THE EUROPEAN HIGH PERFORMANCE COMPUTING JOINT UNDERTAKING

AI Factories Update

EuroHPC AIF
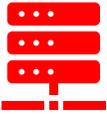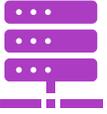## Infrastructure & Services
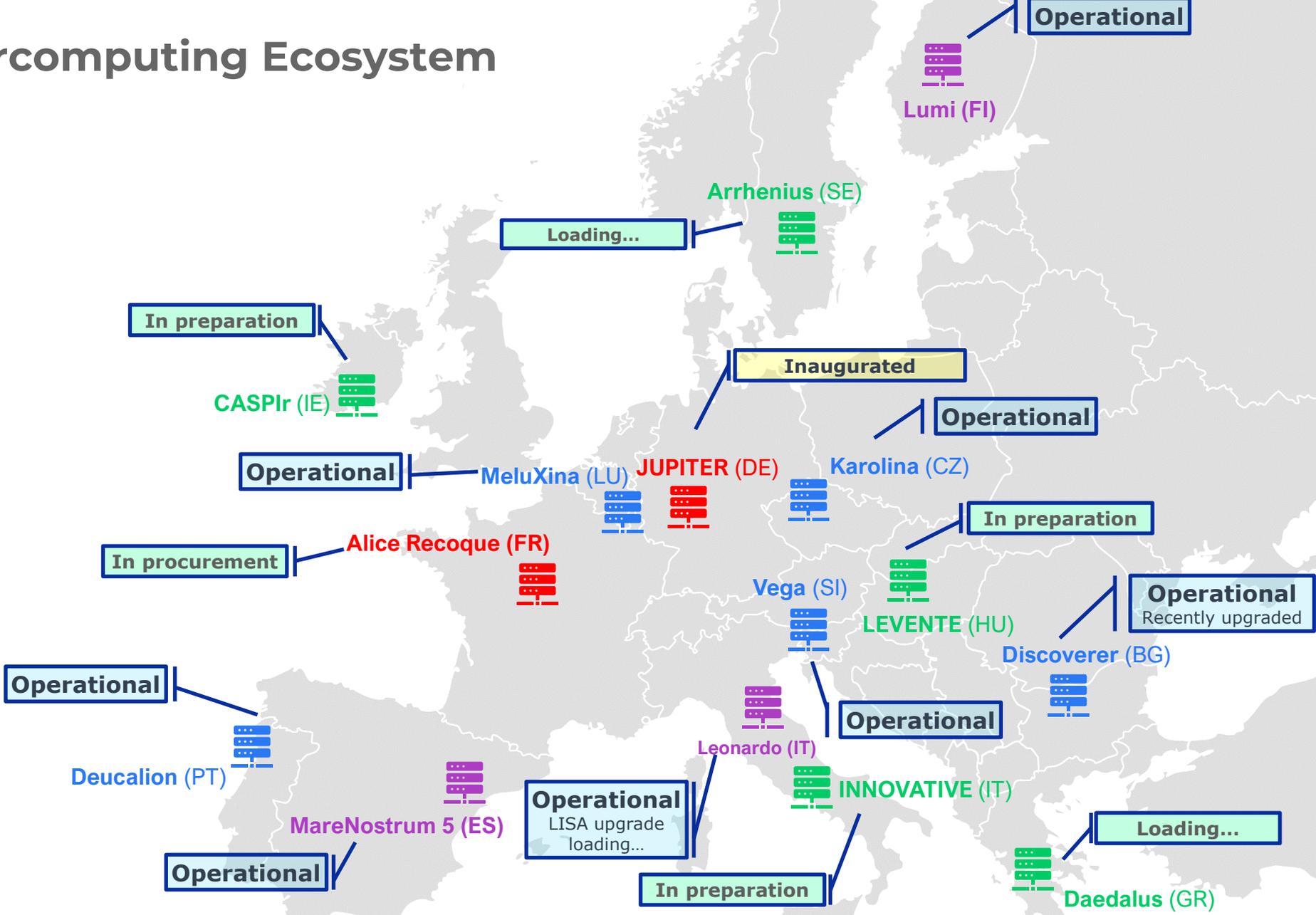
AI Factories

