



Real-World MBD Use Cases with ISO QIF

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Capvidia Customers



GE APPLIANCES

Medtronic



stryker



THALES

GENERAL DYNAMICS
Ordnance and Tactical Systems



Capvidia Products for MBD



MBDVidia

MBD Workflow Software

1. Import / Export MBD
2. MBD Ready Check for CMM & Scanning Workflows
3. Automated FAI, PPAP and other reports



CompareVidia

Comparative Validation Software

1. Validate CAD Translations
2. Semantic PMI Comparison
3. Revision Comparison

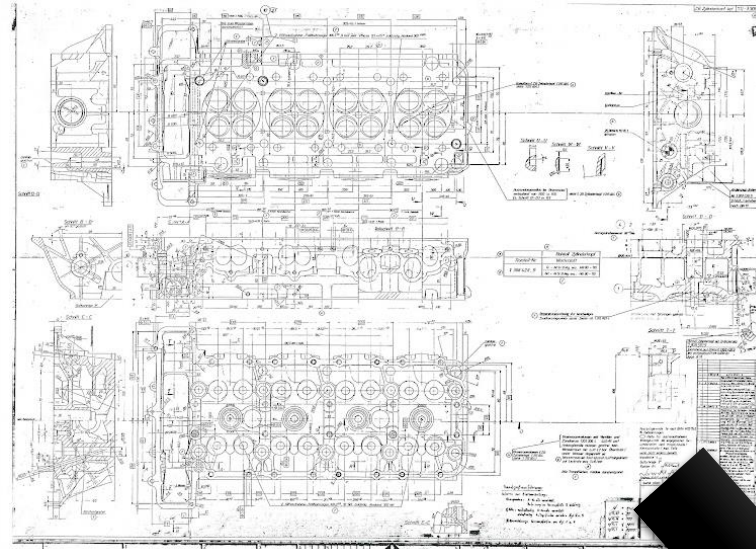
QIF: What is it?

- [ISO 23952:2020](#)
- Data format for manufacturing quality information
- Contains semantic data model for machine-to-machine communication



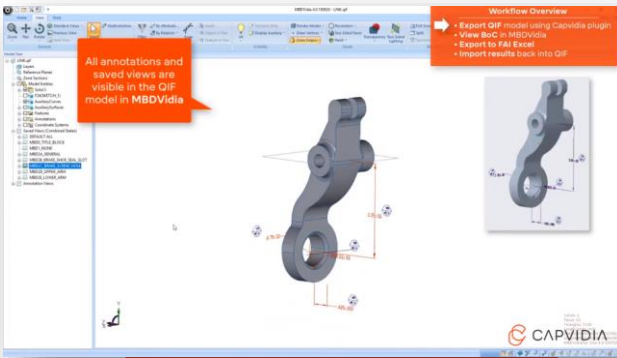
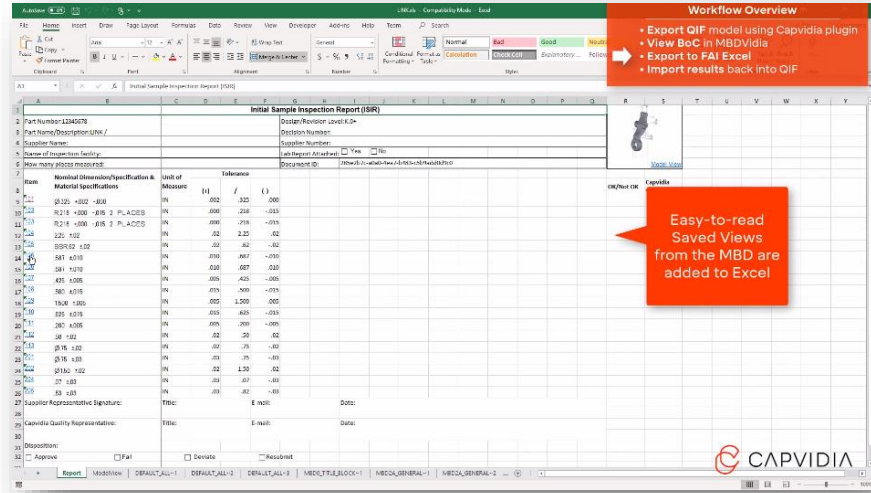
Quality Current State: Manual

Creating a Quality Plan (like an AS9102 First Article Inspection (FAI) Report) is a manual process: you create a drawing in CAD, only to use a human to re-digitize it at the quality and manufacturing stage.



