



Standards-Based MBD Digital Threads for Product Delivery and Reporting

2026 MBE & QIF SUMMIT

APRIL 16, 2026

Tim Holman, CRO, High QA, Inc.

www.highqa.com



About High QA

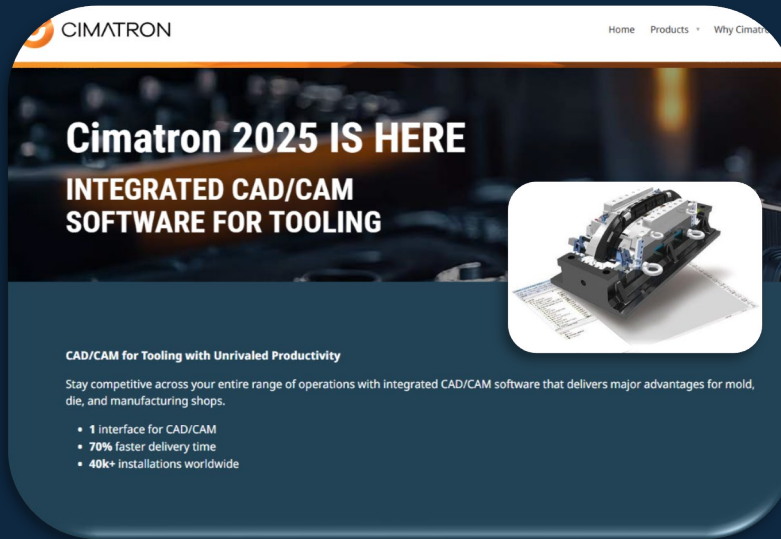
- **Manufacturing Quality Platform for manufacturers and OEMs in regulated industries**
- **Used by 1,800+ customers worldwide across:
aerospace, defense, medical, automotive, energy, and more**
- **Streamlines internal and supplier quality planning, inspecting, and reporting**
- **Keeps quality connected to the original 2D print or 3D model**



High QA Partners



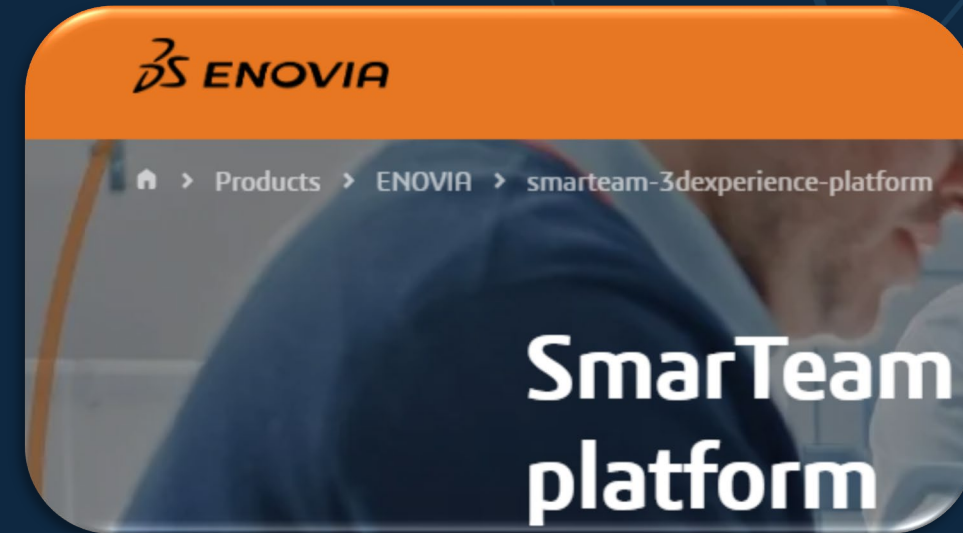
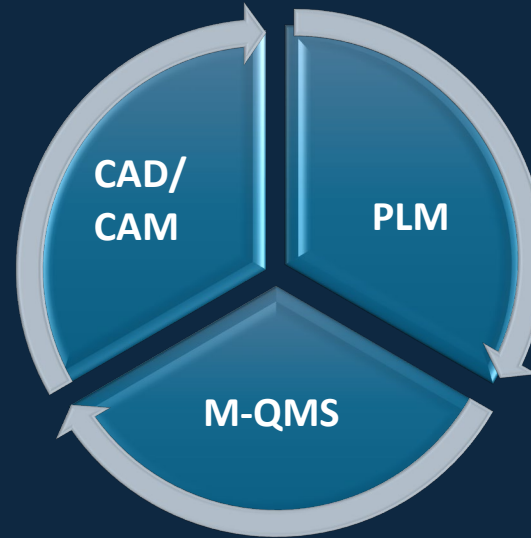
Background – CAD/CAM, PLM, MQMS



Cimatron 2025 IS HERE
INTEGRATED CAD/CAM SOFTWARE FOR TOOLING

CAD/CAM for Tooling with Unrivalled Productivity
Stay competitive across your entire range of operations with integrated CAD/CAM software that delivers major advantages for mold, die, and manufacturing shops.

