



EuroHPC
Joint Undertaking

Research and Innovation Opportunities

Daniel Opalka
Head of R&I

Funding for Research & Innovation

Co-funded by EuroHPC, Participating States and in-kind contributions



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Digital Europe
1.98 B€

- Infrastructure
- Federation of HPC services
- **Widening usage and skills**

Horizon Europe
900 M€

- Technology
- Applications
- International cooperation

Connecting Europe Facility
200 M€

- Hyperconnectivity
- Data connectivity



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Total budget
1.5 B€ in 2019-2020
7 B€ in 2021-2027

R&I and skills
350 M€ in 2019-2020
≈ 2 B€ in 2021-2027



900 M€ in-kind contributions from Private Members



3 B€ from 33 Participating States

Financial Instruments



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- **Grants**

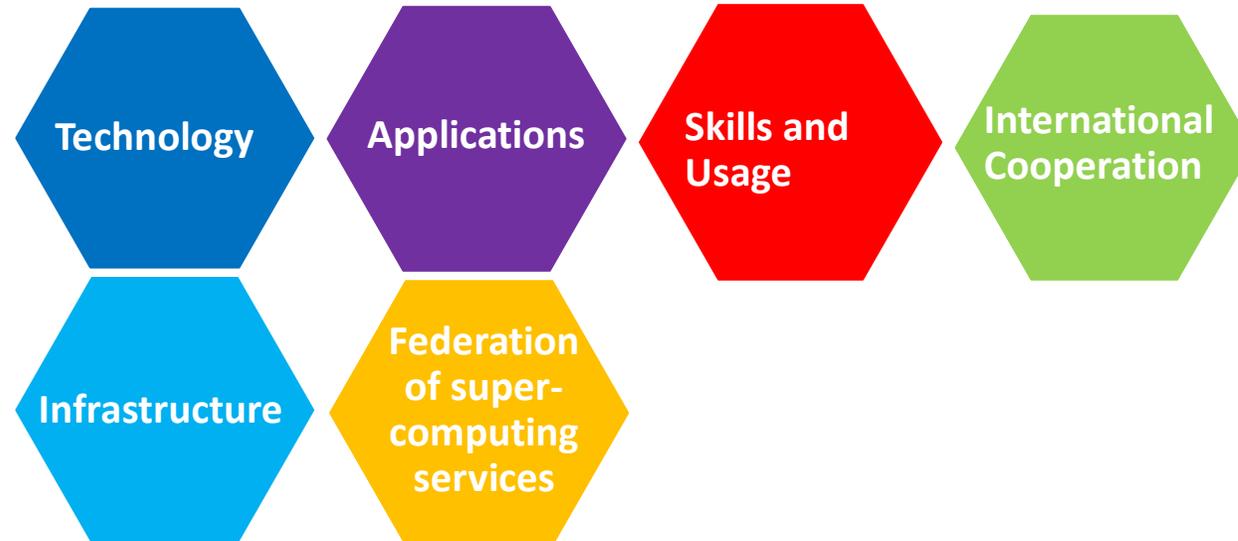
- Calls for Proposals
- Synergy grants

- **Procurements**

- Calls for Tender
- Co-financing through ESIF, RRF

- **Equity & debt financing**

- Not provided by the JU but could be used in combination with grants and procurements
- The European Innovation Council offers equity, also blended with grants (SMEs)
- The European Investment Bank offers loans

