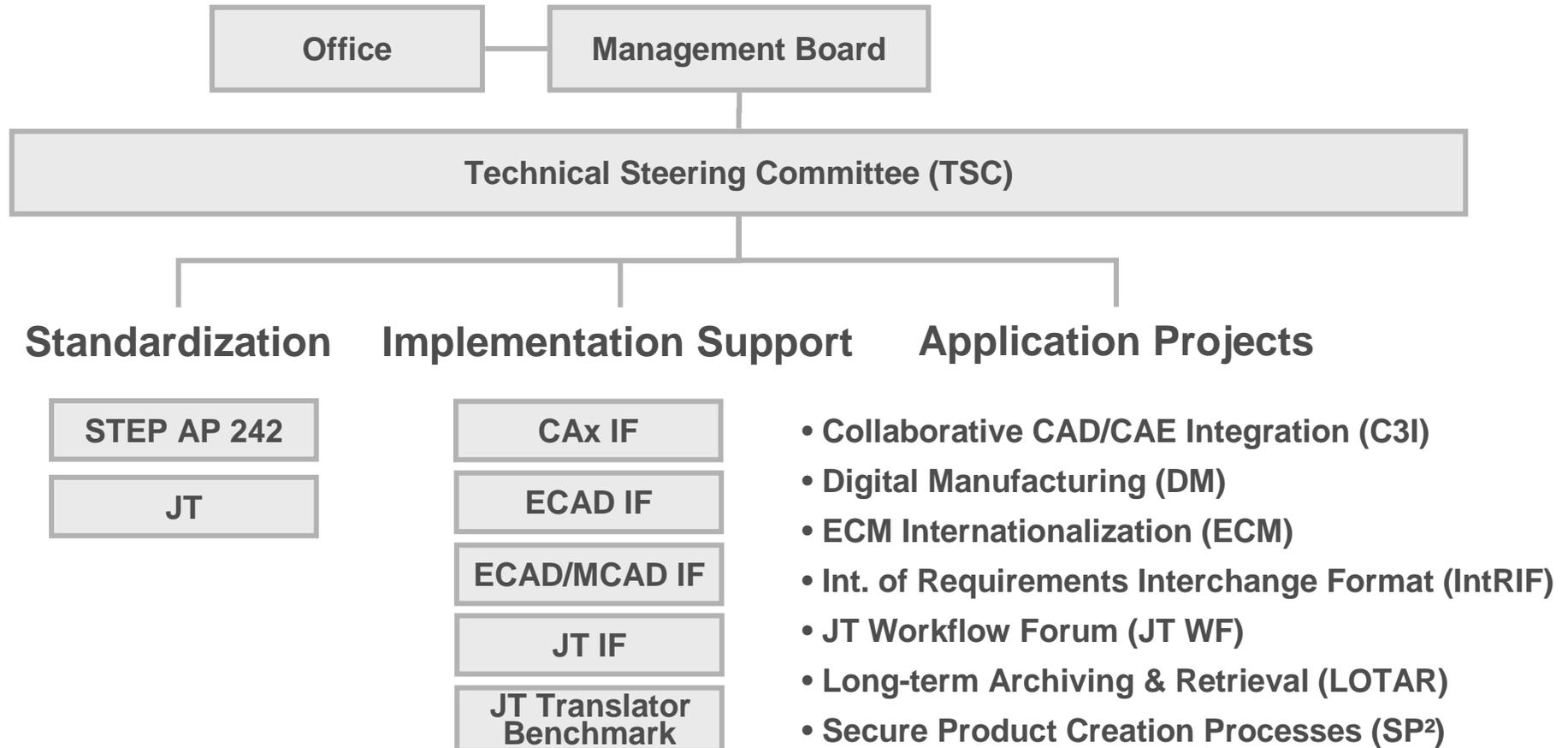
- follow a common method
- steered on project plans
- lead by industry / use-case-driven
- co-financed by industry



