



# Digital fika about cluster 4 – Destination 4

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# Agenda

- Short introduction to destination 4
- Discussion with
  - Björn Hovstadius, Manager at AI Labs, AI Sweden
- Open Q&A
  - Raise your hand or write your question in the chat
- Slides will be shared in the chat
- You can ask your question in Swedish/English
- From 11.00 until latest 11.45

# Horizon Europe 2021-2027



## Cluster 4. Digital, Industry and Space

- **Destination 1:** Climate neutral, circular and digitised production
- **Destination 2:** A digitised, resource-efficient and resilient industry
- **Destination 3:** World leading data and computing technologies
- **Destination 4:** Digital and emerging technologies for competitiveness and fit for green deal (highlighted with a red box)
- **Destination 5:** Strategic autonomy in developing, deploying and using global space-based infrastructure, services, applications and data
- **Destination 6:** A human-centered and ethical development and industrial technologies

# Digital and emerging technologies for competitiveness and fit for green deal

Strategical plan for Horizon Europe 2025-2027 lines out the impacts for cluster 4  
*e.g. 8. Achieving open strategic autonomy in digital and emerging enabling technologies*

- WP 2025 (DRAFT)
  - Quantum and High Performance Computing ((co-programmed Partnership 'Photonics')
  - AI-GenAI/Data/Robotics (co-programmed Partnership 'AI, Data and Robotics')
  - Artificial Intelligence in Science

# What is it also not ... bottom-up

- The other pillars in Horizon is though:
  - Pillar 1
    - MSCA, researcher mobility grants
    - ERC, principal investigator driven grants
  - Pillar 3
    - EIC, Small & medium sized businesses grants, loans and investments

# What is it not ... applied

- The other clusters in Horizon is though:
  - Health
  - Culture, Creativity & Inclusive Society
  - Civil security
  - Climate, Energy & Mobility
  - Food, Bioeconomy, Natural Resources, Agriculture & Environment

# Types of projects

- **Research and innovation action (RIA)** that establishes new knowledge and/or explores a new or improved technology, product, process, service or solution.
- **Innovation action (IA)** that produces plans or designs for new or improved products, processes or services including prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.
- **Coordination and Support action (CSA)**

# Quantum and High Performance Computing



# Strategic Pillars of the EU Quantum Ecosystems

Funded by



Bring quantum technologies from the **lab** to the **market** and consolidate European scientific leadership in quantum research

**Fundamental R&D**  
**Technology Supply**

**Advanced Digital Skills**  

Develop short term **training courses** and **Master's programmes** in key capacity areas

RESEARCH BASED

HORIZON EUROPE



2021-2027

INFRASTRUCTURES

DIGITAL EUROPE

From Lab to Market



**Pilot Lines & Testing Facilities**

**Q Sensing Deployment**

Build and **deploy** Quantum sensing devices

**Quantum Gravimeters**

**Quantum MRIs**

**EuroQCI**  

Build and **deploy** in the next decade a certified secure pan-European end-to-end QCI for cybersecurity services

**QKD Infrastructure**

**EuroHPC-QCS** 

Build and **deploy** an infrastructure for high performance computing and **quantum computing**

