Digital Transformation

MBE Experience Center initiative

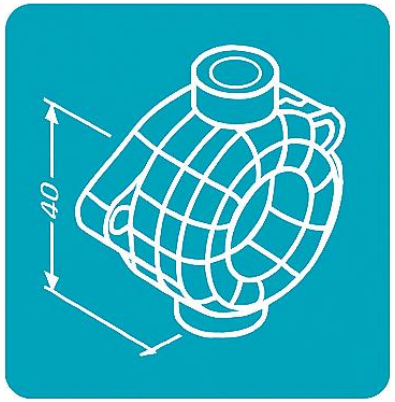
Leo Broers, Johan Veldhuis, Wim Ottenhoff,

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



MBE
EXPERIENCE
CENTRE

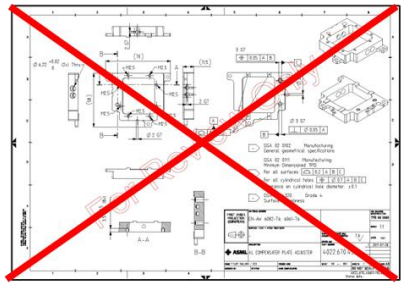
MBE = Model Based Enterprise

Introduction and background MBD

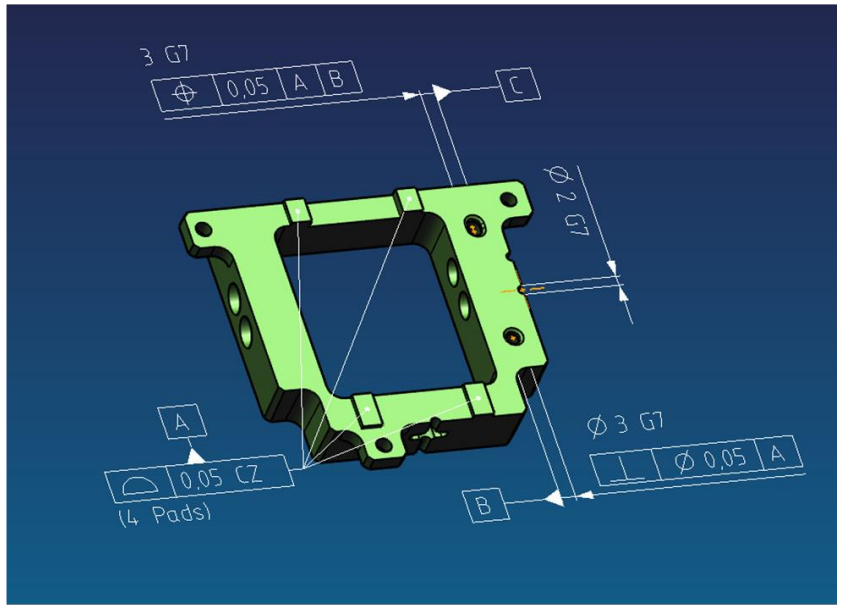
2018: ASML introduces MBD

In 2018, ASML stopped making traditional drawings

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



+



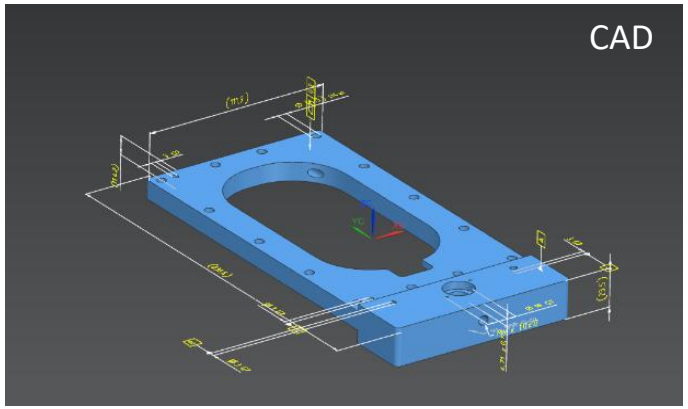
MBD = Model Based Definition

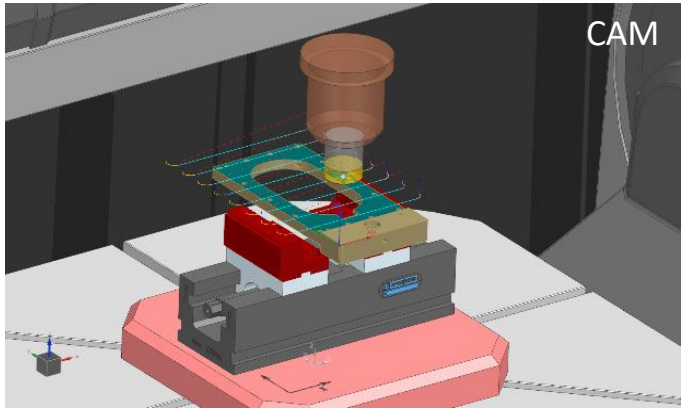
The company wide application of MBD is called **Model Based Enterprise** (MBE)

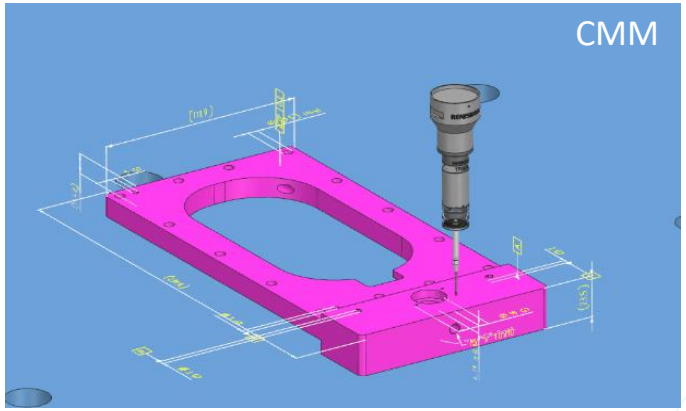
What makes MBD different?

