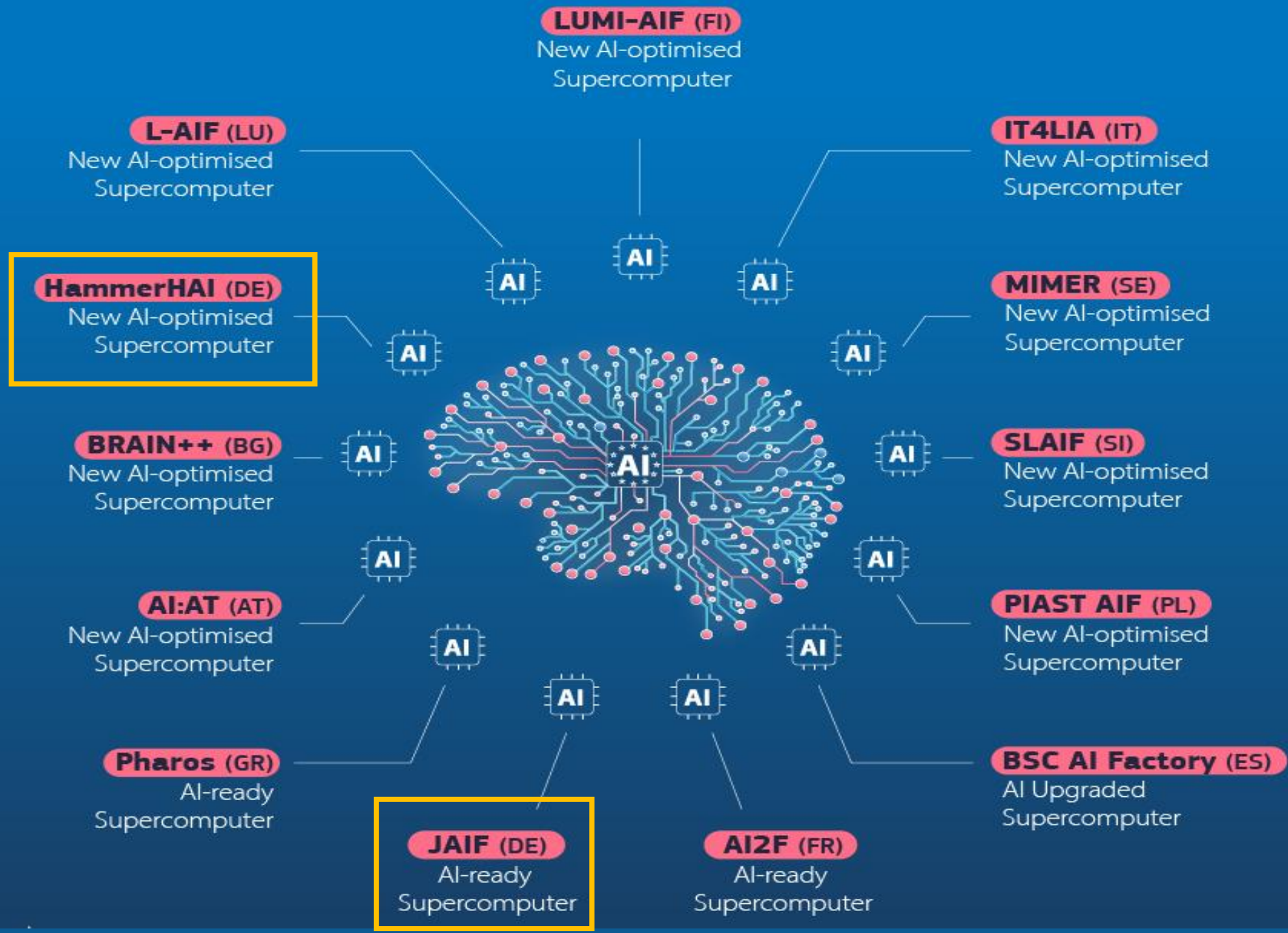




EUROHPC AI FACTORIES @ GERMANY

2025 | BERND MOHR





AI Factory **HammerHAI**

Dennis Hoppe, HLRS

HammerHAI – In a Nutshell

Consortium and Thematic Areas

- Establishing an **AI Factory at HLRS** backed by a **strong consortium**
 - **LRZ** – HPC and AI solutions
 - **GWDG** – Cloud and data expertise
 - **KIT** – Research and innovation leader
 - **SICOS** – Start-up and SME facilitator
- Supports stakeholders from **start-ups, SMEs, industry, academia**, and the public sector
- Key thematic areas are **engineering** and **manufacturing**, as well as **global challenges**