Initial Sample Inspection Report (SIR)			
1	Part Number: 12345678	Doc# / Revision: Lovelace	
2	Part Name/Description: LINK /	Disposition Number:	
3	Supplier Name:	Supplier Number:	
4	Name of Inspection facility:	Lab Report Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No	
5	How many places measured:	Doc# and ID: / /	
Item	Nominal Dimension/Specification & Material Specifications	Unit of Measure	Tolerance
8		(I) / (C)	
9	Ø.325 ±.002 -.008	IN	.002 .325 .008
10	R.218 ±.000 -.015 2 PLACES	IN	.000 .218 -.015
11	1.25 ±.02	IN	.005 .218 -.015
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99	Ø.225 ±.002	IN	.002 .225 .002
100	Ø.225 ±.002	IN	.002 .225 .002

Getting Started with MBD: FAI



Publish MBD



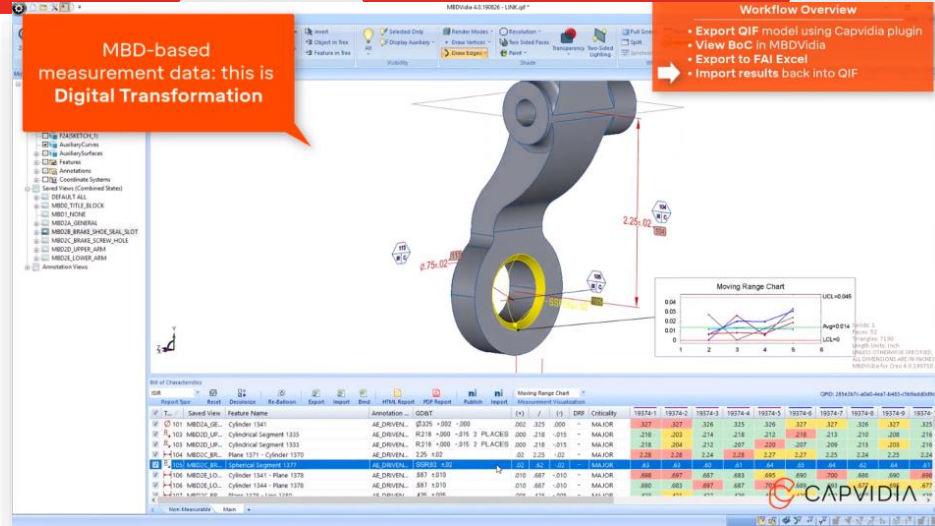
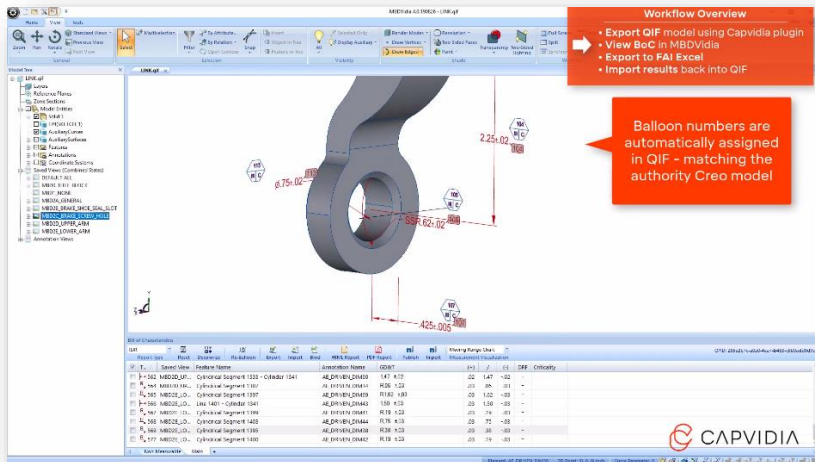
Bill of Characteristics



