

# Presentation at ProSTEP Symposium 2010

Winfried Weber, T-Systems International GmbH  
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## COM/FOX enables high end applications of JT and PLMXML

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This presentation describes a case study based on current projects at T-Systems customers Honda, Daimler and Bosch will present the successful use of JT and PLMXML throughout the product lifecycle. It will illustrate how the ability to communicate smoothly based on a powerful data conversion has become one of the keys to success at Daimler and Honda.

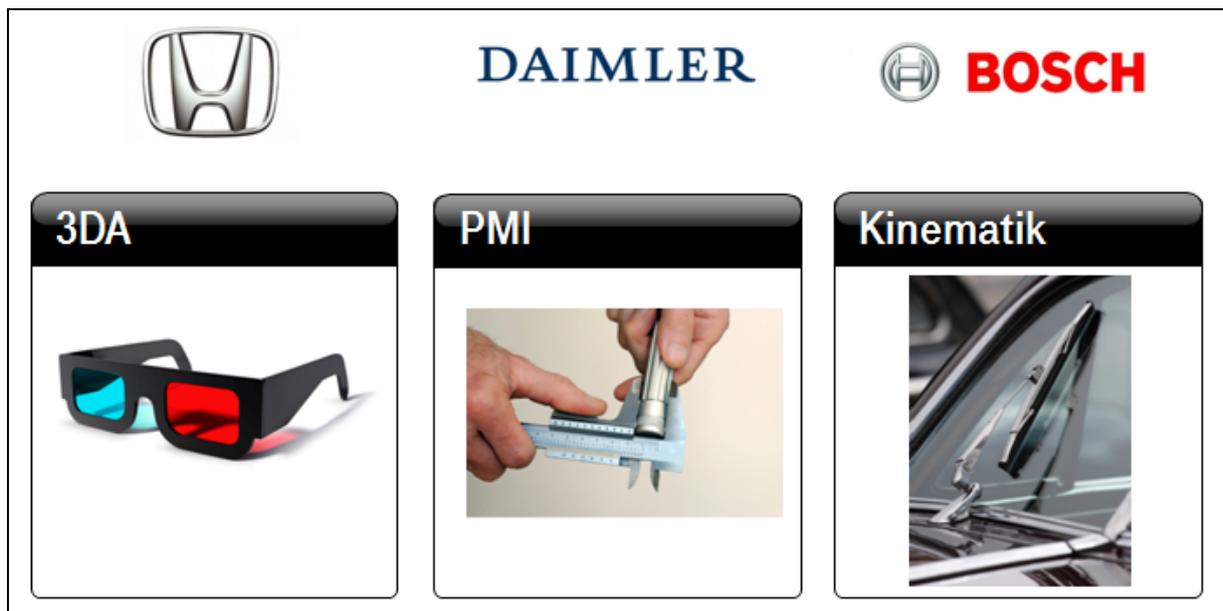


Fig 1: Three use cases

### Honda use case: 3D annotated model

Honda's Japanese R&D facility gains significant benefit from using T-Systems CAx multiformat converter COM/FOX in a strategic digital engineering visualization project.

How to improve efficiency and quality for automotive product development processes from styling, design to manufacturing ?

How to reduce costs involved by creation of 2D drawings and to avoid irregularities between a 3D model and 2D drawing when they are used in combination ?

## High-end applications of JT format at Honda. Objective targets of Honda.

### Goals of Honda

- Use of 3D annotated model along the process chain and not only in product design.
- Expand 3D usage to all areas where data are used and viewed.
- Replacement of 2D drawings
- Improve data flow (internal and with suppliers) using light 3D data
- Reduce ambiguities in mixed 2D/3D data sharing
- Long term archiving

Cornerstone: The standardized 3D annotated model

Fig 2: Objective targets of Honda

For Honda the visualization of **3D product data** has become essential and the standardized 3D annotated model (3DA) will be the future cornerstone to support the processes in automotive product development as well as for long term archival.