EuroHPC
Joint Undertaking

The EuroHPC Joint Undertaking 2021-2027

- EU body and funding entity, established in 2018, based in Luxembourg

- Governed by a Board composed of the EC, 38 Participating States and 3 Private Members

- Mission:
    - Acquire, deploy and maintain a HPC and quantum Infrastructure in Europe
    - Fund R&I projects to develop HPC applications, software and hardware and foster a European supply chain
    - Provide access to HPC and quantum users across Europe and support the development of skills
    - Develop and operate AI Factories to support the growth of a competitive and innovative AI ecosystem in Europe

European Commission

The EuroHPC Supercomputing Ecosystem

Legend:
- EXASCALE (red)
- MID-RANGE (green)
- PRE-EXASCALE (purple)
- PETASCALE (blue)

- Lumi (FI) — Operational
- Arrhenius (SE) — Loading...
- CASPIr (IE) — In preparation
- Karolina (CZ) — Inaugurated / Operational
- MeluXina (LU) — Operational
- JUPITER (DE)
- Alice Recoque (FR) — In procurement
- Vega (SI) — Operational
- LEVENTE (HU) — In preparation
- Discoverer (BG) — Operational, Recently upgraded
- Deucalion (PT) — Operational
- MareNostrum 5 (ES) — Operational
- Leonardo (IT) — Operational, LISA upgrade loading...
- INNOVATIVE (IT) — In preparation
- Daedalus (GR) — Loading...

The EuroHPC Supercomputing Ecosystem – The numbers

Computing Performance

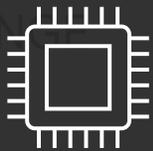**8* systems** comprising **21 partitions offering**

~900 PFlops

of aggregated sustained Linpack performance
…soon to be increased** to

~2 ExaFlops

15597 CPU Nodes (AMD/Intel x86 and Fujitsu ARM)
7869 GPU Nodes

30324 GPUs (NVidia A100/H100/H200, AMD MI250X)
27104 GPUs coming ** soon (NVIDIA GH200)

Budget
(CapEx)

Pre-exascale – Petascale program

Total budget: **510,000,000 €**
EU Contribution: **240,000,000 €**

Exascale program

Total budget: **567,800,000 €**
EU Contribution: **283,900,000 €**

Mid-range & upgrades program

Total budget: **153,100,000 €**
EU Contribution: **53,600,000 €**

€

Impact

Open for user access since Dec 2021

145,161,896 node hours Awarded to

2,334 Projects

Powering strategic applications

- **Destination Earth**
- **AI Boost – Training of European LLMs**

Across all EuroHPC Member States

Lumi (FI)

Arrhenius (SE)

CASPIr (IE)

MeluXina (LU) JUPITER (DE)

Alice Recoque (FR)

Vega (SI)

LEVENTE (HU)

Discoverer (BG)

Leonardo (IT)

Deucalion (PT)

MareNostrum 5 (ES)

Daedalus (GR)

* Operational systems (petascale, pre-exascale)
** JUPITER, Daedalus and Arrhenius

Budget refers to acquisition costs only.
EuroHPC co-funds operating costs for
Pre-exascale/Exascale systems (50%) and
Mid-range/Upgrades (35%).

AI Factories

- **Dynamic ecosystems, including AI-optimised supercomputers, data capacities, programming and training facilities, and human capital** to support the EU AI industrial and research ecosystems in developing large AI models and applications.

- Novel approach to AI innovation based on a **network of public supercomputers providing an open environment to AI developers**.

