Finland–Japan collaboration at CSC – IT Center for Science Finland

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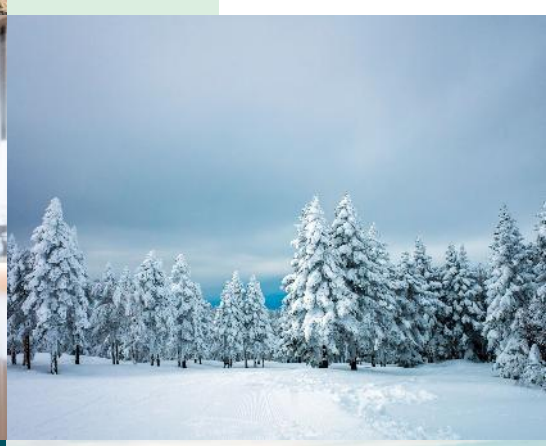
CSC in nutshell

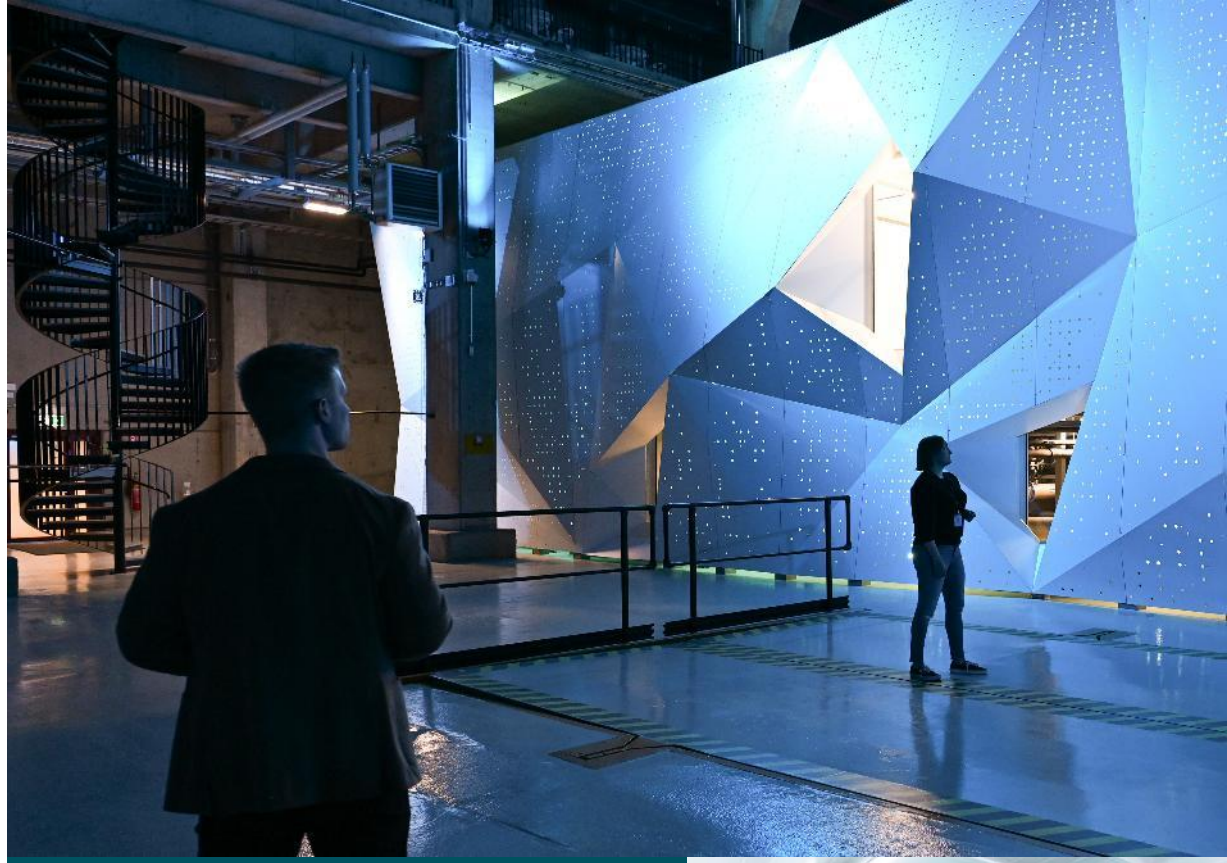
Our special expertise includes for instance research infrastructures, interoperability, and digital transformation	Business volume in was 2025 **98** million euros
Non-profit state enterprise with special tasks owned by the state of Finland **70%** and Finnish higher education institutions **30%**	One of the world's most eco-efficient datacenter in Kajaani
Over **700** employees in 2025	Our strengths are extensive national and international cooperation and sharing of expertise