For this process network the JT technology of Siemens PLM offers a rich data format and the appropriate visualization tools.

And T-Systems COM/FOX provides the powerful CAD converter COM/FOX.

For COM/FOX the challenging requirement is to map the 3D annotated model designed with CATIA V5 to the visualization format JT. The goal is to be able to reproduce the entire 3DA functionality of CATIA in the JT viewer. Only this allows Honda to replace 2D drawings by JT visualization files.

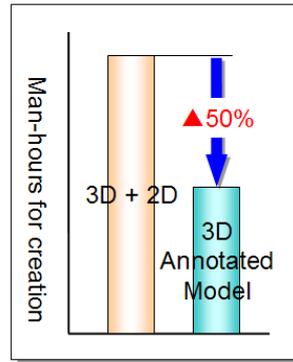
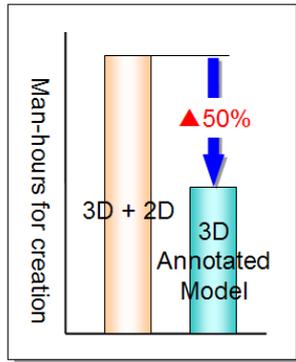
T-Systems then enhanced the COM/FOX solution to serve the specific requirements of Honda's 3DA functionality.

COM/FOX now provides full support for 3DA and a high-end data translation using the Dassault Systemes CATIA V5 CAA API and the Siemens JT Open technology and Honda saves time and money with an accurate conversion from CATIA V5 to JT of

- geometry
- assembly structures
- product manufacturing information (PMI)
- enhanced 3DA functionality like CATIA Scenes, CATPart and CATProduct captures

Product Development

Manufacturing Work Instructions



Honda study validated a 50 % man-hour reduction using 3D Annotated Models

Fig 3: Cost reduction at Honda due to 3DA

“CATIA and JT are our two strategic systems in the DEV<sup>1</sup> project. Thanks to COM/FOX we can reach the goals in our DEV project: reduce development lead time, improve product quality and achieve global standardization” says Akiyoshi Nagai, Chief engineer of Honda Automotive R&D Center.

<sup>1</sup> DEV: Digital engineering visualization

The following pictures show the 100% mapping of 3DA functionality like CATIA Scenes, CATPart and CATProduct captures to JT.

## Honda 3DA Project. 1:1 Transfer of Geometry and manufacturing information

CATIA scenes and annotated views can be reproduced in JT / TcVis.

