AI Factories: from EU Strategy to Practice

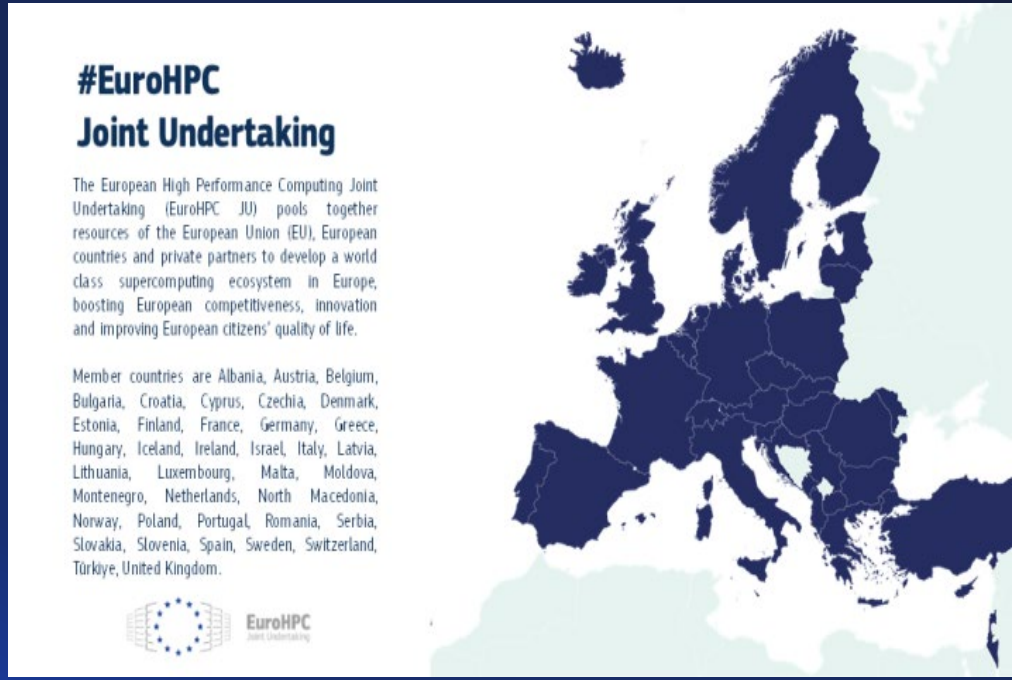
ENDORSE

THE EUROPEAN DATA CONFERENCE ON REFERENCE DATA AND SEMANTICS

The EuroHPC Joint Undertaking 2021-2027

European Commission

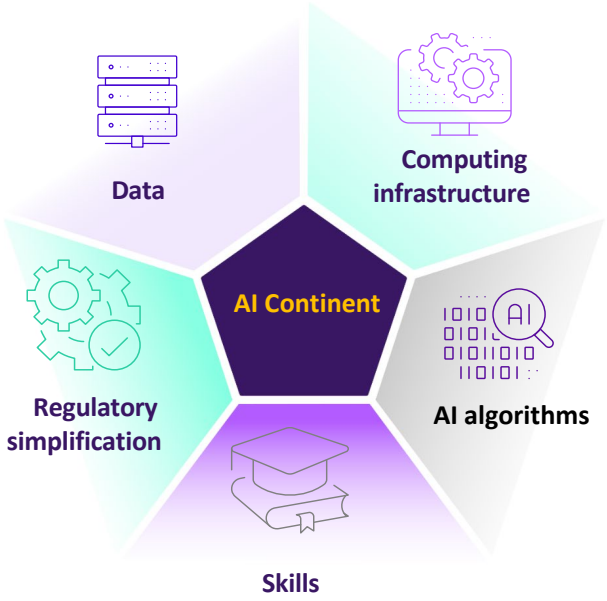
- EU body and funding entity, established in 2018, based in Luxembourg
- Governed by a Board composed of the EC, 38 Participating States, and 3 Private Members
- Mission:
  - Acquire, deploy and maintain a HPC and quantum Infrastructure in Europe
  - Fund R&I projects to develop HPC applications, software 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



