

PNRR

**MISSIONE «ISTRUZIONE E RICERCA»**

Ministero dell'Università e della Ricerca



**Ecosistema INEST-  
Interconnected Nord-Est  
Innovation**

Missione 4 Componente 2

Investimento 1.5

*Maria Cristina Pedicchio*



8. Maritime, Marine and Inland Water Technologies

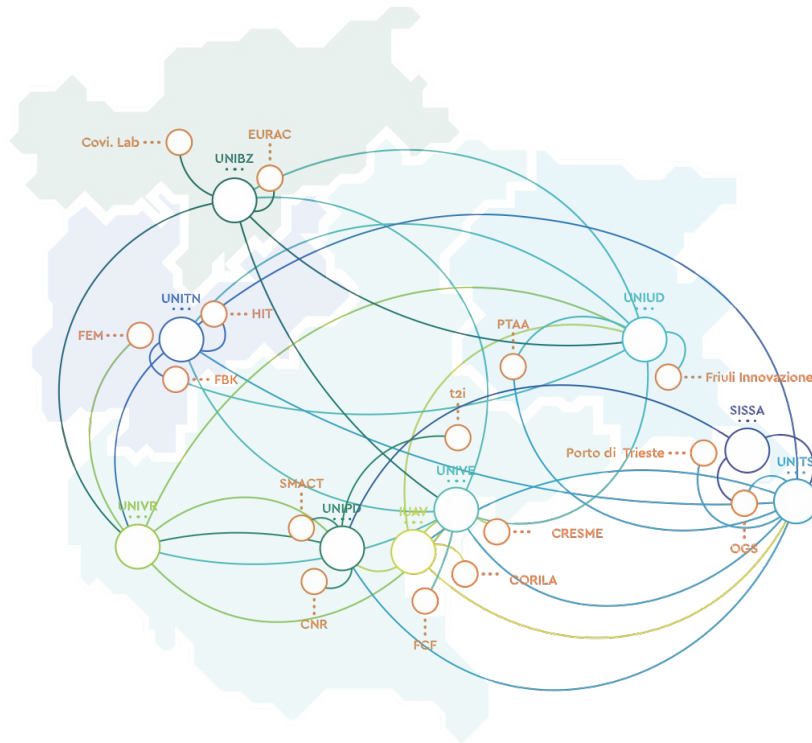
**Spoke 8: MARITIME, MARINE, AND INLAND  
WATER TECHNOLOGIES: TOWARDS THE  
DIGITAL TWIN OF THE UPPER ADRIATIC**

# INTERCONNECTED NORD-EST INNOVATION ECOSYSTEM



## iNEST: HUB e 9 Spokes

**Priority : DIGITALIZATION and SUSTAINABILITY**



University of Bolzano  
- Ecosystems for mountain innovations

University of Trento  
- Health, Food and Lifestyle

University of Udine  
- Green and digital transition for advanced manufacturing technology

University IUAV of Venice  
- City, Architecture, Sustainable Design

University of Padova  
- Smart & sustainable environments (manufacturing, working, living)

