How to leverage Inventor MBD and become a success!

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MFG323859

AUTODESK. UNIVERSITY

So, I’m not Jennifer Herron . . .

But Here She Is . . .

https://youtu.be/HpZIT8BH9So

Jennifer Herron

Action Engineering

CEO and Founder

Rhiannon Gallagher

Chief Social Scientist, Action Engineering

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.

Action Engineering

CAD-AGNOSTIC MBD COACHING

MBD READINESS ASSESSMENTS

MBE ORGANIZATIONAL ASSESSMENTS

MBD AWARENESS AND PLANNING

MBD, GD&T, AND SOFTWARE TOOLS TRAINING

TECHNICAL DATA PACKAGE EVALUATION AND DEFINITION

Social Science at Action Engineering

DIGITAL READINESS EVALUATION

COMMUNICATION AND SOCIALIZATION PLANS

CUSTOMIZATION OF TRAINING FOR VARIOUS ROLES AND SITUATIONS

USER-CENTERED DESIGN OF DERIVATIVES AND DATA PACKAGES

Learning Objectives, with a Social Science Spin

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

Hand Polls:

1. What Role Do You Have?

- product design
- manufacturing engineering
- management
- quality
- procurement
- other MBD Groupie

2. Where Are You with MBD/PMI:

1. I've heard of it, but that's about it
2. We're talking but not walking
3. We've tried it in a pilot
4. We're in progress
5. We're stuck
6. We're totally done, it's perfect, we're just showing off now

What is MBD/PMI?

The Official Definition: 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: 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

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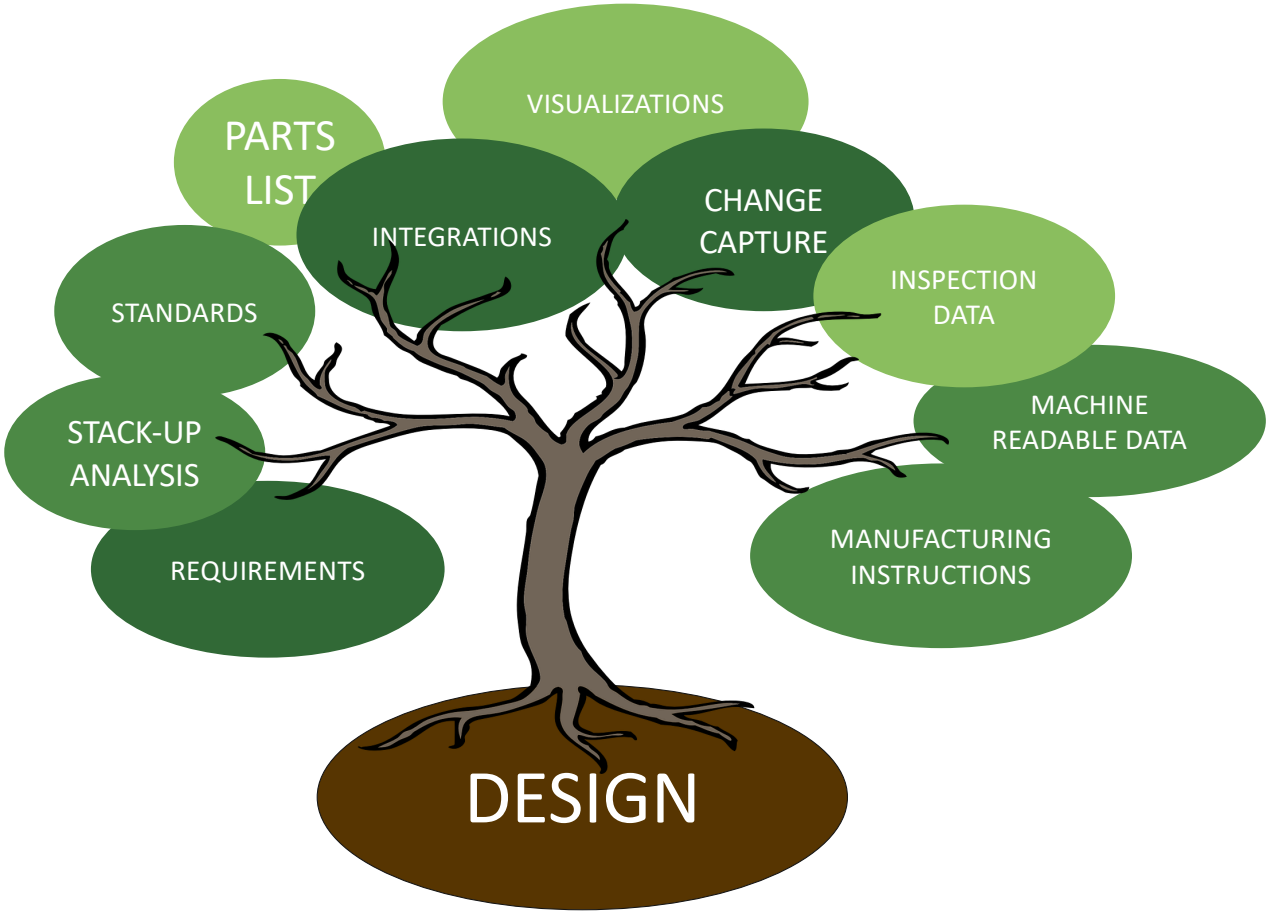