The AI Continent Action plan

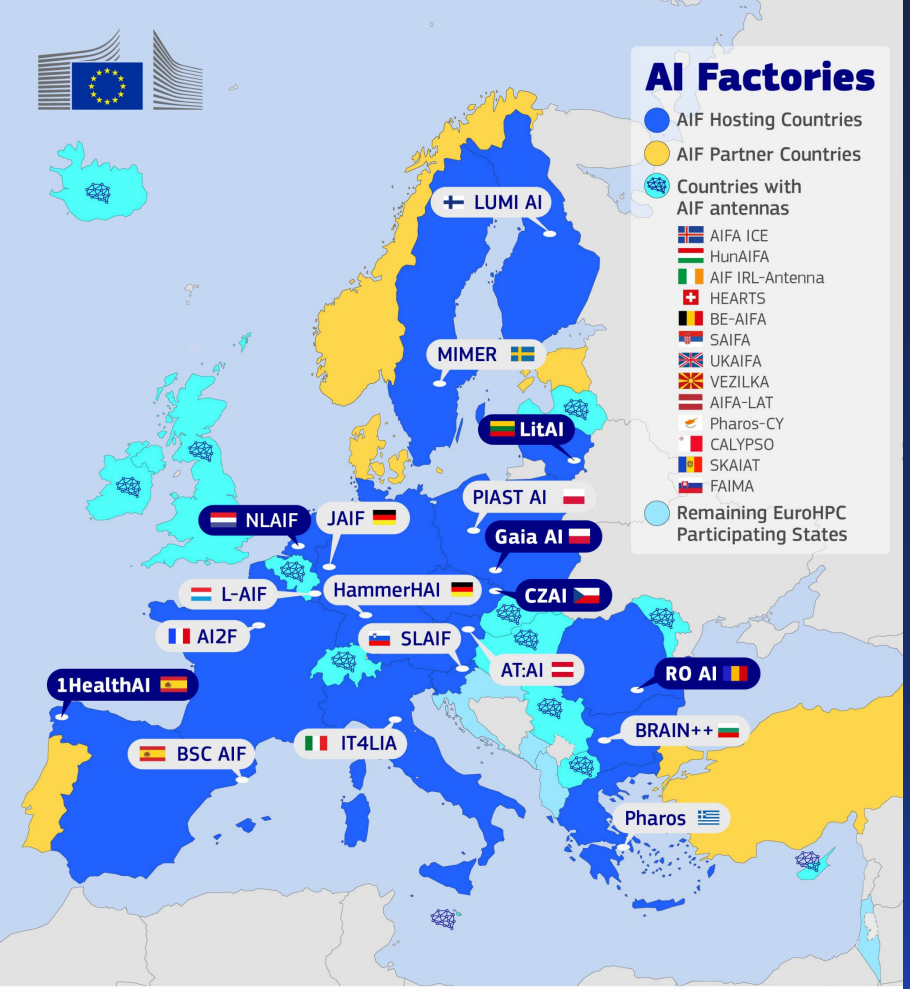
https://digital-strategy.ec.europa.eu/en/library/ai-continent-action-plan

European Commission



AI Gigafactories

- AI strategic infrastructure investment
- Massive scale
- Novel public-private partnership model
- Ensuring EU sovereignty



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

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Cartography: Eurostat – IMAGE, 05/2025

European Commission

Europe advances the AI Continent with AI Factories and AI Factory Antennas

- 19 selected AI Factories + 13 AI Factory Antennas, spanning MS, EuroHPC Participating States, and associated countries
- Deployment of a large pan-European infrastructure and service layer
- 15 new AI-optimised supercomputers plus one major upgrade
- AI computing capacity in Europe to increase fivefold
- AI Factories and AI Factory Antennas have mobilised €2.6 billion for European AI excellence anchoring a sovereign, world-class AI and HPC ecosystem.
- Interconnected AI Factories and Antennas will operate as a federated network ensuring seamless collaboration, efficient resource sharing, and secure cross-border access, advancing Europe's strategic autonomy in critical digital capabilities

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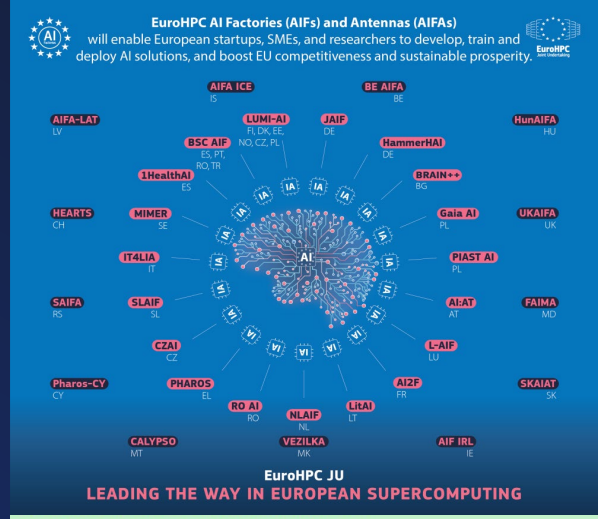
AI Factories

European Commission

- **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**.
- **AIFs & AIF Antennas gradually o**perational in 2026.
- **Strategic sectors**: Health/Life Science; Manufacturing; Climate/Environment; Space; Finance; Cybersecurity; Agri-tech/Agrifood; Education/Arts/Culture; and more.
- Largest AIFs around **25 000 advanced AI processors**.