Ca' Foscari University of Venice  
- Tourism, Cultural and Creative industries

University of Verona  
- Smart Agri-Food

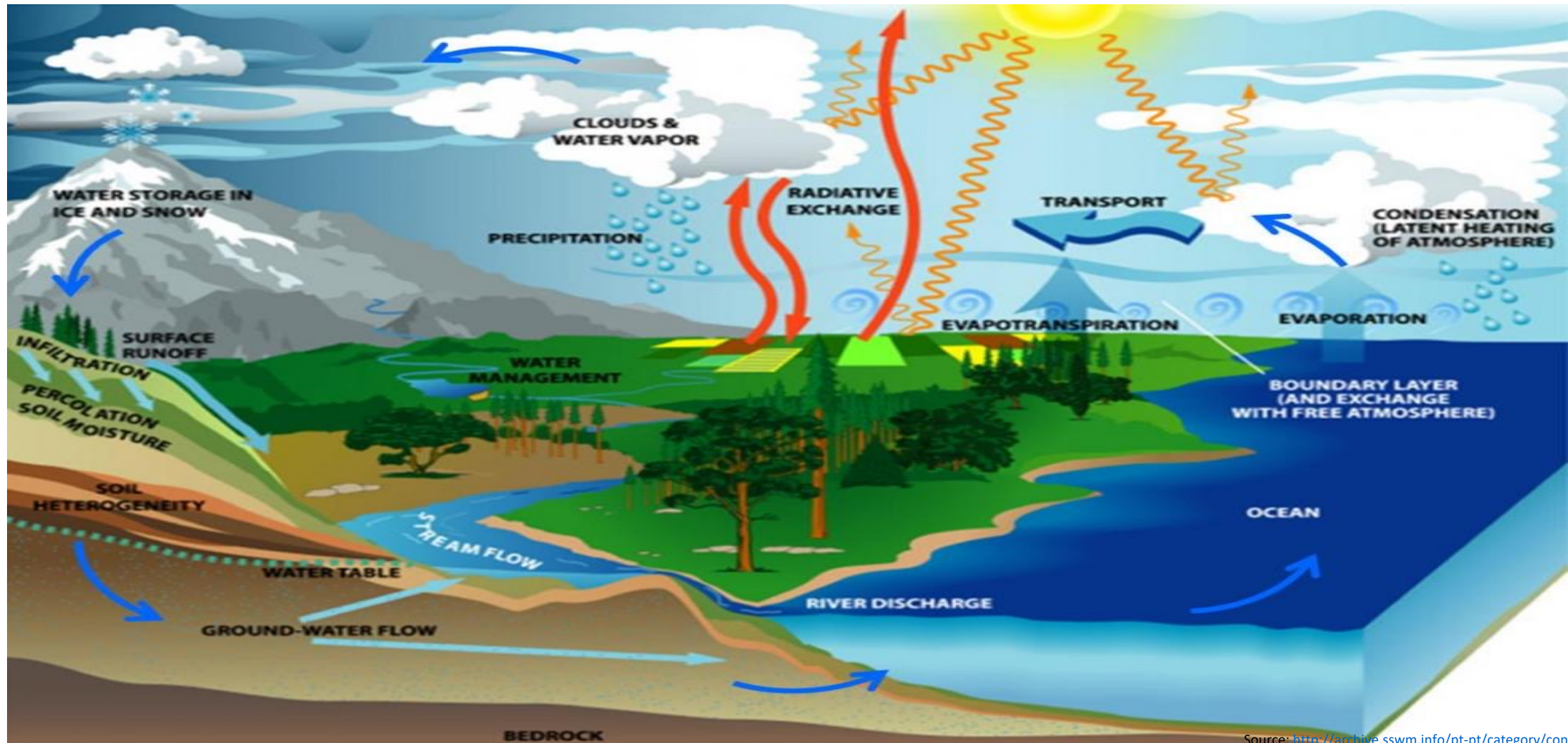
University of Trieste  
- Maritime, marine and inland water technologies: towards the Digital Twin of the Upper Adriatic

SISSA  
- Models, Methods, Computing Technologies for Digital Twins

# Innest tra le ispirazione dalla Mission Starfish 2030: Restore our Ocean and Waters



We need to take a holistic approach to address the water system as a whole: oceans, seas, coastal and inland waters



## Spoke 8: MARITIME, MARINE, AND INLAND WATER TECHNOLOGIES: TOWARDS THE DIGITAL TWIN OF THE UPPER ADRIATIC



### Research Topics

- **RT1**  
Biology of hydrosphere. ecosystems
- **RT2**  
Physical-chemical risks and impacts on the hydrosphere
- **RT3**  
Sustainable waterway. mobility
- **RT4**  
Land-sea integrated maritime and spatial Planning
- **RT5**  
North Adriatic Digital Twin



