



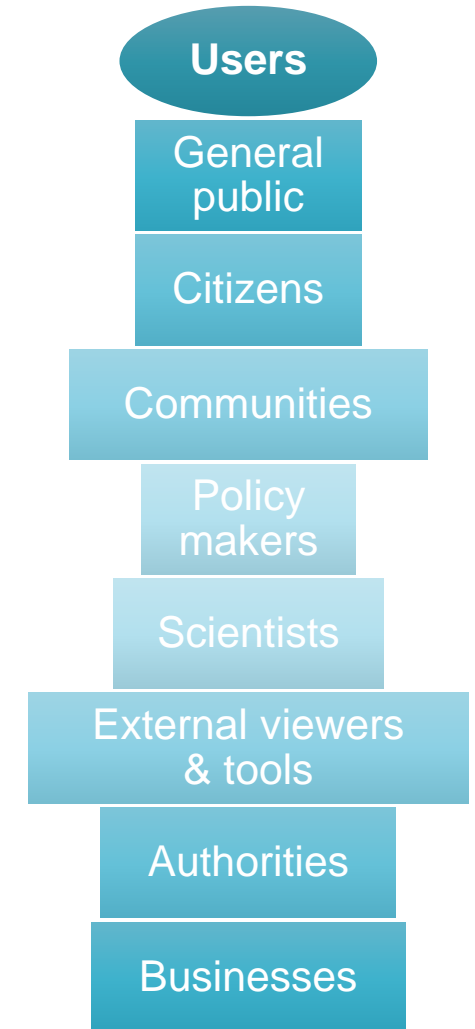
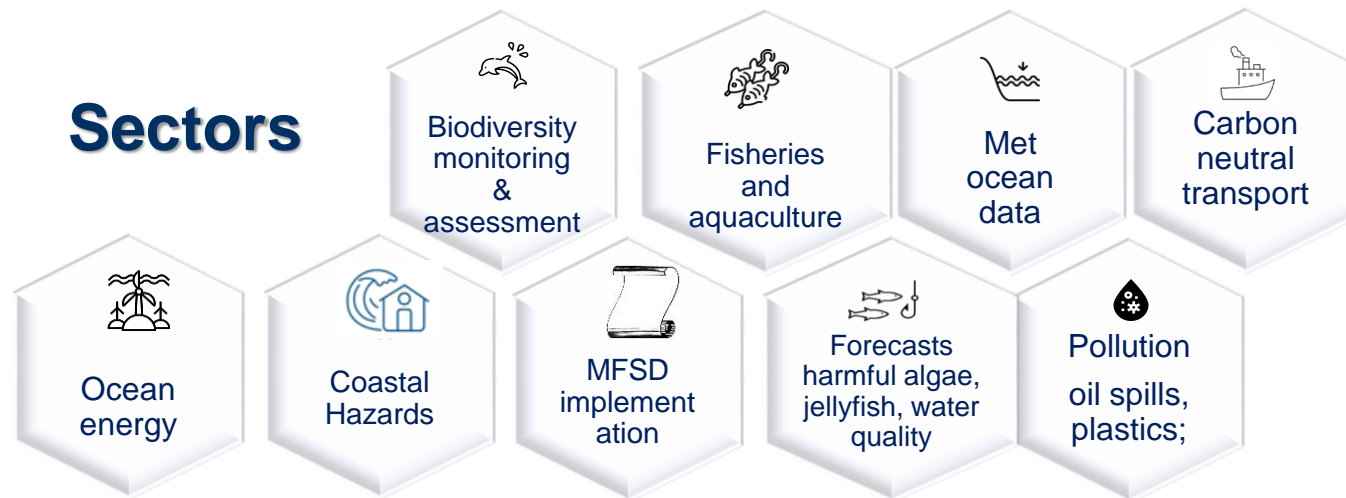
# European Digital Twin Ocean

