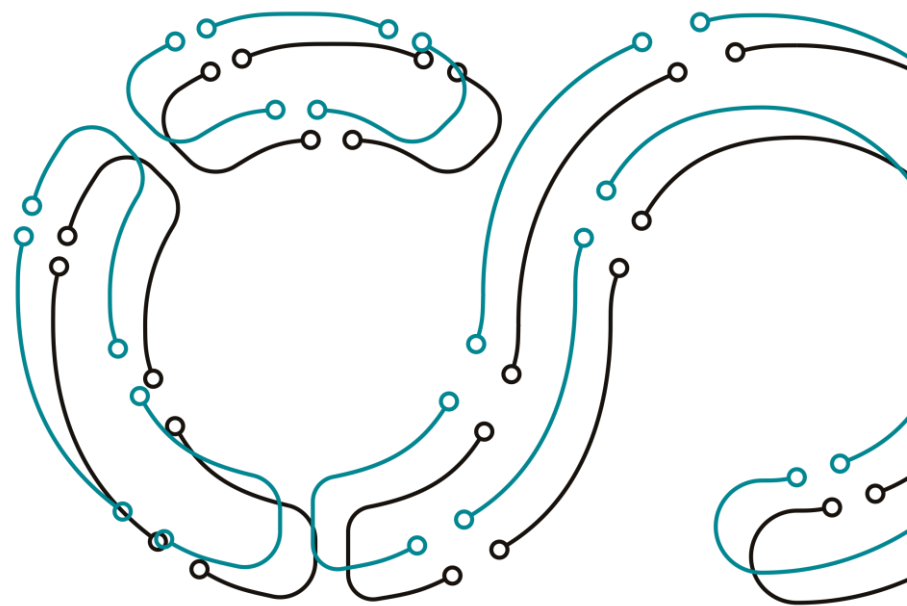




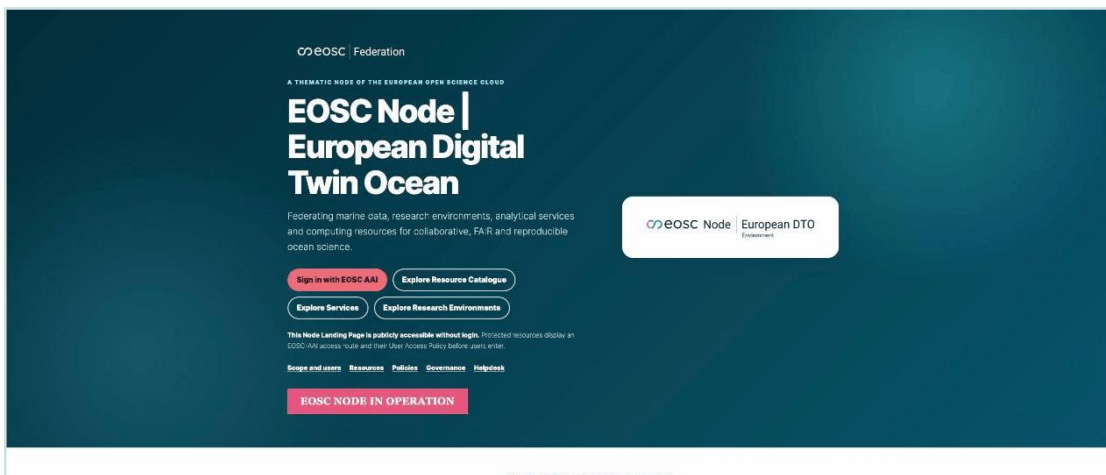
EOSC Node European Digital Twin Ocean

Lessons learnt and next steps · Pasquale
Pagano, CNR-ISTI · EOSC Symposium 2026,
Florence



A thematic Node for the ocean

In production since 8 October 2026



EOSC FEDERATION



PRODUCTION STAMP



34 services in the Node catalogue
14 Nodes in production in the Federation

PURPOSE

One EOSC entry point to federated marine data, research environments and analytical services, for FAIR and reproducible ocean science.

WHO IT SERVES

Marine, climate and biodiversity researchers · research infrastructures and data providers · ocean observing and modelling communities · agencies and policy stakeholders.

