

TechniaTranscat:

Share complete data  
throughout the extended  
3D Enterprise

GLOBAL PRODUCT DATA  
INTEROPERABILITY  
**S U M M I T**  
2016



ELYSIUM

Parker Aerospace

NORTHROP GRUMMAN

BOEING

ELYSIUM

Parker Aerospace

NORTHROP GRUMMAN

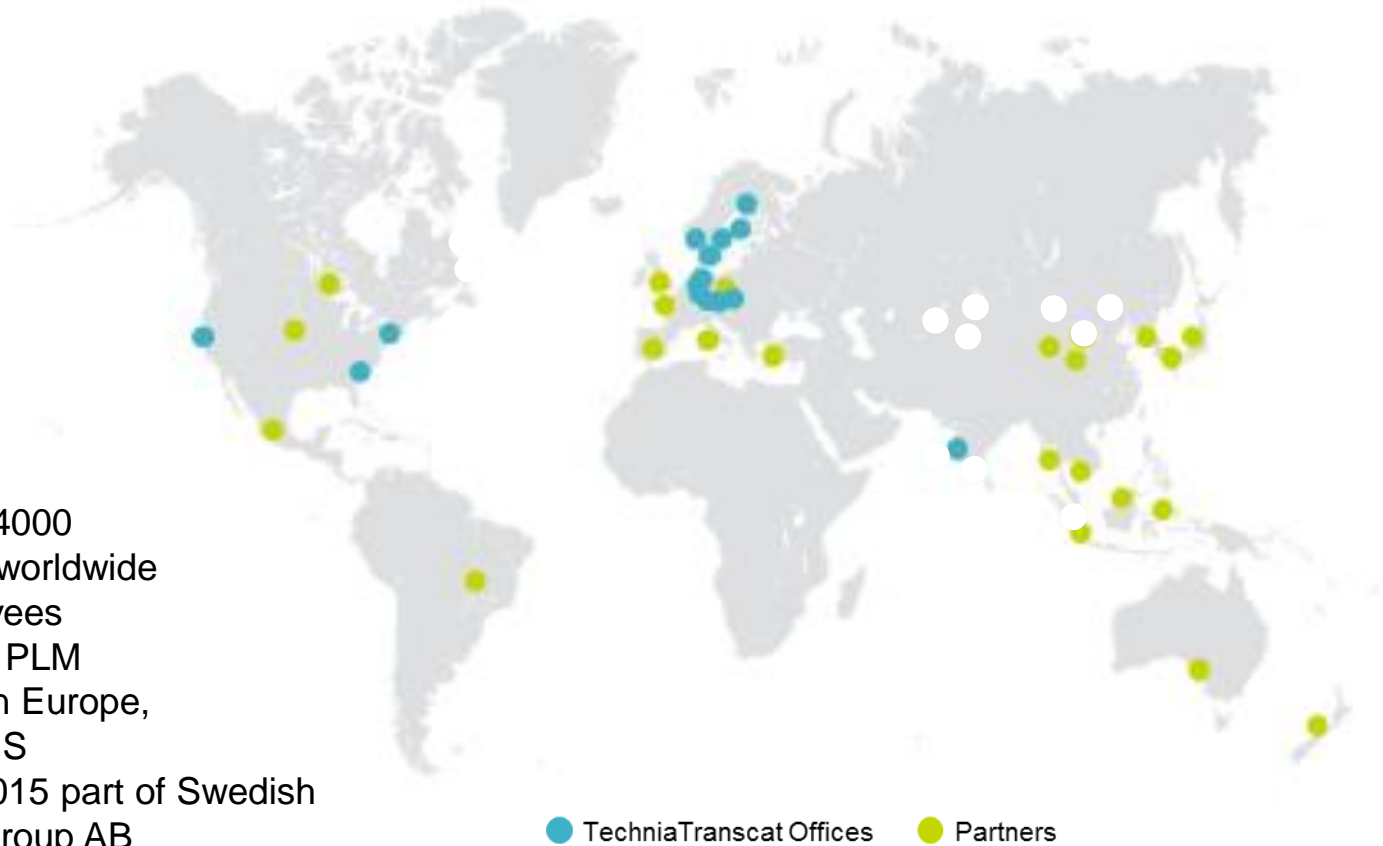
BOEING

## Global Product Data Interoperability Summit | 2016

- 
- The image displays a 3D model of a mechanical part, likely a bracket or arm, with various dimensions and a 2D drawing of the same part. The 2D drawing is labeled "2D Drawing" and shows the part from a top-down perspective. The 3D model is labeled "3D Model" and shows the part from a perspective view. The 3D model includes a large circular feature on one end and a smaller circular feature on the other. Dimensions are provided for both views, including overall length, width, and specific feature dimensions. The 3D model also includes a "3D PMI Data" label.

# 1. TechniaTranscat Company Profile

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- More than 4000 customers worldwide
- 400 employees
- 30 years in PLM
- 19 offices in Europe, India and US
- Since 07/2015 part of Swedish Addnode Group AB partnering with Technia

# TechniaTranscat Software Positioning

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## *More Time for Intelligent Engineering!*

- 3D data available for everyone!
- Improved data quality for all purposes!
- Data is up-to-date!
- See modifications to previous releases!
- Process assurance!
- Compliance!



TechniaTranscat Software

PLM Essentials for  
CATIA, ENOVIA & JT

# TechniaTranscat Software

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## PLM Essentials for CATIA, ENOVIA and JT

One portfolio - 6 Product Lines – 40 Products

- Standardized global workplaces
- Company and industry standards
- Enhanced user experience and upgradability
- Integrations to PLM and ERP
- 3D Digital Enterprise

TechniaTranscat Software  
**DATA QUALITY & VALIDATION**

High quality and validated engineering data support collaborative product creation process.

**Q-Checker, xCompare** and **CAVA** for CATIA allow establishing company standards / ensuring compliance to industry regulations / verifying the release process.

TechniaTranscat Software  
**3D ENTERPRISE**

Today innovation results from a virtual experience in a collaborative environment. The entire enterprise instantly participates and benefits.

With TechniaTranscat's **Lite3D** platform – based on JT – all users easily access complete 3D data.

TechniaTranscat Software  
**PLM WORKPLACE**

TechniaTranscat Software  
**VALUE COMPONENTS**

TechniaTranscat Software  
**TOOLS**

TechniaTranscat Software  
**INTEGRATIONS**



Standardized global workplaces provide a maximum of flexibility and control.

With **myPLM** administrators manage user groups, license rights and environments, engineers can work on any task right away – supported by a simple usable start tool.

Get more value out of your ENOVIA system by enhancing overall productivity, performance, upgradeability and end user adoption rates with the **Value Components**.

By providing pre-built enhancements to standard ENOVIA functionality, the Value Components can lead to faster and higher returns on PLM investments.

To operate an enterprise PLM solution, the right knowledge and tools are required. With more than 30 years of experience TechniaTranscat developed a portfolio of expert tools that enable its administrators to dramatically improve the service delivered to their end users.

**Integration Framework** will reduce the cost and complexity of your enterprise integrations to PLM systems, while bringing up the flexibility and speed of implementation.