The Practical Definition: The 4 Parts of MBD in Inventor with Jennifer Herron

https://youtu.be/GUJf0UHqbv0

What's the Value of MBD/PMI for Engineering

One source for all the information everyone (both silicon and carbon-based) needs, in a consistent version and revision. MBD is the foundation of the Single Source of Truth across the Product Lifecycle

What's The Value of MBD Beyond Engineering?
AKA How Do We Make People In Other Areas Want to Do This?

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Hint: Not “Because It’s Better for Engineering . . .”

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. . . Or “Because Engineering Said So”

Exercise: What Do We Think They'd Think?

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1. CHOOSE A POSTER AND GET A PILE OF POST-ITS AND A PEN

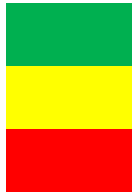
2. FOR THREE MINUTES, WRITE ANYTHING YOU THINK PEOPLE IN THAT ROLE MIGHT SAY ABOUT MBD – QUESTIONS, FEARS, ASPIRATIONS, ETC.

3. AS A GROUP, CONSOLIDATE THE DUPLICATES FOR ONE MINUTE

4. AS A GROUP, GIVE EACH STATEMENT A STICKER – IS IT POSITIVE (GREEN), NEGATIVE (RED), OR NEUTRAL(YELLOW)?

5. TALLY UP YOUR THREE CATEGORIES AND REPORT BACK

Positive
Neutral
Negative



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To succeed, we have to give them reasons to embrace the MBD transformation

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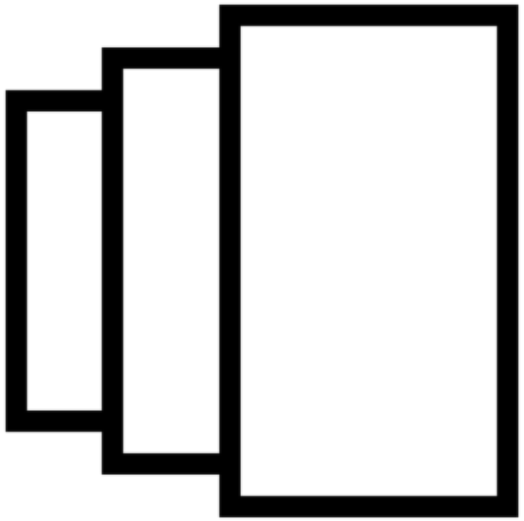
Because the truth is, they have frustrations with the 2D-Drawing process as well.

Requirements

Model is connected to requirements throughout the process

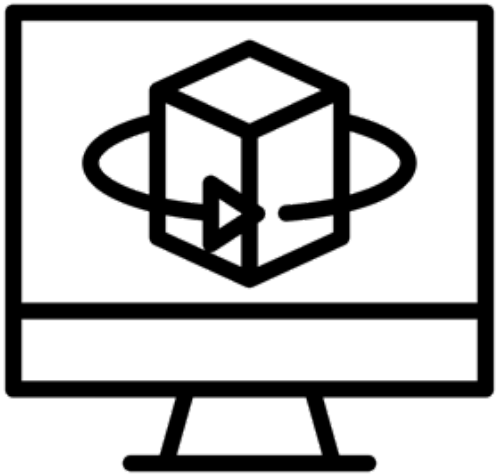
Revisioning:

