



OPERA
OCEAN PREDICTION
ENHANCEMENT IN
REGIONS OF AFRICA

Presentation of project OPERA - Ocean Prediction Enhancement in the Regions of Africa



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Mercator Ocean International



Funded by
the European Union



2021
2030
United Nations Decade
of Ocean Science
for Sustainable Development



MERCATOR
OCEAN
INTERNATIONAL

OPERA project in a nutshell

OPERA: Ocean Prediction Enhancement in the Regions of Africa

- **Objective:** Improve **Ocean resources sustainability** and **human welfare** in Sub-Saharan Africa by promoting Ocean forecasting and its applications
- **How?:** Collaborate with **3 African centers** (2 specialized in regional thematic applications and one in ocean forecasting) to promote the development of "Digital Ocean Centres" (DOCs), linked to the global and European networks via the OceanPrediction DCC
- **Duration?:** 4 years, started January 2025
- **Budget?:** 7 million euros
- **Who is funding?:** European Union (via Directorate General for International Partnerships) – ocean component of the ArcX programme to support African Regional Centres of Excellence towards the Green Transition
- **Who is eligible?:** Sub-Saharan Institutions

A project implemented by Mercator Ocean International through its role in the OceanPrediction Decade Collaborative Center (DCC), leveraging its expertise in Copernicus Marine and the European Digital Twin Ocean

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EC framework for OPERA



- Under EC's Multi-annual Indicative Programme for Sub-Saharan Africa (SSA) 2021-2027
- **Priority area 3: Support to Regional Centres of Excellence related to the Green Transition**
 - Climate Mitigation and Resilience
 - Sustainable Energy
 - Sustainable Agri-food Systems
 - Biodiversity and Environment
 - Water and **Oceans**

Support the Digital and Science, Technology, and Innovation (STI) capacities in Africa, leading to scientific knowledge-based, innovation-led sustainable development.

Main objectives

1. Strengthen cooperation and community in Africa around ocean forecasting
2. Strengthen capacities to develop, access, and use digital ocean resources (technology transfer and knowledge sharing)
3. Co-design and develop tailored digital ocean services and applications built and operated by Digital Ocean Centres (DOCs) in Africa
4. Co-design and develop African ocean forecasting systems for Essential Ocean Variables (EOVs) operated by DOCs in the region
5. Strengthen science-to-policy connections, user uptake, and sustainability of the action, with a focus on the development of a knowledge hub



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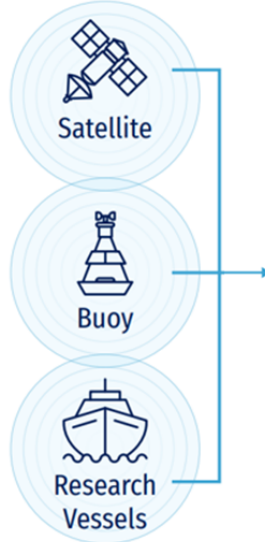
Project structure

WP1: Project management

WP2: Community building and communication

WP3: Knowledge and technology transfer

UPSTREAM DATA EXAMPLES



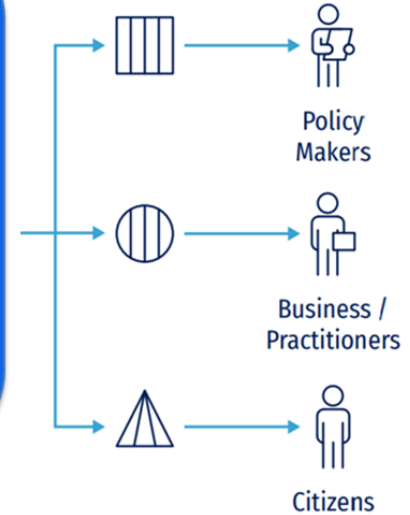
Integrated Network of African Digital Ocean centers

WP4: DOCs for applications

WP5: DOCs for ocean forecasting

CUSTOMIZED END USER INFORMATION

END USERS



WP6: Science to policy stakeholders

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WP2: Community building and communication

Main concept:

- Build a community around ocean forecasting in Africa, starting with the Africa Regional Team

Expected work:

- Link with other communities (MarCOSIO and MarCNoWA), Africa Ocean Decade Task Force, IOC Sub Commission for Africa, UNEP African Sea conventions
- Mapping of Ocean forecasting activities in Africa (OceanPrediction DCC Atlas)
- Activate a forum for communication on the OceanPrediction DCC website
- Communication & dissemination

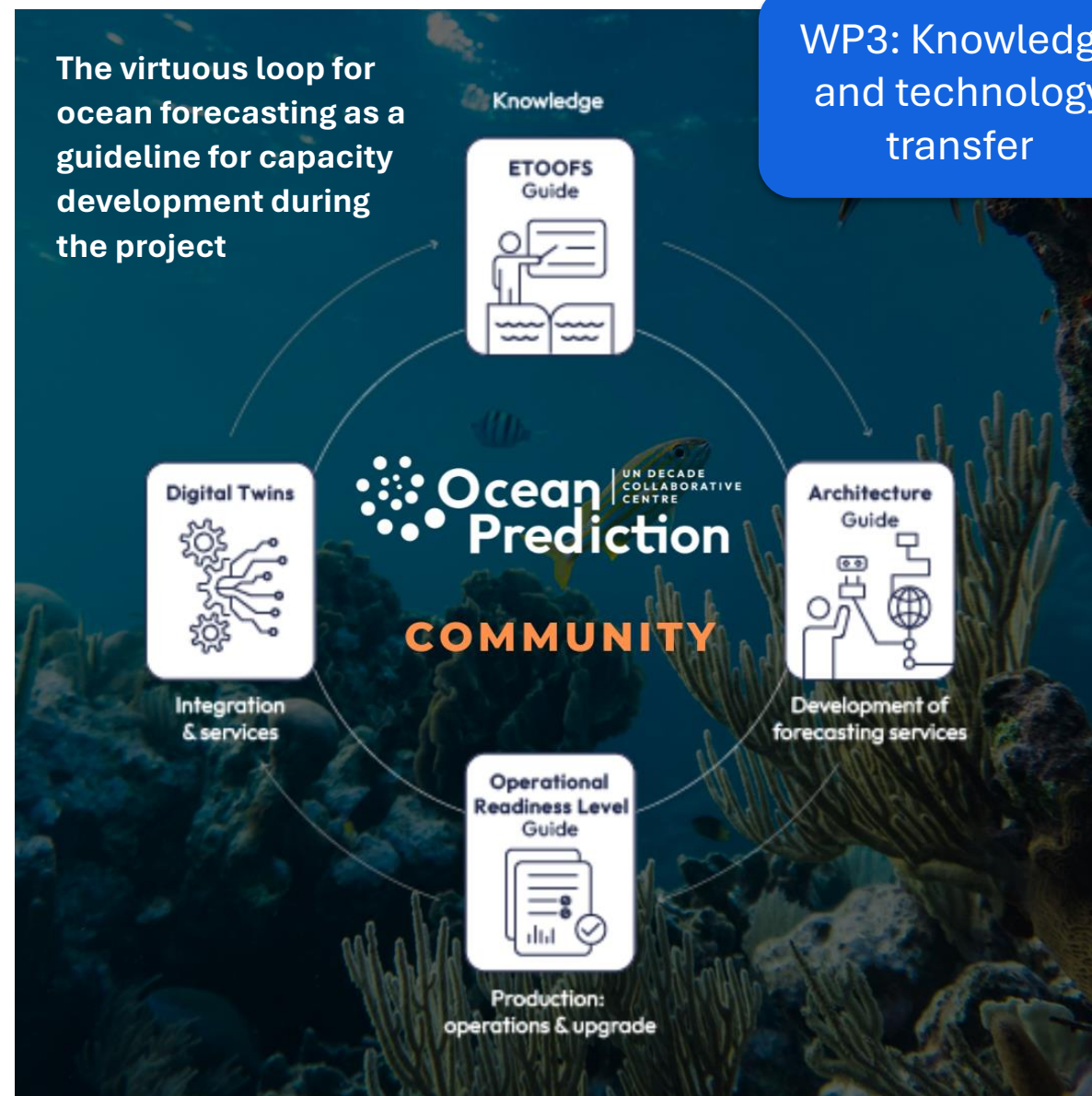


IOC Sub Commission for Africa
and the Adjacent Island States

Serving two communities:

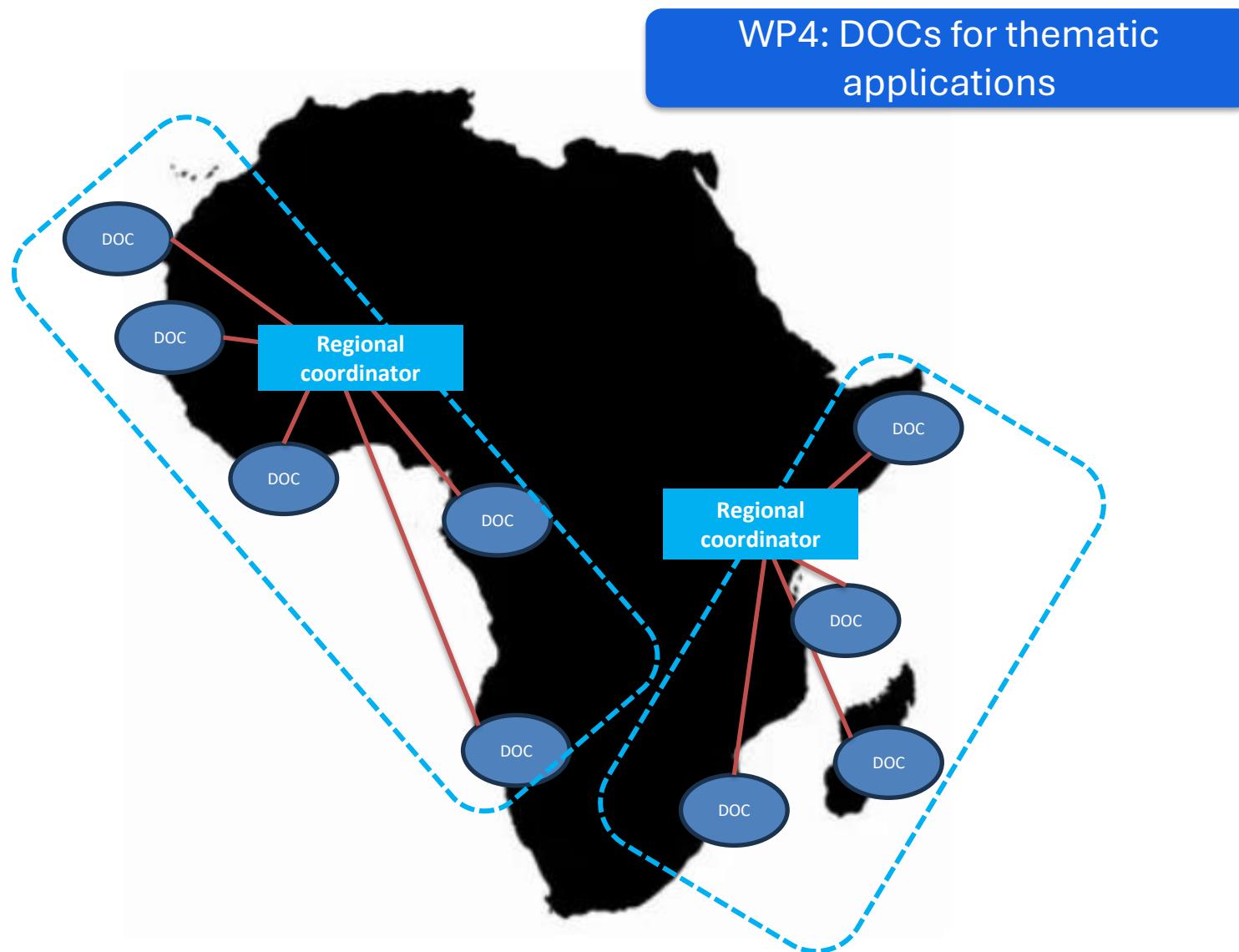
- All African centers by:
 - *Massive Online Open Courses on Ocean* understand and learn to use the virtuous loop components for applications and forecasting services
- Selected centers (institutions operating DOCs)
 - Ad-hoc capacity building for the systems they will operate (both applications and forecast services)
 - Summer courses and long-term visits to Europe

