CAD Data exchange Strategy paper with DAG

Klaus Priebe
Stockdorf, November 5th 2018
Agenda

1. Company presentation

2. Strategy for Data Exchange between Webasto and Daimler AG
A Strong Group –
Present and Successful Worldwide

1901 founded in Esslingen near Stuttgart

13,000 employees (2017)

Around 50 locations

More than 30 production sites

More than 3.5 billion EUR sales (2017)

Worldwide among the Top 100 Automotive suppliers

Since 1908 in Stockdorf close to Munich

47% Equity-to-assets ratio (2017)

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Technology Leader with a Tradition

Market leader in core business areas:
- Sunroofs and panorama roofs
- Convertible roofs
- Parking heaters and auxiliary heaters

Provider of products for electromobility:
- Heating systems
- Battery systems
- Charging solutions
Corporate Structure (with Product Groups)

Webasto Group

<table>
<thead>
<tr>
<th>Sunroofs &amp; Components</th>
<th>Convertibles</th>
<th>Thermo &amp; Comfort</th>
<th>E-Solutions &amp; Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panorama Roofs</td>
<td>Softtops</td>
<td>Heating Systems</td>
<td>Battery Systems</td>
</tr>
<tr>
<td>Sunroofs</td>
<td>Retractable Hardtops</td>
<td>Cooling Systems</td>
<td>Charging Solutions</td>
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<tr>
<td>Lightweight Roofs</td>
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<tr>
<td>Folding Roofs</td>
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<tr>
<td>Solar Roofs</td>
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Mechatronics Competence Center
Development and production of electronic components
Sunroofs & Components
More **Light** and **Air** in the Vehicle Interior

- **Sunroofs**
- **Panorama Roofs**
- **Folding Roofs**
- **Roof elements and panels made of polycarbonate**
Convertibles
### Brodest Product Portfolio

<table>
<thead>
<tr>
<th>Softtop</th>
<th>Foldingtop with removable side rails</th>
<th>Basicstop with canopy</th>
<th>Hybridstop with tonneau cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softtop with tension bow</td>
<td>Foldingtop with fixed side rails</td>
<td>Basicstop with panel</td>
<td>Hybridstop without tonneau cover</td>
</tr>
<tr>
<td>Softtop without tension bow</td>
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</tbody>
</table>

### Retractable Hardtop

<table>
<thead>
<tr>
<th>Retractable Hardtop</th>
<th>Retractable Hardtop with two panels</th>
<th>Retractable Hardtop with three or more panels</th>
<th>Retractable Hardtop with finn styling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retractable Hardtop with one panel</td>
<td></td>
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</tr>
</tbody>
</table>
Thermo & Comfort
Heating Systems for All Types of Drives

Electric High-Voltage Heater
Innovative technology for hybrid and electric vehicles
- Global OEM systems partner
- Technological advance due to high-performance heating layer technology
- Heating capacity: 5 to 10 kW

Fuel-operated parking heaters and auxiliary heaters
Market leading technologies for gasoline and diesel-powered vehicles
- For end customers and OEMs
- Comprehensive range of air and water heaters
- Heating capacity: 2 to 15 kW
E-Solutions & Services
Powerful Battery Systems for Electric Vehicles

- **Design-to-cost solutions:** Development according to individual requirements of vehicle manufacturers
- **Suitable for all cell formats:** cylindrical, pouch und prismatic
- System competence from thermo management provides high performance and long lifetime battery systems
- Development of standard battery system for commercial vehicles
Electrifying Charging Solutions

- Full service provider: Hardware, installation, connectivity and supplementary services from a single source
- For manufacturers and owners of company and privately used electric vehicles
- Conform to relevant norms and OEM standards and thus meet the highest quality and safety requirements
- Charging stations for every purpose:
  - **Webasto Pure**: Entry-level wallbox, charges using alternating current, (11 kW and 22 kW power)
  - **Webasto Next**: The intelligent charging station is network and SmartHome compatible, charges with alternating current (22 kW)
  - **Webasto Life**: Recommended for commercial use due to consistently high performance, charges with direct current (22 kW)
  - **Webasto Go**: Compact transportable charging solution for on-the-go (11 kW)
Strategy for Data Exchange between Webasto and Daimler AG
Current situation: CAD data exchange between Webasto and DAG

Status:
- Since 2 ½ years Webasto work with EM:AG at a specified solution to convert Catia V5 Data to JT with Daimler specific requirements to reach smooth data exchange with minimized exchange effort at both side.