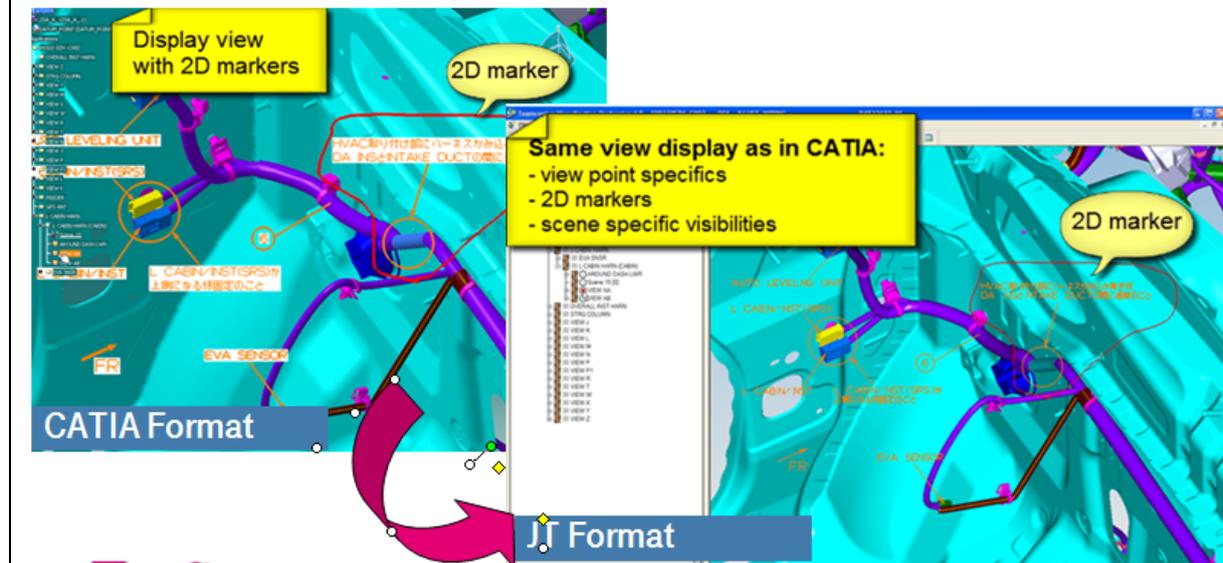


Fig 4: Mapping of CATIA scenes to JT

## Honda 3DA Project. 1:1 Mapping of Scene and View structure.

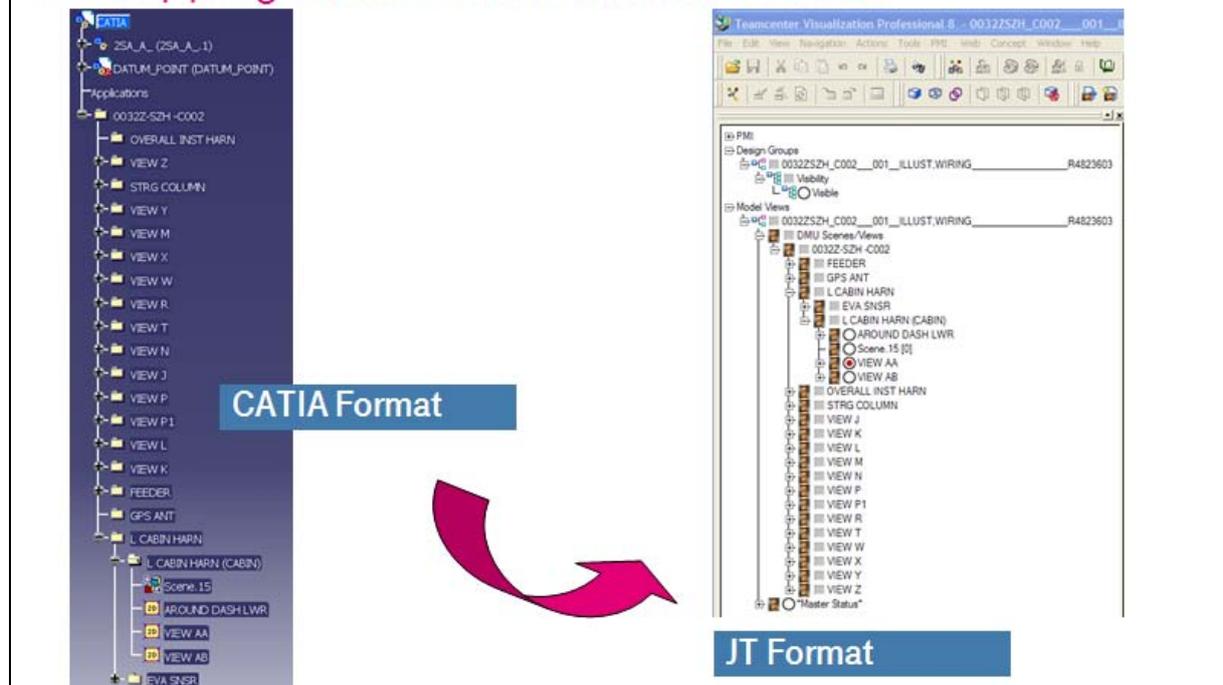


Fig 5: Mapping of CATIA scene structure

## Daimler use case: PMI

Daimler as key user of JT with over 5.000 VisView installations and more than 16.000 JT users in its EngineeringPortal has been converting its development data with COM/FOX for years.

The strong requirements of Daimler have driven the usage of the JT format and the data conversion to JT to the highest operational standard.