Establishing Leadership in IT-Based Engineering



# ProSTEP iViP Organization 2010 / 2011



Establishing Leadership in IT-Based Engineering

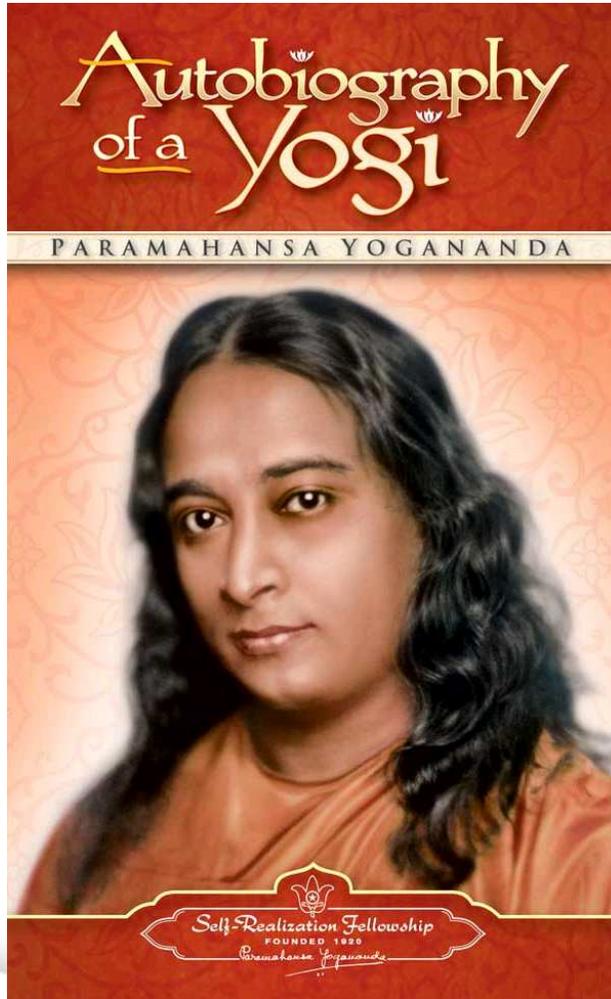


# Some Thoughts & Essentials

Establishing Leadership in IT-Based Engineering



# Some Thoughts



*“The divine is simple!”*

Establishing Leadership in IT-Based Engineering



# Essentials

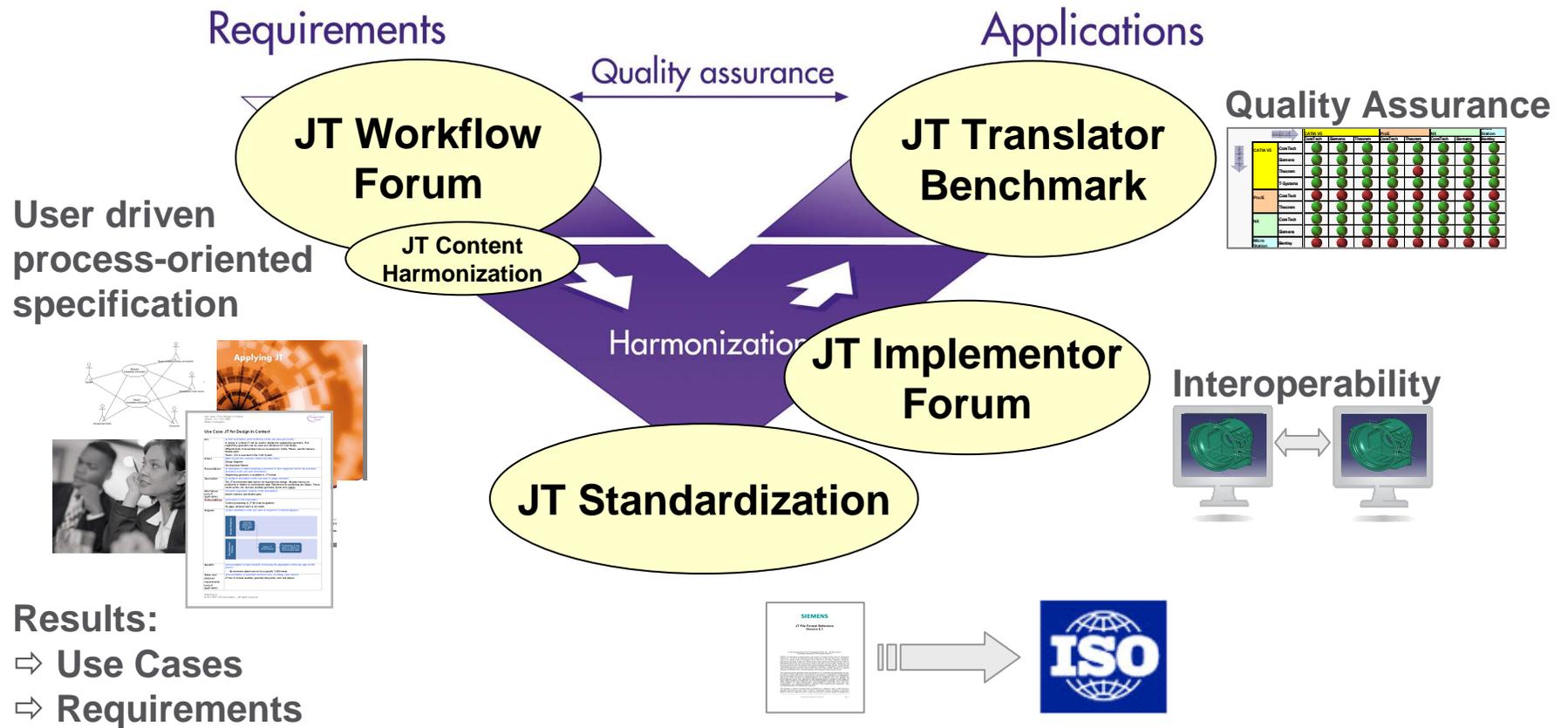
- 3D visualization is the visualization of more advanced 3D models
- 3D visualization data is “frozen” data
- 3D visualization is free of construction history, parametrics, and enhanced semantics (cp. piling of composites)
- “Lightweight 3D visualization” expresses a reduction of data volume through e.g. data compression
- 3D visualization models could provide 3D product geometry with dimensions, tolerances and geometric constraints and can be applied additionally e.g. for
  - CAE (3D with meshing data, loads, limit conditions)
  - Electrotechnical (3D with representation of logical connectivity)
  - Kinematics (3D with connections and relationships between components)
  - Manufacturing (3D with dimensions, tolerances and process management data)

# ProSTEP iViP / VDA JT Activities

Establishing Leadership in IT-Based Engineering



# 4 Measure, 1 Aim: JT as Process Format



Establishing Leadership in IT-Based Engineering



# JT Workflow Forum

## Aims:

- Assuring broad application of JT
  - Consolidating user requirements
  - Assurance incorporation in future JT standard

## Participants:

- Audi, Airbus, Behr, BMW, Bosch, Continental, Daimler, Ford, :em, InMediasP, Johnson Controls, MAN, PROSTEP, Renault, RLE, TU Kaiserslautern, Volkswagen, ZF
- In cooperation with VDA

