

# BLUE ECONOMY WORKSHOP: DEVELOP A SUSTAINABLE AND EQUITABLE OCEAN ECONOMY.

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*May 2022*

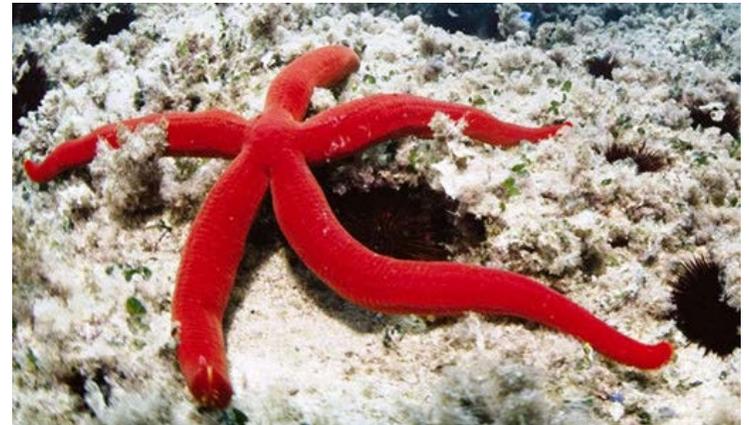


**OGS** National Institute  
of Oceanography  
and Applied  
Geophysics

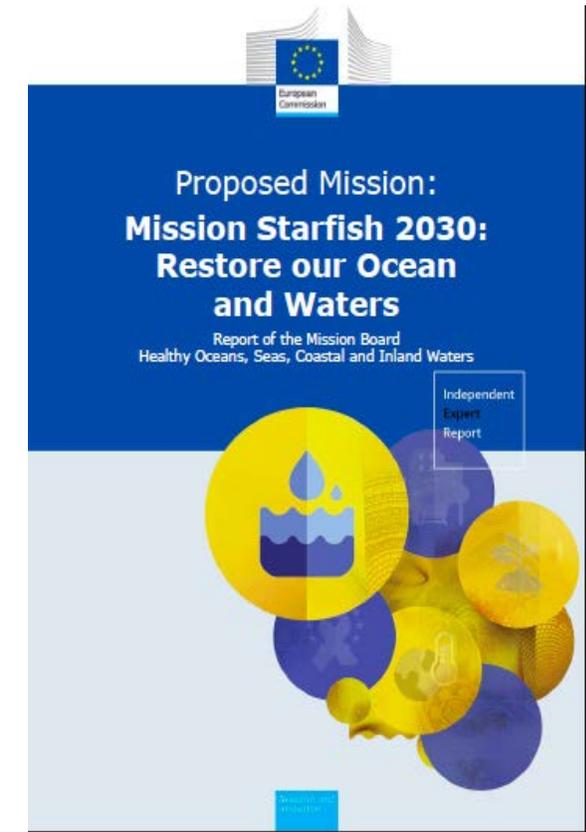
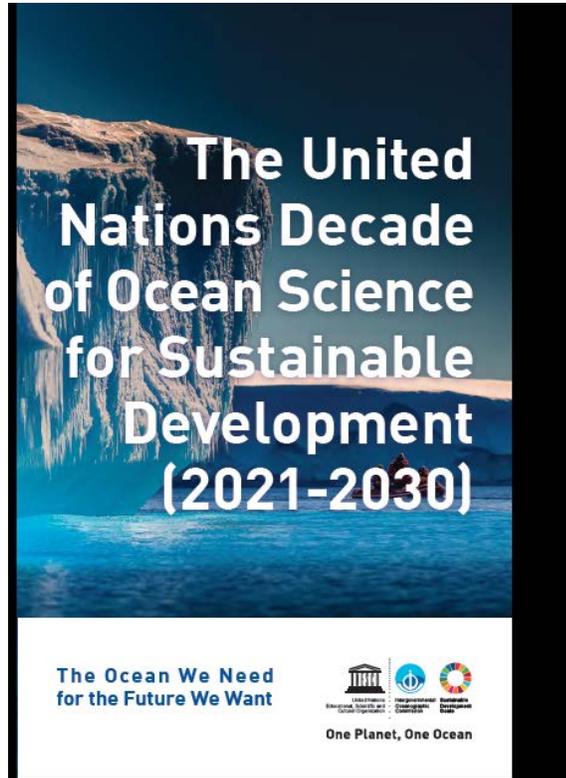


**BIBLIOTHECA ALEXANDRINA**  
مكتبة الإسكندرية

- The EU program Horizon Europe
- Missions and the Starfish Mission 2030
- Citizens engagement



# The Context





# HORIZON EUROPE

THE EU  
RESEARCH &  
INNOVATION  
PROGRAMME 2021 – 27



This presentation is based on the political agreement of 11 December 2020 on the Horizon Europe. Information on some parts is pending revision.

