



ANTWERP

The European High Performance
Computing Joint Undertaking

**LEADING THE WAY IN EUROPEAN
SUPERCOMPUTING**

TO EXASCALE
AND BEYOND

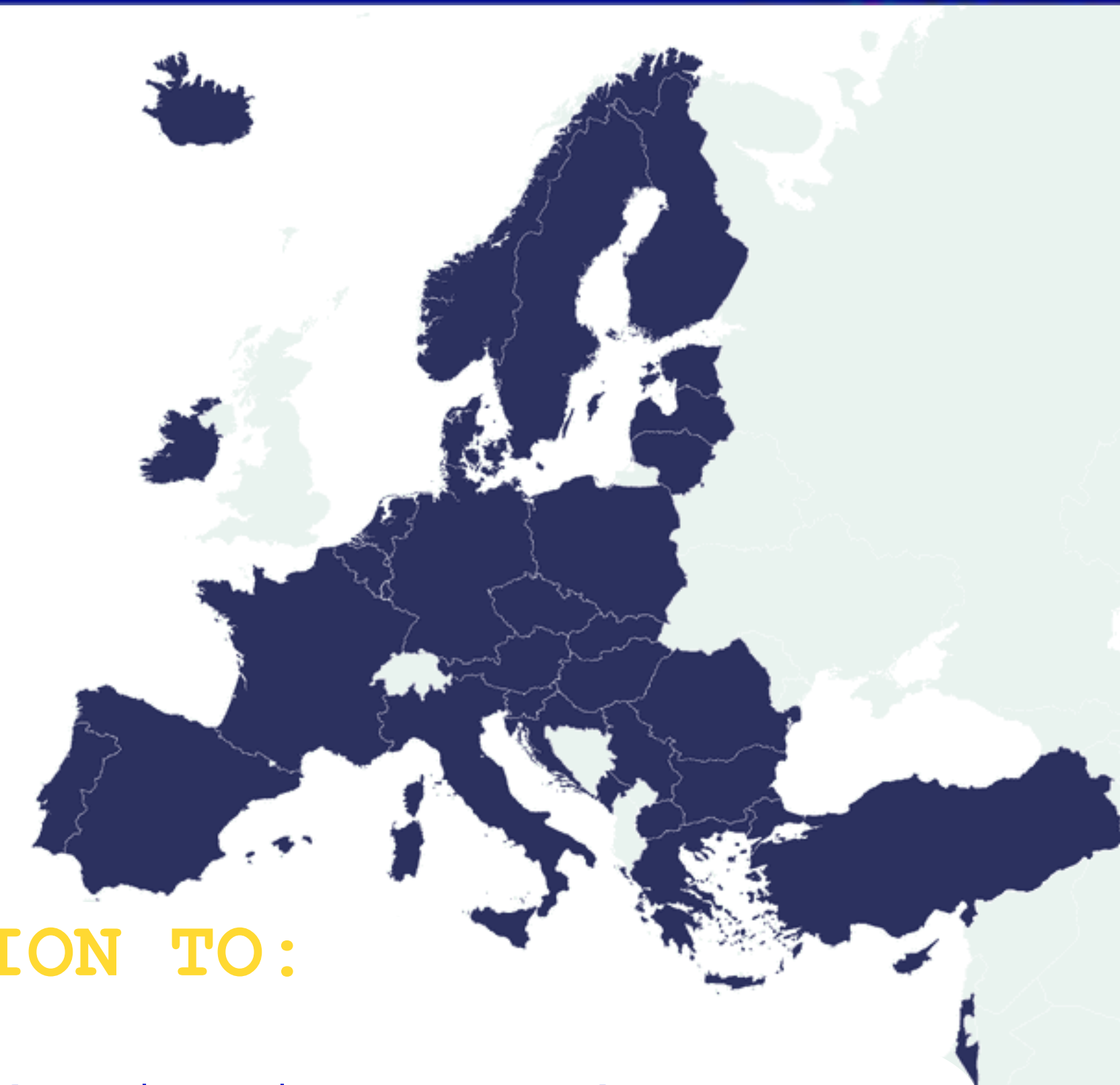
UNLEASHING THE
POWER OF EUROPEAN
HPC AND QUANTUM
COMPUTING



A QUICK EUROHPC RECAP...

WE ARE:

- An EU body and funding entity
- Existing since 2018 and autonomous since 2020
- Based in Luxembourg
- Governed by a Board composed of the European Commission, 34 Participating States and 3 Private Members



WITH A BUDGET COMING FROM 3 EU FUNDING PROGRAMMES:

- Digital Europe Programme: EUR 1.98B
- Horizon Europe Programme: EUR 900M
- Connecting Europe Facility: EUR 200M
- EU contributions are matched by national contributions

WITH A MISSION TO:

- Buy, build and maintain HPC and quantum infrastructure in Europe
- Fund innovative R&I projects, to develop European skills, 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



PROCURED

5 PETASCALE

- Vega in Slovenia
- Karolína in Czechia
- Discoverer in Bulgaria
- Meluxina in Luxembourg
- Deucalion in Portugal

3 PRE-EXASCALE

- LUMI in Finland
- Leonardo in Italy
- MareNostrum 5 in Spain



ONGOING

1 EXASCALE

- Jupiter, the first European Exascale, in Germany

2 MID-RANGE

- Arrhenius in Sweden
- Daedalus in Greece

COMING NEXT

A SECOND EXASCALE

- in France

UPGRADES

- Discoverer+
- Lisa/Leonardo

AN INDUSTRIAL SYSTEM

- Co-owned and for use by the industrial sector
- For AI and other applications

A POST-EXASCALE SYSTEM

PROCUREMENT OF FEDERATION SERVICES

- A platform for the federation of EuroHPC HPC and quantum infrastructure
- A one-stop shop access point for users



QUANTUM COMPUTERS

Four procurements already launched:

- **EuroQCS-Poland**, located in Poland
- **Euro-Q-Exa**, located in Germany
- **EuroQCS-France**, located in France
- **LUMI-Q**, located in Czechia

Each QC will be integrated into an existing supercomputer in Europe



2 quantum simulators under development, to be integrated in:

- **Joliot Curie** (France)
- **JUWELS** (Germany)

COMING NEXT

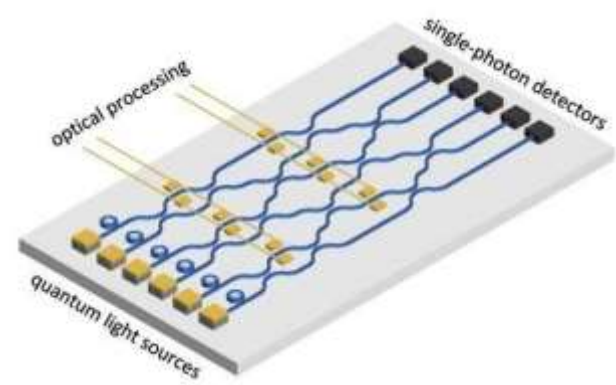
- Finalising the ongoing procurements of the quantum computers
- Calls for further quantum computers
- Development of HPC-Quantum technologies
- Development of Hybrid algorithms and applications
- Establishment of Quantum Excellence Centres
- Enabling Universal Access and Integration of Quantum Resources, to facilitate access and foster innovation
- quantum with 3rd countries

DIVERSITY IN QUANTUM TECHNOLOGIES



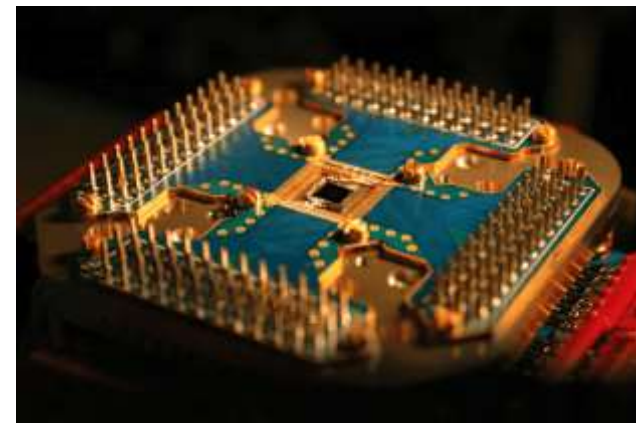
EuroQCS-France

Photonic quantum computer



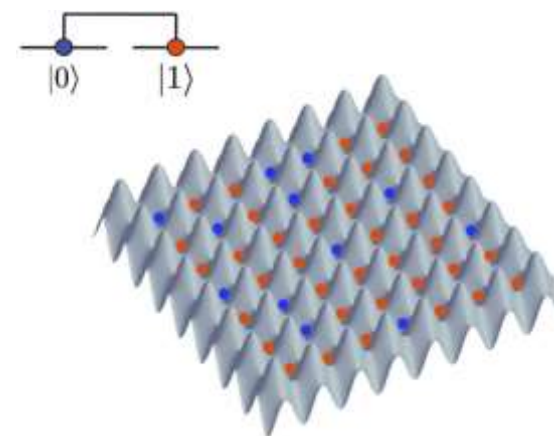
Euro-Q-Exa (Germany)

Superconducting qubits



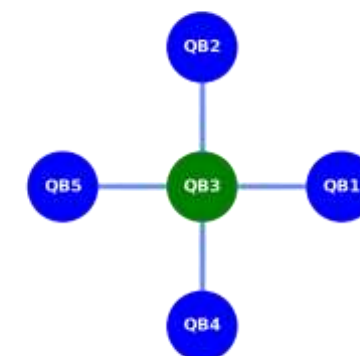
EuroQCS-Italy

Neutral atoms



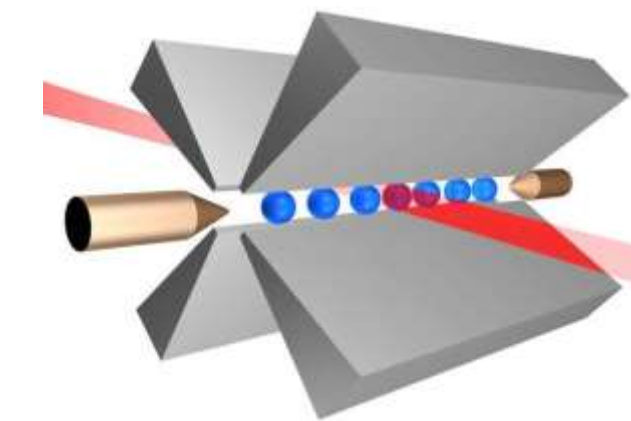
Lumi-Q (Czechia)

Superconducting qubits with a star-shaped topology



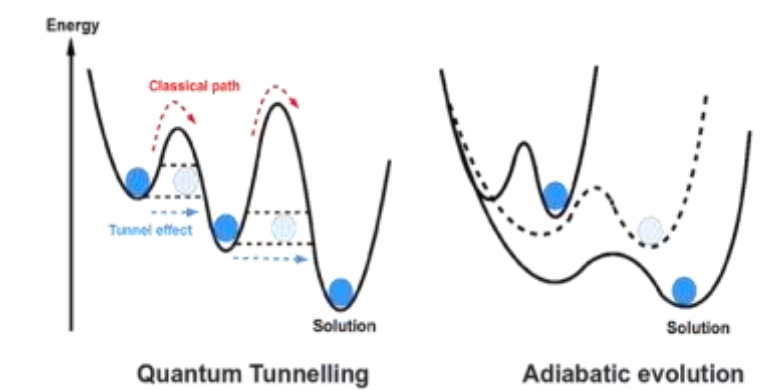
EuroQCS-Poland

Trapped ions



EuroQCS-Spain

Quantum annealer



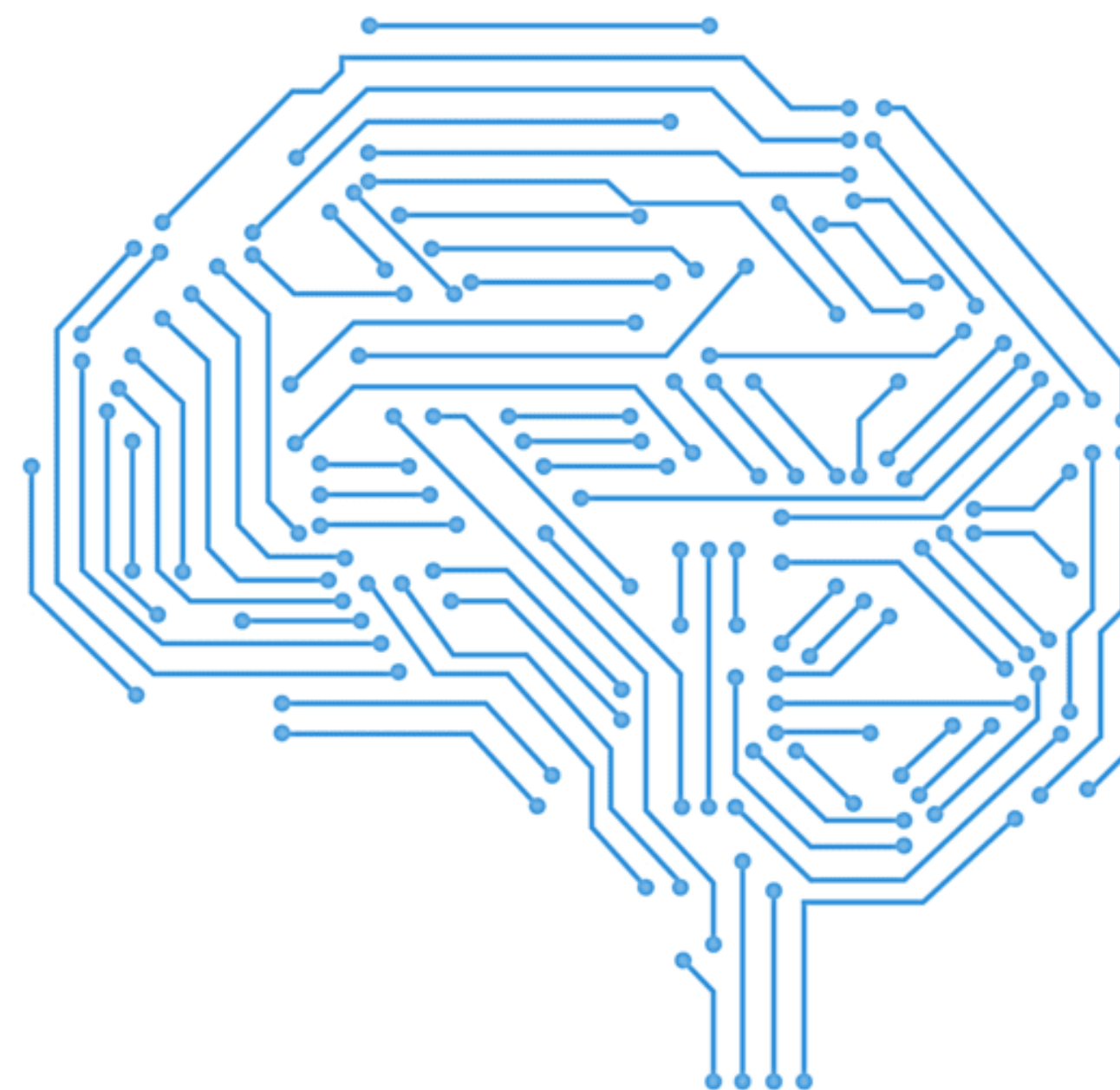


AI GRAND CHALLENGE

Launched with the EC to foster innovation and excellence in large-scale AI models and provide users with access to the LUMI and Leonardo to research, innovate and develop novel AI solutions.

