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How to leverage Inventor MBD and become a success!

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Action Engineering

Learning Objectives

- **Learning Objective 1**: Learn how MBD provides value for suppliers as well as OEMs, and requires effort from everyone
- **Learning Objective 2**: Learn about how data sourced using MBD principles provides value to the supply chain
- **Learning Objective 3**: Learn about defining how this is delivered to the supply chain and how it can be used to improve your processes
- **Learning Objective 4**: Learn how non-intelligent 2D drawings drive error, inaccuracies, and confusion
- Also ... Have some fun while learning how to present the values of MBD to audiences outside engineering

Description

What is MBD/PMI? Is this something you can or will receive from customers? Are you a mechanical engineer who thinks your company is behind and should adopt MBD/PMI processes in your organization?

Speaker

Rhiannon Gallagher, Chief Social Scientist
Rhiannon heads the team of social scientists that focuses on the people of the MBE transformation. Our social scientists conduct the analysis, create the plans, and design the communication strategies that help people make the transition to a model-based enterprise.

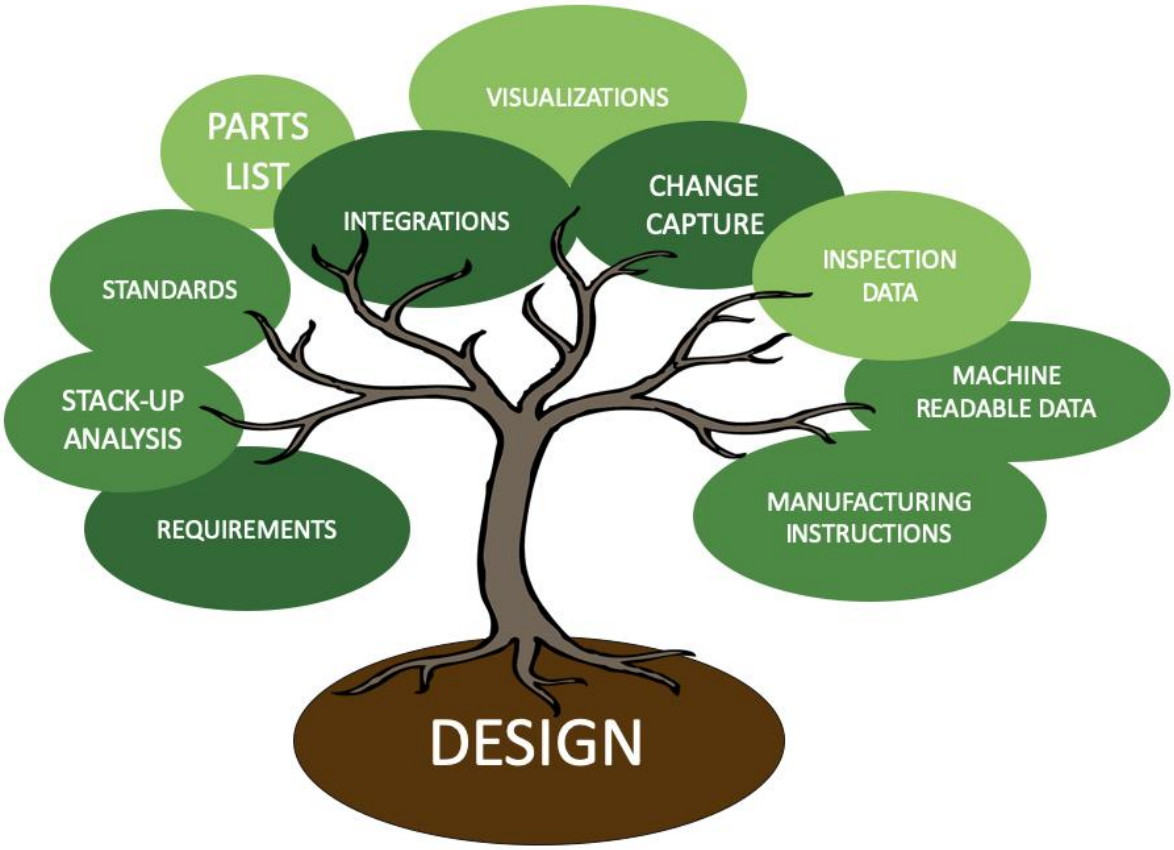
The Official Definition of MBD

Model-Based Definition: An annotated model and its associated data elements that define the product in a manner that can be used effectively without a drawing graphic sheet.
Citation: ASME Y14.47-2019

