

LUMI AI Factory

Vision

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CSC – IT Center for Science*

LAUNCH EVENT 2 APRIL 2025

EU promotes AI innovation

- European Commission launched the AI Innovation Package in January 2024 to support European startups, and SMEs in the development of trustworthy AI
- A series of competitive calls for AI Factory proposals – first seven announced in December 2024 and further six in March 2025
- AI Factory = **compute** + **data** + **talent**
- AI Factories focus on certain **AI ecosystems and communities** in alignment with **national AI strategies**



The EuroHPC AI Factories initiative – a one-stop shop to offer AI startups, SMEs, and researchers comprehensive support, including access to AI-optimised high-performance computing (HPC) resources, training, and technical expertise.

Empowering Europe's AI ecosystem

LUMI AI Factory



Our vision: To create a comprehensive and accessible service infrastructure that empowers AI start-ups, SMEs, academic researchers, and other public and private users to develop innovative AI models and applications.



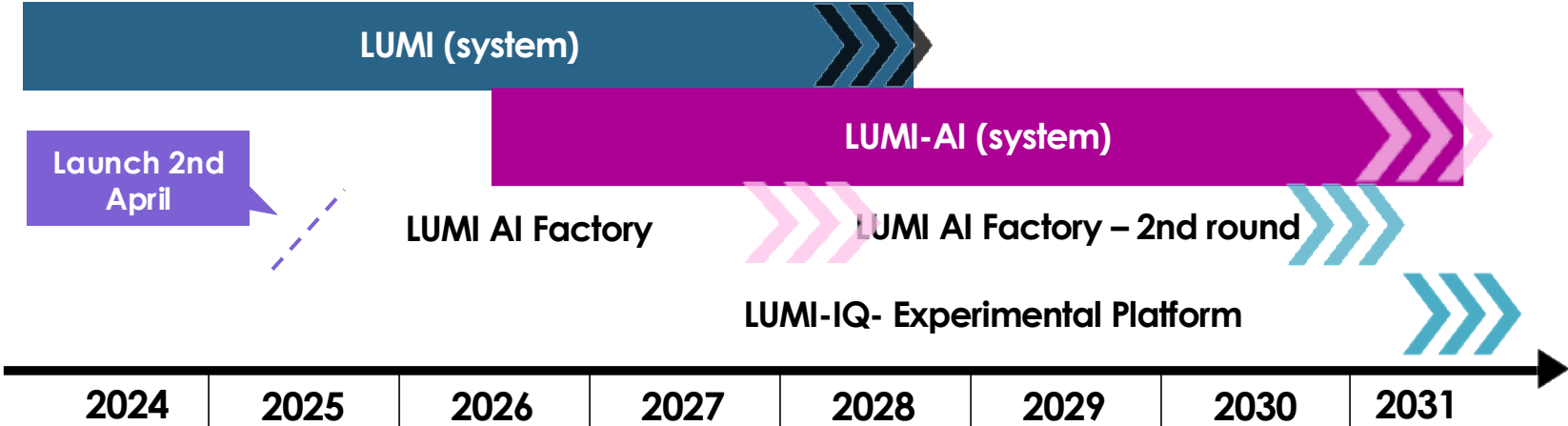
Leverage the established LUMI system, install a new AI-optimized supercomputer, and an experimental quantum computing platform for quantum-accelerated AI workloads.



Create a world-class computing environment and access to completely new data sources, together with a service center and talent pool to support the development of new AI solutions.

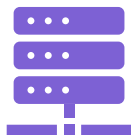
- The three pillars of LUMI AI Factory
 - AI-optimised supercomputer **LUMI-AI**
 - AI Factory **Service Center**
 - Experimental quantum-computing platform **LUMI-IQ**
- CSC (Finland) coordinates consortium with participation from Czechia, Denmark, Estonia, Norway and Poland
 - Other Finnish partners are FCAI (Aalto University, University of Helsinki) and AI Finland (Technology industries)
- Total budget over 612 million euros
 - EU 306.4 M€, FI 250 M€, CZ 11 M€, DK 10 M€, EE 5 M€, NO 20.4 M€, PL 10 M€
 - largest public computing ecosystem investment in Finland, among the largest in Europe
 - largest EuroHPC AI Factory investment
- Significant investment in talent and competence development

Timeline for the LUMI AI Factory



Services – data and computing

LUMI AI Factory



Computing capacity

- Massive GPU, AI inference, multi-tenant environment, fast storage
- Quantum capacity for AI through the LUMI-IQ experimental platform
- Fast lane for ambitious AI startups