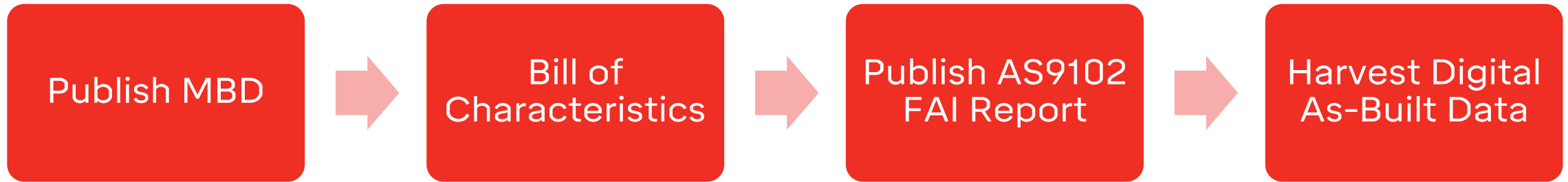
Publish AS9102 FAI Report



Harvest Digital As-Built Data



Getting Started with MBD: FAI



MBDVidia
Automated Digital FAI

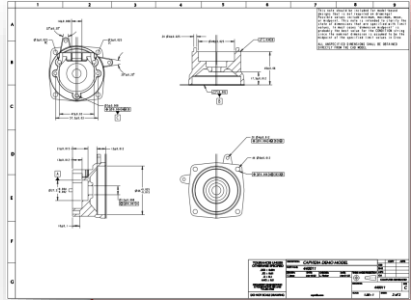
 CAPVIDIA

[Click here to see the digital FAI video](#)

Unified 3D/2D Workflow

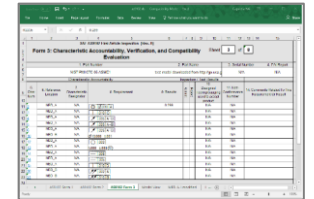
3D MBD and 2D PDF:

- Same software platform
- QIF-based BoC
- QIF-based results analytics



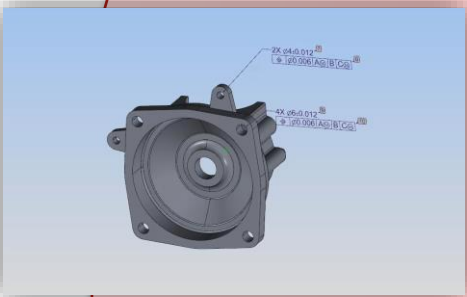
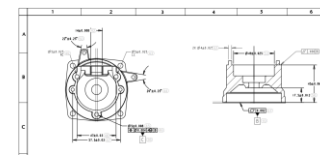
2D PDF Drawings