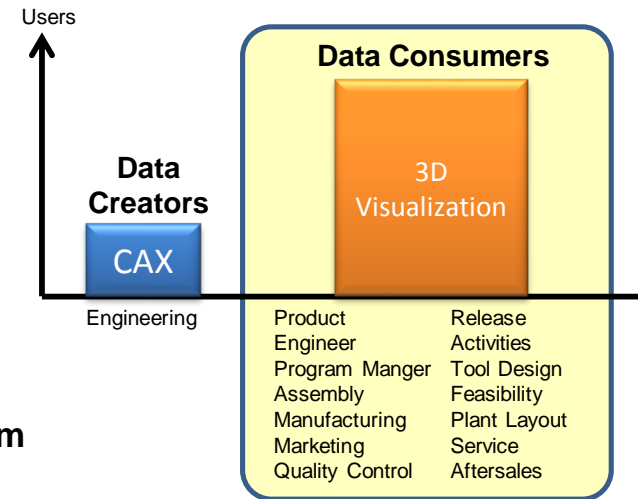
The Integration Framework connects ENOVIA and many enterprise software, enabling smooth integrations to other systems like ERP.

# 2. 3D Master

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## *Affects everybody*

- **Creators vs. Consumers**
  - User Ratio ~ 1:10
  - 90% of non-CAD users are using 2D
  - Experts vs. rare use
- **Benefits of neutral formats**
  - 3D for all processes up to long term archiving
  - Engineering design (CAD) separated from downstream
  - Multi-CAD in product development
  - Reduced license costs
- **Openness and Standards: Working groups and initiatives**
  - JT ISO → Standardized neutral format
  - LOTAR → Aerospace - Initiative for “Long Term Archiving”
  - SASIG / ProSTEP iViP → STEP AP 242 as common basis of Aerospace- and Automotive standards




Source: SASIG D21

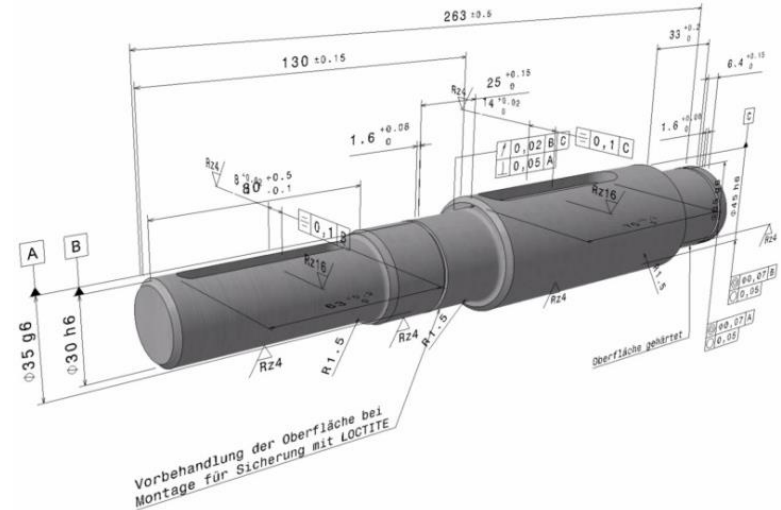


# 3D Master

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## *Influences model content*

- **3D Master models contain**
    - Geometry
    - Production related information
    - Change management
  - **Requires**
    - 3D modelling standard
    - Users that follow these rules
  - **Q-Checker and xCompare supports the verification regarding**
    - existence
    - correctness
    - consistence throughout model revisions
- 
- Technical drawing of a cylindrical part. Dimensions include diameters  $\varnothing 35$  g6 and  $\varnothing 30$  h6, and radii R2/6, R2/4, and R1.6. A note indicates 'Vorbereitung der Oberfläche Montage für Sicherung mit LOC'.



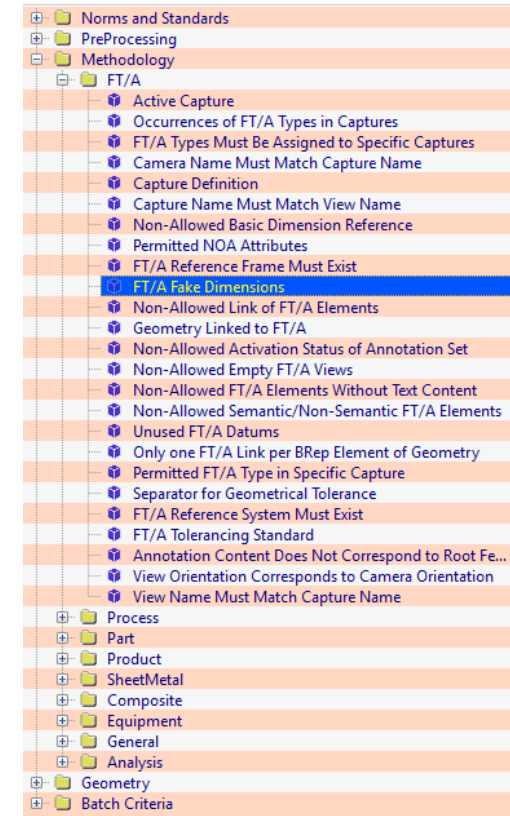
# 3. Q-Checker

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## Is everything there and correct?

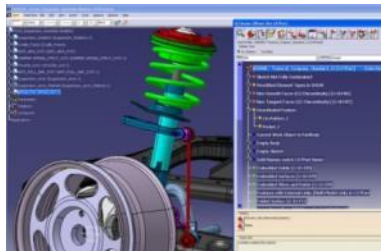
- **Examples:**
  - **Wrong start model used**
    - Features are not ordered correctly
    - Result: Downstream processes can't access required information
  - **Missing Meta Data**
    - supplier name, material, weight, surface treatment, legal notes, ...
    - Result: Parts cannot be released
  - **FT/A Fake dimension**
    - Result: Errors in subsequent processes and in manufacturing of parts
- **Q-Checker:**
  - World's leading system for quality assurance with more than 2000 customers
  - More than 400 highly customizable checks
  - "Users friend" due to extensive explanations
  - Many automatic healings



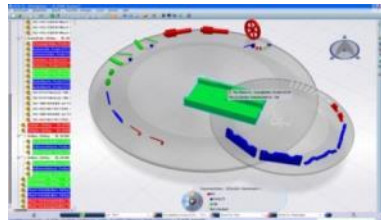


# The Q-Checker portfolio

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- Interactive and batch mode
- Check seal (internal/external)
- Many automatic healings



- Standard integration platform for any PDM
  - ENOVIA V6
  - ENOVIA V5
  - ENOVIA V4
  - Matrix One
  - SmarTeam



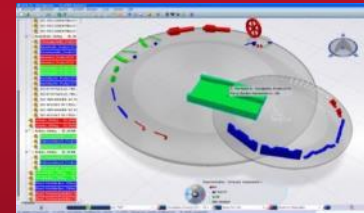
- Write Check results to a database
- Statistical evaluations

# Q-Checker for CATIA

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## Methodology definition and roll-out

- Define CAD standards and methodology right in CATIA
- Teach users company standards with Q-Checker
- Users save time by data re-use / in collaboration