- 1 interface for CAD/CAM
- 70% faster delivery time
- 40k+ installations worldwide



DS ENOVIA

Home > Products > ENOVIA > smarteam-3dexperience-platform

SmarTeam platform



HIGH QA SOLUTIONS SOFTWARE ABOUT US RESOURCES CONTACT DEMO MY HIGH QA

Manufacturing Quality Software.

Digitize. Automate. Simplify.

HQA 360:
Your one-stop shop for managing manufacturing quality. From 2D/3D MBD ballooning and inspection plans to FAI, SPC, PPAP, and more, we have the tools you need.

HQA HUB:
Supercharge your manufacturing supplier process with quality at the center. Collaborate seamlessly with manufacturing suppliers and manage quality in one intuitive software.

[BOOK YOUR DEMO](#) [TALK WITH US](#)



A circular diagram with 'HIGH QA' in the center. The circle is divided into segments representing various quality management processes: SUPPLIER COLLABORATION, PART & JOB PLANNING, MANUFACTURING OPERATIONS, CMH & GAGES DATA COLLECTION, PRODUCTION & DATA COLLECTION, REPORTING & SUBMISSIONS, and FIRST ARTICLE INSPECTION. Other segments include COLLABORATIVE DATA EXCHANGE, GEM / BUYER PART DATA, PREP MANAGEMENT, INSPECTION MANAGEMENT, SUPPLIER MANAGEMENT, FAI PLANS, INSPECTION PLANS, and STATISTICAL PROCESS CONTROL.

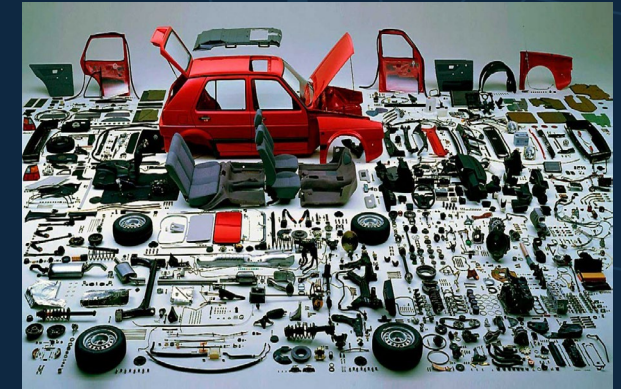
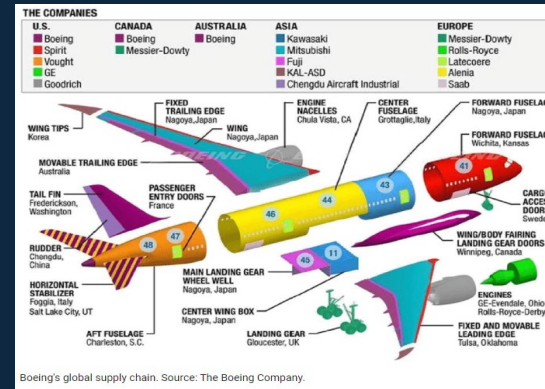
The Reality of Modern Manufacturing

OEMs deliver millions of products every day.

- Serving Aerospace, Defense, Medical, Automotive, Oil & Gas, Machinery & more.
- Hundreds of thousands of manufacturers produce millions of parts daily.
- Billions of parts made annually.