**HPC with Accelerators**

**Stand-alone Q Computers**

**European Chips Act**  

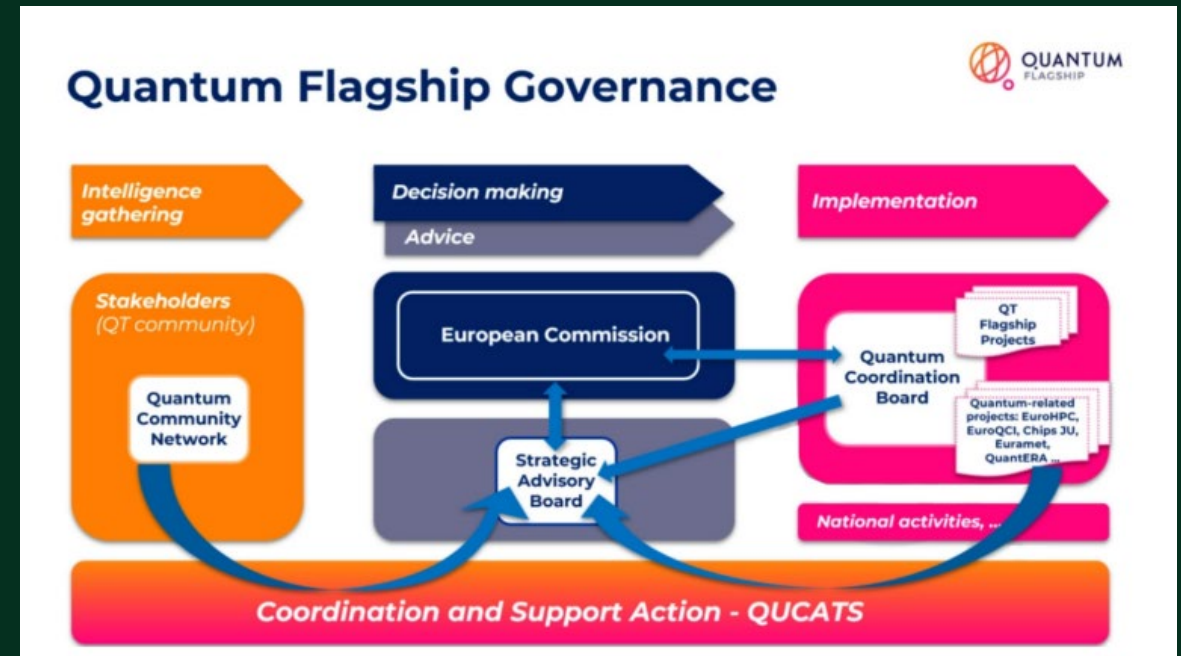
Bolster Europe's competitiveness & resilience in semiconductors & **quantum chips** including production facilities & Quantum Fund

# Important initiative and partnership for



## QUANTUM FLAGSHIP

- Flagship to bring together innovation and research projects within quantum technologies
- 10+ years (launched 2018), 1b€ funded by commission
- Calls based on [Flagship's Strategic Research Agenda](#)
- QUCATS (CSA) [Quantum Flagship Coordination Action and Support | QUCATS | Project | Fact sheet | HORIZON | CORDIS | European Commission](#)



[QSIP - Empowering Sweden's Quantum Future](#)