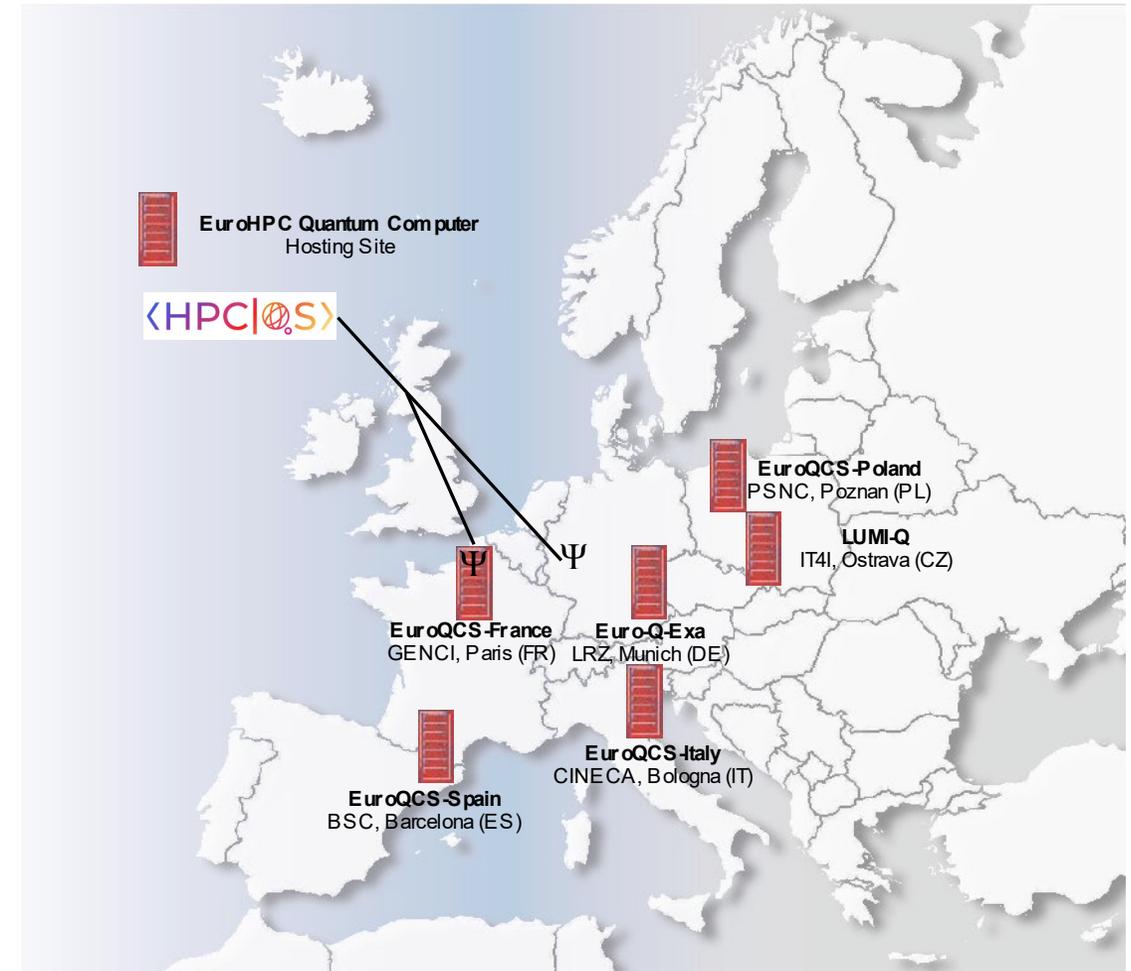


Future EuroHPC quantum computers



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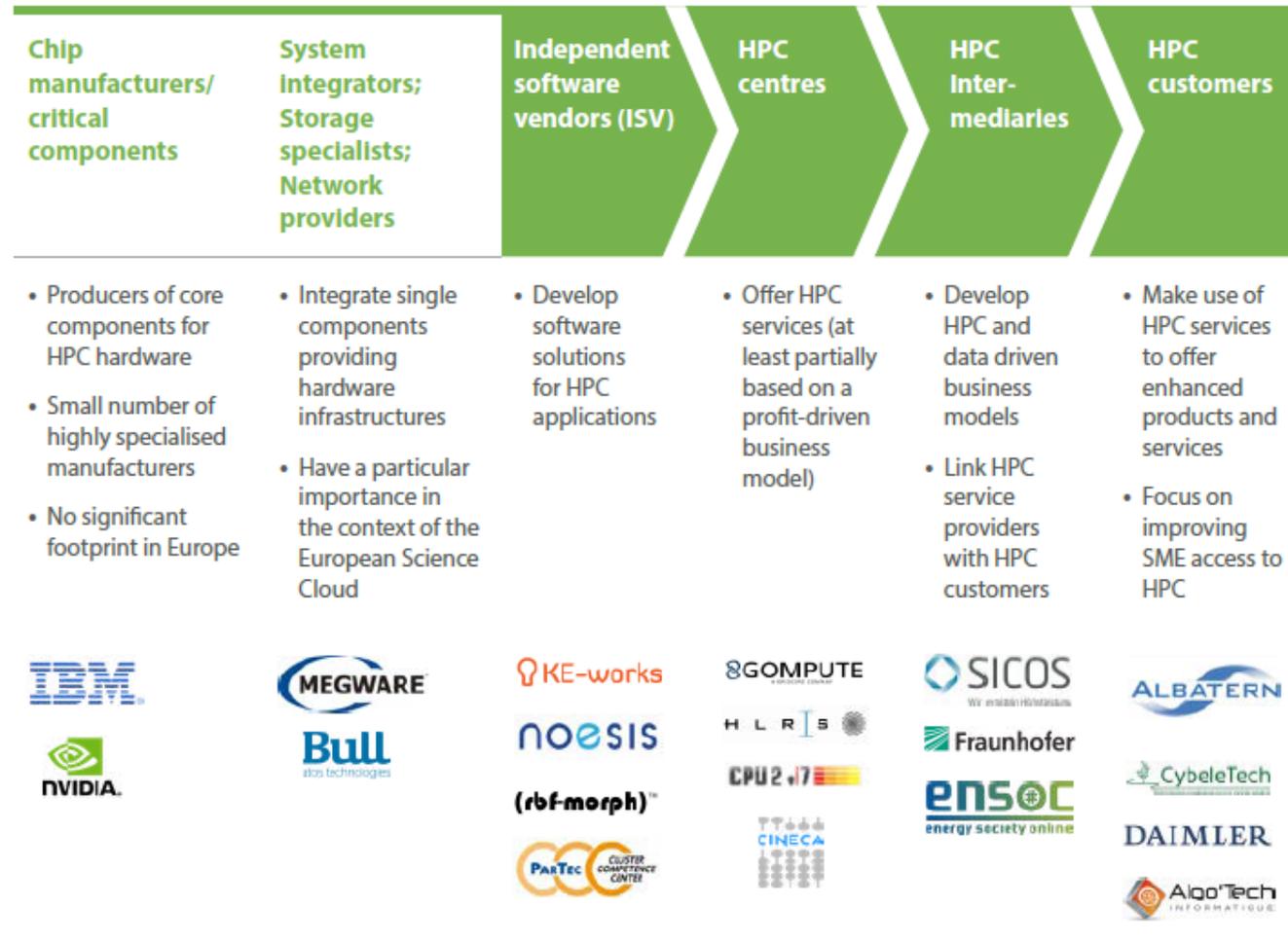
- Two quantum simulator pilots in Paris (FR) and Jülich (DE)
- Selected Hosting Entities/Consortia for EuroHPC quantum computers
 - Euro-Q-Exa (DE)
 - EuroQCS-Spain (ES)
 - LUMI-Q (CZ)