- Close teamwork with DAG was started to solve remaining open issues/week points
Thank you for your attention!
3D-Master with JT

Data exchange of joining elements between Webasto & Daimler
3D-Master with JT

Agenda

- Initial situation
  - 3Dmaster@Daimler
  - data exchange with supplier

- Challenge and approach:
  - Use case “JT primary – preparation for data exchange“
  - Use case “Joining elements“
  - Use case „Kinematics“

- Conclusion
3D-Master with JT

Initial Situation – 3D-Master@DAIMLER

- 3D master definition

“All process-relevant information and details are described and documented exclusively via 3D CAD data and by means of master and technology data in SMARAGD.” from Daimler CAD handbook, CS097

- 3D master information

3D (Master) Model
+ PMI
+ Master data
+ Material
  (+ DS/DZ feature)
  (+ Table data)
  (+ Drawing content)
  (+ Simulation data)

Graphic: Daimler 3DM handbook BEMI plant 10

Check in

Graphic: Pixabay

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Use case “JT primary – preparation for data exchange“

- NX native → NX Supplier Package
  - Save
  - Deliver
  - NX native
  - JT
  - NX Supplier Package

- Other CAD systems → JT primary → JT Supplier Package
  - Translate
  - Load
  - Export
  - Other CAD systems
  - JT
  - JT Supplier Package
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Challenge and solution approach

- Frontloading in source system with CAD-Addon „Supplier Attribute Assistant“ (SAA)
- Reuse and synchronize master data
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Solution „Supplier Attribute Assistant for CATIA V5“

- Master data
- Material
- DS/DZ
- Table data
- Drawing data

Synchronize

- Independant of CATIA Release
- Recovery of obsolete V5 SP data

Synchronize

- Quality check and
- Additional master data

Daimler JT Supplier Package
3D-Master with JT

Use case „Joining elements“ (current JT exception)

- Welding functionality currently only available in NX

- Solution approach: Frontloading in source system with CAD-Addon „Welding Tool for CATIA V5“ (WetCAT)
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Solution „Welding Tool for CATIA V5“ – current process

- Frontloading in source system
- Welding geometry
- Welding feature information
- Joining partner (parts)
- Welding check currently to be done in NX
- Technology XML to be created in SMARAGD

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Solution „Welding Tool for CATIA V5“ – user interface

- Export from source ...

... into target system + welding check
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Solution „Welding Tool for CATIA V5“ – outlook

- Welding check and welding preparation could be implemented within JT Supplier Package

- Deliver technology information as required in downstream processes (e.g. XML)

- Discussion: integration of technology information into JT or plmxml files („thick or thin JT?“)

- Discussion: STEP AP242 instead of plmxml
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Use case „Kinematics“ (current JT exception)

- Kinematics functionality currently only available in NX

- Solution approach: Translate kinematics information into STEP AP 242 BOM
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Solution „JT translator COM/FOX“ and „KinEx“
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Conclusion and outlook

- More and more JT use cases proven in test environments and actual applications
- JT as carrier for geometry and foundation for 3D master established
- Vendors to accelerate implementation of new use cases (e.g. kinematics)
- Harmonization of additional process information required for standardized processes and tools
Wir liefern die digitale Zukunft für das Engineering

Vielen Dank für Ihr Interesse!

Bei Fragen sprechen Sie mich gerne an:

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