- **Strategic sectors**: Health/Life Science; Manufacturing; Climate/Environment; Space; Finance; Cybersecurity; Agri-tech/Agrifood; Education/Arts/Culture; and more.

- Largest AIFs expected to have each around **25 000 advanced AI processors**.

- Overall investments in supercomputing infrastructures and AI Factories around **EUR 10 billion** (2021-2027).

AI Factories

AI Factories are dynamic ecosystems build around AI-optimised supercomputers, offering computing resources and support services to the European industry, as well as to the European scientific users for the development of large AI models to take advantage of AI technology capabilities in the European Union, and for the development of skills and knowledge in the domain of AI.
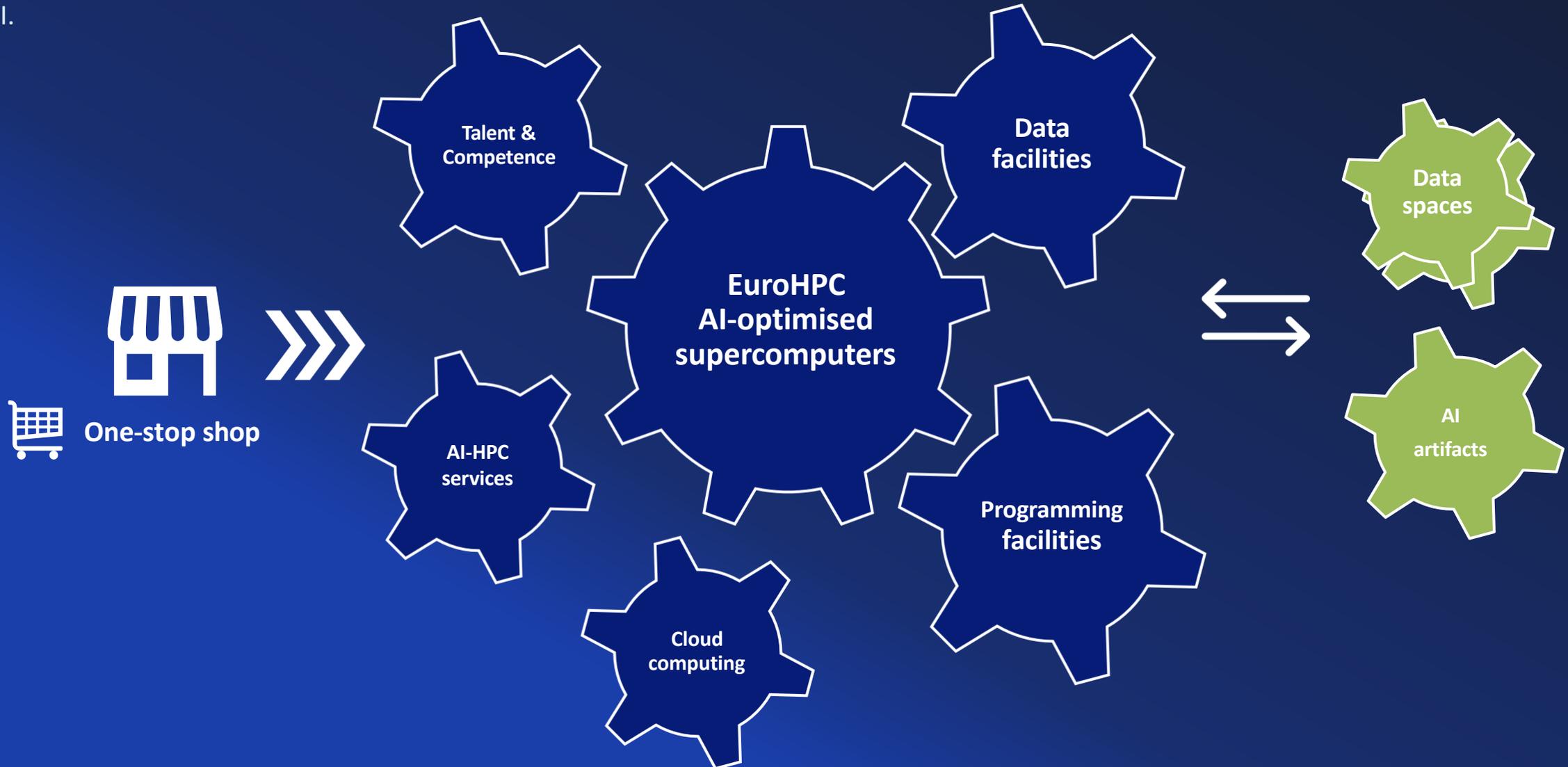
THE AI FACTORIES

