



The European High Performance Computing Joint Undertaking





EuroHPC
Joint Undertaking

Josephine WOOD
Head of Strategy and Governance - EuroHPC JU

ABOUT THE EUROHPC JOINT UNDERTAKING



 An EU body and funding entity based in Luxembourg, established in 2018 and autonomous since 2020

 Governed by a Board composed of the European Commission, 36 Participating States and 3 Private Members

Digital Europe Programme

1.98B EUR

- Infrastructure
- Federation of supercomputing services
- Widening usage and skills

Horizon Europe Programme

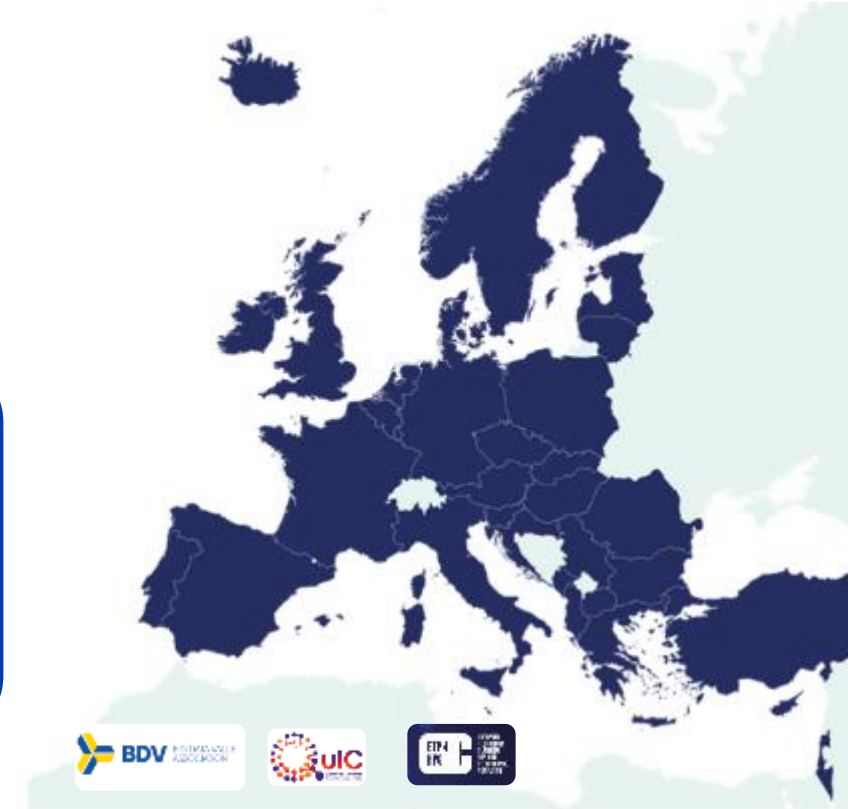
900 M EUR

- Technology
- Applications
- International Cooperation

Connecting Europe Facility

200 M EUR

- Hyperconnectivity
- Data Connectivity



- ❖ Procure, deploy and maintain **High Performance Computing, AI Factories and Quantum infrastructure** in Europe
- ❖ **Fund innovative Research and Innovation projects**, to develop European skills, applications, software and hardware and foster a European supply chain
- ❖ Provide **access to High Performance Computing, AI Factories and Quantum resources** across Europe and user support