CALLS TO SUPPORT HPC FOR AI

- **Support Centres for HPC-powered AI Applications:** to provide services for AI users and developers, supporting their uptake of HPC, providing training in HPC skills and on HPC architectures and user requirements
- Call to provide **HPC Support to SMEs:** to develop the competitiveness and innovation potential of SMEs in AI



TO DATE:

Over 90 AI projects have been active on EuroHPC supercomputers
Over 42 AI projects have been supported by the 33 EuroHPC NCCs

NEW ACCESS CALL FOR AI AND DATA-INTENSIVE APPLICATIONS

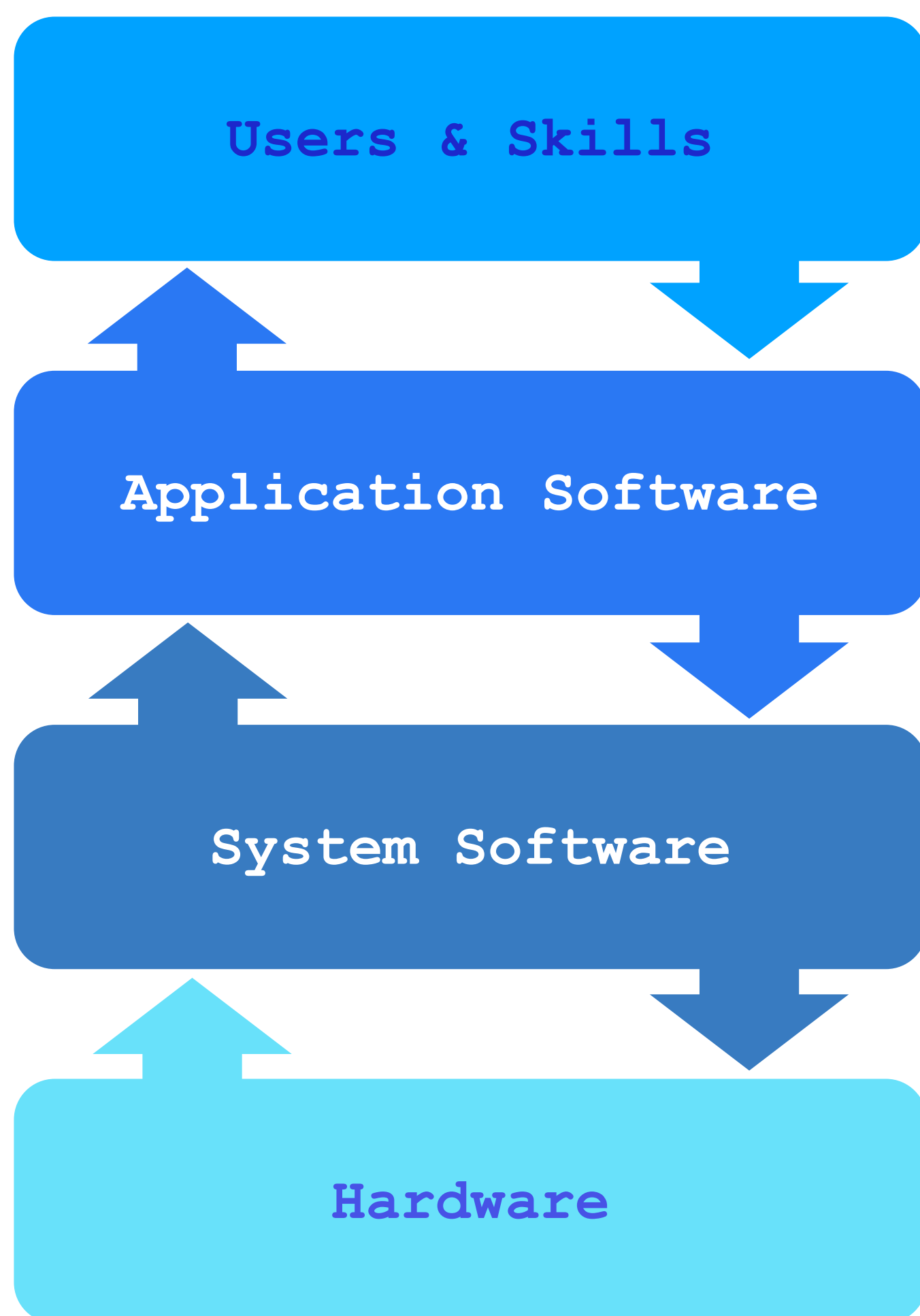
- Launched in March 2024
- Aims to support ethical AI
- Intended for industry, SMEs, startups and public sector organisations

POTENTIAL FUTURE AI INITIATIVES

- Call for AI Software Ecosystem for HPC targeting the development of methodologies, programming environments and software stack to facilitate the coupling of HPC with AI training processes and big data
- Possible update to EuroHPC Regulation to include more AI-related activities



Currently over 40 ongoing or concluded projects in a range of domains and contributing to European digital autonomy



Several initiatives are in place or upcoming to support users, such as and to harmonise the European HPC skills base, including **EuroCC2**, **Epicure**, **EUMaster4HPC** and the future **HPC VirtualTraining Academy**

The EuroHPC **Centres of Excellence**, focused on applications for specific sectors and upcoming **Quantum Excellence Centres**

The **SEA** projects are working to equip future Exascale systems with strong technologies, the recently closed **energy efficiency call** to develop energy-aware resource management technologies for HPC, and the upcoming **quantum middleware** initiative

EPI SGA2 which has led to the creation of the RHEA processor, which will be used in JUPITER
EuroHPC is also preparing initiatives for **RISC-V**



EU DIGITAL PARTNERSHIPS

- EuroHPC implements cooperation and collaboration in HPC with like-minded 3rd countries in domains of common interest, including facilitating access for researchers to EuroHPC JU resources and co-development of HPC applications.
- EuroHPC aligns its activities with the EC's strategy on **EU Digital Partnerships**

JAPAN

- Call for the EU-Japan Partnership was closed in April 2023
- Funding was awarded to the **HANAMI** consortium to bring together research teams representing the EU and Japan, pool expertise in pre-exascale and exascale systems and to support the development of HPC technologies

INDIA

- Call for the EU-India Partnership is currently open
- Closing date is 7 May 2024
- Aims to develop a collaboration with India, advancing the optimisation and co-development of HPC application and promoting the exchange of researchers and engineers between India and the EU.



OPPORTUNITIES AT EUROHPC JU

We are currently a team of around 40 staff, from over 14 different nationalities

In the coming year, the EuroHPC JU plans to recruit more key roles to complete its team.



We are currently looking for a Programme Officer!

- ✓ With a research or engineering background
- ✓ Familiar with research or innovation projects
- ✓ With expertise in the areas of HPC, Artificial Intelligence or Quantum computing.

More information on vacancies and opportunities at <https://eurohpc-ju.europa.eu/about/vacancies/>



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THANK YOU!



EuroHPC
Joint Undertaking

For more information, feel free to visit our website and social media:

eurohpc-ju.europa.eu



[@euroHPC_JU](https://twitter.com/euroHPC_JU)



[eurohpc-ju](https://www.linkedin.com/company/eurohpc-ju)



ANTWERP

The European High Performance Computing Joint Undertaking

Infrastructure

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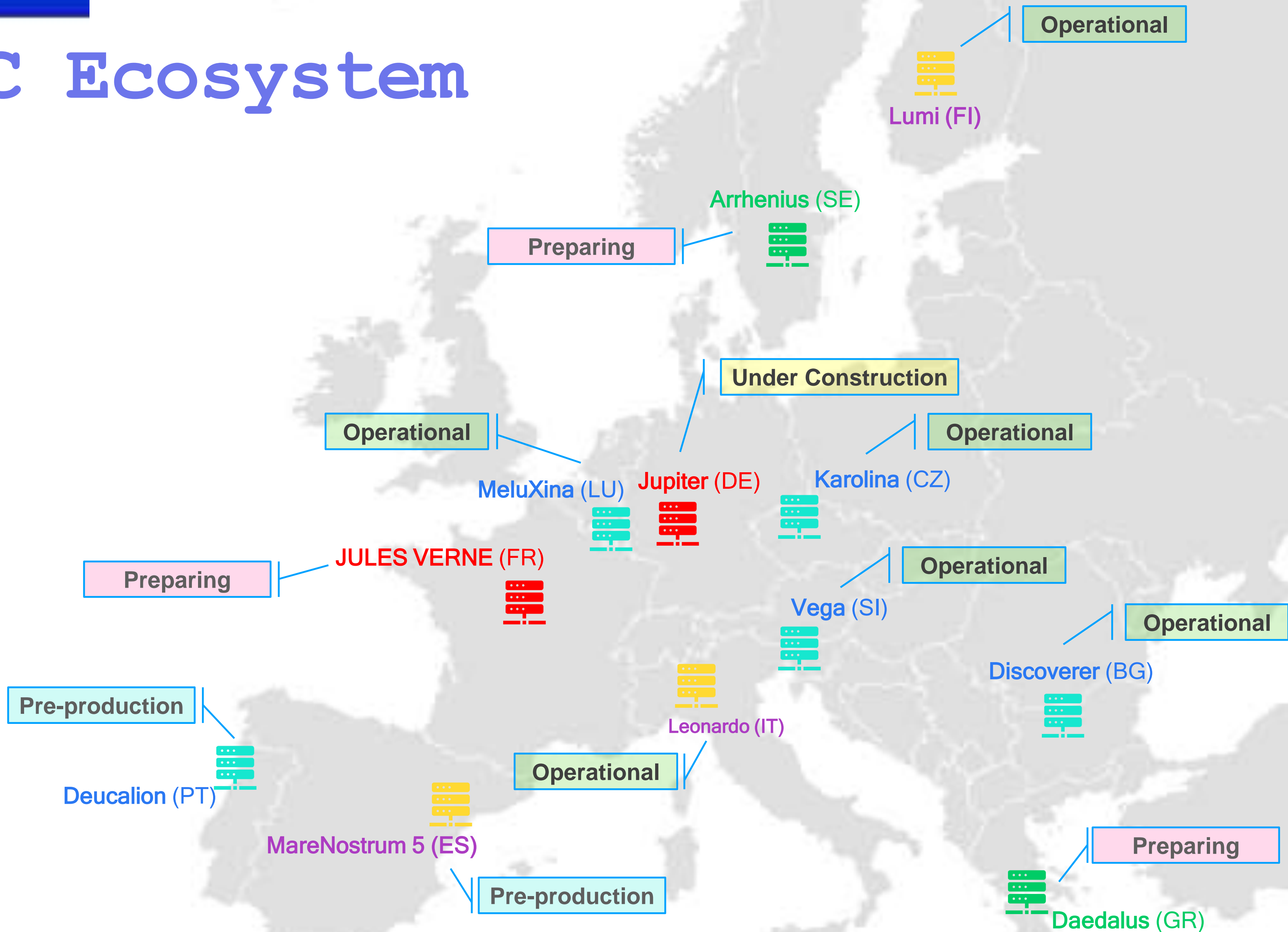
The EuroHPC Ecosystem

2019 - 2026

-  EXASCALE
-  PRE-EXASCALE
-  PETASCALE
-  MID-RANGE

Operational

Pre-production



LUMI (CSC)
Kayaani, Finland

Leonardo (CINECA)
Bologna, Italy

MareNostrum 5 (BSC)
Barcelona, Spain

EuroHPC systems in numbers

857 PFlops

Aggregated sustained/Linpack performance

20 partitions

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

7869 GPU Nodes

43476 GPUs (NVIDIA A100/H100, AMD MI250X)

Other: FPGA, Visualisation and Cloud capabilities

Cray EX, Hewlett Packard
#5 Top500 (Nov 2023):

inkSystems
PU Partition)
J Partition)

Vega

Atos BullSequana

Atos (x86)

Atos BullSequana XH2000

Atos BullSequana XH2000



JUPITER | The Arrival of Exascale in Europe

A Unique system

- **1st Exascale system in Europe**
- **ARM system based on NVidia GH200 and SiPearl Rhea1**
- **1st system with European CPU!**
- Modular Architecture
 - Booster partition: **24,000 GH200**
 - Cluster: **Rhea1**
- Modular (containerized) DataCenter at Jülich Supercomputing Center (DE)

Project status

- Contract signed **Oct 2023**
- **Test partition (S1)** to be available before summer to facilitate the **JUPITER Early Access Program (JUREP)** – Enable users to test the new architecture the earliest possible. Check: <https://events.hifis.net/e/jureap>



Jules Verne : The French led Exascale project



A French/NL consortium

- GENCI (FR) *Hosting Entity*
- CEA (FR) *Hosting Site*
- SURF (NL) as member of consortium

Full TCO over 5 years: 542 M€

(50% EuroHPC, 50% consortium)

Goal: Deploy a world-class Exascale supercomputer, based on European hardware and software technologies, addressing European major societal and scientific challenges via the convergence at scale of numerical simulations, massive data analysis and artificial intelligence.

The EuroHPC Ecosystem



EXASCALE



PRE-EXASCALE



PETASCALE



MID-RANGE

Deucalion (PT)



MareNostrum 5 (ES)



JULES VERNE (FR)



MeluXina (LU)



Jupiter (DE)



Leonardo (IT)



Arrhenius (SE)



Vega (SI)



Karolina (CZ)



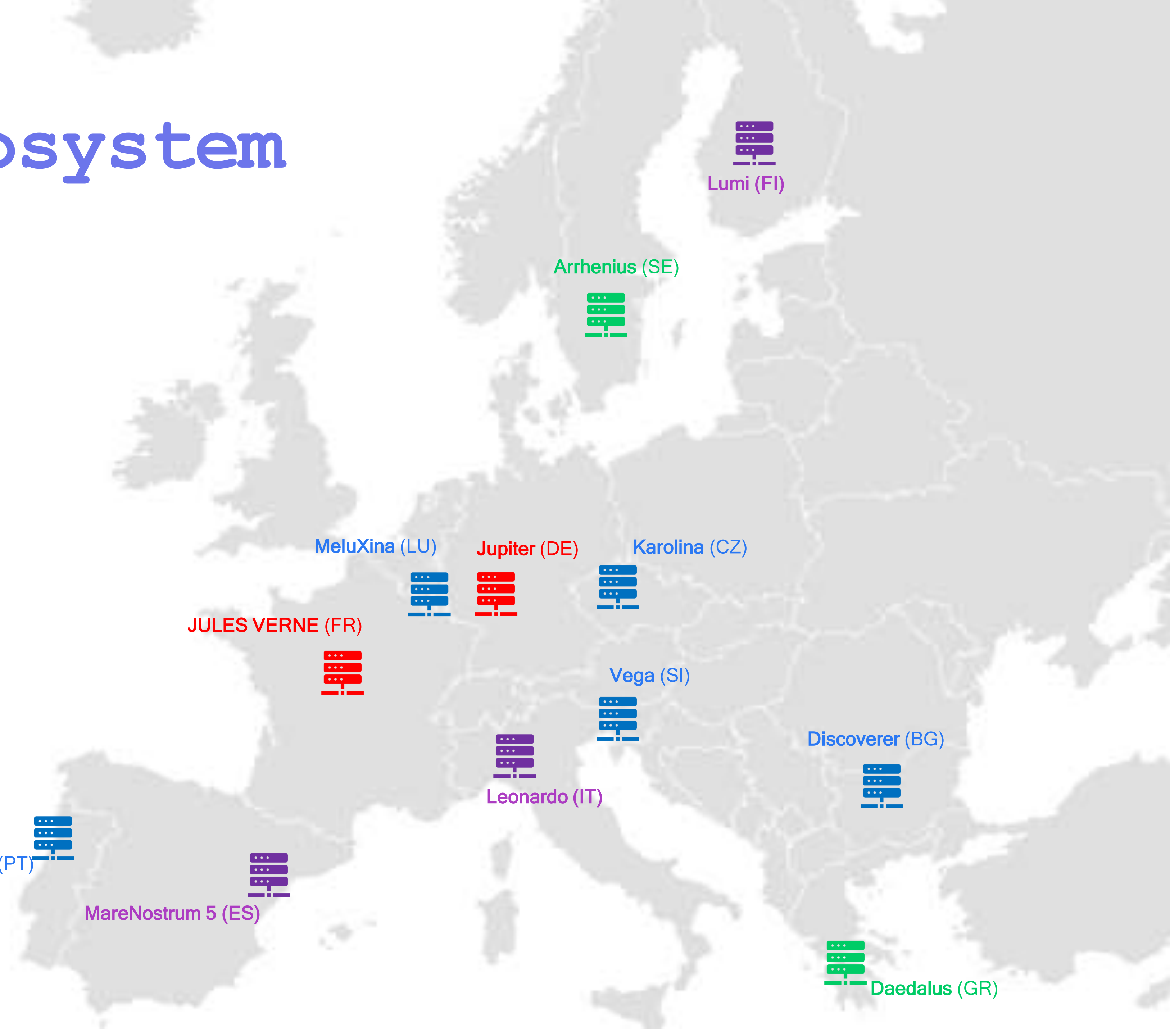
Lumi (FI)



Discoverer (BG)



Daedalus (GR)



Hyperconnected ...