19 March 2021

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HORIZON EUROPE

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# Investing to shape our future



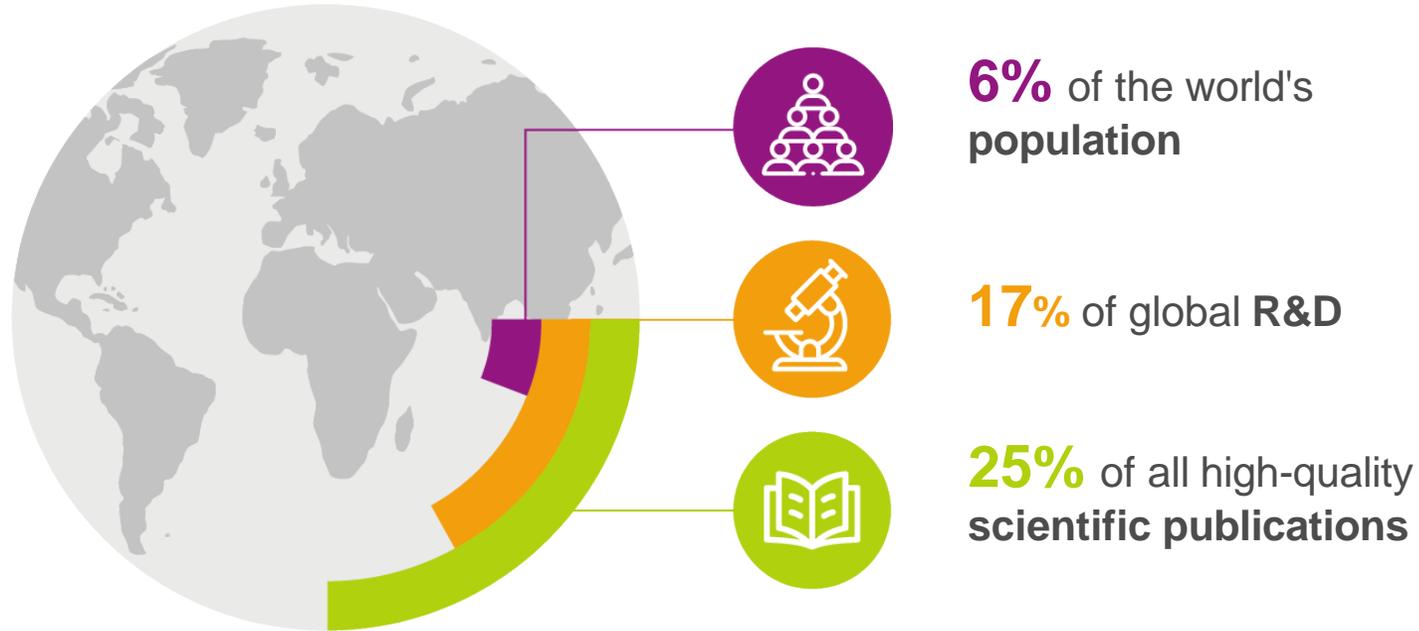
# The Vision

The EU's key funding programme for research and innovation:

- Tackles **climate change**
- Helps to achieve the UN's **Sustainable Development Goals**
- Boosts the EU's **competitiveness and growth**
- Facilitates **collaboration** and strengthens the **impact** of research and innovation while tackling **global challenges**
- Supports the creation and better diffusion of excellent **knowledge and technologies**
- **Creates jobs**, fully engages the talent pool, boosts economic growth, promotes industrial competitiveness

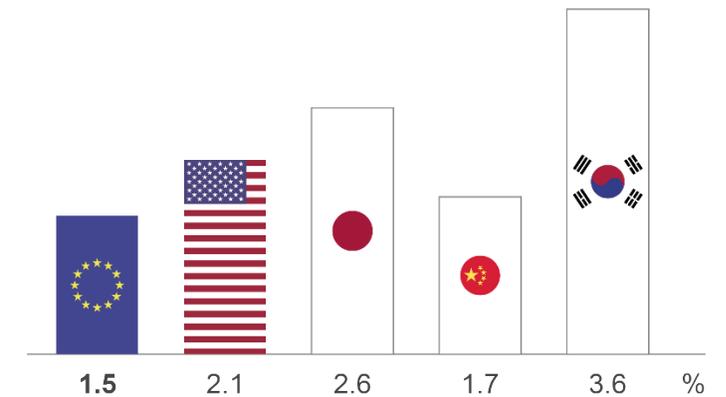


# While benefiting from world-class research and strong industries... Our knowledge and skills are our main resources



...Europe can do better at transforming this into **leadership in innovation** and **entrepreneurship**