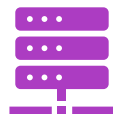
SEVEN PILLARS OF EUROHPC JU



The EuroHPC Supercomputing Ecosystem



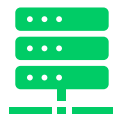
EXASCALE



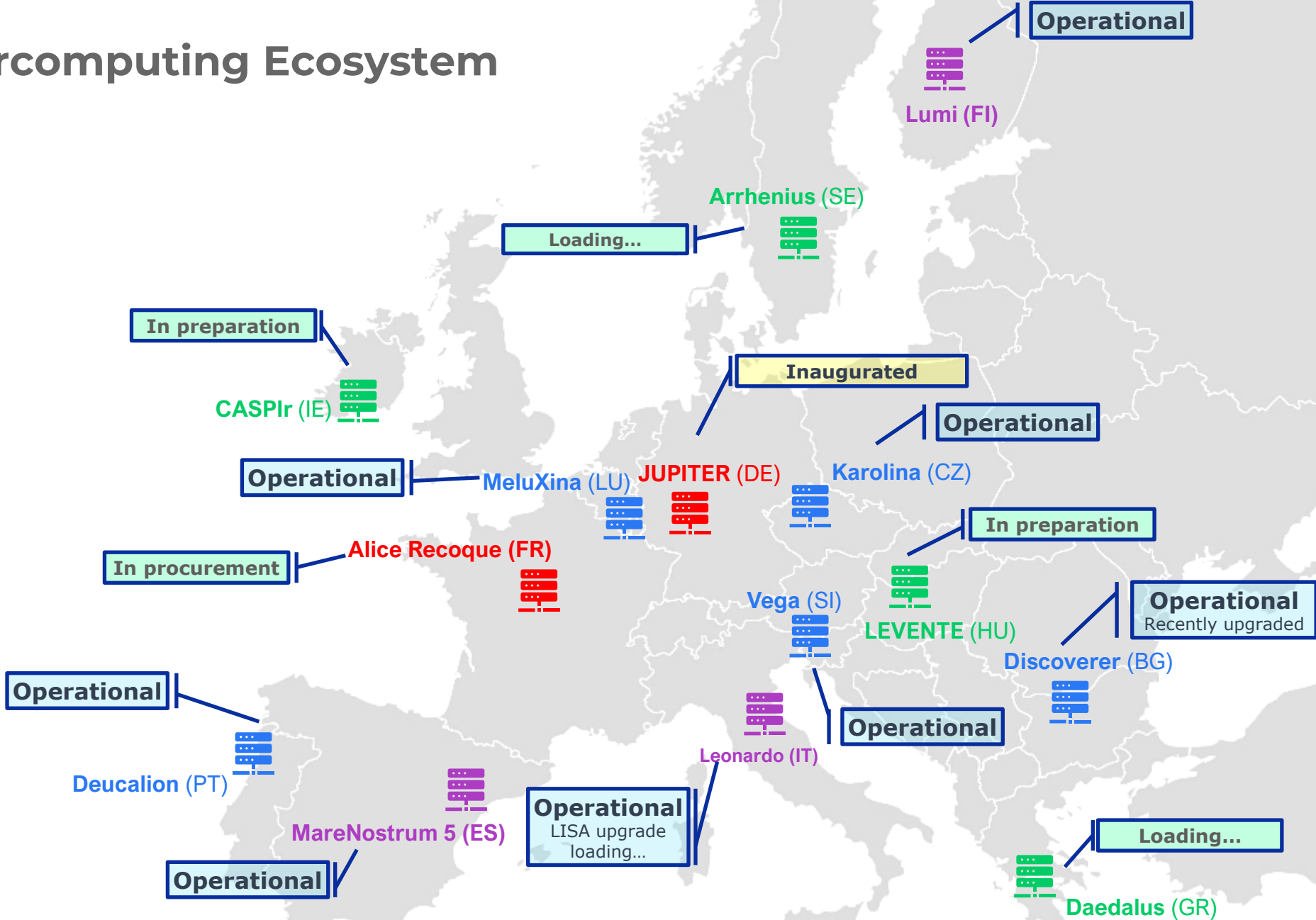
PRE-EXASCALE



PETASCALE



MID-RANGE



The EuroHPC Supercomputing Ecosystem – The numbers

Computing Performance

8* systems comprising **21** partitions offering

~900 PFlops

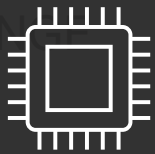
of aggregated sustained Linpack performance
...soon to be increased** to

~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

* 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%).

EUROHPC SUPERCOMPUTERS

JUPITER



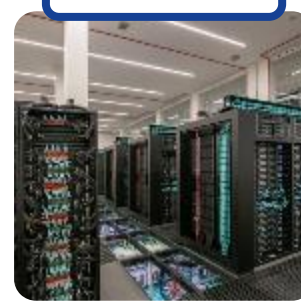
LUMI



Leonardo/LISA



MareNostrum5



Meluxina



Vega



Discoverer/Discover+



Karolina



Deucalion



3 EuroHPC systems
in
Top 10 ranking of the

TOP 500
The List.

Ongoing Development

Federated platform for
EuroHPC infrastructure

Hyperconnectivity

Daedalus



Arrhenius



Alice Recoque



An Industrial System

Hyperconnected

Contract

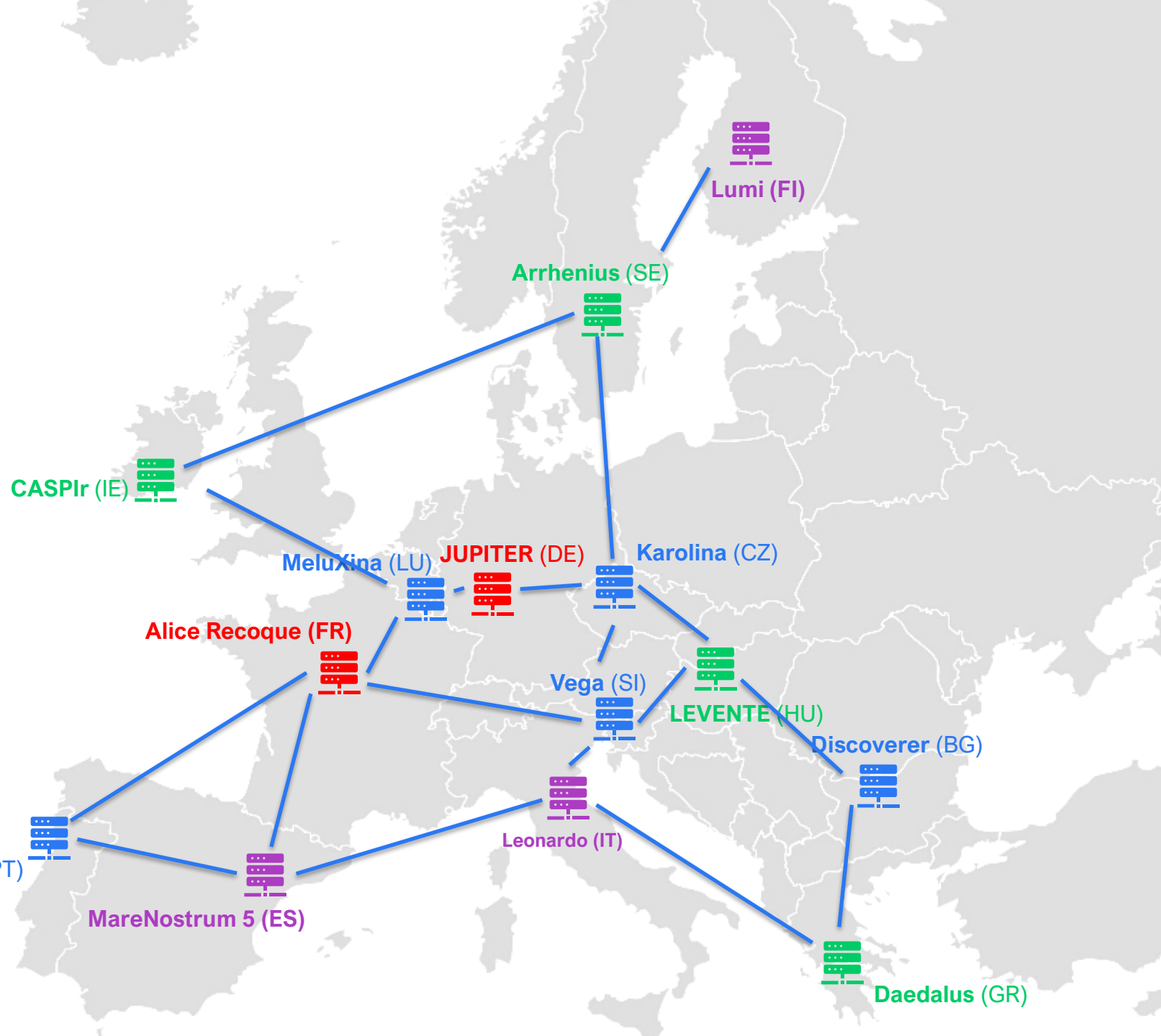
- **GÉANT**, the Association of European National Research and Education Networks (NRENs)– Implementing partners
- Contract value: **€60 million**
- Duration: **48 months**

Goals

- Build a secure, federated, and future-proof connectivity infrastructure for AI, HPC and Quantum systems across Europe.
- **222 Points Of Interest (PoIs)**
- Deliver terabit-per-second capacity with robust security, flexible, and future-proof services
- To benefit: research communities, SMEs, startups, public sector, industry, and innovation stakeholders

Timeline

- **2026** – High Level Design (HLD) and HyperConnectivity Service Area (HCSA) delivered; inclusion of Priority POIs 1&2
- **2026 –2029** – Progressive inclusion of PoIs
- **2029** – Fully hyperconnected ecosystem in operation



Federated

Goals



A **single federated identity** across all AI and HPC machines for each user (eIDAS based, e.g. SME registry, EU Wallet etc.)