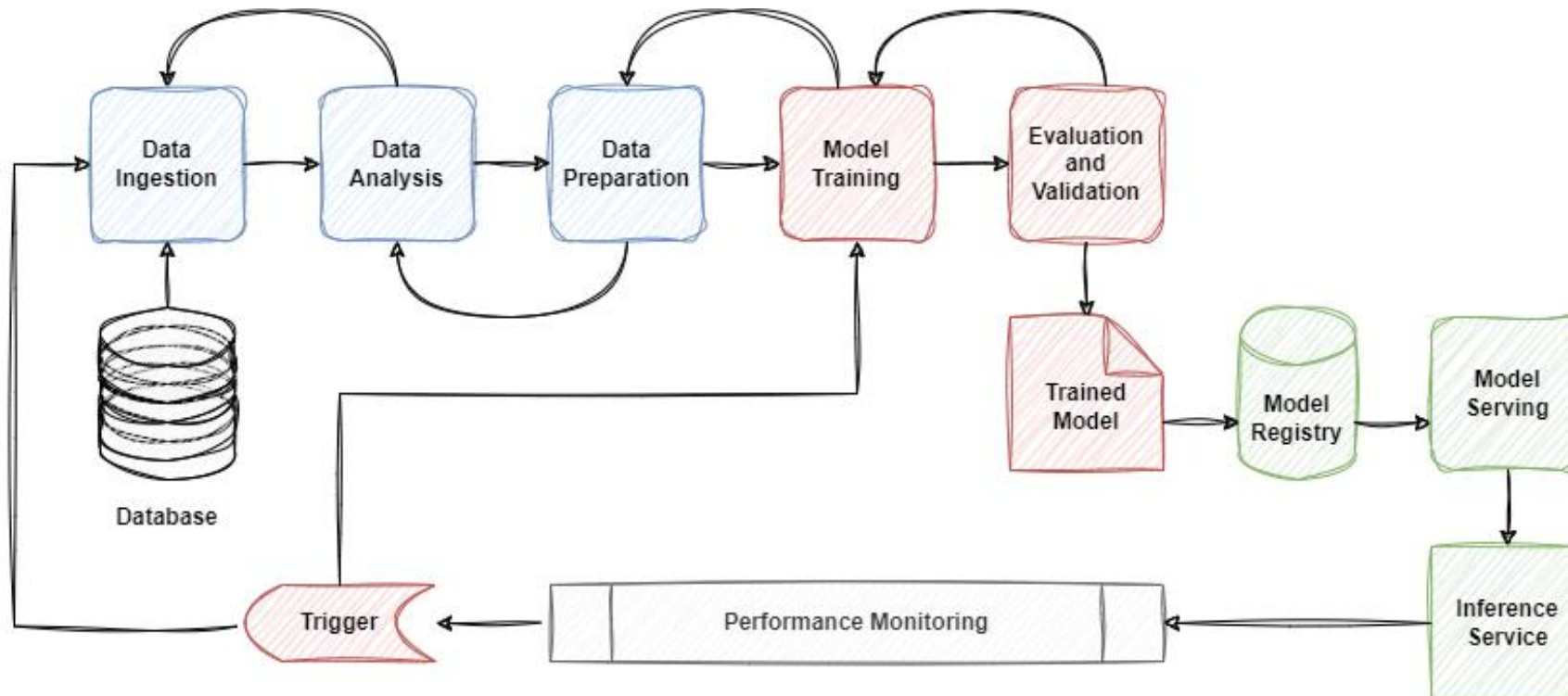


HammerHAI – Expected User Requests

- **Primary tasks**
 - **Fine-tuning** of pre-trained models with moderate resource requirements at first, continuously increasing over the following years
 - Querying an AI model in production (**inference in production**)
- System must cover all relevant steps of the AI lifecycle (next slide)
- Requesting a **secure environment** for training and inference
 - Towards confidential computing?
- Asking for the **ease of migration** of existing (Cloud) workloads to HammerHAI
 - Run containerised applications
 - Request easy access to data and compute resources
- We foresee **extended user support**, especially for the onboarding of companies
 - A software ecosystem and job submission similar to the Cloud is essential

