



EGI Future Strategy on computing for sciences

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TLP: WHITE Public

09-12-2025
e-IRG Workshop

A 3D rendering of several blue, stylized human figures standing in a circle, holding hands. The figures are rendered in a smooth, glossy blue material. The background is dark with some faint, glowing particles and a thin orange circle on the right side.

The combination of **national** e-Infrastructures and the **international** reach of pan-European e-Infrastructures underpins the collaboration that researchers need to operate at international level

European e-Infrastructures are strongly rooted in the in the innovation strengths of HEP



HEP has historically **driven the creation of advanced computing and data-management technologies.**

Today distributed Computing grids, high-speed networks, large-scale data processing frameworks and federated Trust and Identity are **foundational elements** of broader European Research Infrastructures.



EGI Federation in numbers (2024)

116,000+
users

2,800+
papers/
year

2 Exabyte
of data

170+
countries



3200+ Service end-points

200+ tickets & **100+** service requests/month

30+ security advisories, **+50** security vulnerabilities per year



Accounting



Helpdesk



CSIRT and security monitoring



Operations Coordination



Software validation



GOADB

A 3D rendering of a human pyramid, composed of numerous dark blue, stylized human figures standing on their shoulders to form a triangular shape. The figures are arranged in a grid-like pattern, with the top row having one figure, the second row having two, and so on, creating a sense of depth and scale. The figures have orange highlights on their necks and chests.

Building on the shoulders of giants

Digital Sovereignty



Built European, Governed European

25+ member countries
EU-headquartered foundation
Non-commercial research mission



Open by Design, Secure by Default

Open-source technology stack
No vendor lock-in
ISO-certified operations
GDPR compliant



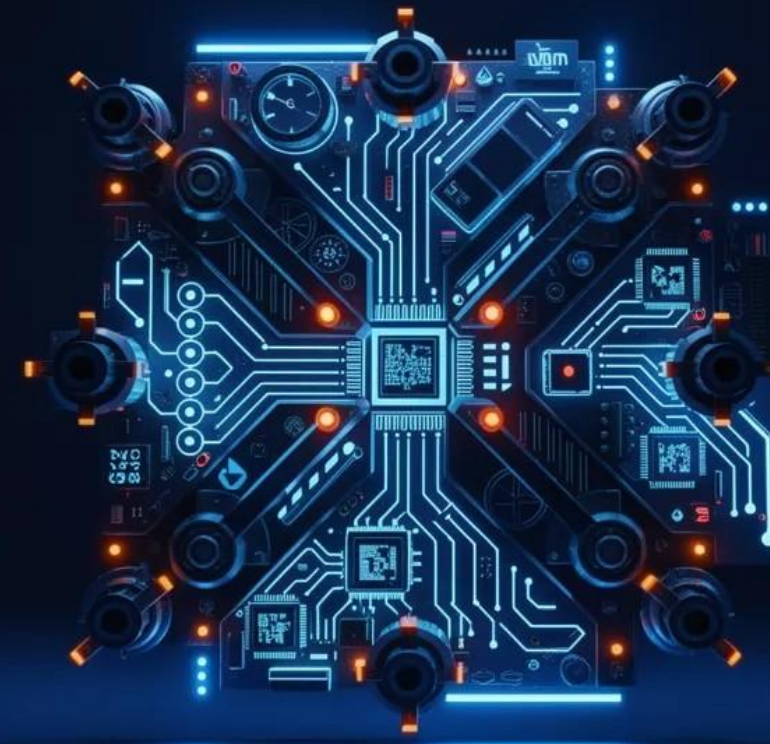
Global Reach, Controlled Boundaries

Control on where data is processed
Federated multi-jurisdiction control
Trusted Research Environments
Cross-border access, local control

