

Overview of EDITO projects: EDITO Infra and EDITO ModelLab

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Digital Twin Ocean, The European Perspective

A core infrastructure, conceived as a public good and service, to support the implementation of the marine Green Deal objectives

At European level: hundreds of initiatives, Regional, National and European marine projects and infrastructures, Private initiatives, Monitoring services, Citizen science campaigns.... are committed to study and protect the marine ecosystem.

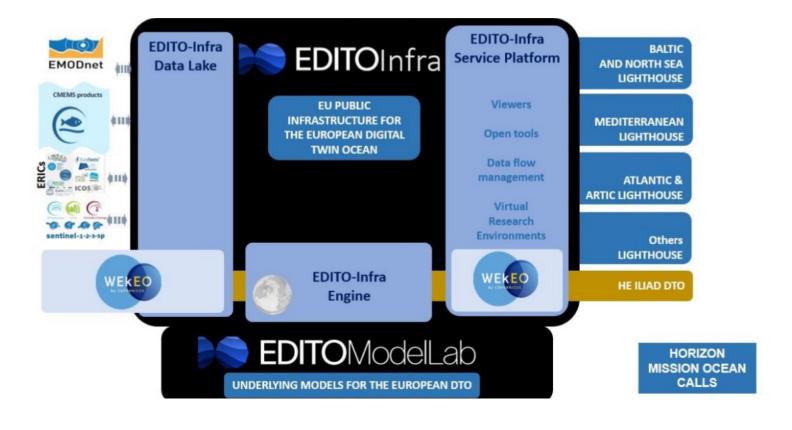


The complexity is to help them to work together and with other international initiatives.

Need for user-driven powerful tools, fit for digital age, to strengthen ocean knowledge and ocean management: by integrating and connecting wide range of data and models (from physics to socio-economics) with cloud infrastructures, HPC, Al and services.



European Digital Twin of the Ocean



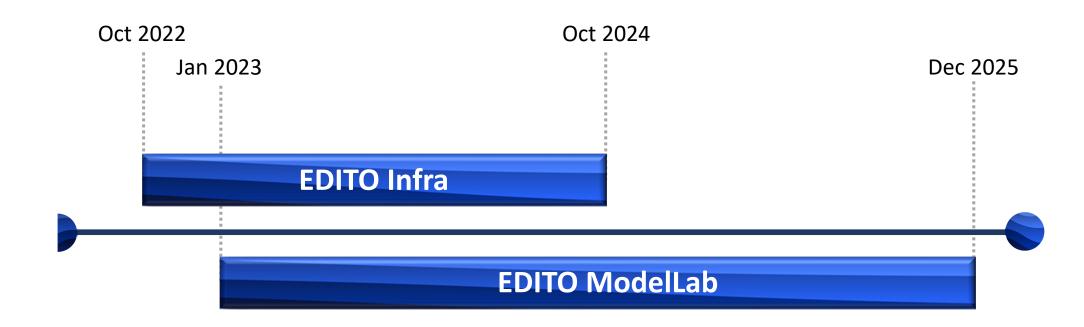
















EDITO Infra: Public Infrastructure for a European DTO

Grant to Identified Beneficiary





Representing



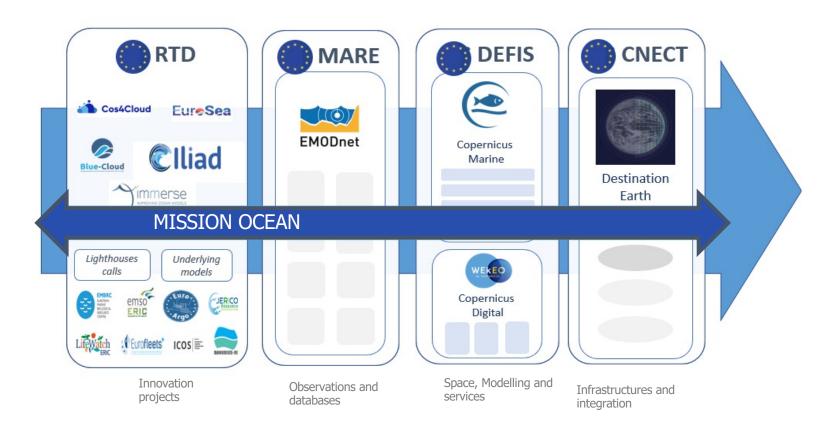


Budget: 2,999,850.00 € Start October 1st, 2022

Kick-Off Meeting: November 2022

Intermediate Review: January 2024

Final review: October 2024



→ built to capitalize on existing EU assets and is co-designed with EC Directorates





EDITOInfra Objectives



Obj1

Obj3

INTEGRATE

Integrate and expand existing
European assets and capabilities to
develop the **EU Public Infrastructure**digital backbone for the EDITO



Support the implementation of EU legislation and of the **EU Mission Restore our Ocean and Waters** and its objective (biodiversity, zero pollution, zero carbon) by supporting the Mission lighthouses

Obj2

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ARCHITECTURE

Propose the adequate architecture for integrating the EDITO infrastructure with the **DestinE** initiative



UN DECADE

Contribution to the **UN Decade of Ocean** Science for Sustainable
Development







A consortium based on ocean modeling expertise

7M€ 3-year project Starting date January 2023 Kickoff meeting 21-22 Feb 2023

14 partners from 9 countries with expertise in :

- Ocean modeling from global scale to coastal, for ocean physics, biogeochemistry and marine environment
- Supercomputing including experts from computing centers and GPU conceptor
- Artificial Intelligence applied to ocean application
- Software development, model and tools codevelopment
- Operational oceanography with strong links with Copernicus Marine, Ocean Predict and UN decade
- Intermediate to final User applications







Project Organisation

WP1 - Project coordination

WP2 - AI-based emulators

WP3 - Models

WP4 Integration of
DTO core
model suite

WP5 -Virtual ocean model lab WP6 - End to end demonstrations for Focus Applications

WP7 - What-if scenarios

Sommunication & & Uptake

DEMONSTRATIONS LIGHTHOUSES

Biodiversity

Zero pollution

Zero carbon

Innovation

Develop components and produce reference data set

Integration

Integrate all components to build the DTO model suite. Manage source code and provide user access to the models.