Data access

- Cloud-like data environment
- Public and restricted data, dynamic data
- Datasets-as-a-service dataset hosting
- Data spaces and other infrastructures



Data support

- Data wrangling, MLOps
- Deep support for AI methods, scalability

Services – people and talent



Training

- Structured training paths for AI and HPC, tailored training for different domains
- Collaboration with AI centers



Co-working spaces and student facilities to nurture talent

- Main hub on grounds of Aalto University together with ELLIS Institute
- A distributed network connected to partner countries



Consultation (company focus)

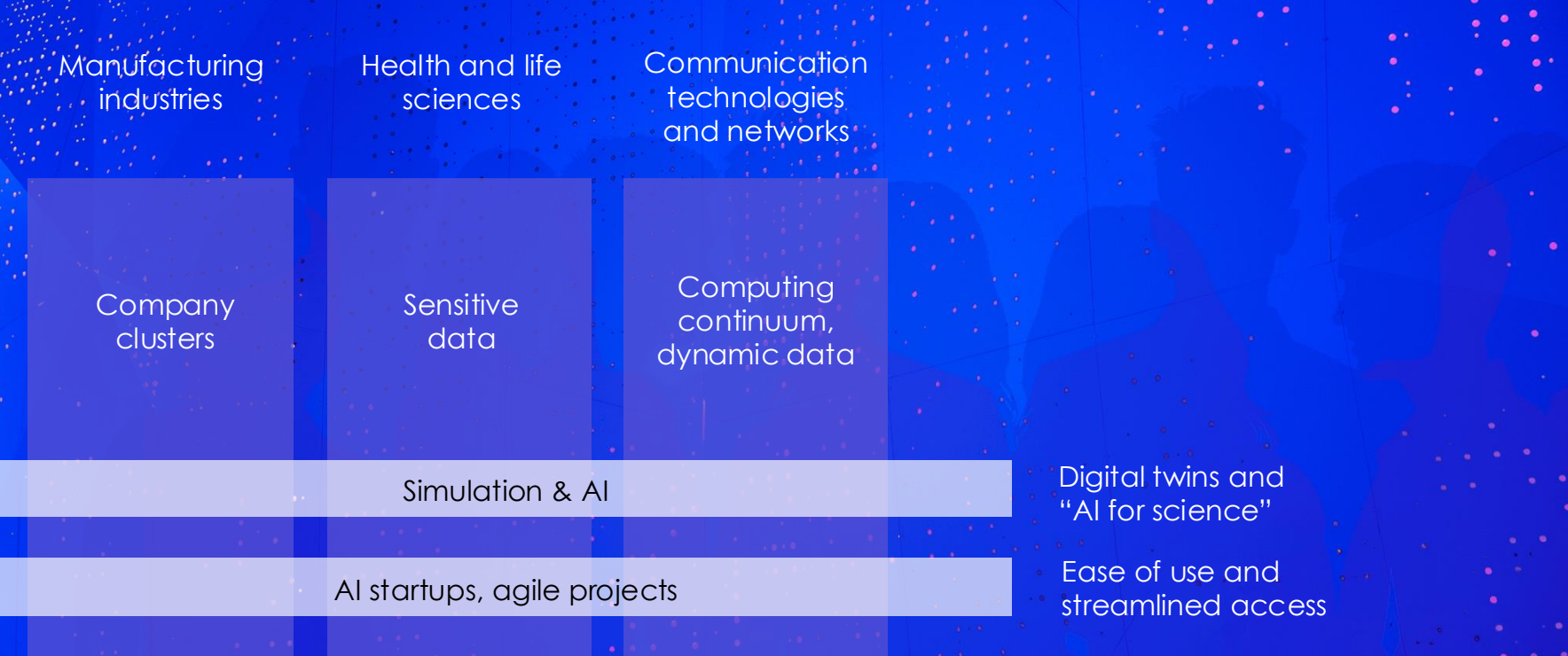
- Getting started, feasibility analysis
- Support in applying for large resources
- Trustworthy AI: regulatory consultation, compliance, sandboxes
- Ecosystem development



Focus on competence development

- Support both scientific researchers and industrial innovators to adopt AI methods on a large scale

