The Success Story of JT

PDT Europe 2016
PLM challenge- Investing for the future while managing product data legacy and obsolescence

Paris, France, November 9th – 10th, 2016
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Introduction

JT so far
- JT started in the late 1990\textsuperscript{th} for high volume visualization.
- Ten years later, the specification was so advanced that much more business processes could be supported.
- Today more than 30 generic use cases for JT are defined.

JT today
- X00 Million JT files are stored in companies databases.
- Much more than 50,000 data sets have been added day by day.
- Other open geometry formats play only a minor role.

Conclusion
- With JT we can do all these things we intend to do with STEP years ago, but we use also the strength of STEP AP 242 xml.
- JT today is an independent and powerful standard.
The Success Story of JT
JT as process format across brands, disciplines and domains

Around 80% of all development work in transportation is done at the supplier side.

More than 75% of all 3D oriented development processes can be done with JT instead of native CAD.
JT Model Based Ecosystem – some Examples

- VW/Audi: Sourcing of all design responsible suppliers
- BMW: Photorealistic Rendering, DMU, Mfg, Visual Issues
- Bosch: IP Protection, Eng, Purchasing, Mfg (~mil files, 50k users)
- Continental: Cross disciplinary collaboration, Any device.
- Daimler: Supplier/Partner Collab, DMU, CAE, After sales, VR, Logistics...
- Ford: XT BREP, Concept, MultiCAD, DMU, Mfg, Service, Tech Docs, Sales
- GM: JT used in all phases of product development, sales and service
- Renault: PDM → Mfg, Body-In-White
- Nissan-Daimler-Renault: Design exchange
- Gulfstream: Digital Twin (rendered on iPad in seconds)

Significant new JT use

JT widely used across functional areas
An Example: Digitalization without JT

Source: Volkswagen Group 2016
An Example: Digitalization with JT

Source: Volkswagen Group 2016
## The Success Story of JT – Some Examples

### Automotive OEM
- Audi
- BMW
- Daimler
- FCA
- Ford
- GM
- Mazda
- Mitsubishi
- Nissan
- Renault

### Automotive OEM
- Suzuki
- Tata Motors
- Volkswagen
- Volvo

### Automotive Supplier
- Bosch
- Continental
- Delphi
- Schaeffler
- ZF

### Aero Space
- Airbus
- ATK

### Other Industries
- Bombardier
- Caterpillar

### Consumer Goods
- Lego
- P&G
The conceptual work behind JT
JT Workflow Forum
User-Driven Specifications

JT Content Harmonization

Specification of Requirements

 Documentation of Use-Cases

JT Application Benchmark

JT Implementor Forum
Cutting-Edge Solutions

JT Showcases

Interoperability of JT-Based Applications

Neutral evaluation of JT Translators

ISO Standardization, PSI Recommendations, User/Implementation Guidelines

Driving JT
JT Workflow Forum and its work

20 Participants from manufacturing

10 Tools supporting JT

26 Showcases vendor & user presentations of JT applications

496 Requirements and Enhancement Requests addressed solved in collaboration with vendors

32 Use Cases

7th Benchmark

2nd JT Day 180 participants

>6 Publications yearly
JT Implementor Forum and it’s work

- 10 Participants
- 12 Test Rounds
- 26 Test Cases
- Up to 19 Systems Tested per round
- 995 Test results
- 7th Benchmark
- Important agreements on several topics

 JT Implementor Forum

Important agreements on several topics

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What’s the JTIAP?
(JT Industrial Application Package)
JT as Standard ISO 14306

**ISO 14306 2012**
- was done fast and pragmatic.
- was released under the condition that an update is required.

**ISO 14306 NWIP**
- has been under construction for more than 4 years.
- got very clear requirements and boundary conditions from user industry.
- the requirements were not really taken into account and some statements have to be clarified.

**Conclusion**
To safeguard the investments and to enable future potentials
- a demand and user driven clarification
- an extension of ISO 14306
are developed and published as JTIAP V2 (JT Industrial Application Package V2).
The industrial way to go ahead

JT Industrial Application Package

JTIAP

→ The Strategy of two Velocities

Demands and requirements only user driven.
Neutral and independent from every IT vendor (e.g. DS, PTC, SPLM).
Specification done aligned with ISO rules.

Foundation for JTIAP

was founded by 12 international automotive OEM´s and Supplier´s.
was developed in the framework of ProSTEP iViP association together with well known system integrators.

JTIAP V2 Specification
Clarification for ISO 14306

ISO 14306 V1

Expected ISO 14306 V2

Clarification of BRep

Clarification on scope

ISO 14306 JT incl. XT-BRep

ISO 10303-242 STEP AP 242 XML

JT Implementation Guidelines
ISO 14306 Bugzilla Issues

Defines XT-BRep as mandatory

Extend scope to all Use Cases published by JT Workflow Forum
Extension of ISO 14306

ISO 14306 V1

Expected ISO 14306 V2

Clarification on Geometry

Clarification on scope

Extension of functionality

Extension of performance

- ISO 14306 JT incl. XT-BRep
- ISO 10303-242 STEP AP 242 XML

- JT Implementation Guidelines
  ISO 14306 Bugzilla Issues
- Defines XT-BRep as mandatory
- Extend scope to all Use Cases published by JT Workflow Forum
- Requirements to fulfill JT use cases
  Compatibility to Siemens JT Version 10
- More powerful public available
  LZMA compression

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JT I AP specification (PSI 14-1, V2)

- open
- vendor independent
- complete
- state of the art
- ISO compliant
- royalty-free
Specification published as:  
ProSTEP iViP Rec. PSI 14-1, V2, June 2016  

Specification approved by  
GAAG JT Working Group (WG 6)  
as well as JT using GAAG plenary member  
ProSTEP iViP Technical Steering Committee  
VDA PLM Working Group  
Approval of other organization are work in progress  

All use case definitions of JT Workflow-Forum are documented in PSI 14-2  

Conclusion and Outlook
Conclusion

- Will safeguard industries investment using JT.
- Will enhance usage of JT
  - to additional use cases
  - to advanced functionality
  - To better performance and file size.
- Guarantees vendor independency and royalty free implementations.
- Can be expanded by various commercial JT Toolkits (but it is not required).
- Is defined by automotive user community, but other branches and domains are invited to join.

JTIAP V2

Now it’s time for

- Commitment
- Communication
- Implementation
Outlook

- Will continue to work on JTIAP success and maturity
  - publish collected best practices
  - describe additional use cases
  - collect further requirements
  - promote JTIAP implementation
  - execute further benchmarks

- JT Workflow Forum
- JT Implementor Forum

- Are required to deliver solutions based on JTIAP V2 as soon as possible.
- Are welcome to contribute to JT Implementor Forum.

- ISV’s, system integrator, and every others who like to contribute

First industrial applications are expected next year
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Annex:

Position of Automotive OEM’s concerning ISO 14306 NWIP for V2
Position of GAAG members concerning NWIP ISO 14306 Version 2
Approve scope extension to use JT as process integration format including data exchange and long term archiving

Approve requirements and boundary conditions
- support all gathered industrial Uses Cases
- realize same/smaller file-size
- realize same/better performance
- assure downward compatibility (including precision)
- assure interoperability

Recommend to go only for one B REP description
- If STEP B REP can fulfill the requirements in the next 12 month, go for it
- Otherwise go for XT B REP as normative description
- Reject JT B REP out of the standard and put it into informative description

Recommend more powerful ULP definition based on GAAG Requirements (group lead by Toyota)