HammerHAI – AI Lifecycle

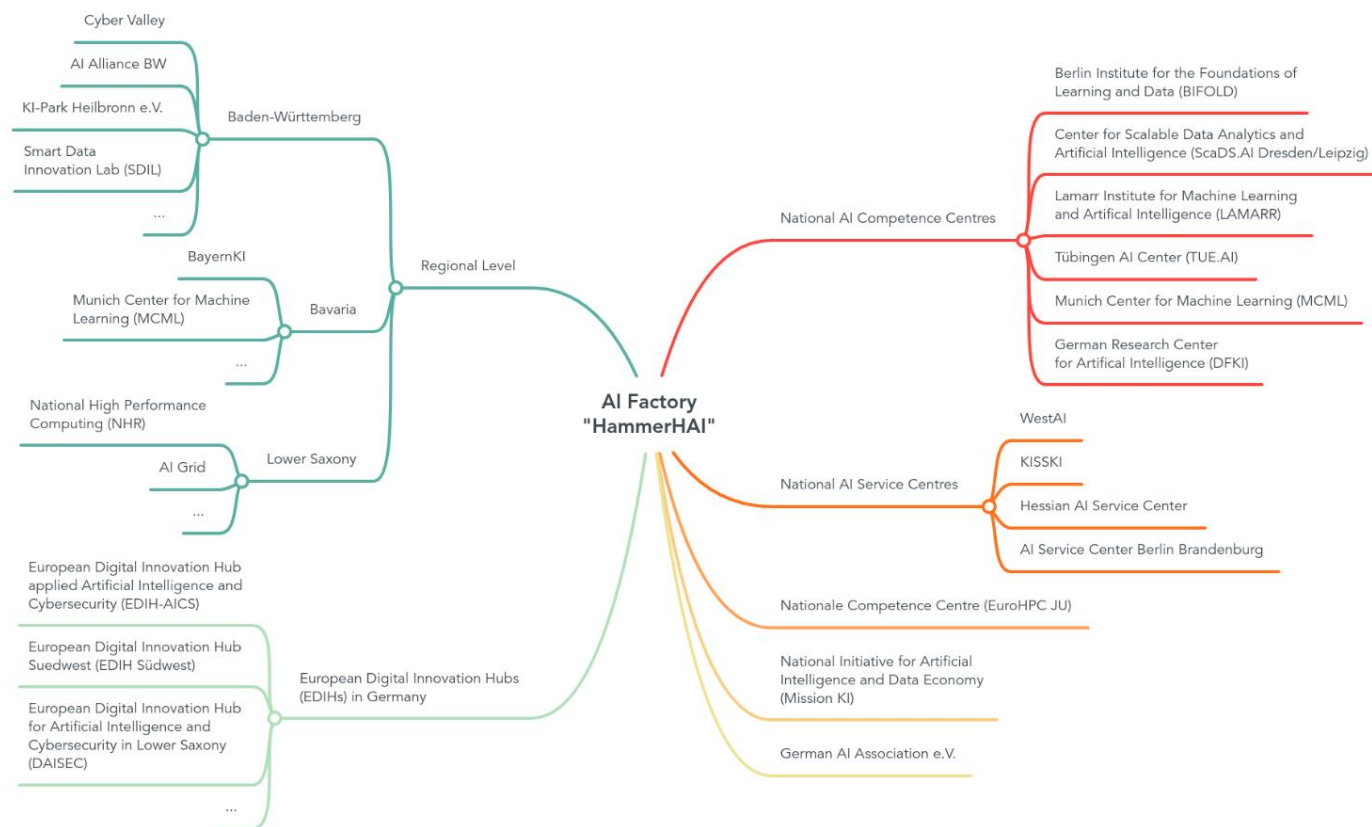
Data engineering, training, and inference



