

Manufacturing & Robotics Data Lab

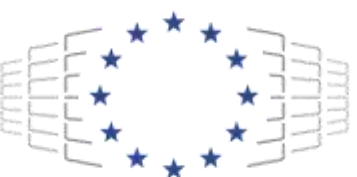
WG of 7 active AIFs with focus in manufacturing

Current focus topics:

- Product lifecycle data
- Synthetic & simulated data
- Foundational models for manufacturing & robotics
- Autonomous & agentic manufacturing
- Shopfloor and production optimization with AI



German AI Factory for Manufacturing, Engineering & Research



EuroHPC
Joint Undertaking



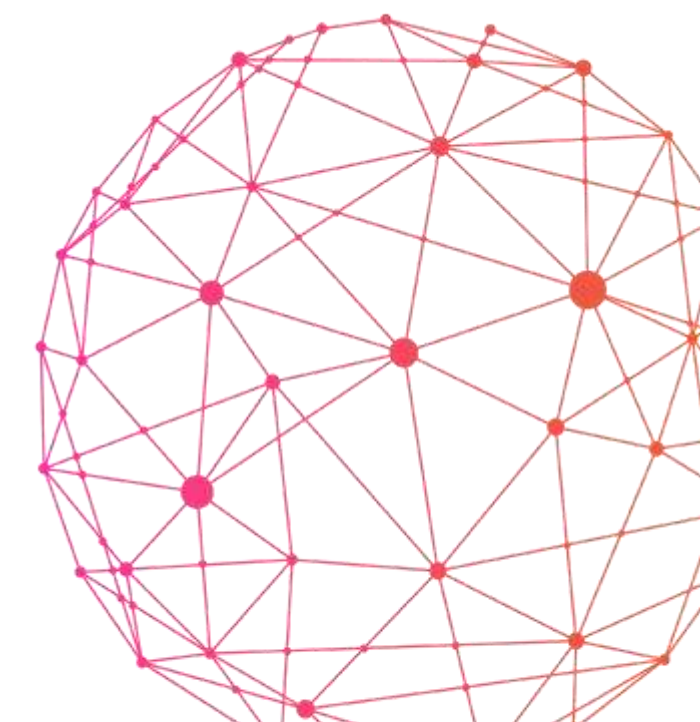
Key Sectors

	AT	BG	DE	EL	ES	FI	FR	IT	LU	PL	SE	SI
Health & Life Sciences	●		●	●	●	●	●	●		●	●	●
Technology & Digital		●		●	●	●	●	●	●	●	●	●
Environment & Sustainability		●	●	●	●		●	●	●	●	●	●
Education & Culture	●	●	●	●	●		●	●			●	●
Manufacturing & Engineering	●	●	●			●	●				●	●
Finance & Business	●		●		●		●	●	●		●	
Agriculture & Food	●				●		●	●			●	●
Cybersecurity & Dual use							●	●	●			
Space & Aerospace		●					●		●	●		
Public Sector	●		●		●					●		