 - EuroQCS-Italy (IT)
 - EUROQCS-POLAND (PL)
 - EuroQCS-France (FR)
- Co-located and integrated with supercomputers at national HPC centres
- More than 100 M€ total investment
- 17 participating countries



The HPC value chain



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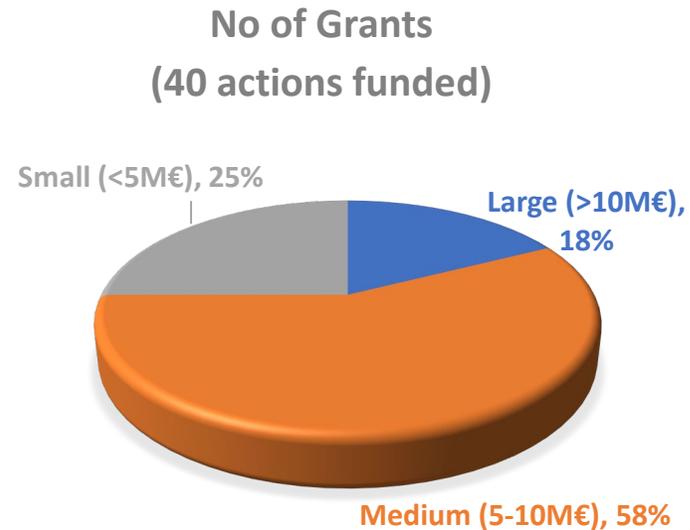
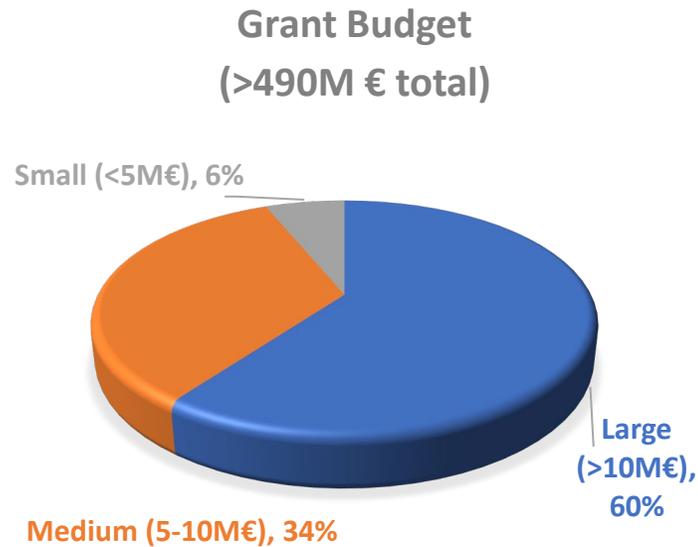