## 1.5% EU business R&D investment



*EU figure is for 2019  
Figures for USA, Japan, China and South Korea are for 2018. Figures represent R&D as % of GDP*

# Horizon Europe - 3 types of impact

The ambitious EU research and innovation framework programme (2021-2027)



fuel EU's **scientific and technological excellence** and the strengthen the European Research Area (ERA)

**Science  
& technology**



tackle policy priorities, including **green and digital transitions** and Sustainable Development Goals

**Society**

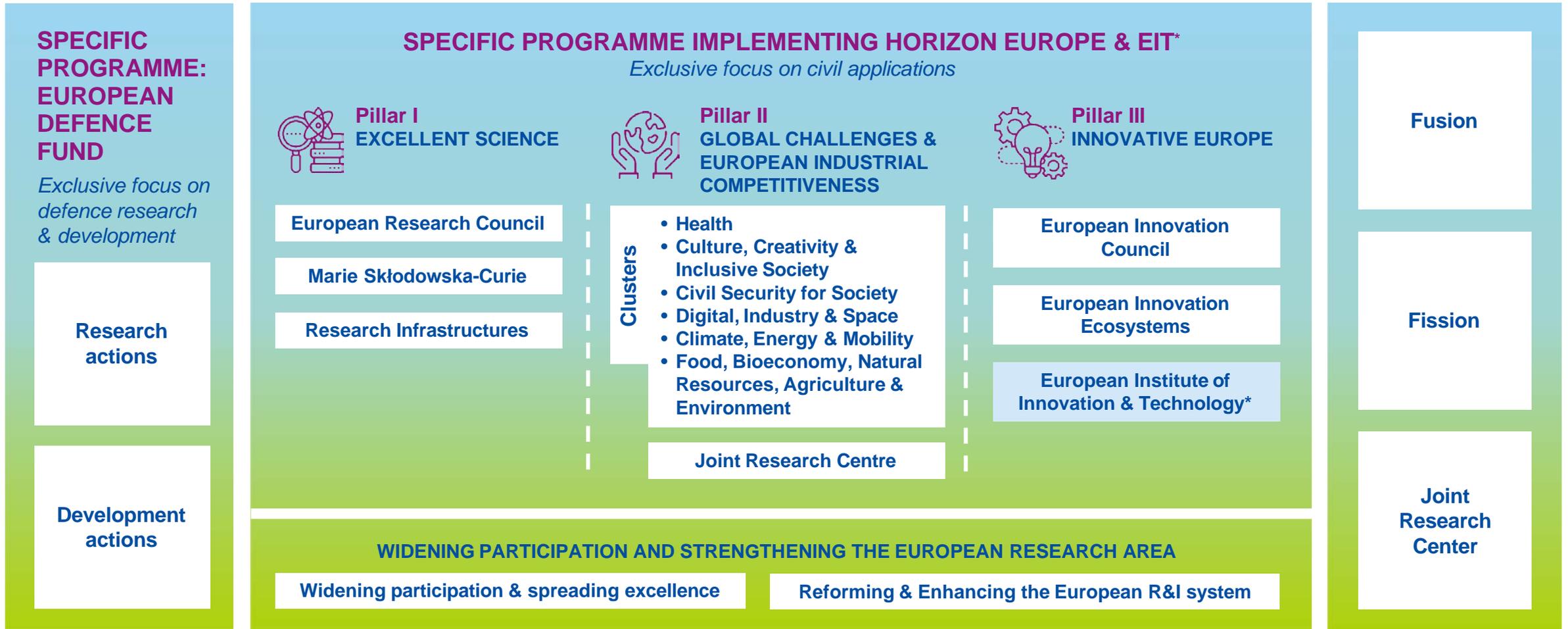


boost Europe's **innovation uptake, competitiveness** and **jobs**

**Economy**

# HORIZON EUROPE

# EURATOM



\* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

# Lessons Learned

from Horizon 2020 Interim Evaluation



Support breakthrough innovation



Create more impact through mission-orientation and citizens' involvement



Rationalise partnerships' landscape



Reinforce openness



Strengthen international cooperation



Encourage participation



# Key Novelties

in Horizon Europe

European Innovation Council

EU Missions

New approach to partnerships

Open science policy

Extended association possibilities

Spreading Excellence



# New approach to European Partnerships

New generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives

## Key Features

- **Strategic orientation**
- **Systemic approach**
- **Simple architecture and toolbox**
- **Common set of criteria for the life-cycle**