# Important initiative and partnership for

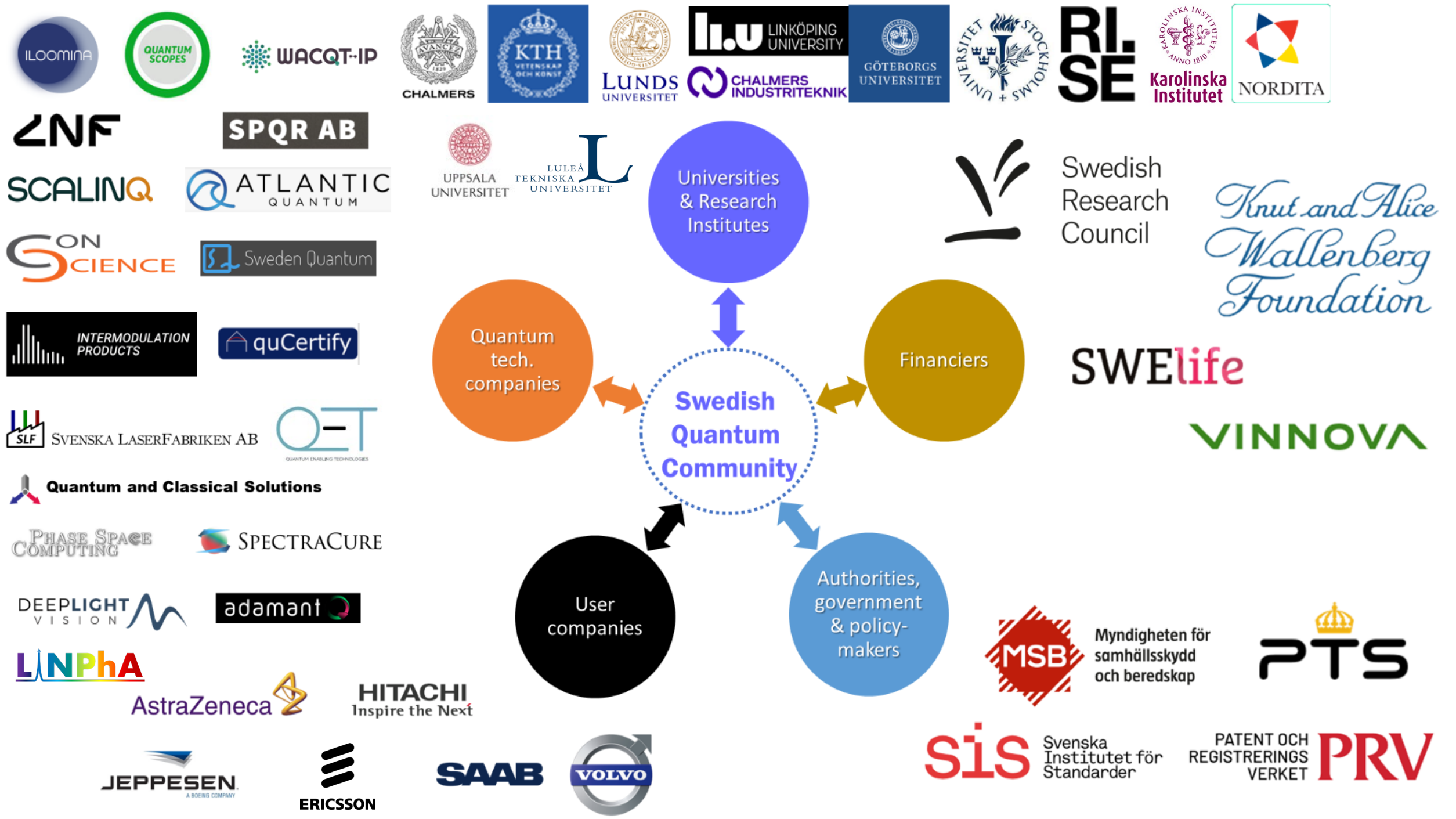


- European network of Research Funding Organisations which fund transnational excellent research and innovation projects in quantum Science and Technologies
- Since 2014, Project: 101212998 — QuantERA III
- Next step: Cascading grant with FSTP
- Next call planned to be open by the end of 2025, early 2026
- The call consists of two parts.
  - A. Basic research (VR funds)
  - B. Applied research (no active Swedish agency )

## Projects with Swedish organisations Funded Projects – QuantERA

<b>C'MON-QSENS!</b> Continuously Monitored Quantum Sensors: Smart Tools and Applications <a href="#">Read More</a>	<b>CoQuaDis</b> Collective quantum phenomena in dissipative systems – towards time-crystal applications in sensing and metrology <a href="#">Read More</a>	<b>ERyQSenS</b> Entangled Rydberg matter for quantum sensing and simulations <a href="#">Read More</a>
<b>FiGAnti</b> Fibre-Coupled GaSb Quantum Dot Tunable Single-Photon Sources for Field Deployed Quantum Key Distribution <a href="#">Read More</a>	<b>HYPER-U-P-S</b> Hyper-entanglement from ultra-bright photon pair sources <a href="#">Read More</a>	<b>InQuRe</b> Field testing an integrated quantum repeater node <a href="#">Read More</a>
<b>QUANTOX</b> QUANTum Technologies with 2D-OXides <a href="#">Read More</a>	<b>SECRET</b> SECuRe quantum communication based on Energy-Time/time-bin entanglement <a href="#">Read More</a>	<b>SiCqurTech</b> Silicon Carbide Qubits towards a Fab-Ready Technology <a href="#">Read More</a>
<b>SiQUOS</b> Superconducting Silicon Qubit in CMOS Technology <a href="#">Read More</a>	<b>SuperLink</b> Superconducting quantum-classical linked computing systems <a href="#">Read More</a>	<b>Topoquant</b> 2D hybrid materials as a platform for topological quantum computing <a href="#">Read More</a>

Chalmers University of Technology	Stockholm University	Stockholm University
KTH Royal Institute of Technology	Stockholm University	Linköping University
KTH Royal Institute of Technology	Linköping University	Linköping University
Uppsala University	Chalmers University of Technology	University of Lund