Uniform and **secure** access to all federated machines



Provision of **multitenancy in secure environment**



Interactive web-based usage



Advanced features for **workflows and interactive graphical AI usage** interface (e.g. Kubernetes)



Data transfer methods such as S3 and similar to and from external and internal data clouds, data lakes and data spaces.



Unified AI and HPC software across all federated machines



Smart scheduling capabilities to optimize compute usage and increase the level of abstractions for the provided compute capacity



Connection to HPC in Europe portal that serves as EU training coordination place

Contract

- A consortium led by **CSC – IT Center for Science**, with NORDUnet, University of Tartu, Ghent University, and VSB Technical University of Ostrava's IT4Innovations and GEANT.
- Expected duration: **5 years**
- **Total budget: 20.000.000,00 €**

Timeline

- Project start **January 2025** (Contract signed December 2024)
- **1st phase (2025-2026)** The development of a Minimum Viable (Federation) Platform (MVP) covering six key areas including federated AAI, resource allocations, and complex workflow manager including smart scheduler.
 - **1st release:** Q1/2026 with integration to currently online EuroHPC HPC and AI systems
 - **2nd release:** Q4/2026 additional EFP components and integration online HEs, AI factories and quantum systems + initial integration of Fenix, SIMPL and EOSC

Deucalion (PT)

MareNostrum 5 (ES)

Daedalus (GR)