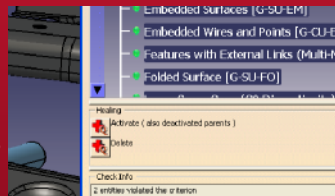
## PDM quality governance

- Make Data Quality visible in PDM
- Allow only appropriate data to be released
- High user acceptance

## Use Cases Q-Checker

## Enhance user productivity

- Support users and enhance skills
- Automated healings
- Targeted training



## Supplier monitoring

- Ensure incoming data is usable
- Monitor and evaluate suppliers
- Proof ROI and guarantee continuous improvement

# More than 100 OEMs using Q-Checker today

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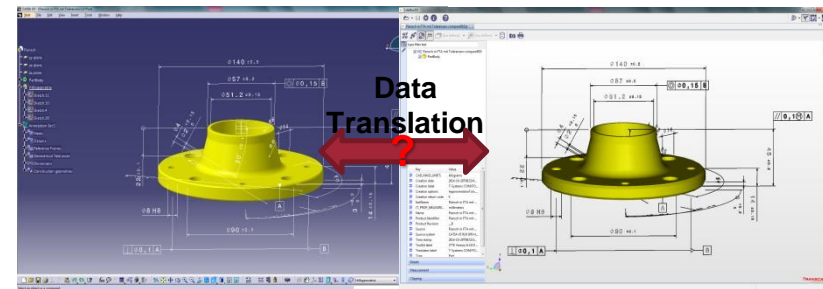
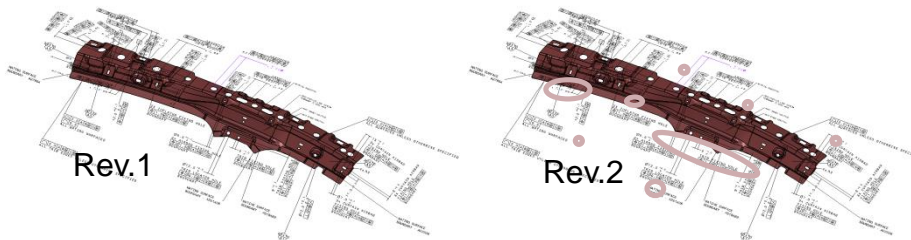


Dr. Ing. h. c. F. Porsche AG



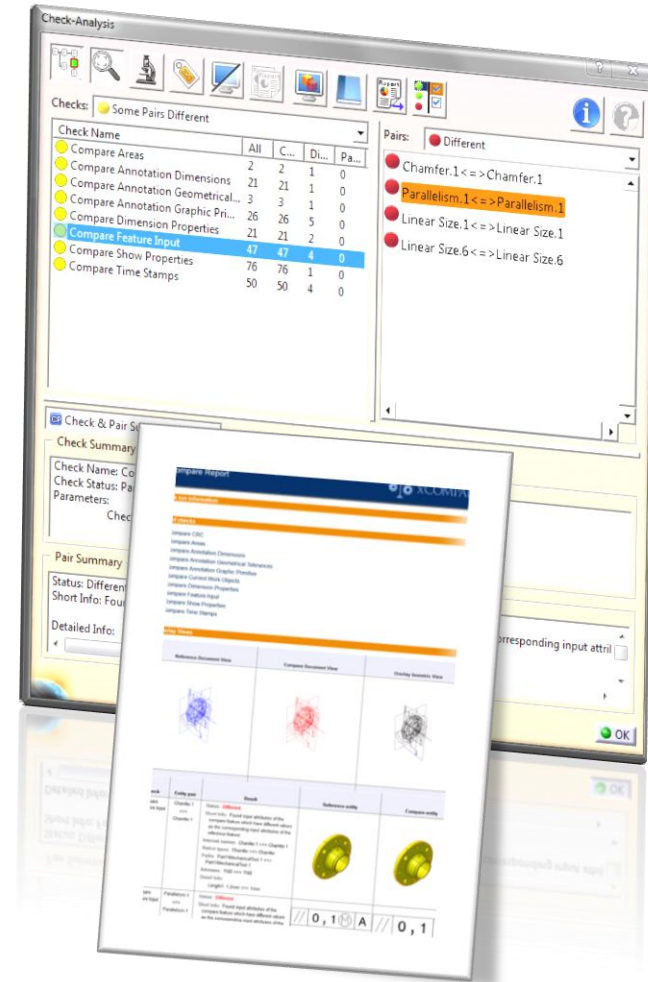
## Successful Change Management

- At model change is not only sufficient to know only about geometrical changes, but also changes in the additional information are important because they are essentially for the 3D Master process.
- xCompare identifies all differences in geometry and metadata (e.g. FT/A dimensions, annotations, tolerances, etc.) and presents the results right in CATIA.



## Handle Model Modifications

- **Track ALL design and engineering changes**
  - For V5 Parts, Products, Drawings, Cgrs, JT and SMG
  - Feature-based comparison detects ALL design changes, including geometric, topologic and annotation (FT&A)
- **Fully integrated with CATIA V5 or LiteBox3D**
- **Interactive and Batch Comparison**
  - Easy to integrate in DX and PDM workflows
- **Detailed and flexible reporting**
  - Detailed xml report of all modifications with screen captures
  - Highly customizable through style sheets





# xCompare for internal and supplier processes

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## Data Model Comparison (V5/V5, JT/JT)

- Support "3D Master" / "Model Based Definition" initiatives
- Compare FT&A, Tolerances
- Compare Parameter, Attributes



## Geometry and Drawing Comparison (V5/V5, JT/JT)

- See all geometry differences between two model revisions
- Find modifications in drawings
- Modifications in design effect manufacturing/tooling model



## Use Cases xCompare

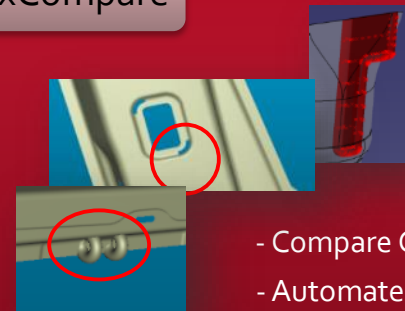
## Release Validation and Documentation (V5/V5, JT/JT)

- Highlight and document modifications between releases
- Automated integration to PDM and Data Exchange



## Conversion Validation (V5/JT, V5/SMG)

- Compare CATIA data to exported JT or SMG
- Automated validation in conversion process