*Zoi Konstantinou – MARE A.1*

*On behalf of the EU DTO inter-service  
technical team*

# The European Digital Twin of The Ocean

- Europe: unrivalled infrastructures on marine observations, data, modelling and forecasting *but* not sufficiently interconnected, nor fit for digital age
- Need for user-driven powerful tools to strengthen ocean knowledge and ocean management - implementation of the marine Green Deal objectives



# EUROPEAN RESEARCH & INNOVATION DAYS

VIRTUAL  
EVENT

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**Day 2 – HUB 2: European Green Deal**  
EUROPEAN GREEN DEAL CALL Info Day

**Area 9: Strengthening our knowledge in  
support of the EGD**

**9.3 - Transparent & Accessible Seas and  
Oceans: Towards a Digital Twin of the  
Ocean**

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- Integration: European Ocean assets and Digital Technologies
  - Into a digital component representing a consistent high-resolution, multi-dimensional (from physics to socio-economics) description of the ocean,
  - Transforming data into knowledge, for the benefit of all, through co-creation and inter-disciplinary approaches
- Simulator to test different evolution scenarios, and solutions, of the ocean driven by climate change or anthropogenic stressors or policies implementation:
  - Empowering citizens, governments and industries to:
    - collectively share the responsibility of marine and coastal habitats
    - Support a sustainable blue economy
    - Prepare for climate change, mitigate and adapt

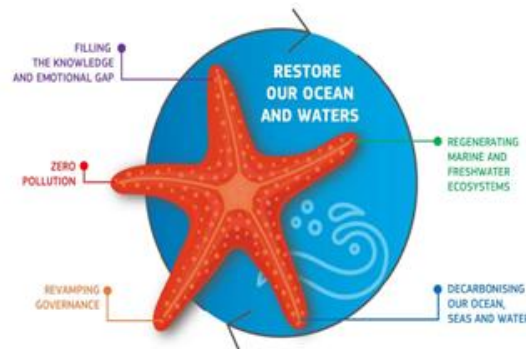


**Demonstration of the usefulness wrt Green Deal priorities on a few concrete cases, in local, regional, or global sea basins**



# European Mission 'Restore our Ocean and Waters by 2030'

*Systemic path  
to restoration of the health of the ocean & waters  
as recommended by the  
Mission Board in its Starfish report*





