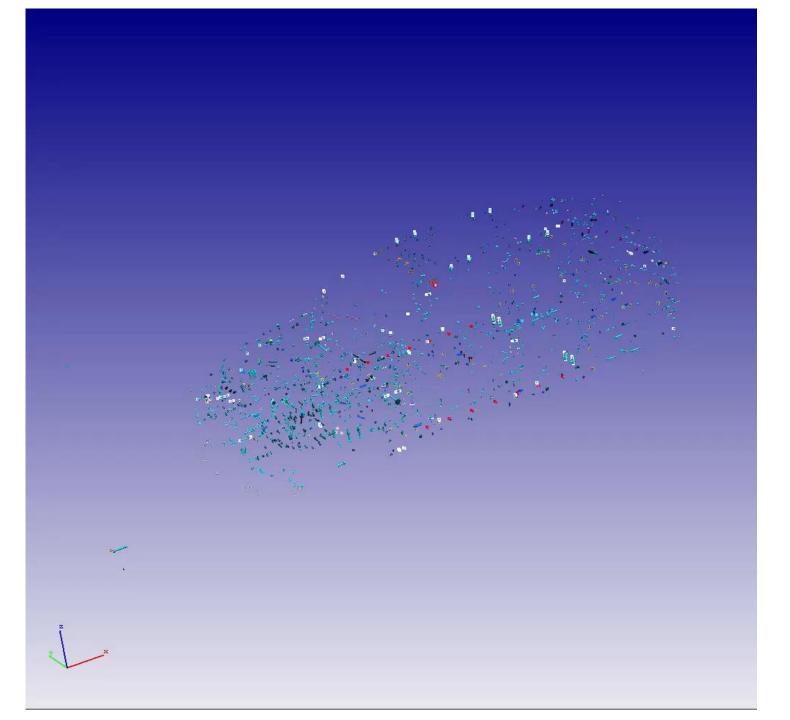


Use Cases for xMCF, Deployment Status & Challenges

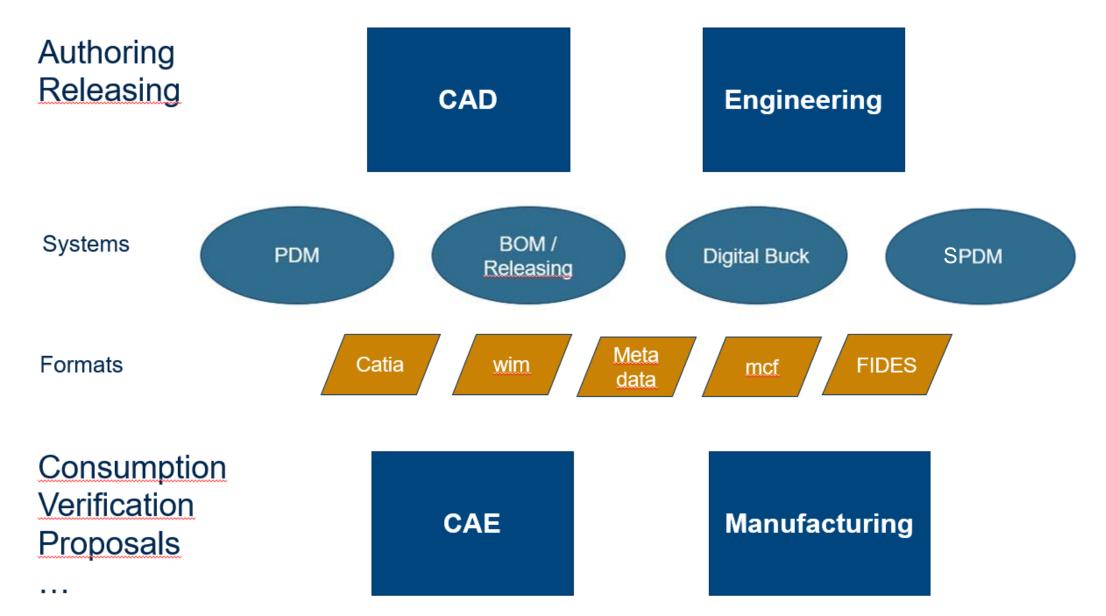
FAT xMCF Workshop, Köln, 11 December 2019

U. Fox, Ford Motor Company

Typical Scene of Vehicle Fasteners



Connection Authoring & Consumption Environment



					9		
	CAD2PDM	CAD2BOM	PDM2BOM	BOM2PDM	PDM2CAE	CAE2CAE	
Adhesive	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model	
Bolted	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model	
FDS	Custom, 80%	Manual	N/A	Custom, 20%	txt report	Model	
MIG	Custom, 30%	Manual	N/A	Custom, 20%	mcf, CAD, manual	Model, mcf	
Rivet	Custom, 100%	Manual	N/A	Custom, 20%	txt report	Model	FDS example
Spotweld	Custom, 100%	Manual	N/A	Custom, 20%	mcf	Model, mcf	
Clipped	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model	
	OOTB=TCIC			Custom=CMT			y Edent
	Custom=plmxml app						Value ^
		<u></u>	₩		Jule Underbody Marri July US54 LWB Underbody WIM (UNDERSTRUCTURE WELDS (View)	PLM_ABSPLM_ITENPLM_ITEN ACTIVELAYS CAD Source: Connected P	M_ID: WPWDJL1B8J705-03-R-00 MREV_UID: SqfZgqRCBhGXHA ERFILTER: Visualization : Part-1; 22

PH רבכע (-Engine System (View)