EuroHPC JU has selected 19 EU sites that will host AI Factories – to drive Europe's leadership in AI.
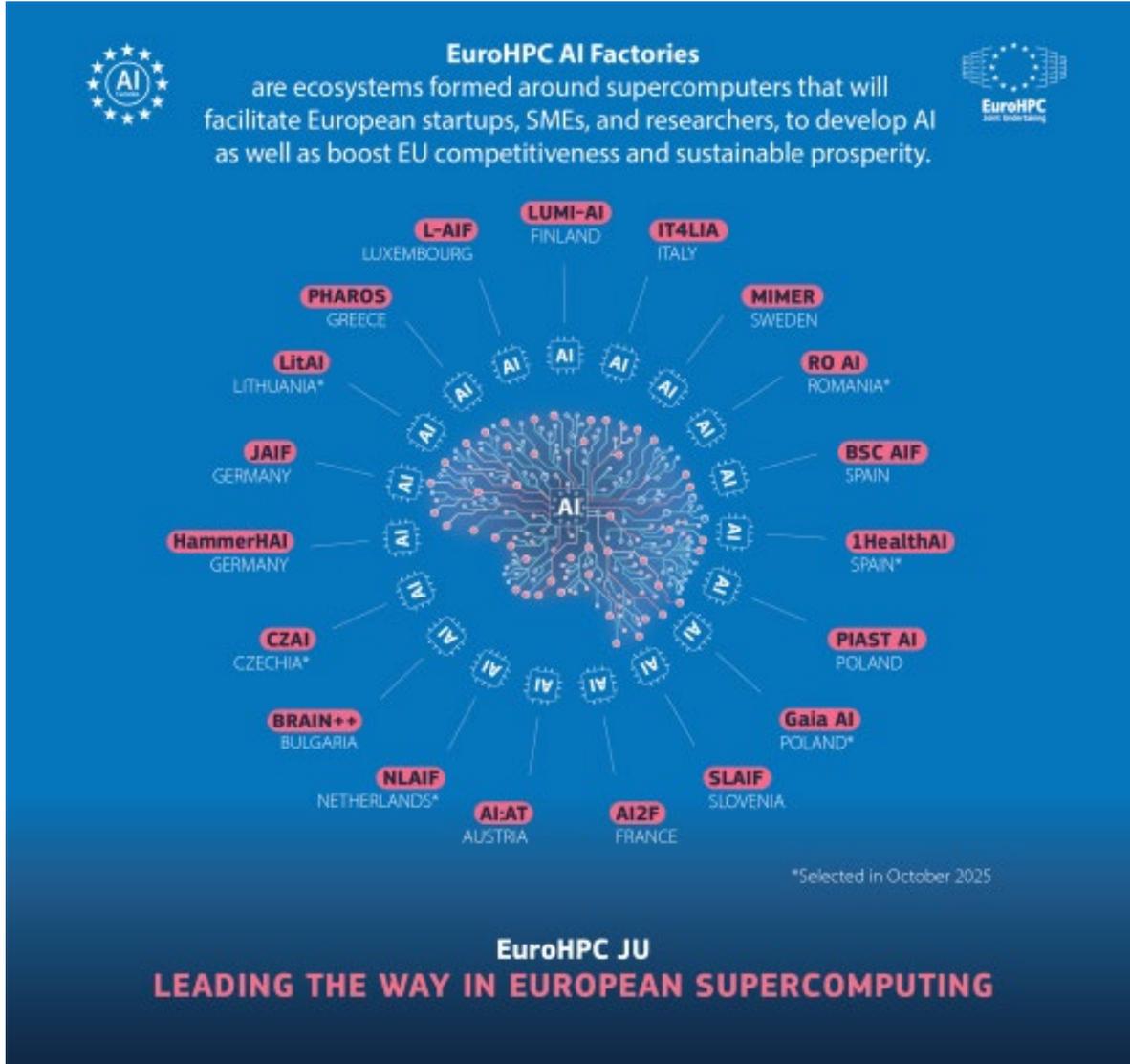