# Mission intervention logic



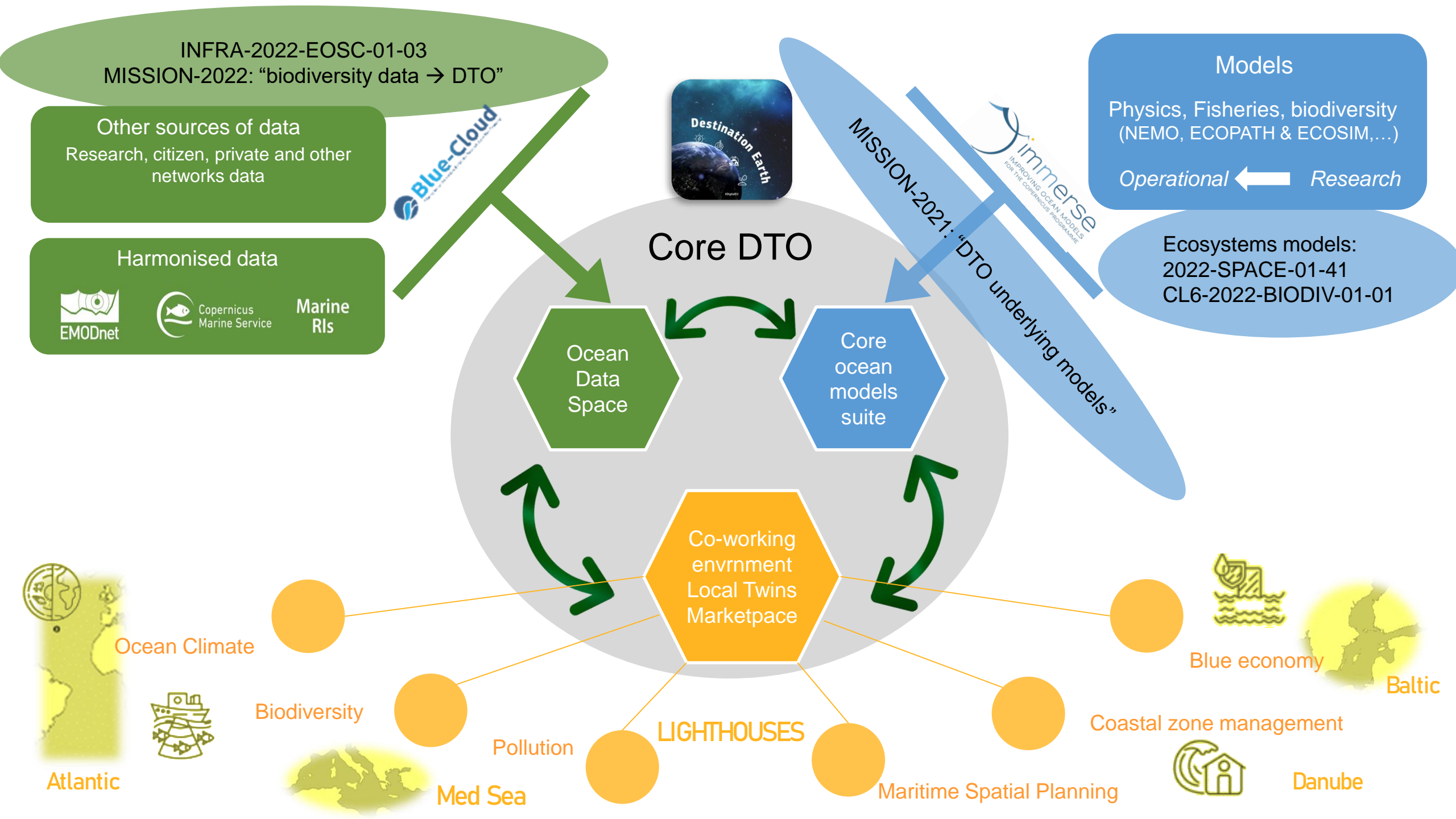
# **DTO *in* EU Mission Restore our Ocean**

Build a **public good core DTO infrastructure** on which to plug-in “local twins”, designed to answer individual priorities by and for public users and industry, for national, local or thematic policies or sector areas