Our competence is the platform on which our society researches, learns and remembers

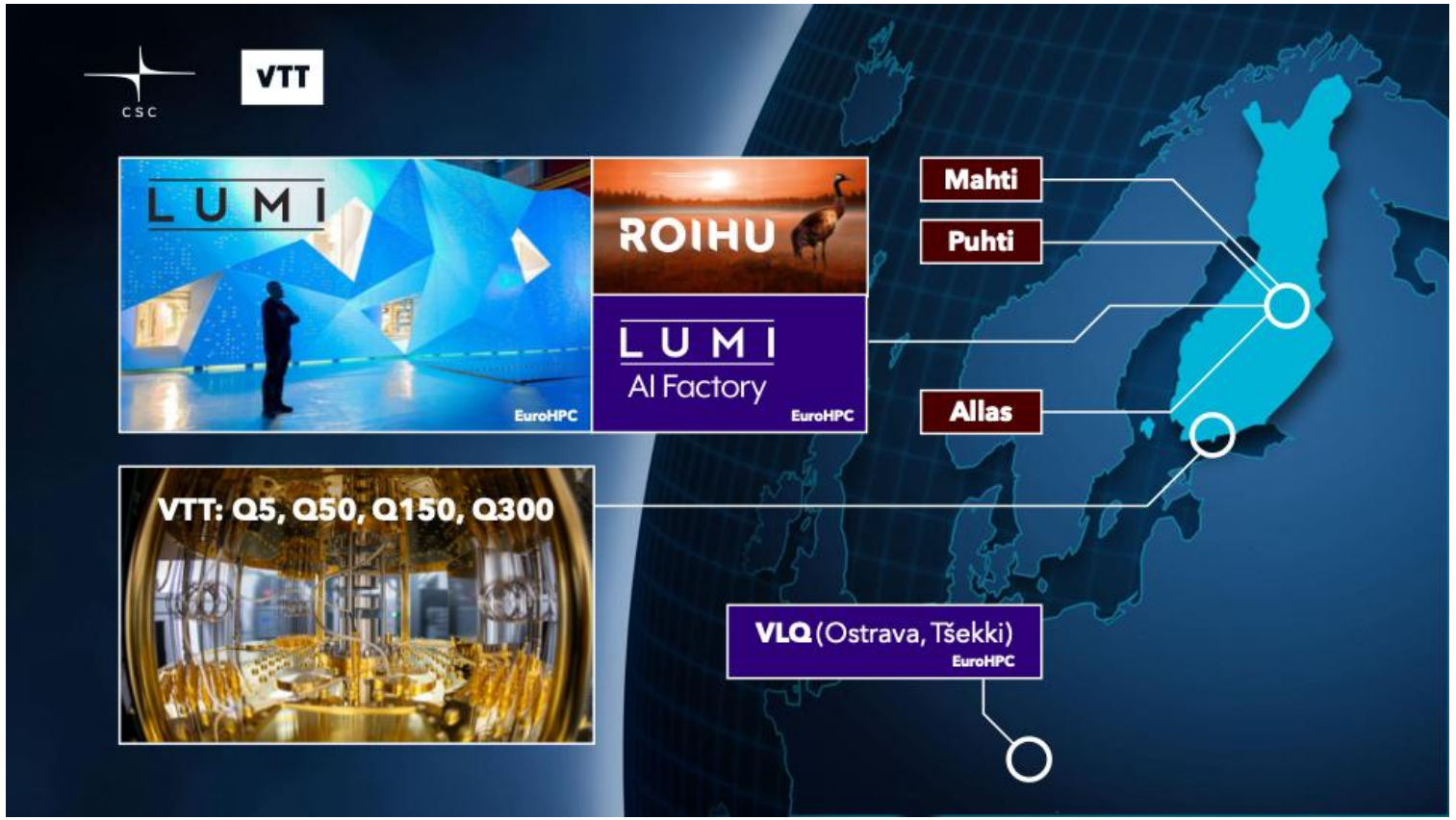
LUMI supercomputer

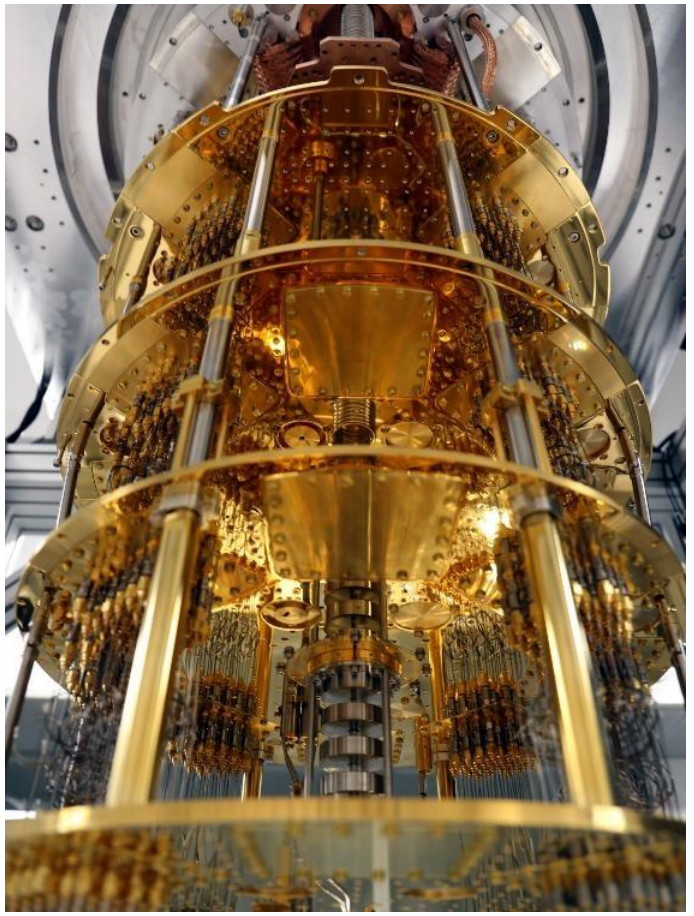
- **LUMI is one of the most powerful supercomputers in the world and the first system of the EuroHPC Joint Undertaking. It was inaugurated in 2022.**
- The LUMI consortium, managed by CSC, includes 11 countries. The total investment in LUMI was over 200 million euros, with Finland contributing one quarter of the amount.
- LUMI is connected to several quantum computers.
- Application areas include, for example:
  - Space research
  - Development of new medicines and vaccines – which would not be possible without high-performance computing
  - Research into new fuels and materials
  - Modeling of digital twins of the Earth, LUMI plays major role in initiatives such as Destination Earth



Over 3,000 projects have been running on LUMI

Building a national and international hybrid computing ecosystem





Strategic partnership with Japan

- CSC has established a strategic partnership with **RIKEN Center for Computational Science** via a **Memorandum of Cooperation**, signed initially in May 2022 and renewed in June 2025.
  - Collaborative activities and support for collaborations with other Japanese organisations
  - Green Data Centre operations, benchmarking of key applications, matchmaking of user group interactions
  - HPC-quantum integration
- Additionally, CSC's CEO Kimmo Koski participated in the **Finnish president Alexander Stubb's business delegation** to Japan in June 2025.