Yet 80%+ still rely on 2D drawings

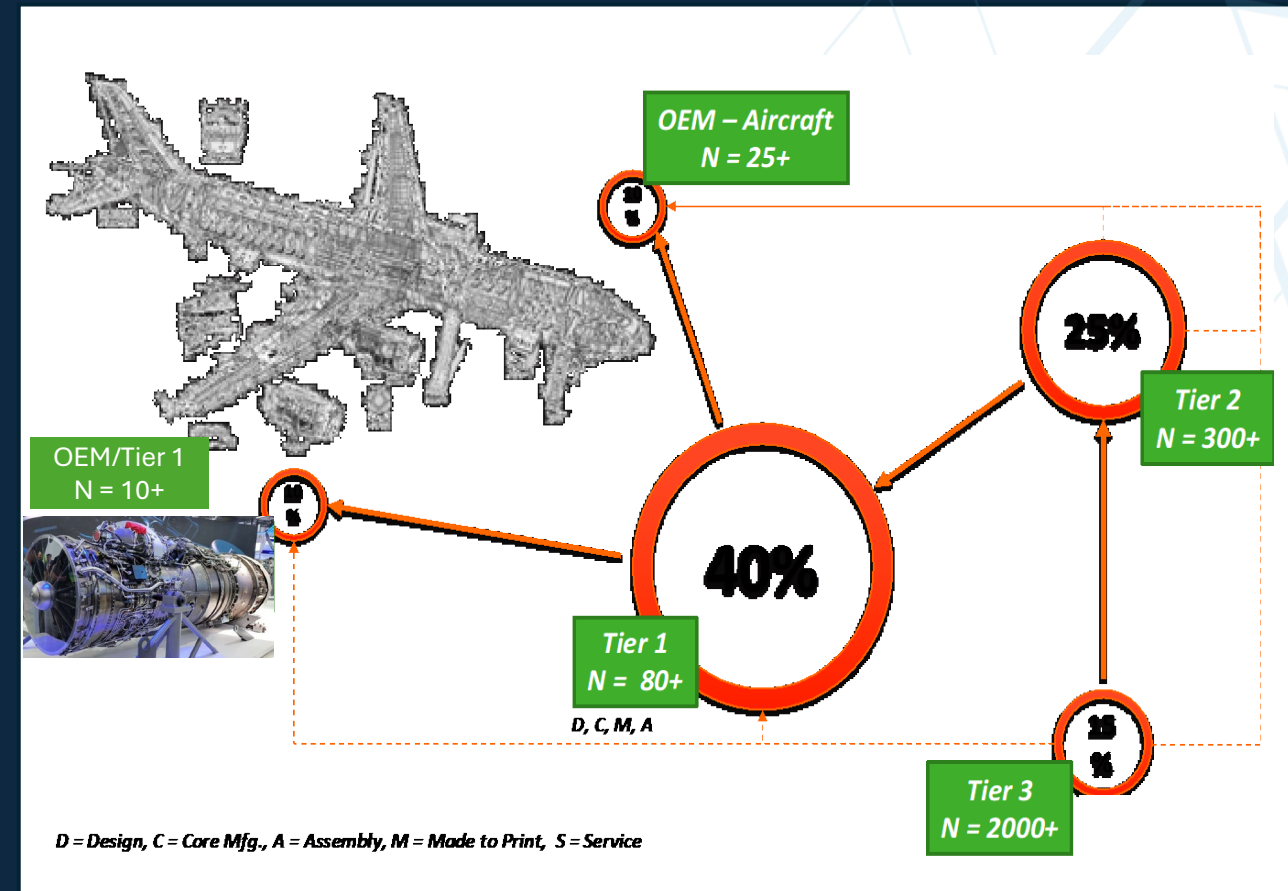
How do we make 3D MBD/MBE the new standard across all tiers?



The Magnitude of Supply Chain Complexity

- Original Equipment Manufacturers (OEMs) rely on suppliers for critical parts in planes, cars, medical devices & phones.
- Everyday products depend on clear manufacturing quality requirements between OEMs/buyers & suppliers.
- Poor flow down of requirements creates waste & risk.
- We need to simplify & automate manufacturing quality.

Does the supply chain have the tools they need to handle MBD today?



Executives Highlight Ongoing Quality Struggles



Guillaume Faury, CEO
of Airbus

“Engines remain the most challenging part of the aerospace **supply chain**,...”



Larry Culp, CEO
of GE Aerospace

“Everything that we see in **supply chain** would suggest this is going to be a daily battle for the foreseeable future.”

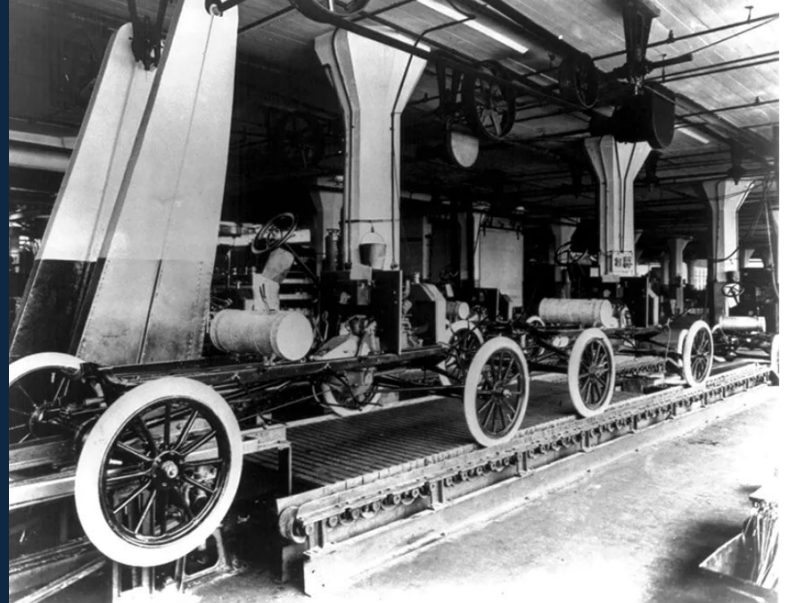


Kelly Ortberg, CEO
of Boeing

“We will prioritize **stability** over rushing production increases due to **previous costly missteps**...”