AI-ready EuroHPC supercomputers in:
- Germany   **JAIF** – JUPITER
- France   **AI2F** – Alice Recoque
- Greece   **Pharos** – Daedalus

AI-upgrades to EuroHPC supercomputers in:
- Spain   **BSC AIF** – MareNostrum 5

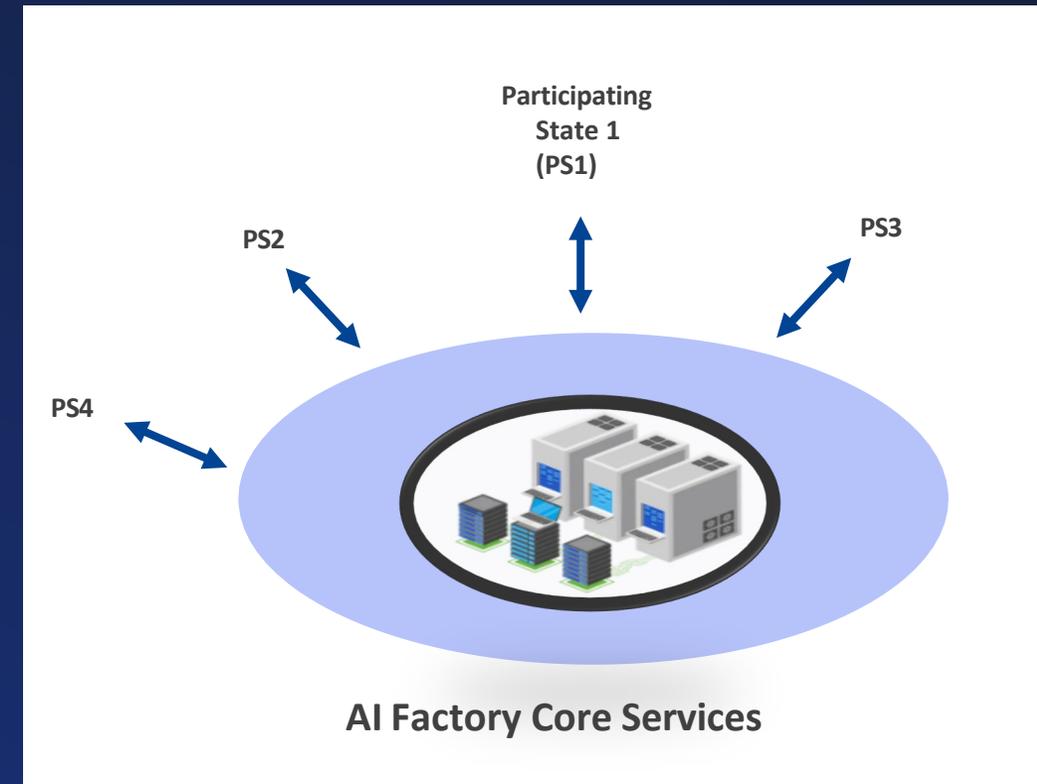**New AI-optimized EuroHPC supercomputers in:**
- Finland   **LUMI-AIF**
- Germany   **HammerHAI**
- Italy   **IT4ALIA**
- Luxembourg   **L-AIF**
- Sweden   **MIMER**
- Bulgaria   **BRAIN++**
- Slovenia   **SLAIF**
- Austria   **AI:AT**
- Poland   **PIAST AIF | GAIA AI**
- Spain   **1HealthAI**
- Romania   **ROAI**
- Czechia   **CZAI**
