

Digital Transformation

MBE Experience Center initiative

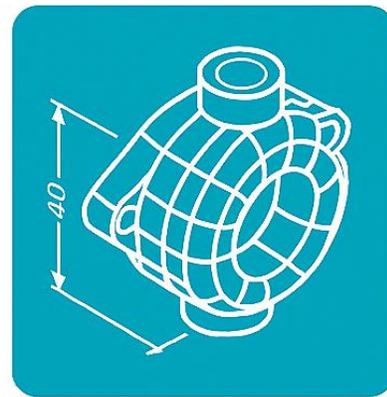


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November 2025

Draft v6

Proposal MBE Experience Center

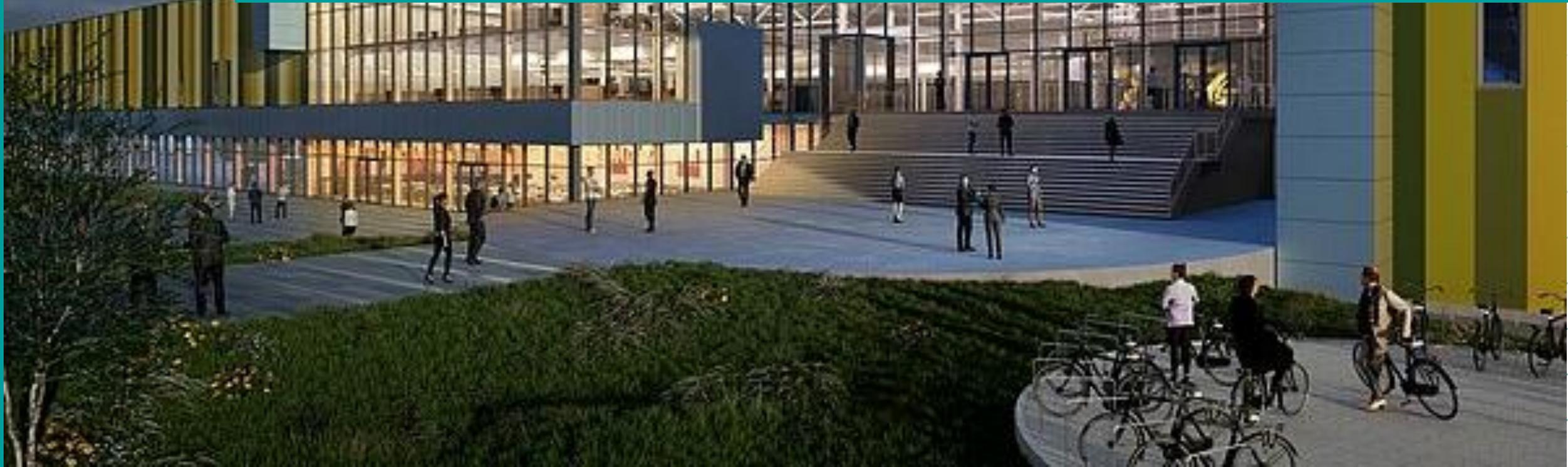
1. Introduction and background
2. Actual status of MBD in the high-tech supply chain
3. MBD and the challenges of manufacturing
4. How to boost MBD/MBE adoption
5. The MBD Experience Centre initiative



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MBE = Model Based Enterprise