WP3: Knowledge and technology transfer



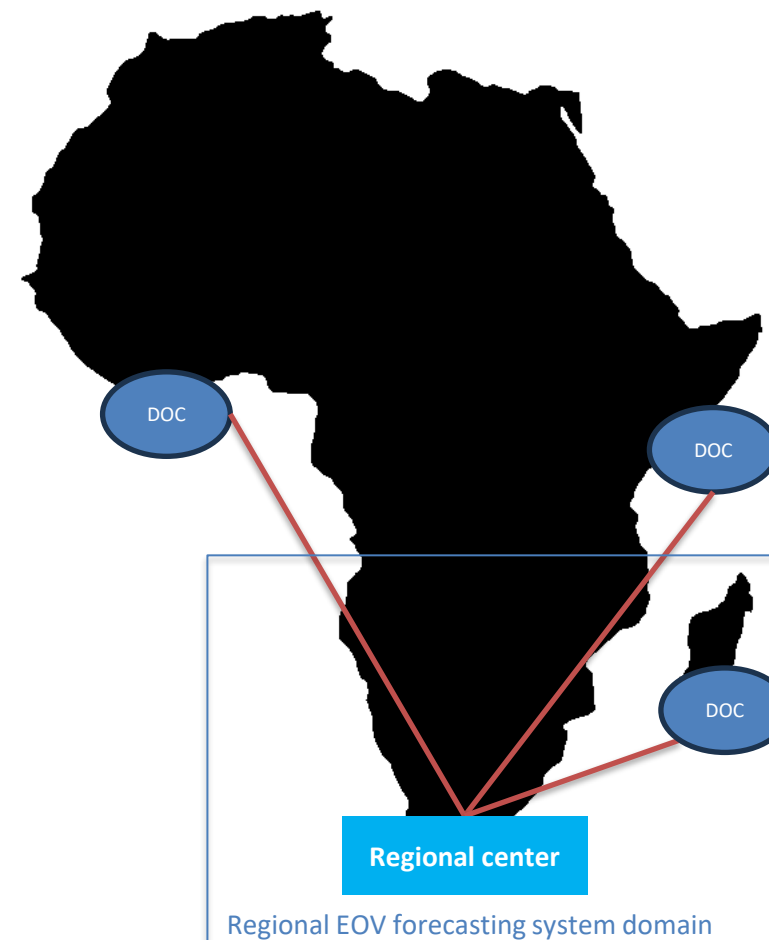
Main concept

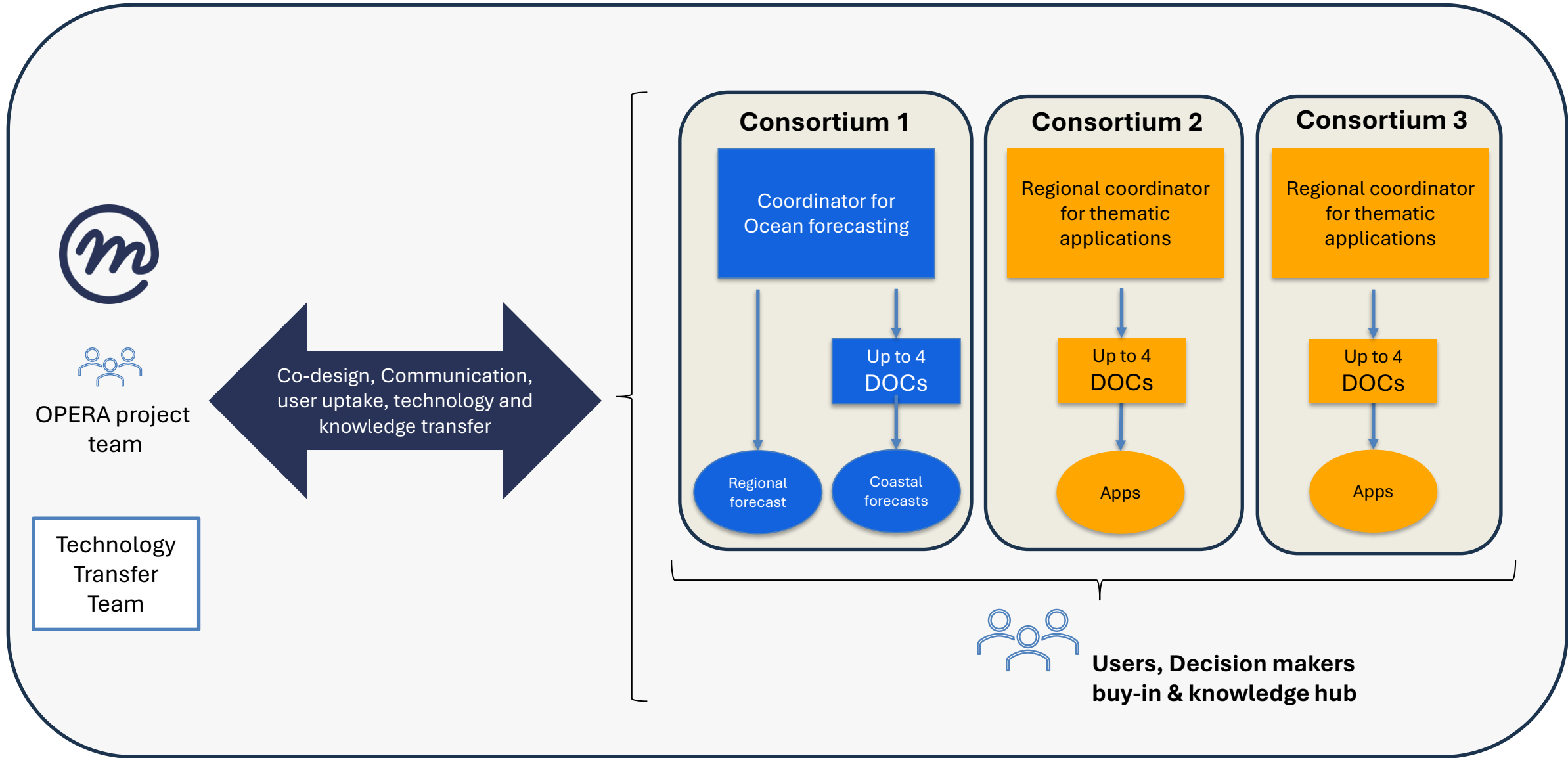
- Implementation via 2 Regional coordinators for thematic applications development (ideally to be linked to MarCOSIO and MarCNoWA):
 - Each one serving, from the project development point of view, a regional network of Digital Ocean Centers (DOCs) at African RCoES
 - Applications could be hosted at the regional center, and/or at the DOCs, and/or at the EU-DTO (following DOCs preferences for each case)



Main concept

- Implementation, via a thematic coordinator, a network of DOCs for Ocean Forecasting operating:
 - A state-of-the-art regional ocean forecasting system for essential ocean variables (EOV)
 - 3 coastal ocean forecasting centers for EOV
- Results interoperable, following data standard established by the DCC, and integrated into African Data Lake (as part of African Hub and future African DTO)





Calls for Tenders – Grant for Ocean Forecasting Consortium

- 1 consortium to develop ocean forecasting system
 - Budget €540,000 to operate the consortium. Not included in this budget:
 - Support of technology transfer team to co-design and develop software and system
 - 3-month stay of member staff
 - Participation in 2 « summer schools » over course of project
 - Hardware acquisition (including one supercomputer)
- Expected engagement from Q4 2025 - Dec 2028



Calls for Tenders – Grants for Applications Consortia

- 2 consortia to develop up to 4 applications
 - Budget €540,000 to operate each consortia. Not included in this budget:
 - Support of technology transfer teams to co-design and develop applications (Separate competitive call)
 - Participation in 2 « summer schools » over course of project
 - Hardware acquisition (computers)
- Expected engagement from Q4 2025 - Dec 2028



Calls for Tenders – consortia of African partners

- Requirements

- One main African coordinator per consortia
- Minimum 3 additional partners from 3 different countries, and up to 5 partners to be funded directly
- Partners must be public sector institutions.
- Partner institutions may subcontract portions of the work
- Funding provided after milestones achievement