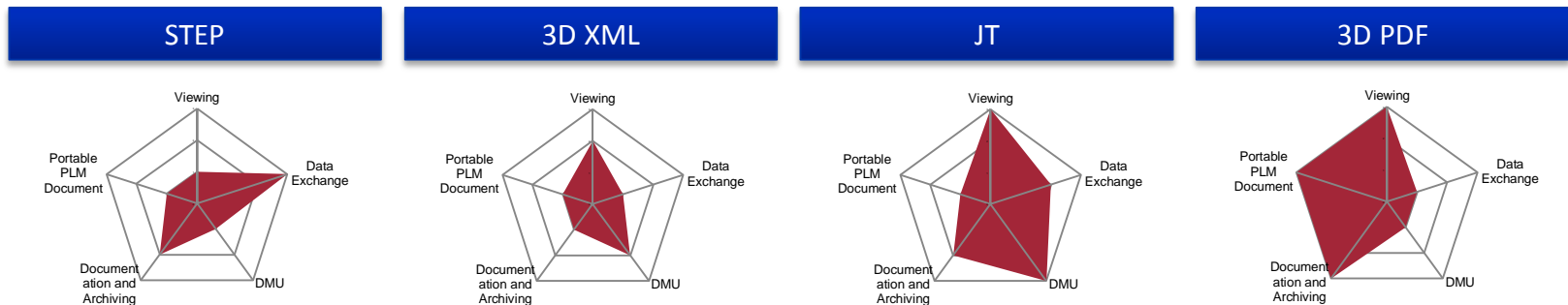




# 4. Overview of different neutral formats

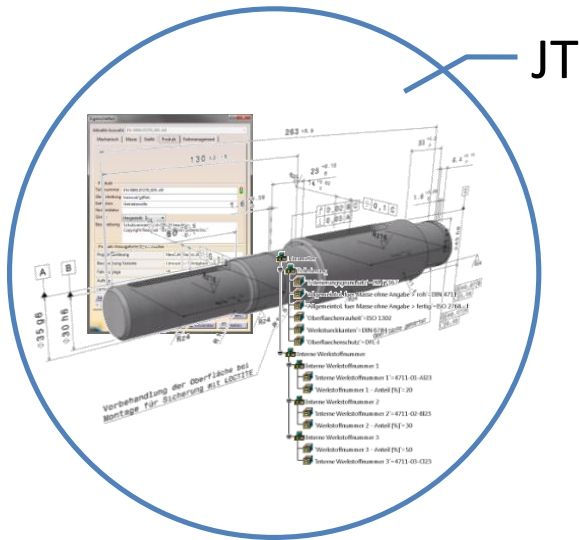
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- **Results of ProSTEP iViP Analysis „3D-Formate im Engineering-Umfeld - ein Vergleich“ (Edition 2, 2013)**
  - **Formats:** STEP / 3DXML / JT / 3D PDF
  - **Application areas:** Viewing / Data exchange / Digital Mock Up (Process chain) / Documentation and Archiving
  - **Criteria:** Free of charge Viewer / Converter and Software / Software Development Kits / Compression and Data size / Standardization

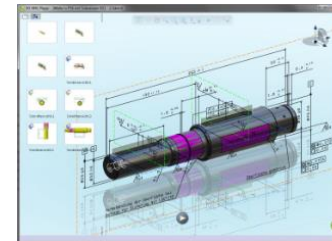
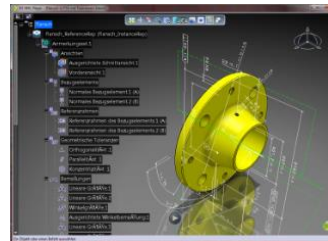
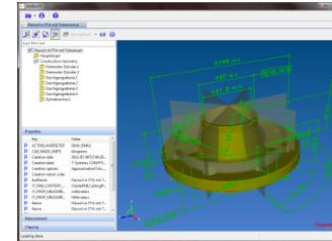
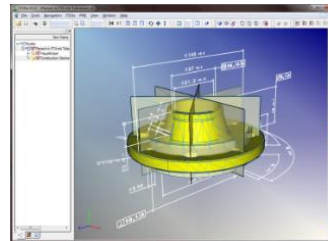


