

AI-BAME

AI Methods in Batch Metal Production



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MOTIVATION & GOALS

- **AI for smart manufacturing** – Applying AI-based modeling, simulation, optimization, and testing to enhance flexibility from enterprise to workstation level
- **Multi-level demonstration** – Real-world validation with industry partners in metal batch production at enterprise, shopfloor, workunit, and workstation scales
- **Holistic impact** – Assessing ecological, economic, and social benefits alongside technical advancements

Project FactBox

Project Name AI-BAME
Project ID MFP/Syst.1
Duration 48 Months

Area 4.2
Cognitive Production Systems

Project Lead
DI Dr. Philipp Eisele

APPROACH

- **Flexibility matrices & methods** – Development of product-production flexibility matrices and supporting methodologies
- **AI support tools** – Design of AI-based assistance tools for all organizational units
- **Demonstration** – Practical implementation through demonstrators

CONTRIBUTION

Scientific contribution

- 3 topic related papers, presented at 20th CIRP Conference on Intelligent Computation in Manufacturing Engineering, Ischia 2026

Economic contribution

- Hosting event: MABiF #15 at Fuchshofer Präzisionstechnik – Flexibilität als Schlüssel zur Produktion der Zukunft

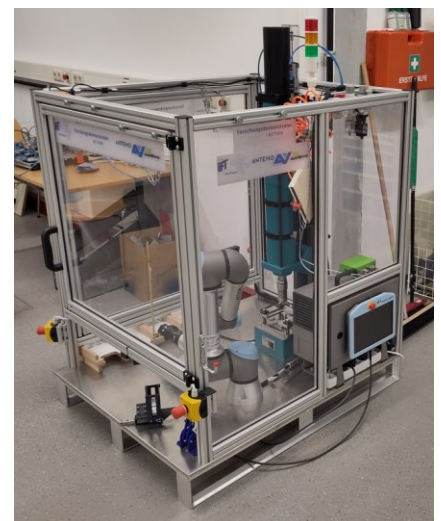
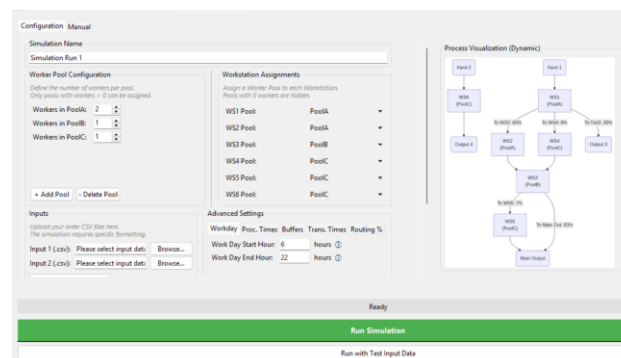


DEMONSTRATORS

Software demonstrator – Optimizes shopfloor production flows for flexible, short-term adaption to daily requirements and constraints

Hardware demonstrator – Showcasing use cases for:

- aerospace
- automotive
- smart assembly



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