HammerHAI - des isch ned bloß a Stück Blechle

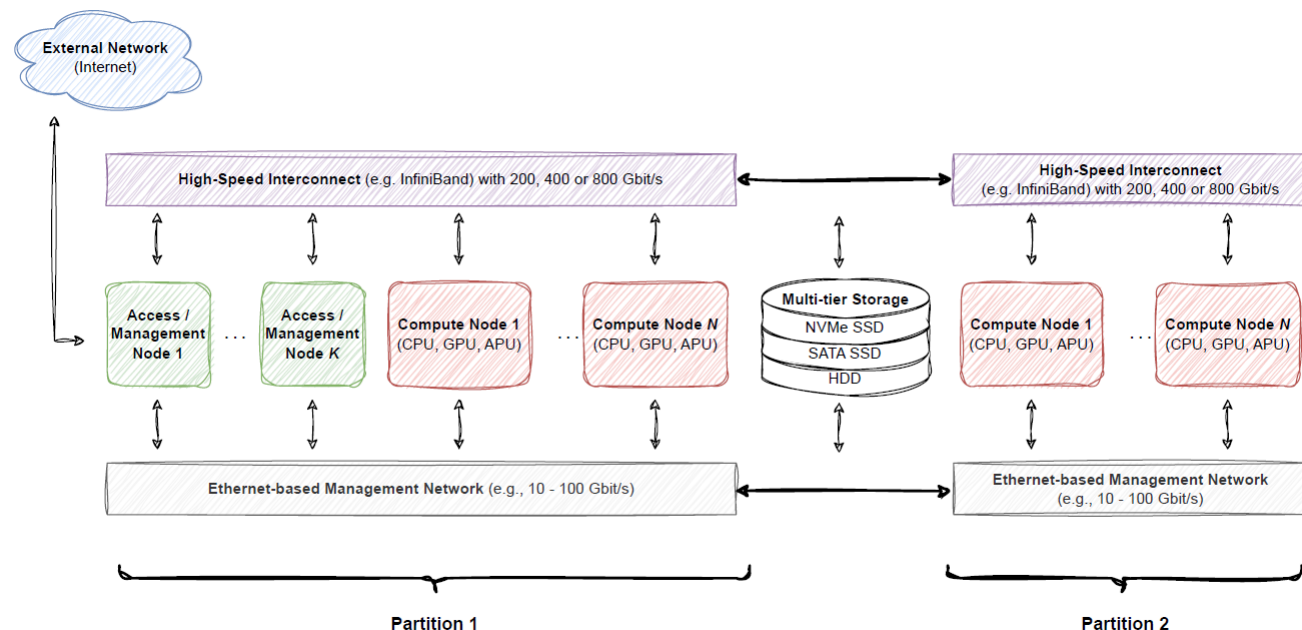
Making AI Accessible

- **Concierge service**
- Dedicated user support
- **Ease migration** from laptop or cloud to supercomputers
- Seamless integration into the existing, strong **German AI ecosystem**
- **Service brokering** with other AI initiatives and centres



HammerHAI – Budget and Timeline

- 01.04.2025 – Start of the **Service project**
- April 2025 – Start of the **procurement** process
- **50M EUR** hardware invest
 - First hardware expected in Q1/2026
 - Large-scale extension in Q1/2027
- Overall runtime: **5 years**



Thank you!