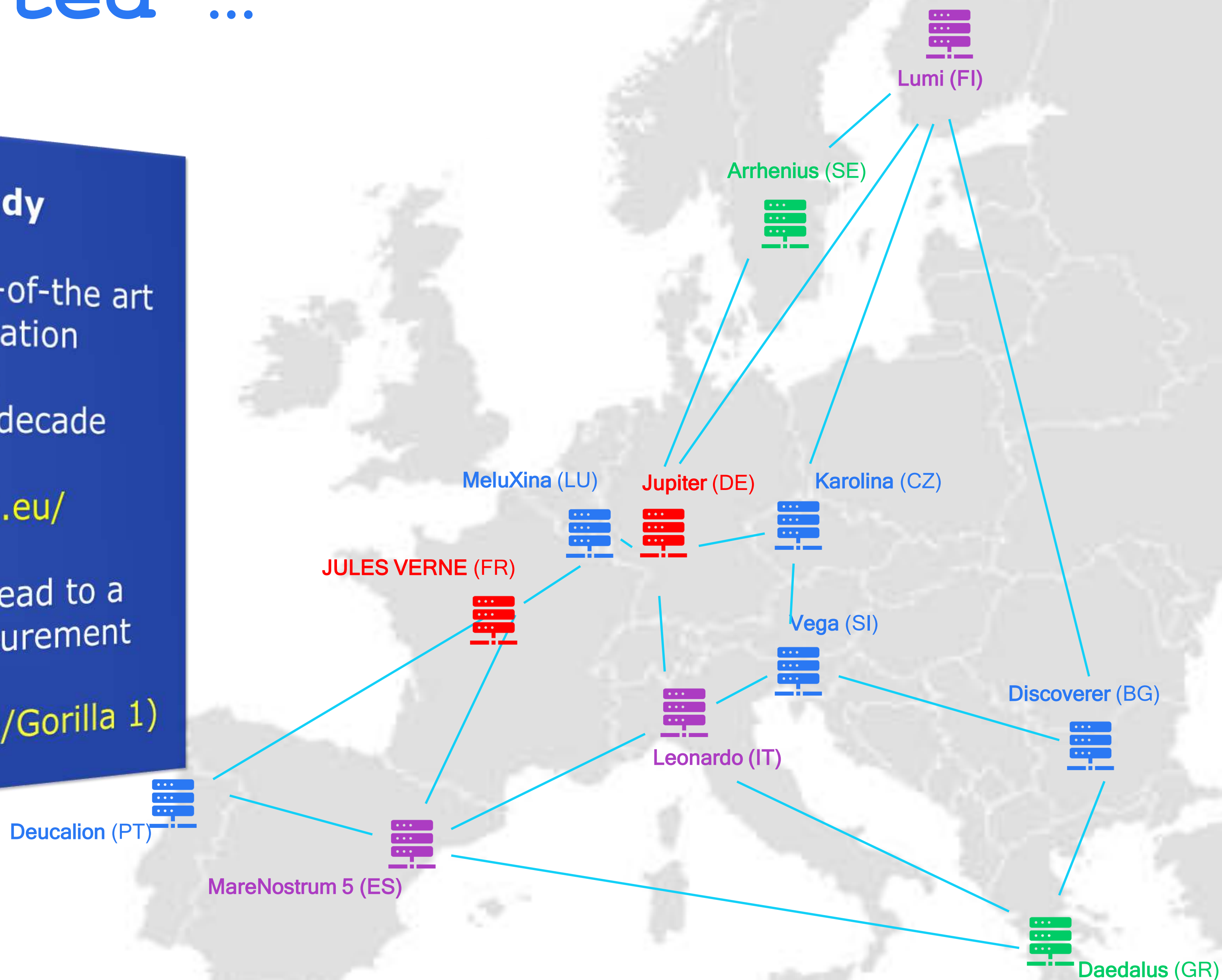
EuroHyPerCon study

- Analysis of current state-of-the art
 - Stakeholder consultation
 - Needs analysis
- Blueprint of the next decade connectivity

<https://eurohypercon.eu/>

Results of the study will lead to a connectivity services procurement

Workshop tomorrow (16:30/Gorilla 1)



... and Federated

Resource Federation one of the key pillars of EuroHPC activities

- Authentication, Authorization and Identification services (AAI)
- Computing services
 - Interactive Computing
 - Cloud access - Virtual Machines - Containers
- Data services
 - Archival Services and Data repositories
 - Data mover / transport services
- User and Resource management





Access Mode	Extreme Scale Access	Regular Access	Access for AI	Benchmark Access	Development Access	Strategic Access	Emergency Access
Allocation Duration	1 year	1 year	1 year	3 months	6 months to 1 year	Defined by the GB	Medium to long term or permanent. Defined by the ED
Recurrence	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).
Possibility for project extension	Yes, max 3 months and up to 10% of initial allocation, subject to progress report approval.	Yes, max 3 months and up to 10% of initial allocation, subject to progress report approval.	Yes, max 3 months and up to 10% of initial allocation, subject to progress report approval.	No	No	Extension possible based on GB decision.	Extension possible based on ED decision.
Share of resources (indicative)	Up to 50 % of participating systems High-end systems (pre-exascale and exascale)	Up to 70 % of participating systems	Up to 70% of participating systems All system partitions with AI	Up to 20% of participating systems	Up to 20% of participating systems	Up to 20% of participating systems	Up to 20% of participating systems
Data storage needs	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Large storage for the duration of the allocation
Accessible to industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scientific Peer-review	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Technical assessment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data Management Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Application type	Full	Full	Full	Full	Full	Full	Full
Prerequisite	None	None	None	None	None	None	None
Duration of evaluation process	6 months	4 months	1 month	2 weeks	2 weeks	No evaluation. Acceptance process subject to GB discussions	Immediate access upon ED decision

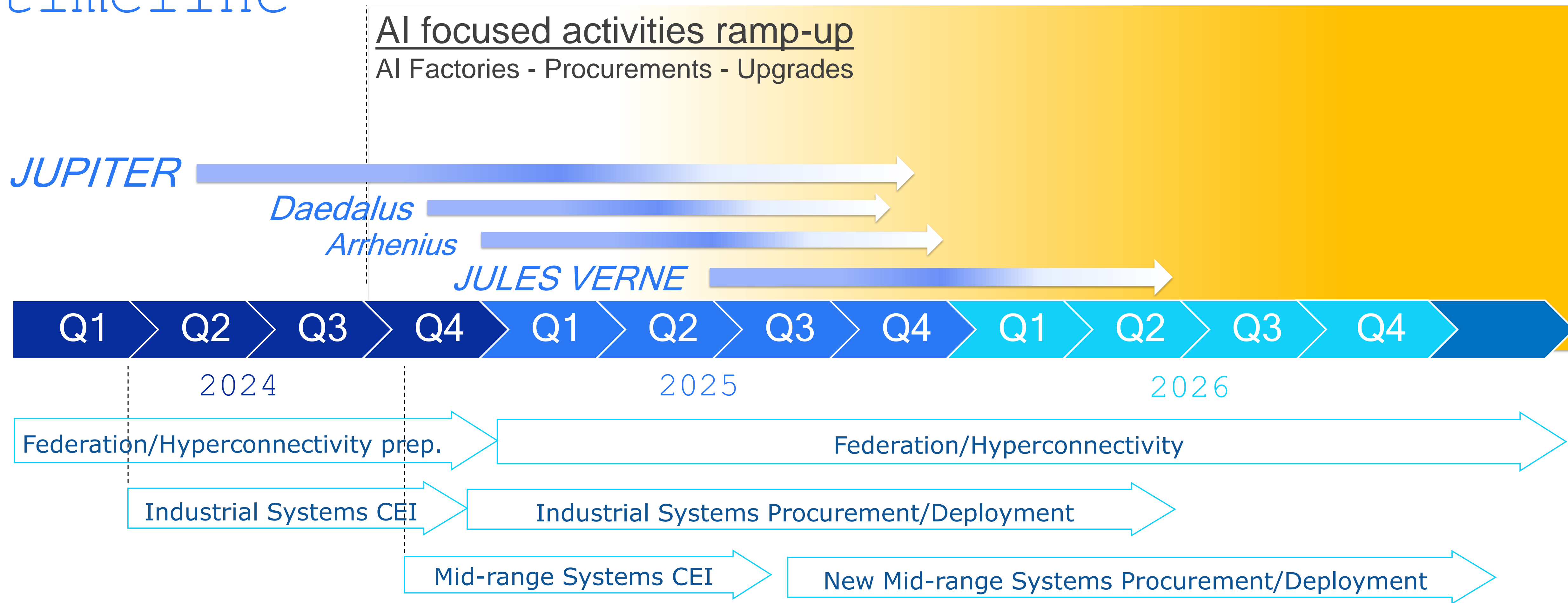
EuroHPC System Access

- Offering 90 Million node hours per year across the 8 EuroHPC supercomputers in Europe
- Research/Innovation/Industry/SMEs/Public Sector
- EU Strategic Initiatives
- Special AI access mode (New!)
- Various opportunities for access (Production, Benchmark, Development)
- 7 access modes (3 peer-reviewed)
- Rigorous peer-review selection process based on scientific/innovation excellence

More info: https://eurohpc-ju.europa.eu/access-our-supercomputers_en



Infrastructure activities timeline





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THANK YOU!



EuroHPC
Joint Undertaking

For more information, feel free to visit our website and social media:

eurohpc-ju.europa.eu



[@euroHPC_JU](https://twitter.com/euroHPC_JU)



[eurohpc-ju](https://www.linkedin.com/company/eurohpc-ju)



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Access opportunities to EuroHPC JU supercomputers

Krishnakshi Bhuyan
Programme Manager, EuroHPC Joint Undertaking

19 March, 2024



Calls for preparatory activities

**BENCHMARK
ACCESS CALL**

- 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
ACCESS CALL**

- 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 ACCESS
CALL**

- 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

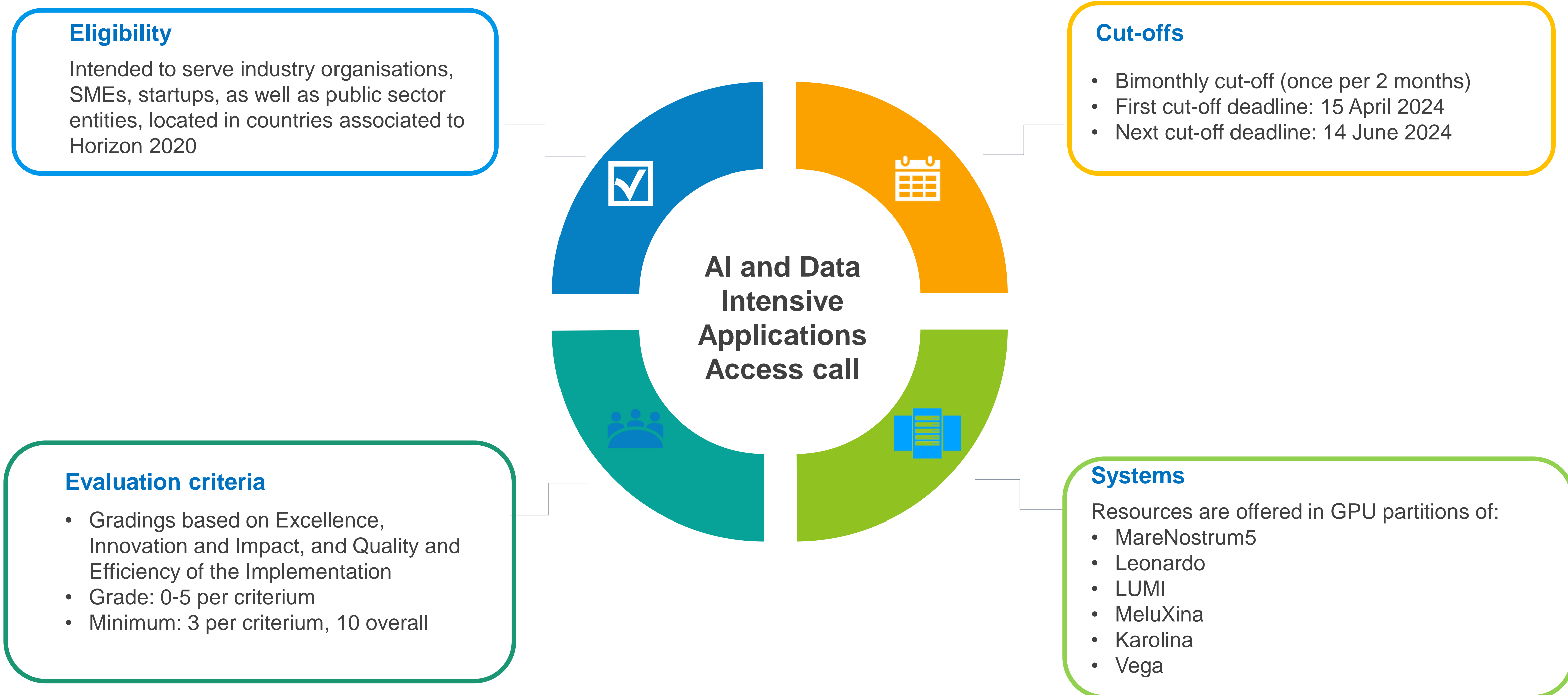
Calls for production activities

**EXTREME SCALE
ACCESS CALL**

- For high-impact, high-gain projects requiring 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 AND DATA
INTENSIVE
APPLICATIONS
ACCESS CALL**

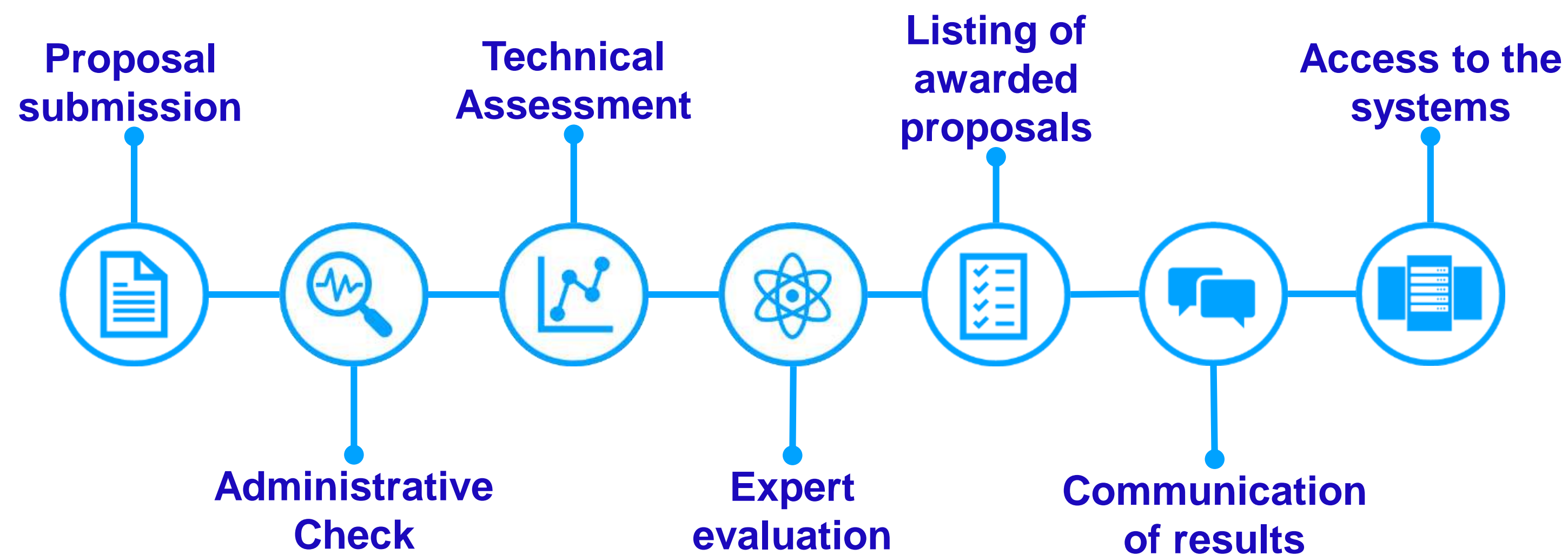
- For projects intending to perform artificial intelligence and data-intensive activities
- Fixed allocation for 12 months on first-arrived-first served basis
- Bimonthly cut-offs
- Peer-review process duration: 1 month