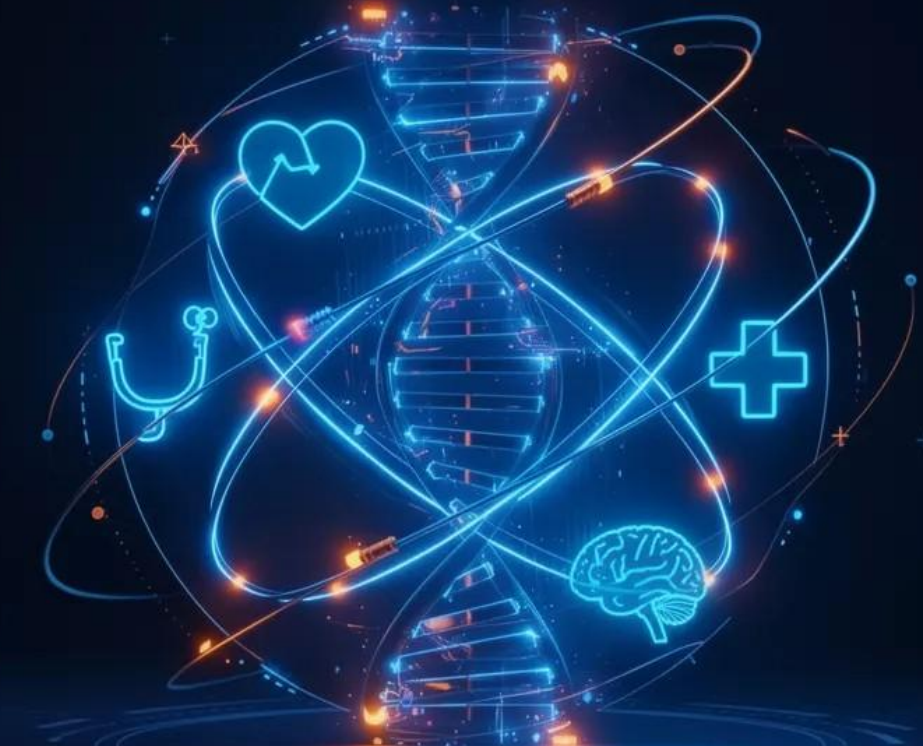
From HEP to All Scientific Domains



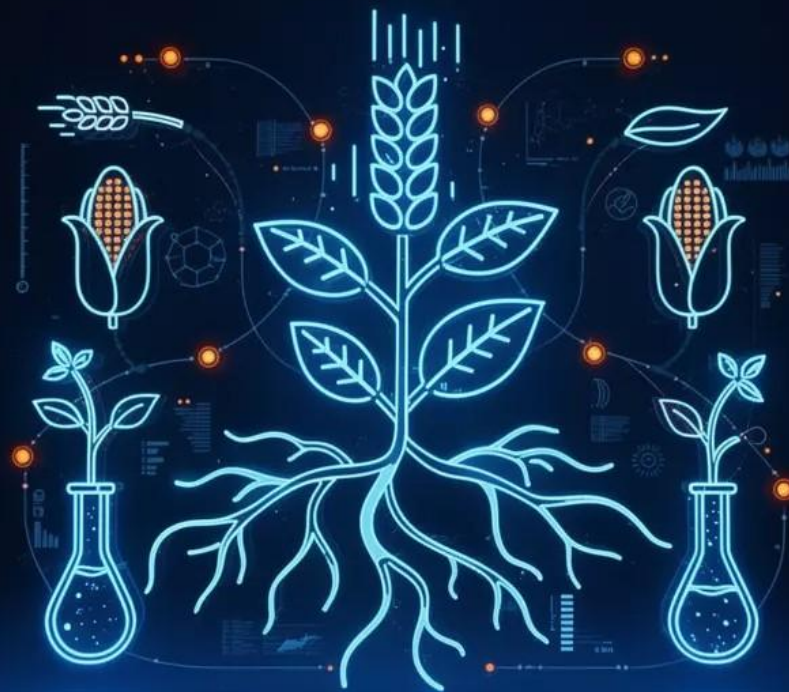
Natural Sciences



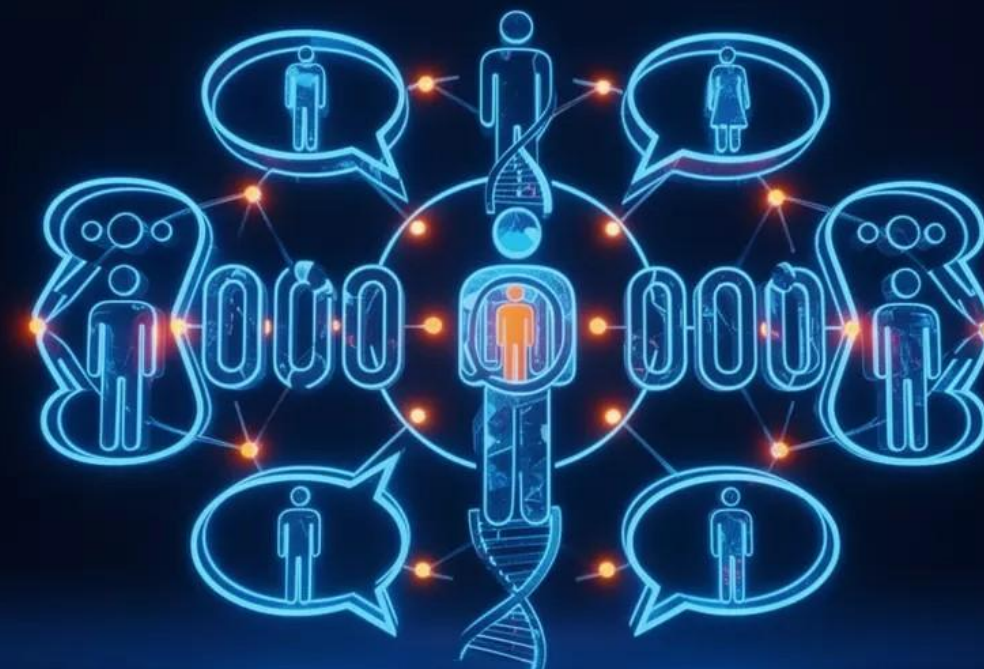
Engineering and Technology



Medical and Health Sciences



Agricultural Sciences



Social Sciences

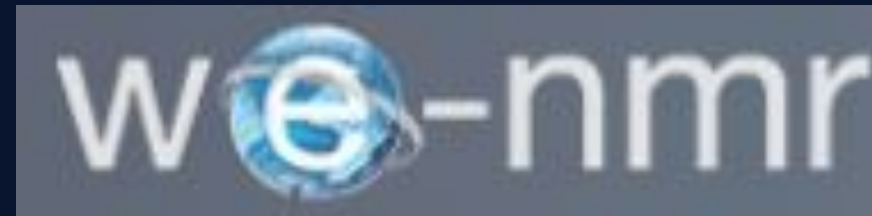


Humanities



Today 40 Research Infrastructures participate in EGI

JUNO



OPERAS



AnaEE
eLTER

SIOS

LHC

ENES

ACTRIS

IAGOS



CMEMS

EMBRC

BBMRI