### **CO-PROGRAMMED**

Based on Memoranda of Understanding/contractual arrangements; implemented independently by the partners and by Horizon Europe

### **CO-FUNDED**

Based on a joint programme agreed and implemented by partners; commitment of partners for financial and in-kind contributions

### **INSTITUTIONALISED**

Based on long-term dimension and need for high integration; partnerships based on Art 185/187 of TFEU and the EIT legal acts for 2021-2027

# An example- Egypt is a partner



**PRIMA**  
PARTNERSHIP FOR RESEARCH AND INNOVATION  
IN THE MEDITERRANEAN AREA



## **Partnership for Research and Innovation in the Mediterranean Area**

### **(PRIMA)**

A joint programme to support food systems and water resources in the Mediterranean basin, partner countries, international agreements and latest

### **What is PRIMA?**

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The Partnership on Research and Innovation in the Mediterranean Area (PRIMA) will develop much-needed solutions for a more sustainable management of water and agri-food systems in the Mediterranean basin.

It is a ten-year initiative (2018-2028), partly funded by EU's research and innovation programme

# Future Partnership: The Sustainable Blue Economy

## Description

The partnership '**A climate-neutral, sustainable and productive Blue Economy**', included in the Horizon Europe Work Programme 2021-22 as a co-funded partnership. can be described as Horizon Europe's **blue arm of the Green Deal**, uniting research and innovation efforts to aid the transition to a sustainable blue economy.

A consortium, under the coordination of Italy and co-coordination of Norway, has recently submitted a proposal to the EC. This marks the culmination of an elaborate co-creation process over the last two years.

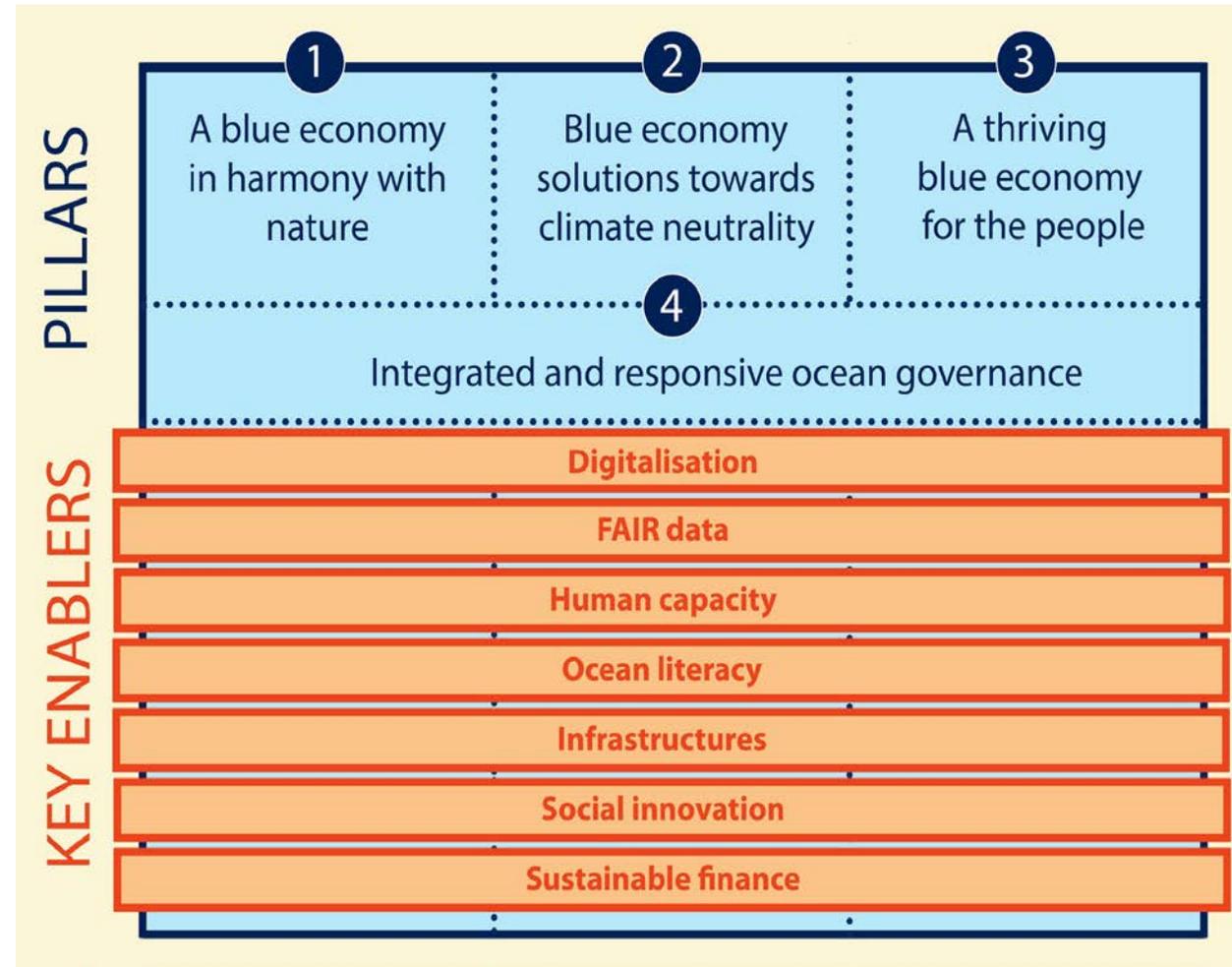
The partnership is expected to launch in late 2022.