AI and Data-Intensive Applications Access call

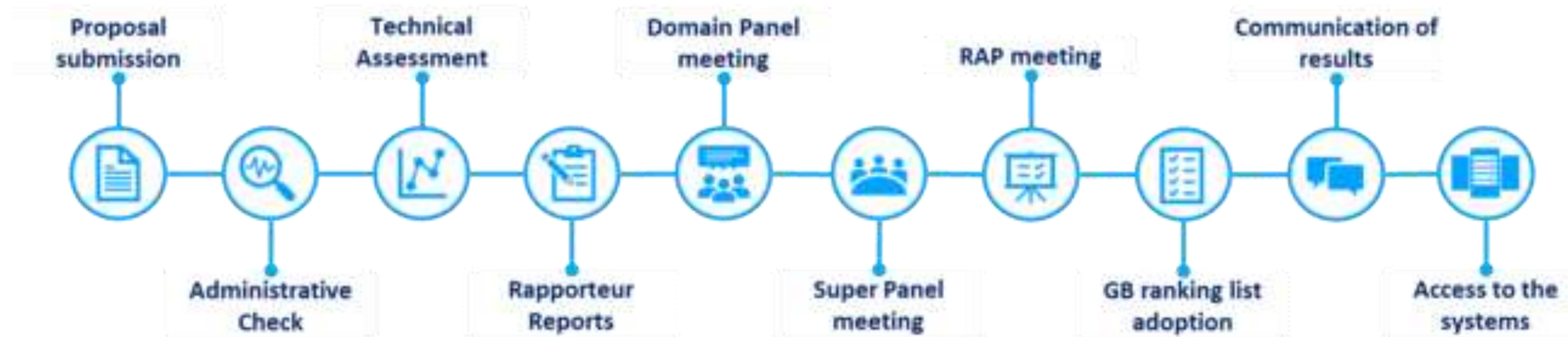
Peer-Review process





Peer-Review process

Regular Access call



Extreme Scale Access call

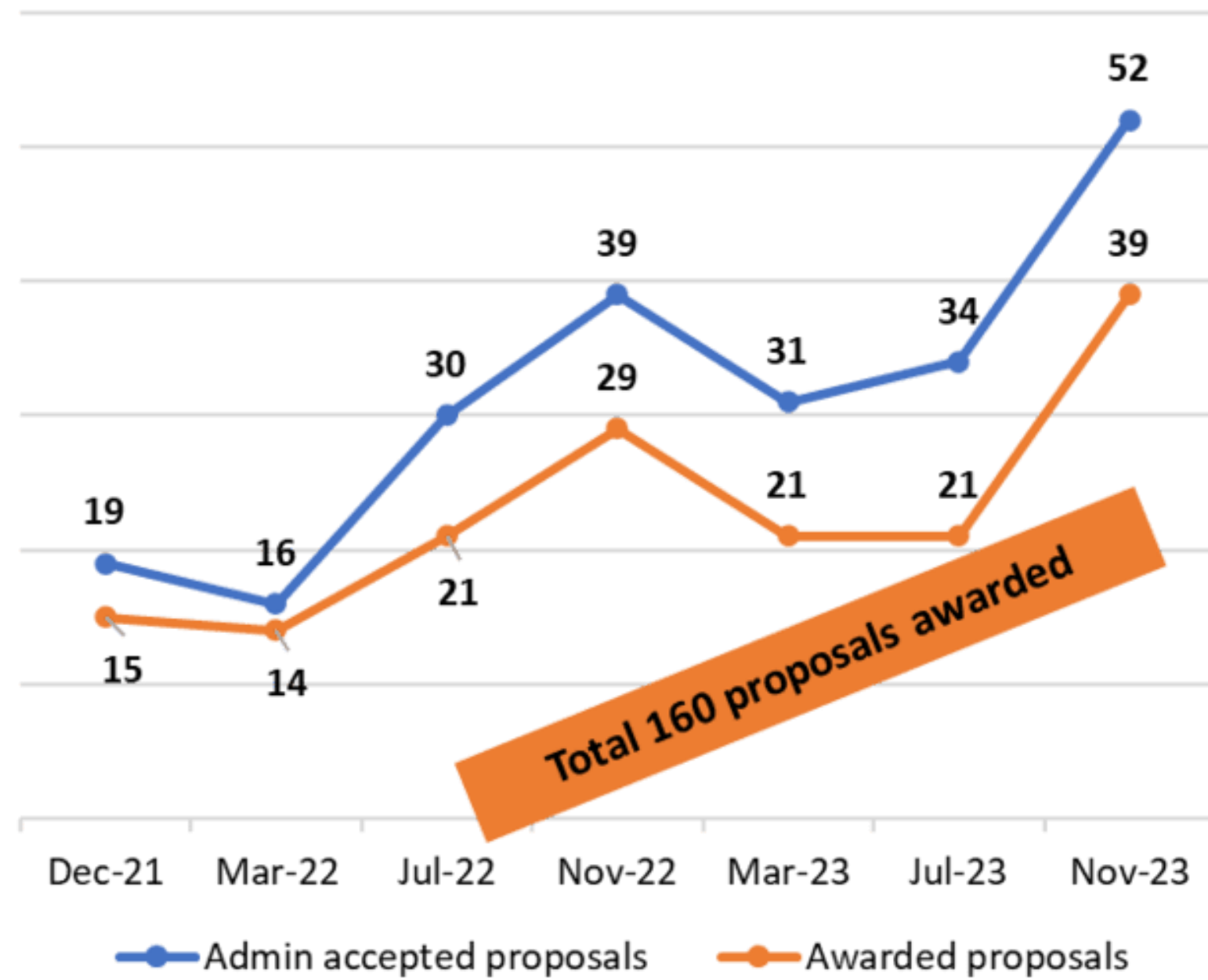




Outcomes of the Access calls

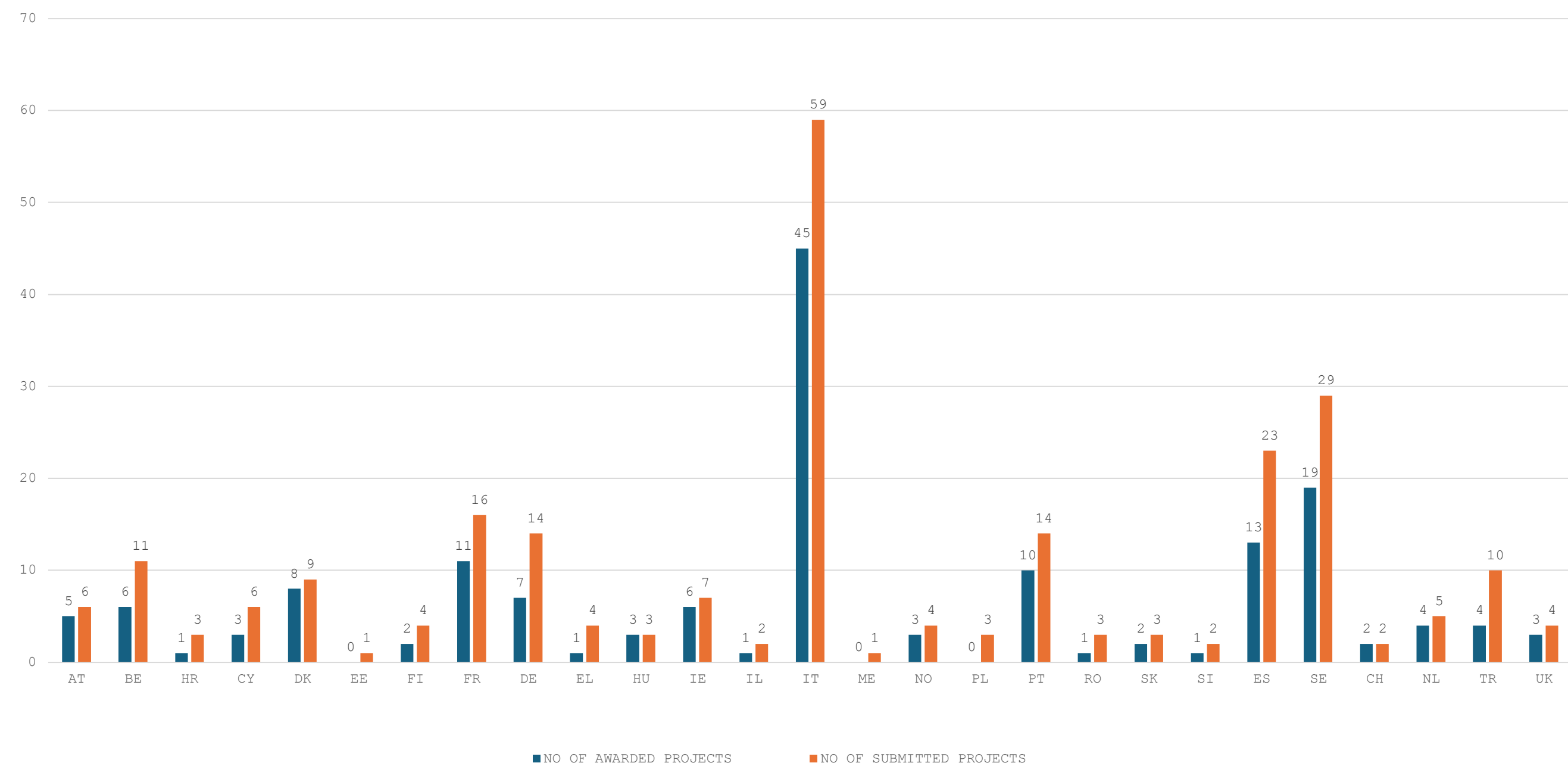
Regular Access call

Administratively accepted vs awarded proposals - all cut-offs



Total 22,179,899 node hours awarded

Proposal numbers (all cut-offs) - Participating countries distribution (PI)





Outcomes of the Access calls

Extreme Scale Access call

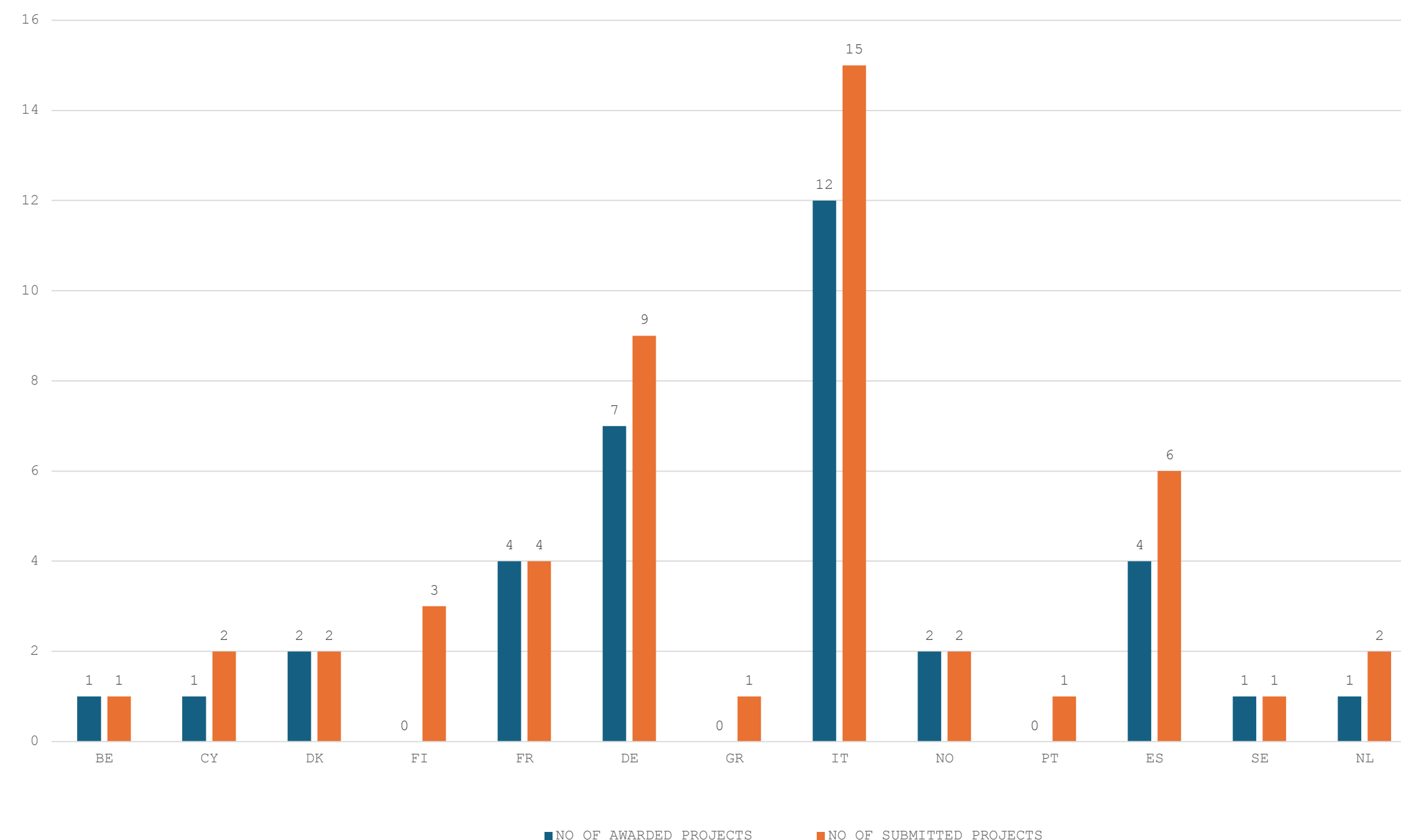
No. of awarded proposals vs Administratively accepted proposals

Cut-offs	Proposal nos.	
	Admin accepted	Awarded
Dec-22	36	26
May-23	17	15

* October 2023 cut-off still under evaluations

Total 41,914,156 node hours awarded

Proposal numbers (Dec 2023 & May 2024 cut-offs) - Participating countries distribution (PI)





How to apply?

Proposal submission via the **Peer-Review Platform** available at <https://pracecalls.eu>



The screenshot displays the PRACE Calls website interface. At the top, there is a navigation bar with the PRACE logo, the word "Calls", and buttons for "Login" and "Sign Up". Below the navigation bar, the main heading is "Open Calls for Proposals". Three call cards are visible:

- EuroHPC Benchmark Access Call**: Status: Open. Description: "The EuroHPC Benchmark call is designed for code scalability test..."
- EuroHPC Development Access Call**: Status: Open. Description: "The EuroHPC Development call is designed for projects focusing on..."
- EuroHPC Extreme Scale Access C...**: Status: Open. Description: "The Extreme Scale Access mode is designed to serve research...". A red badge indicates "Out-off ends in 26 days".

Register at: <https://pracecalls.eu/auth/register>

Login at: <https://pracecalls.eu/auth/login>



The Peer-Review Team



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Thank you!



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Leading the Way in European Supercomputing

Opportunities and State of Play

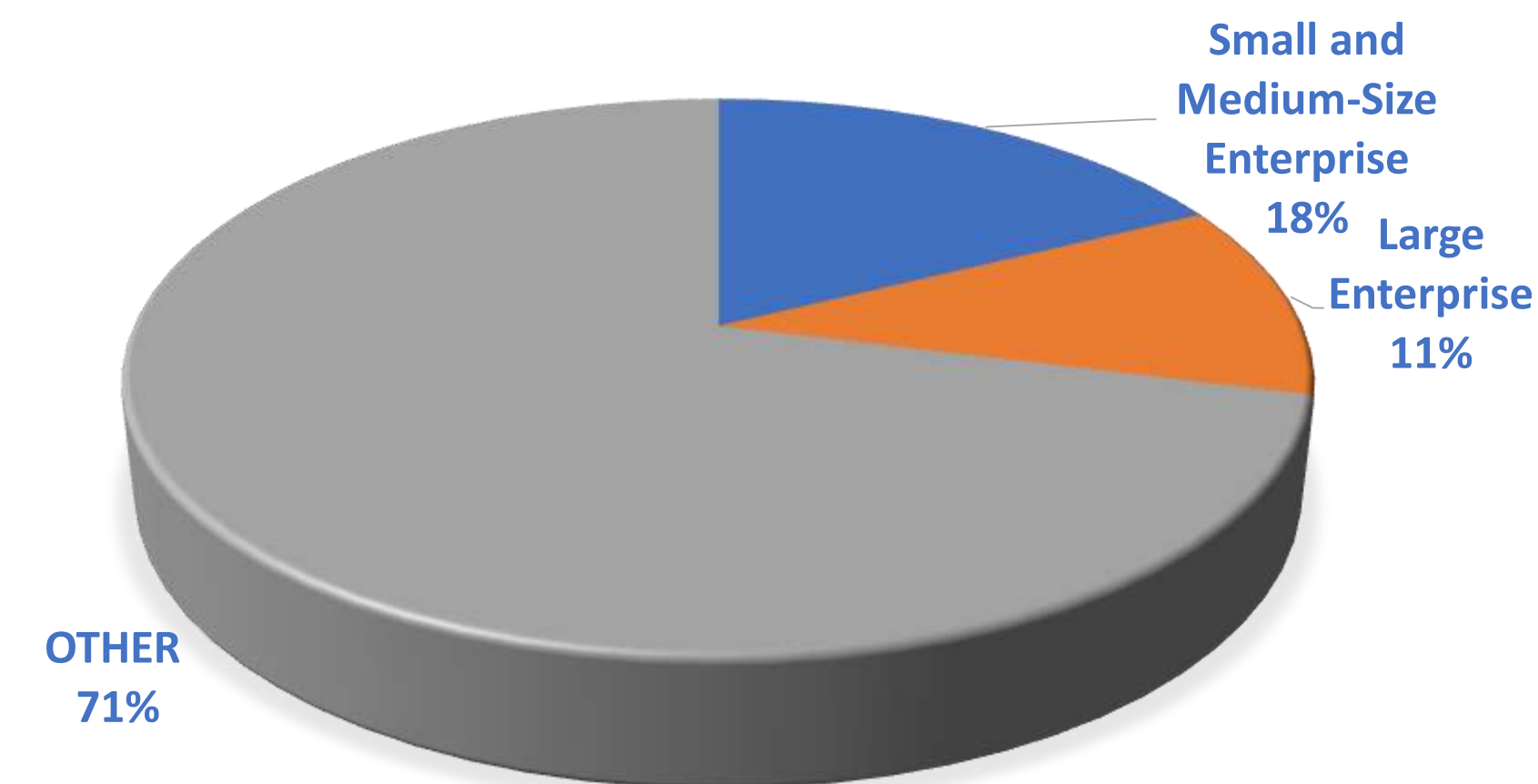
Research & Innovation





EuroHPC Research & Innovation in numbers

- **580M€** (320M€ EU funding) total investment in EuroHPC R&I grants
- **320 different legal entities** received financial support from EuroHPC R&I grants
- **35 different countries** host institutions that directly benefit from EuroHPC funding
- **56 SMEs** were awarded more than 30M€ EU funds, complemented by additional national funding



Beneficiaries

In 2023, the JU has

- launched calls with a total budget up to € 255,000,000
- awarded grants of more than € 70,000,000
- supported more than 140 participants