MBD = Machine Readable

MBD reduces risks, leadtime and cost

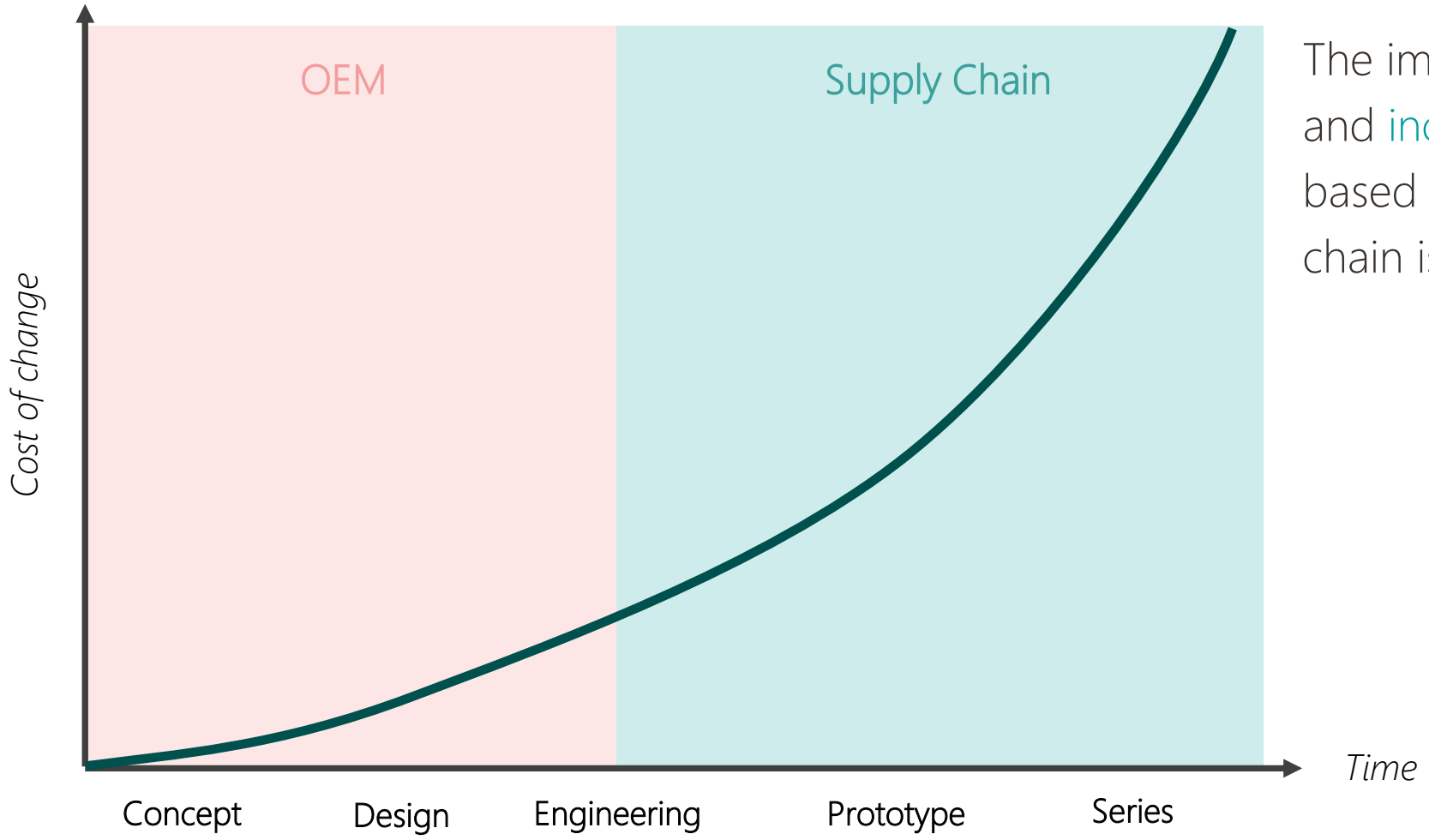






Reuse & Automation in the Supply Chain

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