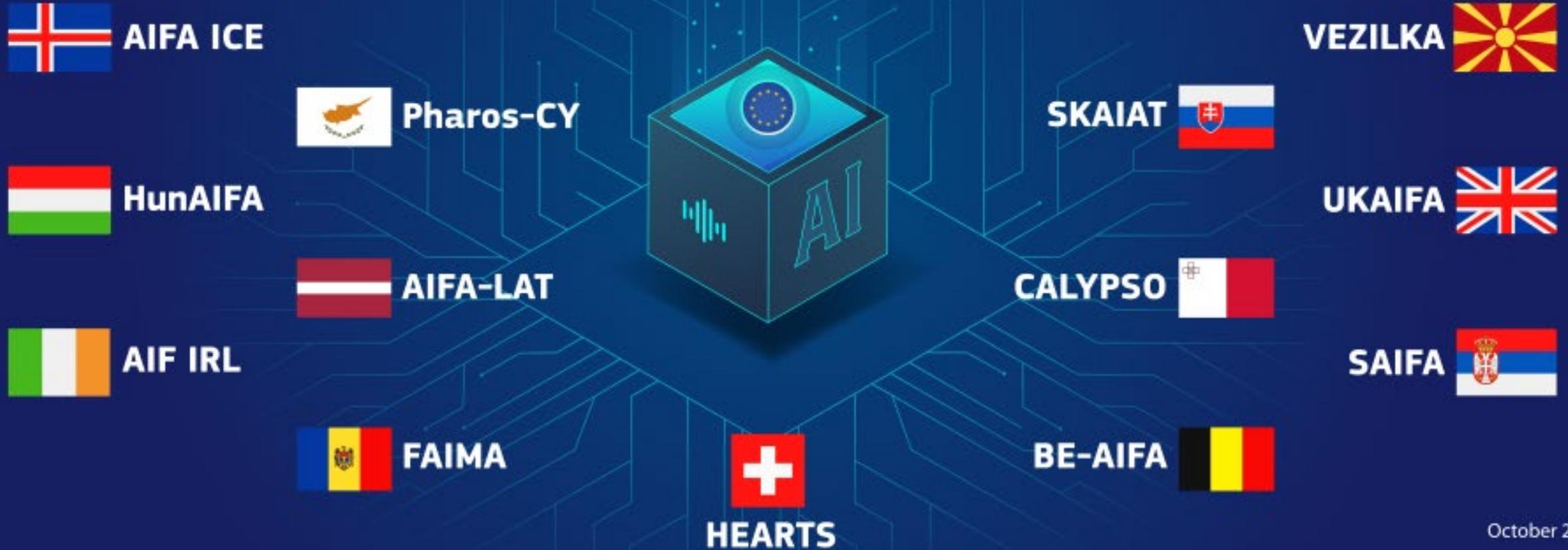- Lithuania   **LitAI**
- Netherlands   **NLAIF**
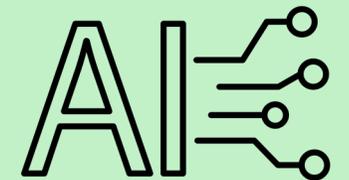
*AI Factories pull together EU and national resources, in a collaborative effort of **23 European countries***

AI Factory Antennas

- **National AIF Antennas** associated to the Hosting AIF (AI-optimised supercomputer and core services)

  - A way to create a **network of AIFs** all over the EU **without having to invest in a dedicated supercomputer** every time
  - Provide services and algorithmic support to the **national AI ecosystem**
  - **Ensure access** to enhanced AI-optimised computing capacity (remote)