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**

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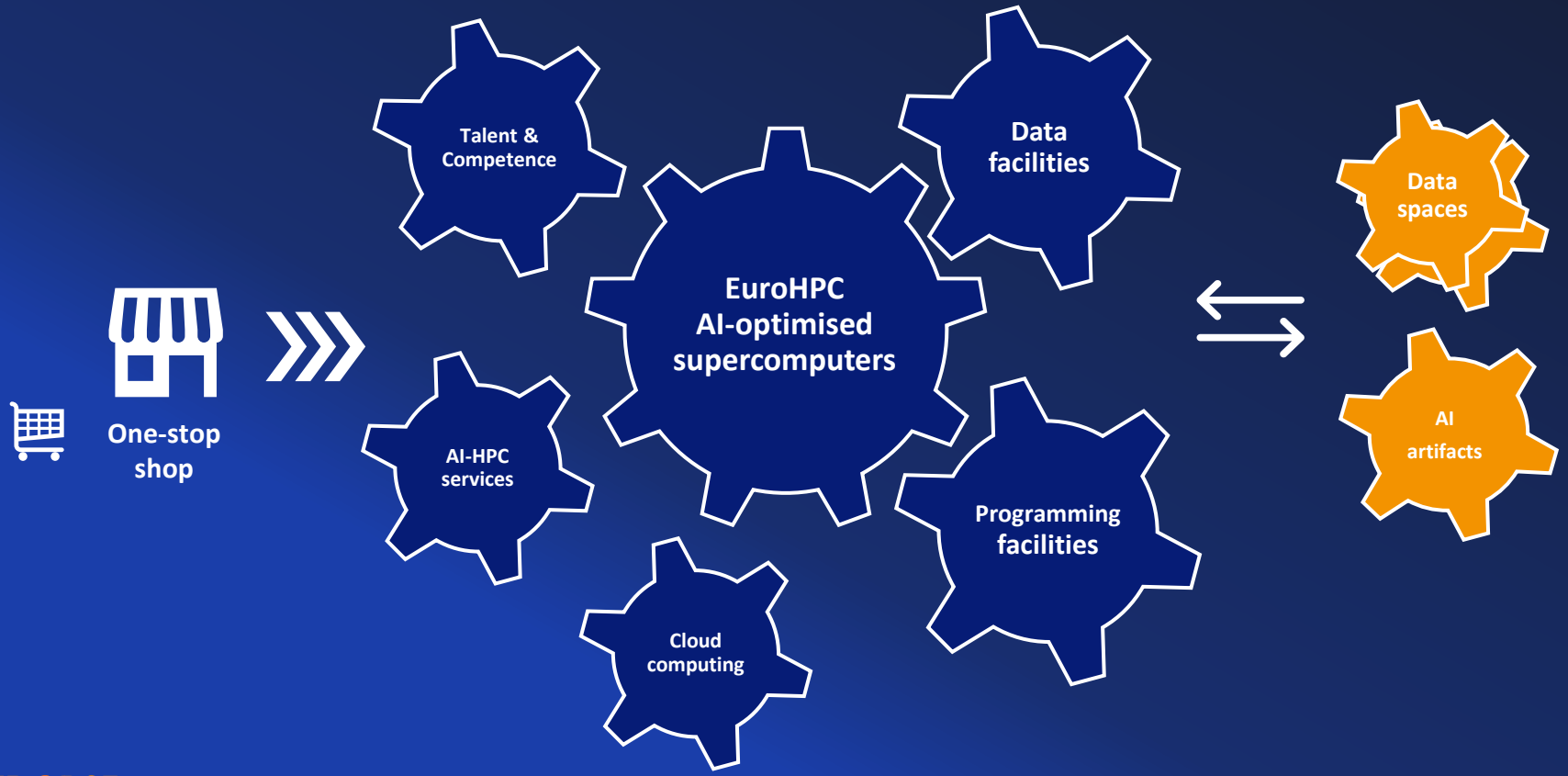
AI Factories