ANTARES

ICOS-ERIC

EISCAT-3D

Eurobioimaging

EMODnet



JERICO-RI

MeerKAT

VIRGO-EGO

RIs in R&D Collaborations

MoUs and SLAs



Supported RIs

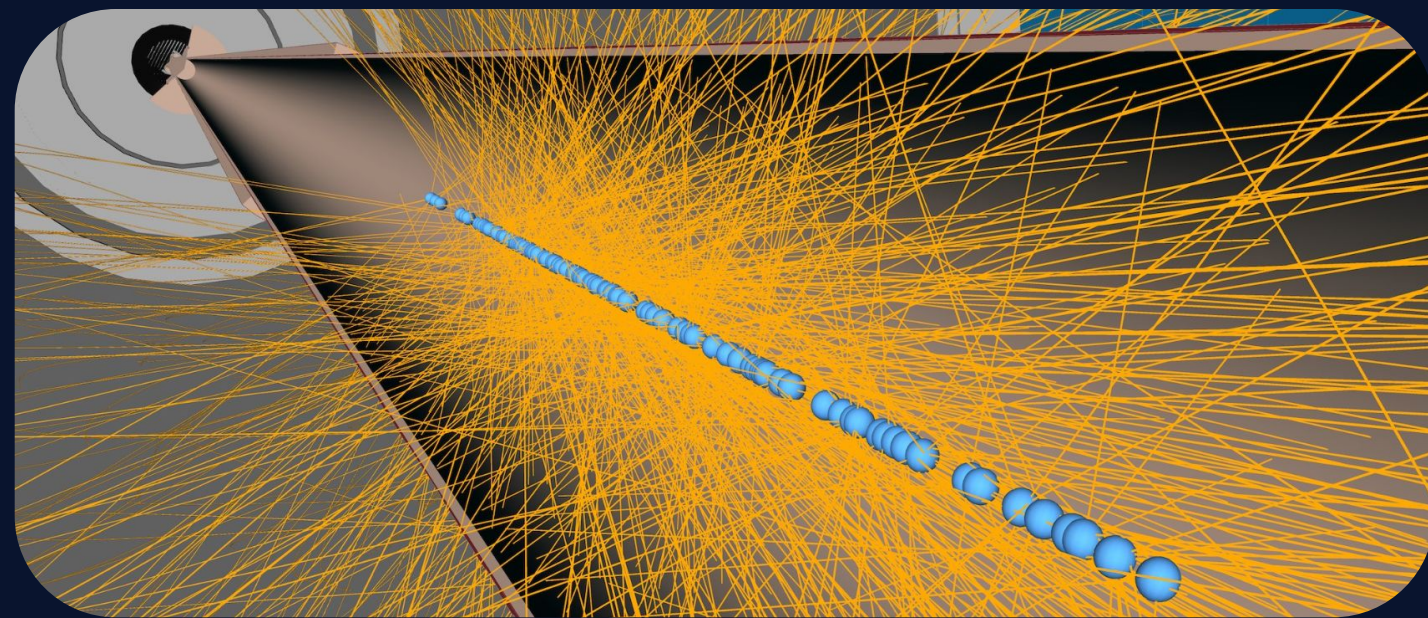
A 3D rendering of a group of stylized human figures in a dark blue color with orange highlights. The figures are arranged in a circular formation, holding hands, and are set against a dark background with a subtle pattern of small white dots and a faint orange circle on the right side.

