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Imagine…

…independent manufacturers operate as one trusted production network.

…complex orders quickly delivered.

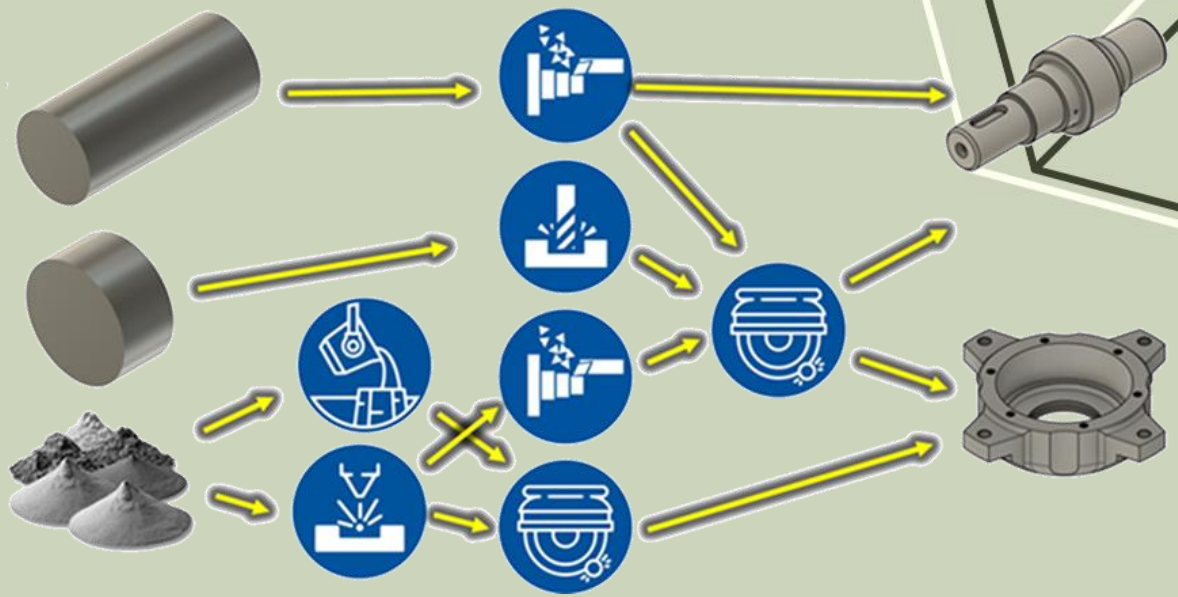
…quality will remain consistent across all production sites

MARS

The Gap

Fragmented capacity

Inconsistent production and quality data



Limited willingness to share sensitive operational information

Unique Value Proposition

MARS explores how independent manufacturers can ***jointly fulfil orders*** *that exceed their individual capacity, while maintaining* ***quality, traceability and control of their data***

