



EuroHPC
Joint Undertaking

The EuroHPC infrastructure and services access

EuroCC@Greece/F4EuroHPC Joint Event

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15 July 2021

The EuroHPC Joint Undertaking 2018-2026



A legal and funding agency (Article 187 of TFEU)

- **33 Participating States + EU + 2 Private Members (ETP4HPC & BDVA)**
- **Budget (2019-2020): ~1.5 B€ (536 M€ from EU + matching funds from Participating States)**

Infrastructure + Operations

EU funding: 346 M€

Procurement of 3 top-range and 5 mid-range supercomputers

R&I + Applications & Skills

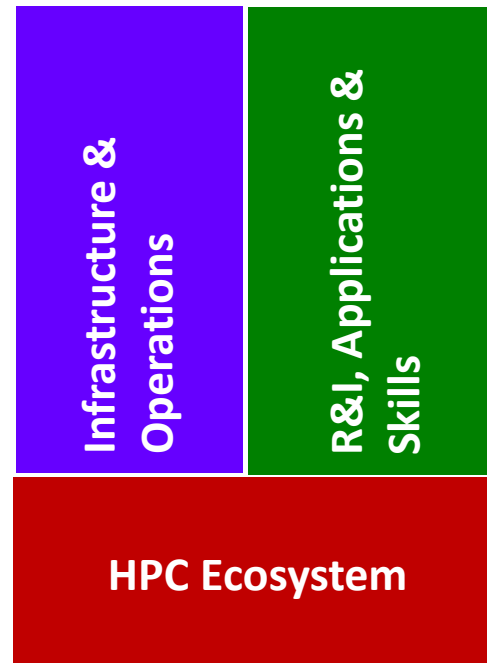
EU funding: 180 M€

R&I: supporting exascale technologies and systems (incl. low-power processor); and, innovative applications

Skills: widening HPC use

Administrative costs

EU funding: 10 M€



Mission: Establish an integrated world-class supercomputing & data infrastructure and support a highly competitive and innovative HPC and Big Data ecosystem

#EuroHPC (high performance computing) Joint Undertaking

The European High Performance Computing Joint Undertaking (EuroHPC JU) will pool European resources to develop top-of-the range exascale supercomputers for processing big data, based on competitive European technology.

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and Turkey.