Calls for Proposals 2023



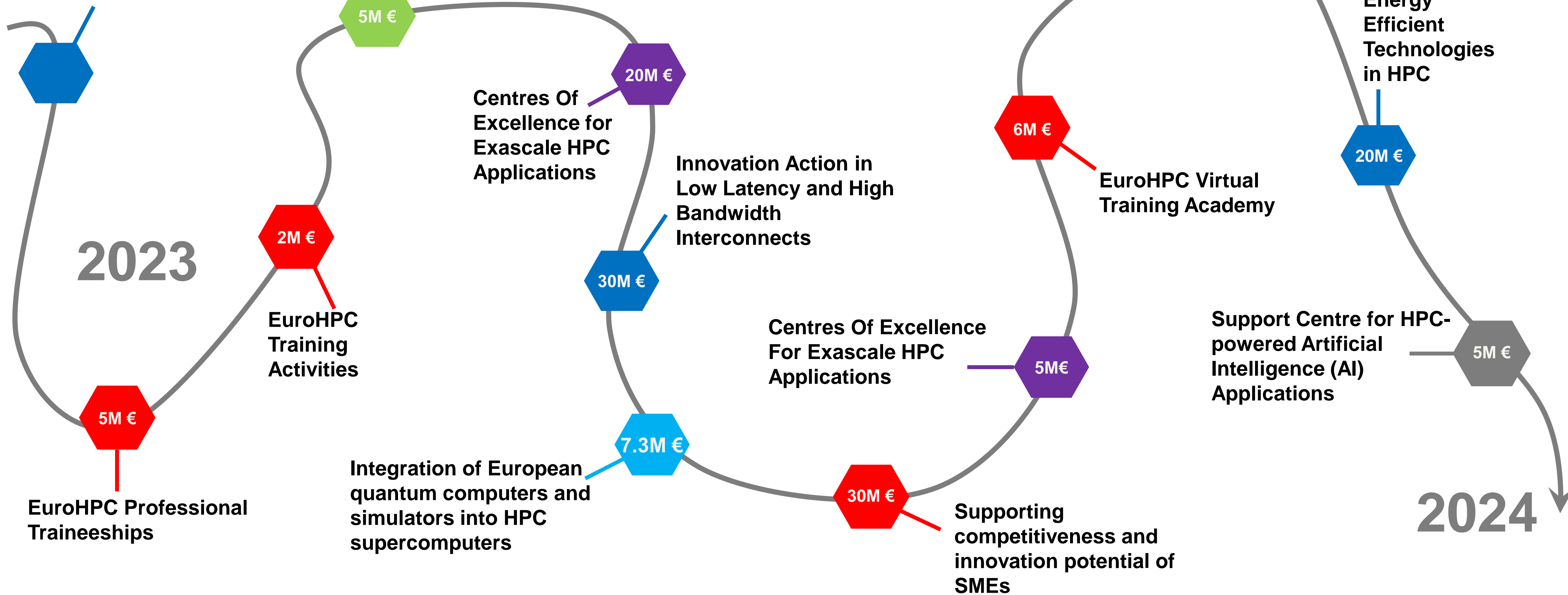
2030 Digital Compass: the European way for the Digital Decade

Framework Partnership Agreement for developing a large-scale European initiative for HPC ecosystem based on RISC-V

EuroHPC International Cooperation with Japan

European Quantum Excellence Centres in application for science and industry

Energy Efficient Technologies in HPC



2023

2024



Energy efficient HPC

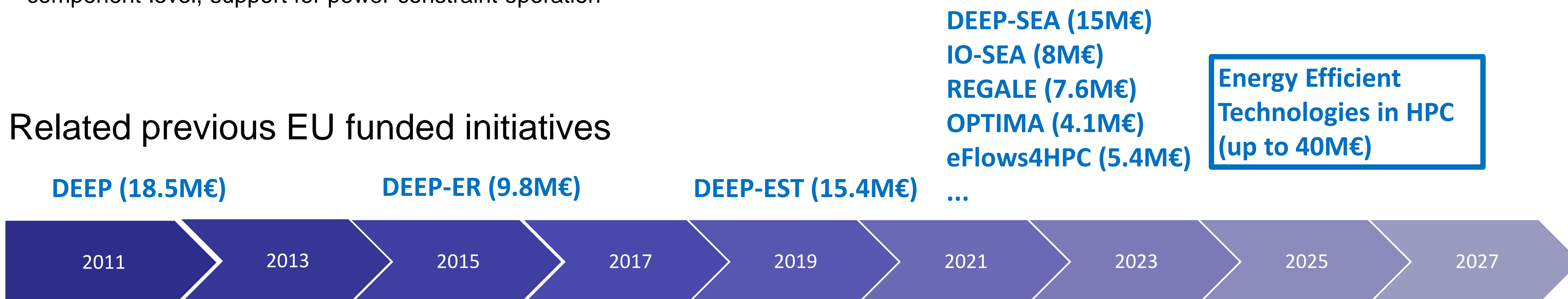
Key technical challenges

- **Heterogeneity at multiple levels:** system architectures with different modules, processors, accelerators, memory hierarchy, I/O and network capabilities
- **Size of nodes:** increasing number of general purpose processors and accelerators that are not fully used using node level allocations
- **Diversity of workloads:** numerical simulations, artificial intelligence workloads, big data
- **Resource and power management:** global, job, node and component-level, support for power constraint operation

Key objectives

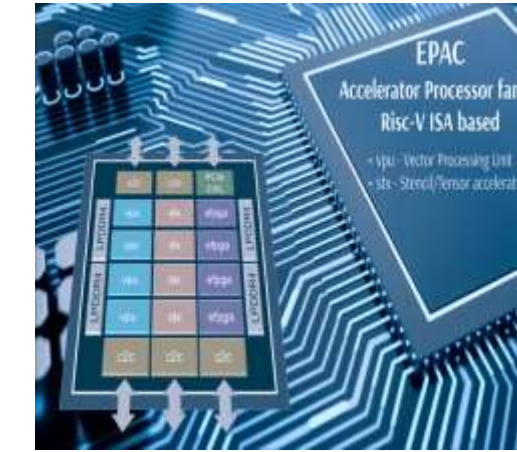
- **Significantly improve energy efficiency of (Euro)HPC system operations with capability to operate under power constraint conditions**
- **Develop and deploy a common software stack at all participating HPC centres**
- **Pool operational data and develop a common, data and AI driven, monitoring and workload management solution**

Related previous EU funded initiatives

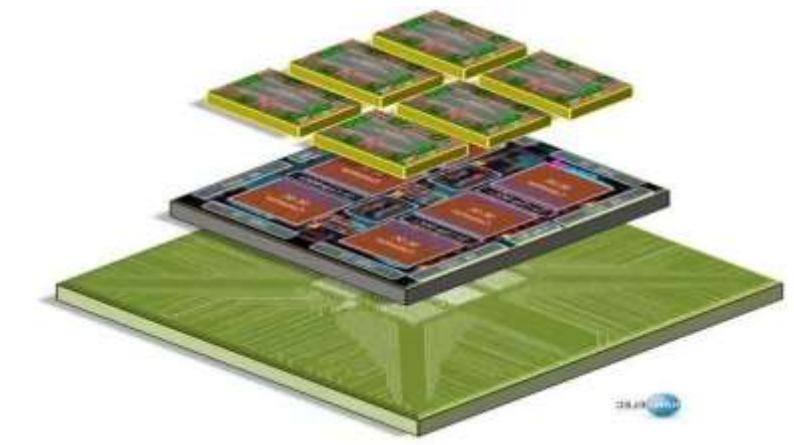




Microprocessor technology

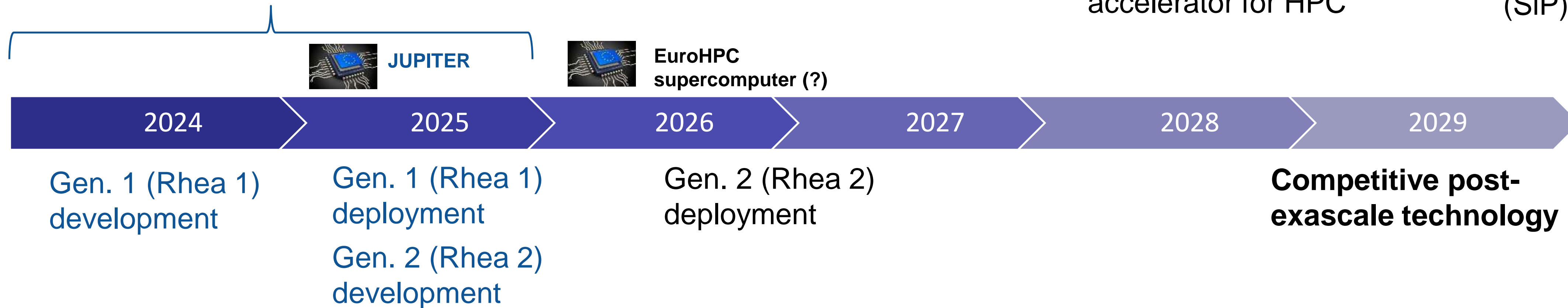


RISC-V based accelerator for HPC

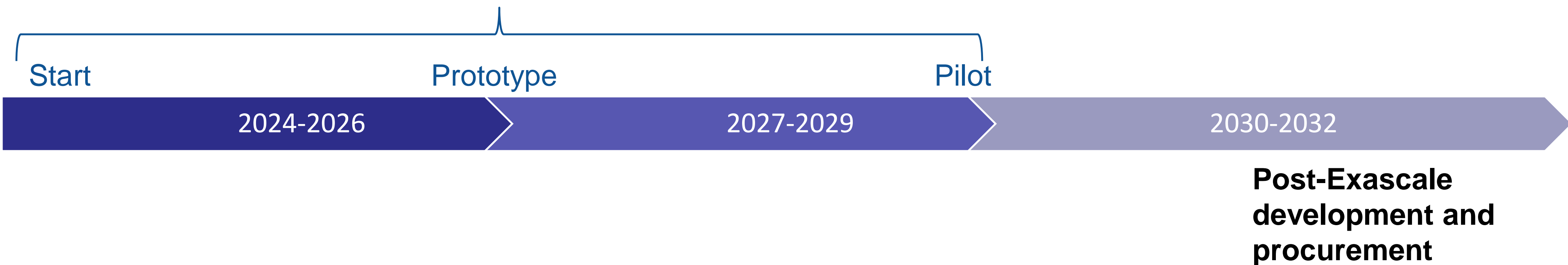


System-in-Package (SiP)

European Processor Initiative Phase 2



RISC-V Framework Partnership

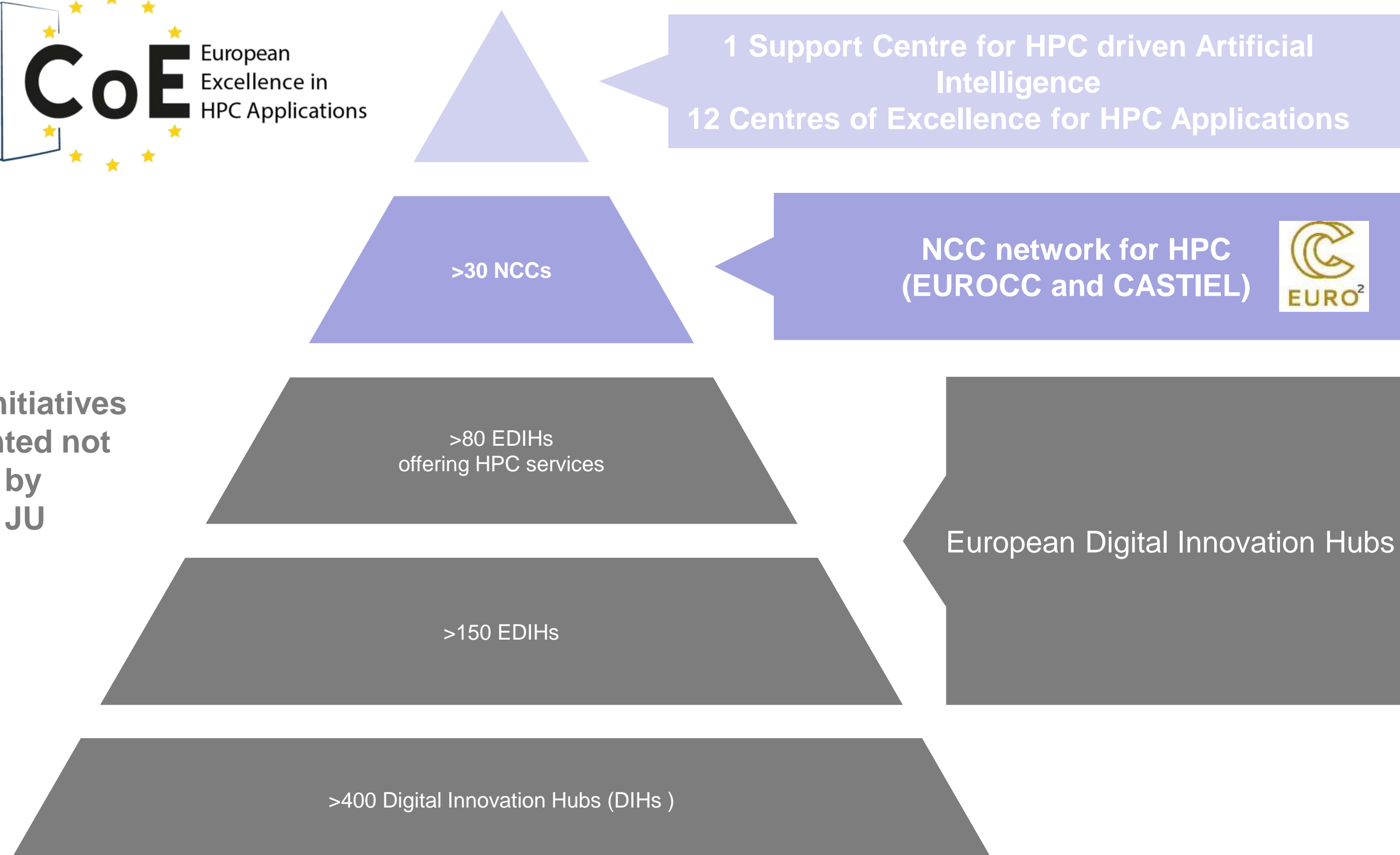




Advanced user and application support



Related initiatives implemented not managed by EuroHPC JU



A rounded rectangular box containing two logos:

- Top: **FORTISSIMO PLUS** logo, featuring a blue hexagon with the text "ff+" inside.
- Bottom: **HPC SPECTRA** logo, featuring a blue circular icon with a book and nodes, and the text "HPC SPECTRA" to its right.



Skills and widening use of HPC

- Workshop on HPC for political science, economy, demography, anthropology, history, sociology, linguistics, and more
- Meet the EuroHPC MSc students at the EuroHPC Summit Week 2024



BRIDGING MINDS
Networking and HPC Insights for Social Sciences and Humanities



9./10.04.2024
HYBRID : Online /
at HLRS, Stuttgart, Germany



EUMaster4HPC

Open Call: EuroHPC Virtual Training Academy

- Design of a EuroHPC Competence and Qualification Framework for HPC
- Open calls for contribution of learning material



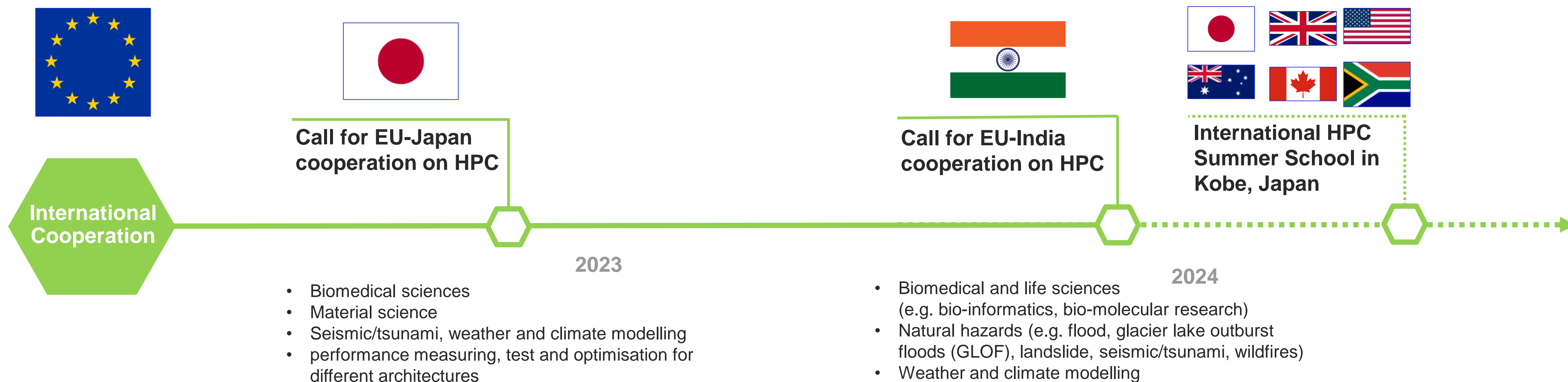
International cooperation

Current priorities

- Co-development of applications
- Exchange of researchers and engineers
- Reciprocal access to HPC resources



International Partnerships for the Digital Decade



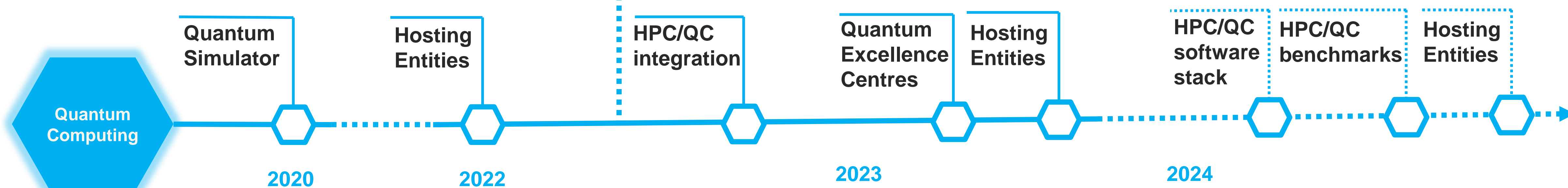


EuroHPC quantum computing infrastructure



In June 2023, the EuroHPC JU signed hosting agreements with six sites across Europe to host & operate EuroHPC quantum computers. These quantum computers will allow European users to explore a variety of quantum technologies coupled to leading supercomputers.