Participating State 1 (PS1)

PS2

PS3

PS4

AI Factory Core Services

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AI Factories

EuroHPC AI Factory Antennas

- AIFA ICE
- Pharos-CY
- HunAIFA
- AIFA-LAT
- AIF IRL
- FAIMA
- HEARTS
- VEZILKA
- SKAIAT
- UKAIFA
- CALYPSO
- SAIFA
- BE-AIFA

October 2025

- **The EuroHPC Joint Undertaking has selected 13 AI Factory Antennas to complement existing AI Factories.**

- **This step will strengthen national AI ecosystems and extend access to AI-optimised supercomputing resources across Europe.**
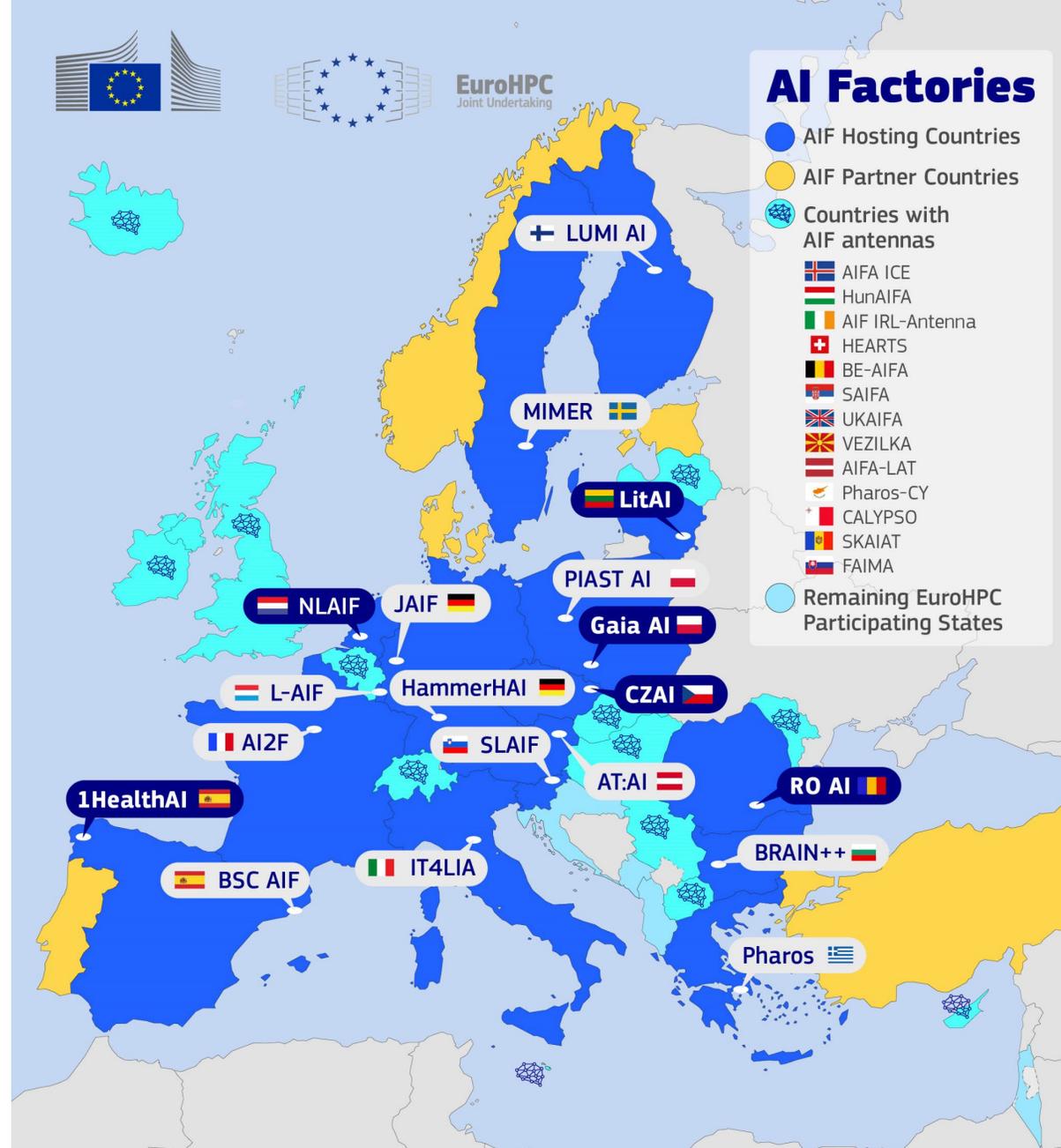
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AI Systems offered/planned