AI Factory Ecosystem

European Commission

EU strategy on AI Factories

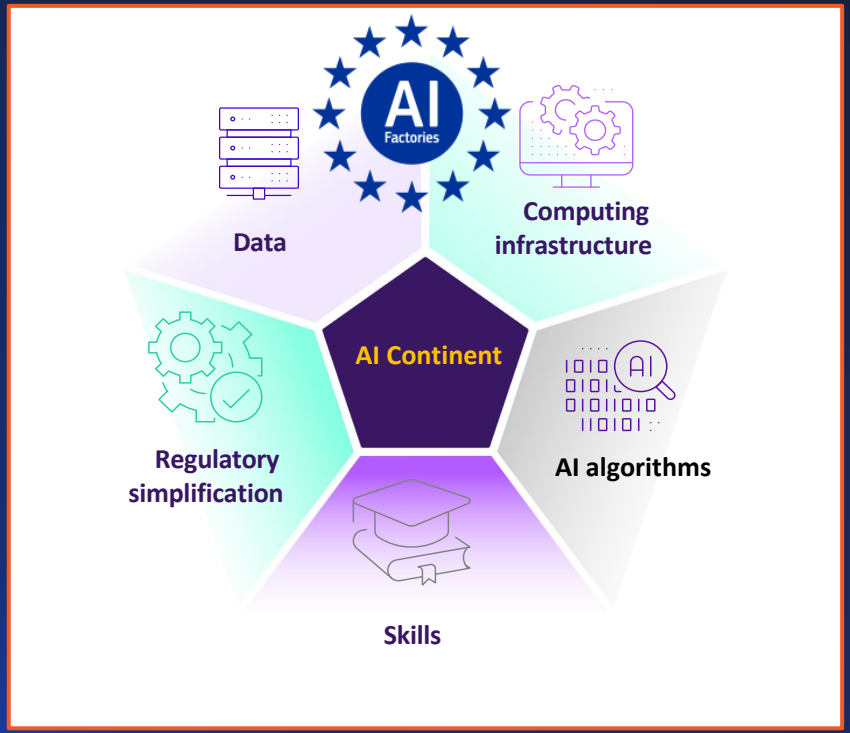
- AI supercomputers
- Dedicated HPC/AI services
- Application support
- Access policy
- Data services - Data Labs
- Support to AI EDIC (ALT-EDIC)
- Talent and skills
- Networking
- Collaboration with AI Office

National strategy on AI Factories

- AI supercomputer
- Data facilities
- Access to data
- Dedicated services
- Talent and skills
- Cooperation with Universities
- Local GPU clusters
- Digital Innovation Hubs
- Start-ups/scale-ups

Europe is Building a Data Union

- European strategy for data
- Trusted data sharing
- EU Data Act
- EU Artificial Intelligence Act
- Common European Data Spaces
- Sovereignty: data residency