EuroHPC JU calls and actions



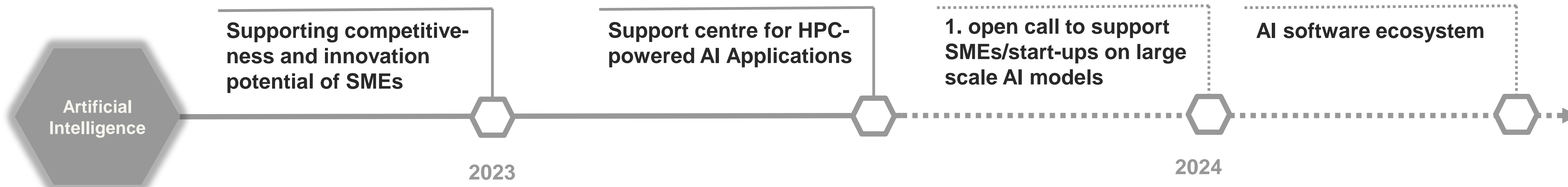
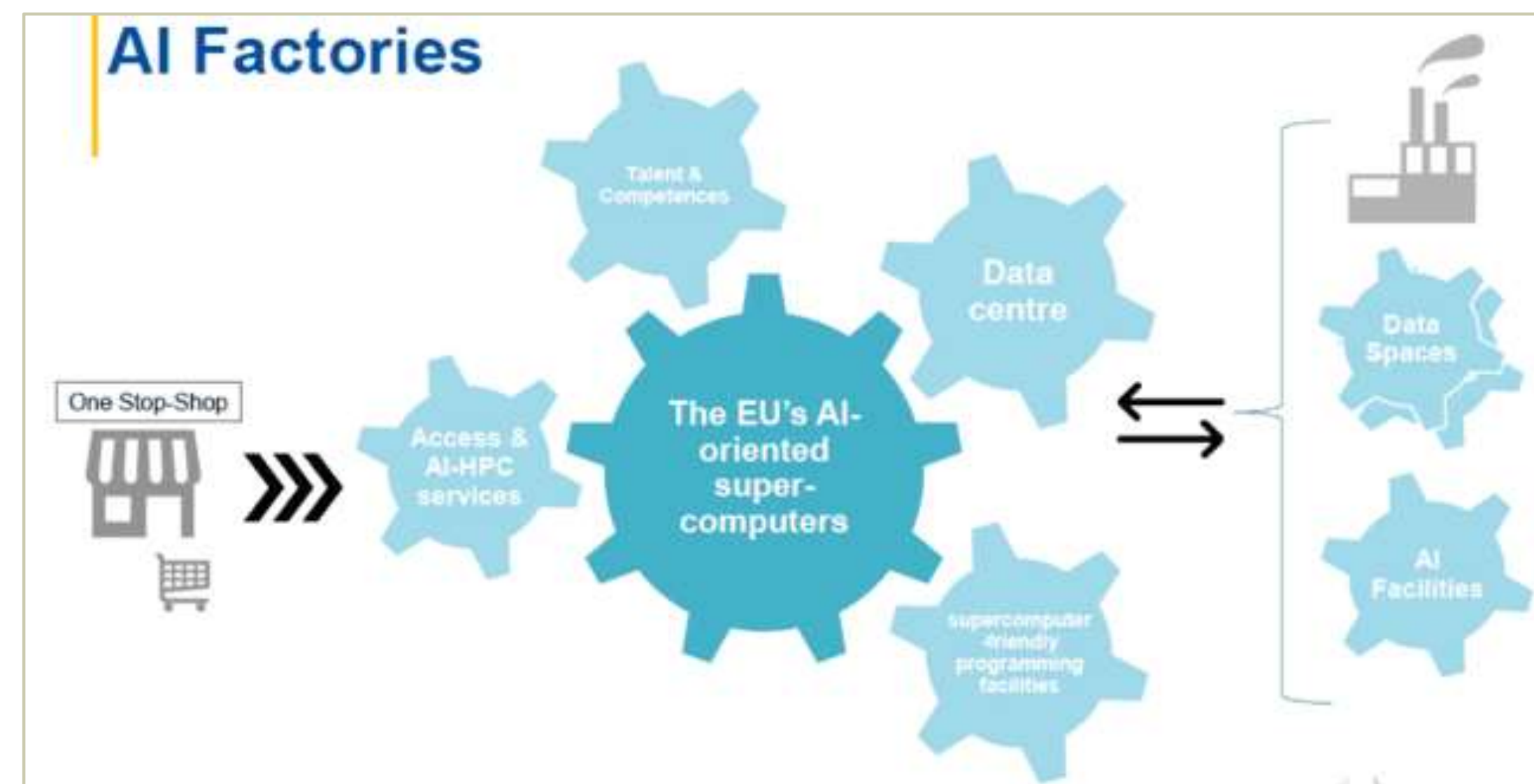


Artificial intelligence

AI innovation package to support Artificial intelligence startups and SMEs



- Facilitate access to AI oriented HPC resources
- Widen use of AI to public and private users, including SMEs
- Support the AI startup and research ecosystem in algorithmic development, testing evaluation and validation of large-scale AI models
- Supercomputer friendly programming facilities
- Enable the development of a variety of emerging AI applications





ANTWERP

TO EXASCALE
AND BEYOND

UNLEASHING THE
POWER OF EUROPEAN
HPC AND QUANTUM
COMPUTING

THANK YOU!

For more information, feel free to visit our website and social media:

eurohpc-ju.europa.eu



[@euroHPC_JU](https://twitter.com/euroHPC_JU)



[eurohpc-ju](https://www.linkedin.com/company/eurohpc-ju)

or talk to our Programme Managers



Rene
Chatwell



Linda
Gesenhues



Alexandra
Kourfali



Matteo
Mascagni



Mladen
Skelin



BDV BIG DATA VALUE
ASSOCIATION

BDVA and its contribution to the EuroHPC JU

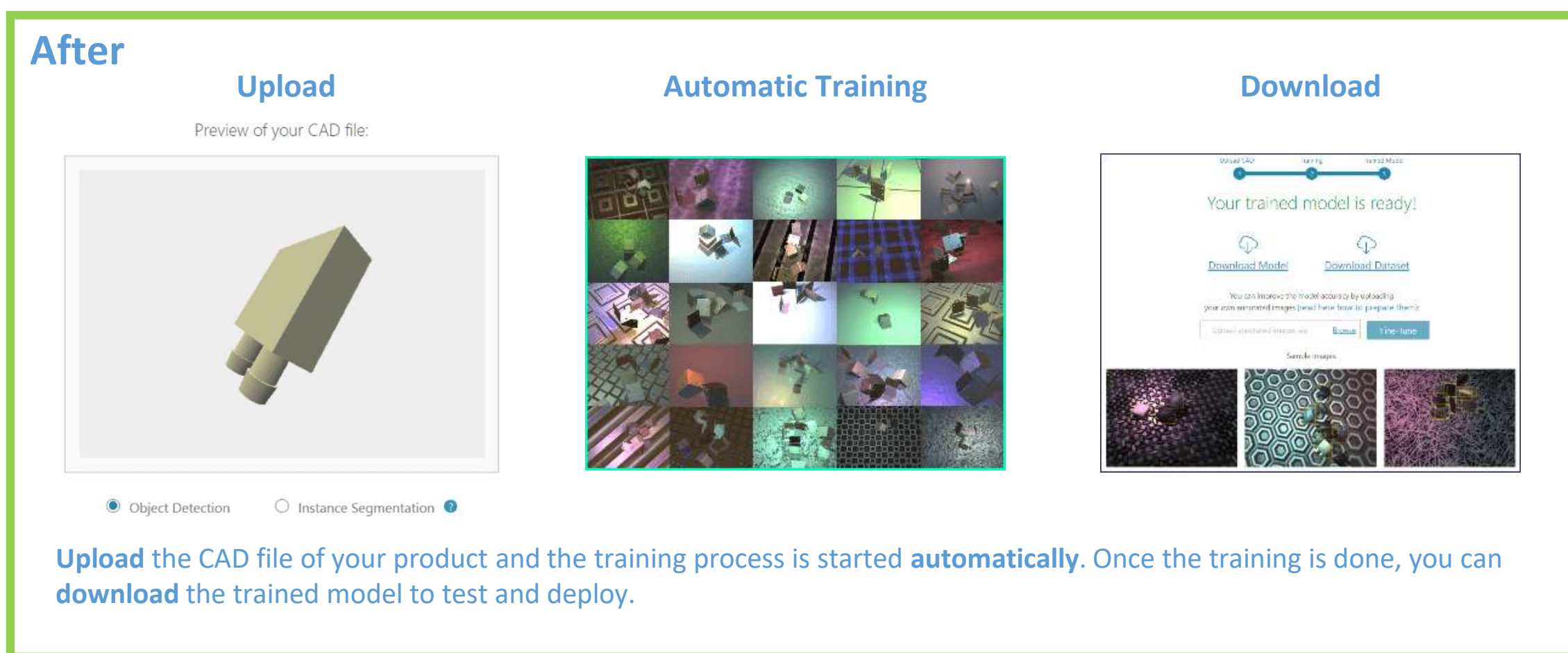
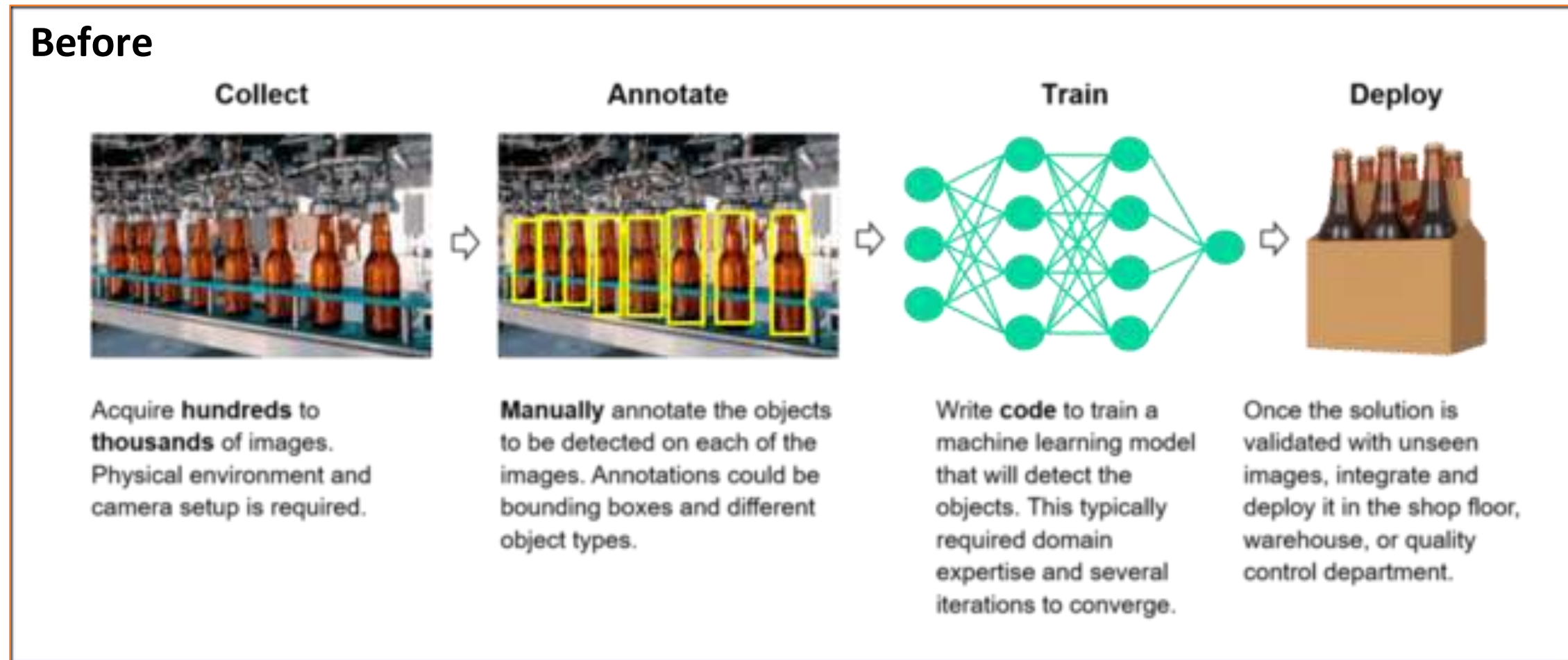
Thomas Hahn

EuroHPC Summit 2024

Antwerp, 19/3/2024



Why? Automatic ML training



Source: Siemens

Challenge

Machine vision is used in various **industry use cases**, including picking, sorting, kitting, quality inspection, etc. However, **development of a machine vision application is not easy and can take weeks.**

Solution

- Leverage state-of-the-art game engines to automatically generate accurately annotated **synthetic images** from the CAD file of the object for training (**1000's images in minutes**) – in Industry **not a lot of images are available!**
- Provide a web-based tool to streamline the process of synthetic data generation and **ML vision algorithm training**

Benefit

- **Shorten process time from weeks to hours**
- **Ease of use and savings on expensive physical setups**

Why?

Urban simulation for air quality/heat resilience (idea)



Challenge

Maximizing health and socio-economic wellbeing of urban citizens in view of climate change.

More extreme weather conditions and city expansion, requires insights in risks and the effect of possible countermeasures.

Solution

- **Leverage the EU Destination Earth infrastructure** to bring simulations of the atmospheric earth systems to street level (computational fluid dynamics models for heat and air quality)
- Evaluate **urban planning scenarios** for climate adaptation with human behavioral models, with quantified uncertainty levels

Benefit

- **Simulation and data-based insights** in temperature and air quality metrics help decision-making in **urban planning**
- **Quantification of possible effects** on people living in cities

Industry-driven research and innovation Data and AI community with 250 members all over Europe.
And growing!!

Data Strategy



AI Strategy



Digital Transformation and Digital Decade



European Ecosystem



Projects

Network of Collaborations

BDV cPPP



430 M€ public and 2,26 B€ private investment

AI, Data and Robotics Partnership



EuroHPC JU



Data Spaces Business Alliance (DSBA)



Other collaborations



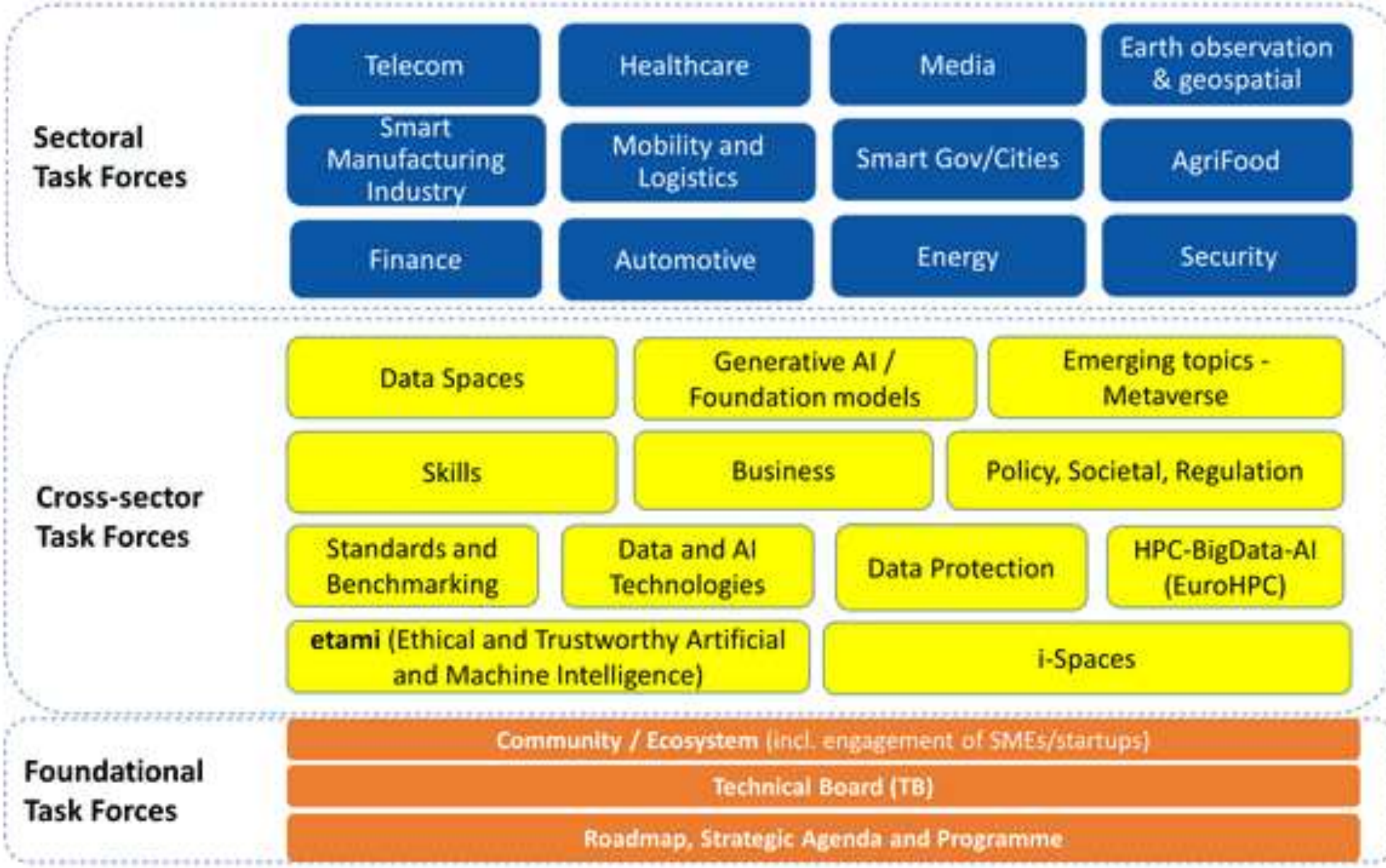
Standard Bodies...