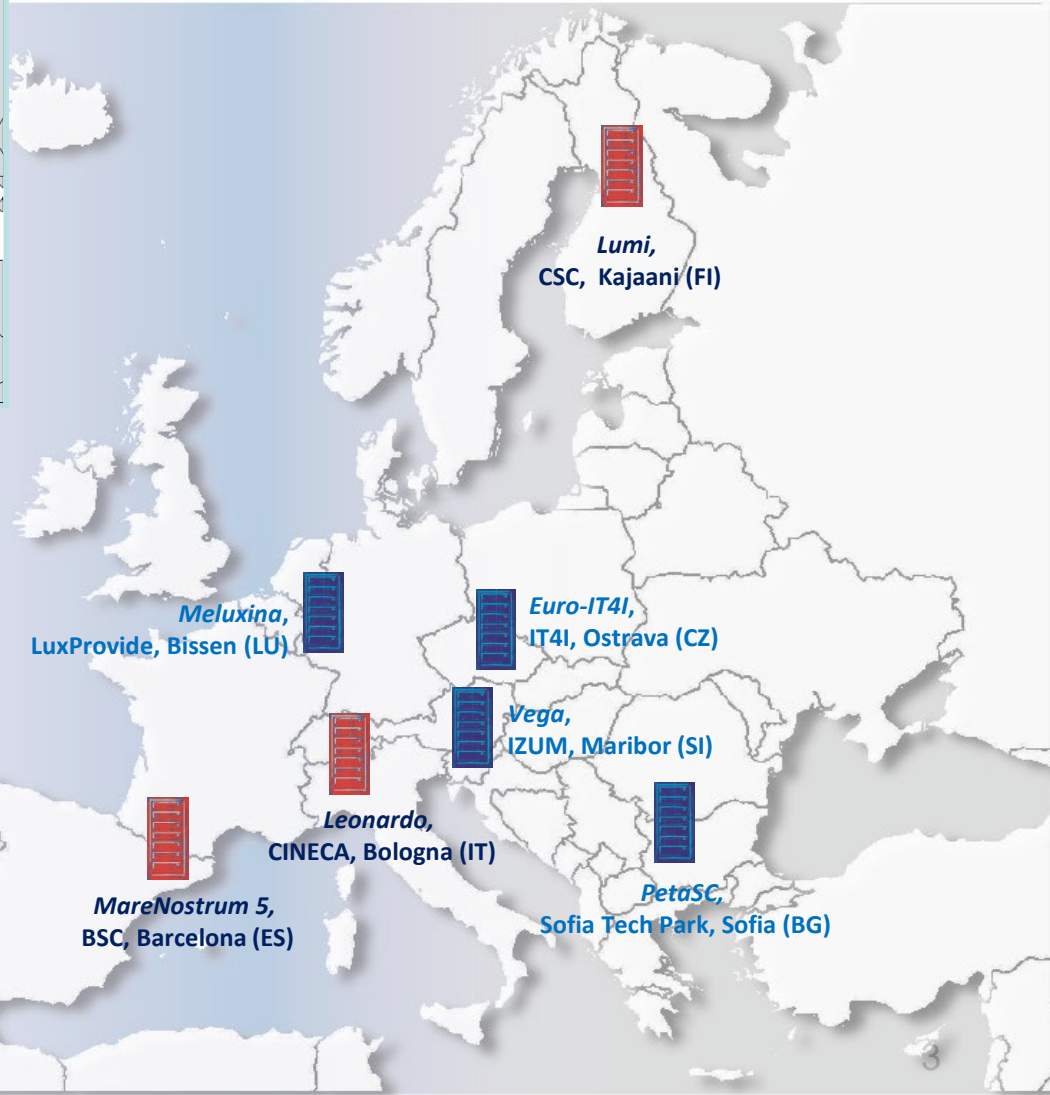
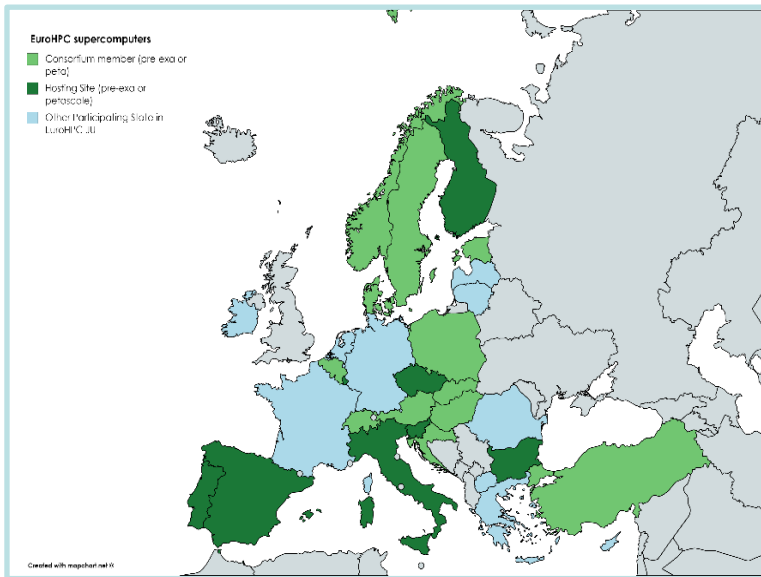
+ Malta (New member)



The EuroHPC supercomputing infrastructure



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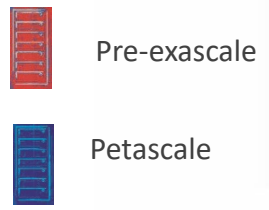
8 Hosting Entities

- **3 Pre-exascale (150+ PFlops).**
Owned by the JU (50/50 CAPEX/OPEX cost and time share with the HE)
- **5 Petascale (4-12 PFlops).**
Co-owned by the JU (65/35 CAPEX cost and time share with the HE)

7 Procurement contracts signed and under implementation

1 Procurement (MN5) to be relaunched

Total contracts value: ~**360** MEuro
(163.3 EU)



EuroHPC Systems Rollout Schedule



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2021

2022

VEGA

IZUM, Maribor, SI
6.9 PF, Atos BullSequana
Top500: #106 & #134
Operational

Karolina

IT4I, Ostrava, CZ
9.0 PF, HPE Apollo
Top500: #69 & #149
Acceptance tests

LUMI

CSC, Kajaani, FI
375 PF, HPE Cray EX

LUMI-C

LUMI-G



MeluXina
LuxProvide, Bissen, LU
12.8 PF, Atos BullSequana
Top500: #36 & #231
Acceptance & tuning