Key industrial sectors and focus areas



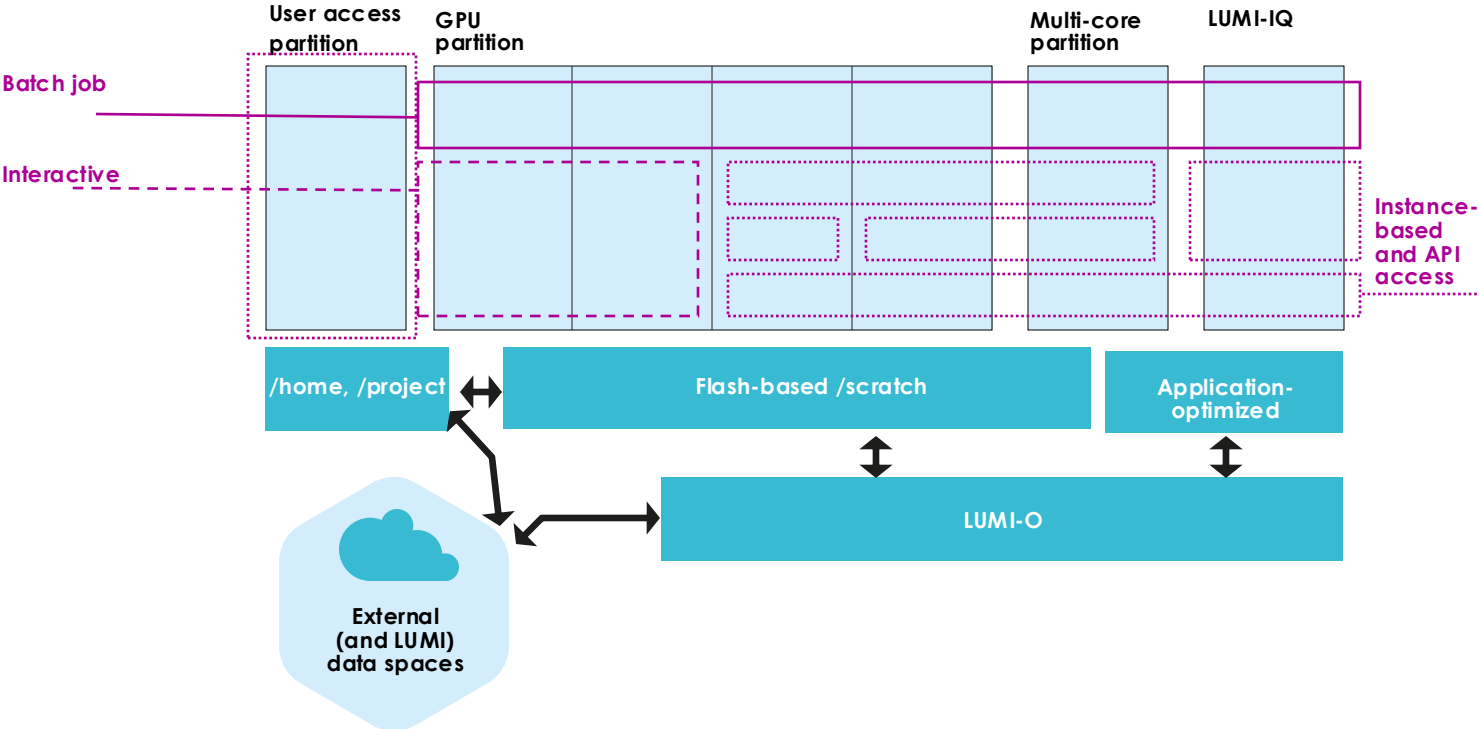
Digital twins and "AI for science"