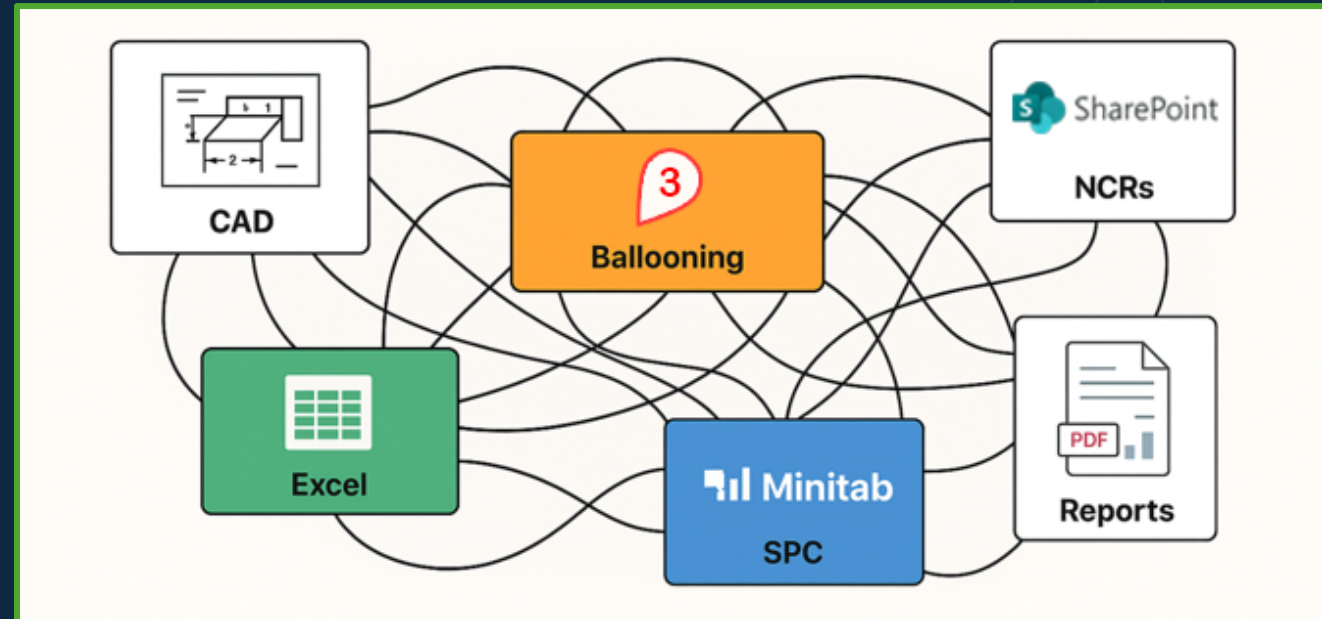
If CEOs describe operations as “daily battles” full of missteps & delays...
How do we use MBD to change the story from risk into reliability?

The MBD Disconnect Between OEMs and Supply Chain

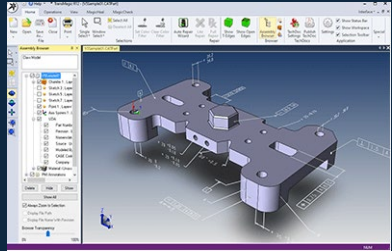


The Real Problems We Need to Solve

- ✓ The supply chain runs on a **patchwork of homegrown systems**, outdated tools, and inconsistent processes, so teams still fall back on **spreadsheets and paper**.
- ✓ Parts are getting smaller, tolerances tighter, and regulations stricter, and they change constantly.
- ✓ Suppliers spend hours trying to **interpret** incomplete or unclear requirements instead of making and delivering parts.



The MBD Disconnect Between OEMs and Supply Chain



Part Delivery

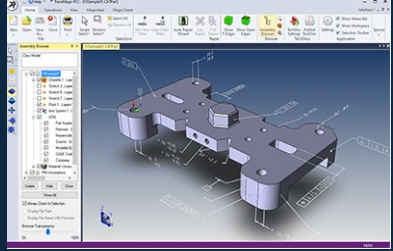


STP242, STP/2D, QIF, JT, 3D PDF
MBD/MBE – Catia, Siemens, Pro-E
SolidWorks, Inventor. Etc.