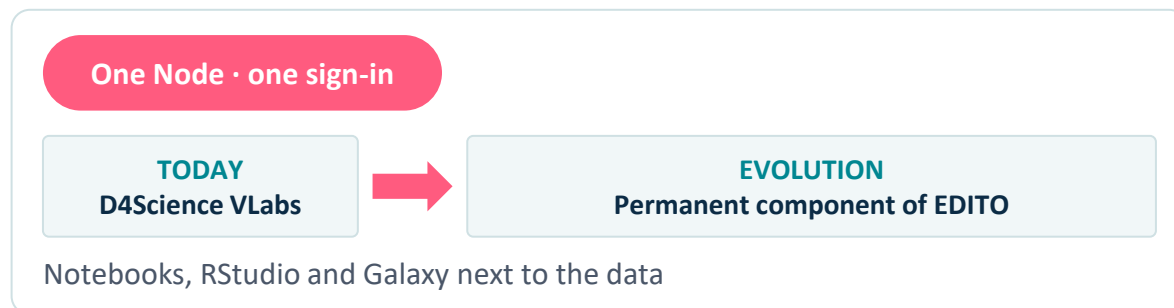
ROOTS AND DELIVERY

Built on operational assets (D4Science, EDITO) and operationalised by the EOSC-Marine project until Aug 2029.

eosc Technology: one Node, a bridge underneath

Expected vs reality · key decisions · lesson

WHAT THE SCIENTIST SEES



WHAT THE NODE HIDES: A BRIDGE EOSC ↔ EDITO

Federating capabilities, built once

AAI · catalogues · validation · STAC

Accounting and resource models

quotas · credits · VRE and VLab quotas

Providers untouched

services · processes · applications stay where they are

EXPECTED vs REALITY

We knew the EOSC and EDITO models. The hard part is accounting: EDITO has quotas, the EU Node federation credits, D4Science quotas per VRE or VLab, not per user.

KEY DECISIONS

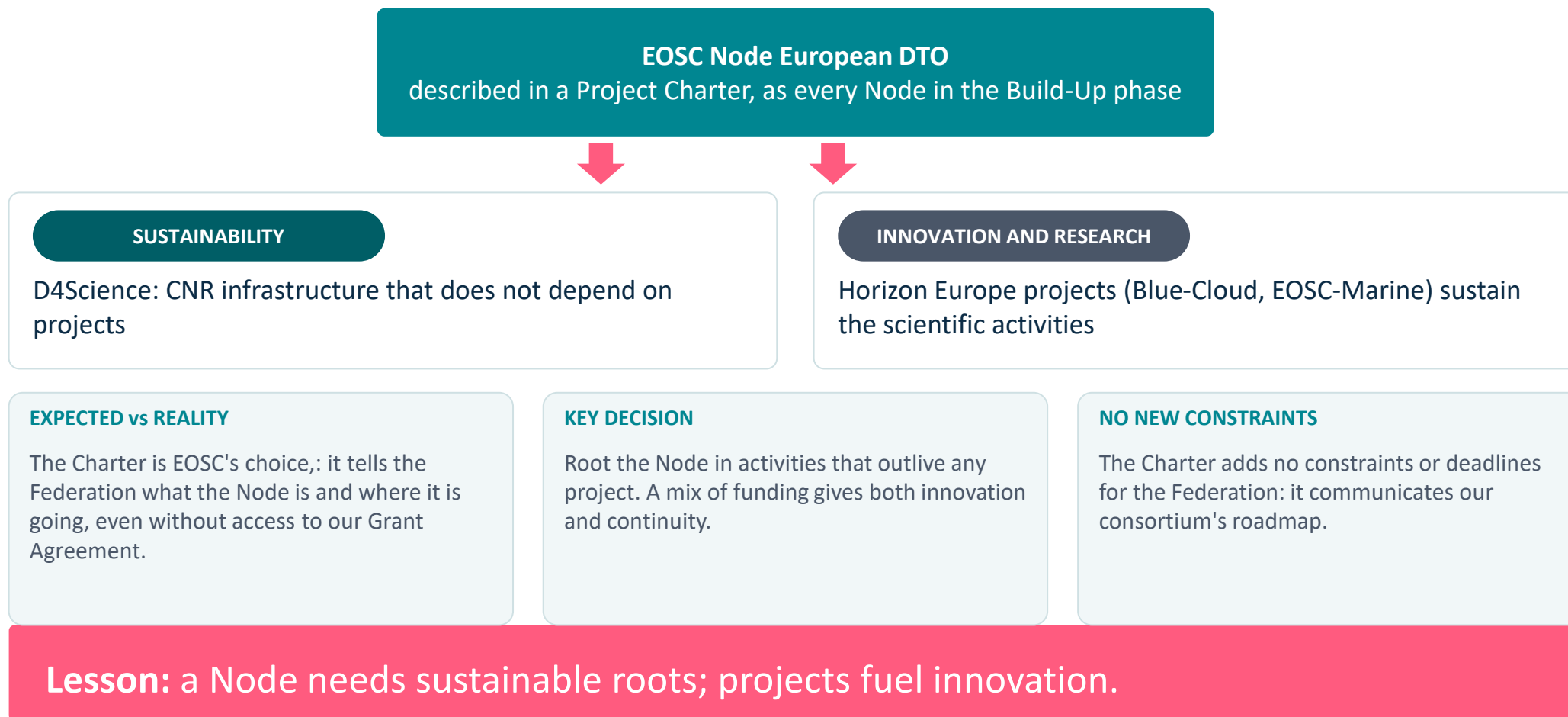
Bridge, do not replace. Federating capabilities once. STAC as common metadata.