# JT = Process format

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JT



After Sales

PDM

ERP

Supplier

CAE

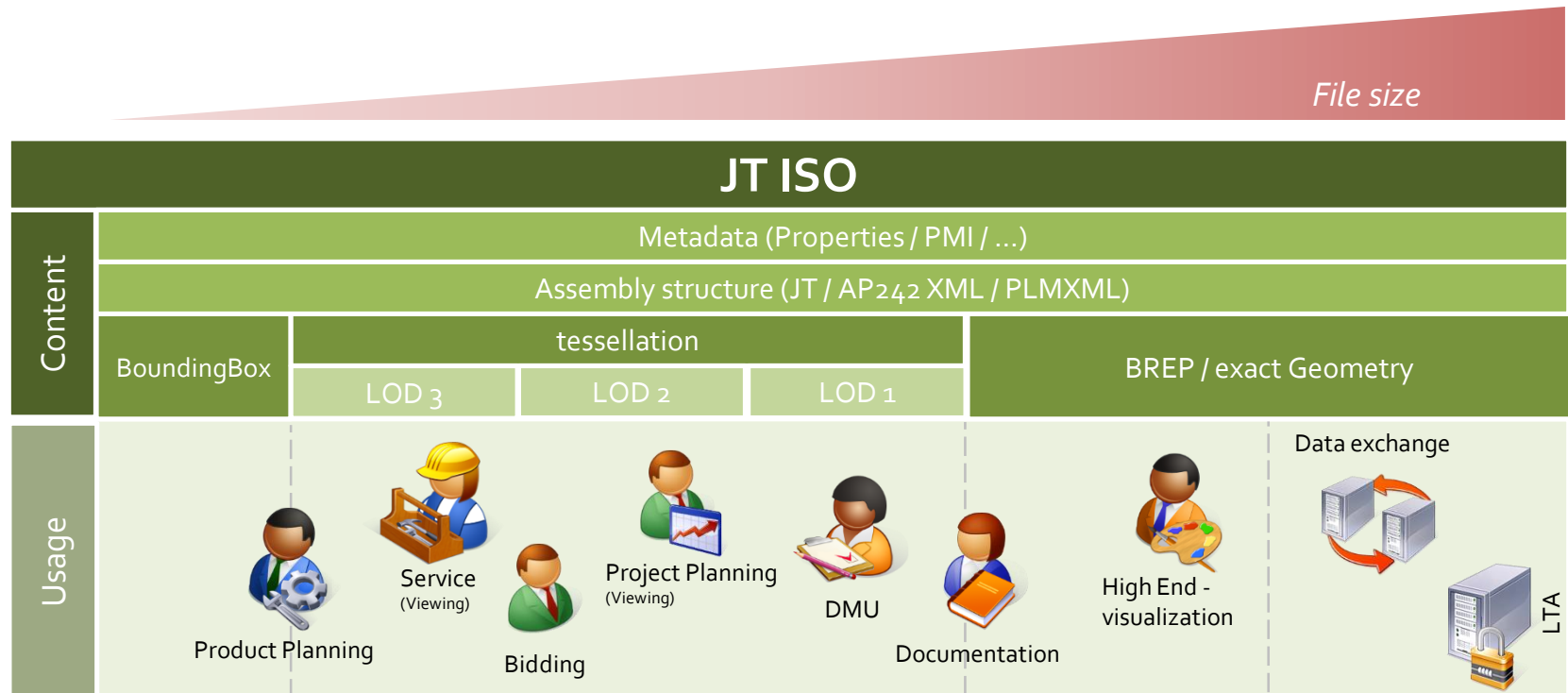
Service

NC/CNC

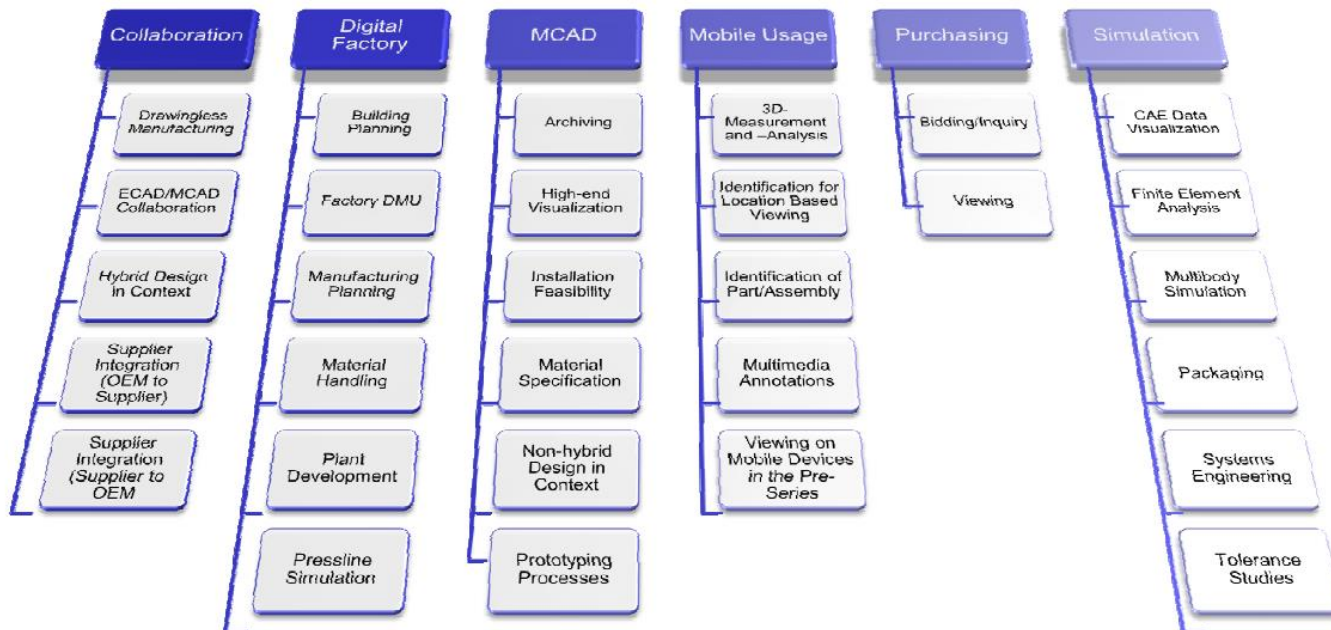
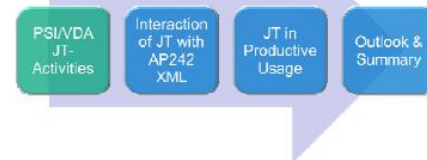
Bidding

# Content and Downstream Usage

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## JT Workflow Forum has elaborated 30 JT Use Cases so far










# JT in use at OEMs

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## JT meeting industry's need for 3D data

Boeing	Caterpillar	Daimler
Approximately 700,000 JT files in just one site's database	Creates over 250,000 JT files per month, over 10 million managed files	Daimler has over 9 million managed JT files
		
Ford	Siemens	Volkswagen / Audi
Approximately 4 million JT files per car program dating back to 1993	JT is the corporate-wide standard for Long Term Data Retention	Every released CAD dataset is automatically converted into JT
		 

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Siemens PLM Software

## • Additional Examples

- BMW
- ATK
- Airbus
- Suzuki
- Nissan
- Hyundai
- Proctor & Gamble
- Honda
- GM
- Volvo Cars
- ...

# Siemens LMV MS GIS Frankfurt

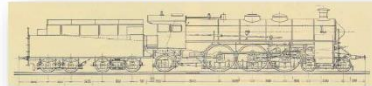
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## Siemens MS LMV paperless drawings with JT Design and Manufacture without drawings

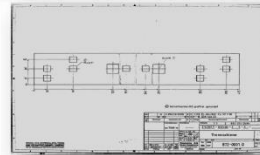
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### Why replace the technical drawing??

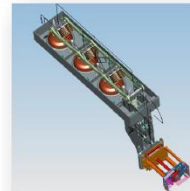
- Information loss in derivation of downstream objects (from 3D to 2D drawing)
- All subsequent processing (CAD-CAM linkage) on the 3D model
- Reduction of cycle time
- Innovation - create in 3D - ready on the basis of the 3D model



1908: Technical drawing of a locomotive



1986: Technical drawing



2013: 3D JT with PMI

Siemens PLM Software

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- **Product Development in house**
- **Manufacturing external**
- **Required:**
  - **Ease of use 3D format enabling the manufacturing suppliers to access required information → JT**
  - **Intuitive JT Viewer → LiteBox3D**

Source: Siemens /  
JT Open 2014



SIEMENS

## Data freedom with JT at ATK

Using JT with PMI to improve manufacturing processes

**MBE / PMI – Great Benefits**




This item with Notes and Export Control Statements is shown as an example only, and is NOT ATK released Engineering definition

**Contract Changes / New Programs  
allow PMI Delivery (and JT's)**







**Analyses Direct from  
Controlled Models**



**Manufacturing from  
Released PMI Model**



**JT Models & tablets  
on Factory Floor**

12

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Siemens PLM Software

Source: Siemens /  
JT Open 2014

# Caterpillar

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## PLM Vision

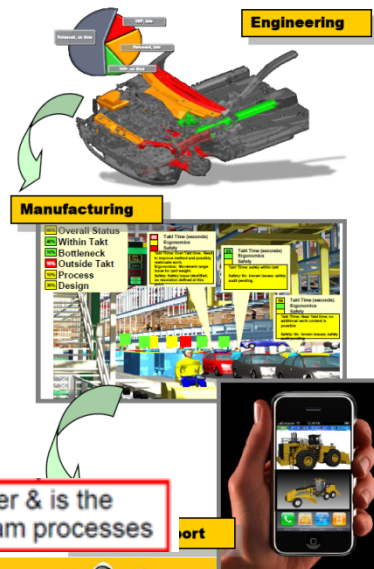
### "Make it Visual"

- BoM & design data are managed in **one integrated** solution
- Design artifacts are change controlled & integrated to the BoM, forming a **Bill of Information**
- Visual Reporting** facilitates improved decision making
- Collaboration** across extended enterprise is supported with appropriate information access
- Design **geometry** is **easily shared** across the extended enterprise (including suppliers)

### "Make Value Flow"

- Downstream flow of product & process data enables success of Manufacturing and Product Support
- Sales & Marketing strategy linked to product BoI