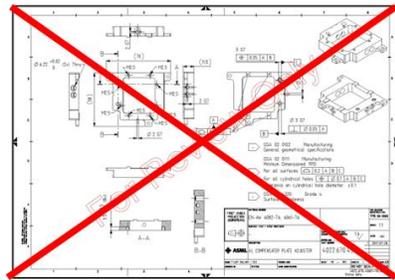
Introduction and background MBD



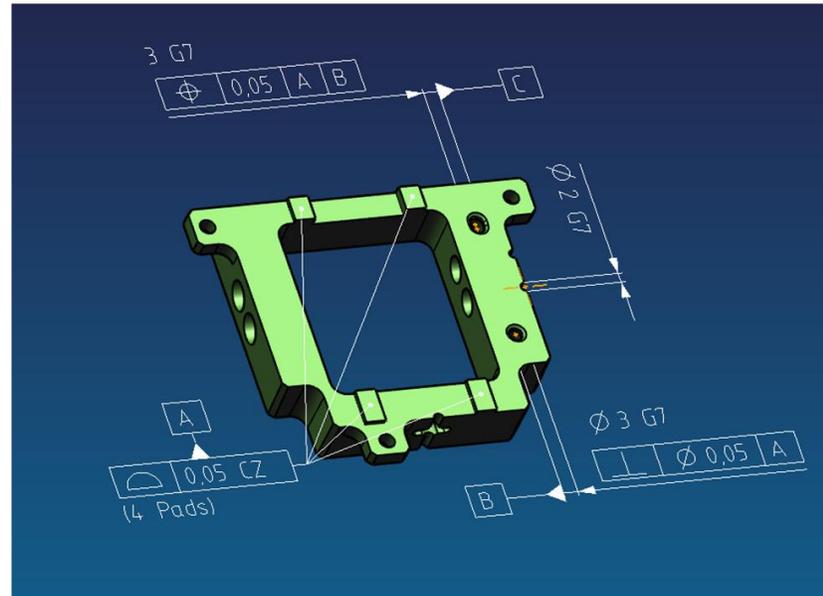
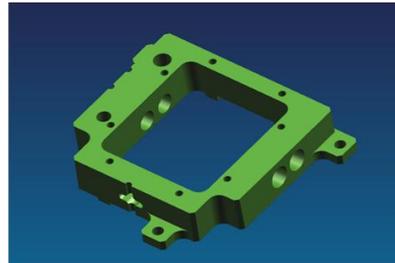
2018: ASML introduces MBD

In 2018, ASML stopped making traditional drawings

New projects are from then-on based on **Model Based Definition (MBD)**



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MBD = Model Based Definition

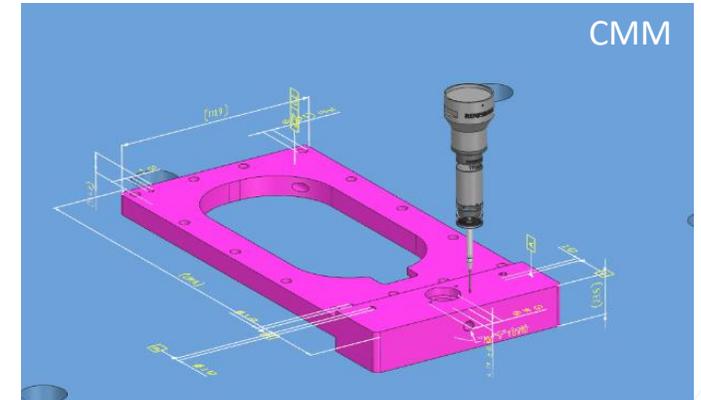
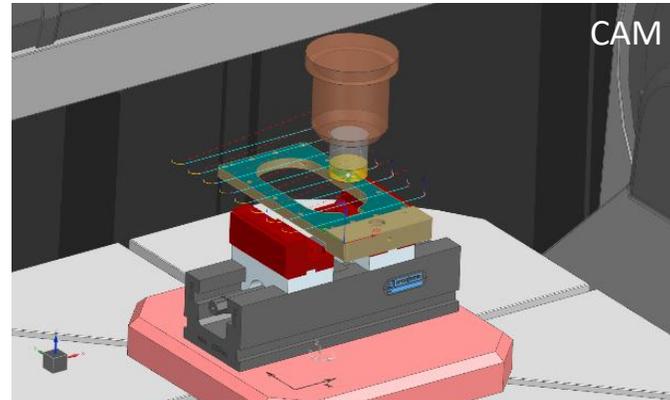
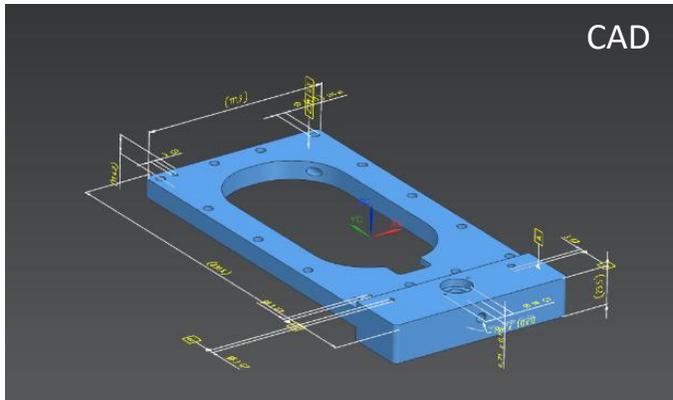
The company wide application of MBD is called **Model Based Enterprise (MBE)**

What makes MBD different?