Discoverer
PSB, Sofia, BG
4.5 PF, Atos BullSequana
Top500: #91
Acceptance tests

Deucalion
FCT/MACC, Barco, PT
7.2 PF, Fujitsu FX700

Booster Module

DC&GP

Leonardo
CINECA, Bologna, IT
249.5 PF, Atos BullSequana

* Performance numbers refer to aggregated HPL sustained PFlops

Access Policy



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- **Access Policy v1.0 adopted by the EuroHPC GB**
 - **Free access to Open R&D for Science, Industry and Public Sector**
- **6 Access Modes offering resources on a periodic and continuously open call basis.**
 - **Extreme scale:** Large applications, Pre-exascale systems. Peer-reviewed
 - **Regular:** Medium to large applications, Petascale systems. Peer-reviewed
 - **Development.** All systems. Up to 1 year access. Limited resources.
 - **Benchmark.** All systems. Up to 3 months access. Limited resources.
 - **Fast track for Industry & Academia.** Quick access to previously completed applications
- Calls for **Urgent/Emergency** Computing & Access to **Strategic Initiatives/Projects** – Decided by the Governing Board.
- **PRACE to support EuroHPC** in the implementation of the Access Policy until **end of 2021**

Calls for Access

Benchmark and Development Calls opened in April with monthly cut-off dates

- *VEGA* is the only system currently offering resources.
- *MeluXina*, *Karolina* and *Discoverer*, soon to be added in the resources pool.

1st Regular Access call

- **Opens:** mid-September
- **Closes:** end of October
- Scientific, Industry and Public Sector tracks



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EuroHPC Benchmark And Development Access: Information For Applicants

The purpose of the EuroHPC Joint Undertaking (JU) Benchmark and Development Access calls is to support researchers and HPC application developers by giving them the opportunity to develop, test and optimise their applications on the upcoming/available EuroHPC Pre-exascale and/or Petascale system prior to applying for an Extreme Scale and/or Regular project. Proposals can be submitted at any time (continuously open). The review takes place after a fixed date every month (referred as cut-off date). The goals of each of the two access modes are:

- **Benchmark calls** are designed for code scalability tests, the outcome of which is to be included in the proposal in a future EuroHPC Extreme Scale and Regular call. Users receive a limited number of node hours; the maximum allocation period is three (3) months.
- **Development calls** are designed for projects focusing on code and algorithm development and optimisation. This can be in the context of research projects from academia or industry, or as part of large public or private funded initiatives as for instance Centres of Excellence or Competence Centres. Users will typically be allocated a small number of node hours; the allocation period is one (1) year and is renewable up to 2 times.

The Call for Proposals for Benchmark and Development Access Modes are continuously open, with a maximum time-to-resources-access (start-date) of two (2) weeks after the cut-off date.

Various systems will be available in each cut-off for the different Benchmark & Development Access modes. The exact amount of available node hours is subject to the EuroHPC systems participating in a given call and will be announced prior to the cut-off dates. For the first cut-off period the resources available for the Vega system are shown in the table below.

For the first cut-off period the **total resources available for all applications** are shown in the table below. **Proposals should indicate in the description the amount of resources requested per system/partition.**

System/partition	Benchmark		Development	
	Node hours	Core hours	Node hours	Core hours
Vega CPU Standard	7 000	896 000	15 000	1 920 000
Vega CPU Large Memory	2 500	320 000	5 000	640 000
Vega GPU	1 000	128 000	3 000	384 000

er State or in a country associated to

Calls are published on the PRACE website

- Details on Access Modes
- Available systems and resources
- Links to the Access Policy and additional info
- Application submission through the PRACE Peer-Review Tool (PRT)