MARS offers

Allocate

Break down and distribute an order across suitable manufacturers

Assure

Use comparable production data and AI-supported quality assessment across sites

Prove

Provide traceable quality and process evidence

MARS

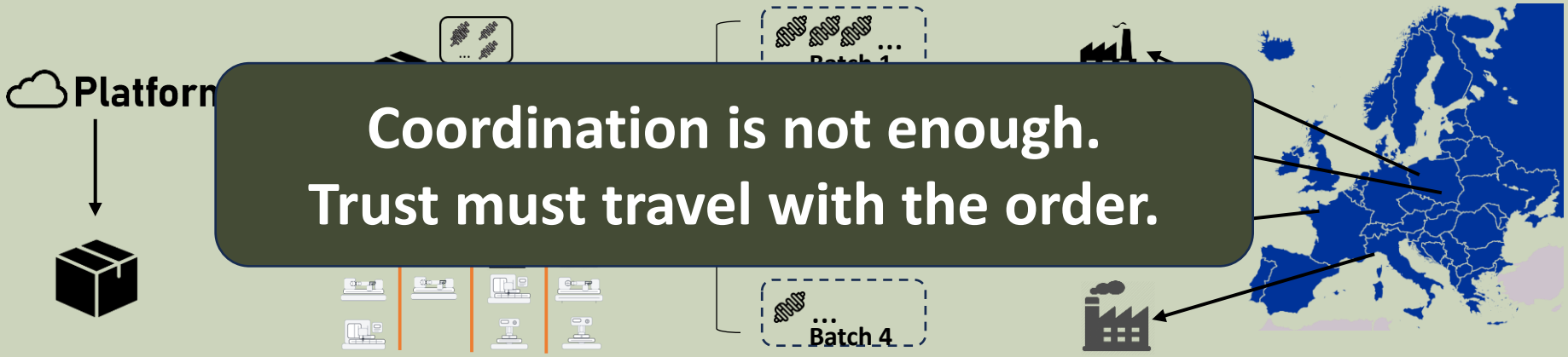
Current state of the market

Typical manufacturing platform	MARS project focus
Find and contract a supplier	**Coordinate several independent manufacturers**
Match an order with available capacity	**Split and allocate work across capable sites**
Simplify quoting and purchasing	**Connect process and quality evidence across sites**
Outsource production	**Enable a trusted, resilient virtual factory**

MARS

Fractal Distribution Manufacturing System

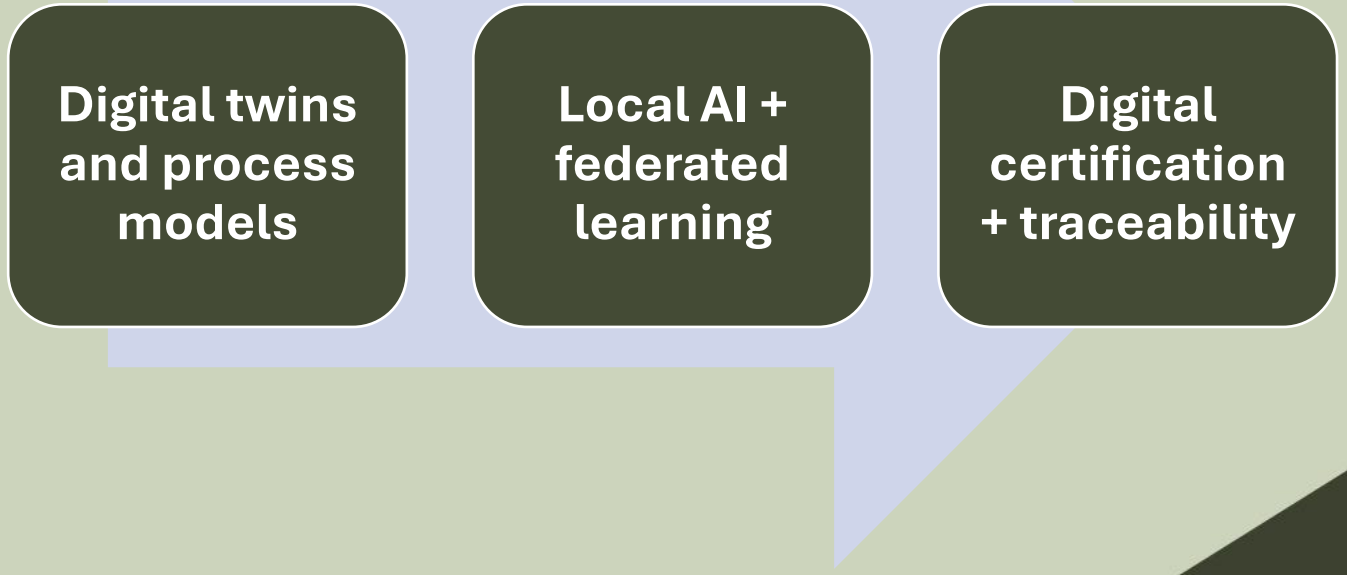
1. An order enters the platform
2. The process plan identifies the required capabilities
3. Manufacturers bid for suitable production tasks
4. The order is distributed and quality is assured across sites