MBD = Machine Readable

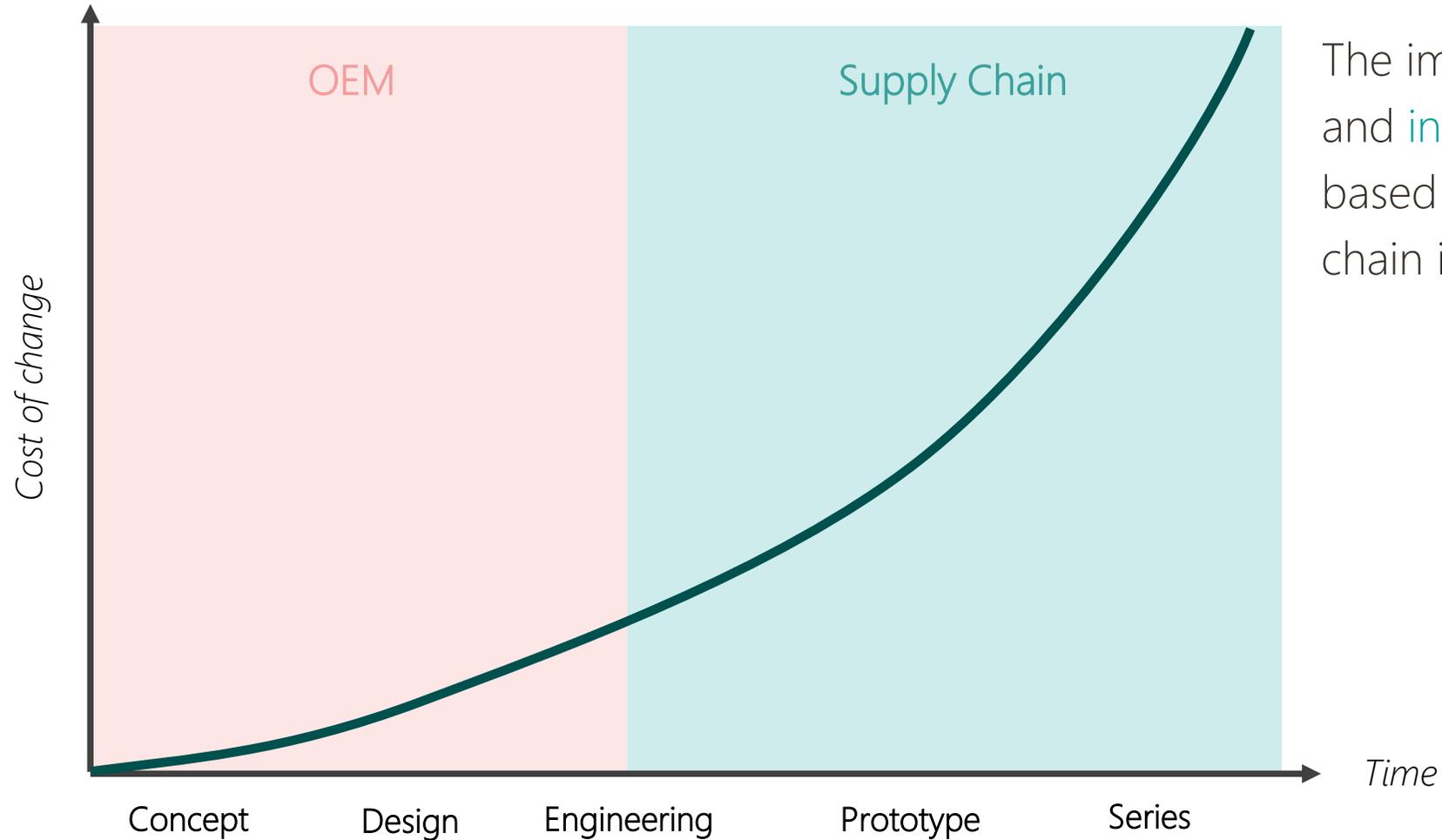


MBD reduces risks, leadtime and cost



Reuse & Automation in the Supply Chain

Why is this important?