Excel Report



Machine-readable, QIF-based BoC

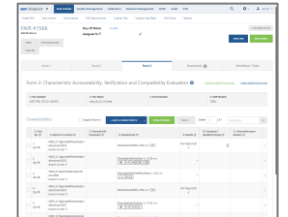
Ballooned Drawing



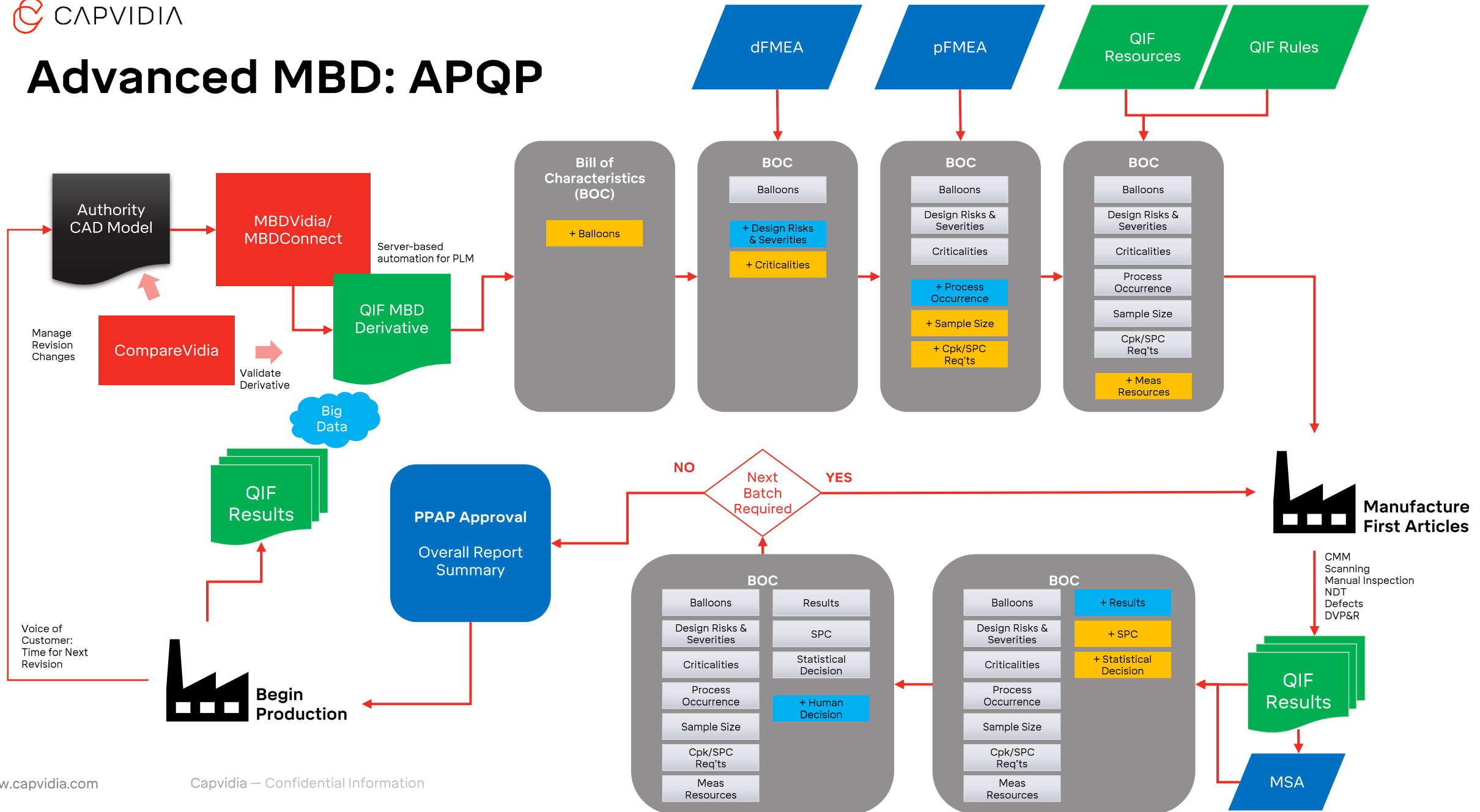
3D MBD

Rank	Parent	Category	Feature Name	Annotation...	Units	(1)	(2)	(3)	Dir	Priority	EnforceBy...	Measurement...	Measurement...
2	MBD_A	Cylinder	5129	AE_STO19	2.000	A	0.02	-	-	A	Undefined	0.0100	0.0280
3	MBD_A	Plane	5134	AE_STO13	310	C	0.01	-	-	C	Undefined	0.0100	0.0100
4	MBD_A	Plane	5133	AE_STO12	285	A-B	0.035	-	-	A-B	Undefined	0.0250	0.0250
5	MBD_A	Cylindrical Segment	5131	AE_STO10	275	A-D	0.025	-	-	A-D	Undefined	0.0250	0.0250
6	MBD_A	Cylindrical Segment	5130	AE_STO11	275	A-B	0.025	-	-	A-B	Undefined	0.0100	0.0100
10	MBD_B	Cylinder	5120 B1	AE_DRIVEN...	0.18-0.01	e301	0.001	10	-0.001	-	Undefined	10.0000	10.0000
12	MBD_A	Cylinder	5116 (A)	AE_STO11	302	-	0.002	-	-	-	Undefined	0.0010	0.0010
13	MBD_A	Opposite Planes	5137	AE_DRIVEN...	5.002	+0.008	0.005	3	-0.008	-	Undefined	4.9990	4.9990
14	MBD_A	Cylindrical Segment	5125	AE_STO10	305	-	0.005	-	-	-	Undefined	0.0020	0.0020
14	MBD_A	Line	5176	AE_STO10	305	-	0.005	-	-	-	Undefined	0.0010	0.0010
15	MBD_A	Plane	5127	AE_STO18	310	D	0.01	-	-	D	Undefined	0.0050	0.0100
19	MBD_B	Cylinder	5131 (A)	AE_STO18	302	A	0.002	-	-	A	Undefined	0.0010	0.0010
21	MBD_B	Plane	5135	AE_STO16	315	D	0.015	-	-	B	Undefined	0.1400	0.1500