**JT represents the geometry master & is the common currency for downstream processes**



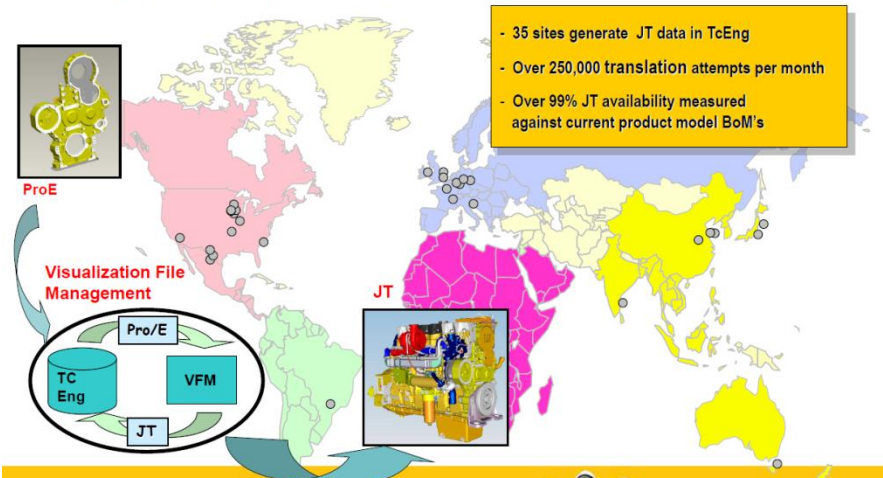
JT Open TRB – September 2012



**CATERPILLAR®**  
TODAY'S WORK. TOMORROW'S WORLD.™

## Current PLM Environment

"JT enables Visualization"