## Support:

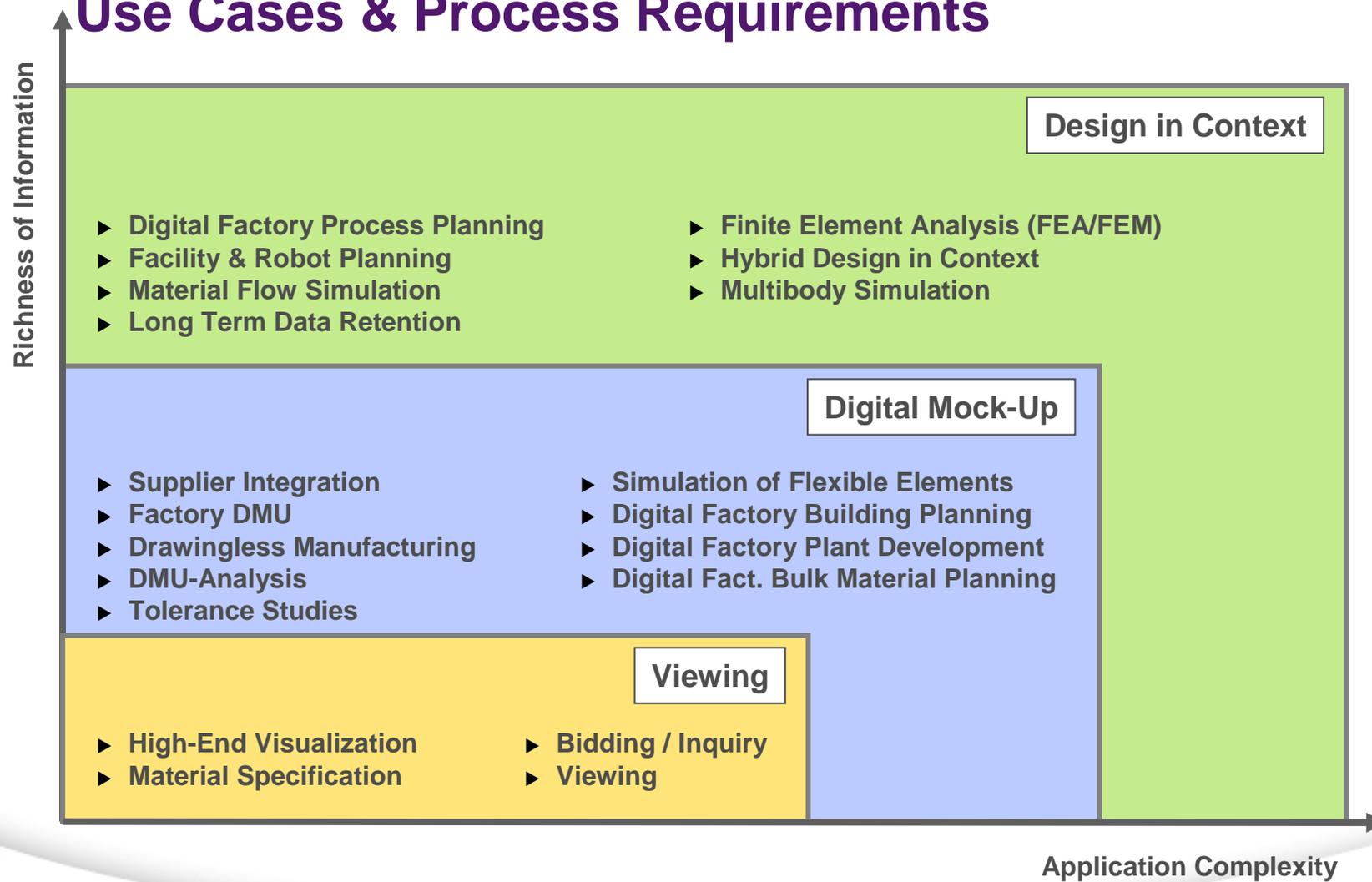
- Advocacy of Automotive CIO's
- Memorandum of Understanding with Siemens PLM

## Deliverables:

- White Paper “Applying JT” & Best Practices
- 20 Use Cases (Design, Simulation, DMU, Digital Manuf. etc.)
- Requirements for JT Translator Benchmarks and JT Enhancement



# JT Workflow Forum: Use Cases & Process Requirements



Establishing Leadership in IT-Based Engineering



# JT Workflow Forum: Example: In-house tests

Mentor	UC Name	Company	Environment	Authoring	Converting	Consuming	Comment
Audi Bosch	Supplier Integr. (OEM2Suppl)	Daimler - Bosch	UC4-Bosch	○	○	+	PMI JT Format 9.0
Audi Bosch	Supplier Integr. (OEM2Suppl)	Audi - Bosch	UC4-VWi UC4-Bosch	+	○	+	CV4 & Pro/E transl. prob.
BMW	High-End- Visualization	Audi	UC1-Audi	+	+	-	VR Tool not reads JT files
Daimler	DMU	VW	UC2-VW	+	+	+	
Daimler Bosch	Supplier Integr. (Suppl2OEM)	Bosch – Daimler	UC5-Bosch	+	+	○	
Daimler	MBS	VPE	UC11-VPE	+	○	+	Flex elements no re-export to JT
Daimler	DiFa (Bulk Material)	Daimler	UC14-Daimler	+	○	-	Structure and feature info needed