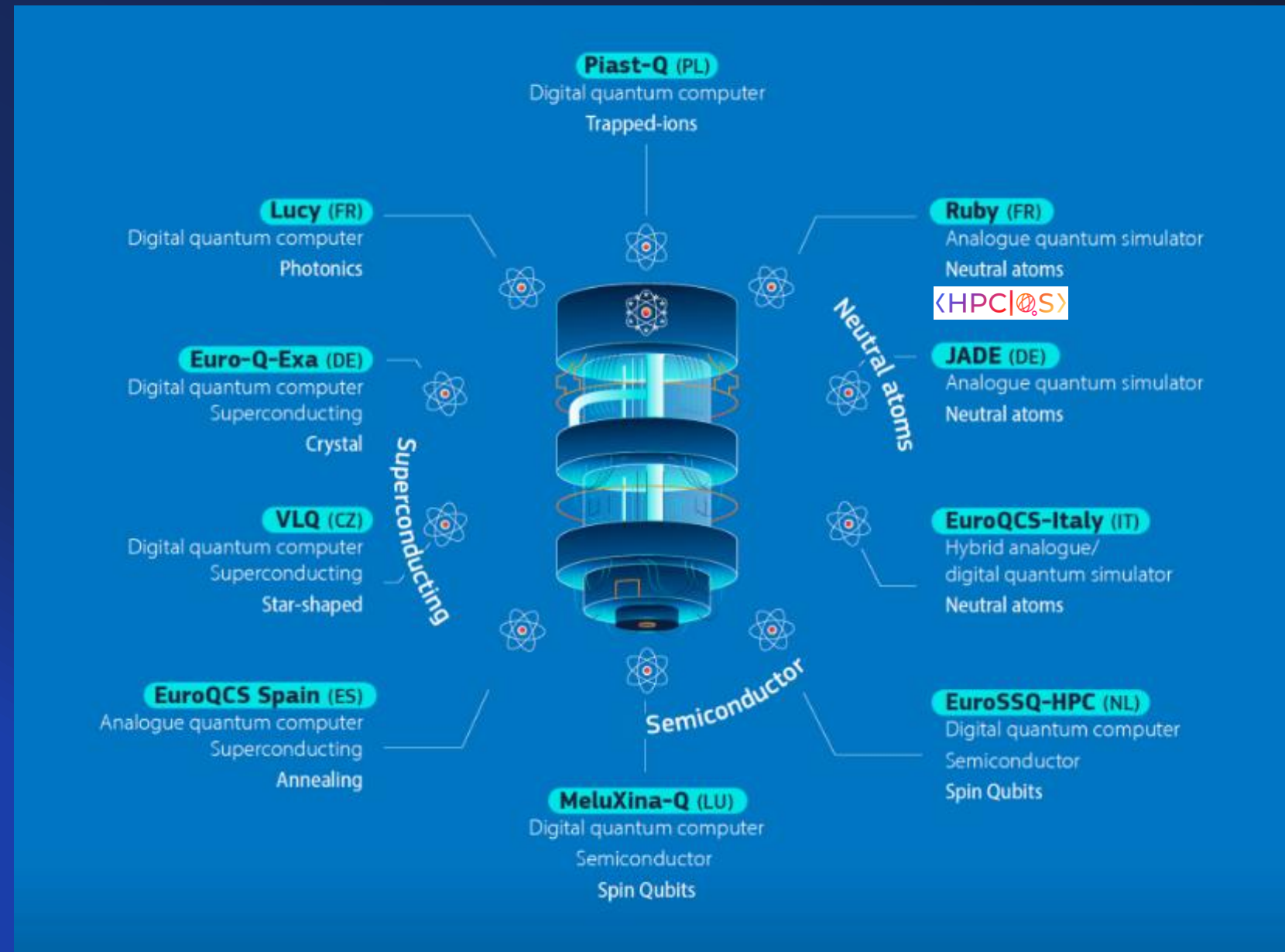
EuroHPC Quantum Computers

10 Quantum Computers procured
(2 Quantum Simulators as part of the HPCQS project)

2 systems recently inaugurated

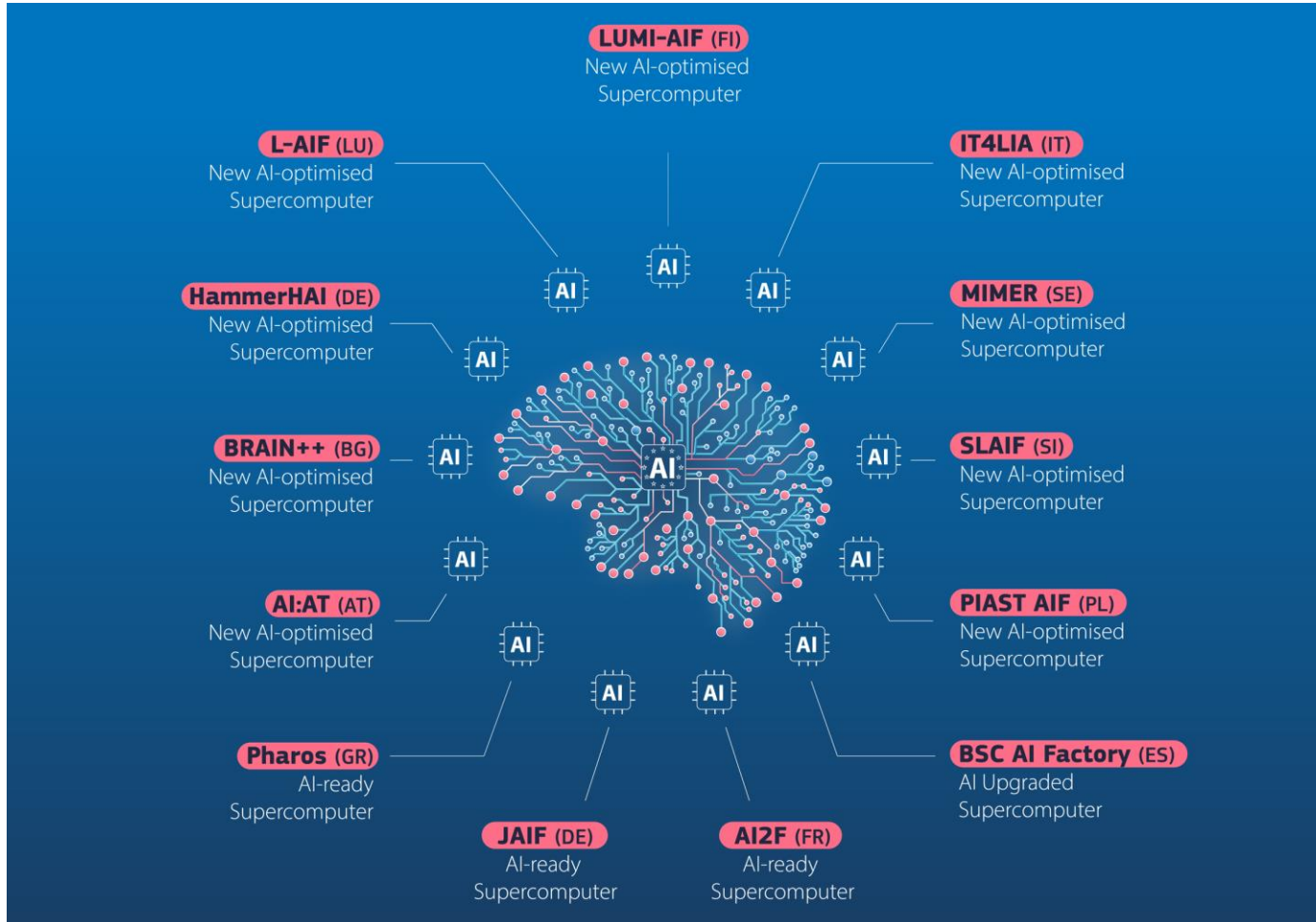
- Piast-Q (PSNC, Poznan)
- VLQ (IT4I, Ostrava)

Resources to be offer soon through
the EuroHPC Access Calls!



THE AI FACTORIES

EuroHPC JU selected 13 EU sites that will host the first AI Factories – to drive Europe’s leadership in AI. Ecosystem to be further strengthened by additional AI Factories coming out from the 3rd cut-off of AIF CEI and the AIF Antennas Horizon Europe call.



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 **Discoverer++**
- Slovenia **SLAIF**
- Austria **AI:AT**
- Poland **PIAST AIF**



AI Factories pull together EU and national resources, in a collaborative effort of **21 European countries**

AI Systems offered/planned

AIFs using existing systems

- **JAIF** (JUPITER)
- **AI2F** (Alice Recoque)
- **Pharos** (Daedalus)

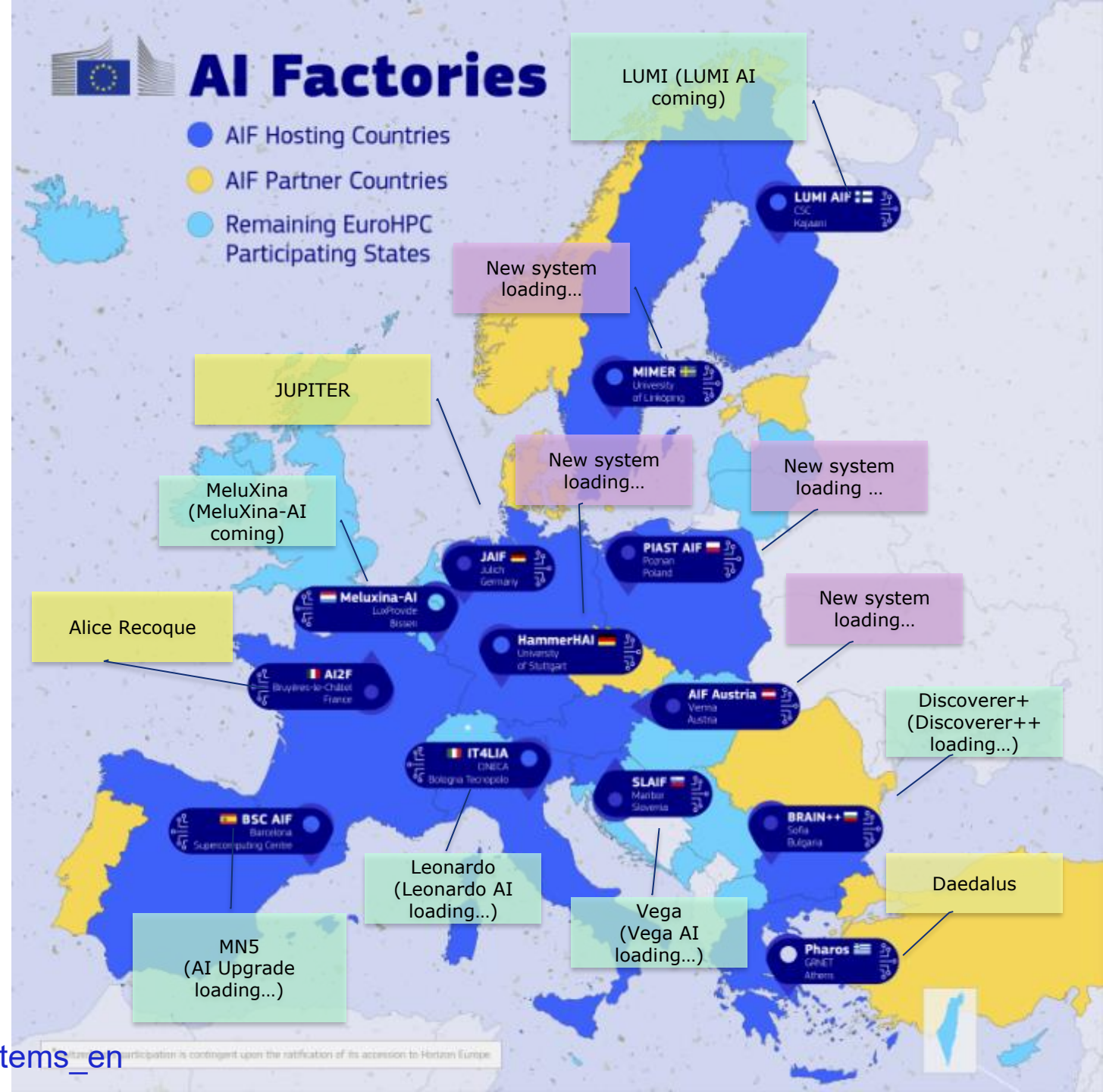
AIFs temporarily offering existing systems