Supply Chain

PO
Package

The MBD Disconnect Between OEMs and Supply Chain



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Supply Chain



FAI
Inspection
Report

Production
Kick Off

Manufacturing
Operations

In Process
Inspection

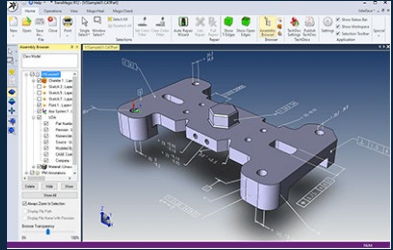
Inspection &
Reporting

OEM
Auditing

PPAP
Submission

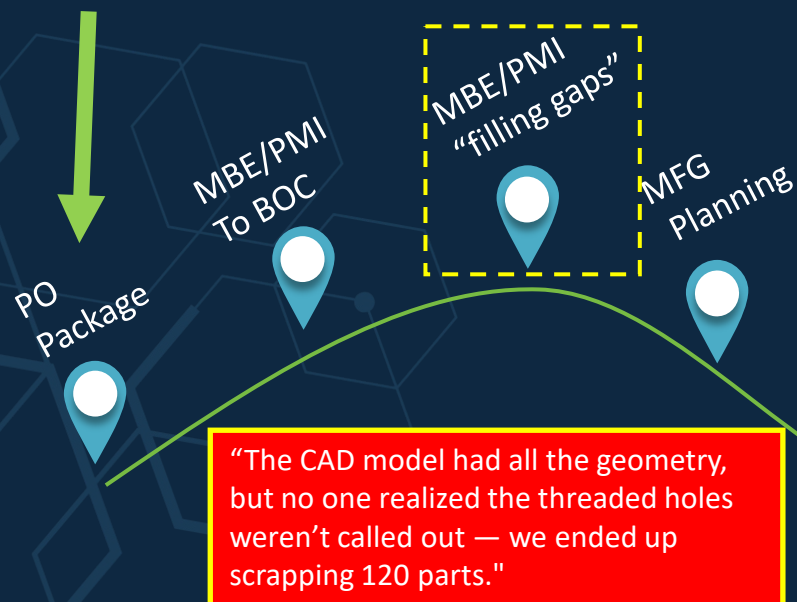


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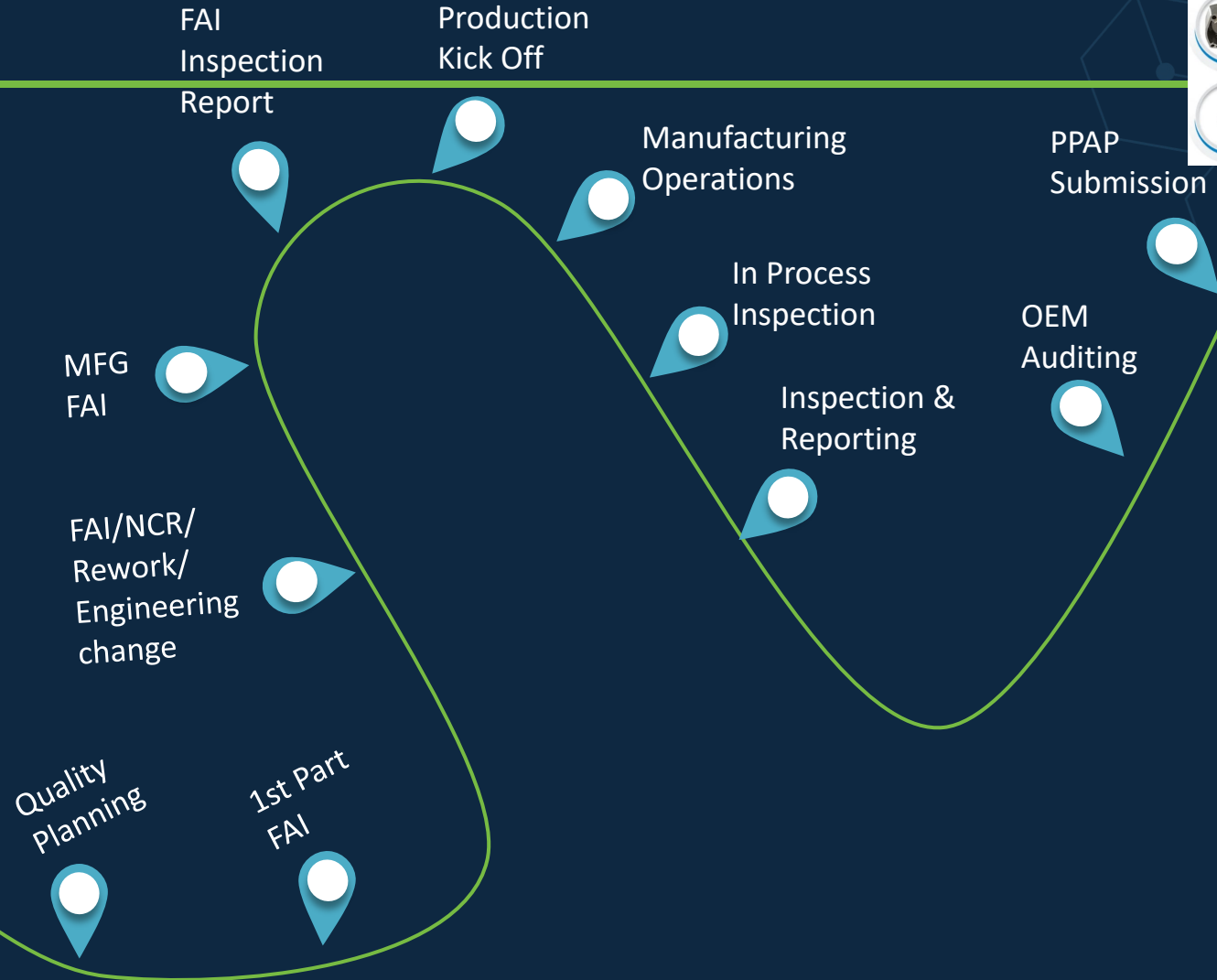
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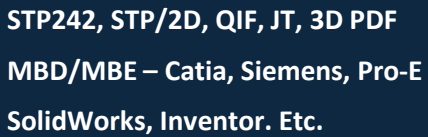
Supply Chain