AIFs proposing existing* systems
- **JAIF** (JUPITER **soon in production**)
- **AI2F** (Alice Recoque in **procurement**)
- **Pharos** (Daedalus **under installation**)

AIFs temporarily offering existing systems
- **BSC** (MN5 | AI upgrade in **procurement**)
- **IT4LIA** (Leonardo/LISA | *Leonardo-AI in procurement*)
- **LUMI AIF** (LUMI | *LUMI-AI in **procurement***)
- **LuxProvide** (MeluXina | MeluXina-AI in **procurement**)
- **BRAIN++** (Discoverer/+ | AI system in **preparation**)
- **SLAIF** (Vega | Vega-AI in **preparation**)

AIFs with upcoming new systems
- **HammerHAI** | HLRS, Stuttgart (In **procurement**)
- **PIAST AIF** | PSNC, Poznan (in **preparation**)
- **AI:AT Austria** | ACA, Vienna (in **preparation**)
- **MIMER** | LiU, Linkoping (In **procurement**)
- **GAIA AI** | Cyfronet, Krakow
- **RO AI** | ICI, Bucharest
- **NLAIF** | SURF, Amsterdam
- **CZAI** | VSB/IT4I, Ostrava
- **1HealthAI** | CESGA, A Sionlla
- **LitAI** | VU, Vilnius

https://eurohpc-ju.europa.eu/ai-factories/ai-factories-systems_en

AI Factories

- AIF Hosting Countries
- AIF Partner Countries
- Countries with AIF antennas
  - AIFA ICE
  - HunAIFA
  - AIF IRL-Antenna
  - HEARTS
  - BE-AIFA
  - SAIFA
  - UKAIFA
  - VEZILKA
  - AIFA-LAT
  - Pharos-CY
  - CALYPSO
  - SKAIAT
  - FAIMA
- Remaining EuroHPC Participating States

Switzerland's participation is contingent upon the ratification of its accession to Horizon Europe.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the European Union. This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the Member States on this issue.

Administrative boundaries: © EuroGeographics © OpenStreetMap
Cartography: Eurostat – IMAGE, 05/2025

Single gateway to AI Factories

https://www.eurohpc-ju.europa.eu/ai-factories_en

AI Factories' strategic sectors

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	●		●		●					●		

AI Factories bring unique strengths and specialised focus areas, playing a pivotal role in advancing AI applications across strategic sectors.

Other AI Factories key ingredients

Data Labs

– Access to **high-quality** data
– Wide availability of **open public AI-ready** data
– Access to **Common European Data Spaces**
– **Trusted/secured** access to and reuse of **industrial data**

Skills and talent

– Development and retention of **talent in Europe**
– Comprehensive **AIF's skills plan**, including tailored activities and educational initiatives (workshops, MOOCs, hands-on training, training sandboxes, etc.)

Cloud

– Access to **sovereign cloud capabilities**
– Crucial for **further model development (AI inference), finetuning, and deployment, application development and for scaling up**

Networking

– Collaboration and networking **among AIF Factories** (knowledge sharing, resource optimisation, domain specialization, etc.)
– Links to **EU and National (AI) initiatives**

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AI Factories

Thank you !