The Action Engineering Definition of PMI

Product Manufacturing Information: 3D annotations (dimensions and tolerances), metadata, notes, and model attributes needed to define the product beyond the 3D geometry

The Conceptual Definition: MBD can be the Whole Tree



The 4 Parts of MBD in Inventor
Jennifer Herron Video Summary

Geometry: The shape of a part/component. MBD captures 3D mathematical functions & coordinates. Digital capture allows CAD to directly feed a CAM machine, we don't need to see dimensions via annotations or on a drawing. The 3D model becomes the basic dimensions (with full GD&T).

Annotations: Product & Manufacturing Information (ASME definition). 3D tolerances, notes & symbols that are digitally attached to the features & geometry that they represent. Digital Product Definition Data Practice Standard ASME Y14.41, when applied in CAD provides humans the ability to see the digital relationships on the screen.

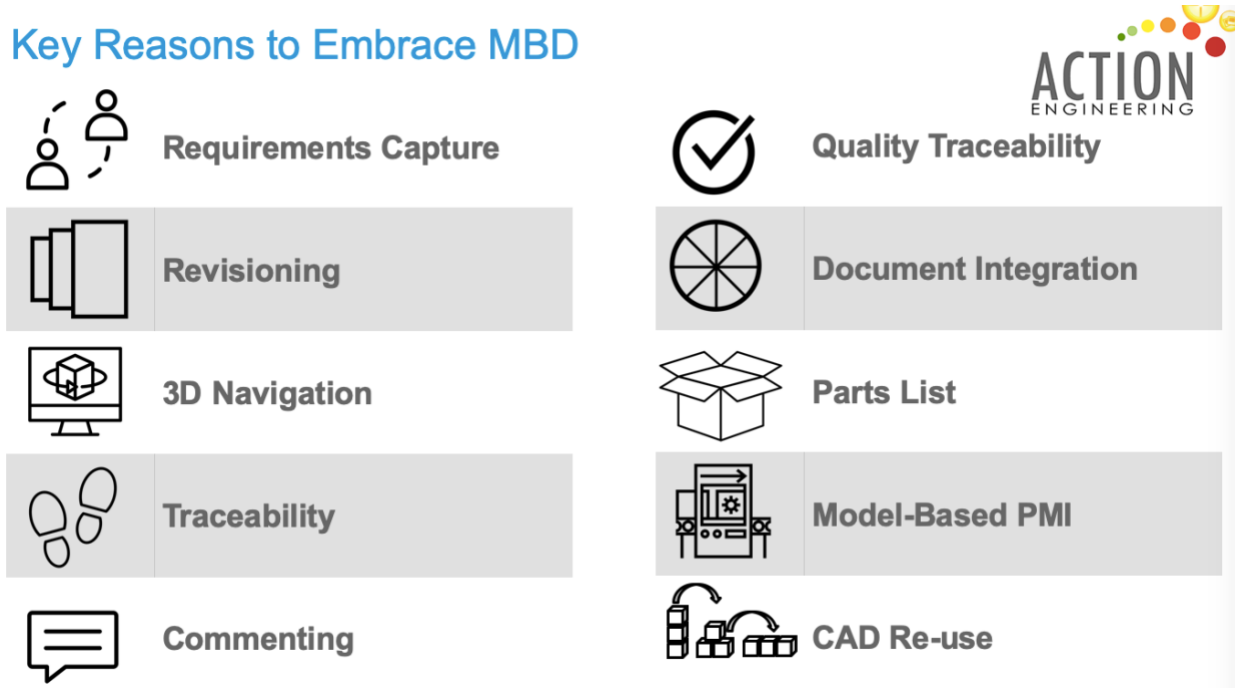
Attributes: ASME Y14.41 information that is not visible on the model but can be found upon interrogation of the model. Meta Data or properties or parameters, most common being part number, part description, and material. AMSE Y14.47 2019 released recommendation type & for nomenclature meta data in effort to standardized attribute interoperability across native & neutral CAD systems.