R&I activities 2019-2020



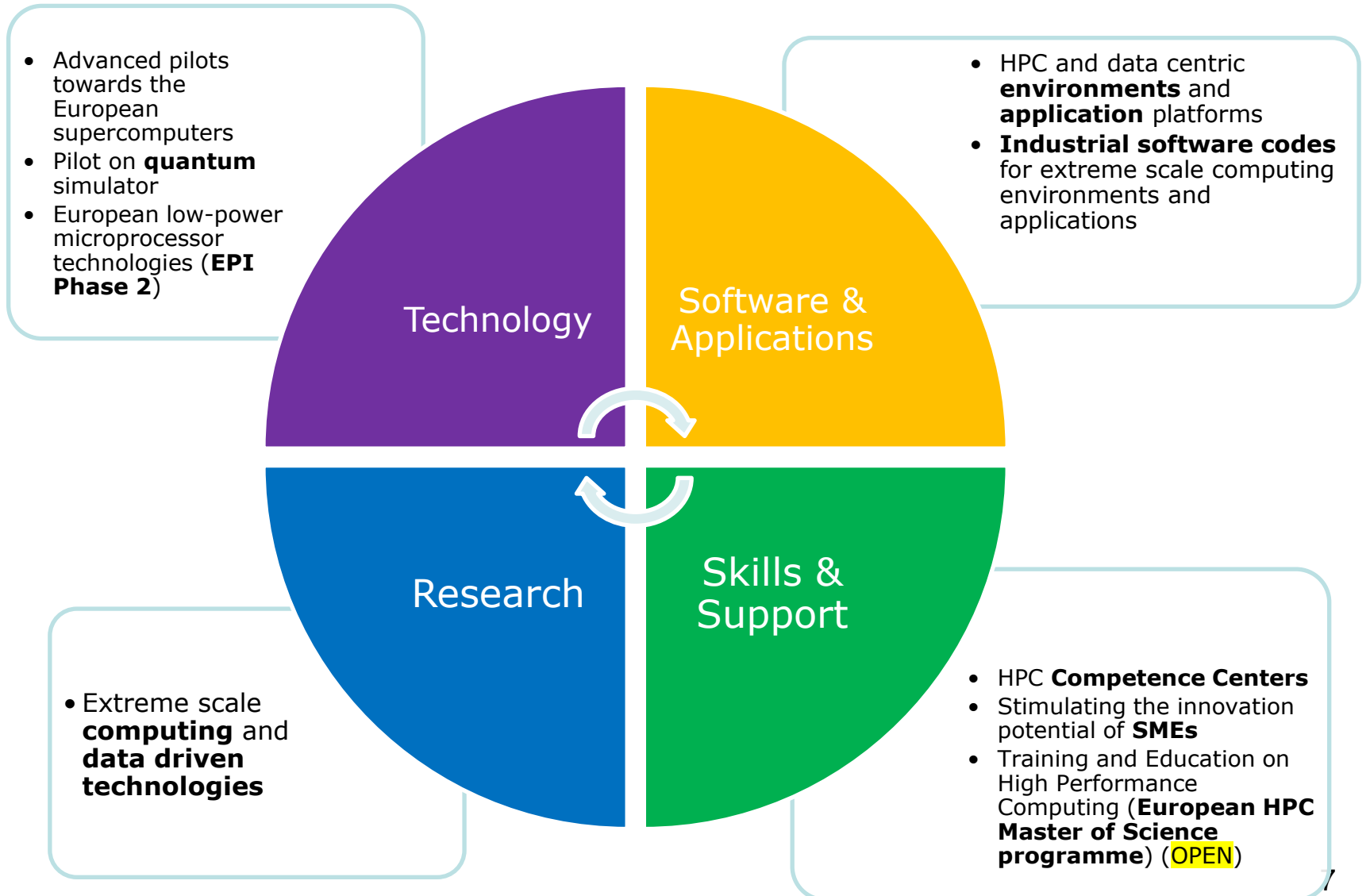
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EuroHPC within the **2019-2021** time period launched several **R&I** calls, aiming to foster HPC uptake and support the **research, development** and **use** of HPC technologies and infrastructures across the EU.

- **4** calls closed & evaluated
- **26** grants under implementation
- Total budget: **EUR 272 M**