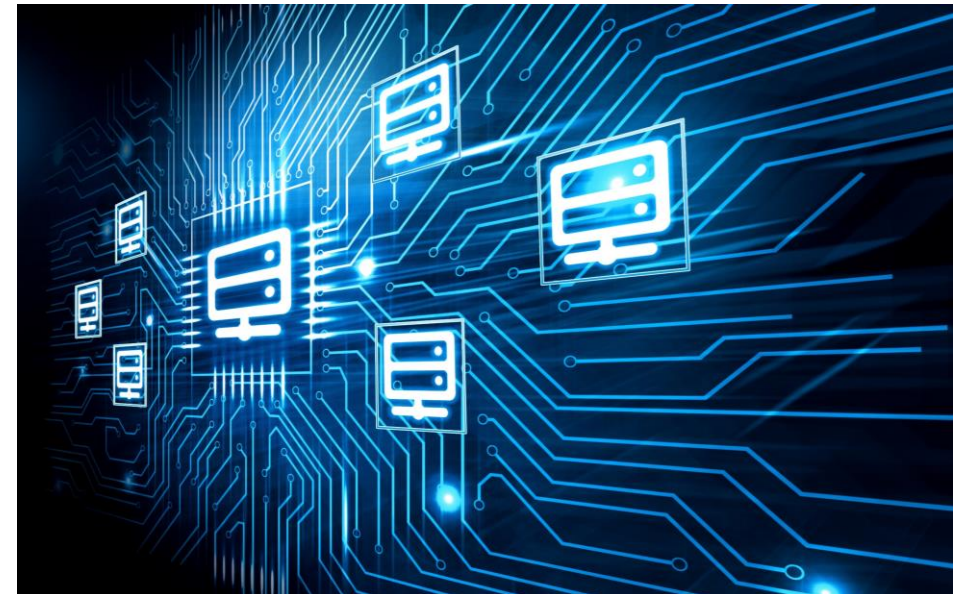
Main concept:

Ensure uptake and sustainability of the action

Contribute, in the Ocean Decade Framework, to a pan-African technical infrastructure to improve data and knowledge sharing in the continent (African Knowledge Hub)

Expected main work:

- Co-design with the key African Stakeholders: Africa Task Force, IOC Sub Commission for Africa, GMES & Africa marine consortia (MarCOSIO, MarNoWA), SEAWARD programme,...
- Implement the “forecasting component” of the Africa Hub, including a data lake (future African DTO) to share the data from all the systems developed at the project and include data from global models following OceanPrediction DCC data standards description
- Promotion of sustainability of systems developed on the project



Project development phases

Phase 1: Definition/ preparation (2025)

- 3 Consortia building and identification of the applications to be developed
- Work with the African Ocean Decade Task force to define the characteristics of the forecasting component of the African knowledge Hub
- Start of capacity development activities

Phase 2: Development: (2026-2028)

- tasks related to developing Regional centers for the applications, ocean forecasting, and the Africa Hub will be launched.

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Timeline

- May online information sessions **13 May** | 9:30 am & 3:30 pm (UTC+2)
- Call for tenders schedule -
 - Ocean Forecasting consortium (May – June)
 - Capacity development activities (May – June)
 - 2 application consortia (June-July)
 - Technology transfer teams (May – Sept)
 - Calls to be released here: <https://www.mercator-ocean.eu/en/about/tenders/>
- UNOC3 event – Kick-off at the EU Digital Ocean Pavillion on 10 June

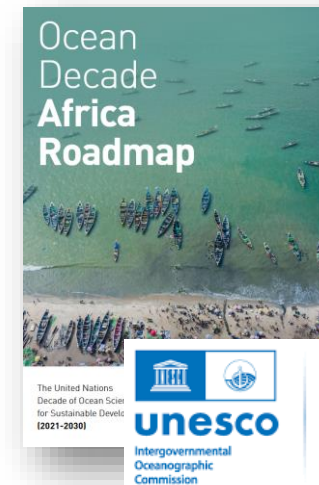


Final remark... Co-design is in the core!

- Co-design will be at the core of the project:
 - On the community-building and the capacity-sharing activities
 - On the needed applications and Ocean Forecasting services
 - And very specially on Governance and contribution to the Decade African Knowledge Hub
- To ensure user uptake and sustainability

AN OPPORTUNITY TO CONTRIBUTE TO THE AFRICA ROADMAP AND TO EXPAND THE LEGACY OF GMES & AFRICA

Thank you!



IOC Sub Commission for Africa and the Adjacent Island States