Presentation States: Represents data for humans to read as we evolve into a computable data authoring mindset, also known as Model-Based Definition. Drawings are not machine readable but do help people build trust in the annotations which are machine readable. Think of Presentation State as a print-to-screen routine call. In the future, we will not need this because

data will move seamlessly from one 3D format to another but maintaining presentation states helps with MBD adoption.

What is the Value of MBD/PMI for Engineering

One source for all the information everyone needs, in a consistent version and revision. MBD gets you to the Single Source of Truth across the Product Lifecycle



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MBD Transformation

Resources:

Technical Questions

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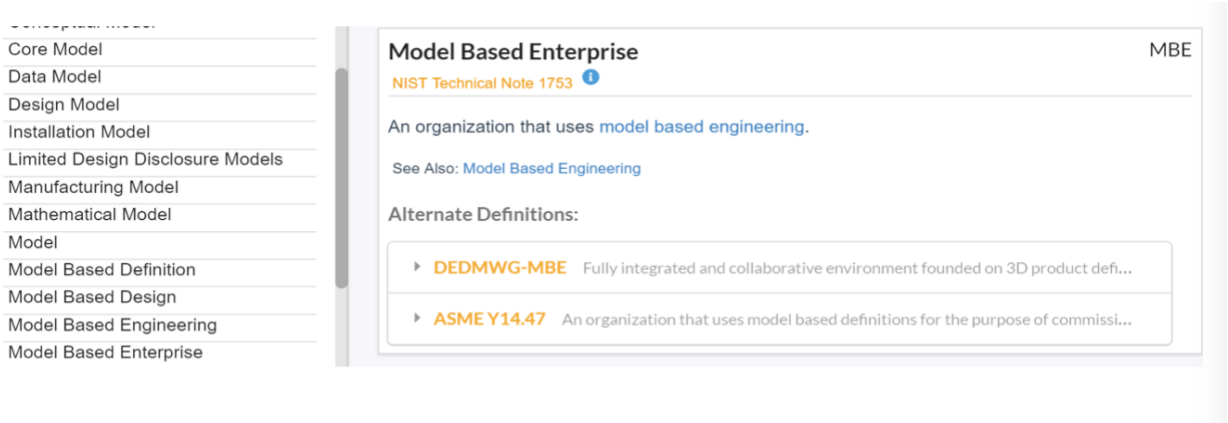
Terms & Definitions

action-engineering.com/dictionary



Further Training for MBD Success

Good Model-Based Definition (MBD) needs proper Geometric Dimensioning and Tolerancing (GD&T)

The devil is in the details

YOU WILL LEARN in these 3-Day Courses

- The What, Why, and How of Model-Based Definition
- GD&T the Right Way for Model-Based Definition – how to implement the latest offerings of the ASME Y14.5-2018 standard

action-engineering.com/courses

Further Training for Inventor

- Focus on how to use Inventor 3D Annotations in a model-based environment.
- Apply the basics of Model-Based Definition (MBD) using the Inventor tool set and discover how to create, use, and modify 3D semantic annotations.
- Practice with real-world examples to learn the most efficient methods to prepare models with MBD annotations for downstream digital consumption.

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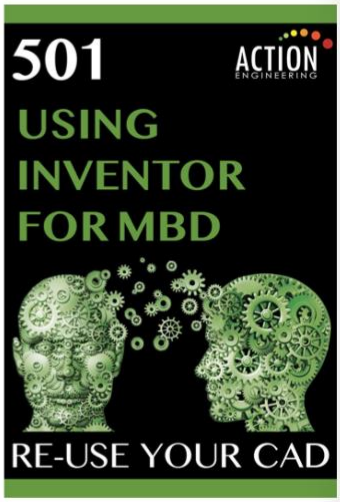

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Questions?

Balancing Technology and People