# Map of expertise in quantum science and technology in the Nordic countries 2023

## Norway

Research volume: €9.7 Million per year  
Funding: Mainly national  
National Strategy: No  
5 Companies  
Education: 1 MSc programme.  
Community: Quantum Network Norway  
Main research:  
Quantum Sensing,  
Quantum Condensed Matter & Devices  
Quantum Information and Computation

## Denmark

Research volume: €60 Million per year  
Funding: Equally national and private  
National Strategy: Yes  
39 Companies  
Education: 2 MSc programmes and MSc several tracks.  
Quantum hubs: DTU, KU, SDU  
Community: DQC  
Main research:  
Quantum Photonics (QKD),  
Quantum Computing (Ion trapping, squeezed light, spin, superconducting, and topological)  
Quantum Mathematics and Algorithms

## Finland

Research volume: €45 Million per year  
Funding: National, European and private  
National Strategy: No  
30 Companies  
Education: 1 BSc, 1 MSc programme and several MSc tracks.  
Community: InstituteQ, BusinessQ  
Main research:  
Quantum photonics (QKD)  
Quantum Algorithms, Software, Simulations and NISQ  
Quantum Computing (Superconducting qubits)

## Sweden

Research volume: €13 Million per year  
Funding: Mainly private  
National Strategy: No  
27 Companies  
Education: 5 MSc programmes and tracks.  
Community: WACQT, QSIP, QLS Centre  
Quantum hub: QTH (KTH), QIL (Lund)  
Main research:  
Quantum Computing (superconducting, REM, Rydberg, full stack software, simulations)  
Quantum Communication (QKD, metropolitan/regional network)  
Quantum Sensing (life science, attosecond laser).