- **BSC** (MN5... waiting for MN5 upgrade)
- **IT4LIA** (Leonardo/LISA... waiting for Leonardo-AI)
- **LUMI AIF** (LUMI.. waiting for LUMI-AI)
- **LuxProvide** (MeluXina... waiting for MeluXina-AI)
- **BRAIN++** (Discoverer+... waiting for Discoverer++)
- **SLAIF** (Vega... waiting for Vega-AI)

AIFs with upcoming new systems

- **HammerHAI** | HLRS, Stuttgart
- **PIAST AIF** | PSNC, Poznan
- **AI:AT Austria** | ACA, Vienna
- **MIMER** | LU, Linkoping

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



What to expect from the EuroHPC AI-optimised supercomputers



- AI optimised GPU architectures: Emphasis on **FP32**, **FP16** and **FP8** performance
- Tightly integrated on node level – Memory coherency
 - NV Link, UALink, Infinity Fabric
- **Revised benchmarks**
 - HPL and Top500 not the driving metric.
- Dense interconnect on the partition level
 - At least one link per GPU
 - Software friendly
 - Traditional Infiniband but also Ethernet (e.g. Ultra Fast Ethernet)
- Richer software/middleware stacks
 - Slurm is not the king
 - Kubernetes, containers, virtualisation and relevant workflow and resource management tools
- **MLOPs**
 - Support for the complete AI training/inference lifecycle: Preparation, fine tuning, augmentation, model catalogues.
- **Multitenancy** and advanced security.
 - User isolation on compute, storage and network layer



EuroHPC AI supercomputers will offer diverse architectures and design choices suited for the specific goals of the various AI Factories

On 10 October 2025, EuroHPC JU announces selection of

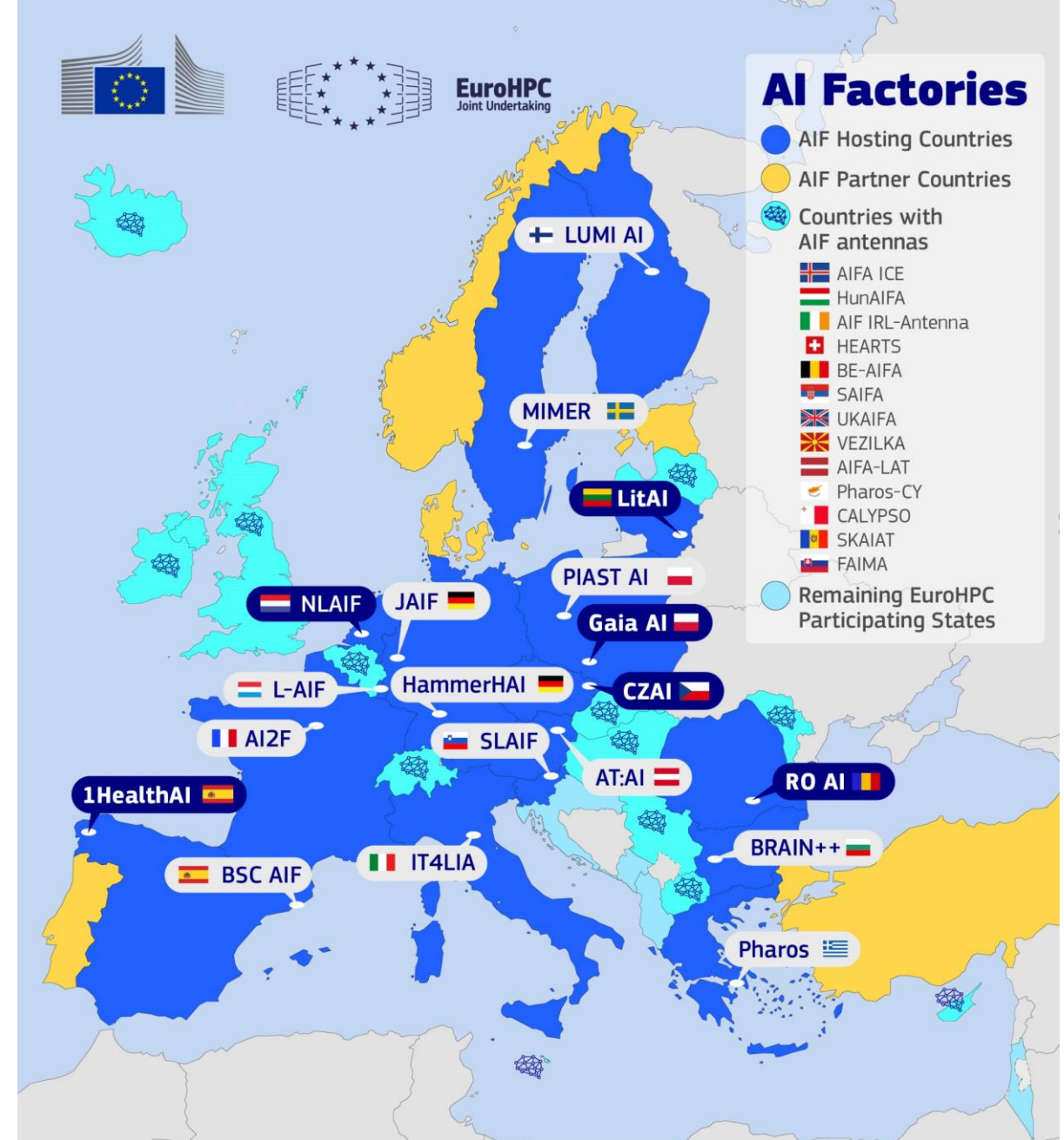
Six Additional AI Factories to Expand Europe's AI Capabilities in Czechia, Lithuania, the Netherlands, Poland, Romania and Spain.

And

13 AI Factory Antennas to complement existing AI Factories:

AI Factory Antennas are established to expand and complement the services of the existing EuroHPC [AI Factories](#).