Visit us at www.HammerHAI.eu

Contact us at info@HammerHAI.eu



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The JUPITER AI Factory (JAIF)



Fraunhofer



hessian.AI

Associated
partners:



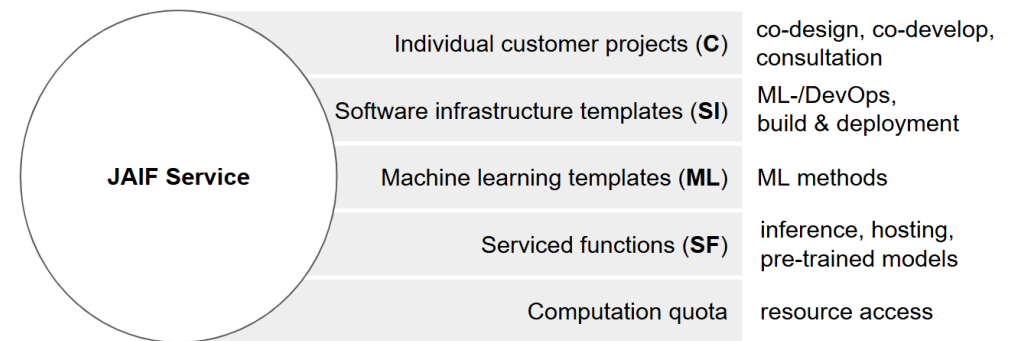
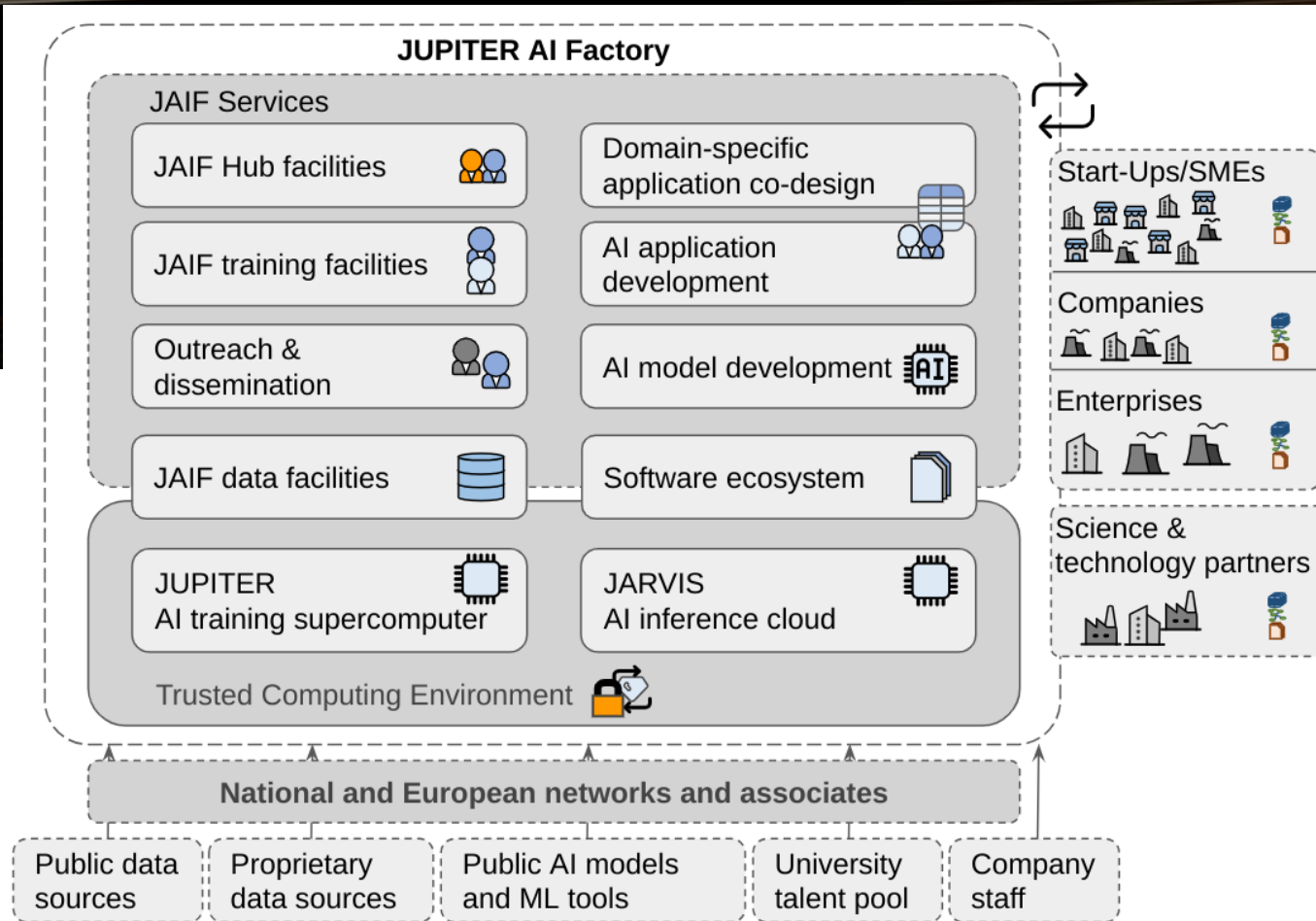
WEST AI
KI-Servicezentrum