# EUROHPC SYSTEMS 2024 → 2026



EXASCALE



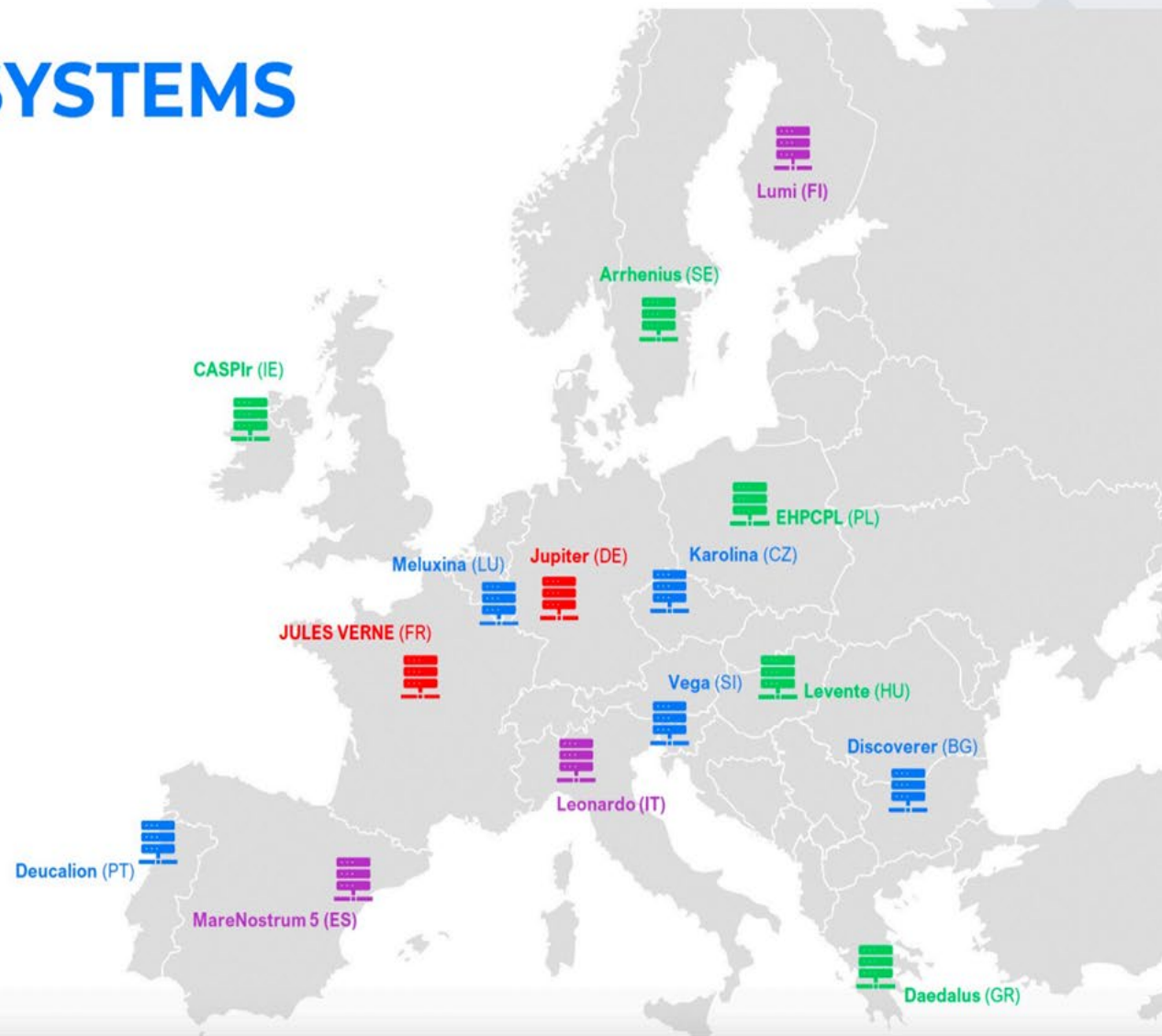
PRE-EXASCALE



PETASCALE



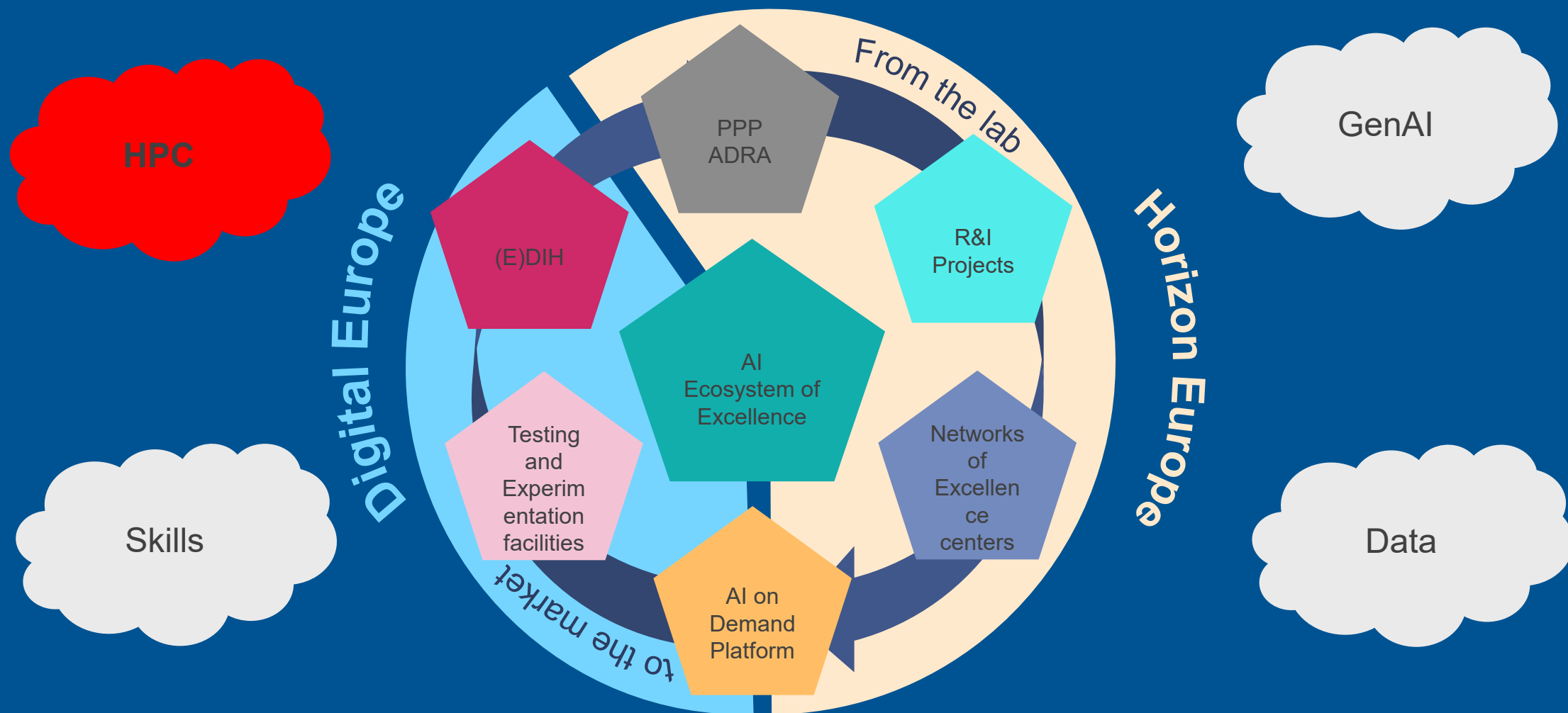
MID-RANGE



# **AI-GenAI/Data/Robotics**

# **Artificial Intelligence in Science**

# AI Innovation ecosystem: from Lab to Market





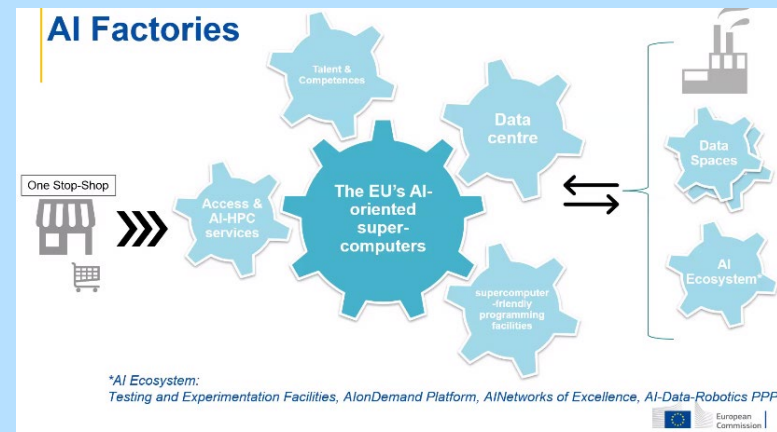
# AI innovation package



## Strategic Framework

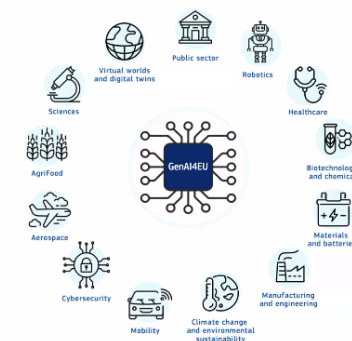
- 1 Upgrade EU supercomputers to AI capabilities and facilitate access
- 2 Increase availability of and facilitate access to high-quality data
- 3 Support algorithmic developments through R&I funds and encouraging private investments in startups and SMEs
- 4 Strengthen EU's talent pool by focussing trainings on AI models
- 5 Promote joint projects and implementation of models in key application areas