The European Union will fund the AI Factory Antennas with an investment of around €55 million, matched by contributions from the EuroHPC JU 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

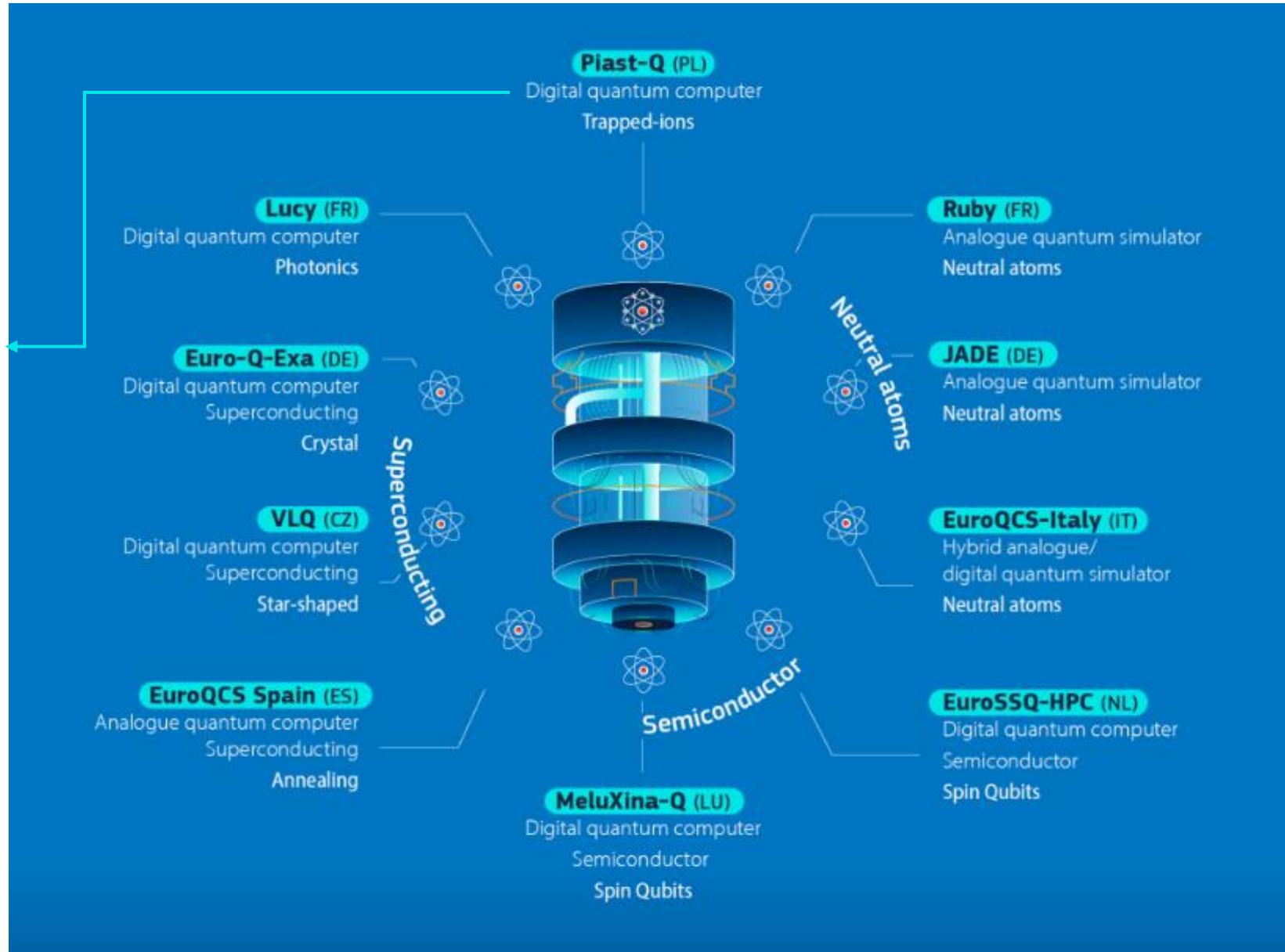
QUANTUM

10 Quantum Computers

Inaugurated on 20 June

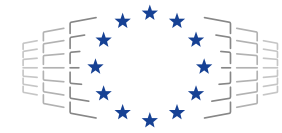


6 Different technologies



FREE

ACCESS TO EUROHPC INFRASTRUCTURE



EuroHPC
Joint Undertaking

Access for “classical” HPC

BENCHMARK	DEVELOPMENT	REGULAR	EXTREME SCALE
For scaling tests & benchmarks	For code and algorithm development	For projects that require large-scale HPC resources	For high-impact, high-gain projects that require extremely large-scale HPC resources
Fixed amount of allocation for 2 or 3 months	Fixed amount of allocation for 6 or 12 months	Allocation duration: for 12 months	Allocation duration: for 12 months
Continuously open with monthly cut-offs	Continuously open with monthly cut-offs	Continuously open with 2 cut-offs per year	Continuously open with 2 cut-offs per year
Results and access to system: 2 weeks from cut-off date	Results and access to system: 2 weeks from cut-off date	Peer-review process duration: 4 months	Peer review process duration: 6 months

AI Access

AI AND DATA INTENSIVE for Collaborative Projects	INDUSTRIAL INNOVATION
For scientific projects intending to perform artificial intelligence and data-intensive activities	PLAYGROUND
Fixed allocation for 12 months on first-in / first-served basis	FAST LANE
Bimonthly cut-offs	LARGE SCALE
Peer-review process duration: 1 month	SELECTION: AIF Industrial Innovation Group
	Up to 30% of EU access time