PH-U55X-11/ 000/1-Fuel System (View)

00/1-Driveline System (View)

00/2-Brake System (View)

00/1-Exhaust System (View)

00/1-Transmission System (View)



Connected Part-3:

ISO Process Type:

Item_Rev_Status:

Last_Modified_Date:

LAYERFILTER007:

LAYERFILTER008:

Flow Drill Screw

Frozen, Published

29-Sep-2015 15:35

PnC-Visualization=7

PnC-Geometry=8

	CAD2PDM	CAD2BOM	PDM2BOM	BOM2PDM	PDM2CAE	CAE2CAE
Adhesive	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model
Bolted	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model
FDS	Custom, 80%	Manual	N/A	Custom, 20%	txt report	Model
MIG	Custom, 30%	Manual	N/A	Custom, 20%	mcf, CAD, manual	Model, mcf
Rivet	Custom, 100%	Manual	N/A	Custom, 20%	txt report	Model
Spotweld	Custom, 100%	Manual	N/A	Custom, 20%	mcf	Model, mcf
	OOTB=TCIC			Custom=CMT		
	Custom=plmxml	арр				

Significant Waste (Loss of Previous Information)



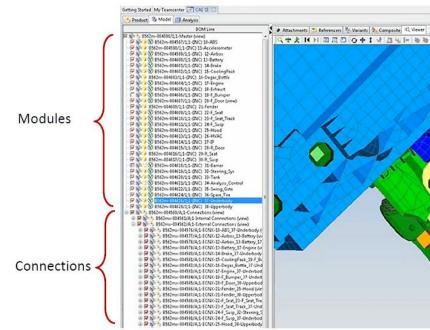
	CAD2PDM	CAD2BOM	PDM2BOM	BOM2PDM	PDM2CAE	CAE2CAE
Adhesive	OOTB, 30%	<mark>Manual</mark>	N/A	Custom, 20%	CAD, Manual	Model
Bolted	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model
FDS	Custom, 80%	Manual	N/A	Custom, 20%	txt report	Model
MIG	Custom, 30%	Manual	N/A	Custom, 20%	mcf, CAD, manual	Model, mcf
Rivet	Custom, 100%	Manual	N/A	Custom, 20%	txt report	Model
Spotweld	Custom, 100%	Manual	N/A	Custom, 20%	mcf	Model, mcf
Clipped	OOTB, 30%	Manual	N/A	Custom, 20%	CAD, Manual	Model
	OOTB=TCIC			Custom=CMT		
	Custom=plmxml	арр				

Significant Waste (Loss of Previous Information)

Medium Waste (Loss of Previous Information)

	CAD2PDM	CAD2BOM	PDM2BOM	BOM2PDM	PDM2CAE	CAE2CAE
Adhesive	OOTB, 30%	<mark>Manual</mark>	N/A	Custom, 20%	CAD, Manual	Model
Bolted	OOTB, 30%	<mark>Manual</mark>	N/A	Custom, 20%	CAD, Manual	Model
FDS	Custom, 80%	<mark>Manual</mark>	N/A	Custom, 20%	txt report	Model
MIG	Custom, 30%	<mark>Manual</mark>	N/A	Custom, 20%	mcf, CAD, manual	Model, mcf
Rivet	Custom, 100%	<mark>Manual</mark>	N/A	Custom, 20%	txt report	Model
Spotweld	Custom, 100%	<mark>Manual</mark>	N/A	Custom, 20%	mcf	Model, mcf
Clipped	OOTB, 30%	Manual Manual	N/A	Custom, 20%	CAD, Manual	Model
	OOTB=TCIC			Custom=CMT		Getting Stanted My Teamcenter (2) CAESE (1) Product St Model (1) Analysis BOM Line 10 10 10 10 5552m-164594/12-Master (new)
	Custom=plmxml	app				\$\text{\$\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\text{\$\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\tilde{\text{\$\tilde{\tilde{\tilde{\text{\$\tilde{\tilde{\tilde{\text{\$\tilde{\tile

- Significant Waste (Loss of Previous Information)
- Medium Waste (Loss of Previous Information)
- Options to Deploy xMCF Now



Key Connection Authoring Tool Challenges

- Authoring Tool (Does Not Author All Informations)
- Manage Relations to CAD Data
- PDM Storage (Data Model and Interfaces)
- Connection Variant Coding (vs. Variant Coding of CAD Data)
- BOM Alignment
- Utilize/Manage X Variant Commonality
- Validation of Connection Data



Key Opportunities

- Documentation of Verification Results
- Model Build Automation
- Reuse Of Previous, Reliable Model Information
- Fast Access to Latest Data
- Automation During Connection Authoring
- Avoid Waste (Reproduced Information)
- Facilitate VW/Ford Collaboration
- Facilitate Targeted Connection CAE Realization Methods
- Efficiency to Adopt CAE Proposals

• ...

What Would Best Accelerate Propagation of xMCF?



- OOTB Connection Authoring Solutions?
 - Only if They Work in The Customers' Existing Environments
- Standardization of Connection Exchange?
 - Authoring Tools Need to Support All Use Cases for All Customers (I.E. Different Systems) Based on the Standards
- Deployment on the Consumption Side ?
 - Not Sufficient (to Drive Changes On The Authoring Side)

Next FMC Steps

- Utilize DET Departments Energy Room to Adress Current Waste (1Q2020)
- AS-IS Analysis for Current Connection Data Sources
- Detail Out Connection Authoring, Consumption and Verification Use Cases
- Identify Opportunities for CAE X-Departmental Use of xMCF