### AI Factories

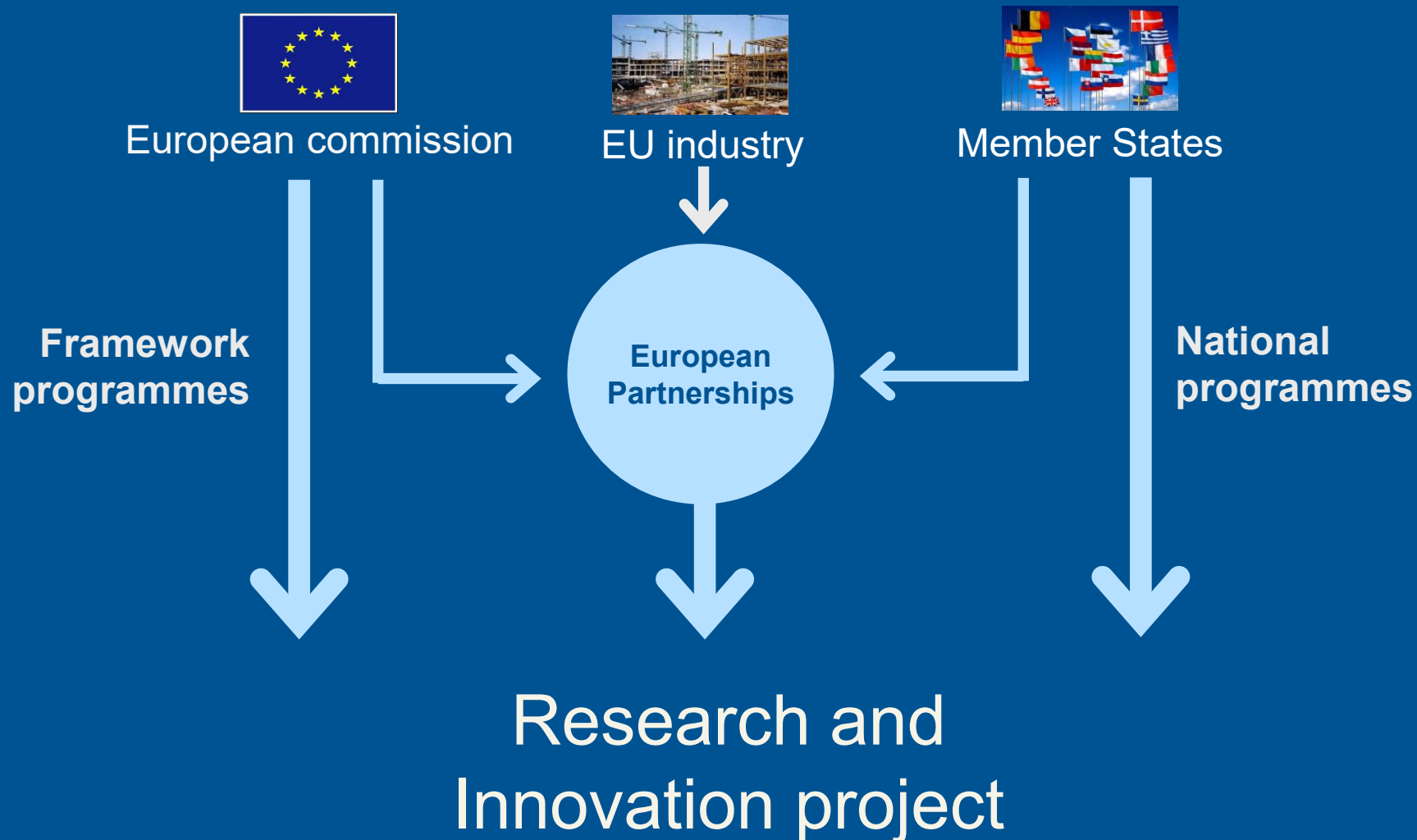


### GenAI4EU Initiative

- Stimulate widespread uptake of generative AI across the Union's *fourteen strategic industrial ecosystems*.
- Startups/innovators can work closely with industrial users, attract investments in the Union and have access to the key ingredients of AI - *data, computing, algorithms and talent*.



# European partnerships



# ADRA Membership

## Membership Benefits 1/2

- Access to a large network of ADR stakeholders (Industry, Research and policy makers). This facilitates match-making to enter e.g. EU project consortia
- Impact on EU research programs. As a unique contractual partner to EC, Adra is involved in writing the research programs of Horizon Europe concerning AI, Data and Robotics
- Participate to the authoring of the Strategic Research, Innovation and Deployment Agenda (SRIDA)
- Coordinated response through position documents and white papers to consultations, and policy documents
- Improved visibility at EU-level

# Annual membership Fees

Type of Organisation	Description (total number of employees)	Annual fee	Maximum Discount if member of Founding Organisations
Large Enterprise	>3000 persons employed	10,000.00 €	5,000.00 €
Mid-caps	250 – 3000 persons employed	5,000.00 €	2,500.00 €
SMEs	1- 249 persons employed	2,000.00 €	1,000.00 €
Research and Academia	>= 50 employees	2,000.00 €	1,000.00 €
Small research entity	<50 employees	500.00 €	250.00 €
Strategic members	Any size	3,000.00 €	NA
Start-ups	Any size (3 years)	250.00 €	125.00 €
Others	Any size	500.00 €	250.00 €