The impact of **incomplete** and **inconsistent** drawing based TPD in the supply chain is **huge**

The business benefits of MBD/MBE

Faster time-to-market: 20–50% reduction in engineering-to-production cycle time.

Lower costs: Fewer drawing changes, less rework, fewer shop floor mistakes.

Higher quality: Automated inspection and simulation improve first-pass yield.

Better collaboration: Suppliers get accurate, real-time data.

Regulatory readiness: Digital records support traceability and compliance.

- Aerospace & automotive report:
- 30–40% reduction in engineering change orders.
 - 25% lower manufacturing errors.
 - Millions saved annually in scrap and rework.



Actual status of MBD



MBD adoption by the supply chain is proving difficult



2025

7 years after introduction by ASML, the adoption of MBD by the supply chain remains significantly lagging

The potential of MBD has only increased

AI will boost automation but requires intelligent data

MBD based designs deliver this

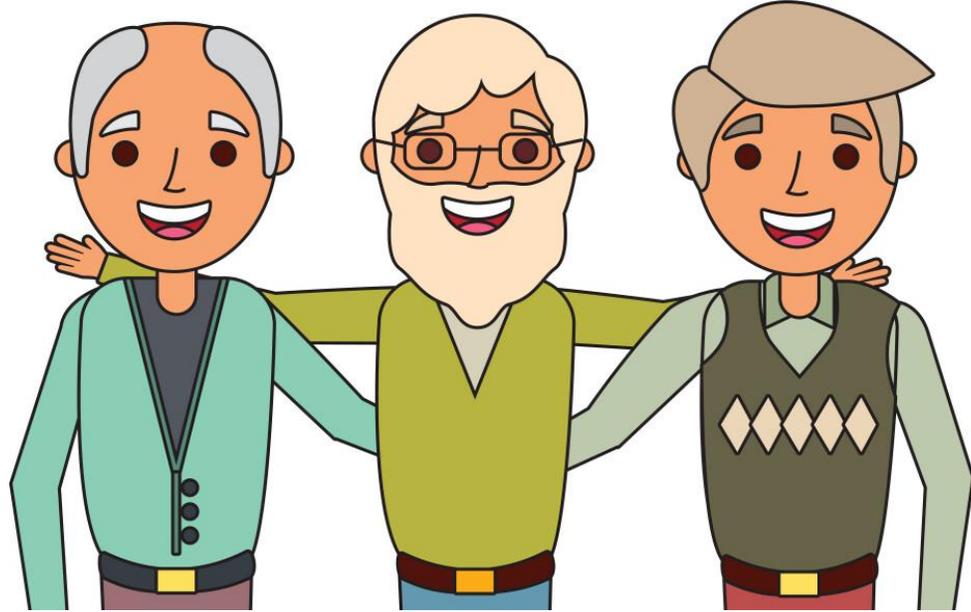


We're in danger of missing the boat

Asian suppliers adopt MBD at high pace without questioning



We can't let this happen!



We will not retire until MBE is embraced by OEM and it's supply chain!



Challenges in manufacturing

A modern, multi-story building with a large glass facade and a prominent set of stairs, surrounded by people and bicycles, under a blue sky. The building features a mix of blue and yellow-green panels. The foreground shows a paved area with people walking and a group of bicycles parked. The sky is a deep blue with some light clouds.

Many serious challenges for the manufacturing industry

Nederlandse industrie moet sneller digitaliseren om concurrerend te blijven

Industrie minder gedigitaliseerd dan koplopers in andere sectoren en landen

1 mei 2023 · Geen reacties · 5 Minuten leestijd



Laatst toegevoegd

 ING Sector Update Industry – juni
23 juni 2023

 Fouten maken is menselijk...
22 juni 2023

 Nieuwe Omgevingswet: wat gaat er veranderen?
22 juni 2023

RTLnieuws

Nieuws Economie Sport Entertainment Tech Lifestyle EditieNL

Inzetten op digitalisering

Personeelstekort bedreigt maakindustrie: 'Duizenden onvervulbare vacatures'