Q1 2025
3yr Service Project

Q2 2026
EuroHPC
Infrastructure:
AI optimized super-computer

hammerhai.eu



A MFG Data Lab built by AIFs

HPC as opportunity for MFG training data

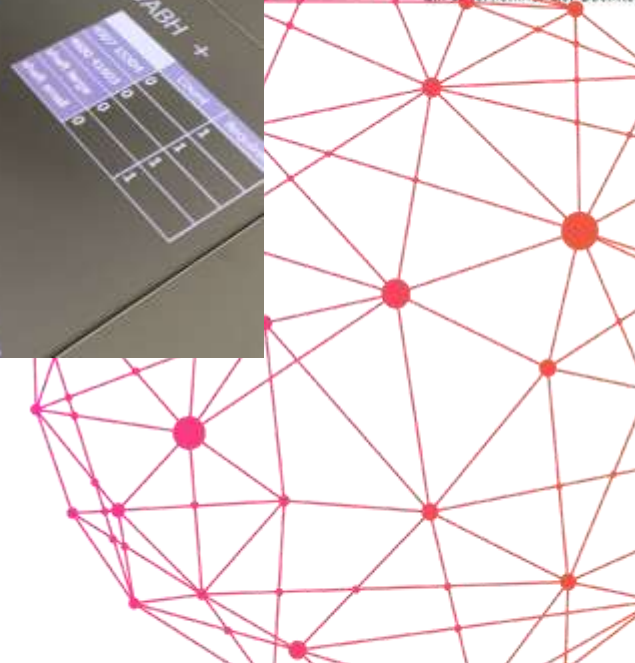
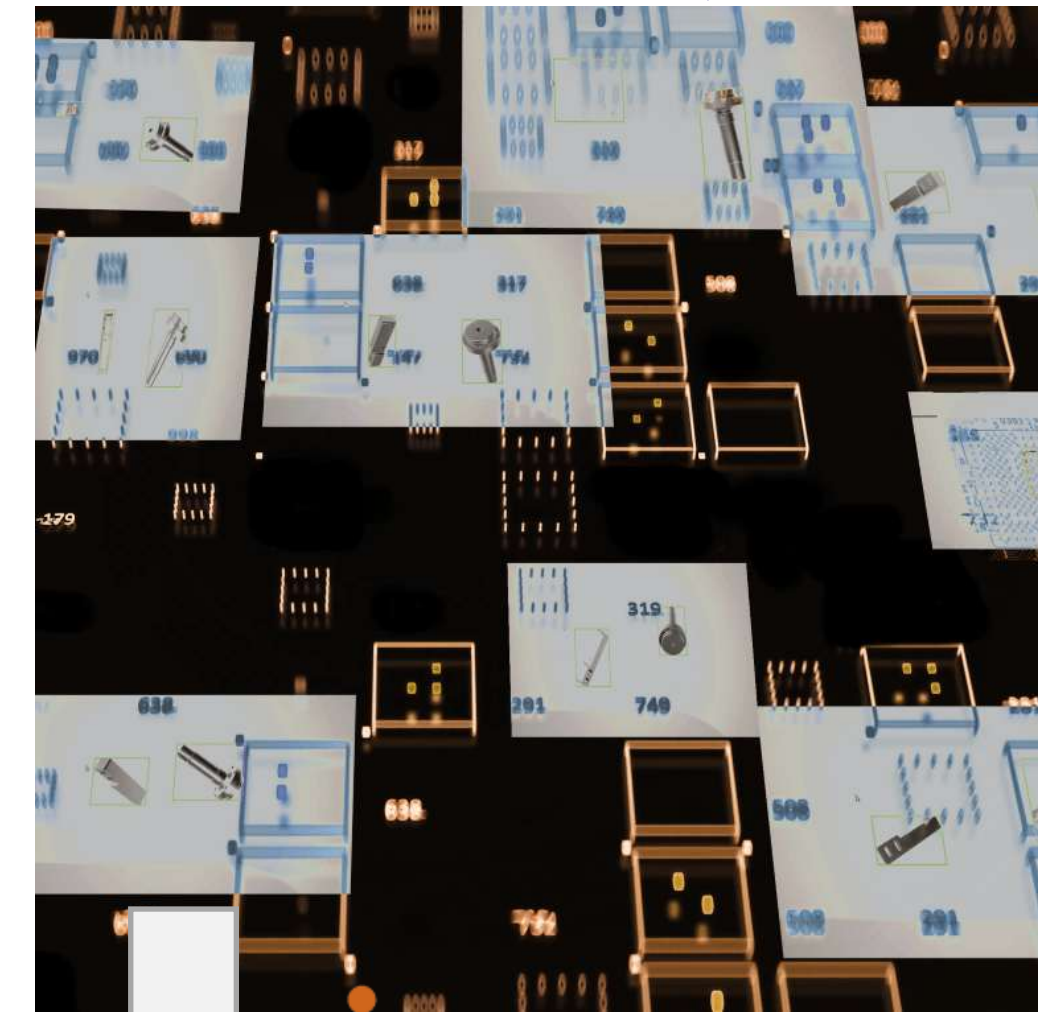
Manufacturing data lab will be bootstrapped from **AIF data facilities** with existing experience and network in manufacturing & robotics and anchored in local ecosystem