Net-Inspect FAIR



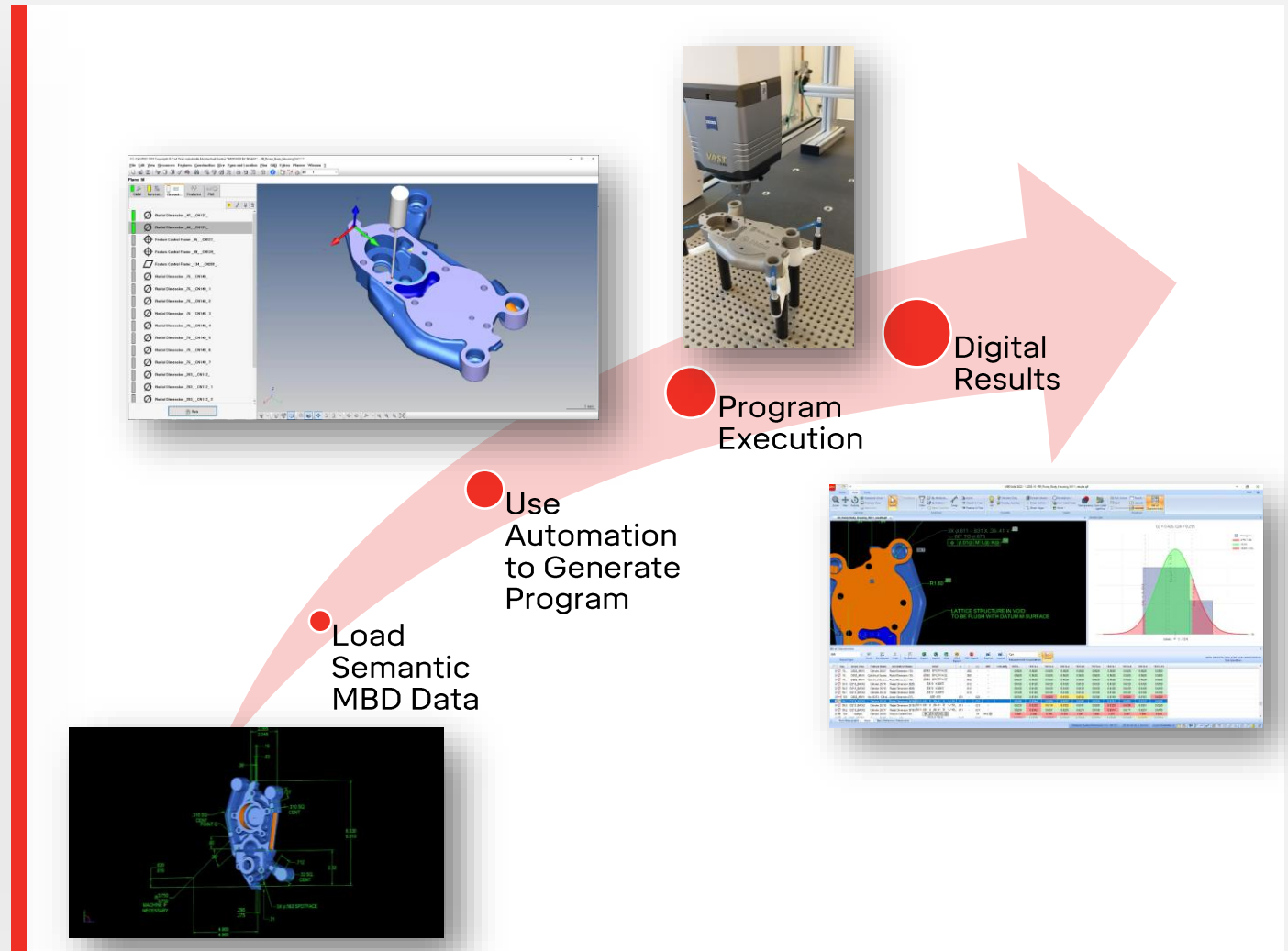
Advanced MBD: APQP



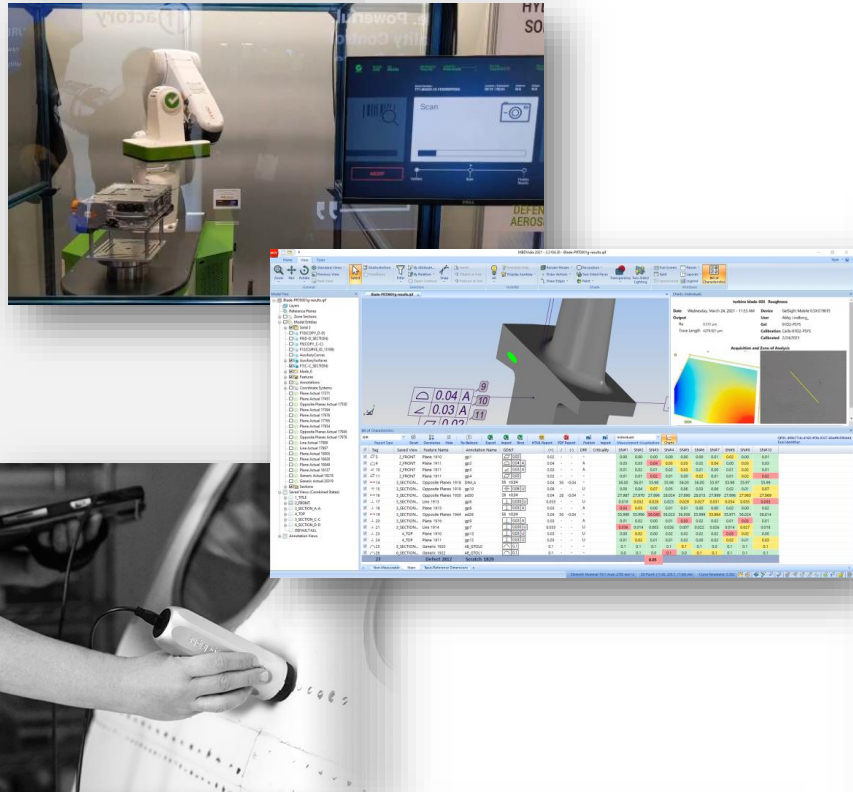
CMM and Scanning

- Use MBD to automate coordinate metrology.
- MBD-based CMM and Scanning extends the digital thread to your metrology department.

Webinar: [Reducing Measurement Planning Time by 75%, Digital Thread Technique Series](#)