Call on European HPC MSc currently open

- deadline **2 July 2021**

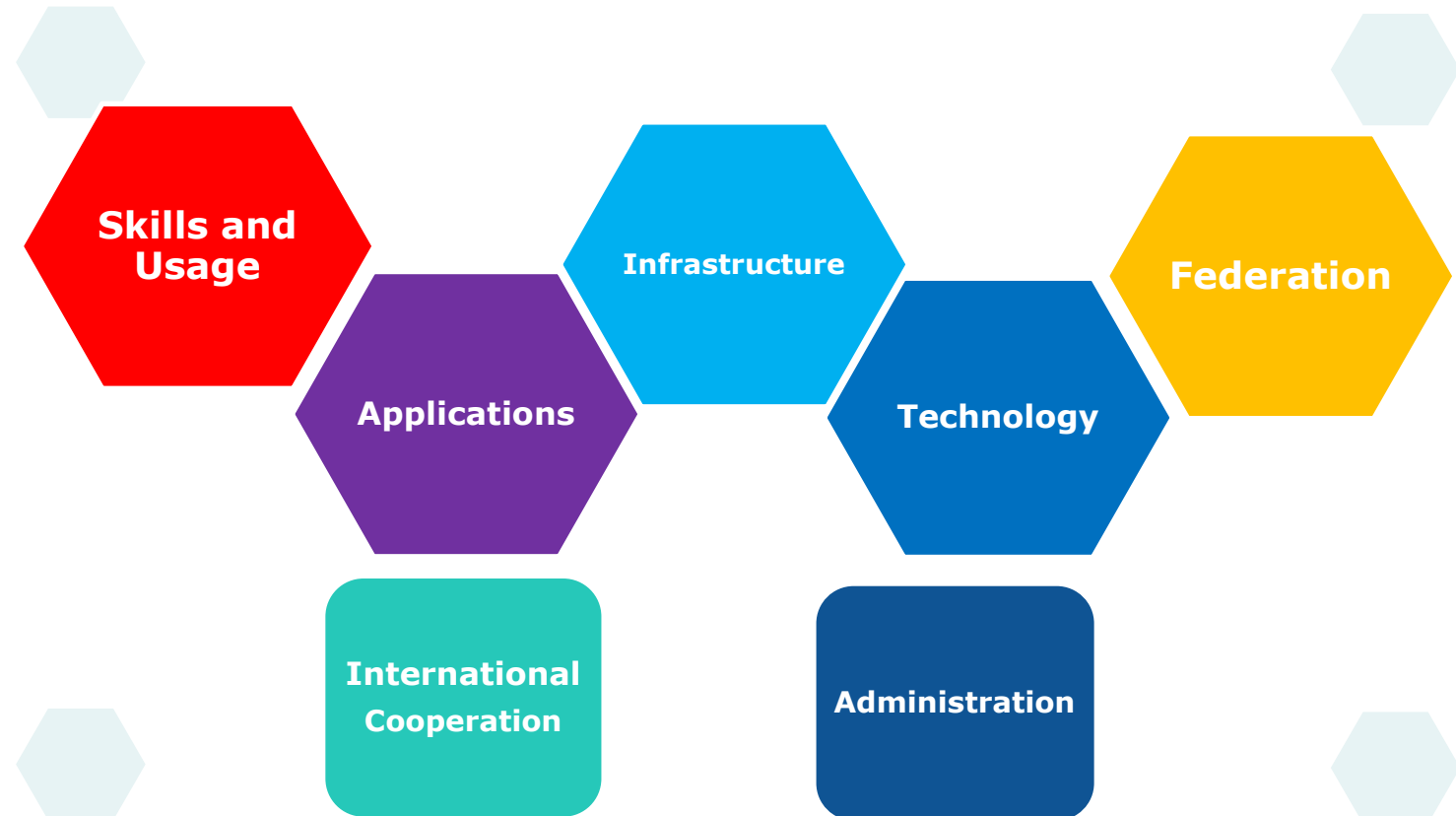


New JU Regulation – updated mandate:



“By 2027,

- *develop, deploy, extend and maintain in the Union a world leading **federated, secure and hyper-connected supercomputing, quantum computing service and data infrastructure ecosystem;***
- *support the development and production of innovative and competitive supercomputing systems based on **a supply chain that will ensure components, technologies and knowledge** limiting the risk of disruptions and the development of a **wide range of applications optimised** for these systems;*
- *widen the use of this supercomputing **infrastructure** to a large number of public and private users, and support the development of **key skills for European science and industry.**”*



Level and Sources of EU funding 2021-2027 (indicative):



Pillar	Horizon Europe (EUR 900 Mn)	Digital Europe Programme (EUR 1.98 Bn)	Connecting Europe Facility (EUR 200 Mn)	Recovery and Resilience Facility
Infrastructure		EUR 1.35 billion	EUR 100 million	PS to define
Federated and secure HPCs		EUR 280 million	EUR 100 million	PS to define
Technology	EUR 600 million			PS to define
Applications	EUR 300 million	EUR 200 million		PS to define
Skills		EUR 150 million		PS to define



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Thank you!

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