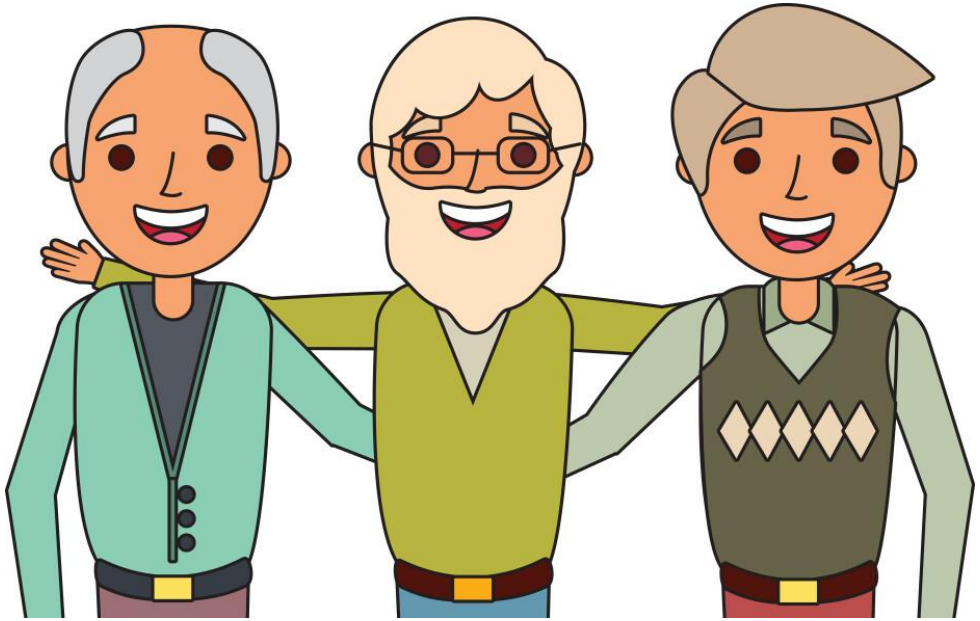
AI will boost automation but requires intelligent data

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!