BDVA overall Objectives

- **To boost Data and AI innovation and data value creation for business, citizens and the environment**
- **To foster excellence in Data and AI research for competitiveness**
- **To develop the innovation ecosystem** that enables and accelerates the data-driven and AI-enabled digital transformation of the economy and society, with **European values** and focus but global impact and ambitions
- **To lead and be at the forefront of the dynamic change** that Data and AI brings to business and society



BDVA Task Forces structure



BDVA labelled i-Spaces



Strong network to reach out to SMEs and Start-ups through Data and AI experimentation and support



- Whitepaper: Big Data in Earth Observation** - Big Data Value Association, 17-2022 Earth Observation and Sensors, November 2021
- Whitepaper: DATA PROTECTION IN THE ERA OF ARTIFICIAL INTELLIGENCE** - Trends, existing solutions and recommendations for privacy-preserving technologies, January 2022
- Whitepaper: THE TECHNOLOGY STACKS OF HIGH PERFORMANCE COMPUTING AND BIG DATA COMPUTING** - What they can learn from each other
- Whitepaper: DATA SHARING SPACES AND INTEROPERABILITY**
- Whitepaper: BIG DATA CHALLENGES IN SMART MANUFACTURING** - A Discussion Paper on Big Data challenges for BDVA and EFRA Research & Innovation roadmap alignment, March 2018
- Whitepaper: AI IN HEALTHCARE WHITEPAPER** - BDVA Task Force 7 - Sub-group Healthcare, November 2020
- Whitepaper: TOWARDS A EUROPEAN-GOVERNED SHARING SPACE** - Using data exchange and unlocking AI potential, BDVA Position Paper #2, November 2020
- Book: The Elements of Big Data Value**

ORGANISED BY
BDV BIG DATA VALUE ASSOCIATION

EUROPEAN BIG DATA VALUE FORUM
2024 | BUDAPEST - HUNGARY

IN COLLABORATION WITH

- AI & AUT EXPO
- ELTE EÖTVÖS LORÁND UNIVERSITY
- NTP Neumann Technológiai Platform
- HUNREN
- SZTAKI

BDVA – Our concrete contribution to the EuroHPC JU



- BDVA will help to **bridge Industry and research**. Support to build the necessary **synergies between the HPC, data and AI ecosystems**
- **BDVA and its ecosystem will stimulate** (Industry-driven) **applications**
- Making **data and AI innovations** fit for emerging **infrastructures and platforms** (part of the BDVA Strategic Agenda)
- BDVA is the leader at **the RIAG Working Group on Big Data/AI**
- **BDVA members and ecosystem actively participate in EuroHPC JU projects**
- **We can use the established test centers for data and AI (i-Spaces)** incl. Access to SMEs and Start-ups
- Contribution on **talent and skills** to the MASP

You can build on us!

Join us! Become a BDVA Member

Visit our booth at the EuroHPC Summit

**Join us in the private members cocktail on 20/3 at
18h !**



www.bdva.eu



EUROPEAN
TECHNOLOGY
PLATFORM
FOR HIGH
PERFORMANCE
COMPUTING



ETP 4
HPC

ETP4HPC in a Nutshell

Jean-Pierre PANZIERA

ETP4HPC Chairman

ETP4HPC is the **catalyst** for European Advanced Computing provision.

- An industry-led think tank - a private and non-profit association
- Private member of the EuroHPC Joint Undertaking
- Representatives in EuroHPC JU Research and Innovation Advisory Group (RIAG)

Who we are

- Founded in 2012 -> 16 members
- Today 104 members
 - 39 SMEs
 - 8 European Corporations
 - 13 Global Corporations
 - 44 Research organisation



Our objective and goals

Guide the development of the European advanced computing ecosystem by:

 Supporting the entire advanced computing community and value chain in Europe

 Facilitating and widening the adoption and use of advanced computing technologies

 Advising & informing advanced computing EU policy and decision makers

 Supporting excellence in HPC applications

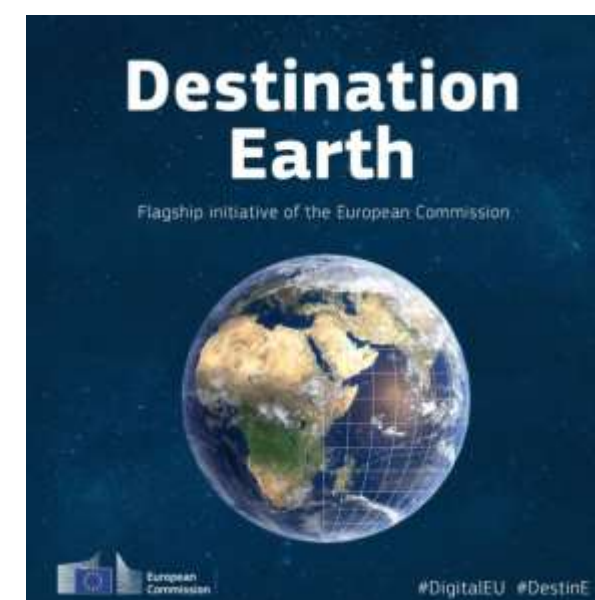
 Providing technology for leadership-class supercomputers

 Securing EU independent HPC system supply

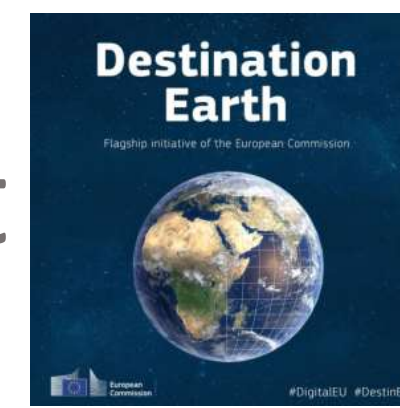
 Contributing to skills development

What we do – Research & Technology

- Develop our **Strategic Research Agenda – SRA** → 6th edition to be released 2024 Q4
- Participation in the **EUMaster4HPC project** (definition of its curriculum, internships)
- Support to the TransContinuum Initiative
- Leadership of the ‘**A Technology Agenda for Destination Earth**’ Project



DE_380 project



● Scope: Produce a **Technology Agenda for DestinE:**

- A series of technical white papers addressing specific DestinE implementations challenges on EuroHPC systems.
- Authors come from different European associations and projects collaborating in the “Transcontinuum Initiative.”
- White papers to be released soon.

● **Domains addressed:**

- Federation of compute and data resources
- Data streaming
- IOT and networking
- Cyber security
- Mathematical methods and algorithms

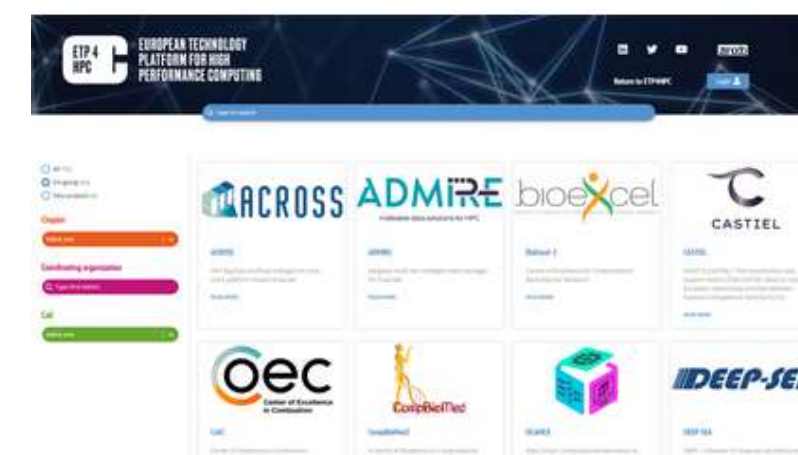
➤ Dedicated session at EuroHPC Summit 2024 on Wednesday at 16:30:

“Challenges when implementing Digital Twins on EuroHPC systems”



What we do – Networking and outreach

- **ETP4HPCConference** - our own event, programme committee open to all members
- **Webinars** on HPC topics and systems
- **Networking tools, contact lists, web members area**
- **Working Groups:**
 - SME working group
 - Sustainability working group
 - Industrial users work group
- **Booth at major HPC conferences** – meet us in Hamburg at **ISC 24** (where we will host some of our SMEs members) and in Atlanta at **SC 24**
- Annual Handbook of European projects





**EUROPEAN TECHNOLOGY
PLATFORM FOR HIGH
PERFORMANCE COMPUTING**



**Join us on Wednesday evening at
the Networking Drinks!**

THANK YOU!

You can find us at:
chair@etp4hpc
office@etp4hpc.eu

www.etp4hpc.eu

**European Quantum
Industry Consortium
(QuIC)**

Europe's Largest Quantum
Industry Association



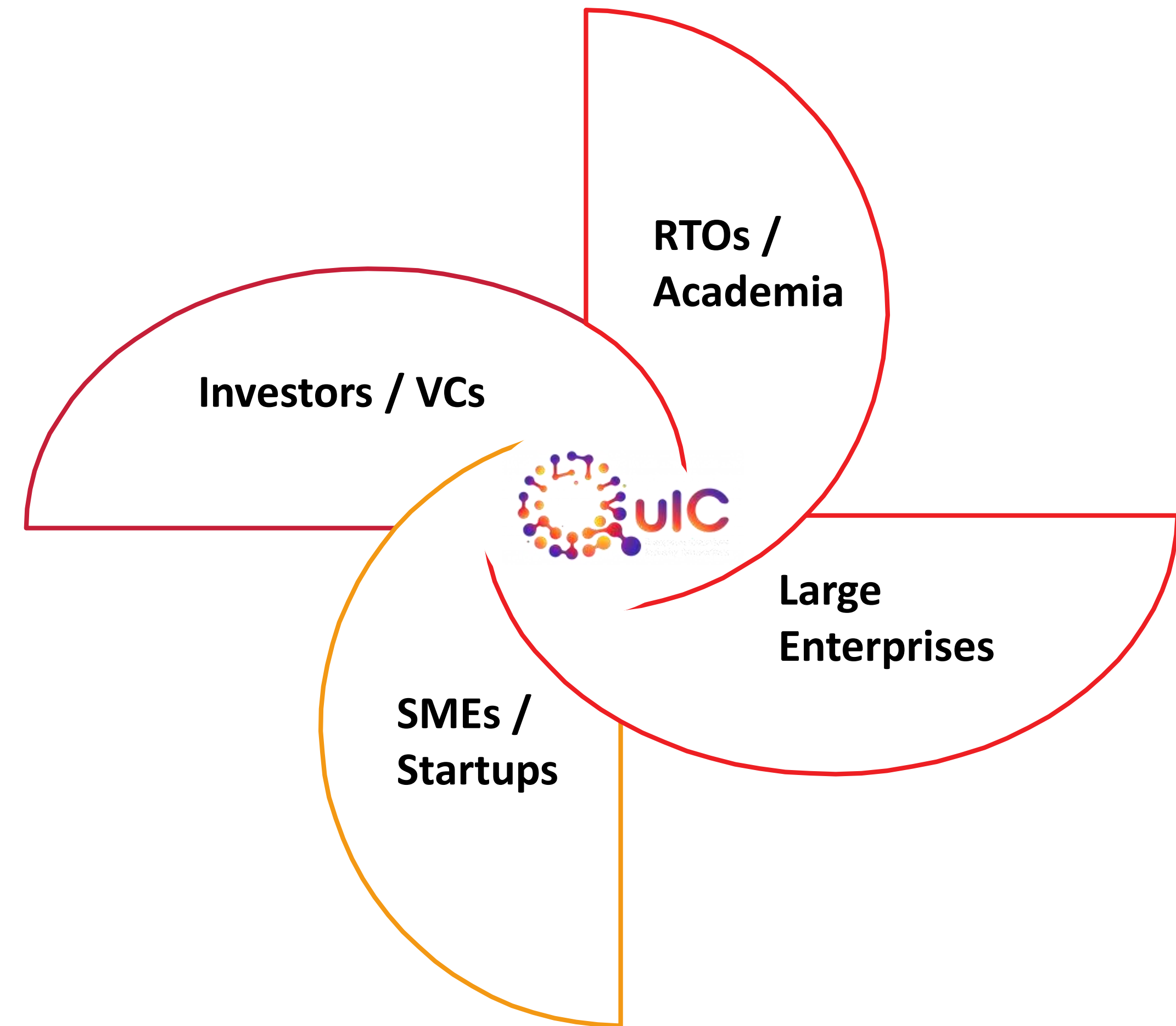
QuIC at a glance



Our **HISTORY**: Non-profit association established in 2021 by several key business actors – large enterprises, SMEs, startups, investors – from across Europe.

Our **MISSION**: grow and strengthen the quantum technology industry, and position Europe as a global leader of the sector.

Our **METHOD**: serve as a collaboration hub between researchers, industry leaders, investors and end-users.