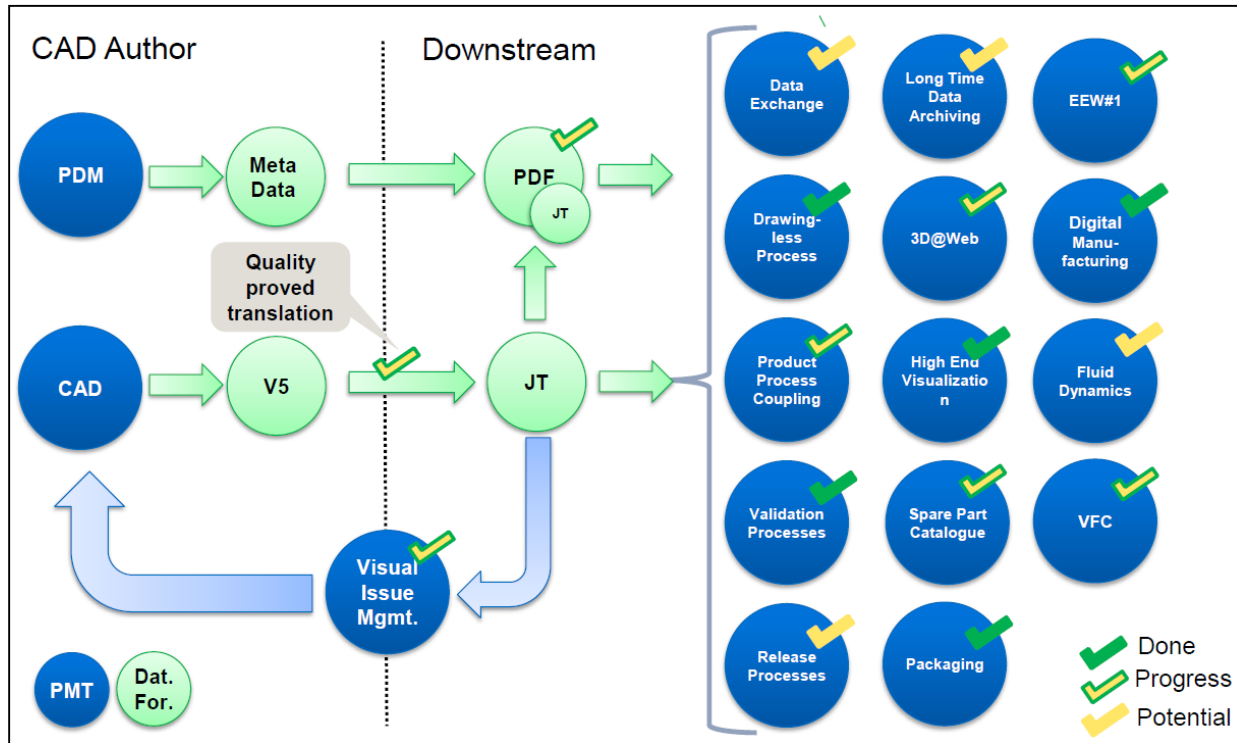


JT Open TRB – September 2012



**CATERPILLAR®**  
TODAY'S WORK. TOMORROW'S WORLD.™

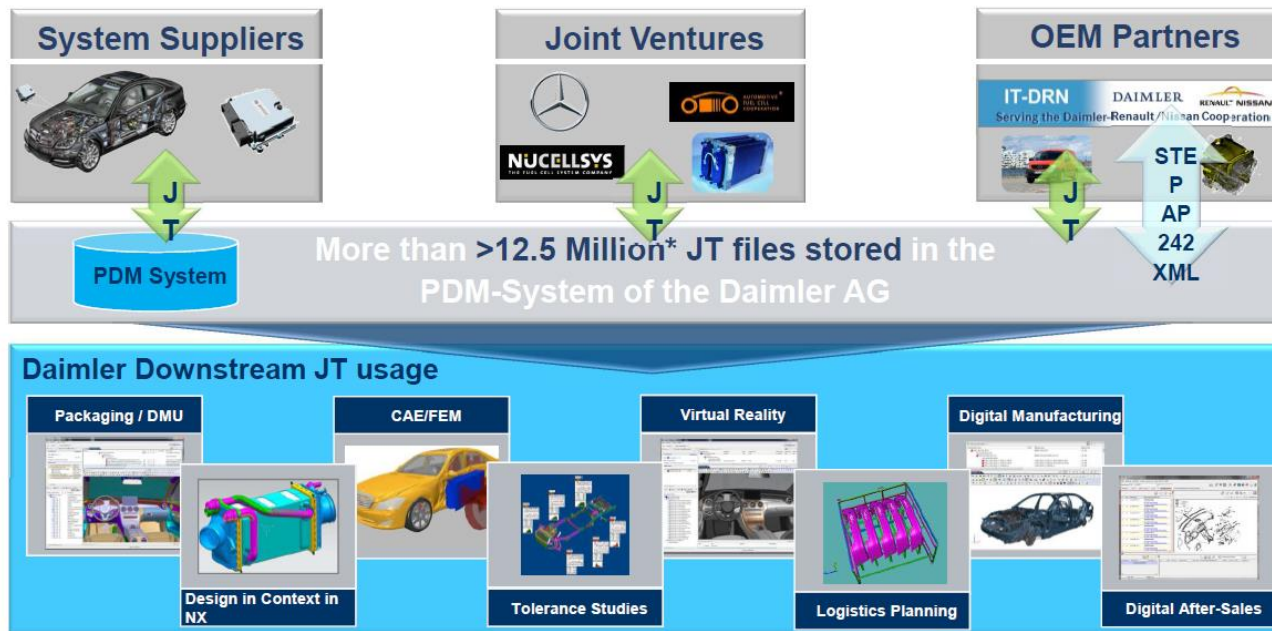
Source: Caterpillar/ JT Open 2012



Source: BMW AG / ProStep iViP 2015

- Translation validation between V5-JT with xCompare

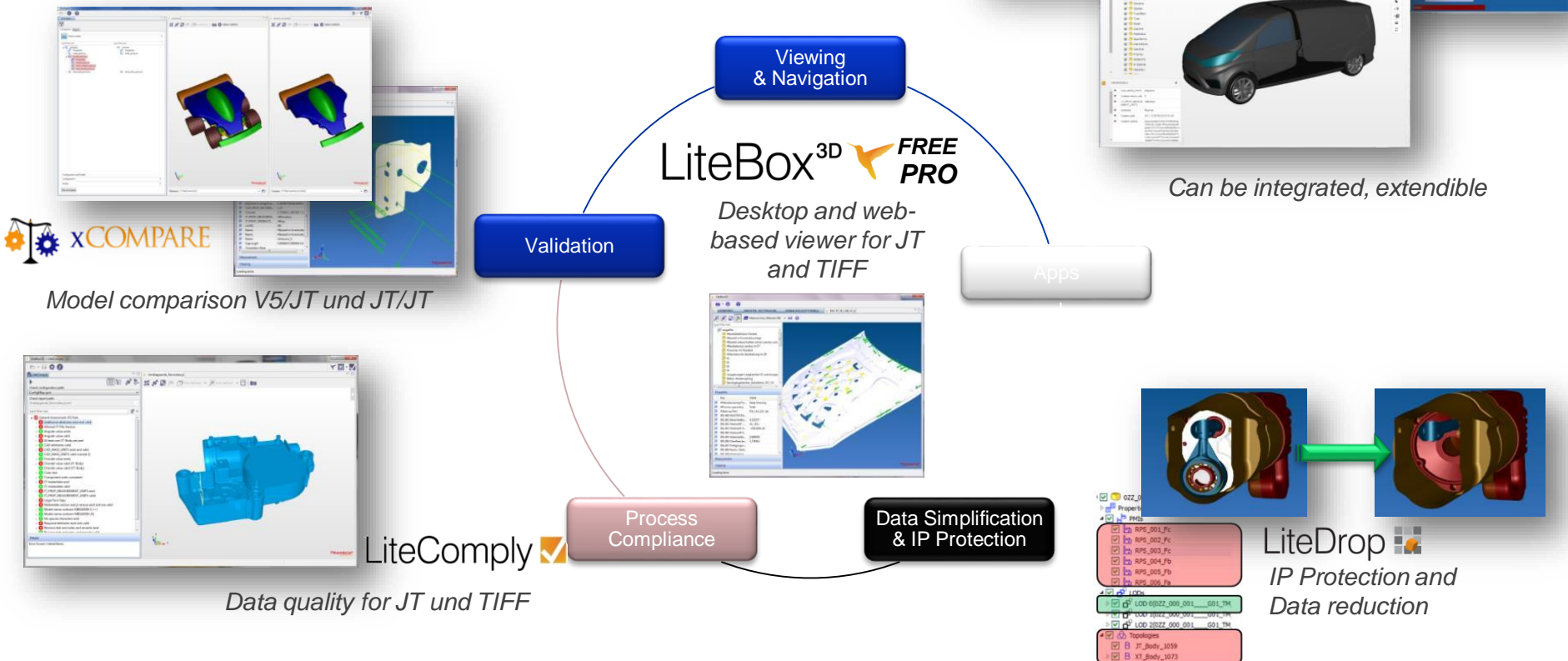
## Big Picture 2015: Global Cooperation Processes based on JT



- Translation validation between V5-JT with xCompare
- JT data quality proven with LiteComply / Q-Checker JT
- JTSP: Viewing components based on LiteBox3D
- Writing of JT properties

# 5. Lite3D Portfolio

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# LiteBox3D - Viewer for Desktop and Web-based

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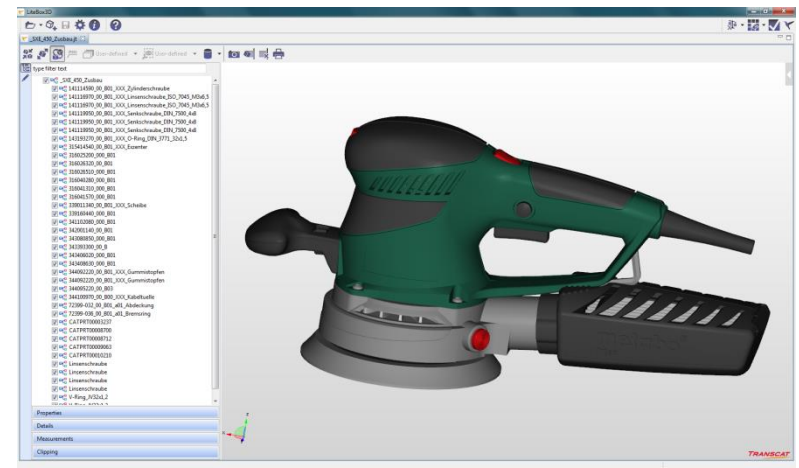
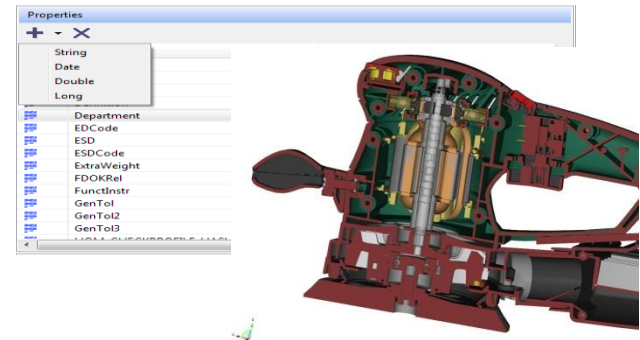
LiteBox<sup>3D</sup>

## Easy access to 3D Master data

- Desktop (Free and Pro Version)
  - Most User friendly JT viewer on the market
- Web-based
  - Based on WebGL and modern browsers
  - No Plugin required on client side
  - API to integrate the viewer and add ons into own web-based application

Free download at:

<https://www.transcat-plm.com/en/support/downloads/techniatranscat-software/tc-software/lite3d.html>





