SUSTAINABLE BLUE ECONOMY PARTNERSHIP
Intervention Area 1 & 2

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Intervention areas

IA 1

- Digital Twins of the Ocean at regional sub basin scale

- Blue economy sectors, development of marine multi-use infrastructures

- Planning and managing sea-uses at a regional level

- Blue Bioresources
The Ocean Digital Twin

The Oceans as complex system: let's start from DATA

Argo Net for Ocean Observation

Ecosystem models also need other type of information, models, sensors, data

Copernicus
North-western Arabian Sea. Outbreak of Noctiluca scintillans algal blooms, highlighting large vortical structures

... but we have also models!

3D, spatially-explicit, trophodynamic ecosystem models integrate: biology, physics, chemistry and human impacts to provide an integrated view of marine ecosystem

Models: Building a bridge between digital and physical world - virtual replica of the Ocean and of its systems, AND their interactions

Sensors networks, satellites, bouys, drones

Digital twin

Artificial Intelligence + Models + High Performance Computing
Mathematical models / Ecosystem models, upper oceans and atmosphere, bl on the beaches and sub slopes, turbulent ocean, pollution etc.
Initial focus on spatially limited areas
- start with some existing dataset of marine and biological data, and
- put more sensors for biological species
- solve at small scale (size, models, effort)
- apply the DT and learn
- expand the scale, increase systems and interactions

Competences:
Data Science and AI, biochemistry, statistics, oceanography, ecology, computer science, ...
**Intervention areas**

**IA 2**

- Digital Twins of the Ocean at regional sub basin scale
- Blue economy sectors, development of marine multi-use infrastructures
- Planning and managing sea-uses at a regional level
- Blue Bioresources
The projects need to
- engage the different actors of the sectors including industrial partners and other relevant stakeholders.
- include regulatory and legal aspects,
- economic and social aspects with social acceptance of the developments for existing and emerging sectors,
- socio-economic considerations for a just transition, and broad and inclusive approaches...

Emphasise technology and process development, solution orientation, and integrated approaches promoting circularity and minimising the pollution
Tools, techniques, processes, risks with proposed NBS economic studies including markets opportunities and business models.

Improve co-existence and multi-use infrastructures, reducing environmental footprint.

Decommissioning and re-use of large offshore windfarms along with fixed or floating systems.

New materials with Low Carbon Footprint and NBS compatible.

Reduction of energy, circularity.

Combination of infrastructure, functions, and logistics.