In the 3D based engineering process Daimler requires to support geometry, assembly structures and additionally the 3D view control, solid design states, user defined features, layer/filters as well as PMI (annotation & tolerances) in the JT format.

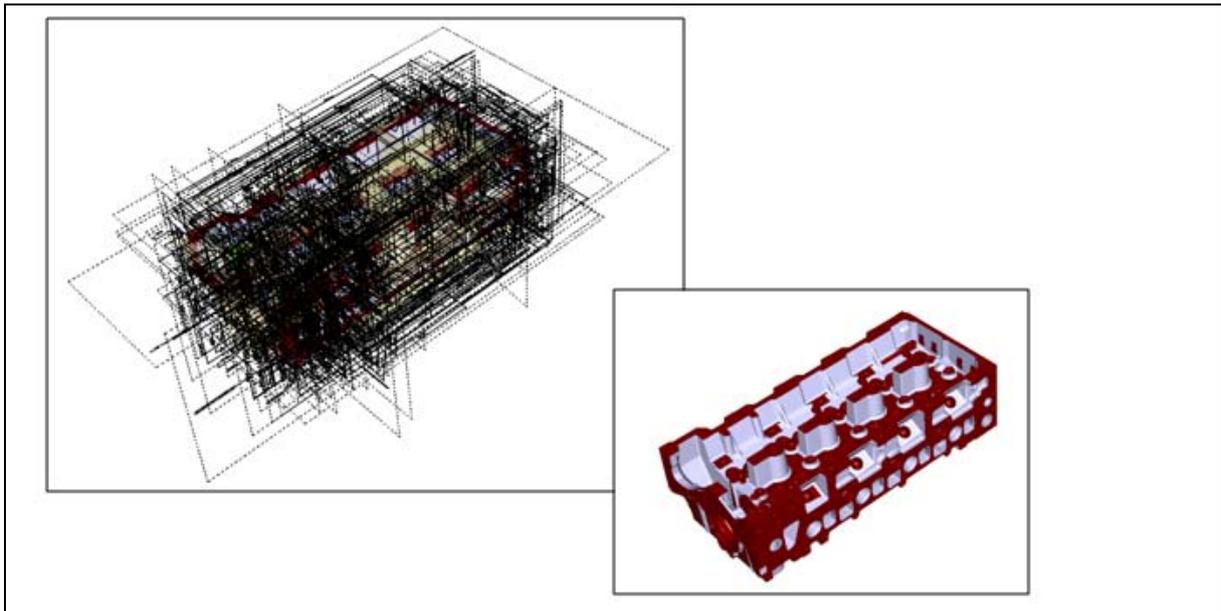


Fig 6: Extensive use of PMI

A cylinder head typically has over 2000 PMI's and up to 200 sections and model views. This high quality 3D model is converted to JT without any loss of information. In particular the high precision PMI conversion of COM/FOX makes sure that the layout and rendering of texts, dimension lines, arrows, feature control frames is as accurate as possible. The creation of PMI with 'filled fonts' is an outstanding feature of COM/FOX.