**Draft -  
Work in Progress**

Legend: + Test passed  
○ Test partially passed  
- Test not passed

**Establishing Leadership in IT-Based Engineering**



# JT Workflow Forum

## Sub Group "JT Content Harmonization"

Task 1	Semantics
Scope: <ul style="list-style-type: none"><li>▶ Use-case-based specification of semantics</li></ul>	
Result: <ul style="list-style-type: none"><li>▶ Detailed requirements concerning semantics</li></ul>	

Task 2	Specification/Selection of "Target Format"
Scope: <ul style="list-style-type: none"><li>▶ Analysis of semantics and identification of target format (JT, AP242 XML)</li></ul>	
Result: <ul style="list-style-type: none"><li>▶ Recommended practices concerning semantics and target format</li></ul>	

# Generate Added Value

Forming a Win-Win between JT and STEP

JT Standardization  
AP242 Standardization

**Establishing Leadership in IT-Based Engineering**



# A “Magical” Story

- Automotive industry requires establishment of JT as process format and standardization of JT
  - When people talked about JT, they often talk about JT + PLM XML 
- Aerospace industry requires merger of STEP AP203 and AP214
- Challenge: Making the virtue out of necessity

# AP242 on a Page



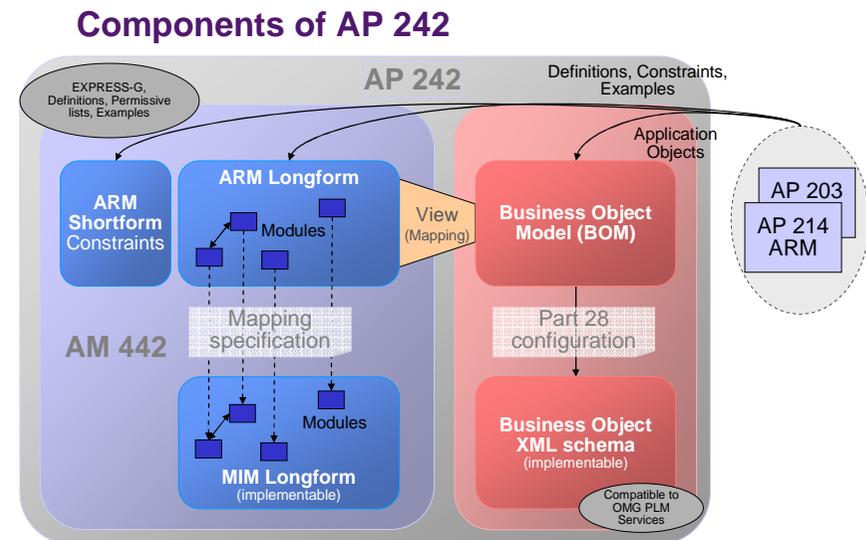
## Project Aims:

- Specification of unified standard backbone for aerospace and automotive, globally accepted and widely used
  - Merge AP203 and AP214 and assure compatible to these specifications
  - Provide a solid basis for efficient extensions (e.g. PDQ)
  - Provide a Business Object Model (BOM), which is specified in UML additionally, and XML Schema will be derived (AP 242 XML)
- Form single target for vendors

Project Duration: 07/2010 – 12/2011

Total Project Budget: 356.000 € (secured)