Part Delivery

Incoming Inspection





PO package

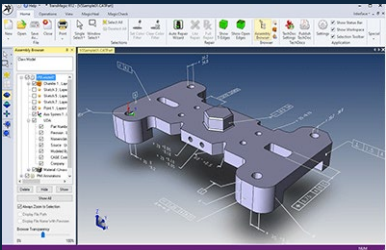
MBE/PMI To BOC

MBE/PMI "filling gaps"

MFG planning



The MBD Disconnect Between OEMs and Supply Chain



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Supply Chain



Part Delivery
Incoming Inspection

FAI
Inspection
Report

Production
Kick Off

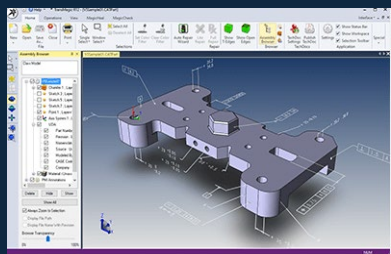
Manufacturing
Operations

PPAP
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OEM
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The MBD Disconnect Between OEMs and Supply Chain



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Supply Chain



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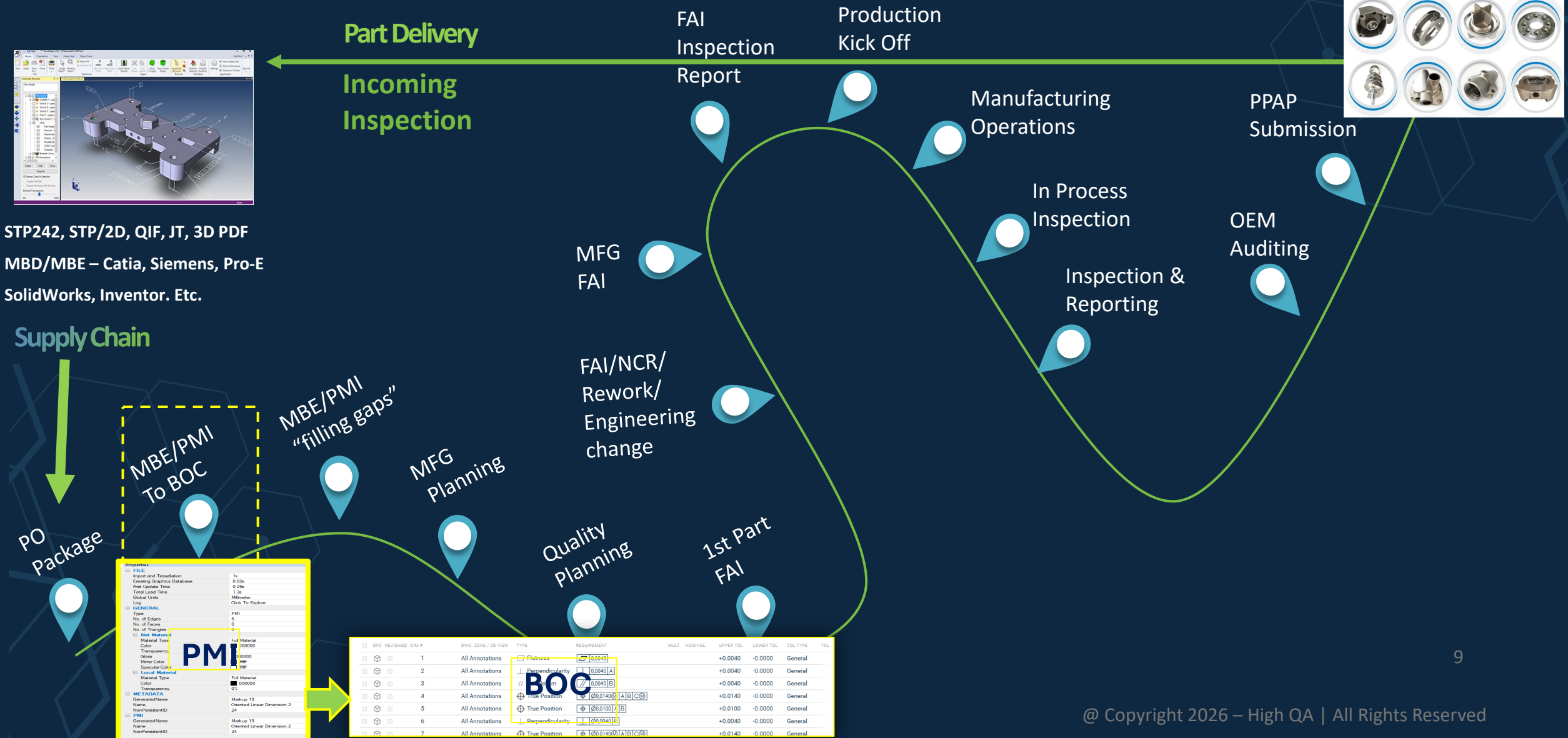
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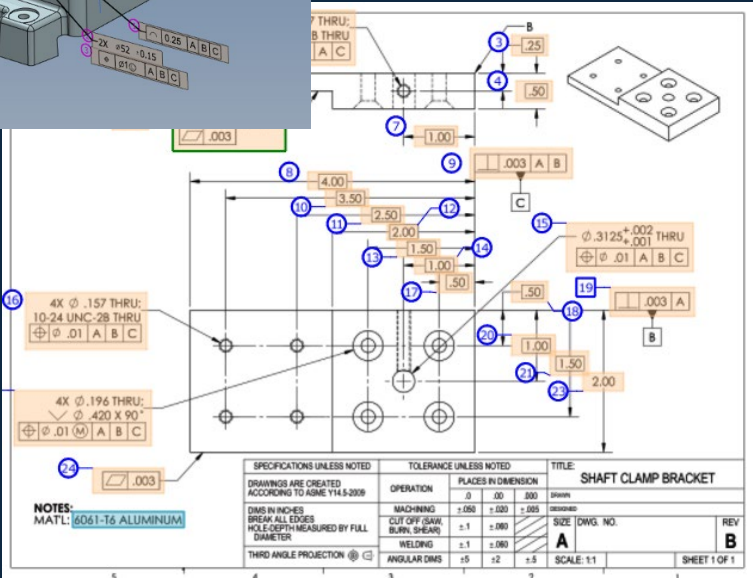
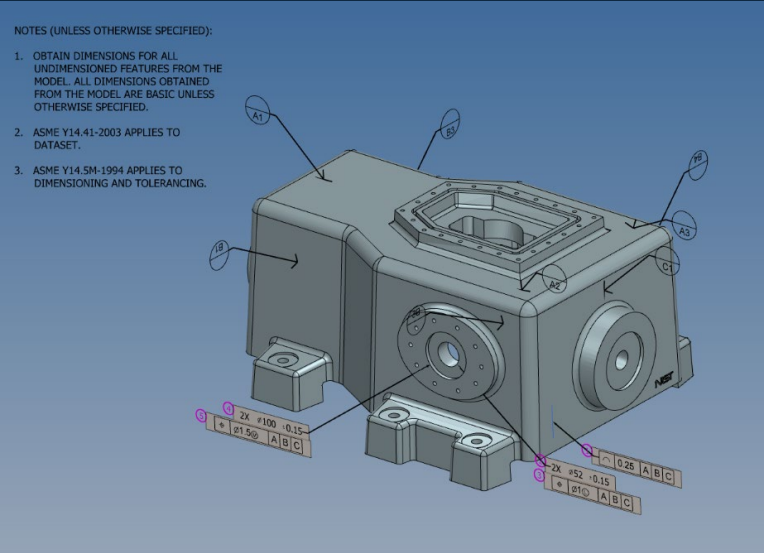