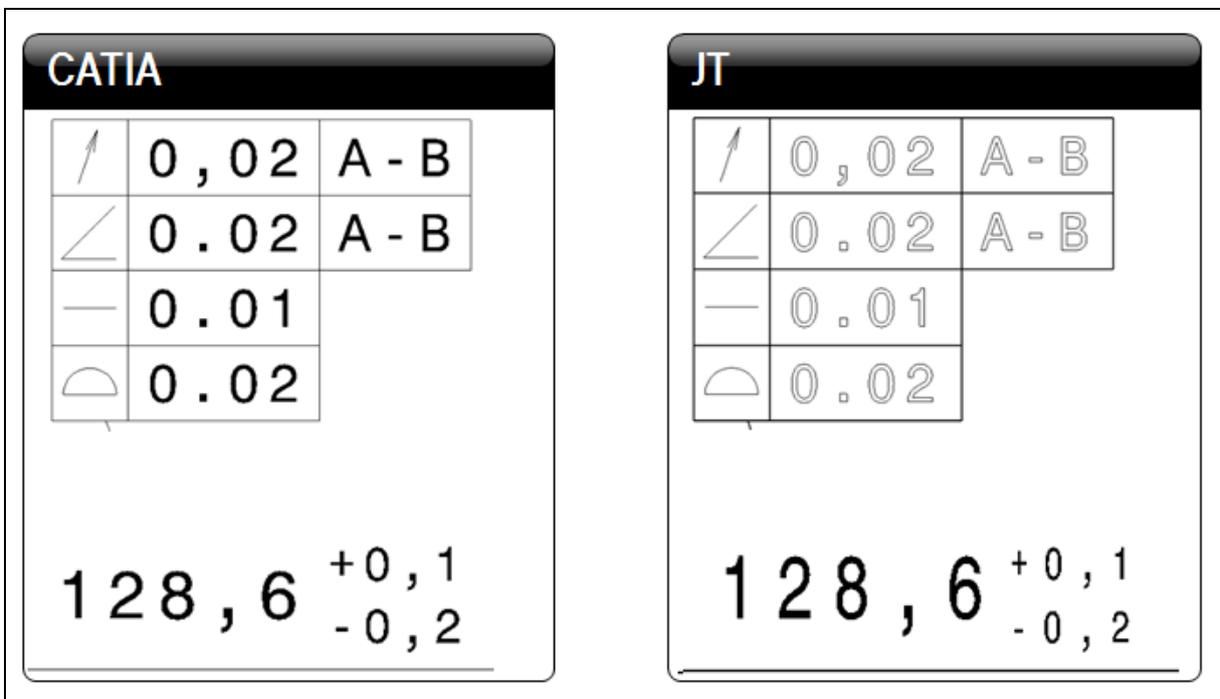


Fig 7: Exact mapping of PMI from CATIA to JT, including 'filled fonts'

## Bosch use case: Kinematics

For non CAD users at Bosch the possibility to replay CATIA V5 kinematics based on JT and PLMXML data is strong requirement.