Lesson: bridge, do not rebuild. No impact on providers of services, processes and applications.

Governance: roots in sustainable activities

Expected vs reality · key decisions · lesson

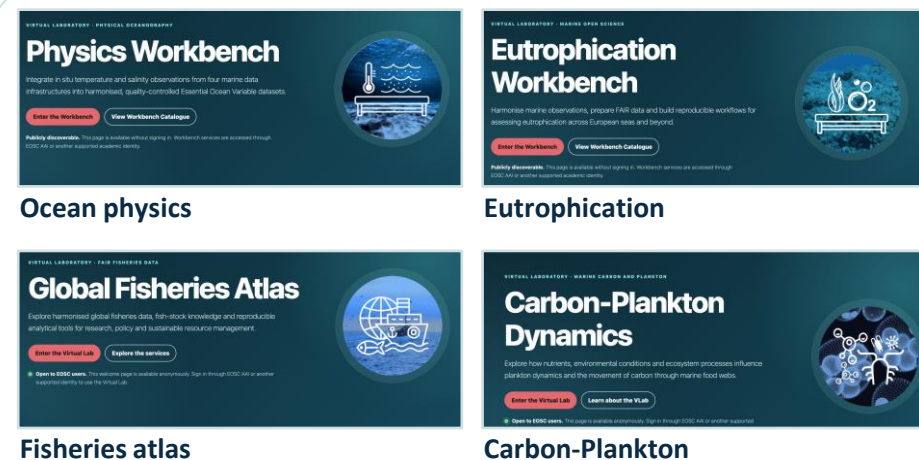
ONE CHARTER, TWO KINDS OF ROOTS



eosc Use cases: open services and new possibilities

Expected vs reality · key decisions · lesson

OPERATIONAL TODAY



Open services of the marine community, now available to the whole Federation.

CHALLENGING: ONLY POSSIBLE WITH THE FEDERATION

Biological carbon sequestration in the ocean

Life Sciences Connect Node

Genomes of the global ocean compiled and annotated (EMBL-EBI, ELIXIR).

EOSC Node European DTO

Ensemble of global models: sequestration potential, past to future.

Global maps, FAIR in EOSC catalogues, into ocean system models by 2030.

Next: Data Terra (France) and the Polish national Node.

Lesson: the Federation opens what the marine community already runs and makes possible what no single Node could offer.

Five lessons, three next steps

Turn the tap: leave the scientist free to do science

1

Build on mature foundations

Do not reinvent cloud operations.

2

Federate capabilities once

Shield users from back-end friction.

3

Communities first

Design around real applications.

4

Standards for interoperability

STAC and open APIs, no duplication.

5

Operate from day one

Continuous deployment, not deadlines.

NEXT STEPS

Node into EDITO

Evolve the Node into a permanent component of EDITO, one environment for users.

Cross-node services

Extend to Life Science Connect, Data Terra, the Polish Node and other Nodes in production.

Sustainability

Keep infrastructure and projects together:
Governance and Sustainability Plan.

Like DNS on the Internet: Nodes and hubs should be invisible. Just turn the tap.

Q&A