# Relevant partnerships/initiatives

- Quantum and High Performance Computing
  - [Partnership for European Supercomputers; Homepage - EuroHPC JU](#)
- Photonics
  - [Photonics21 – A Key Enabling Technology for Europe](#)
- AI-GenAI / Data / Robotics and Artificial Intelligence in Science
  - Partnership on AI, Data and Robotics: [Adra Association: Adra Strategic Research Jul24\\_v2-2\\_0.pdf](#)
  - [Commission launches AI innovation package](#)
  - [EU launches InvestAI initiative to mobilise €200 billion](#)
  - [GenAI4EU: Creating European Champions in Generative AI - European Commission](#)
- Other funding programmes
  - [Digital Europe Programme - European Commission \(DIGG\)](#)

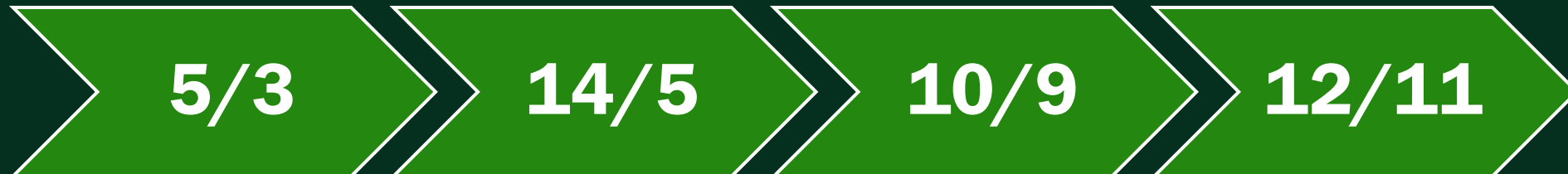
# Events

- [Quantum Horizons Conference](#): Science – Policy- Society, 7 May 2025, Gdansk
- [IQT Nordics](#) 20-22 May 2025, Gothenburg
- **Brokerage event** : [20 February 2025 09:00–18:00 ADRA Brokerage Event 2025 | Adra Association](#)
  - For the duration of the day, we aim to facilitate match-making and networking opportunities for the attendees. The event can boost your efforts in developing high-quality proposals **for upcoming HE WP calls**, to build consortia, and exchange ideas and experiences between experts worldwide.
- TBC: **Digital matching for cluster 4** (Digital part), 19th March afternoon with Austria, Belgium, Finland, Norway Netherlands
- **Cluster 4 Infoday from the commission**: The commission will organize an information meeting for Cluster 4 on 13-14 May: [online](#)
- Physical event to mobilize for WP2025 at Vinnova on 27th March 10.00-15.00 [Horisont Europa- Vilka möjligheter erbjuder 2025? | Vinnova](#)
- **Newsletter**:
  - [Vinnovas Nyhetsbrev för Horisont](#)
  - [Kluster 4: Digitala frågor, industri och rymd](#)



# Planing grant

- Who can apply?
  - Swedish organisations - academic actors, research institutes, public sector, civil society or SMEs ... who are planning to design an application for a research and innovation project for an international call
- < 300 000 SEK Plan to apply for an international call
- < 500 000 SEK Plan to coordinate an international project
- The identified international call must be published at the time of the application
- [Planning grant for international proposal 2025 | Vinnova](#)
- [Informationsmöte om planeringsbidrag inför internationell ansökan | Vinnova](#), 22 feb kl 14-15.00



# Digital fika - Pilots

- Upcoming Digital coffee cluster 4, Fridays 11.00-11.45, same link, no registration, in English
  - 21/2 Destination 5
  - Sport holidays
  - 7/3 Destination 6,
  - 14/3 Destination 1
  - 21/3 Destination 2
  - Send your feedback to [Jeannette.spuhler@vinnova.se](mailto:Jeannette.spuhler@vinnova.se)





# Tack!



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