Everyone sees the latest version



3D Navigation

Production and quality can locate parts in an assembly and surfaces on a part

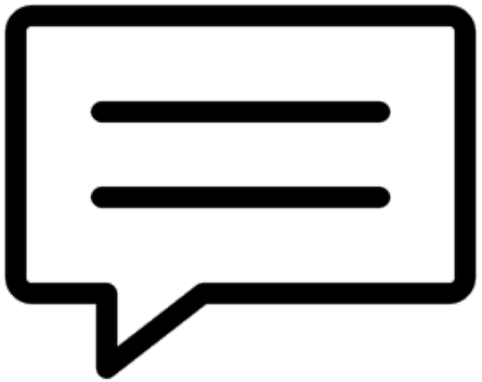


Traceability

Updates, comments, and approvals are accessible

Commenting

Relevant notes and data stay with the part of the model to communicate during a handoff

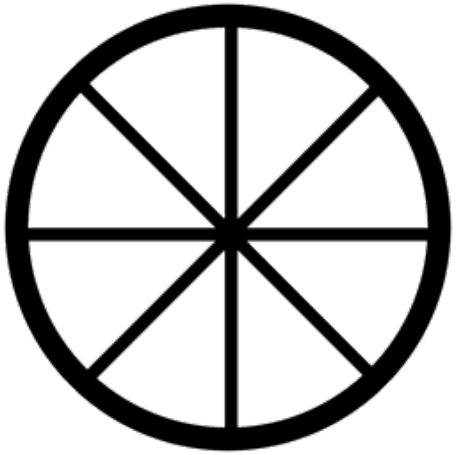


Quality Traceability

Maintaining digital traceability from the design source model through production makes production more accurate and efficient during first run and in later runs

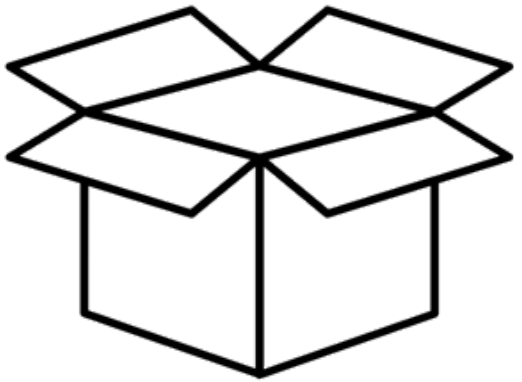
Document Integration

Related documentation can be integrated with the model throughout the process



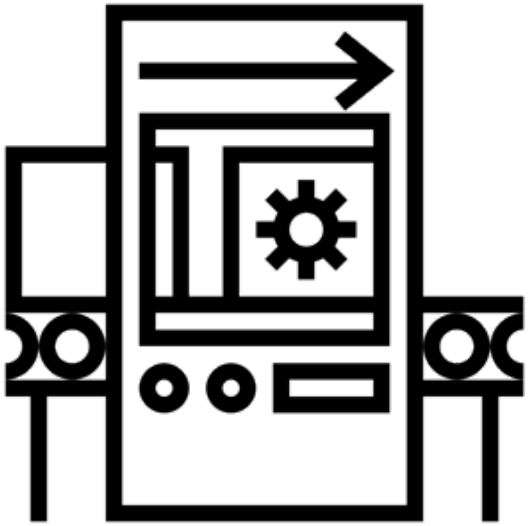
Parts List

The parts list is integrated and clickable, for easier assembly and quality checking



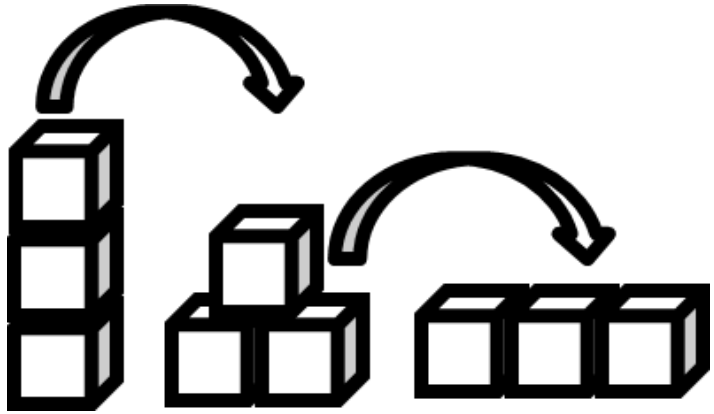
Manufacturing Work Instructions

Documentation specific to production teams is represented in the model



CAD Re-Use

By using a single model as the basis for part families and variations, engineering time is more efficient, and gets a better return on the CAD investment