Non-Dimensional Quality



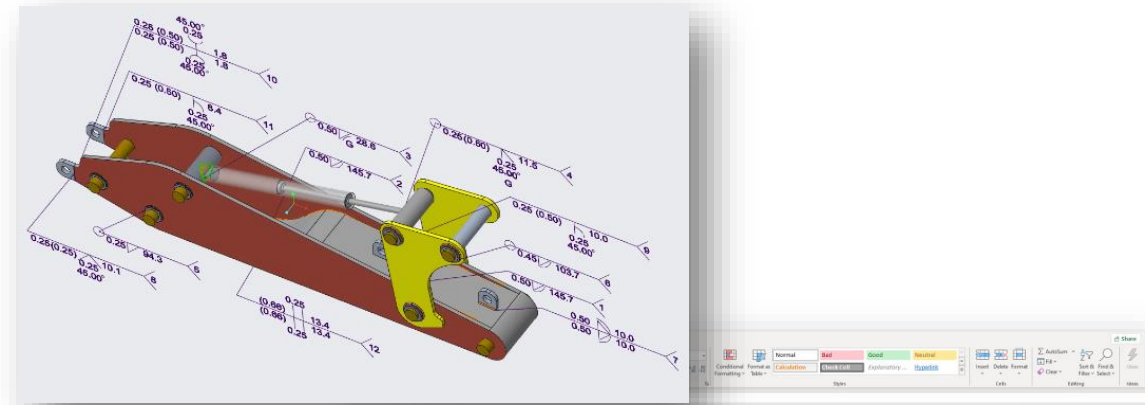
- Non-Dimensional has a big role to play too – and can be powered by MBD.
- Visual Inspection from MBD makes visual inspection better, faster, and lower cost.
- Gather non-dimensional quality data as part of your digital thread.