(DE: HammerHAI, JAIF, IT: IT4LIA AT: AI4AT, FI: LUMI, BG: BRAIN++, GR: PHAROS, FR: AIF FRANCE, ...)

Can build on **existing services**:

- Secure Data Storage & Transfer (e.g. ISO 27001/TISAX)
- Compliant Data Handling for industrial AI
- Highly Scalable Data Processing Tools
- IPR Protection / Anonymization
- Data Space / AI optimized HPC Integration
- Private and public data pooling
- Data Synthesis
- ...

Both genAI (IPR protection) as well as classical simulation (digital-twins) are huge opportunities to overcome training data shortage



Example: Foundation Model Benchmarking

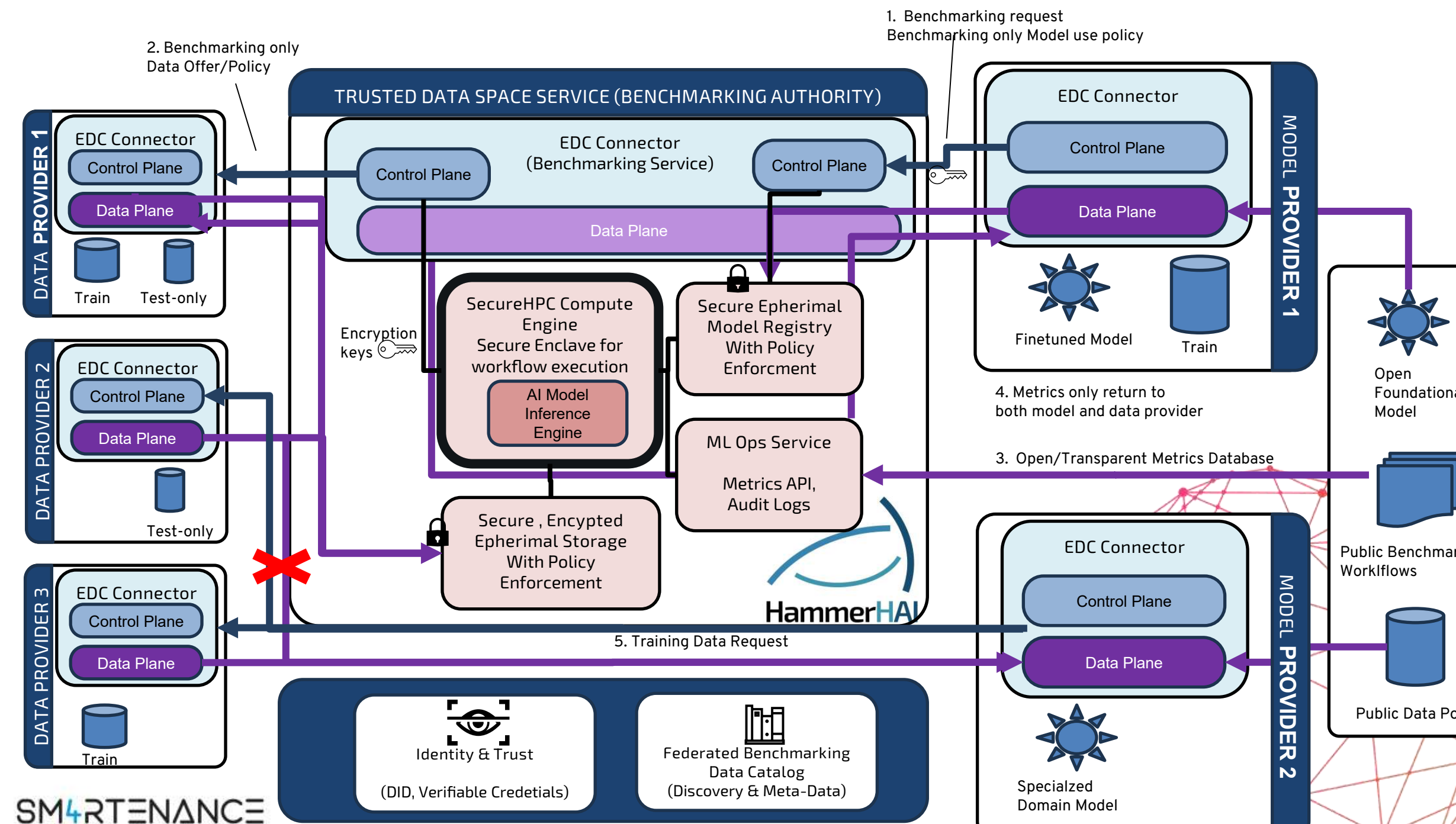
Sovereign data as an opportunity

No sharing of data between provider/user needed for AI testing: ensures no overfitting / test data leakage

AI Factories as **trusted third parties** to both model providers and data providers