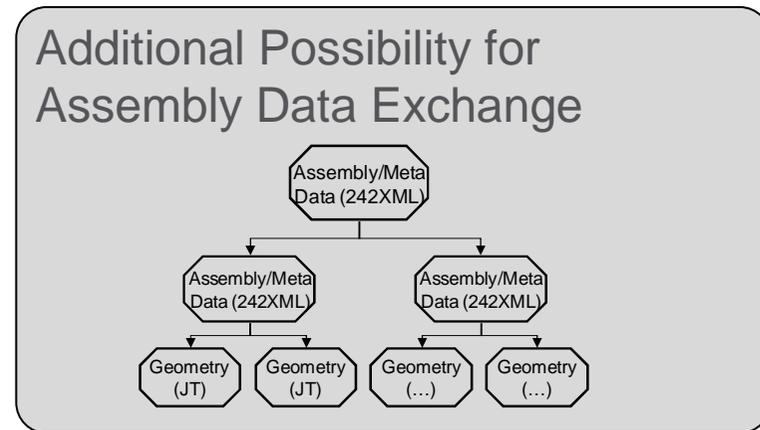
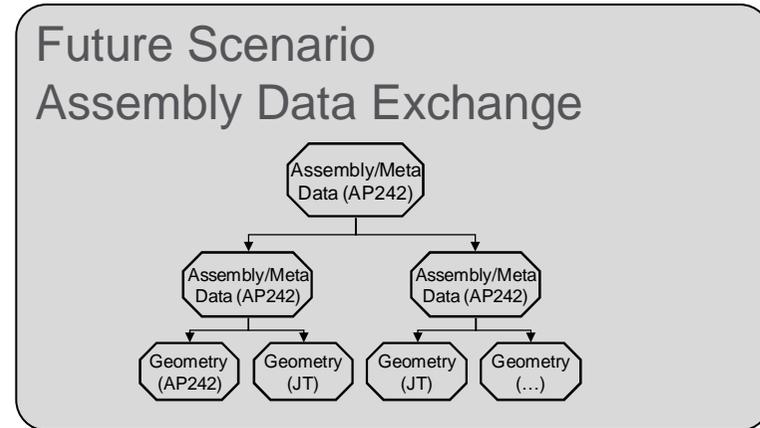
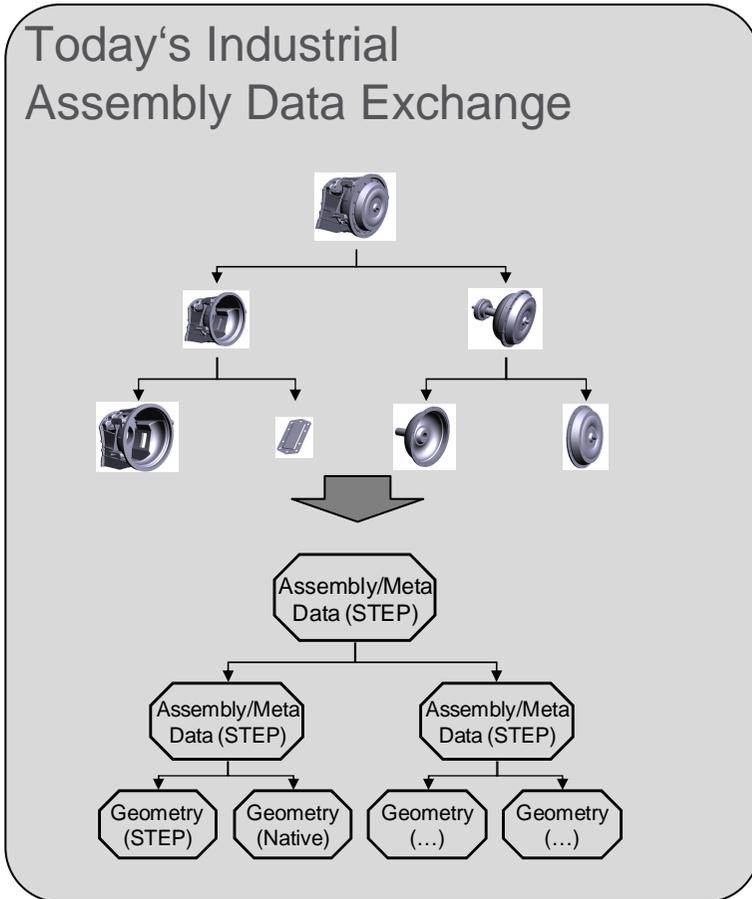
Coordination by PDES, Inc. and ProSTEP iViP