Key Reasons to Embrace MBD

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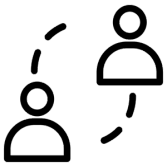
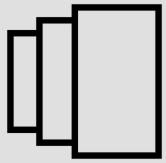


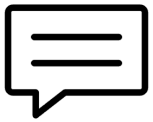
Requirements Capture



Revisioning

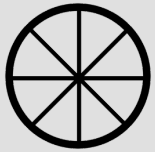
3D Navigation

Traceability

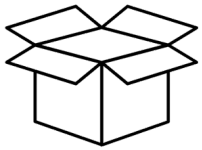


Commenting

Quality Traceability

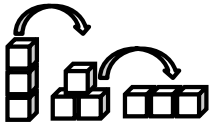


Document Integration



Parts List

Model-Based PMI



CAD Re-use

Conclusion

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MBD isn’t a technology shift, it’s a culture shift . . .

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And a complicated one.

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We must use our tools, including Inventor, with people in mind

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And we must communicate clearly

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Because People Have Ideas about the MBD Transformation Already . . .

What the CEO thinks it

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What Marketing thinks it is

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What Manufacturing thinks it is

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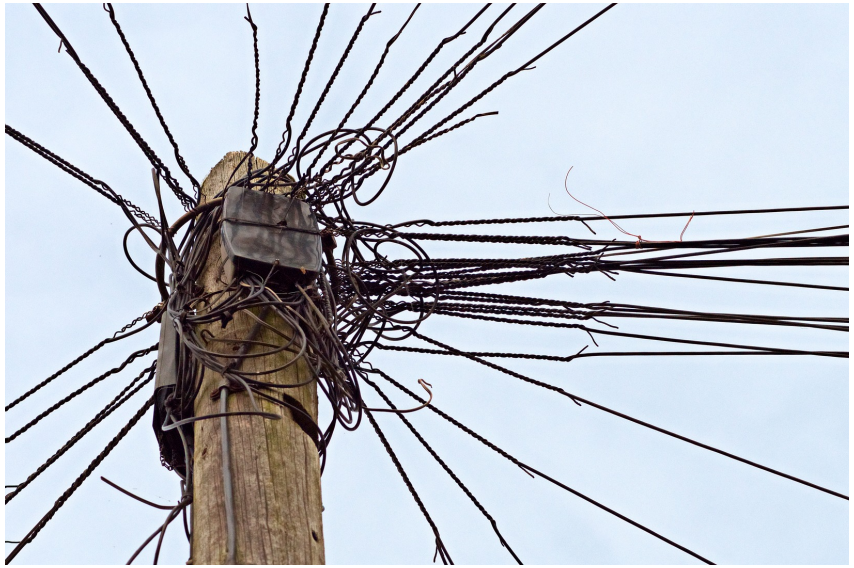

What Engineering thinks it is

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What Quality thinks it is

ACTION ENGINEERING

What Supply Chain thinks it is

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What the Customer thinks it is

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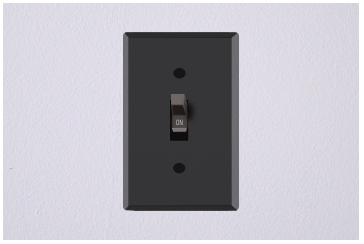
What it actually is

MBD Transformation



What the **CEO** thinks it is

What **Marketing** thinks it is

What **Manufacturing** thinks it is

What **Engineering** thinks it is

What **Quality** thinks it is

What the **Supply Chain** thinks it is

What the **Customer** thinks it is

What MBD **actually** is

Resources

Want More Detail?

See Stephen Werst: MFG318999
Finding the Right Fit with Inventor Tolerance Analysis
Thursday, Nov 21
10:30 AM - 11:30 AM
Murano 3301B, Level 3

Technical Questions?