EGi Federation towards 2030

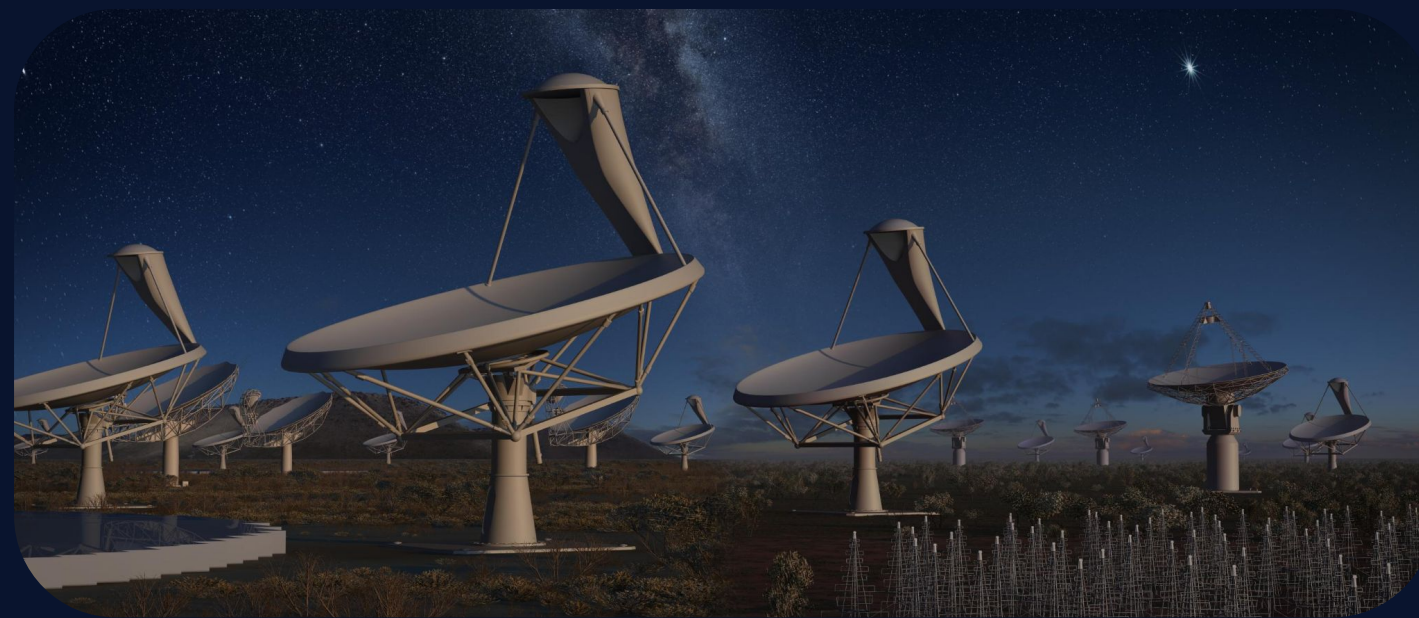


The Exascale Challenge: A New Era for Science

High-Energy Physics and Radio Astronomy are entering the Exascale era, driven by next-generation instruments



High-Luminosity Large Hadron Collider (HL-LHC)



Square Kilometre Array (SKA)



LOW Frequency ARray (LOFAR) 2.0

Volume

Exabytes of data requiring storage and analysis

Velocity

Data generated at terabytes/petabytes per second, demanding real-time processing

Variety

Complex, heterogeneous data from millions of sensors or thousands of antennas

A game-changer for ATLAS physics

GN2's powerful new approach is already making a real difference in how ATLAS measures and explores the building blocks of matter. In the [most recent di-Higgs analysis](#), GN2 improved the measurement of the crucial signal strength parameter by 20%. GN2 is also expected to significantly improve the sensitivity of precision studies of rare Higgs boson interactions, such as its [coupling to charm quarks](#), which demand highly accurate identification of b -jets and c -jets. These extremely challenging measurements lie at the heart of the ATLAS Collaboration's [future physics programme](#). Moreover, GN2 will play a key role in the search for new particles that interact preferentially with bottom and charm quarks.

A new era of jet flavour tagging has arrived, and it promises to be even more beautiful and charming than ever before!

