# After the Architecture: Who Governs the Federation?

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# LUMEN in numbers

20 partners
10 EU countries & the UK
About 90 persons involved
4 scientific domains
2025-2027: now just past halfway



# LUMEN objectives: building a shared, cross-disciplinary ecosystem



Create a shared and collaborative cross-disciplinary knowledge and data exchange space



Facilitate early stage of the research lifecycle by enhancing specific tools and services

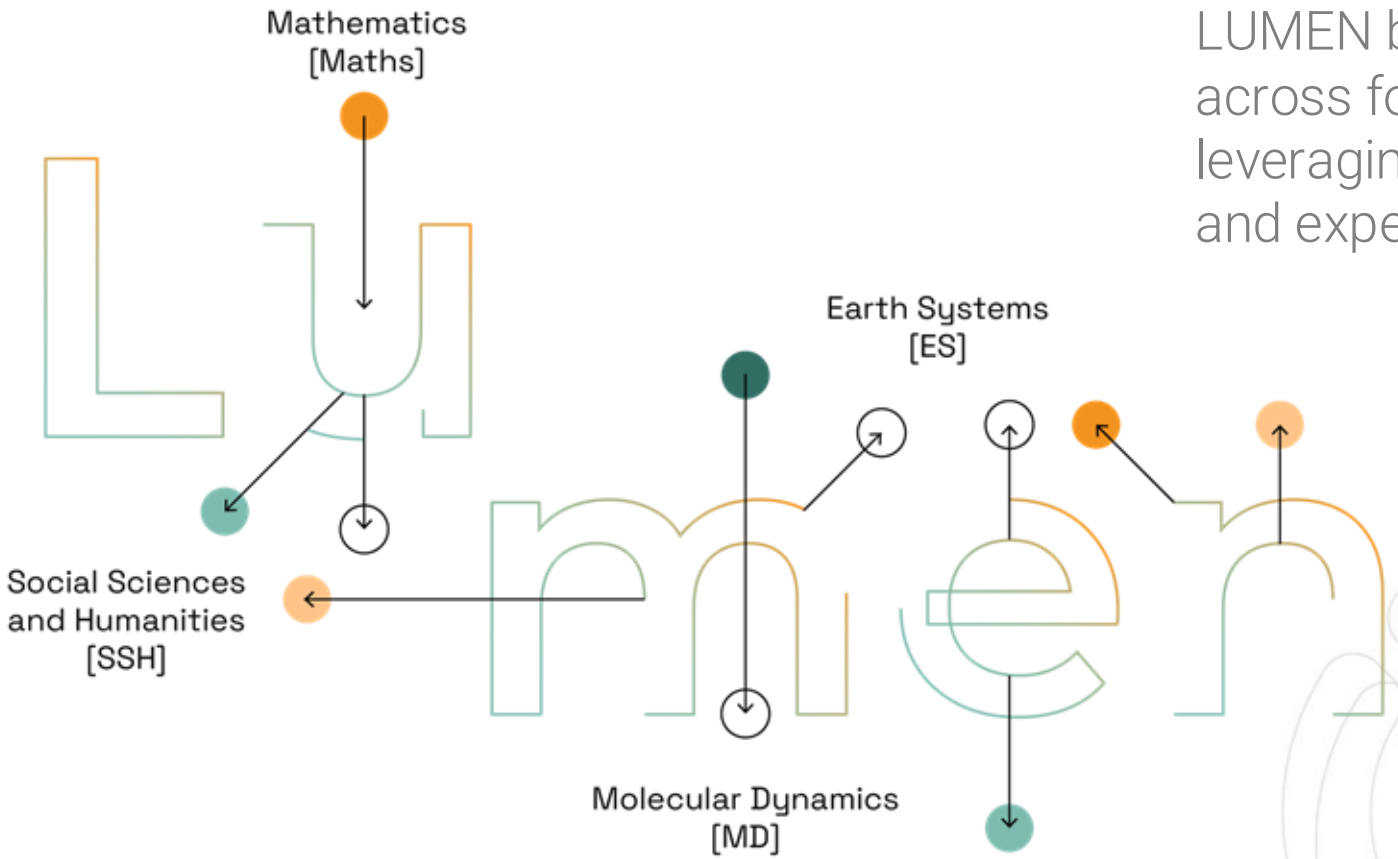


Support the production of FAIR-by-design research outputs



Enhance the qualitative discovery of research outputs by establishing an ecosystem of innovative features