# SBEP VISION

*The Sustainable Blue Economy Partnership will enable a just and inclusive transition from the current, widely non-sustainable ocean economy to a regenerative and circular blue economy that contributes to restoring the ocean's health, resilience and the services it provides to people, by being climate-neutral, sustainable and productive.*

# SBEP VISION

*The Sustainable Blue Economy Partnership will enable a just and inclusive transition from the current, widely non-sustainable ocean economy to a regenerative and circular blue economy that contributes to restoring the ocean's health, resilience and the services it provides to people, by being climate-neutral, sustainable and productive.*





The new Partnership proposal is based on a successful previous experience

BLUEMED Pilot initiative

“Towards a Healthy plastic-free Mediterranean Sea”

1% of the World's waters

the Med Sea is a "plastic trap"

7% of all global microplastics

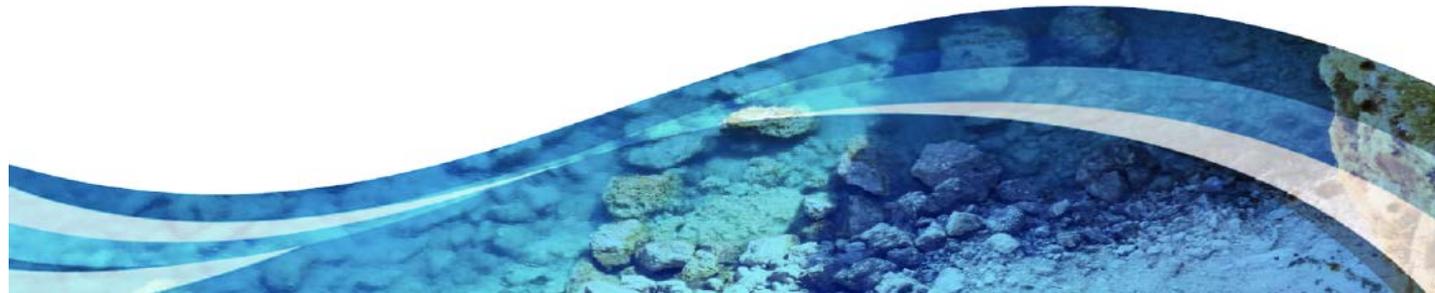
# A successful experience: Blue Med- plastic Pilot project



BlueMed Pilot Action For a plastic-free, healthy Mediterranean Sea

## Mapping of initiatives – National Hubs EGYPT

[Extract from the DRAFT SUMMARY REPORT, BLUEMED Pilot: For a Plastic-free, Healthy Mediterranean Sea  
(Tuesday 12 March 2019, 9:00 – 17:00, Room: CDMA -1/44, Rue du Champ de Mars 21, Brussels, Belgium)]





# International Cooperation

## International Cooperation

Tackling together global societal challenges; access to the world's best talents, expertise and resources; enhanced supply and demand of innovative solutions

## Association to Horizon Europe

- Third countries with good capacity in science, technology and innovation
- Taking into account objective of driving economic growth in Europe through innovation
- Intensified targeted actions
- Strengthened support to multilateral cooperation
- Openness to international participation balanced with the promotion of EU strategic autonomy



# Open Science across the programme

## Open Science

Mainstreaming of open science practices for improved quality and efficiency of R&I, and active engagement of society

**Mandatory immediate Open Access to publications:** beneficiaries must retain sufficient IPRs to comply with open access requirements;

**Data sharing as ‘open as possible, as closed as necessary’:** mandatory Data Management Plan for FAIR (Findable, Accessible, Interoperable, Reusable) research data

- Work Programmes may incentivize or oblige to adhere to **open science practices** such as involvement of citizens, or to use the **European Open Science Cloud**
- Assessment of open science practices through the **award criteria** for proposal evaluation
- Dedicated support to **open science policy actions**
- **Open Research Europe** publishing platform