Only benchmark results will be shared with both parties

Win/Win: Model providers can claim field performance / companies evaluate solution performance on own data



Towards Manufacturing & Robotics Data Lab

specific Opportunities and Challenges

AI Factories/Data Labs won't solve Data Sharing in Manufacturing

→ Collaboration with Data Spaces

AI is, however, an important driver for a manufacturing data economy

→ Robotics as positive example

Many challenges for Data Labs remain: scaling, common interfaces, legal support, resources, bit

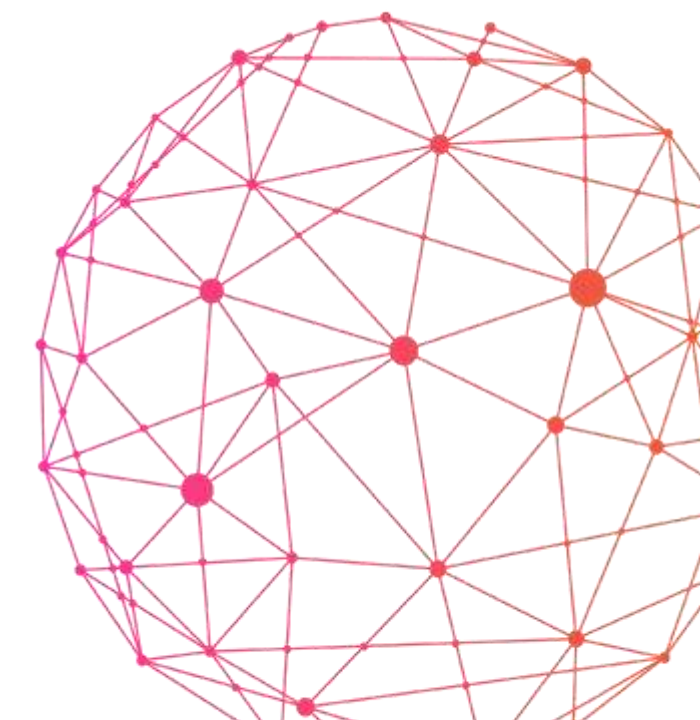
But we need to be opportunistic if we want to leverage opportunities

→ AIFs may produce some of the missing manufacturing training data!

→ iff done right, AI can drive data sharing in this sensitive domain.



+?



MFG Data Lab Contacts: riedel@kit.edu, wierse@sicos-bw.de, lewandowski@hlrs.de