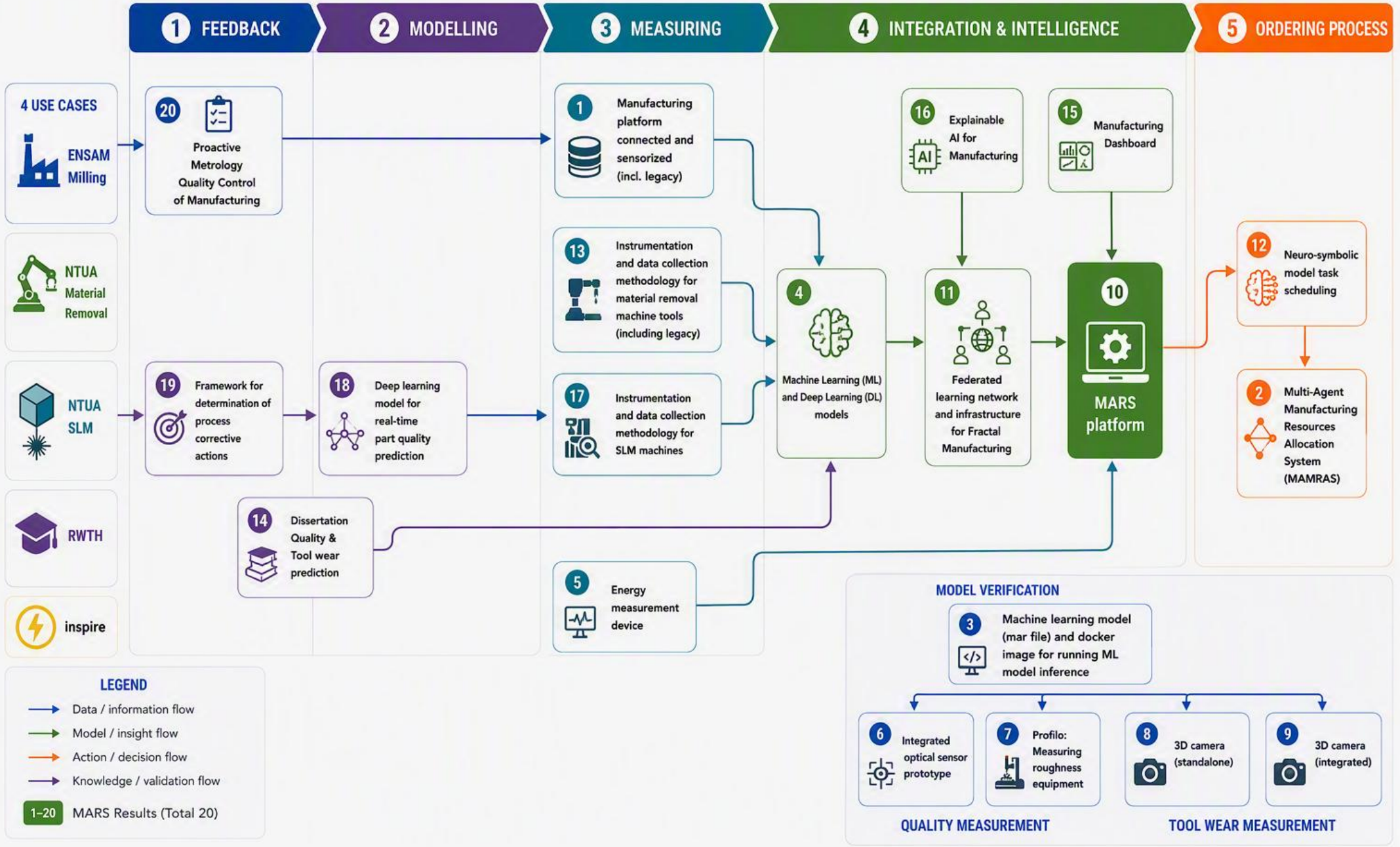
Coordination is not enough.
Trust must travel with the order.