Visual Inspection tied to the Digital Thread

Welding

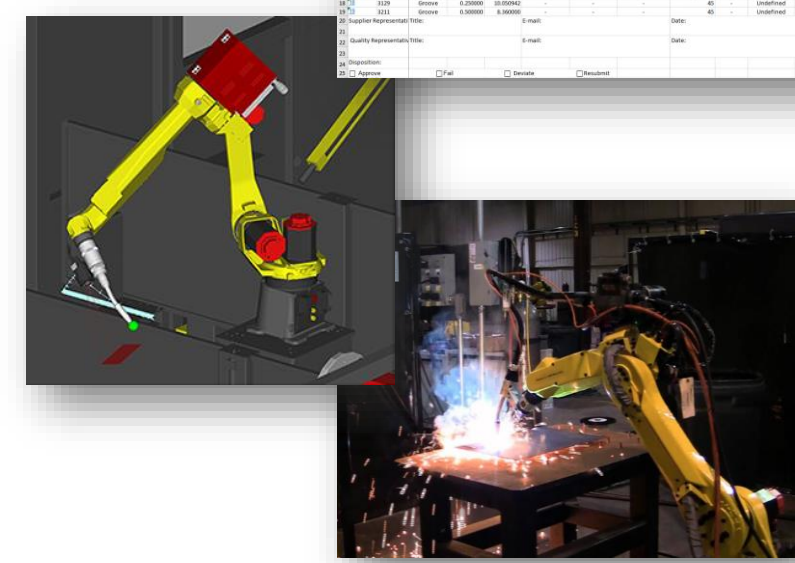
- Use Weld MBD for downstream automation.
- Generate weld work reports directly from MBD.
- Automate weld robot programming.
- Cost estimation.
- Weld QA becomes easy with MBD.

[See it in action here](#)



Welding Report

Item	Feature ID	Weld Type	Size	Length	Segment Length	Pitch Distance	Number of Welds	Groove Angle	Hard Size	Weld Material	Weld Volume	Weld Mass	Part 1	Part 2	Part 1 material	Part 2 material	OK/Not OK	Verification
8	2120	Groove	0.50000	3.50000	-	-	-	45	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
9	2187	Fillet	0.50000	20.00000	2.00000	2.86287	10	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
10	2190	Fillet	0.50000	140.00000	-	-	-	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
11	3080	Groove	0.50000	11.470713	-	-	-	45	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
12	3100	Groove	0.50000	20.00000	-	-	-	45	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
13	3008	Fillet	0.40000	103.777802	-	-	-	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
14	2187	Fillet	0.50000	145.00000	-	-	-	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
15	3106	Fillet	0.50000	20.00000	-	-	-	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
16	3105	Groove	0.40000	26.811381	-	-	-	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
17	3108	Fillet	0.20000	84.00000	-	-	-	-	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
18	3129	Groove	0.20000	10.00000	-	-	-	45	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-
19	3131	Groove	0.50000	8.00000	-	-	-	45	-	WELDING	0.00000	0.00000	CONNECTING	-	Undefined	-	Undefined	-





MBD Workflow



Measure with PolyWorks



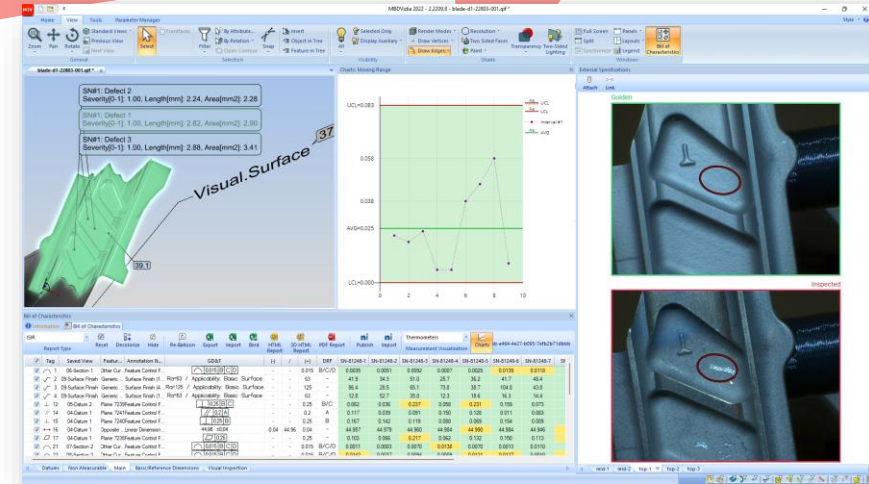
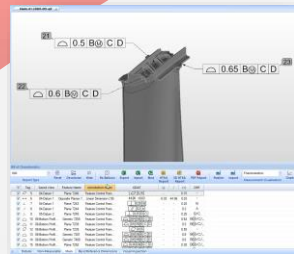
General Inspection