KI BUNDESVERBAND

JUPITER AI Factory

One-Stop Shop



JAIF Domains

Strengthening European Key Sectors

Healthcare



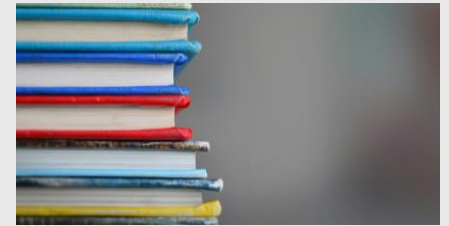
Energy



Climate Change and Environment



Education, Culture and Media



Public Sector



Finance and insurance



Manufacturing



JUPITER

Exascale Supercomputing in Europe

> 1 ExaFLOP/s HPL-FP64 performance

- 24 000 NVIDIA GH200 superchips
- 2880 TB CPU memory (LPDDR5)
- 2304 TB GPU memory (HBM3)
- NVLink C2C (900 GB/s)
- NVIDIA Mellanox InfiniBand NDR/NDR200
- Dragonfly+ topology

> 1 EB total storage

- Hierarchical storage system:
ExaFLASH < ExaSTORE/JUST6 < ExaTAPE/Archive
- ExaFLASH: 29 PB NVMe storage integrated into InfiniBand fabric
- ExaSTORE/JUST6:
> 500 PB disk storage
- ExaTAPE/Archive:
> 800 PB tape storage

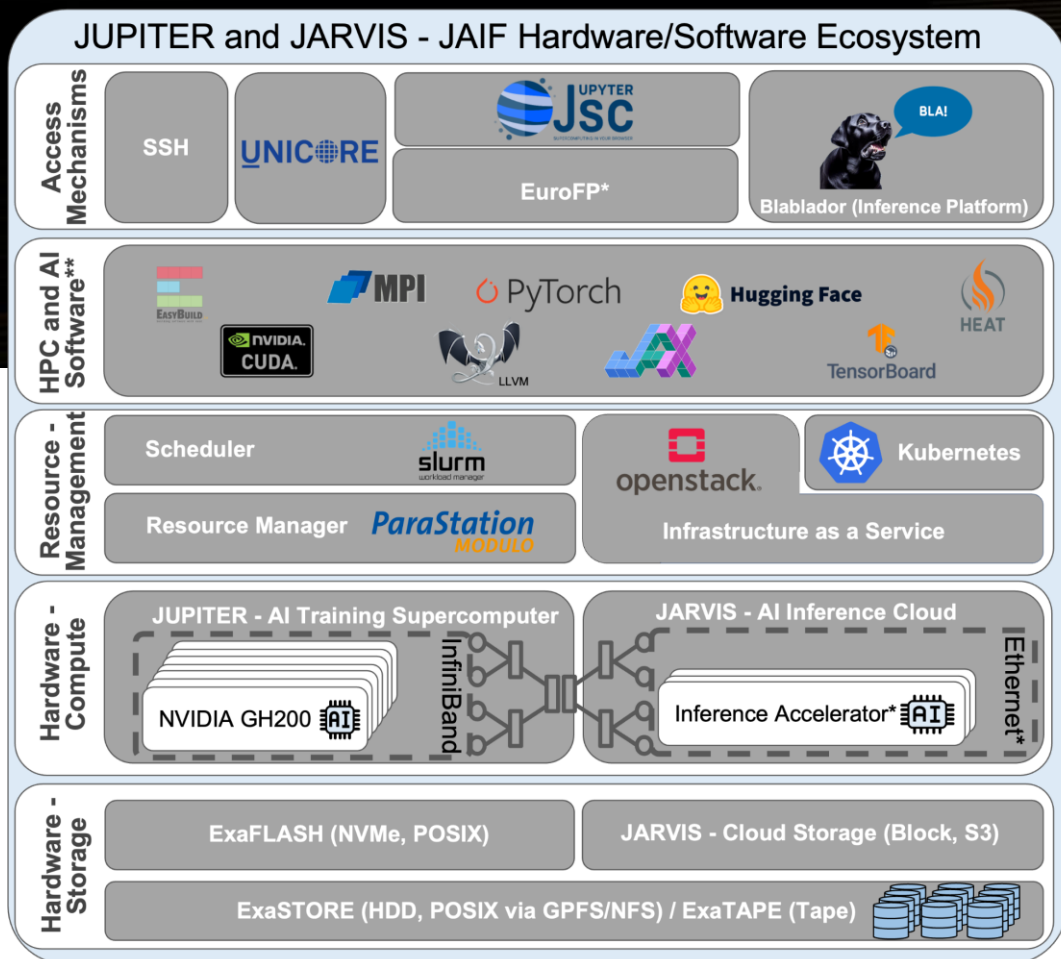
Modular Data Center (MDC)

