MOVING MBD FROM OEM TO SUPPLIER:
IS THERE A RINGMASTER SOMEWHERE IN THIS CIRCUS?

Ryan Gelotte and Jennifer Herron, Action Engineering
The Supply Chain Handoff is Chaotic
Manual Supply Chain Handoff

- Drawings, Models, Process Requirements Specifications, RFQ
- Quote, Clarification Requests, FAI, End item, Process Verification

- 6-20 data exchange handoffs
- Most rely on human reading and re-entry.
- Suppliers should not re-create drawings or models.
Manual Supply Chain Handoff

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OEM

Supplier

Drawings, Models, Process Requirements Specifications, RFQ

Quote, Clarification Requests, FAI, End item, Process Verification
Supply Chain Handoff Needs:

1. Model-Based Definition (MBD)
2. Traceability
Avoid the Status Quo
MBD is the Cornerstone of a Model-Based Enterprise
Four Parts of MBD

1. Geometry
2. Annotations (3D Digitally Associated)
3. Attributes (Metadata)
4. Presentation States (Views)

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<tr>
<th>PART NUMBER</th>
<th>8742859</th>
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</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>CPU MOUNT SLICE</td>
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<tr>
<td>MATERIAL</td>
<td>AL 6061-T651</td>
</tr>
<tr>
<td>COMPANY</td>
<td>Action Engineering</td>
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<tr>
<td>DATA RIGHTS</td>
<td>PROPRIETARY &amp; CONFIDENTIAL</td>
</tr>
<tr>
<td>SUPPLIER</td>
<td>ACME MACHINING</td>
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Why MBE is Needed

SINGLE SOURCE OF TRUTH

SYSTEMS
MANUFACTURING
QUALITY
DESIGN
ANALYSIS
PROCUREMENT
SUPPLIER PORTAL

EXTERNAL SUPPLIERS
INTERNAL SUPPLIERS
Information Flows Throughout the Lifecycle

**DESIGN**
- Shape
- Dimensions
- Tolerances
- Views
- Assembly Relationships
- Specifications

**MANUFACTURING**
- Shape
- Dimensions
- Tolerances
- Views
- Mfg Process Models
- Assembly Relationships
- Specifications
- mBOM
- Work Instructions

**QUALITY**
- Shape
- Dimensions
- Tolerances
- Key Characteristics
- Measurement Plans
- CMM Programs
- Measurement Results
- Dimensions for Humans

Native Model → Mfg Model → Quality Model

Manual Entry Linked
Transition from Reduced Content Drawing to Model-Based

**MODEL + DRAWING**

- Authority for 3D Shape
- Authority for Notes, Tolerances, Material, etc.

**MODEL ONLY**

- Authority for 3D Shape, Notes, Tolerances, Material, etc.
MDM Maximizes Data Traceability

Trusted Models are Authenticated, Authorized, and Traceable
Author Trusted Data

Data Definition

- CAD
  - Geometry (Model)
  - Tolerance (Annotate)
  - Present (Views)
  - Attributes (Metadata)
  - Characteristics (Metadata)
- PLM
- CAD
- PLM
- CAD

Release

- INTEROP
- Viewer
- Publish
- Translate

Check

- Geometry
- Tolerances, Annotations, Attributions, Presentation
- Derivatives, Published Data

Data Checking (Data Traceability over the Lifecycle)

Data Package

- NATIVE MODEL
- DERIVATIVE MODELS
- SOURCE
- DERIVATIVE

Manufacturing

- ITEM
- ASSEMBLED ITEM

Inspection

- Inspection Reports
MBD Stays Connected

1. Geometry

2. Annotations (3D Digitally Associated)

3. Attributes (Metadata)

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Machine Readable Data Moves
MBD Tames the Supply Chain Handoff Circus
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Re-Use Your CAD University

https://www.action-engineering.com/courses

Questions