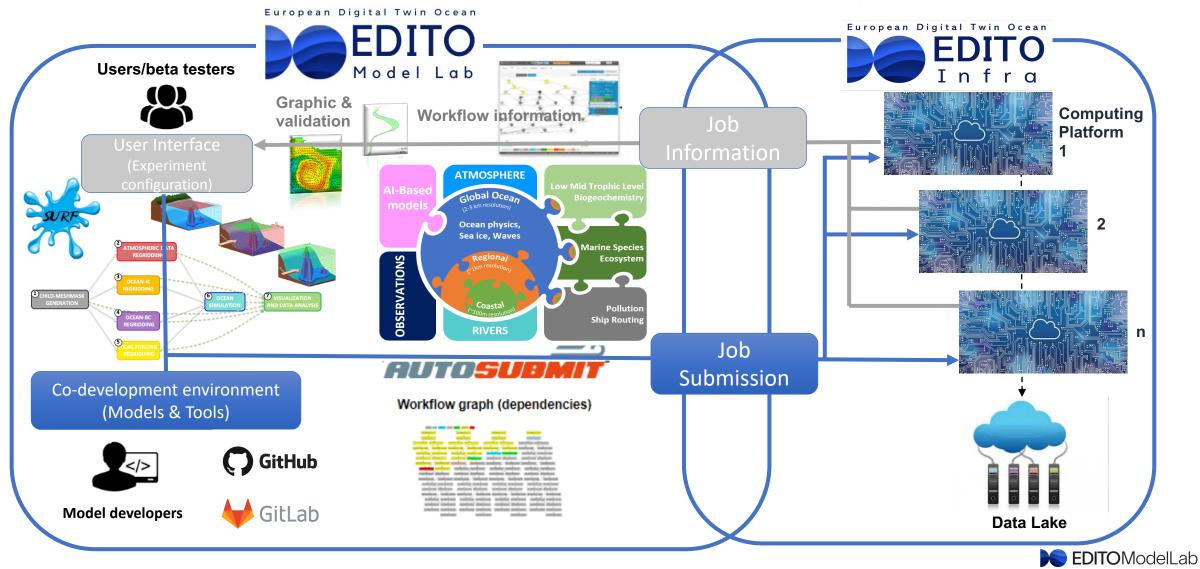
User applications

Define the needs to design what is to be developed/produced

EU Public DTO Platform

Virtual ocean Model Lab and EDITO Infra

A co-development environment to share model development and configure simulations



What will be the European Digital Twin of the Ocean?



- EU Operational Oceanography framework
- Global and regional high-resolution models/tools
- Projects to start new developments

- Improved co development framework and interoperability of existing and new systems
- Optimised models and tools
- Access to robust infrastructure for ocean modeling, Al, data processing

- **DATA**: integrate existing/new validated dataset
- **ENGINE**: increase ocean model/tools complexity, interaction
- **SERVICES**: provide on demand processing and modeling capacities

Trustable, validated and documented information, dataset and good practices to use the DTO



EDITO provides an architectural basis for the interconection of assets









EDITO will set up a federated data lake



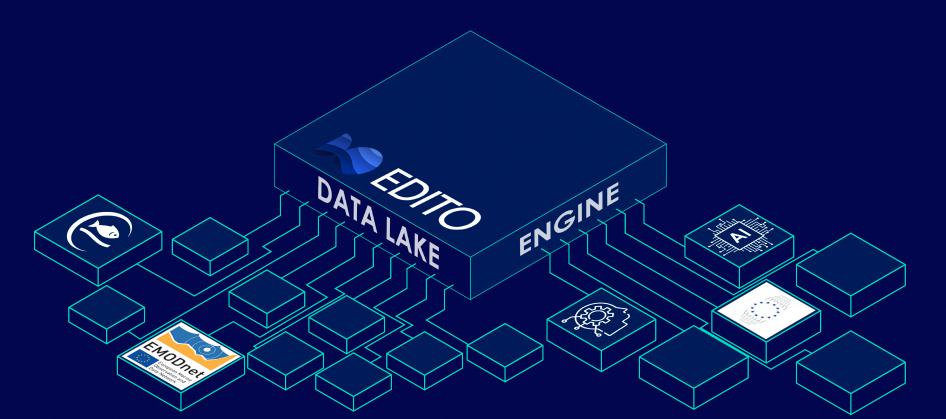






EDITO infra will set up a processing engine

for running models, AI Machine Learning, Hybrids models and applications

















Integration of

DATA



VIRTUAL LABS











EMODNer





Natural Resources & Energy



Coastal Services



Marine
Conservation
& Biodiversity



Marine Food



Extremes, Hazards & Safety











Polar Environment Monitoring



Ocean Health



Trade & Marine Navigation



Climate & Adaptation



Policies & Ocea Governance & Mitigation



Science & Innovation

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EMODNer



Socioecology

ENGINE

Education,
Public Health
& Recreation



Natural Resources & Energy



Marine Conservation & Biodiversity



Coastal Services



Marine Food



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