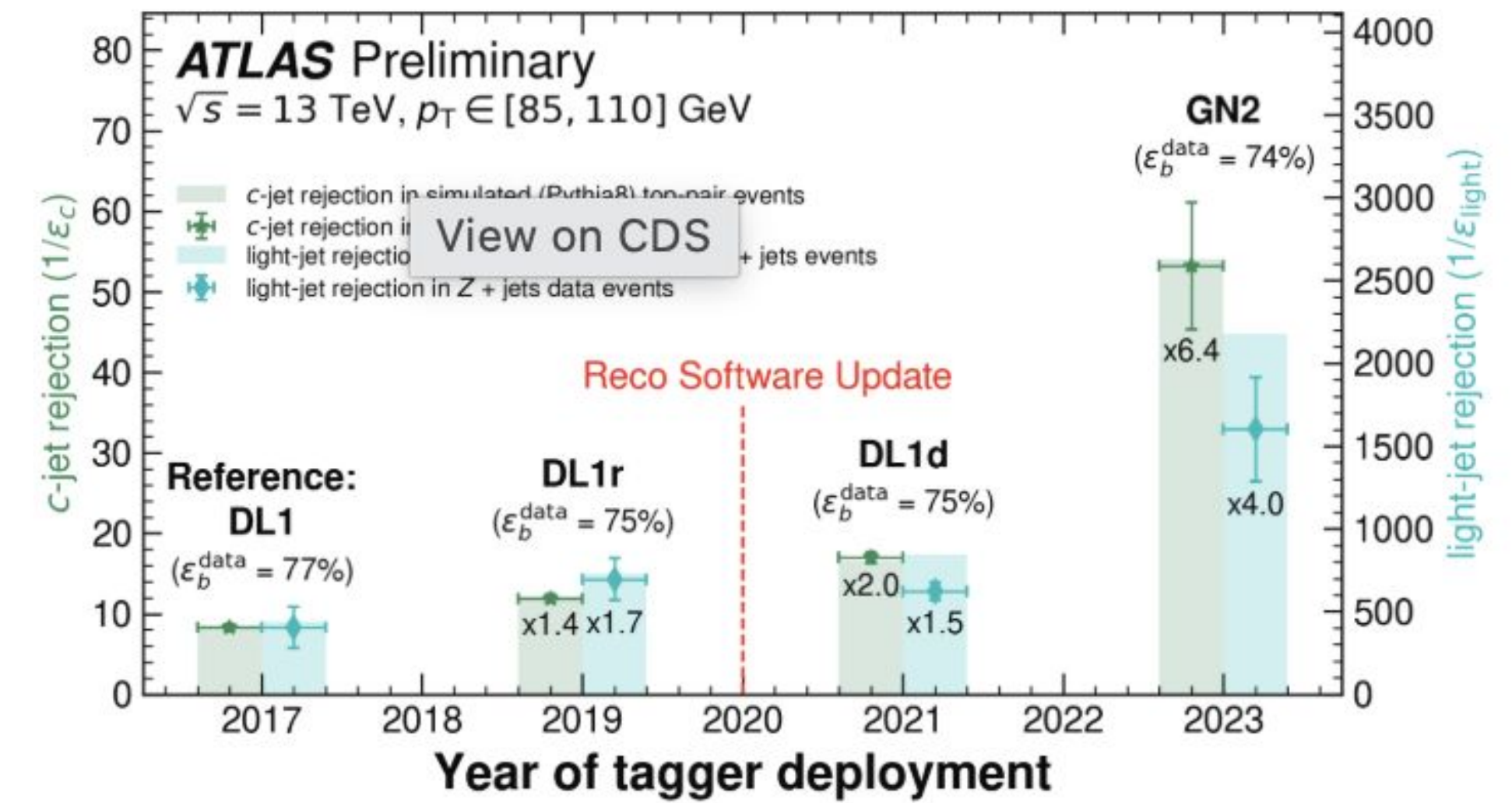


Figure 3: Evolution of the improvement of flavour tagging algorithms. Data points show the rejections (defined as the inverse of the mis-tagging rates of c - and light-jets) measured by the calibration analyses with their uncertainties, using top-pair events for b -jets and c -jets, and $Z + \text{jets}$ events for light-jets. Measured b -jet efficiencies are also outlined in the plot. (Image: ATLAS Collaboration/CERN)