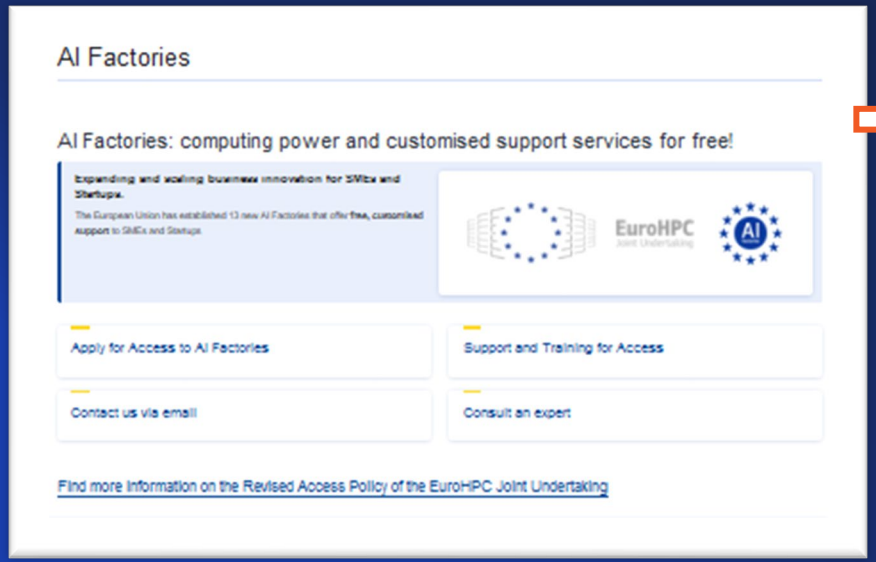


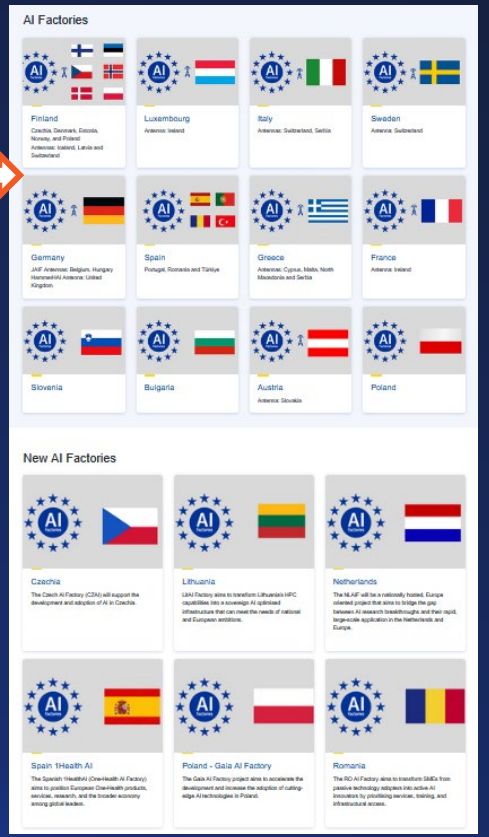
AIF Data Labs

- Data Labs create the link between data holders, Common European Data Spaces, domain-specific data ecosystems, and AIFs.
- The irst Data Labs will be piloted within **AI Factories**. The EU also envisages standalone sectoral Data Labs.
- Each Data Lab will offer a consistent set of services, including data discovery, standardisation, cleaning, enrichment, synthetic data generation, guidance on data governance and compliance.
- Data Labs will be implemented across a set of priority sectors aligned with those identified by the Apply AI Strategy: **healthcare and life sciences**, **manufacturing and robotics**, **public administration**, **cybersecurity and internal security**, **culture and languages**, **scientific research**, and **climate and environmental modelling**.

- **AIF Data Labs network**
- **Simpl** integration
- Ensure that AI developers can seamlessly use **datasets** and **tools**
- Enable efficient data use **across sectors and borders**
- Ensure **regulatory and technical alignment**
- Promote the **exchange and reuse** of shared tools and resources
- Develop required **legal and regulatory** compliance services

The Gateway to AI Factories





Tailored access modes have been put in place by the **EuroHPC JU** to prioritise AI innovators –startups, scaleups, SMEs– ensuring streamlined fast access to computing resources with minimal administrative overhead.

Access to EuroHPC Infrastructure

European Commission

Traditional HPC access modes

BENCHMARK

For scaling tests & benchmarks

Fixed amount of allocation for 2 or 3 months

Continuously open with monthly cut-offs

Results and access to system: 2 weeks from cut-off date

DEVELOPMENT

For code and algorithm development

Fixed amount of allocation for 6 or 12 months

Continuously open with monthly cut-offs

Results and access to system: 2 weeks from cut-off date

REGULAR

For projects that require large-scale HPC resources

Allocation duration: for 12 months

Continuously open with 2 cut-offs per year

Peer-review process duration: 4 months

EXTREME SCALE

For high-impact, high-gain projects that require extremely large-scale HPC resources

Allocation duration: for 12 months

Continuously open with 2 cut-offs per year

Peer review process duration: 6 months

AI access modes

SCIENCE

For **scientific projects** intending to perform artificial intelligence and data-intensive activities

Fixed allocation for 12 months on first-in / first-served basis

Bimonthly cut-offs

Peer-review process duration: 1 month

INDUSTRIAL INNOVATION

- **PLAYGROUND**
- **FAST LANE**
- **LARGE SCALE**

SELECTION: AIF Industrial Innovation Group

AI Gigafactories

European Commission

- Building on the concept of AI Factories, taking it to the next level by **integrating coherently** massive computing powe.
- Large-scale facilities designed to **develop, train, and deploy the next generation most complex AI models at an unprecedented scale** (e.g., hundreds of trillions of parameters).
- Targeting several across Europe.
- Essential for Europe to be able to **compete on the global level** and ensure its **strategic autonomy in science and in critical industrial sectors**.
- Focus on **power capacity**, **supply chain**, **cutting-edge networks**, **energy-efficiency**, and **AI-driven automation**.
- Need for **public-private partnerships** given the magnitude of the required investments.

Thank you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Commission


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