**investire nei giovani**

## Spoke 8: MARITIME, MARINE, AND INLAND WATER TECHNOLOGIES: TOWARDS THE DIGITAL TWIN OF THE UPPER ADRIATIC



- **UNITS:** Depts of Life Sciences, Mathematics and Geosciences, Engineering and Architecture, Chemical and Pharmaceutical Sciences;
- **OGS:** Section of Oceanography; Section of Geophysics;
- **UNITN:** Departments of Civil, Environmental and Mechanical Engineering, Information Engineering and Computer Science;
- **IUAV:** Department of Architecture and Arts;
- **UNIVE:** Depts of Environmental Sciences, Informatics and Statistics, Molecular Sciences and Nanosystems;
- **UNIPD:** Departments of Comparative Biomedicine and Food Science, Biology, Civil, Environmental and Architectural Engineering, Geoscience, Industrial Engineering;
- **PNAEAS: Autorità di Sistema Portuale del mare Adriatico Orientale**
- **Polo Tecnologico Alto Adriatico**

**RT1**  
Biology of hydrosphere ecosystems

**RT2**  
Physical-chemical risks and impacts on the hydrosphere

**RT3**  
Sustainable waterway mobility

**RT4**  
Land-sea integrated maritime and spatial Planning

**RT5**  
North Adriatic Digital Twin

+

**Imprese grazie ai bandi a cascata**

# Cross cutting enablers for the Mission



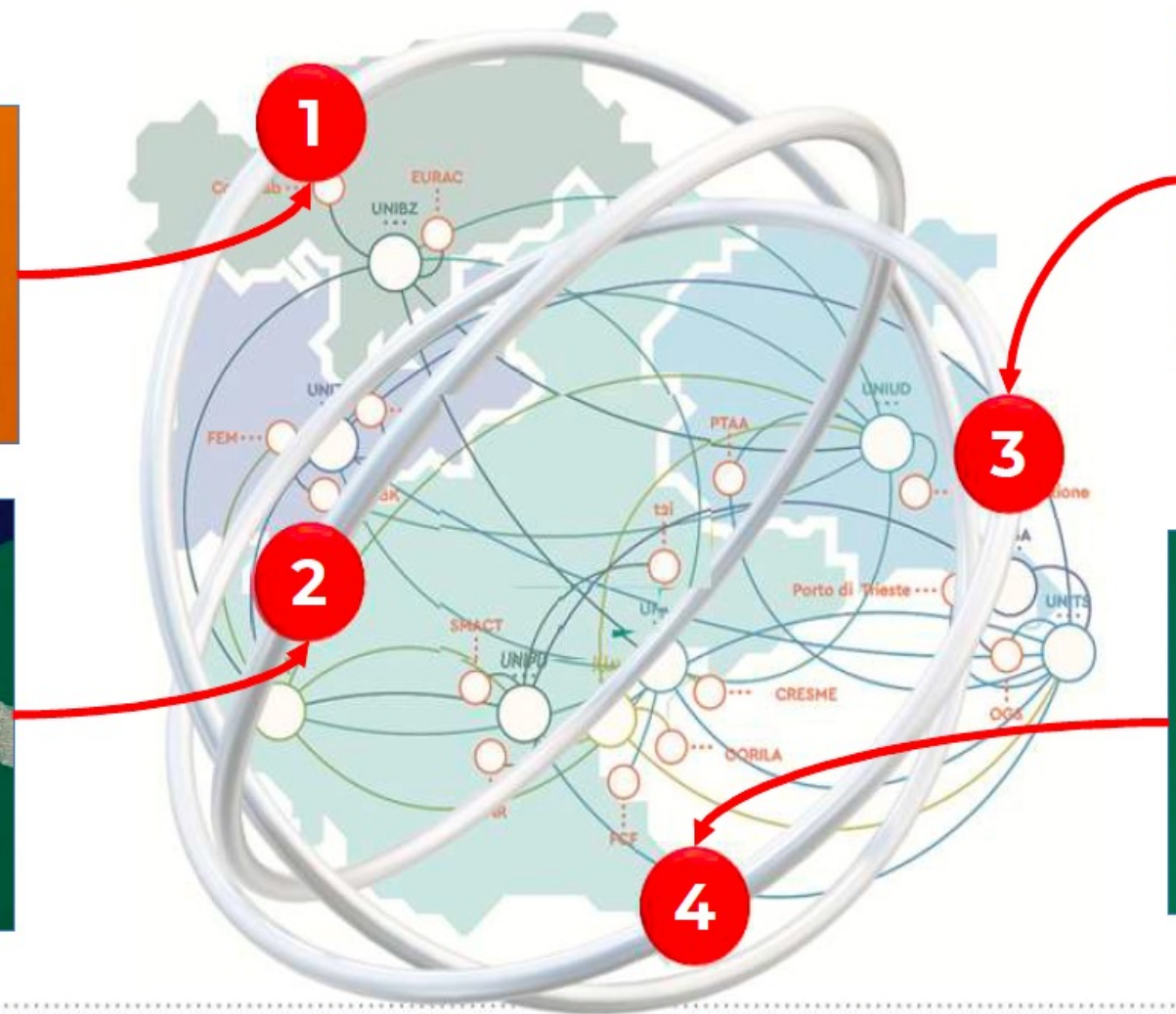
# Overview of Cross-Cutting activities

**Cross-Cutting Activity #1**  
Support to the generation and the development of start-ups and spin-offs