- 37.5 MW power
- Containerized supercomputer
- Flexible and scalable concept
- Hot water cooling
- Utilization of waste heat
- High reliability
- Fast data connectivity



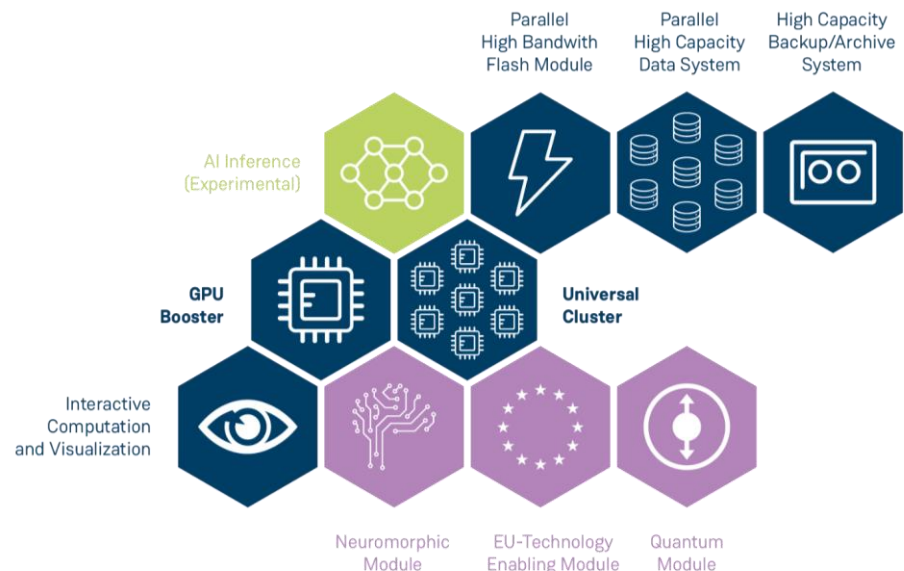
Modular JUPITER

Hybrid Training/Inference AI System



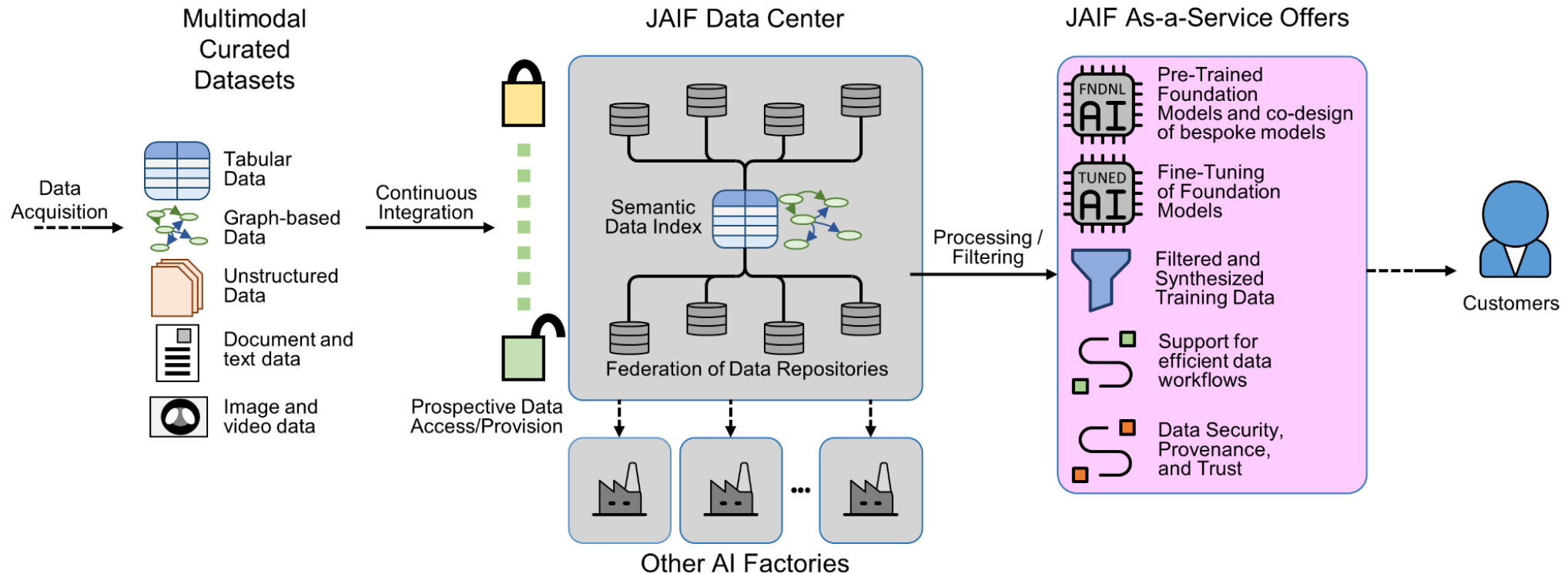
*Depending on procurements and available functionality

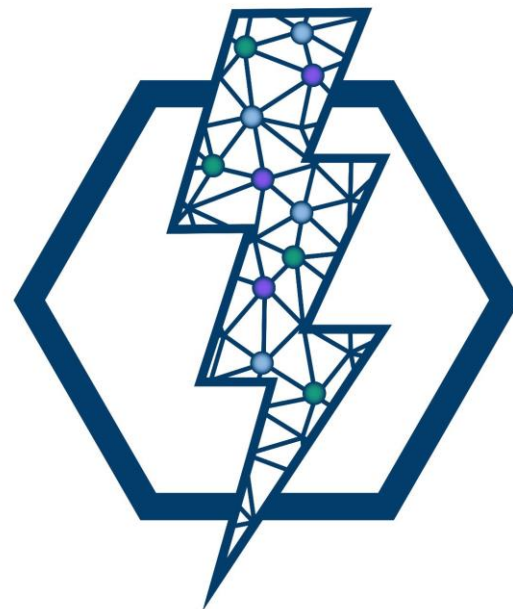
**This is a subset of the available software



JAIF Data Spaces

Safe, Secure,
Sovereign





JUPITER
AI FACTORY

AI Services

AI Compute Resources

**Exascale AI for
Europe!**
Startups, SMEs,
Industry & Academia

AI Research
Excellence

AI Talent

Associated
partners:



WEST AI
KI-Servicezentrum



Ministerium für
Kultur und Wissenschaft
des Landes Nordrhein-Westfalen



Hessisches Ministerium für
Wissenschaft und Forschung,
Kunst und Kultur



The JUPITER AI Factory (JAIF)



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