ACCESS TO EUROHPC QUANTUM INFRASTRUCTURE COMING SOON

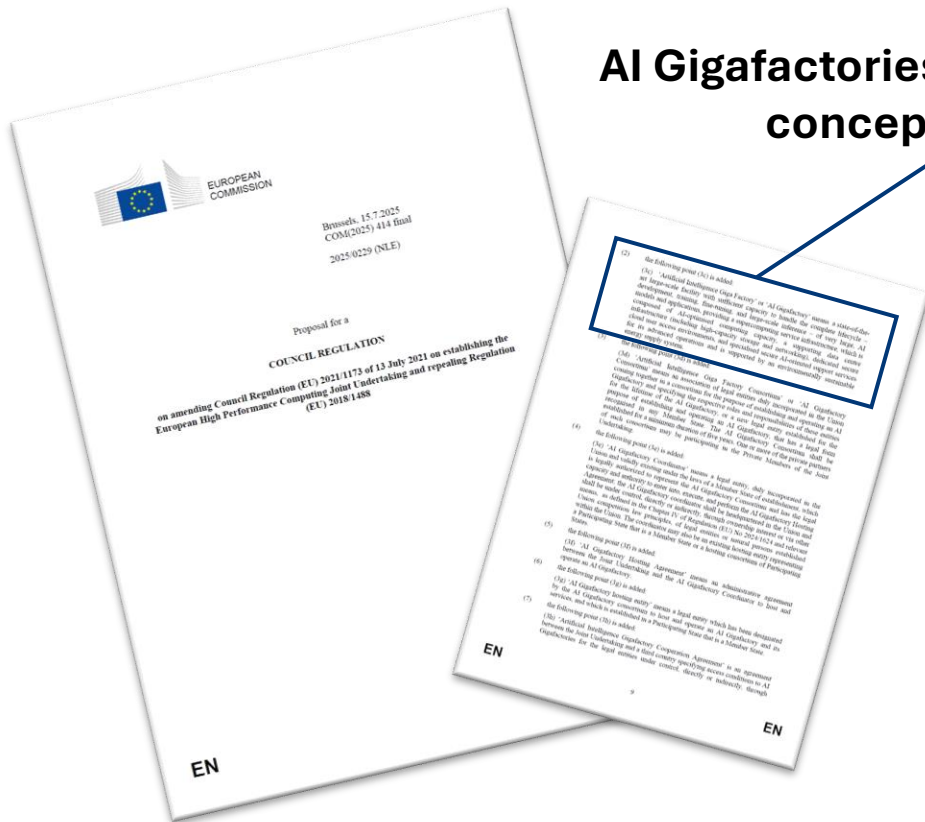


AI GIGAFACTORIES – COMING SOON!

Council Regulation on amending Council Regulation (EU) 2021/1173 of 13 July 2021 on establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488

“The amendment to the Regulation enlarges its scope in order to expand the objective of the Joint Undertaking related to development and operation of AI Gigafactories in Europe that will be federated with the AI Factories.”

AI Gigafactories concept



“(3c) ‘Artificial Intelligence Giga Factory’ or ‘AI Gigafactory’ means a **state-of-the-art large-scale facility** with sufficient capacity to handle the complete lifecycle – development, training, fine-tuning, and large-scale inference – of **very large, AI models and applications**, providing a supercomputing service infrastructure, which is composed of **AI-optimised computing capacity**, a supporting **data centre infrastructure** (including high-capacity storage and networking), dedicated **secure cloud user access environments**, and **specialised secure AI-oriented support services** for its advanced operations and is supported by an environmentally sustainable energy supply system.”

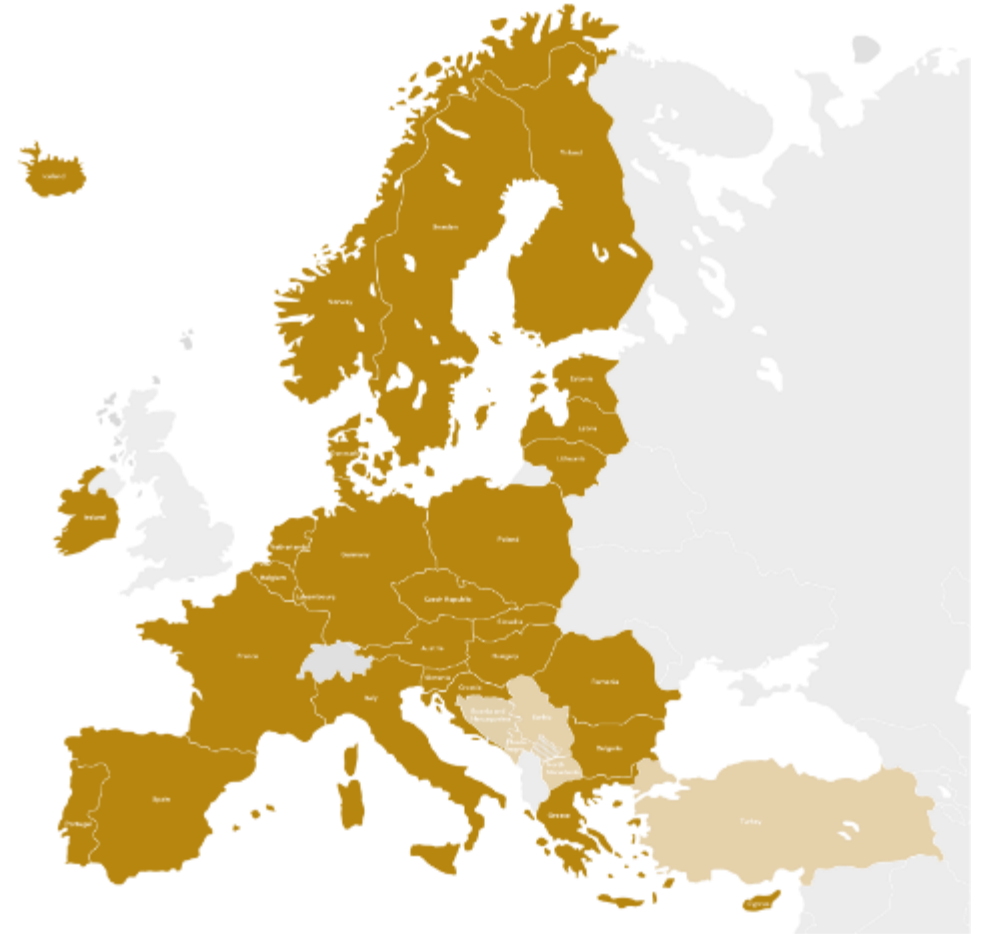
EUROHPC USER SUPPORT SERVICES:

CASTIEL 2, EUROCC2, EURO CC4SEE

- Support users in their respective country in
 - High-Performance Computing (HPC)
 - High-Performance Data Analytics(HPDA)
 - Artificial Intelligence (AI)*
- Provide services to users from industry, academia and public administration
- Single points of contact for HPC and associated technologies



hpc-
portal.eu



EUROHPC USER SUPPORT SERVICES:



EPICURE: EuroHPC Application Support Services

Who's eligible?

Having a EuroHPC JU allocation project is **required!**

Don't have one yet? **We can even help** you to apply!

Ready to optimise?

Request support: You can request EPICURE support.

<https://pm.epicure-hpc.eu/> -- <http://eurohpcsupport.eu/>

Do you **need a EuroHPC allocation?** Check the EuroHPC Access Calls!