**Cross-Cutting Activity #2**  
Creation of a network of joint strategic labs between universities and companies

**Cross-Cutting Activity #3**  
Citizens engagement

**Cross-Cutting Activity #4**  
Education & Lifelong Learning





# Digital Twin of Ocean

U. Von Der Leyen in the Brest conference this year :

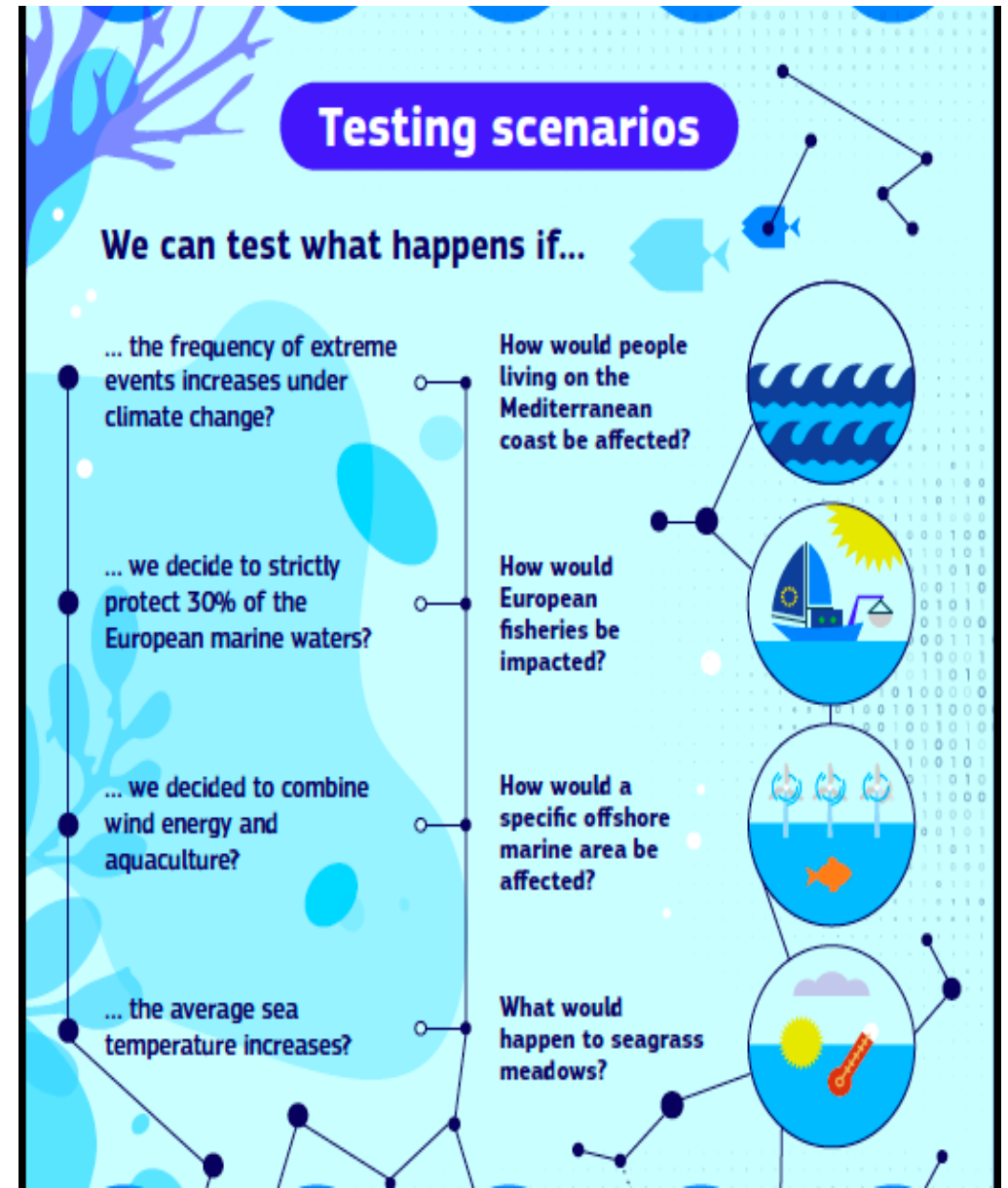
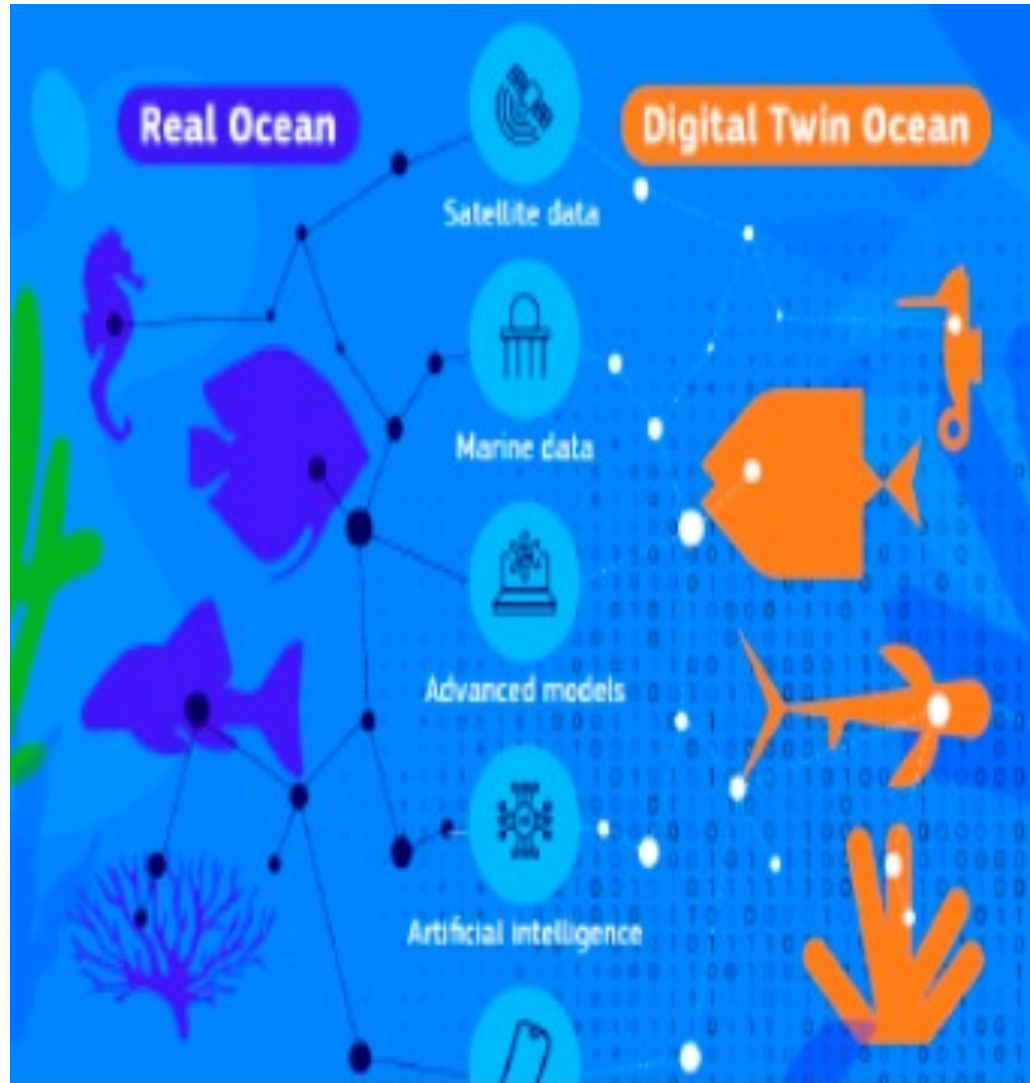
**“Europe wants to build a Digital Twin of the ocean, as a platform for global cooperation. We are connecting our satellites, drones, high performance computing. For real-time knowledge and long-term predictions on the impact of climate change.”**