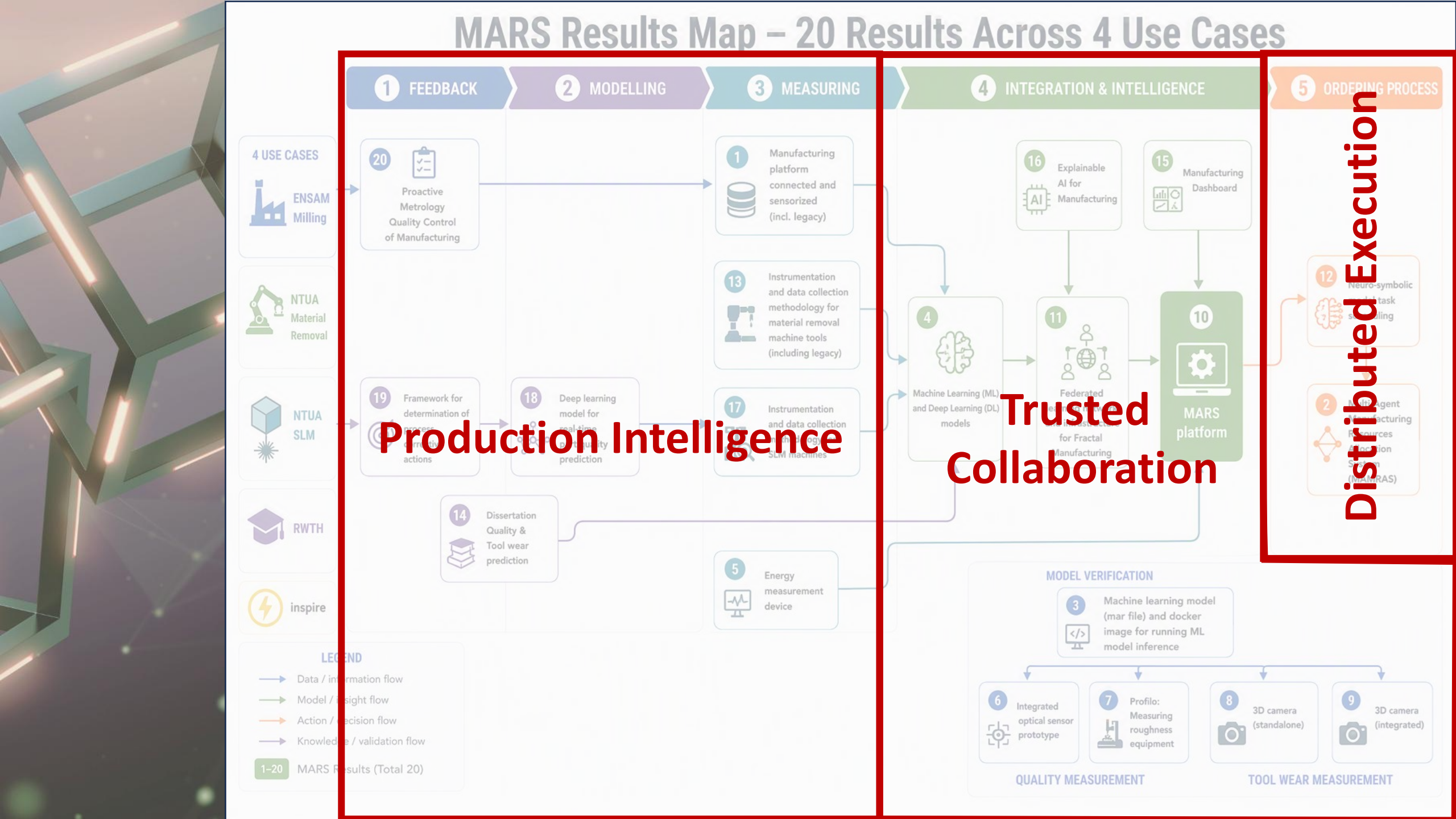
Creating & maintaining Trust

Independent **SMEs retain their machines, data and autonomy**

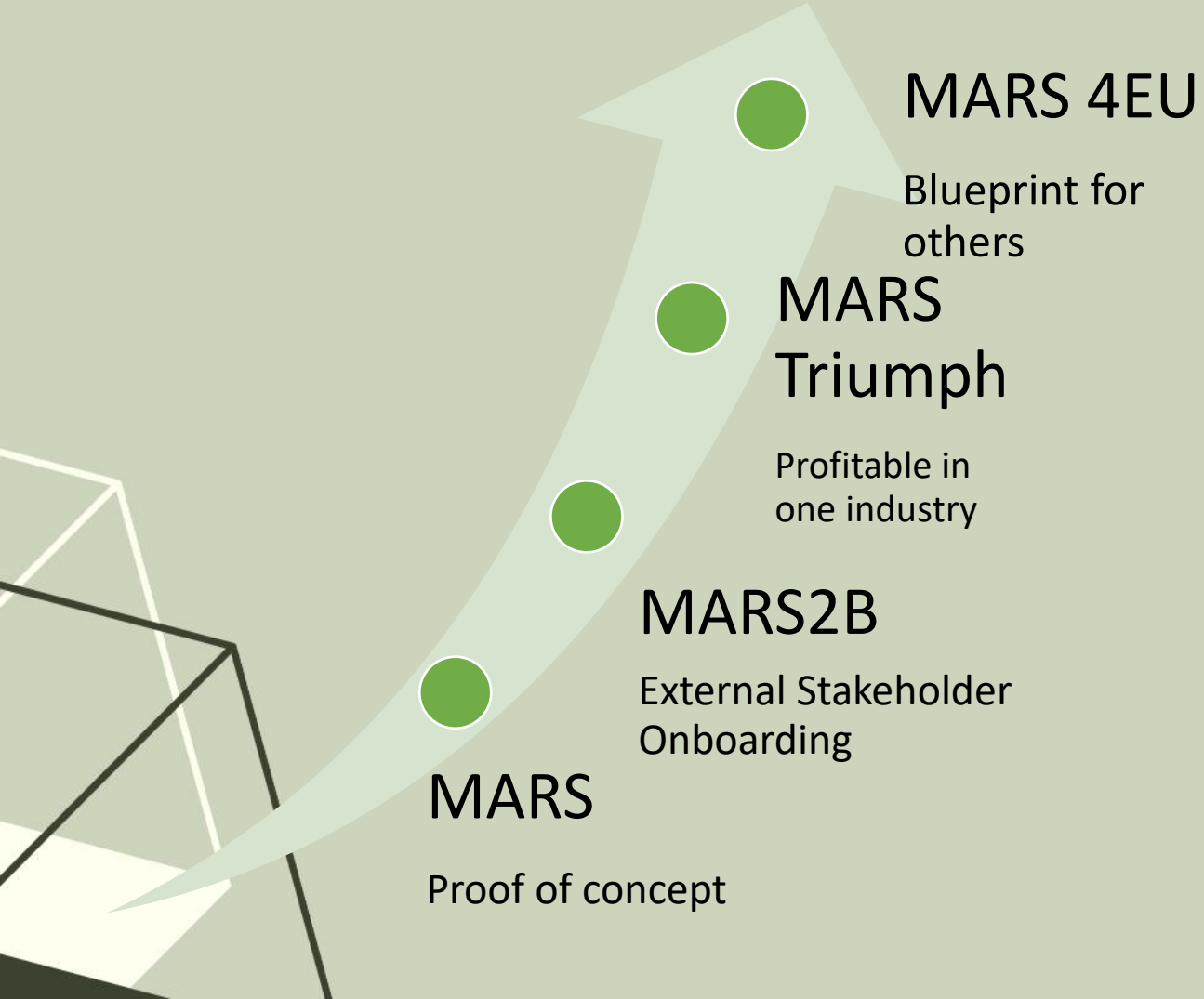


MARS Results Map – 20 Results Across 4 Use Cases




MARS Results Map – 20 Results Across 4 Use Cases
1 FEEDBACK
2 MODELLING
3 MEASURING
4 INTEGRATION & INTELLIGENCE
5 ORDERING PROCESS
4 USE CASES
ENSAM Milling
NTUA Material Removal
NTUA SLM
RWTH
inspire
20 Proactive Metrology Quality Control of Manufacturing
1 Manufacturing platform connected and sensorized (incl. legacy)
13 Instrumentation and data collection methodology for material removal machine tools (including legacy)
19 Framework for determination of actions
18 Deep learning model for prediction
17 Instrumentation and data collection
14 Dissertation Quality & Tool wear prediction
5 Energy measurement device
16 Explainable AI for Manufacturing
15 Manufacturing Dashboard
4 Machine Learning (ML) and Deep Learning (DL) models
11 Federated
for Fractal Manufacturing
10 MARS platform
12 Neuro-symbolic
2
(MAMRAS)
Production Intelligence
Trusted Collaboration
Distributed Execution
MODEL VERIFICATION
3 Machine learning model (mar file) and docker image for running ML model inference
6 Integrated optical sensor prototype
7 Profilo: Measuring roughness equipment
8 3D camera (standalone)
9 3D camera (integrated)
QUALITY MEASUREMENT
TOOL WEAR MEASUREMENT
LEGEND
Data / information flow
Model / insight flow
Action / decision flow
Knowledge / validation flow
1–20 MARS Results (Total 20)