Ease of use and streamlined access

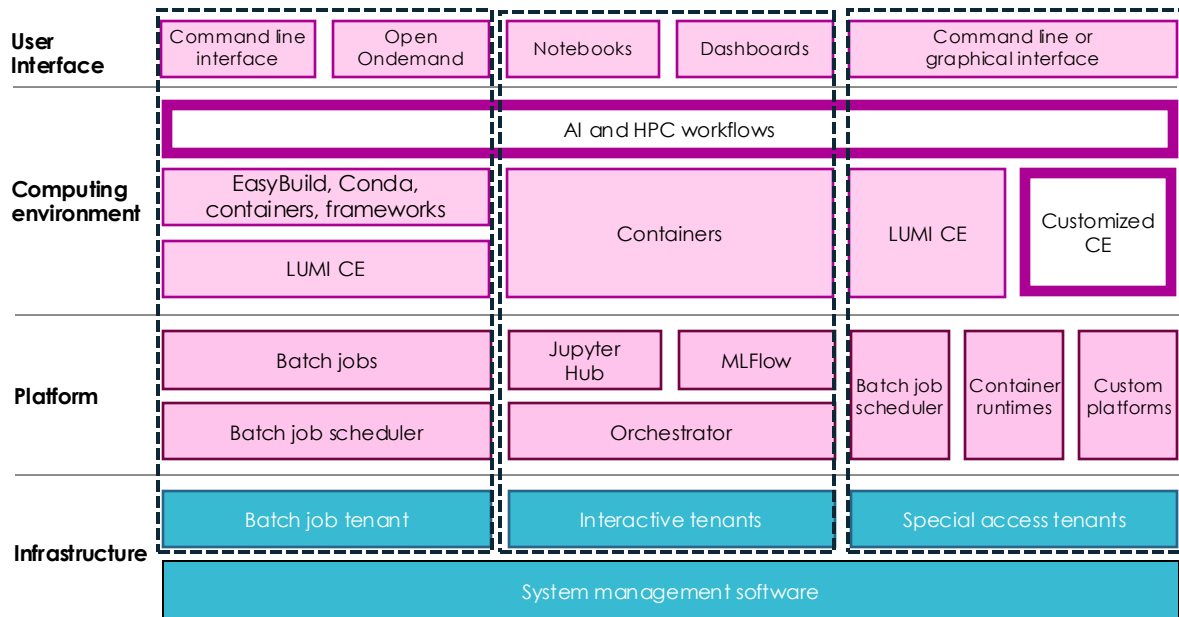





LUMI-AI
System vision

LUMI-AI system architecture

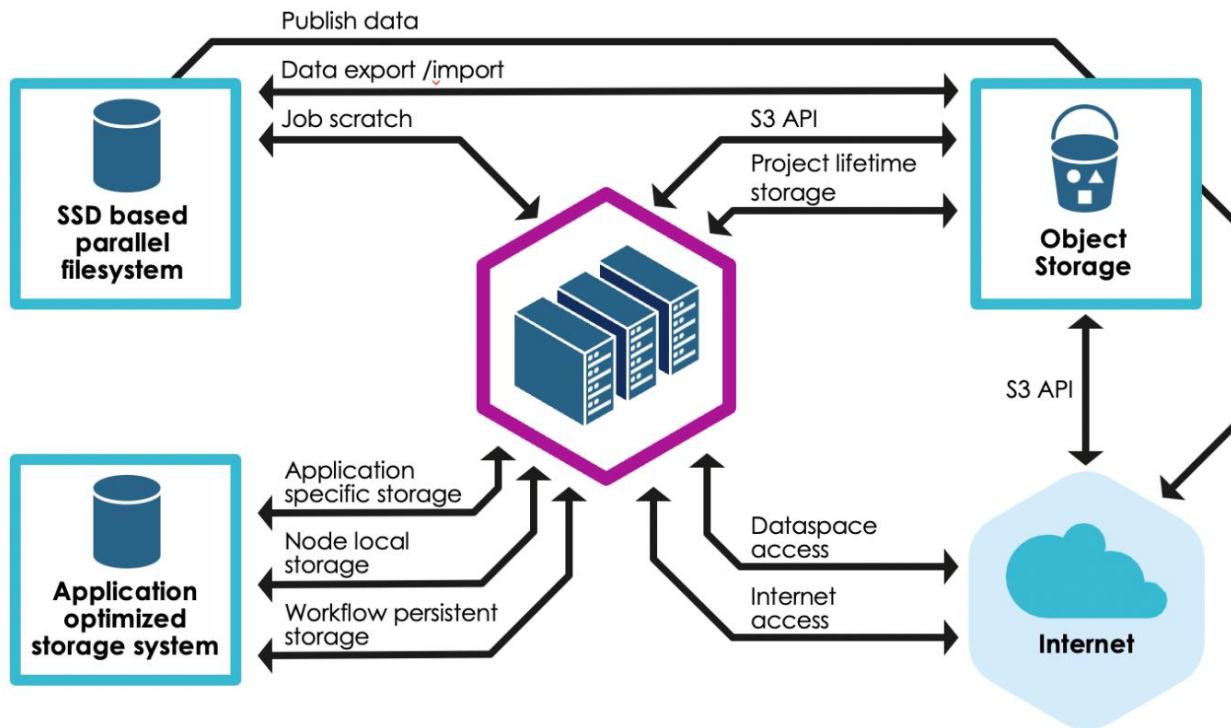


Software-defined clusters



-  Maintained by end users and user communities
-  Maintained by CSC platform admin team
-  Maintained by CSC infrastructure admin team together with vendor's team