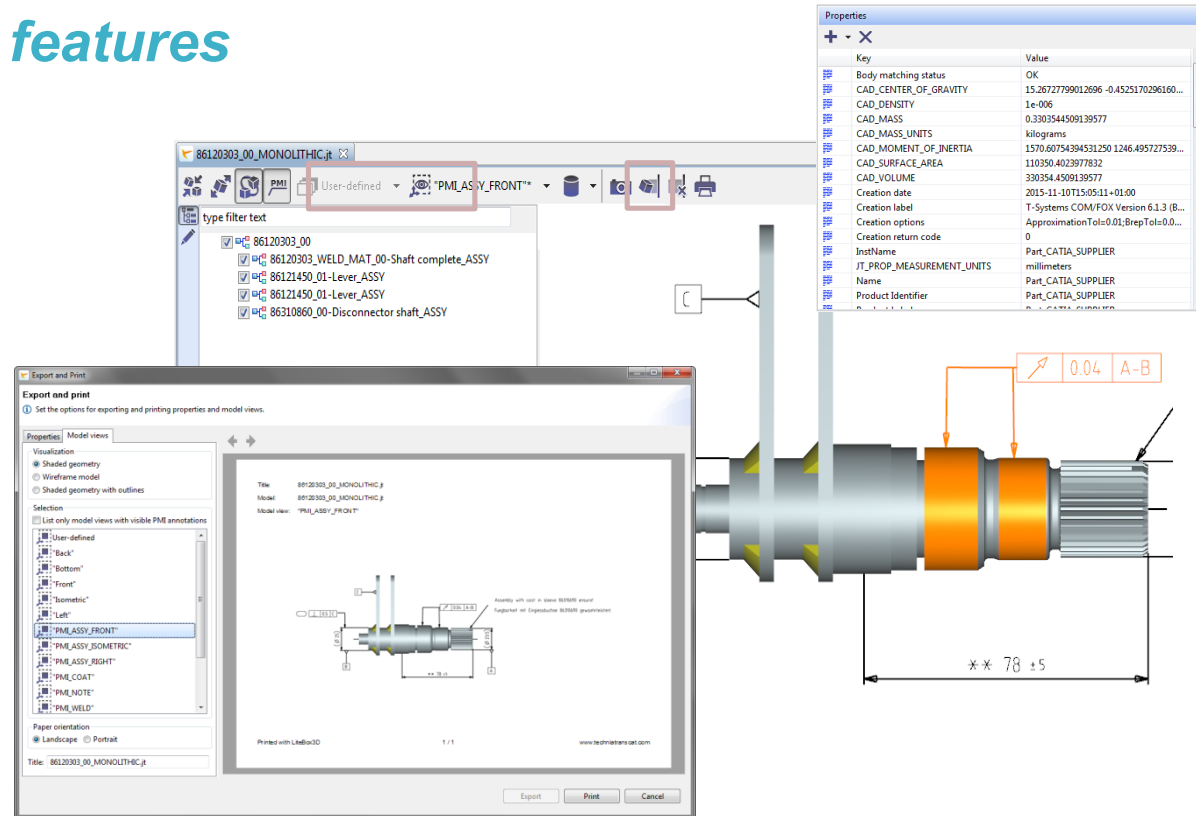
# LiteBox3D - Viewer for Desktop and Web-based

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LiteBox<sup>3D</sup>

## Some „3D Master“ features

- Display of properties
- Support of model views
- Highlighting of faces linked to PMIs
- Printing of Model views



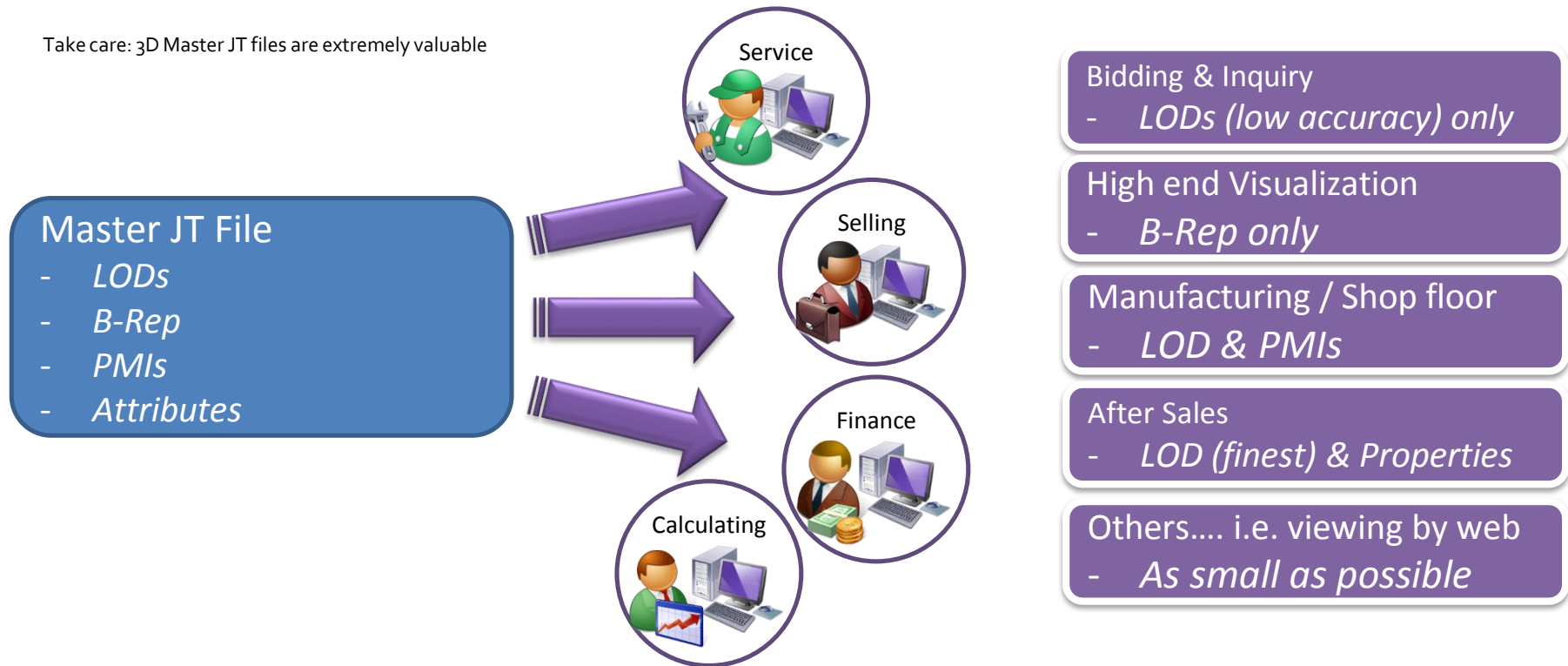
# LiteDrop - IP Protection and Simplification

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## Do you really want to provide everything to everybody?

Take care: 3D Master JT files are extremely valuable



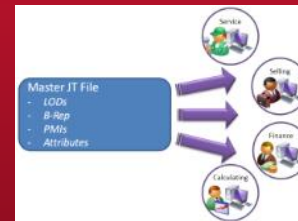
# Lite3D supports neutral formats

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Lite<sup>3D</sup>

## Viewing and more

- View JT, PLM XML, STEP AP242, Tiff
- Measure, red-line, ...
- Integration in any application (PDM, ERP, ...)
- Web ready



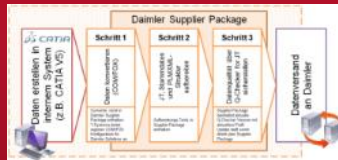
## IP Protection

- Reduce data on the fly
- Support of "Master JT file" concept

## Use Cases Lite3D

### Collaboration with JT

- Free viewer for supply chain (upgrade to pro version possible)
- Validation of incoming data
- Internally verify data conversion to JT with xCompare V5/JT




## Data Validation

- xCompare JT/JT
- xCompare V5/JT or V5/SMG
- LiteComply

Thank you!

Questions?

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[knut.stettmisch@techniatranscat.com](mailto:knut.stettmisch@techniatranscat.com)



#1 knowledge  
company in PLM

Transforming  
vision into value