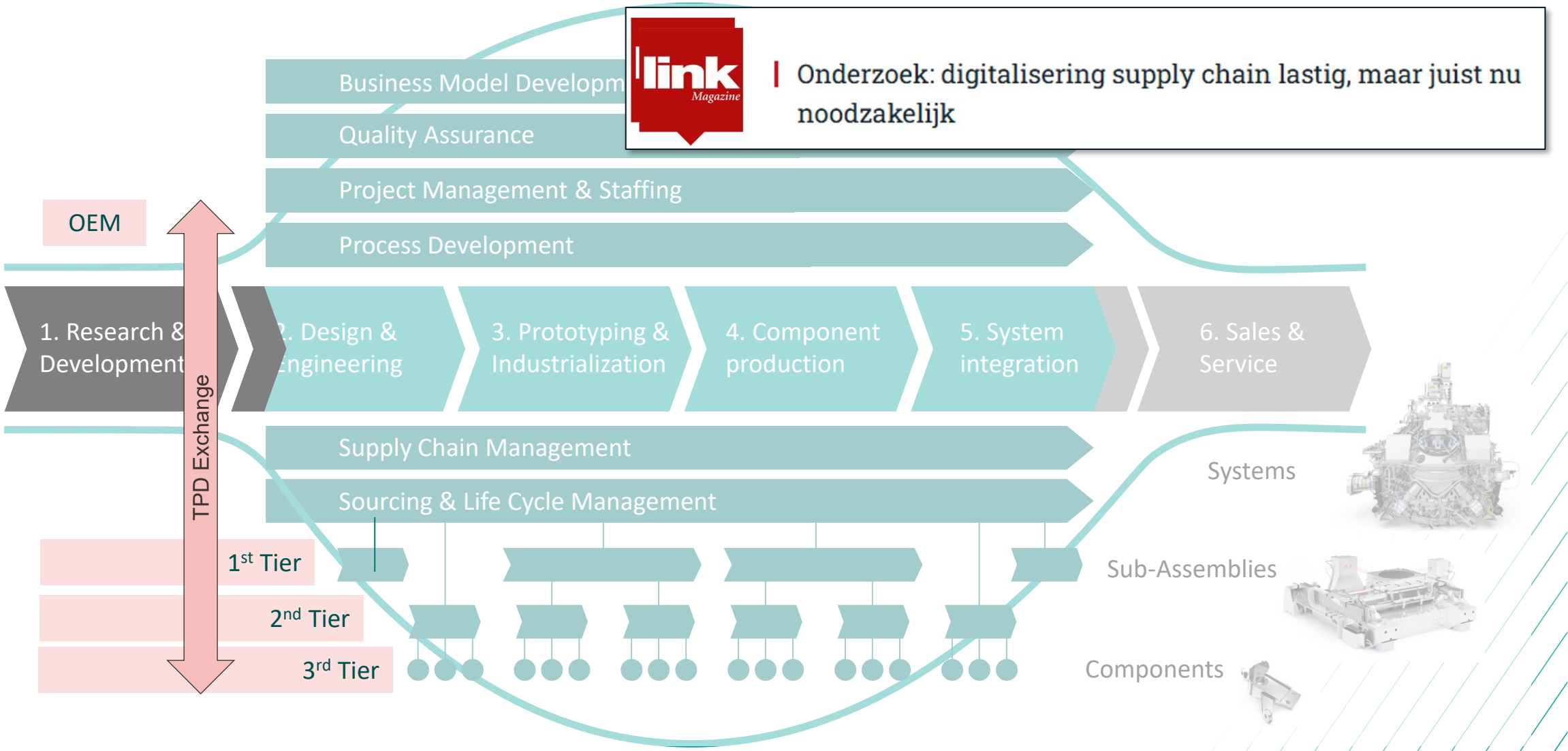
We will not retire until MBE is embraced by OEM and it’s supply chain!