20 juni 2022 15:21 · Aangepast 11 juli 2022 19:48

MIDPOINT BRABANT

Vul een zoekterm in... Nieuws Vacatures

Diensten Thema's Sectoren Projecten

Home / Nieuws

Slimmer werken in de maakindustrie moet oplossing bieden voor personeelstekort



Digital Factory

Smart Industry

Manufacturing technologies

Smart Product

Manufacturing

Network Centric

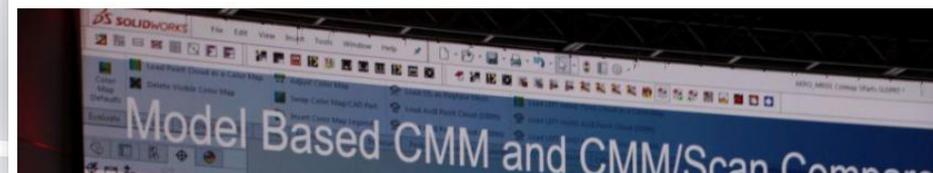
Digital

Sustainable Factory

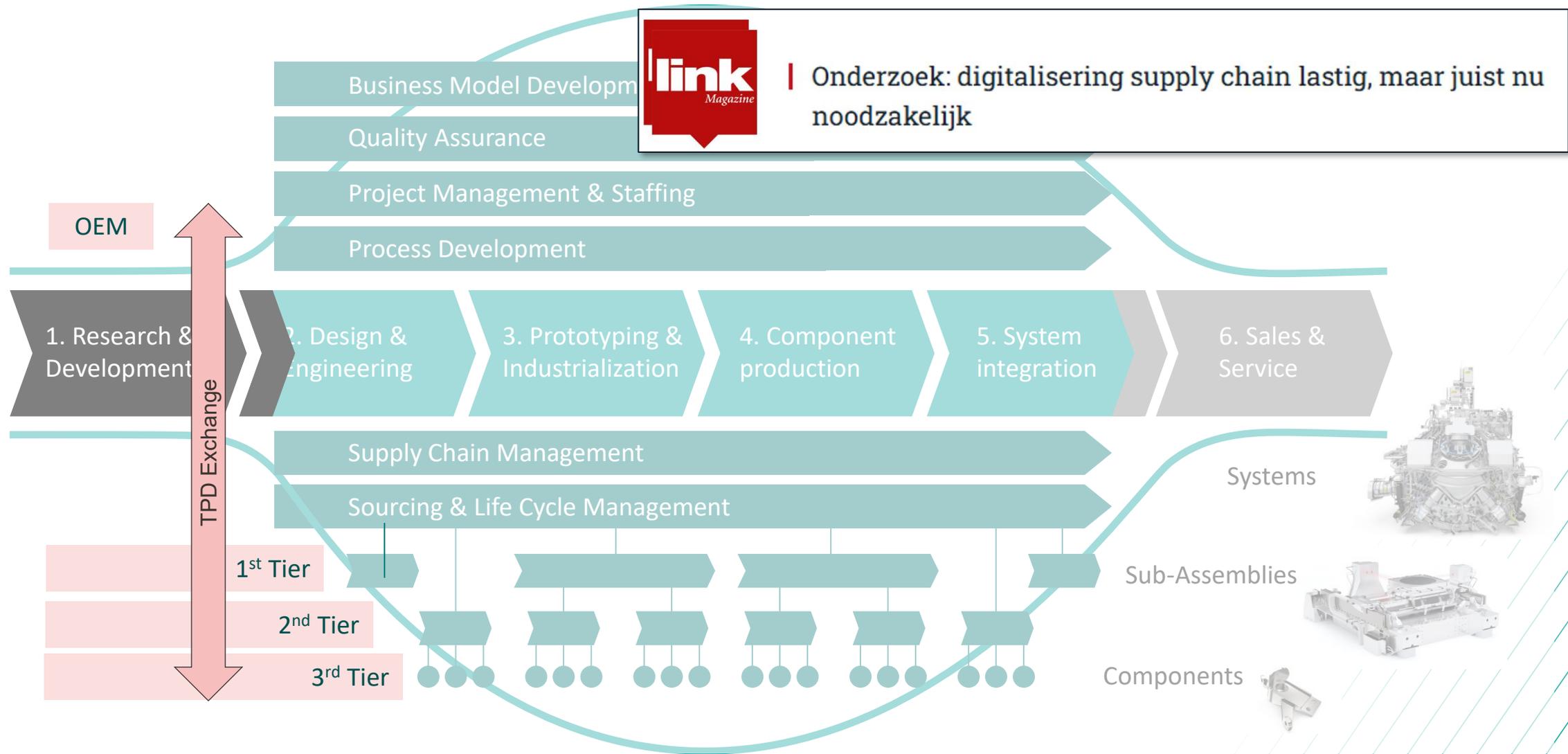


ASML stopt met 2D tekeningen, MBD wordt de norm

Automatisering CNC-Verspanen 13 February 2018



MBD is a key element in the digitalization of the supply chain



Summarized challenges of the Manufacturing Supply Chan

Pressure on cost reduction and time-to-market

Growing product complexity

Shortages of skilled technicians

Implementation of the concepts of Smart Industry



The answer is digitalisation and automation
MBD is an important enabler

A photograph of a modern, multi-story building with a large glass facade and a wide set of stairs. The building has a mix of blue and yellow-green panels. In the foreground, there is a paved area with people walking and a bicycle rack with several bicycles. The sky is blue with some clouds.

How to boost MBD adoption?

Remove barriers to start with MBD



What is required to boost MBD adoption?