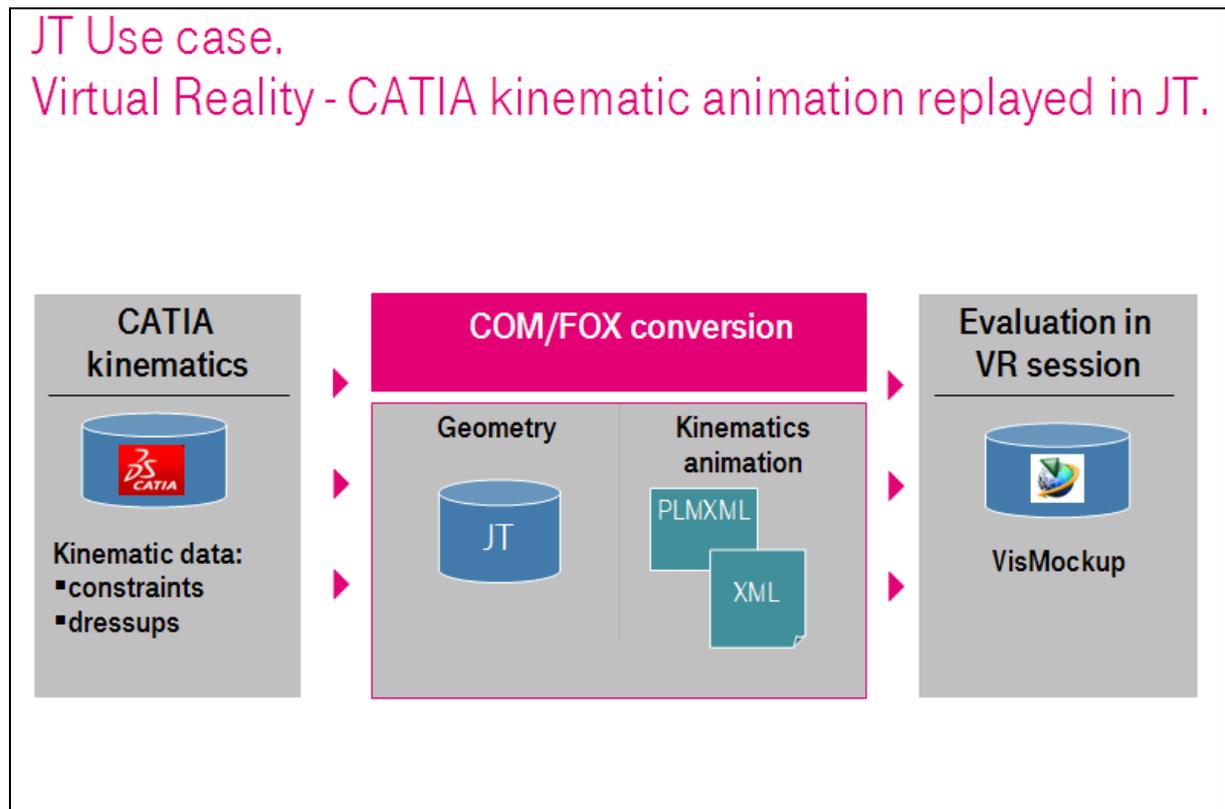


Fig 8: Mapping of CATIA kinematics to JT / PLMXML

COM/FOX comes up with a CATIA Reader module for V5 kinematics data and maps it to a PLMXML motion file. The geometry and the assembly structure is mapped to JT. This enables Bosch to replay the kinematics motion file with TcVis. For the example data of a Bosch windshield wiper we could illustrate the kinematics replay with JT.

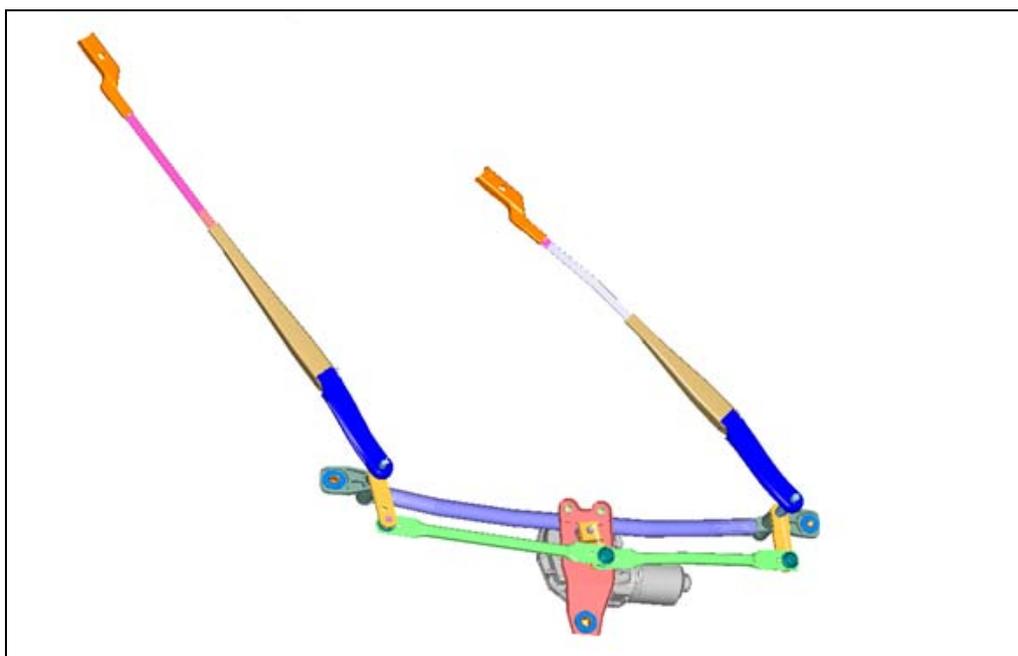


Fig 9: wiper kinematic