“Financing the future of supercomputing” EIB Advisory Services, 2018

R&I actions in numbers



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EuroHPC JU pools European resources to fund large strategic projects

- HPC hardware including advanced processors, accelerators, high-speed interconnect
- Software stack including programming models, resource management software, HPC services
- Applications for R&I covering many scientific domains and topics, engineering
- Skills, usage and HPC adoption supported by a pan-European network of Competence Centres

Industrial R&I funded by EuroHPC JU

Industrial software, HPC applications and workflows



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LIGATE

Ligand Generator and portable drug discovery platform AT Exascale

Industrial partners

- DOMPE FARMACEUTICI SPA (IT)
- E4 COMPUTER ENGINEERING SPA (IT)
- tofmotion GmbH (AT)

Objective: Implement a computer-aided drug design solution for automated drug discovery

Budget: €5,938,656.25



Next generation of industrial aerodynamic simulation code

Industrial partners

- AIRBUS OPERATIONS SAS (FR)
- OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES (FR)
- DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV (DE)

Objective: development of CODA - the new reference flow solver for aerodynamic applications inside AIRBUS group

Budget: €3,998,703.75



HPC Big Data Artificial Intelligence cross Stack Platform Toward Exascale

Industrial partners

- BULL SAS (FR)
- NEUROPUBLIC AE PLIROFORIKIS & EPIKOINONION (EL)
- GE AVIO SRL (IT)

Objective: Workflows and applications for aeronautics, climate and weather, and energy domains

Budget: €8,815,845.00



Exploitation of Exascale Systems for Open-Source Computational Fluid Dynamics by Mainstream Industry

Industrial partners

- ESI GROUP (FR)
- E4 COMPUTER ENGINEERING SPA (IT)
- UPSTREAM CFD GMBH

Objective: Improvement of the OpenFOAM software for computational fluid dynamics across the entire processing chain

Budget: €5,425,618.75

Skills and Usage



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Expertise and HPC resources



- European network of NCCs in 32 countries to **widen the use of HPC** in Europe.
- Support **SMEs, public services** and **private businesses**
- **Gateway** for users to access **European HPC** resources

Financial support for HPC uptake

- Boost **innovation** and **business opportunities** for **SMEs**
- **Solve business problems with HPC**, financial support and expertise from European HPC leaders



Talent development



- Train the **next generation of HPC experts** in Europe
- **1st pan-European MSc** Programme in HPC including 19 countries
- **Connect academic education with HPC industry**



„ It is our proposed level of ambition that by 2030:

- *75% of European enterprises have taken up cloud computing services, big data and Artificial Intelligence*
- *More than 90% of European SMEs reach at least a basic level of digital intensity “*

National Competence Centres for HPC



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- **EuroCC**

A European network of more than 30 national HPC Competence Centres to widen the use of HPC in Europe