Sharon Rowe
Communications Director
Action Engineering
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Terms and Definitions

action-engineering.com/dictionary

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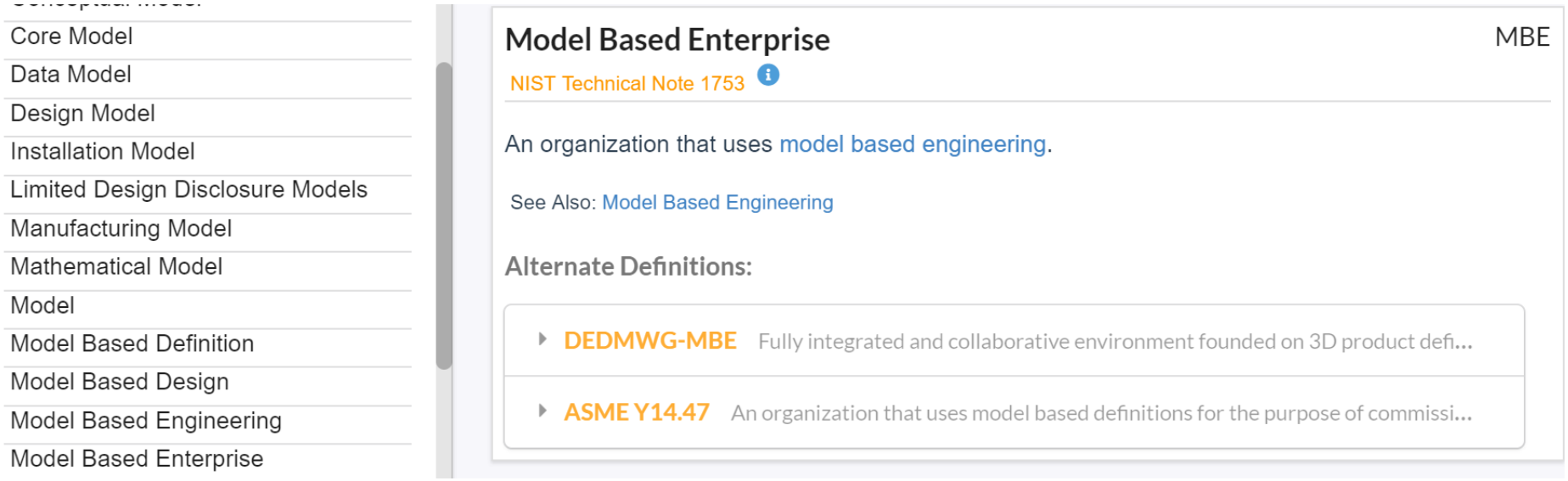


Further Training for MBD Success

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

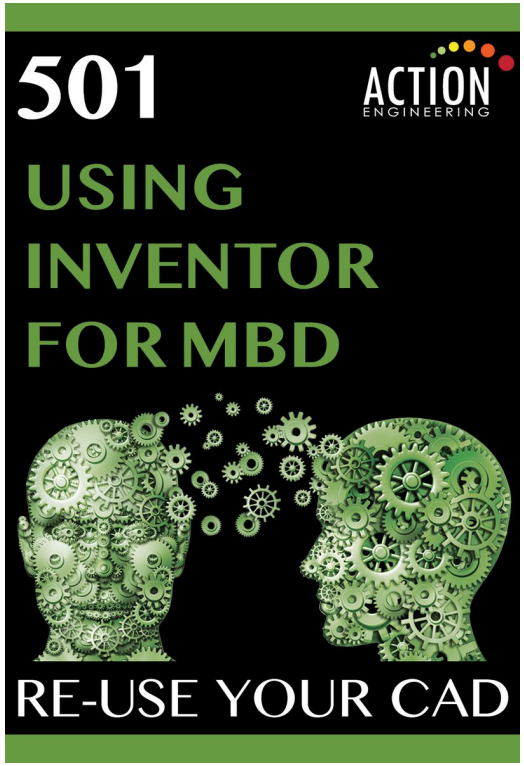
- The What, Why, and How of Model-Based Definition
- GD&T the Right Way for Model-Based Definition – how to implement the latest offerings of the ASME Y14.5-2018 standard

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.

action-engineering.com/courses



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Questions?

Balancing Technology and People