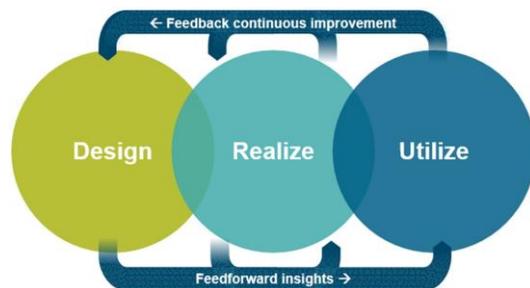
MBD embraced by C-level management

Connect MBD with business priorities

Recognizable use cases

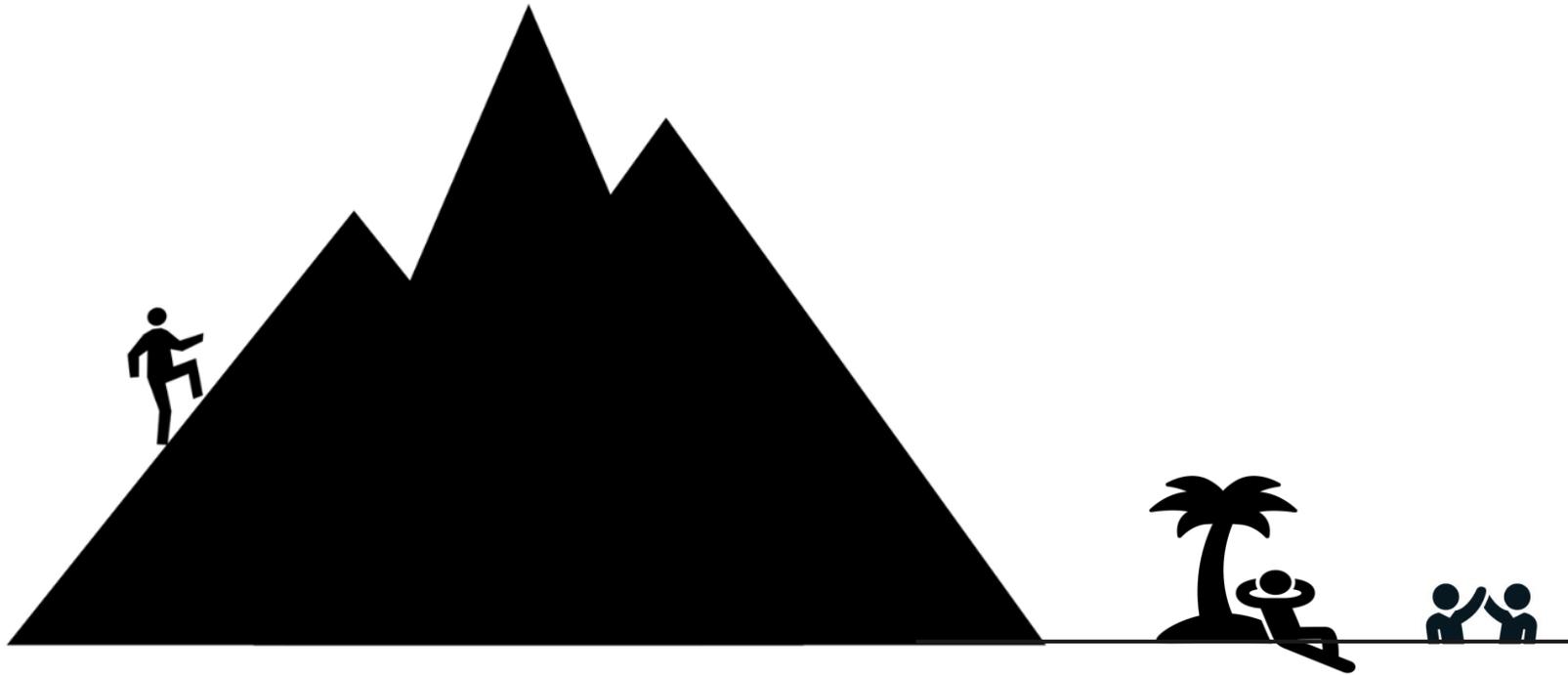
Implementation Best practices

Address people change management



TPD creation & quality control
Assembly tolerance stack analyses
Sheet metal welding automation
Machining CAM automation
Inspection CMM automation

MBD requires C-level commitment and a clear vision



the promised (MBE) land

The MBD Experience Centre initiative

Business Cases templates



Objectives

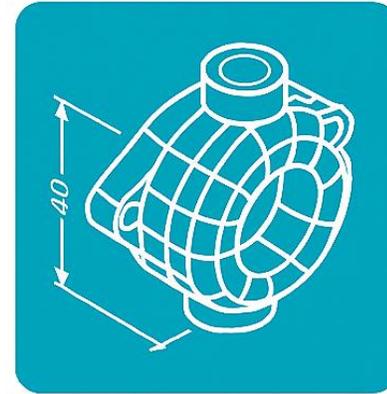
- Boost MBD adoption by the supply chain
- Remove barriers to get started with MBD
- Share knowledge and lessons learned
- Facilitate demonstrators that show benefits



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Activities

- Show C-level the bigger picture of MBD
- Offer business cases templates
- Set-up MBD-demonstrators
- Share experiences via a MBE Users platform
- Offer implementation Best Practices
- Facilitate software suppliers to improve their applications
- Organize training and workshops for OEM and supply chain
- Promote MBD in the high-tech industry
- Monitor MBD adoption in the high-tech industry



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Example MBD Demonstrator - Welding

☑ Support and automation of adding GD&T specifications

☑ Integrated validation of design specification (TPD)

☑ Reuse of weld specifications

☑ No more drawing interpretation

☑ programming of welding robot and weld settings

📈 M B D B e n e f i t s faster, less errors and ambiguities resulting in cost and leadtime reduction