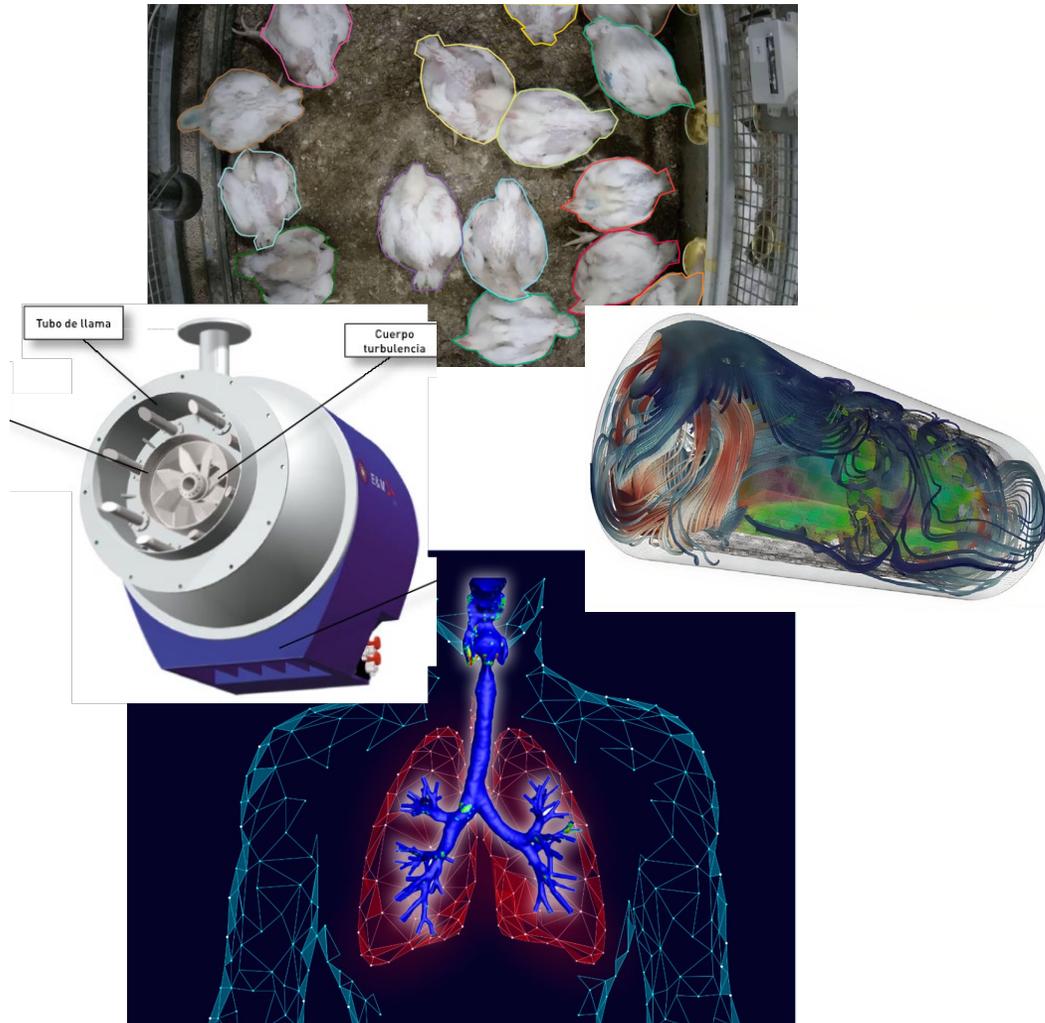
- Provide training and specific local support to access to HPC resources, expertise and funding free of charge
- Serve as single point of access to a European network of HPC experts for users from academia, industry, public administrations and in particular SMEs
- Support HPC uptake by businesses and implementation of best practice
- Ensuring a coordinated and consistent high level of expertise across Europe in HPC and related disciplines e.g. data analytics (HPDA) and artificial intelligence
- Mapping competencies and identifying knowledge gaps

Stimulating the innovation potential of SMEs



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<https://www.ff4eurohpc.eu/>



- **Financial support for SMEs to**
 - **Boost innovation potential and competitiveness through HPC**
 - **Address business challenges with HPC**
 - **Adopt HPC in existing business models**
 - **Develop skills in related disciplines on the basis of HPC, such as high performance data analytics (HPDA) and artificial intelligence to solve specific business problems**
- **Grant of 50.000 – 150.000 € per beneficiary**
- **Support by experts from leading European HPC centres**

Proposal evaluation