Storage solution



LUMI-IQ

Advanced AI-Optimised
Experimental Platform

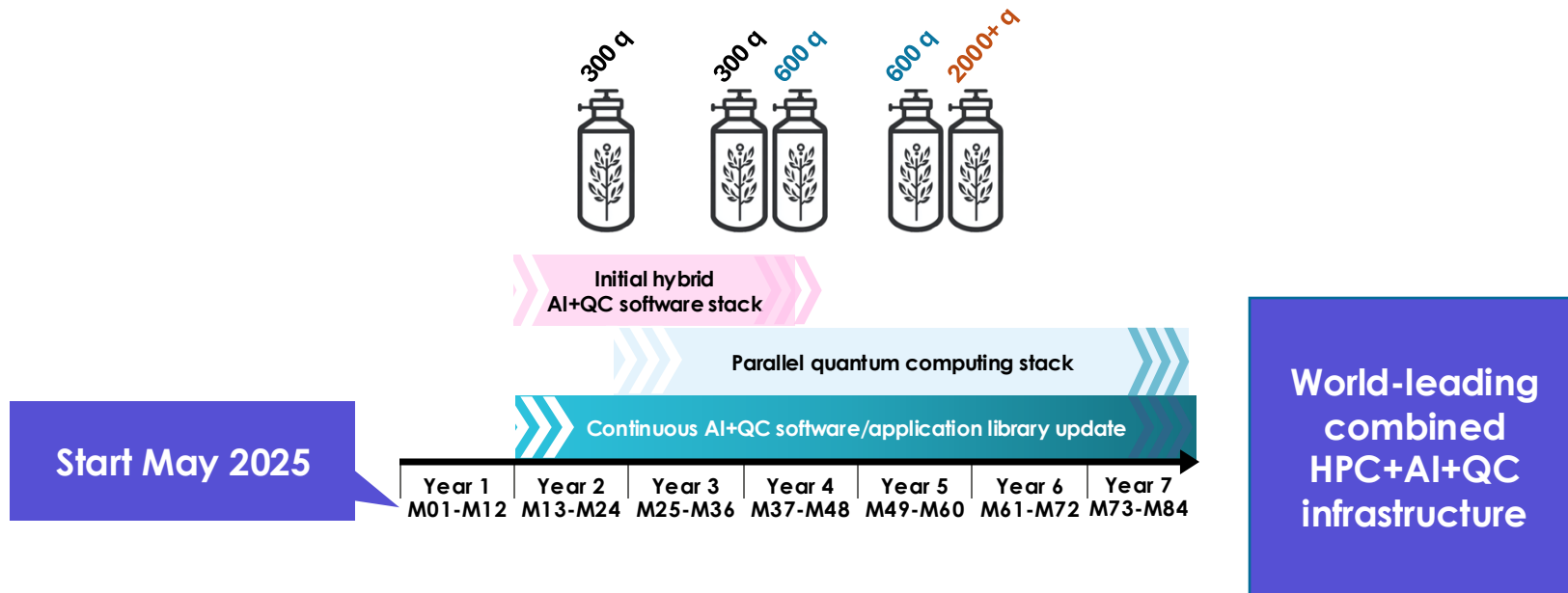
Goals of LUMI-IQ

LUMI AI Factory

- Set up a world-leading HPC+AI+QC infrastructure to serve all of Europe
- Provide a quantum advantage for AI
- Accelerate Europe's efforts to take a leading position in quantum computer hardware development
- Accelerate European academic leadership in quantum-accelerated AI
- Establish new high-value commercial activities

Timeline for the LUMI-IQ

LUMI AI Factory



3, 2, 1, launch!

LUMI AI Factory

- LUMI-AI + LUMI-IQ will be the most **advanced combined HPC+AI+QC platform** in the world
- AI Factory Service centre of ca. 100 people to for building the necessary competences for AI adoption
- Largest public AI investment in Finland, also in Europe
- Big step for serving **research, development and innovation** in Europe



LUMI AI Factory



EuroHPC
Joint Undertaking



EUROPEAN UNION
European Structural and Investment Fund