Design weldment

Add PMI

- Define welds
- Define GD&T

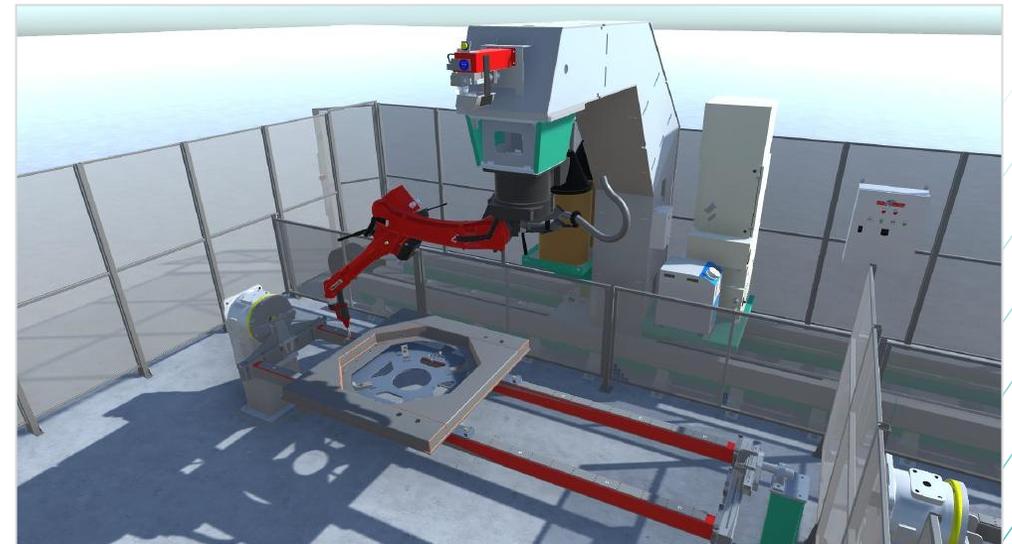
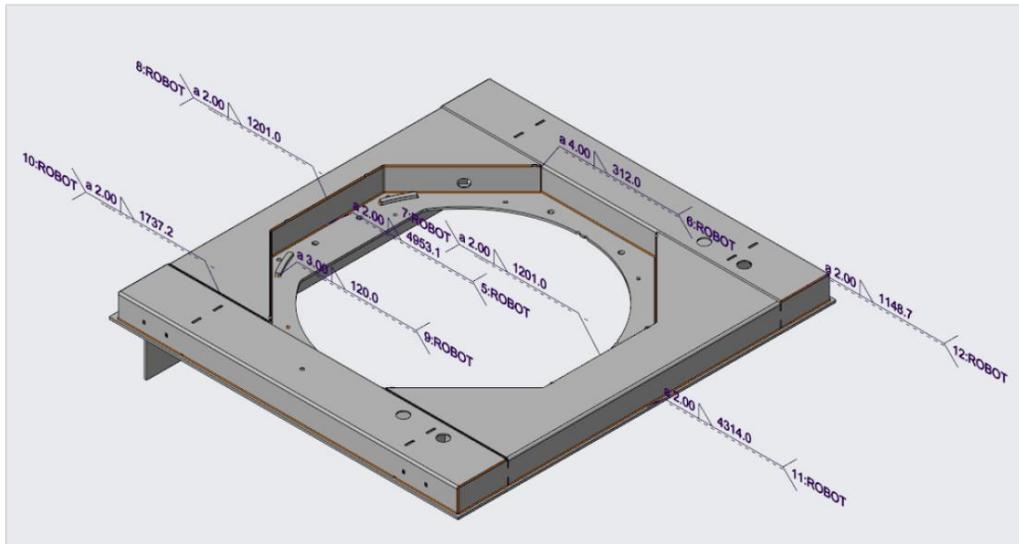
Exchange design

- STEP242, QIF, CAD-native

Prepare Welding

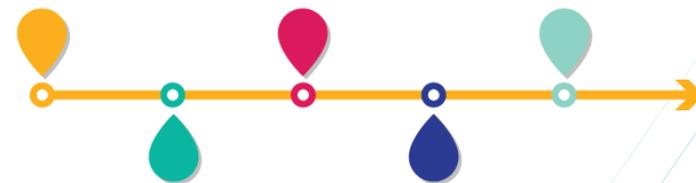
- Welding settings
- Torch toolpath

Weld Product



Timeline MBE Experience Centre

2025 Q4	Initiation Define strategy, objectives and program outline Acquire partners, participants and experts. Agree on cost and funding
2026	Organization and start execution Organize program Define demonstrator projects Organize resources and budget



What support do you need from the MBE Experience Center?



Sign the Letter of Intent



Brainport
Industries

Letter of Intent

MBE Experience Centre

Participation in the Model Based Enterprise (MBE) Experience Centre

Dear [Supplier / Partner],

The high-tech industry is facing significant challenges:

- Achieving higher productivity with the same resources to enable growth.
- Developing products with increased complexity and quality to secure continuous innovation.
- Improving efficiency in product development to reduce time to market.
- Maintaining flexibility in a fast-changing technological environment.

One of the key enablers to meet these challenges is the Digital Transformation of product development and manufacturing processes. A proven methodology is the Model Based Enterprise (MBE) approach, where products are designed in 3D CAD, enriched with Product & Manufacturing Information (PMI), and reused throughout the lifecycle – from design analysis and planning to manufacturing and inspection.

While MBE is already being adopted worldwide, many OEMs and their supply chains still encounter barriers to large-scale implementation. These include:

- Software maturity in CAD, simulation, manufacturing, and inspection.



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Thanks for your attention!

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