# 4 scientific domains at the heart of LUMEN




LUMEN brings together scientific communities across four domains in a federated collaboration, leveraging their unique strengths, infrastructures, and expertise.

# Where PUBMET 2025 left off

- Last year, the LUMEN team presented the LUMEN data mesh architecture framework: connected communities, a common discovery infrastructure and federated data-sharing governance, with data products and data contracts as key mechanisms.
- Federated data-sharing governance was defined as one of its three architectural layers, but its roles, rules and processes were not yet fully formalised.
- Our work now is to operationalise this federated data-sharing governance layer, while also addressing institutional mandates for participation and decision-making, and aligning LUMEN governance with the EOSC landscape.

LUMEN D4.1 Data Mesh Architecture Framework
https://zenodo.org/records/15752126

# Three layers of governance complexity

LUMEN promise: build a shared, cross-disciplinary ecosystem of federated communities for data-driven discovery and exchange.

Starting premises: governance builds on the project's predefined architecture, the sustainability arrangements of each KER, and a federated model combining shared rules with platform autonomy.

Working approach: take each KER through exploitation, sustainability and governance, then look across the portfolio for recurring patterns and connections — and reassemble the federation-level picture against the project promise.

Those recurring governance questions form the three-layer analytical framework:

- Institutional: partners of different natures, each with its own decision-making structure
- Component-level: a set of outputs, each with its own owner, users and sustainability trajectory
- Infrastructural: EOSC requirements that carry their own governance logic

# Institutional: who owns, operates and decides?

- Participation in the consortium does not automatically mean authority to commit an organisation beyond the project end.
- Community representatives can help shape federation-wide rules, but their institutional mandate needs to be formally established.
- For each result, the institutional roles and responsibilities — from decision-making and hosting to technical, service, community and federation functions — have to be identified and assigned.

# Component-level: what is being governed?

- LUMEN currently works with four key exploitable results (KERs): the white label discovery platform (including an AI-powered discovery assistant, metrics service and advanced visualisation tools); the federation of platforms (including the data mesh and interdisciplinary meta-search); LUMIS – LUMEN infrastructure for semantics; and the EOSC innovation centre.
- These are different kinds of results, with different structures, dependencies and sustainability trajectories.
- Value needs to be considered at three levels: each KER, combinations of KERs, and LUMEN KERs as a whole. Governance therefore has to address both individual results and the relationships that make them a federation.

# Infrastructural: EOSC adds its own logic

- EOSC integration brings requirements around technical compatibility and an onboarding route.
- These requirements imply roles and responsibilities that do not always map onto how academic communities organise themselves.
- Which EOSC node and on what terms remains an open question.

# Building it iteratively

- A cross-institutional governance task force meets regularly to work through open governance questions and will develop federation-wide rules.
- A separate cross-WP stream connects technical and non-technical governance and EOSC integration; data contracts are one concrete example.
- The scientific domain committee brings in the perspective of the scientific communities and helps test questions around governance, data sharing and representation.
- We also work result by result, linking exploitation, sustainability and governance.
- LUMEN consortium meetings and innovation prototyping labs (IPL) bring these strands together and help us build the federation-level picture.

# What we would like from you

- Have you seen good examples of federations that have successfully balanced shared governance with community autonomy?
- What are we missing — risks, blind spots, or problems we have not encountered yet?
- Who would be interested in continuing the discussion with us as a sparring partner? Join us at innovation prototyping lab 3 (IPL3) in March 2027!

# Thank you!

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