A shared vision for future data-intensive science A Technical Blueprint for a European compute and data continuum.



S SPECTRUM

Webinar

**Public Consultation:
Technical Blueprint
SRIDA**

December 12th 11:00 CET

spectrumproject.eu 01

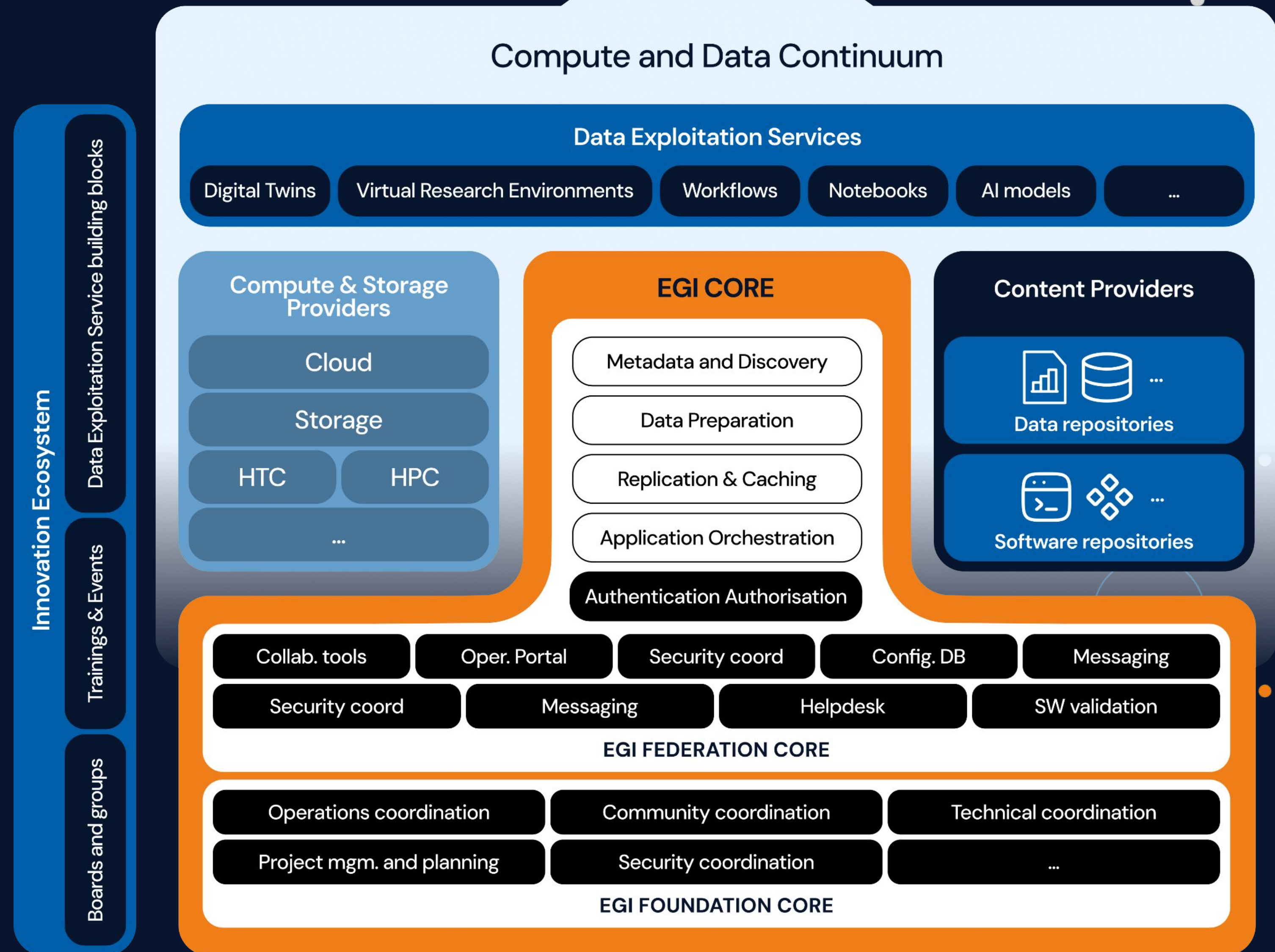
The poster features a background image of a modern, brightly lit hallway with a high, vaulted ceiling and people walking. The text is overlaid in white and blue.