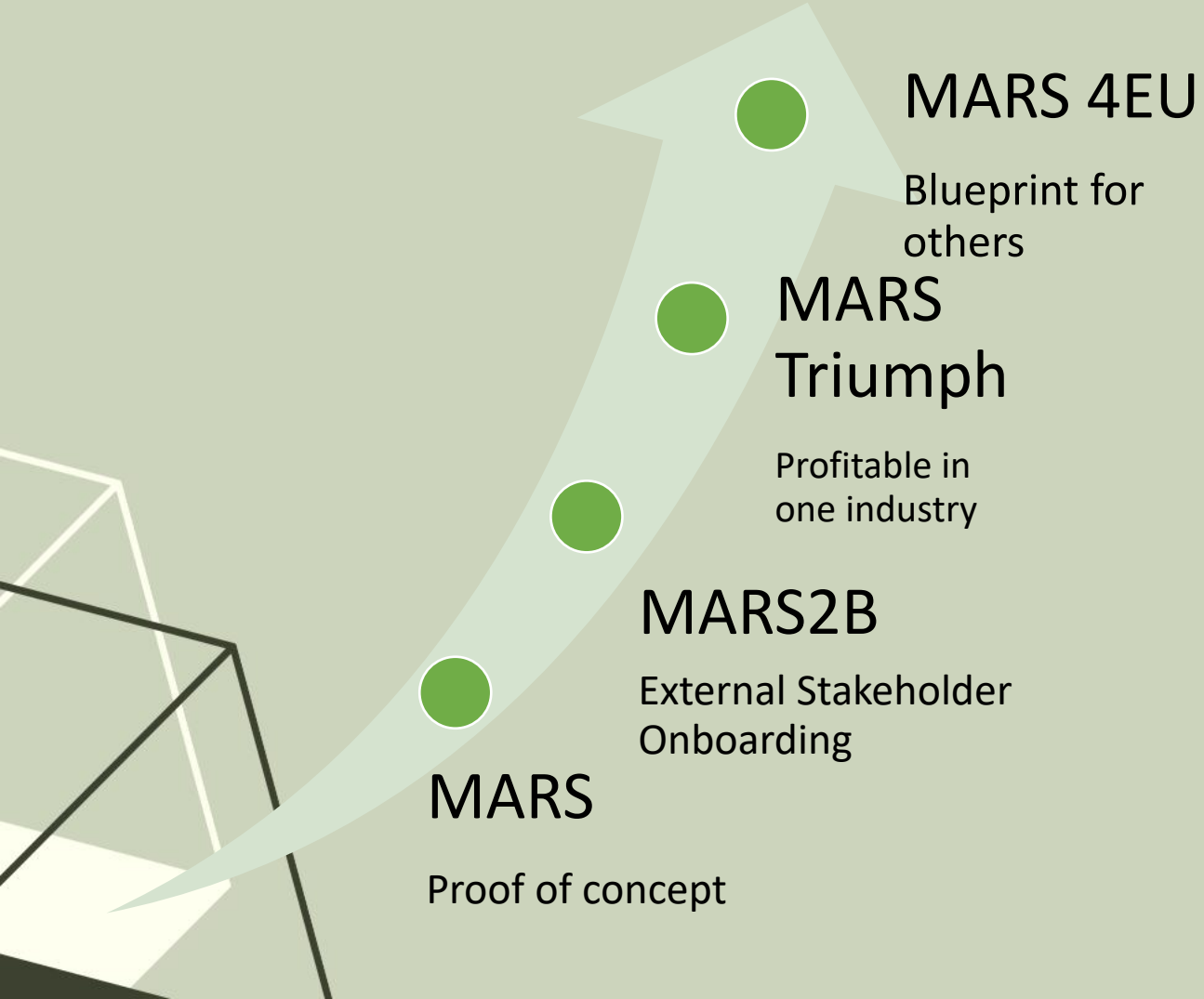
Call to Action



PHASE I – Integration & Platform Prototype

1. MARS platform prototype
2. Digital twin models for all machines
3. Digital Calibration Certificate
4. Digital sensor systems

Call to Action



PHASE II – MARS2B

External stakeholder

1. Test solution with external manufacturers
2. Upgrade user experience
3. Integrate new machines and processes