**Deliverable EU Mission Restore our Ocean and Inlands Waters**

**In support to the EU Green Deal and Digital Agenda**

**Announced by President von der Leyen at the One Ocean summit (Feb 2022)**





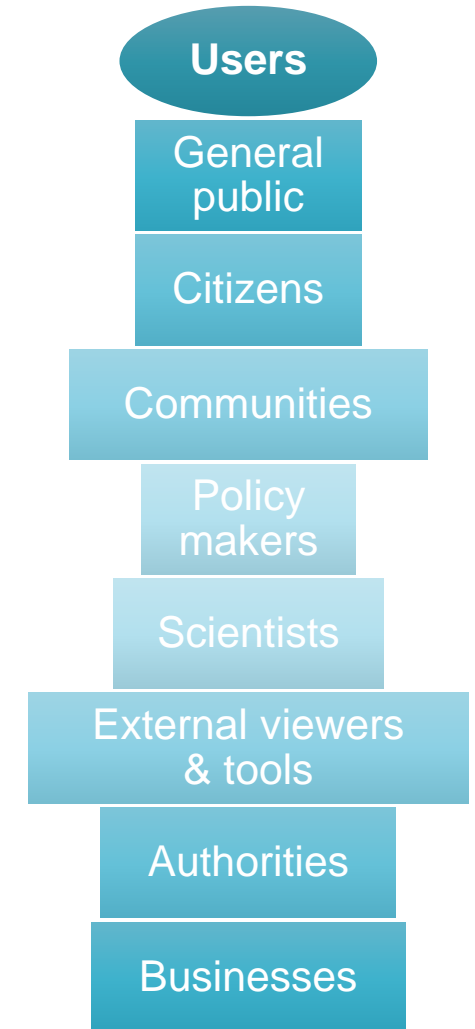
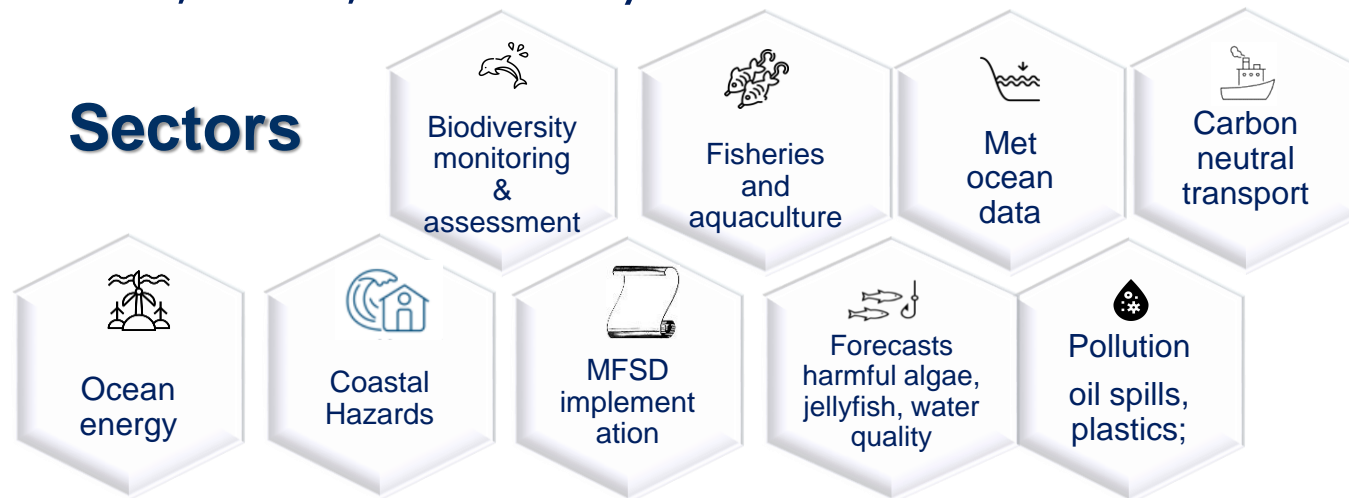
# The European DTO: a multiple, joint and long-term endeavour, in an international context

- UN Decade of Ocean Science for Sustainable Development
  - ❖ DITTO Programme
  - ❖ Decade Collaborative Centre for Ocean Prediction
  - ❖ UN Data Coordination Platform
    - Data Coordination Group & Data Technical Implementation Coordination Group
- One Ocean Summit (9-11 Feb), Digital Ocean Forum (Paris, March/April), DITTO summit (4-5 May)
- G7 – Future of the Seas and Oceans Initiative
  - ❖ Digital Twin Ocean, a priority area

**Highly necessary to align and ensure complementarities between EU initiatives  
Present a unified approach on the international stage**

# The EU DTO: a multiple, joint and long-term endeavour

- A core EU DTO infrastructure – public good and service
  - Digital architecture, ocean data space, modelling, collaborative environment to develop and plug-in a multitude of tailor-made applications (“local twins”)
- Specific, local twins services and user interfaces
  - Iliad, SBEP, and many others to come



# DTO content

Digital Knowledge System

RESTORE OUR OCEAN AND WATERS

BY 2030

Data analytics  
Specifics  
Local twins



Pan-EU  
Twin  
services



Digital  
backbone



Ocean Data  
Space



Baltic



Biodiversity



Med Sea



Zero  
Pollution



Atlantic



Carbon  
Neutral



LIGHTHOUSES

USERS

Policymakers

Communities

Scientists

Business

Citizens

Youth