# GEP Gender Equality Plan

For Horizon Europe calls for proposals with deadlines in 2022 and beyond, applying public bodies, research organisations and higher education institutions, from EU Member States and associated countries, must have a **GEP or equivalent strategy in place to be eligible for funding.**

EQUALITY

The image shows the cover of a document from the European Commission. At the top, there is the European Union flag and the text 'European Commission'. Below that, the title 'Striving for a Union of Equality' is written in a large, bold font, with the subtitle 'The Gender Equality Strategy 2020-2025' underneath. The cover features a colorful, abstract background with blue, orange, and yellow waves. A quote from Ursula von der Leyen is included: 'Gender equality is a core principle of the European Union, but it is not just a matter of fairness in business, politics and society as a whole. All citizens and organisations should be able to reach their full potential if we succeed in our quest for equality. We need to do it for the present, but also for the future, for the sake of the Union and for the sake of the world.' Below the quote, there is a paragraph explaining the strategy's goals: 'Striving for a Union of Equality means a Union where all women and men, girls and boys in all their diversity – are equal. This is a joint undertaking by all stakeholders. The Gender Equality Strategy 2020-2025 sets out a vision, policy objectives and actions to make concrete progress on gender equality in Europe and beyond, achieving the Sustainable Development Goals.' A section titled 'IN A GENDER EQUAL EUROPE...' lists three key goals: 1. 'More and better jobs to pursue our chosen path in life', 2. 'Gender equality in pay', and 3. 'Gender equality in the workplace'. Each goal is accompanied by a small icon and a brief description of the target.



# EU Missions

## R&I Missions

Relating EU's research and innovation better to society and citizens' needs; with strong visibility and impact

A mission is a portfolio of actions across disciplines intended to achieve a **bold and inspirational and measurable goal** within a set timeframe, with **impact** for society and policy making as well as relevance for a significant part of the European population and wide range of European citizens.

Horizon Europe defines mission characteristics and elements of governance, and **5 missions areas**. Specific missions will be programmed within the Global Challenges and European Industrial Competitiveness pillar, but may also benefit from actions carried out within other parts of the Programme as well as complementary actions carried out under other Union programmes.



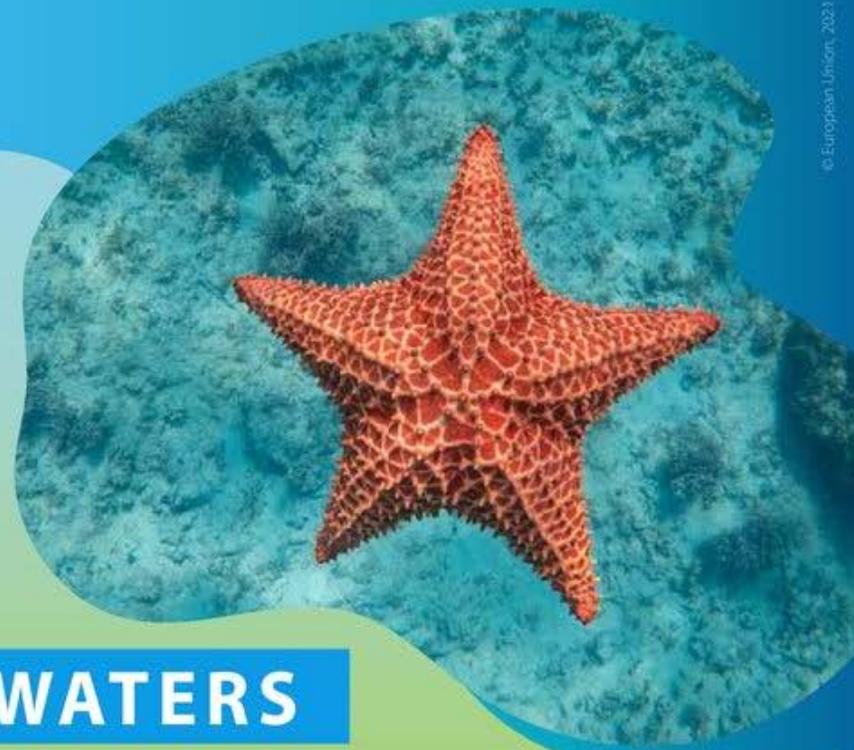
EUROPEAN UNION



# EU MISSIONS

**RESTORE OUR OCEAN & WATERS**

**Concrete solutions for our greatest challenges**



© European Union, 2021

#EUmissions #HorizonEU #MissionOcean

# EUROPERAN COMMISSION New Priority - MISSIONS

## The EU must look at the audacity and complexity of the Apollo program



### MISSIONS

## Mission-Oriented Research & Innovation in the European Union

A problem-solving approach to fuel innovation-led growth  
by Mariana MAZZUCATO

- create a European public good
- audacious and with a wide social relevance
- clear direction and concrete results
- targeted, measurable over time
- ambitious but realistic
- interdisciplinary, cross-sectoral research and innovation actions
- capture the public's imagination