4. Streamline integration process



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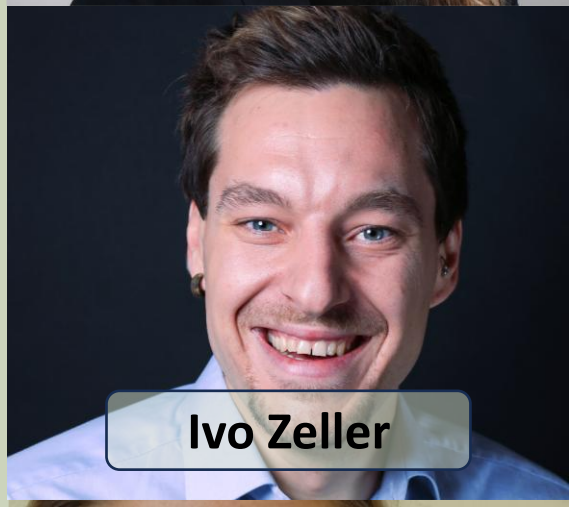
Swiss Confederation

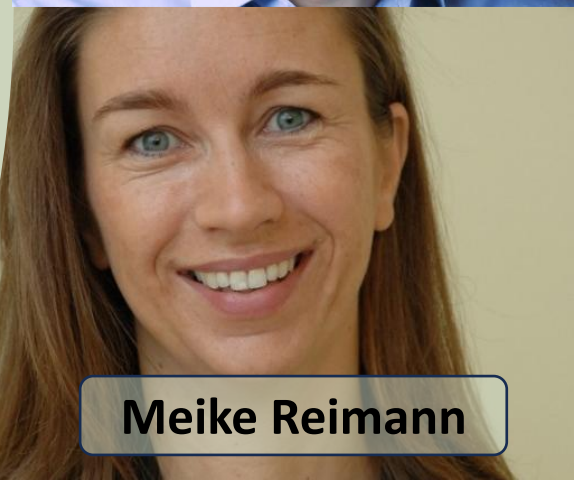
Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

MARS

Steinbeis Europa Zentrum
Enabling Innovators to Grow


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For more info

See us at our booth or
Visit our upcoming webinar