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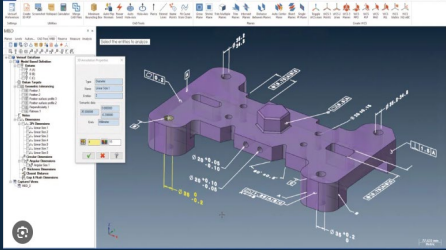
Design Driven Quality

Eliminate interpretation by making the 2D drawing or 3D model the *single source of truth*.



Dim #	Dwg.Zone	Type	Requirement	Mult	Nominal	Upper Tol	Lower Tol	Tol Type	Note
1	S1-A2	Flatness	$\sqrt{\text{R}} 0.003$			+0.003	-0.000	As Limit	
2.1	S1-A4	Diameter	$\phi 0.157$		0.157	+0.005	-0.005		THRU;
2.2	S1-A4	Thread	UNC 10x24 - 2B						THRU
2.3	S1-A4	True Position	$\phi 0.04$ A B C			+0.04	-0.00	As Limit	
3	S1-A6	Linear	0.25		0.25	+999.00	-999.00	Basic	
4	S1-A6	Linear	0.50		0.50	+999.00	-999.00	Basic	
5	S1-B2	Linear	0.25		0.25	+999.00	-999.00	Basic	
6.1	S1-B3	Surface Profile	$\sqrt{\text{R}} 0.04$ A B C			+0.04	-0.00	As Limit	
6.2	S1-B3	Flatness	$\sqrt{\text{R}} 0.003$			+0.003	-0.000	As Limit	
7	S1-B5	Linear	1.00		1.00	+999.00	-999.00	Basic	
8	S1-B4	Linear	4.00		4.00	+999.00	-999.00	Basic	
9	S1-B6	Perpendicul...	$\sqrt{\text{R}} 0.003$ A B			+0.003	-0.000	As Limit	
10	S1-B4	Linear	3.50		3.50	+999.00	-999.00	Basic	
11	S1-B5	Linear	2.50		2.50	+999.00	-999.00	Basic	
12	S1-B5	Linear	2.00		2.00	+999.00	-999.00	Basic	
13	S1-C5	Linear	1.50		1.50	+999.00	-999.00	Basic	
14	S1-C5	Linear	1.00		1.00	+999.00	-999.00	Basic	
15.1	S1-C7	Unknown			0	+0.002	+0.001	Tolerance	$\phi .3125$
15.2	S1-C7	Note	THRU						THRU
15.3	S1-C7	True Position	$\phi 0.01$ A B C			+0.01	-0.00	As Limit	
16.1	S1-C2	Diameter	4X $\phi 0.157$	4x	0.157	+0.005	-0.005		THRU;
16.2	S1-C2	Thread	4X UNC 10x24 - 2B	4x					THRU
16.3	S1-C2	True Position	4X $\phi 0.01$ A B C	4x		+0.01	-0.00	As Limit	
17	S1-C5	Linear	0.50		0.50	+999.00	-999.00	Basic	
18	S1-C6	Linear	0.50		0.50	+999.00	-999.00	Basic	
19	S1-C7	Perpendicul...	$\sqrt{\text{R}} 0.003$ A			+0.003	-0.000	As Limit	
20	S1-C6	Linear	1.00		1.00	+999.00	-999.00	Basic	
21	S1-D6	Linear	1.50		1.50	+999.00	-999.00	Basic	
22.1	S1-D1	Diameter	4X $\phi 0.196$	4x	0.196	+0.005	-0.005		THRU;
22.2	S1-D1	Diameter	4X $\sqrt{\text{R}} \phi 0.420$	4x	0.420	+0.005	-0.005		
22.3	S1-D1	Angular	4X 90°	4x	90	+0.5	-0.5		CSINK
22.4	S1-D1	True Position	4X $\phi 0.01$ A B C	4x		+0.01	-0.00	As Limit	
23	S1-D7	Linear	2.00		2.00	+0.01	-0.01		
24	S1-E2	Flatness	$\sqrt{\text{R}} 0.003$			+0.003	-0.000	As Limit	