*Mariana Mazzucato*



# THE MAN ON THE MOON MISSION

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The Apollo 'Man on the Moon' mission expressed by President John F. Kennedy in 1961<sup>(a)</sup> was a geo-political and technological mission. It set a clear and ambitious objective: put a man on the moon and bring him back safely. There was also a concrete timeline – get there before the end of the decade (1960s).

The Apollo mission required investments and innovation not just in aerospace but also across multiple sectors (food, medicine, computation, materials, biology, microbiology, geology, electronics, and communications). Without new materials, for example, the mission would not have worked. It inspired children to dream about becoming astronauts; reinvigorating STEM subjects in schools; required researchers from various disciplines and sectors to cooperate to solve problems in a bottom-up manner; stimulated new types of risk-taking in many different sub-projects, of which many, of course, failed.

# Horizon Europe: Missions

## MISSION AREAS:

Soil health and food



Adaptation to climate change, including societal transformation



Climate-neutral and smart cities



Cancer



Healthy oceans, seas, coastal and inland waters



#HorizonEU



European  
Commission



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WHAT'S  
IN IT FOR ME ?

## What are **EU Missions**?

The European Commission launched five new EU Missions – including the **Mission “Restore our Ocean and Waters by 2030”**.

European Missions are new broad mobilisation initiatives rooted in the Horizon Europe research and innovation programme, by going beyond the existing instruments. Missions will bring **concrete solutions** to the **greatest challenges** of our time, such as fighting cancer, adapting to climate change, protecting the ocean, seas and waters, living in greener cities and ensuring healthy soil and food.

Missions will engage **all Europeans** at EU, regional and local level.

They are about what we can do together to shape the world we want to live in.





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## Why the **ocean** and **waters** matter

Life on Earth depends on the **health** of the connected system of the ocean, seas and inland waters, which covers around 75% of the Earth's surface. This system regulates our climate and provides oxygen, drinking water, clean energy and food.

**40% of Europeans** live in coastal areas, and at least **4.5 million people** in the EU work in sectors related to our ocean, seas and coasts.

Human-made changes are putting our ocean and waters at serious risk. **But it's not too late.** We can still reverse the negative trend, by shifting our focus from exploiting our ocean and waters to making them **sustainable** and **resilient**, and ensuring economic recovery goes hand in hand with environmental protection.

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WHAT'S  
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## Why the **ocean and waters** matter