.....Here the ambition is to anticipate the outcome of an intervention.

**You want to answer ,what if’ question.** I.e. how will the ocean change if I stop fishing. Or what is the most cost effective way to protect a coastal town from sea level rise (damming, sand bars, mangoves, corals etc. So you start from the outcome and optimise interventions.



# DT and the WHAT IF Scenarios



Obiettivo finale:  
**MARITIME, MARINE, AND INLAND WATER TECHNOLOGIES:  
TOWARDS THE DIGITAL TWIN OF THE UPPER ADRIATIC**

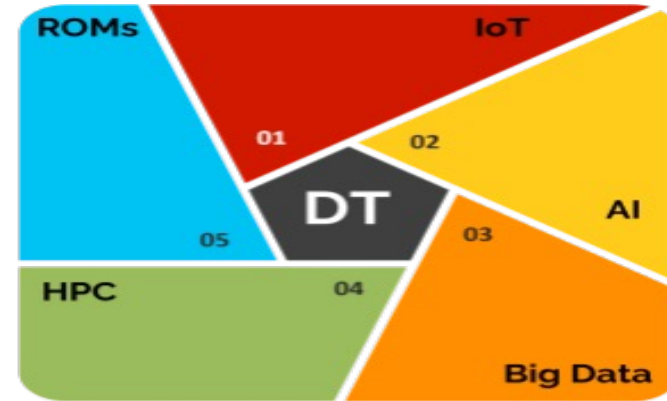


Figure 1: DT foundation pillars



# INEST Citizens engagement



## UNO SCONOSCIUTO DI NOME MARE

*Tra note musicali e letture di testi narrativi, gli scienziati spiegano i misteri del mare.*



### UDINE

27 GIUGNO 2023

ore 18.30

Museo di Storia Naturale  
Via Cecilia Gradenigo  
Sabbadini, 22/32

Immergiti in un'avventura alla scoperta dei segreti del Mediterraneo con "Uno sconosciuto di nome mare"! In questo percorso all'interno della scienza, ti accompagneranno note musicali e testi famosi che raccontano la storia del mare: uno dei luoghi più misteriosi del nostro pianeta.