How Modern Software Helps: One Digital Source of Truth from Design to Part Delivery



Form 1: Part Number Accountability			
1. Part Number:	2. Part Name:	3. Serial Number:	4. FAI Identifier:
Sample 2 PDF	Sample 2 PDF	Sample 2 PDF	Sample 2 PDF
5. Part Revision Level:	6. Drawing Rev Level:	7. Drawing Rev Level:	8. Additional Changes:
Sample 2 PDF	Sample 2 PDF	Sample 2 PDF	Sample 2 PDF
9. Main Process Ref:	10. Organisation Name:	11. Supplier Code:	12. P.O. Number:
Sample 2 PDF	Sample 2 PDF	Sample 2 PDF	Sample 2 PDF
13. Detail:	14. Full FAI:	15. Baseline Part Number (including Revision Level):	
Assembly:	Partial FAI:		
Reason for Full / Partial FAI:			
a) If above part number is a detail part only, go to Field 19. b) If above part number is an assembly, go to the "INDEX" section below.			
INDEX of part number or sub-assembly number required to make the assembly noted above.			
16. Part Number:	17. Part Name:	18. Part Type:	19. FAI Report Number:
Sample 2 PDF	Sample 2 PDF	Sample 2 PDF	Sample 2 PDF
15. Does the FAIR Contain a Documented Nonconformance? Yes No			
20. FAIR Verified By: JF's Signature 21. Date:			

Replace Paper & Spreadsheets

Plan & Control Quality in Real Time

Capture & Analyze Inspection Data

Generate & Approve Reports Fast

- ✓ Eliminate silos & legacy file systems
- ✓ 100% revision control
- ✓ No re-keyed data from CAD to delivery

- ✓ Automatically connect PMI to BOC
- ✓ Orchestrate dynamic quality workflows
- ✓ Secure digital collaboration across teams

- ✓ Automate data collection from any source
- ✓ Real-time SPC & analytics
- ✓ Prevent issues instead of reacting

- ✓ Create all quality reports digitally
- ✓ Cover FAI through PPAP in one system
- ✓ Support real-time review, approval & disposition

Look for a Quality Solution that starts — and stays — connected to the part.



Quality in Context

*Every requirement, result, and report stays grounded in the **part design and how it's built**.*



Automated Reporting

*Since data is already connected, **FAIs, NCRs, and PPAPs generate in minutes — not weeks**.*



Seamless Collaboration

*Internal teams and external partners stay aligned— **reducing rework, delays, and friction**.*

A Process Flow That Works! Plan-Inspect-Report-Collaborate

PLAN	INSPECT	REPORT	COLLABORATE
⦿ 2D Automatic Ballooning (GD&T)	⦿ Automated Inspection Results	⦿ FAI & Lot-Inspection Reports	⦿ 2D & 3D MBD Collaboration
⦿ 3D MBD Automatic Ballooning (PMI to BoC)	⦿ Real-Time SPC Monitoring & Alerts	⦿ PPAP Submissions	⦿ FAI & PPAP Exchange
⦿ Inspection Planning (In-Process & Final)	⦿ NCR & Issue Management	⦿ Material & Process Certs	⦿ Real-Time Supplier NCRs
⦿ Sample Planning (AQL & SPC)	⦿ Tool & Gage Management	⦿ Digital Workflows & Traceability	⦿ Supplier Audits & Scorecards

One Database — Total Traceability Across Quality Records

Seamless Integration With ERP, PLM, Metrology & More

Q&A



Thank You!

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