<https://www.eurohpc-ju.europa.eu/supercomputers/>

[supercomputers-access-calls_en](https://www.eurohpc-ju.europa.eu/supercomputers-access-calls_en)



FFplus Objectives



Empower SMEs and Start-Ups with advanced computational capabilities based on HPC, enabling them to **drive innovation**, enhance competitiveness, and overcome challenges in the digitalisation of R&D and business processes.

FFplus will **execute 6 open calls** (3 for business experiments, 3 for innovation studies) with a funding budget of over 24 M€.

HPC Computing Resources



- There is an expectation that FFplus sub-projects make use of the HPC resources provided under the EuroHPC JU access schemes (use of nationally provisioned HPC resources is considered equivalent).
- FFplus cannot provide computing resources itself, nor does it have any special allocation of time on the EuroHPC JU systems.



Open Call News



“Spoiler” (Website news and detailed stats to follow):

2nd Call for Business Experiments – 350 submissions (!), Evaluation ongoing, expect news on proposals selected early in 2026.

Main Participant SMEs from 34 countries.

2nd Call for Innovation Studies:

- Deadline: February 25th, 2026 at 17:00 Brussels local time.
- Expected duration of innovation studies: 10 months, with targeted commencement July 1st, 2026.
- Indicative total funding budget = € 4M.

MINERVA is a distributed, European-wide HPC-enabled AI application support service



What we do

- Offer a rich service portfolio covering several levels and types of support.
- Interact with AI communities to identify needs and update the MINERVA service portfolio.
- Increase competences of AI communities on AI n HPC.
- Ensure models are developed according to ethical and responsible AI regulations.

- **Support:** Operating an EU-wide support centre.
- **Knowledge transfer:** Publishing best practice guides and guidelines.
- **Benchmarking:** Evaluating model performance on supercomputers.
- **Data Access:** Providing information on access to public datasets.
- **Training Programs:** Providing "AI on HPC" training program.
- **Community Hub:** Supporting large-scale open-source ML/AI research and development on HPC.

How we do it

One point of entry
support@minerva4ai.eu

EuroHPC User Forum - formally

From the Multi-Annual Strategic Programme:

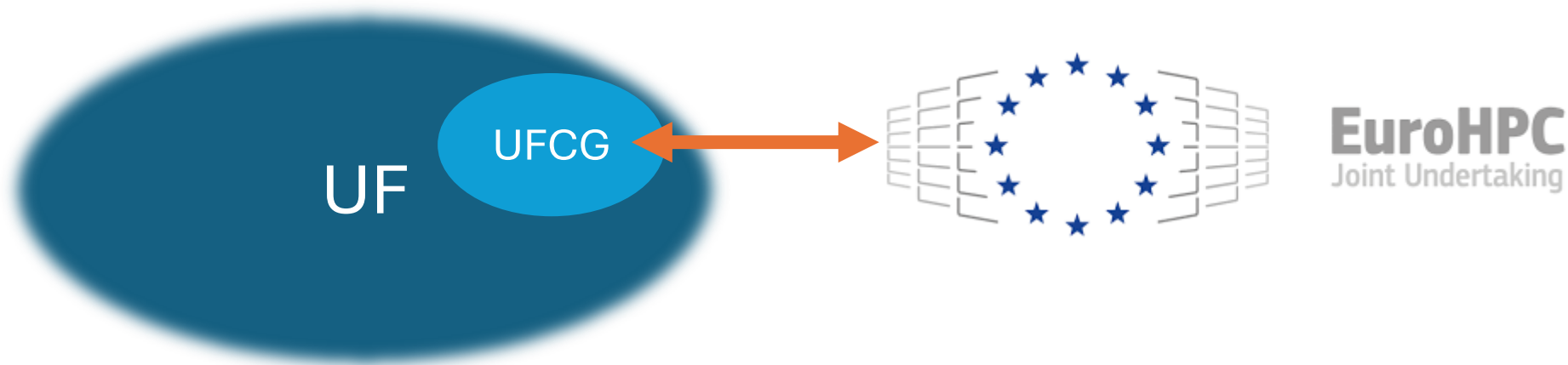
User Forum: EuroHPC User Forum will ... promote **knowledge exchange, professional development, and collaboration** within the European HPC and Quantum communities. It shall be open, inclusive, independent, transparent, and responsive to the needs of its members. The Forum shall be made up of users from **academic, industrial, and public sector** sectors. It is an **open group** where discussions cover updates from EuroHPC, current developments in the European HPC community, collection of user requirements, and report on difficulties and issues they face using the EuroHPC JU infrastructure.

The creation of the EuroHPC User Forum shall have the following aim, support, and governance:

- The aim of the User Forum is to foster structured, coherent, and regular **communication and exchange** with all user communities and stakeholders;
- The mission and goals of the User Forum should be clear, concise, and relevant;
- The User Forum shall facilitate open consultation with user and scientific communities that also serves to highlight the EuroHPC vision;
- The User Forum shall have dedicated administrative support from the JU to ensure its sustainability and effectiveness;
- The JU shall establish a governance structure responsible for overseeing the Forum's activities and to collate and communicate **feedback on user requirements** to the Advisory Groups of EuroHPC as necessary;

EuroHPC User Forum & Coordination Group in practice

- UFCG Monthly meeting on Teams including some EuroHPC staff
- Independent – a group of **Users**
- Limited term – keep fresh with new members
- Slack and discourse channels (see later)
- Two-way communication from users to EuroHPC
- Connection to RIAG/INFRAG/EPICURE
- Provide feedback to documents and reports from EuroHPC JU



Who is in the Coordination Group?



Chris Richardson (chair) Cambridge UK, Physics/Engineering finite element software development



Maria Girone (vice chair) High Energy Physics, CERN, Switzerland, IT HPC Strategy Coordinator



Andrius Popovas (University of Oslo, Norway) HPC users for computational astrophysics



Ivan Carnimeo (CNR-IOM): Materials science/Chemistry/Physics developer of Quantum ESPRESSO, MAX (MATERIALS design at the eXascale) CoE, ICSC (Italian National Center for HPC)



Thomas Geenen (ECMWF, Destination Earth) - Climate and Weather Prediction and Earth System Digital Twin communities



Lara Peeters (VSC - HPC in Flanders, Belgium) - Digital Humanities



Sinéad Ryan – Lattice Quantum Chromodynamics TCD Dublin, Ireland



Zoe Cournia - Biomolecular simulations and drug discovery University of Athens, Greece



Matthais Meinke - Aerodynamics RWTH Aachen, Germany

Join in.



- <https://eurohpc-users.discourse.group/signup>
- Forum discussion
- Archived as a longer-lasting source of information



- Informal “chat” application
- Help to start conversations
- Not a “high security” platform

For more information: Visit our website and follow us on social media



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