MBE
EXPERIENCE
CENTRE

Challenges in manufacturing

Many serious challenges for the manufacturing industry

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



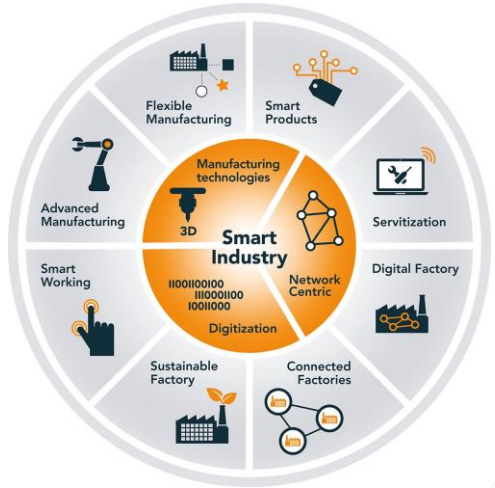
Summarized challenges of the Manufacturing Supply Chan

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

How to boost MBD adoption?

Remove barriers to start with MBD

What is required to boost MBD adoption?

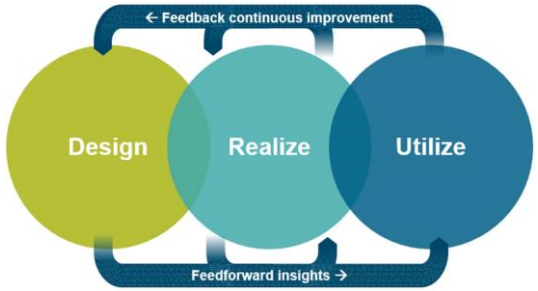
MBD embrased by C-level management

Connect MBD with business priorities