Facilitating research collaboration

- In 2023–2025, CSC provided support for **scientific collaboration projects** between research teams in Finland and Japan, funded by the Finnish Ministry of Education and Culture.
  - Utilizing the LUMI Supercomputer hosted by CSC.
  - Topics included developing HPC applications and studying Antarctic ice sheets, supernovae explosions and privacy-preserving deep learning.
- The projects fostered new collaborations with partners in Japan and boosted the impact and use of the LUMI Supercomputer.

Paving the way for sustainable funding

Since the launch of the scientific collaboration projects, the Research Council of Finland has regularly published a funding call on International Collaboration in high-performance computing.

Finnish researchers with collaborators in e.g. Japan are eligible to apply for the funding.

HANAMI in a nutshell

- EuroHPC Joint Undertaking-funded project to promote HPC collaboration between the EU and Japan. Consortium of 14 European and 10 Japanese organisations. Duration: 2024-2027. Budget: €5 million.
- HPC applications in **climate & weather, biomedical** and **materials sciences** combined with expertise in HPC and Artificial Intelligence – 7 thematic sub-projects.
  - Co-develop European and Japanese applications of interest within the priority domains, as well as performance measuring, testing and optimization for different architectures.
- Facilitates advances on the reciprocal access to EuroHPC and Japanese supercomputing resources for European and Japanese researchers – MoU between EuroHPC JU and R-CCS on HANAMI access to Fugaku in June 2025
- Building blocks for long-lasting collaboration – annual symposium; information, researcher & engineer exchanges; competence development
  - Next HANAMI Symposium to be organised November 2-5, 2026 in Levi, Finland.
- Designing a roadmap for sustainable EU-Japan HPC collaboration

Q-NEKO

- A flagship **EU-Japan Digital Partnership initiative**, funded by the EuroHPC JU and SIP 3 (Japan)
- The project brings together leading European and Japanese supercomputing centres, quantum innovators, and industrial stakeholders
- Strengthens Europe and Japan's leadership in **HPC+QC hybridisation**
- Supports the EU's EuroHPC and Japan's SIP themes on quantum applications for societal challenges
- 16 partners: 11 European and 5 Japanese organisations

- The project is building a **hybrid high-performance computing + artificial intelligence + quantum computing (HPC+AI+QC) ecosystem**, including real-world applications, software integration, benchmarking and pre-standardisation, reciprocal infrastructure access, and a joint EU-Japan roadmap.
- 3-year project: 1 Jan 2026 – 31 Dec 2028
- Coordinated by CSC and AIST (G-QuAT)

Q-Neko

EuroHPC Joint Undertaking

Co-funded by the European Union

The project is supported by the EuroHPC Joint Undertaking and its members including top-up funding by the Government of Japan.

Mutual benefits from closer collaboration

- Finland and Japan are like-minded countries with complementary strengths in addressing global challenges (via e.g. HE Pillar 2)
  - Supports scaling results beyond only one region
- Collaboration strengthens consortia and supports the internationalization of research groups
- Cross-access to world-class infrastructure and talent develops skills and competences, and enables system and service improvement
  - Highlighting the importance of in-person collaboration and mobility
- Joint projects and expert-level cooperation are instrumental in deepening and widening collaboration
  - Q-NEKO and HANAMI are examples of how a single project can produce benefits larger than the sum of its parts

Japan's association into Horizon enables

- Improved and sustained alignment on research interests
- Joint and systematic development of infrastructures and services
- Equal and unified roles and representation in projects, lowering administrative barriers
- Development of interoperability and shared standards