Establishing Leadership in IT-Based Engineering



# Keyword “External References”



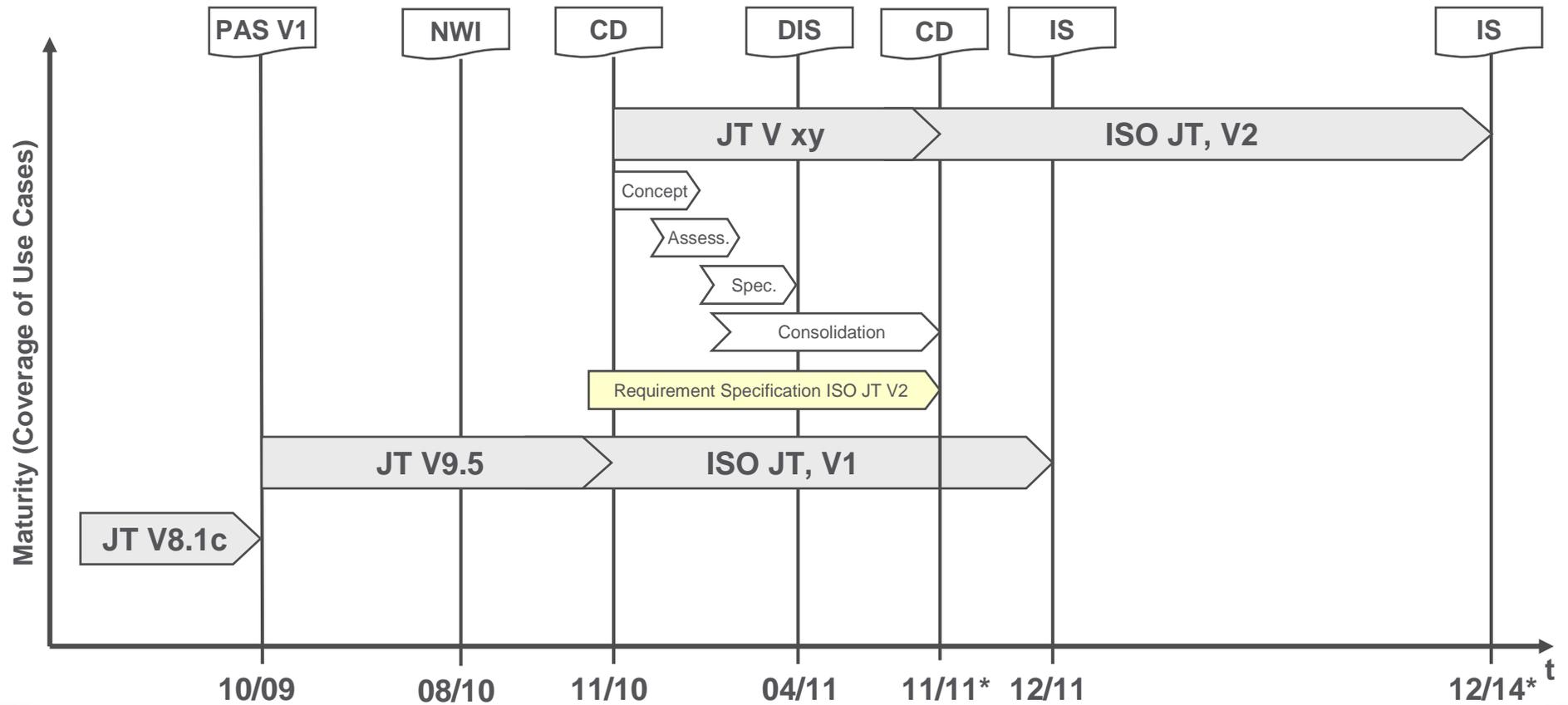
Assembly/Meta data shall be exchanged via STEP (incl. AP242(XML))

- Visualization data form the “leaves of this tree“
- Advanced geometry shall be exchanged via STEP (incl. AP242) or native

# Scope of JT-Standardization

- Addressing the need of industry for standards and protect investments
  - Standardizing JT, starting with Version 9.5
- Providing ways so JT and STEP fit together
  - Creating a win-win-situation
  - Keeping the scope and identity of each of the formats
- Specifying a mapping between JT and related STEP entities (data correspondence)

# JT Standardization: JT ISO Masterplan



**Legend:**

- ProSTEP iViP / VDA Workflow Forum
- ProSTEP iViP & Siemens PLM
- Siemens PLM

\*: tbc.

Publishing Leadership in IT-Based Engineering



# Summary

Establishing Leadership in IT-Based Engineering



# Summary

- ProSTEP iViP set up 4 ongoing measures to establish JT as a Process Format
  - JT for lightweight 3D visualization
  - STEP AP242 for assembly / meta data
- Standardization of JT and AP242 started
  - Project plans are harmonized
  - Siemens PLM and ProSTEP iViP work hand in hand
- First feedback of Siemens PLM concerning requirements for enhancing JT on November 23th, 2010