Recognizable use cases

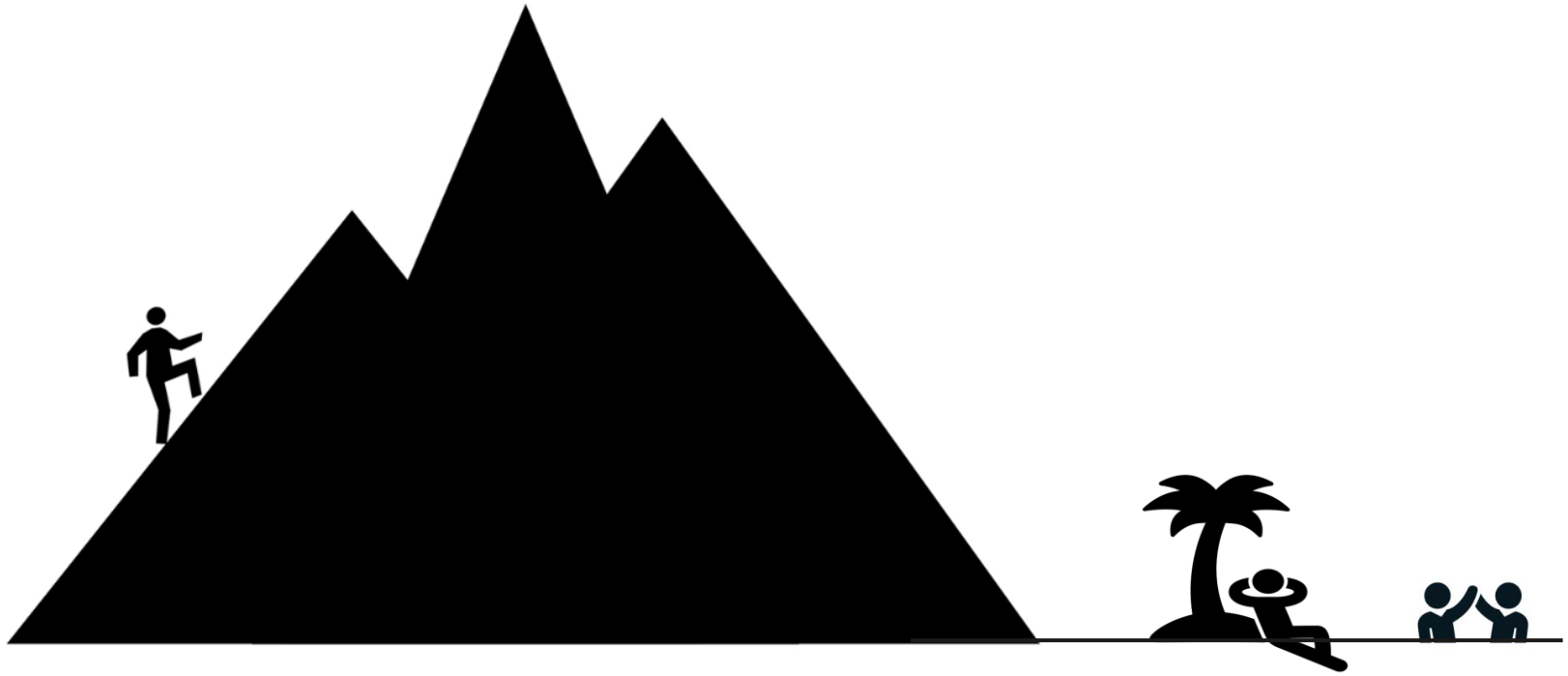
Implementation Best practices

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

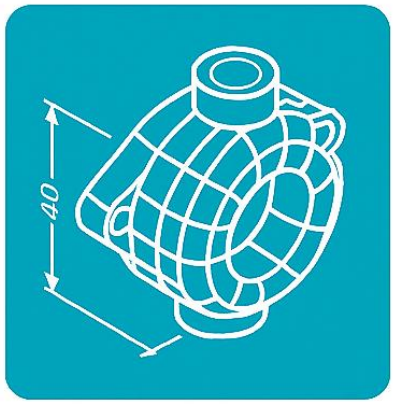
Objectives

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

MBE EXPERIENCE CENTRE

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



MBE
EXPERIENCE
CENTRE

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

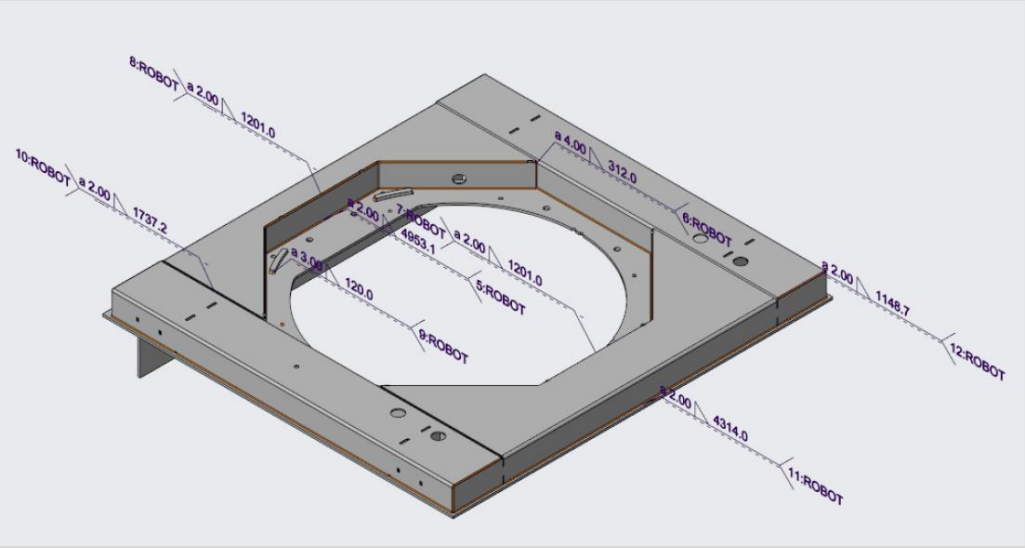
MBD Benefits faster, less errors and ambiguities resulting in **cost and leadtime reduction**