181 members – all from European countries



144 members from 18 EU Member States

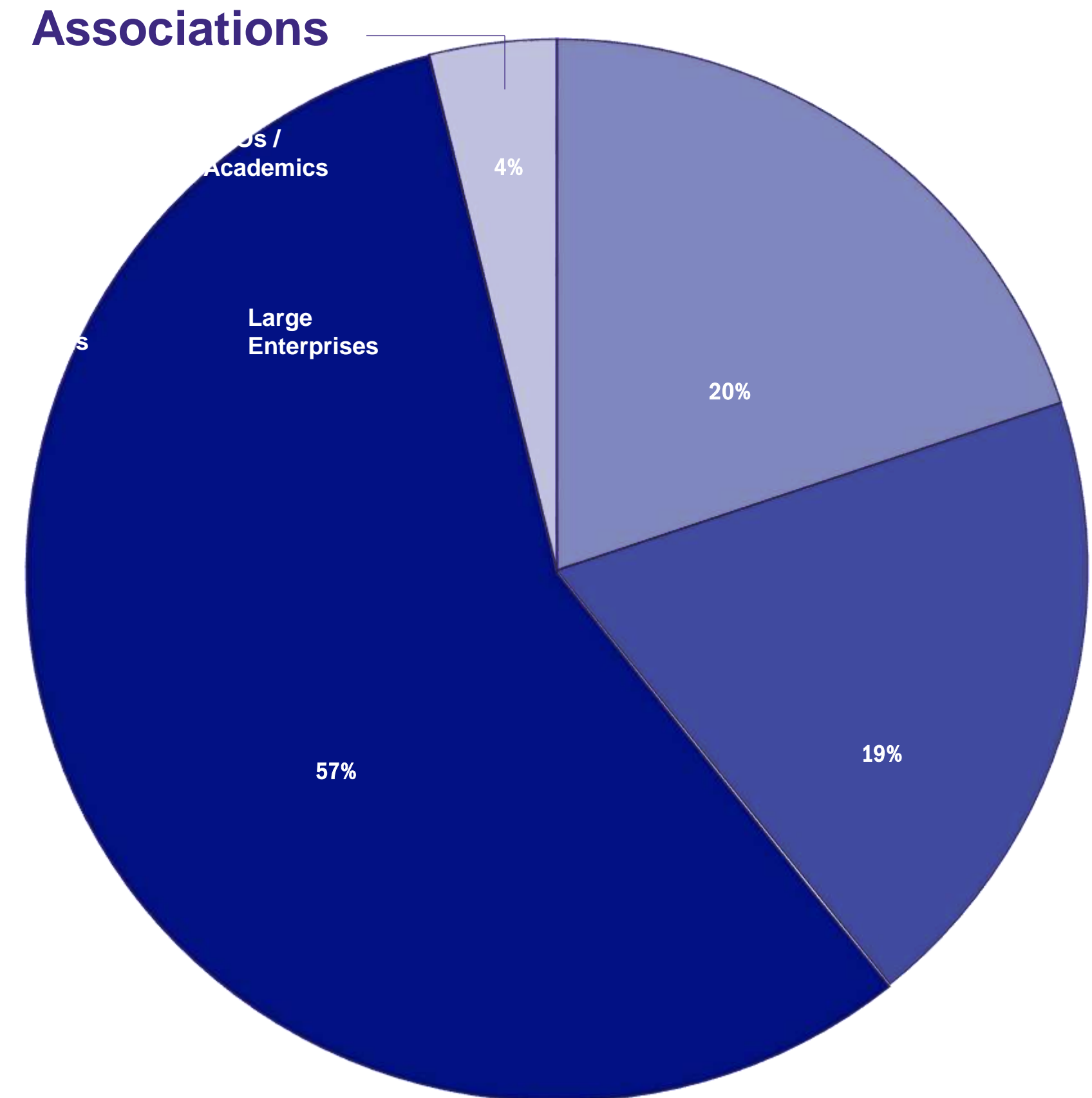


37 members from other European nations

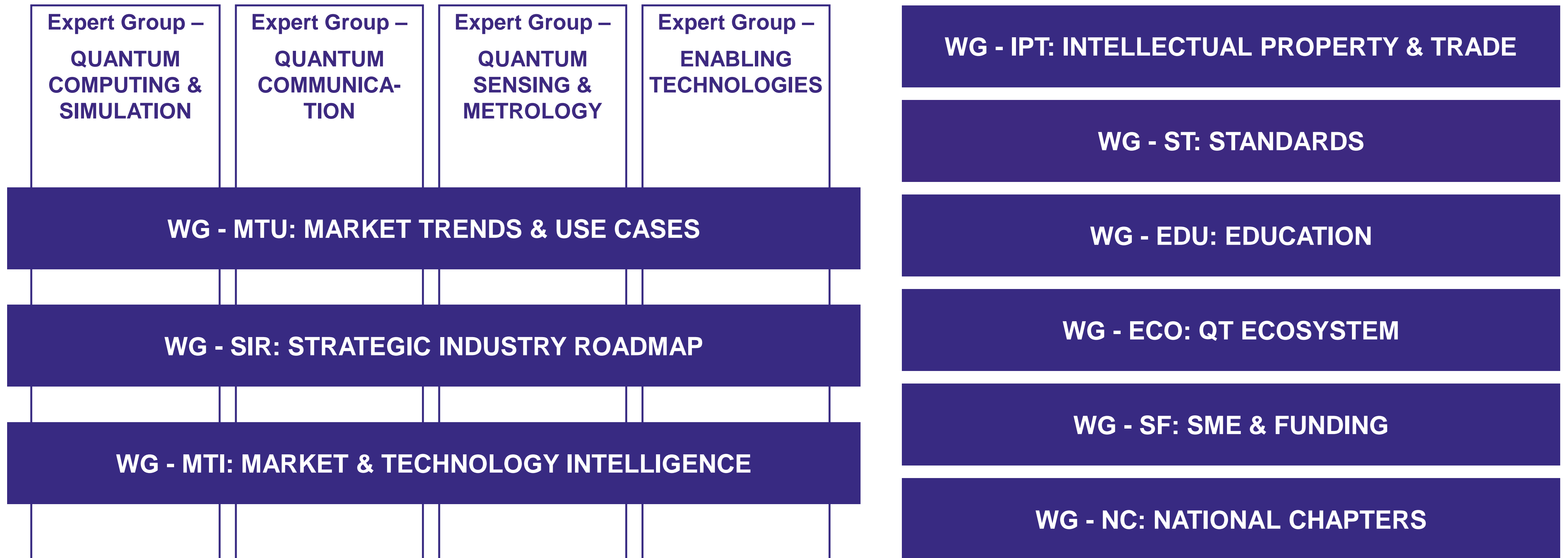


QuIC Membership

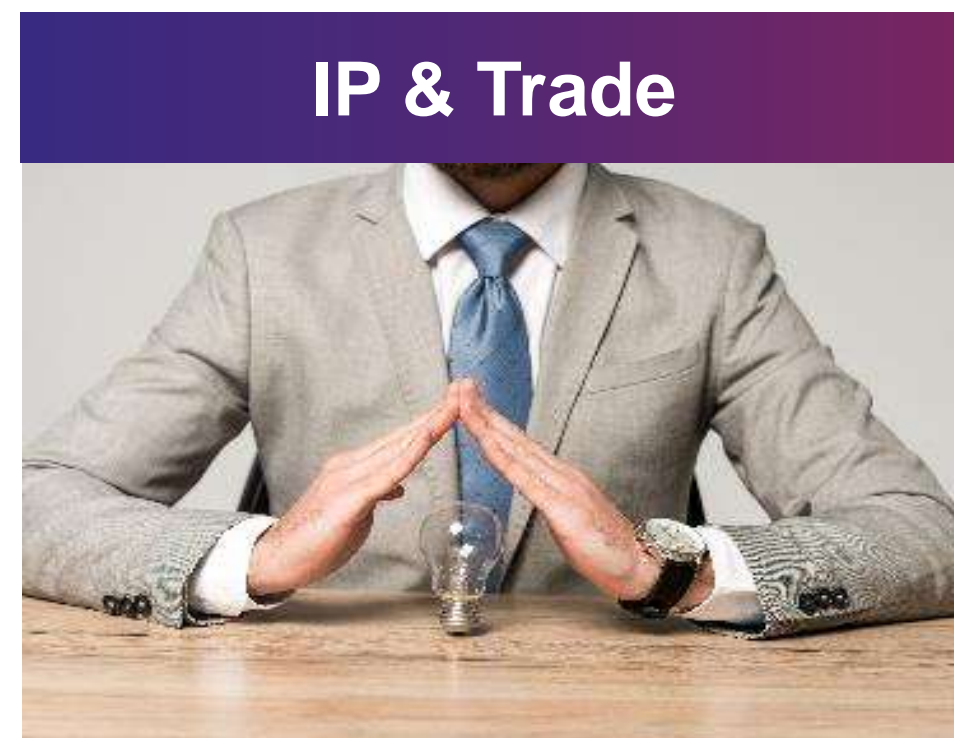
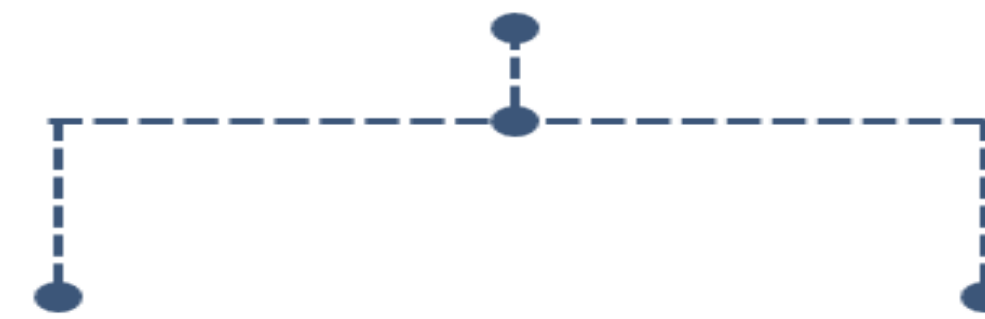
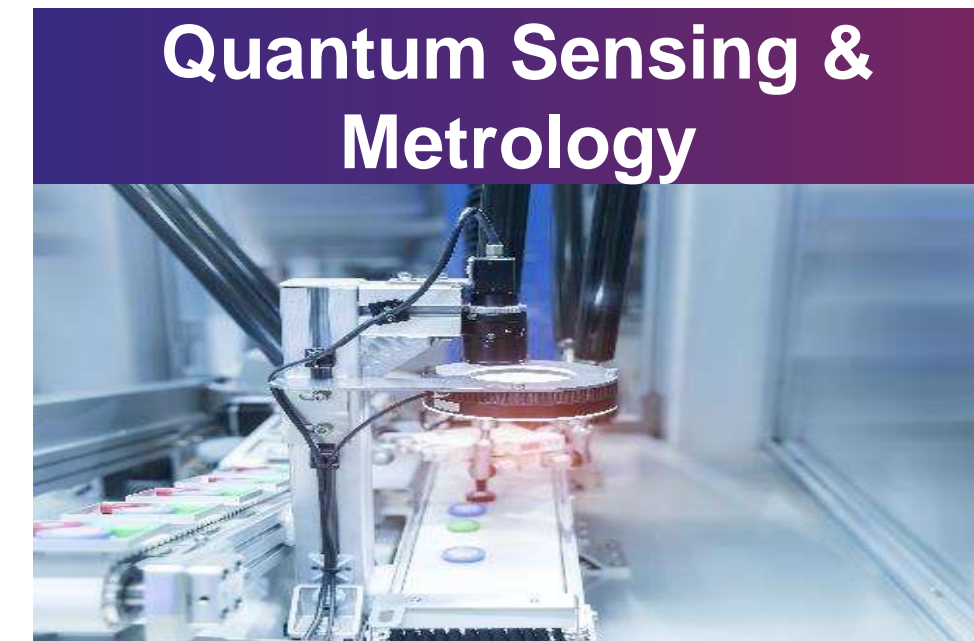
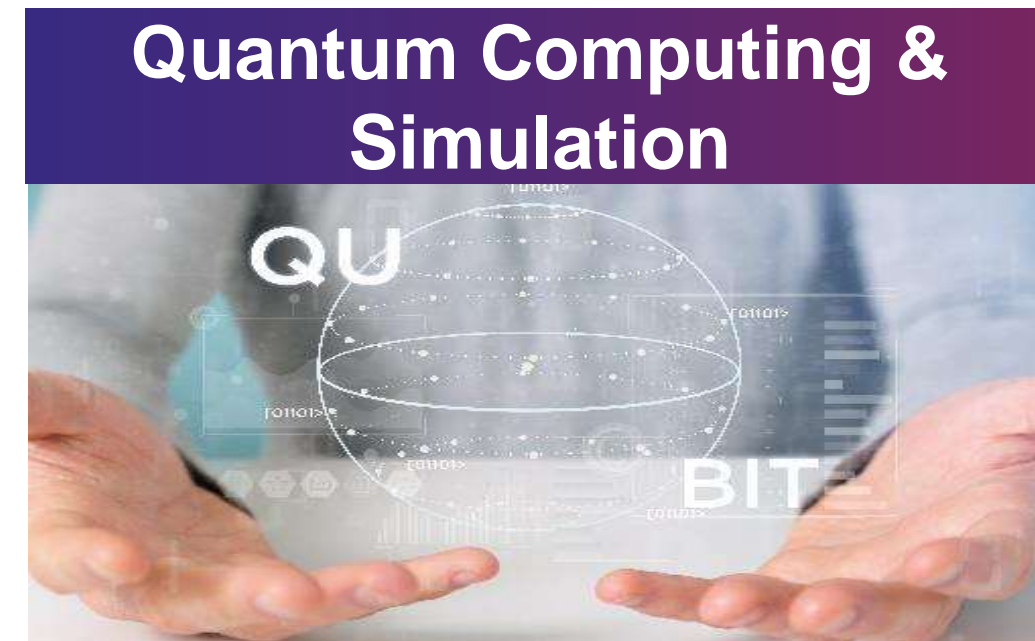
Member type	Full	Associate	Total
Large Enterprises	25	10	35
SMEs	75	28	103
Academics/ RTOs		36	36
Associations		7	7
Total	100	81	<u>181</u>



QuIC Work Groups & Expert Groups



QuIC Strategic Industry Roadmap (SIR)



Strategic Industry Roadmap – Shared with European Commission and governments across Europe to inform quantum policies across the continent.

QuIC's international leadership

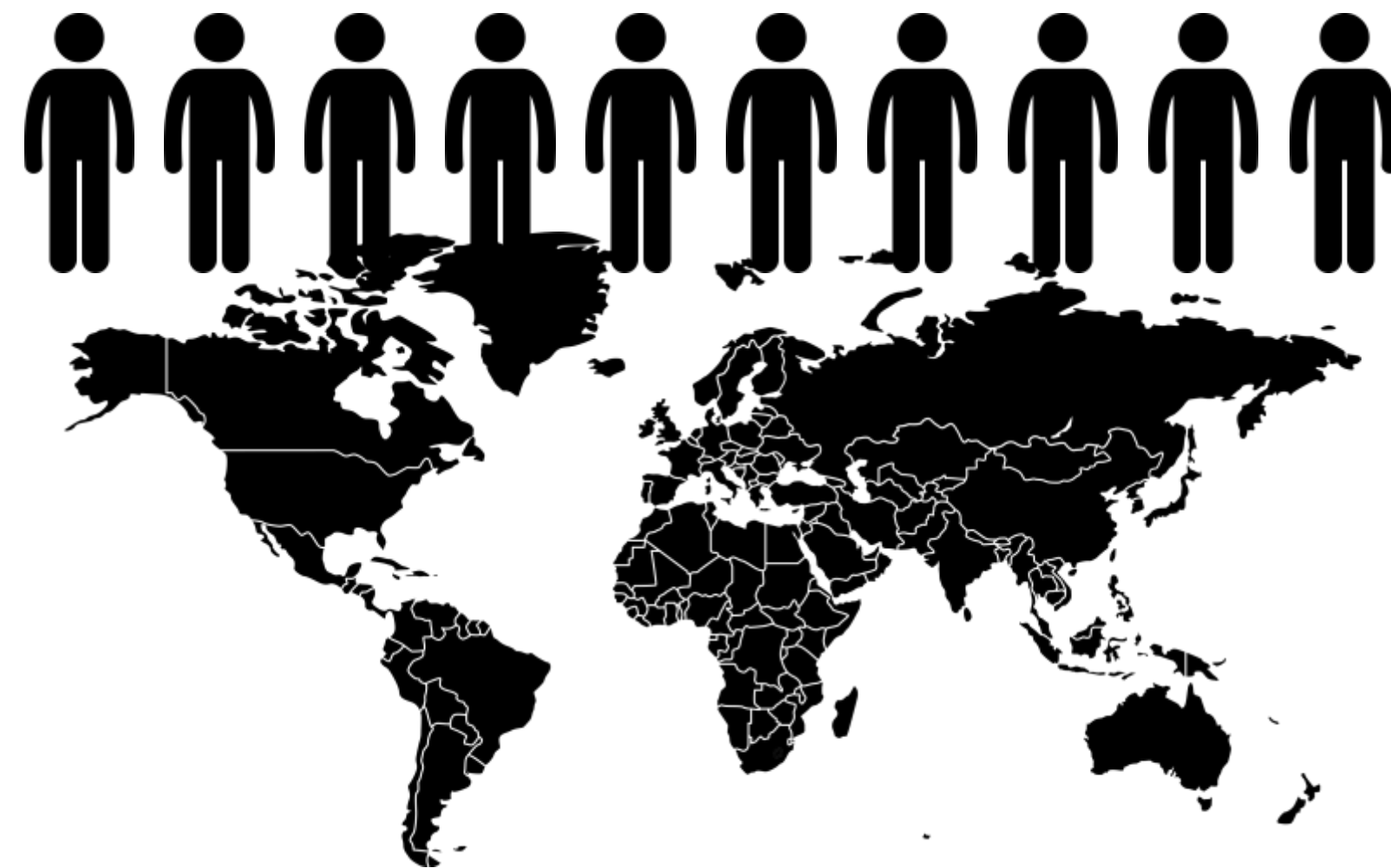


International Council of Quantum Industry Associations

Proud Founding member of **ICQIA**.

Fellow international members:

- QED-C (USA)
- QIC (Canada)
- Q-STAR (Japan)



Trusted partner of the European Commission

QuIC supports the European Commission in its **bilateral international dialogues** with partners.

- United States of America
- Japan
- South Korea
- India



Quantum Standardisation

QuIC acts as a bridge between its many Members and the international quantum standardisation committees:

- JTC-22 (Europe)
- JTC-3 (worldwide)

QuIC supporting EU initiatives



Partner in project QUCATS, which coordinates and supports the **European Quantum Flagship**.

Member of the **Strategic Advisory Board** to the European Commission on quantum technologies.



Private Member of the **EuroHPC Joint Undertaking (JU)** governing board.

Member of the **Research & Innovation Advisory Group (RIAG)** to the EuroHPC JU.



Contributor to the EIB's **Quantum Finance Lab**.

Member of the EIC Scaling Club to support tech scale-ups in Europe.

QuIC supporting EU initiatives



European & Global Standardisation:

- Among select entities in EU High-Level Forum on Standardisation
- Contributor to the EU's rolling plan for ICT Standardisation.
- Links to JTC-22 & JTC-3.



Support of **EU Chips Act** on quantum:

- MoU with AENEAS, large industry association for electronic components and systems.
- Links with Chips JU board.

QuIC Membership Benefits



A two-day **global quantum gathering** hosted and organized by QuIC. Day 1 features a business expo and Day 2, an insightful plenary day. The event brings together business leaders, quantum solution providers, researchers and policymakers from around the world.



Information sessions on the **latest global developments** in connection with the quantum industry, **available for QuIC Members only**. Recent topics include export control regulations, global standardization efforts, and deep dives on critical enabling technologies.



Matchmaking Sessions designed to help **QuIC Members find each other and form project consortia** for public funding calls. Sessions are **also organized with partner associations**, such as AENEAS (electronic components and systems community) in the context of the EU Chips Act. These are an exclusive benefit of QuIC membership.



Q-Expo

11 – 12 June 2024

KIT Royal Tropical Institute, Amsterdam, NL

Q-Expo: Bringing the global quantum industry to Europe



Day 1: The Exhibition & Day 2: Plenary Day

- Simplified and standardised Booth Concept. Highest flexibility for exhibitors and equal conditions for every exhibitor. Simple price structure. Easy for SMEs.
- “Everyone is welcome” to join the exhibition. Favour end-users and government reps as attendees. Investors also to be included. General public as spots remain.
- 3 Pillar System – “3 in 1 Event” – highest flexibility for participants

Key Benefits for QIIC Members & external Participants

- Draw governments (w/ support from QDNL) to meet and engage with industry.
- No-cost entry: attract end-users and investors.
- Easy format for QIIC members to promote their tech & solutions.
- Many Networking Opportunities over 2 days:
 - Coffee Breaks, Lunch Breaks and Social Dinner
 - Social Activities (incl. Quantum Meets Week)

Q-Expo: an event unlike any other.



Thank you!



www.euroquic.org



More Information about Q-Expo