Visual Inspection with Kitov

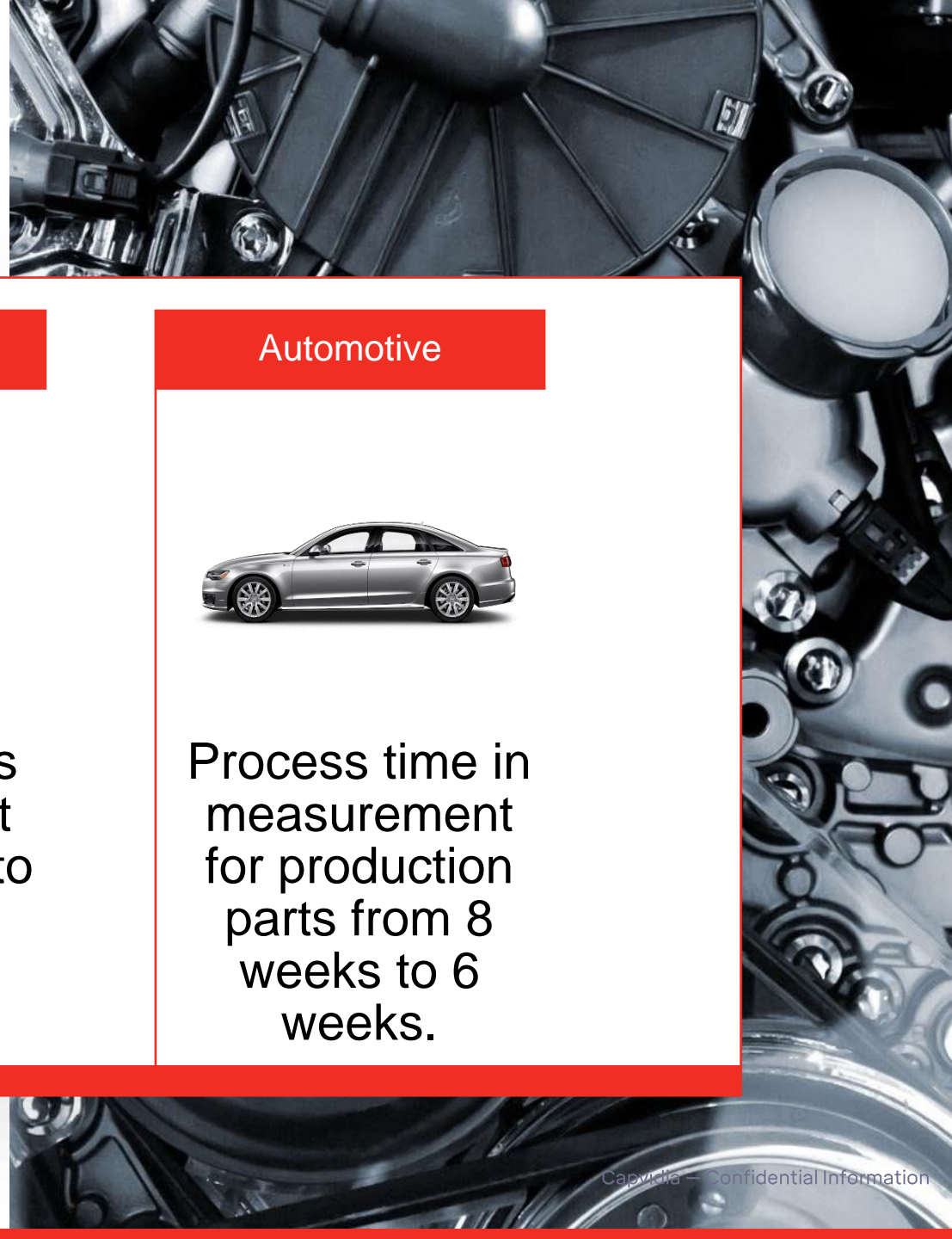
Gather As-Built Data in QIF with MBDVidia

Publish QIF MBD from Native CAD

Balloon in MBDVidia



MBD Workflows: Some Industry Anecdotes



Aerospace & Defense



FAIR creation
from approx.
15-20 hours
manual to 2
hours MBD.

Consumer Goods



60%+ savings
on time spent
for PPAP. Up to
2,400 parts
processed
every year.

Automotive



Process time in
measurement
for production
parts from 8
weeks to 6
weeks.



True MBD: Human & Machine
Readable CAD + PMI

Contact Us

Download the
presentation



<https://www.capvidia.com/rd/2022-ptc-user>

Daniel Campbell

VP Model-Based Definition

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🌐 www.capvidia.com



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