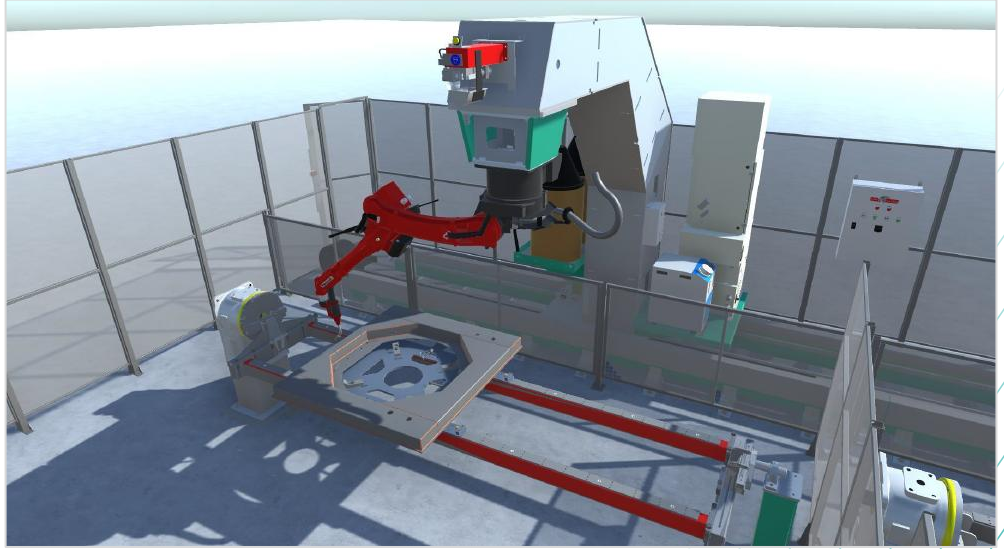
Design weldment → Add PMI
- Define welds
- Define GD&T

→ Exchange design
- STEP242, QIF, CAD-native

→ Prepare Welding
- Welding settings
- Torch toolpath

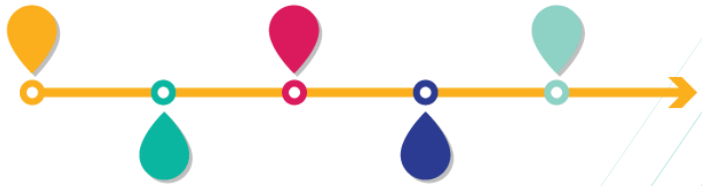
→ Weld Product





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

MIKRO CENTRUM at the heart of hightech

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.

Visit our boot H5-108 to sign our LoI

Or scan the QR-code and email to k.mous@mikrocentrum.nl

SAMPLE QR!

MBE EXPERIENCE CENTRE

Thanks for your attention!

Leo Broers

Leo.broers@coresy.nl

+31 6 5360 9191

Johan Veldhuis

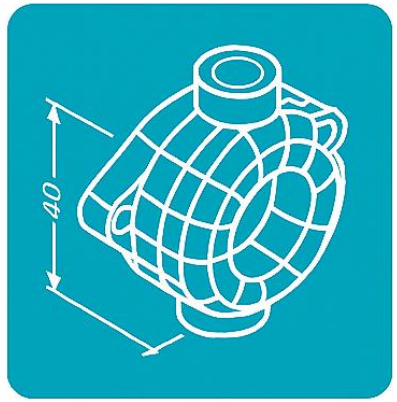
johan.veldhuis@prodrive-technologies.com

+31 6 5006 6758

Wim Ottenhoff

wim.ottenhoff@emixa.com

+31 6 2215 8720



MBE EXPERIENCE CENTRE