Towards the Data and Compute Continuum

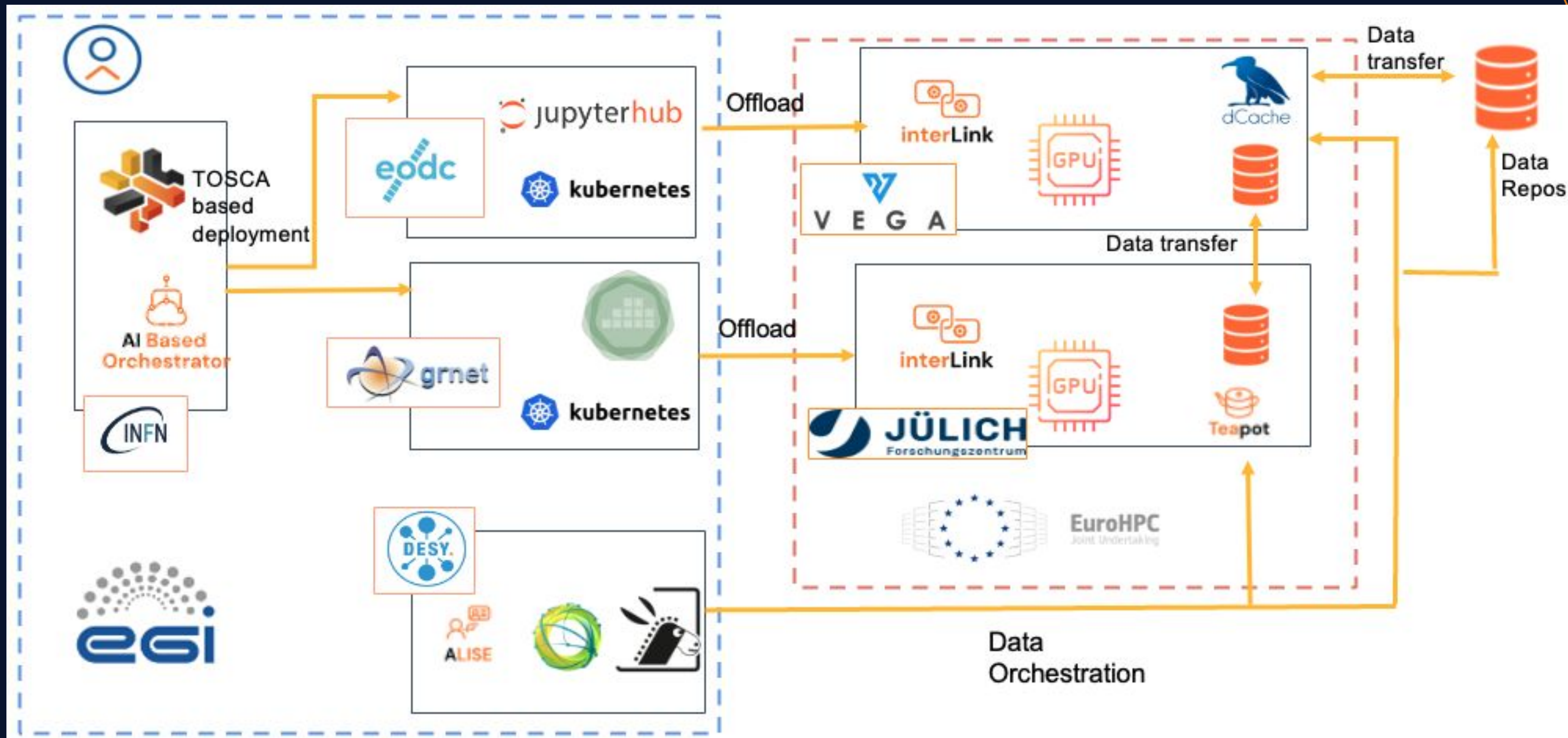


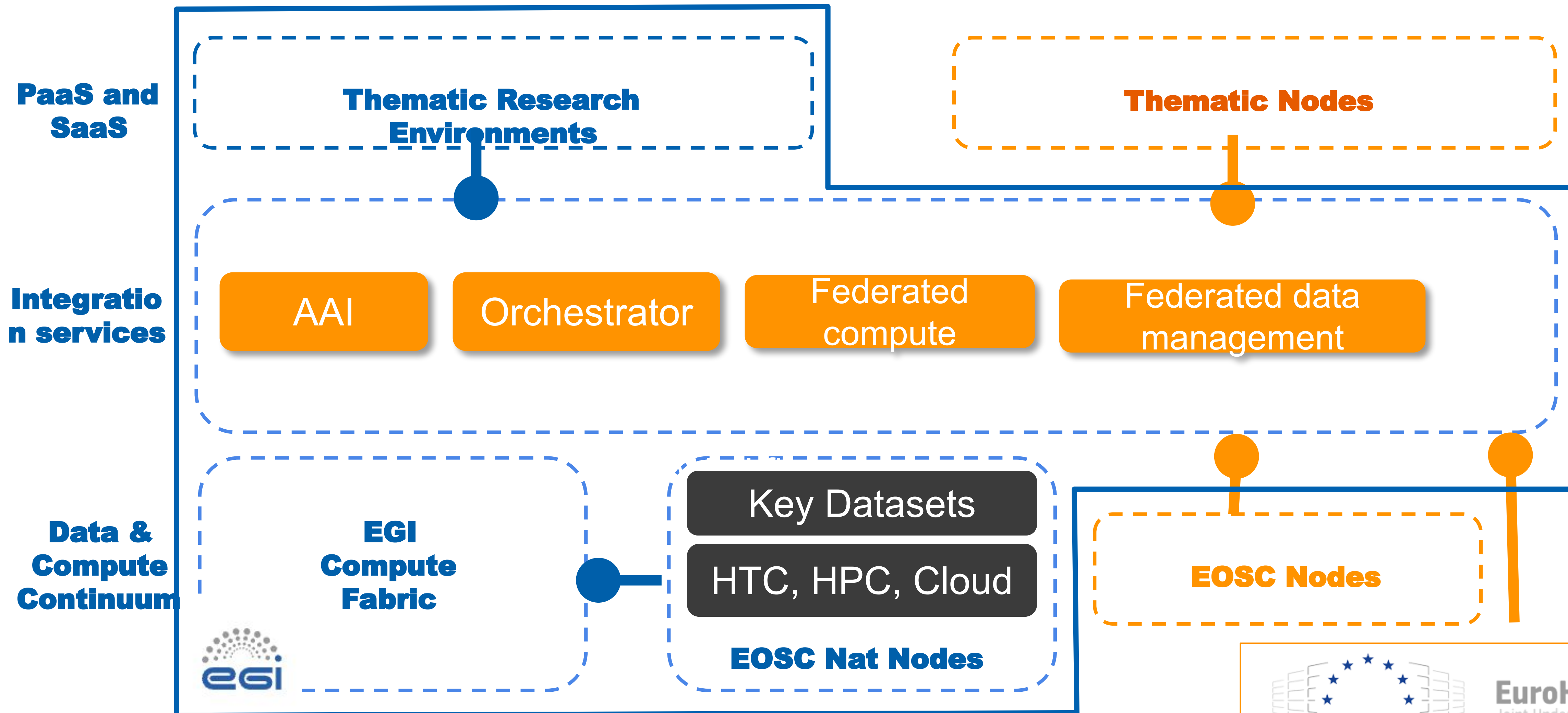
EuroHPC
Joint Undertaking



Showcase: the interTwin Project

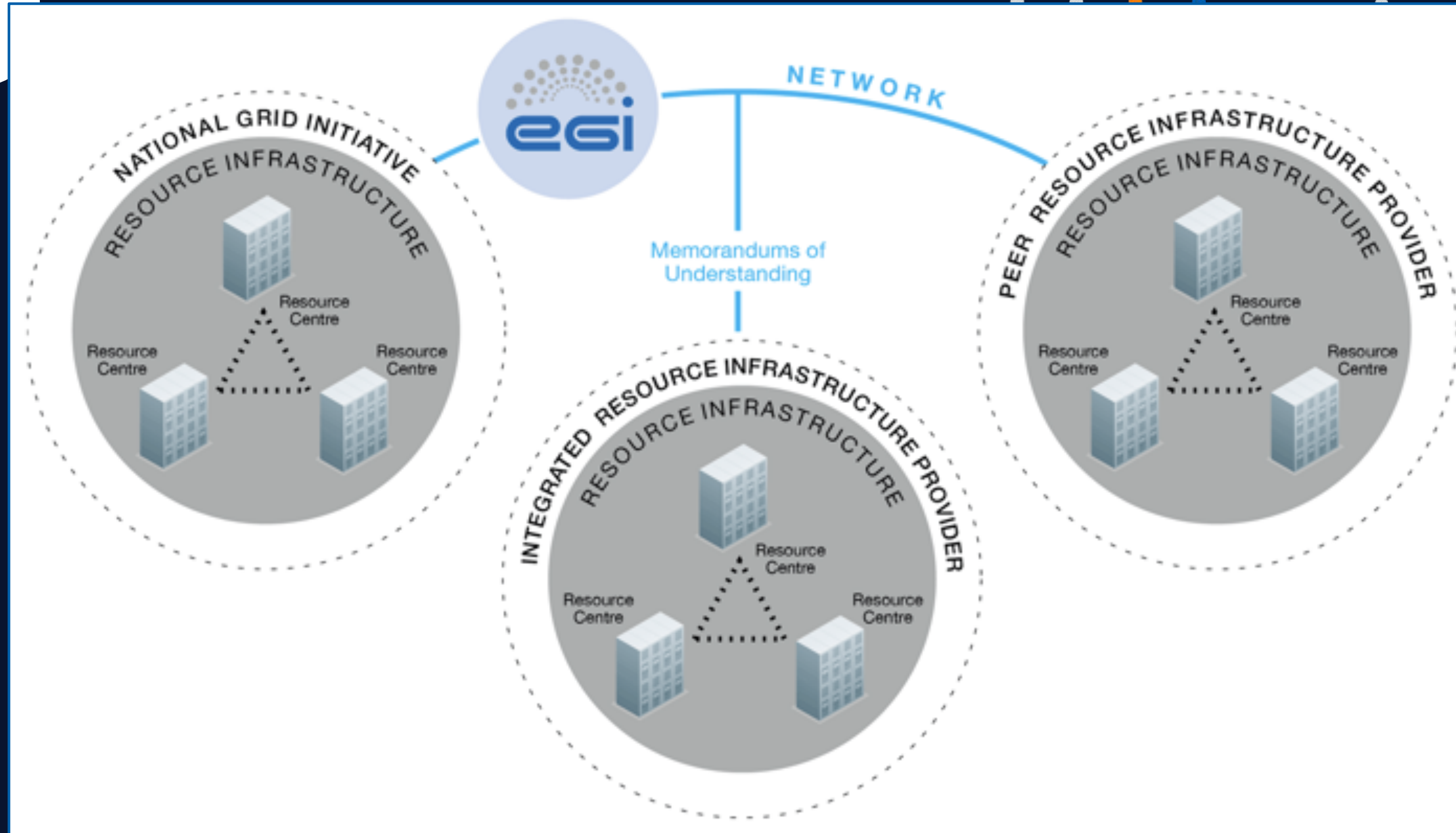
See also: <https://doi.org/10.1051/epjconf/202533701296>







A world-wide system of infrastructures



Latin-American
Center for
Physics





EGI towards 2030

Powering the EGI Federation

Purpose:

Enable a trusted federation of a European data & compute continuum

Required Evolution:

Expand federation capabilities to **integrate data and new compute providers**

Enabling Cross-Border Scientific Computing

Purpose:

Provide seamless access and value-added services in the AI-ready compute-data continuum

Required Evolution:

Deliver AI-ready continuum with improved funding models for **cross-border access** at scale and domain-specific exploitation platforms

Enabling Sustained Innovation

Purpose:

Coordinate collaborative R&I through connected communities and aligned funding

Required Evolution:

Increase R&D and co-design with research communities

Establish participatory innovation that persists beyond project lifecycles



RAISE: The Resource for AI Science in Europe

Strategic Objectives for RAISE Partnership

- 1 AI Models as a Service**
Pool compute, data, and expertise across disciplines and research-performing organisations with thematic Research Infrastructures
- 2 Coordinate AI Training & Support**
Build capacity for distributed model training, fine-tuning, and model serving across research communities
- 3 Facilitate AI-Ready Data Access**
Enable medium-scale model training and tuning leveraging EGI's federated data infrastructure
- 4 Contribute to RAISE Governance**
Support coordination of AI capabilities for science across Europe through RAISE Secretariat participation

The mission of e-Infrastructures into Europe's essential federated AI-ready compute-data continuum for research communities, where innovation and investment compound for pan-European impact

**EGI Federation needs to be ready for the
exascale era**

**Research Communities are driving the
technical definition of a data and compute
continuum blueprint and the EGI Strategy
2026–2030**

e-Infrastructures, EOSC and EuroHPC is key