*Con la partecipazione di:*  
Musica per sax & live electronics di Marco Castelli  
Narrazione di Roberto Eramo  
Creazione narrativa di Fabio Denitto  
Apporto scientifico dei  
Ricercatori dell'Istituto Nazionale di Oceanografia e  
di Geofisica Sperimentale e  
dell'Università degli Studi di Trieste

**INGRESSO GRATUITO**

**PER INFO E PRENOTAZIONI : [friuliveneziagiulia@marevivo.it](mailto:friuliveneziagiulia@marevivo.it)**

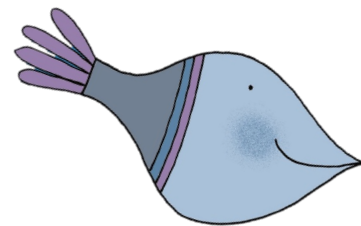
*Progetto realizzato da Marevivo FVG grazie al contributo della Regione Friuli Venezia Giulia.*



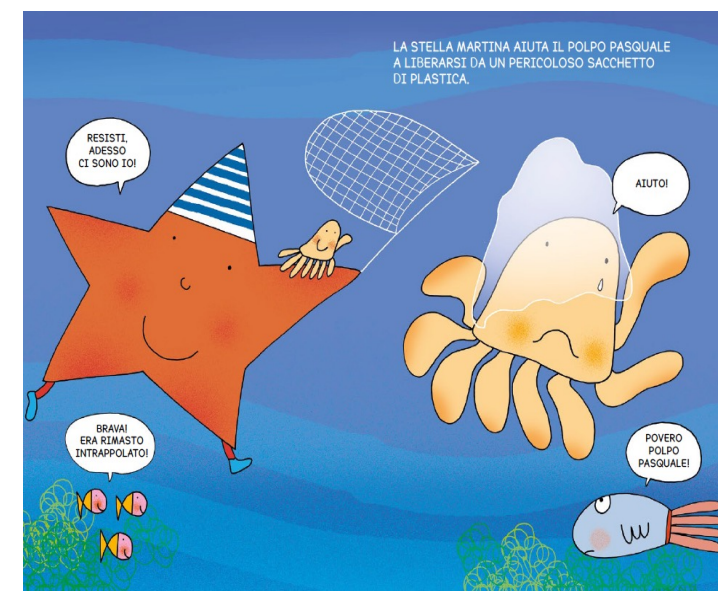
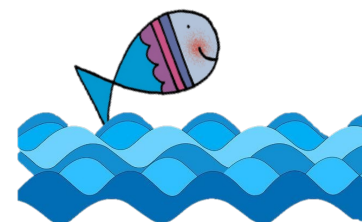
## PLASTICOCENE



# For citizens of any age



“Martina Stella di Mare”  
By Nicoletta Costa  
Edito Panini



# Lezioni apprese

## Punti di forza

- Priorità Europea
- Valorizzazione del territorio
- Multidisciplinarietà
- Rapporto pubblico- privato
- Digitalizzazione
- Sostenibilità
- Investire sui giovani
- Diplomazia Scientifica e dimensione internazionale
- Coinvolgere i cittadini

Spoke 8: MARITIME, MARINE, AND INLAND WATER  
TECHNOLOGIES: TOWARDS THE DIGITAL TWIN OF THE UPPER  
ADRIATIC

**BANDI A CASCATA  
PROSSIMA CALL AD APRILE SIA  
PER IL NORD SIA PER IL  
MERIDIONE**

# Obiettivo finale : INEST come Progetto Pilota delle Priorità Europee

## INEST a supporto di BIG e della KIC MMW