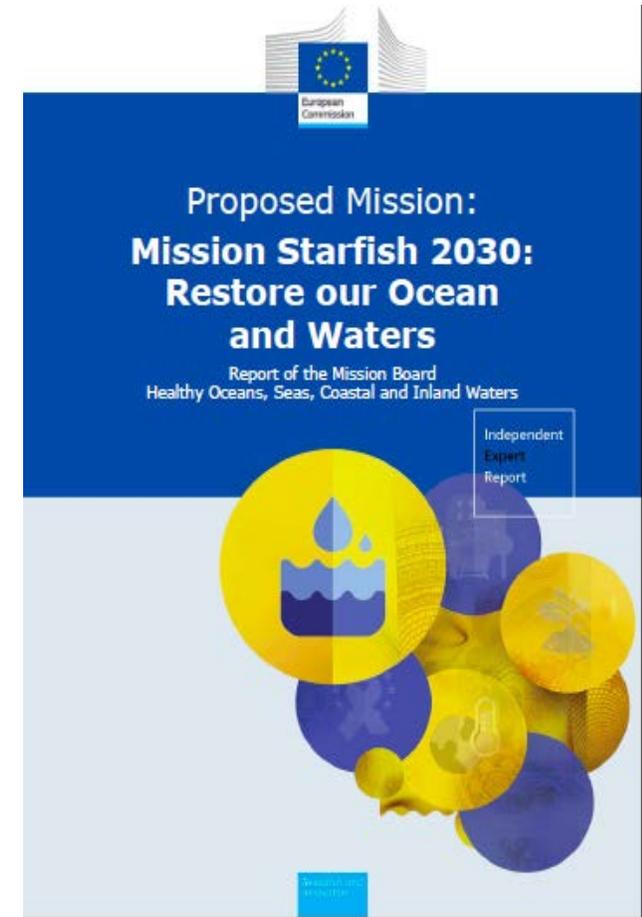
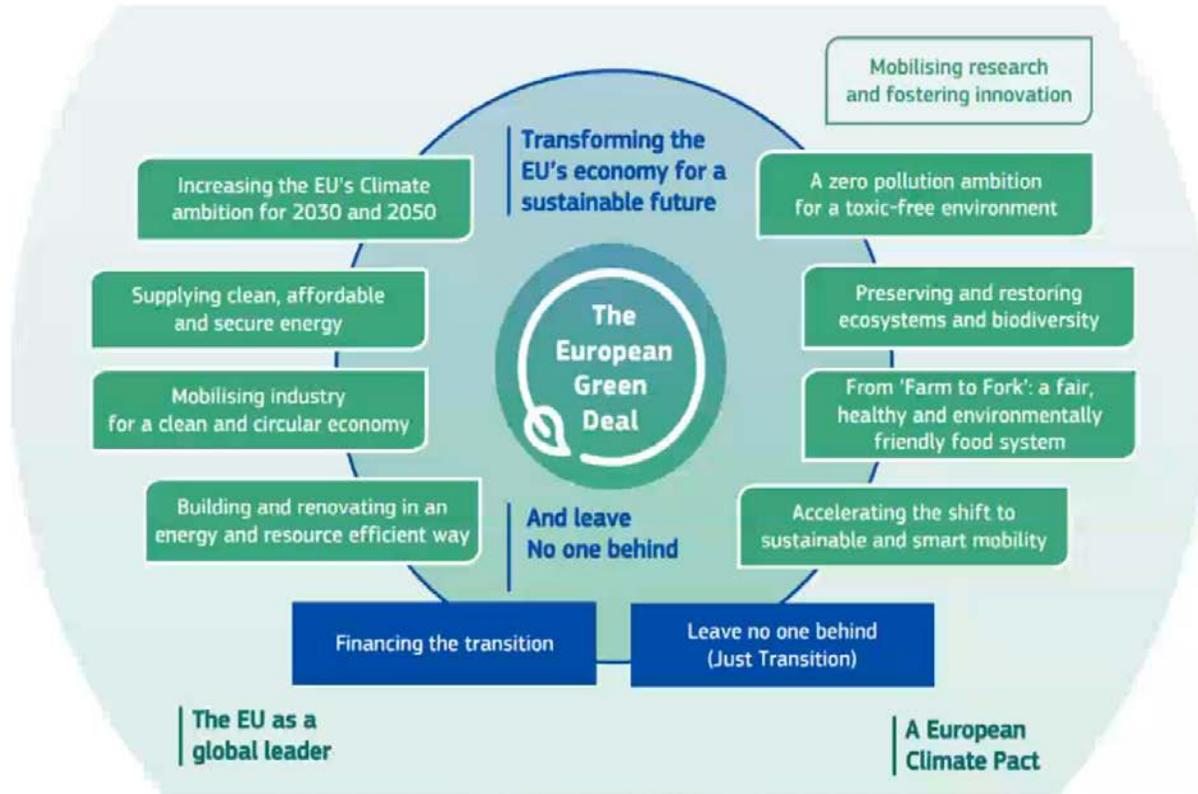
### What opportunities we have if we take care of the ocean and waters

A **restored ocean** and **healthy waters** can play a key role in improving our lives and achieving:

- **Climate neutrality:** the ocean and waters are major carbon sinks and are also essential for adapting to a changing climate
- **Biodiversity:** the ocean and waters are home to a rich diversity of species
- **Economic prosperity:** the ocean is estimated to generate €2.5 trillion of goods and services per year by 2030



- The European Union can only fulfil its European Green Deal objectives with a healthy ocean
- Healthy ocean is only possible with a healthy water system.



This Mission will deliver on the European Green Deal by **“putting the blue into the green”**

# The Ocean and Waters are under Threat



Inadequate  
Governance



Unsustain-  
able human  
footprint

*Challenges to  
healthy  
ocean and  
waters*

Climate  
change

Lack of  
understan-  
ding and  
connection

# Unsustainable exploitation of sea and water resources



**Living resources**

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Fish and shellfish harvesting

Fish and shellfish processing

Marine plants and algae harvesting

Hunting and collecting for other purposes

Aquaculture



**Extraction of non-living resources**

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Extraction of minerals including aggregates

Extraction of salt

Extraction of oil and gas

Extraction of water



**Production of renewable energy**

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Renewable energy generation

Transmission of electricity and communications



**Maritime transport**

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Transport infrastructure

Restructuring of seabed morphology

Transport — shipping



**Tourism and leisure**

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Tourism and leisure infrastructure

Tourism and leisure activities



**Public sector**

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Military operations

Research, survey and educational activities

Land claim

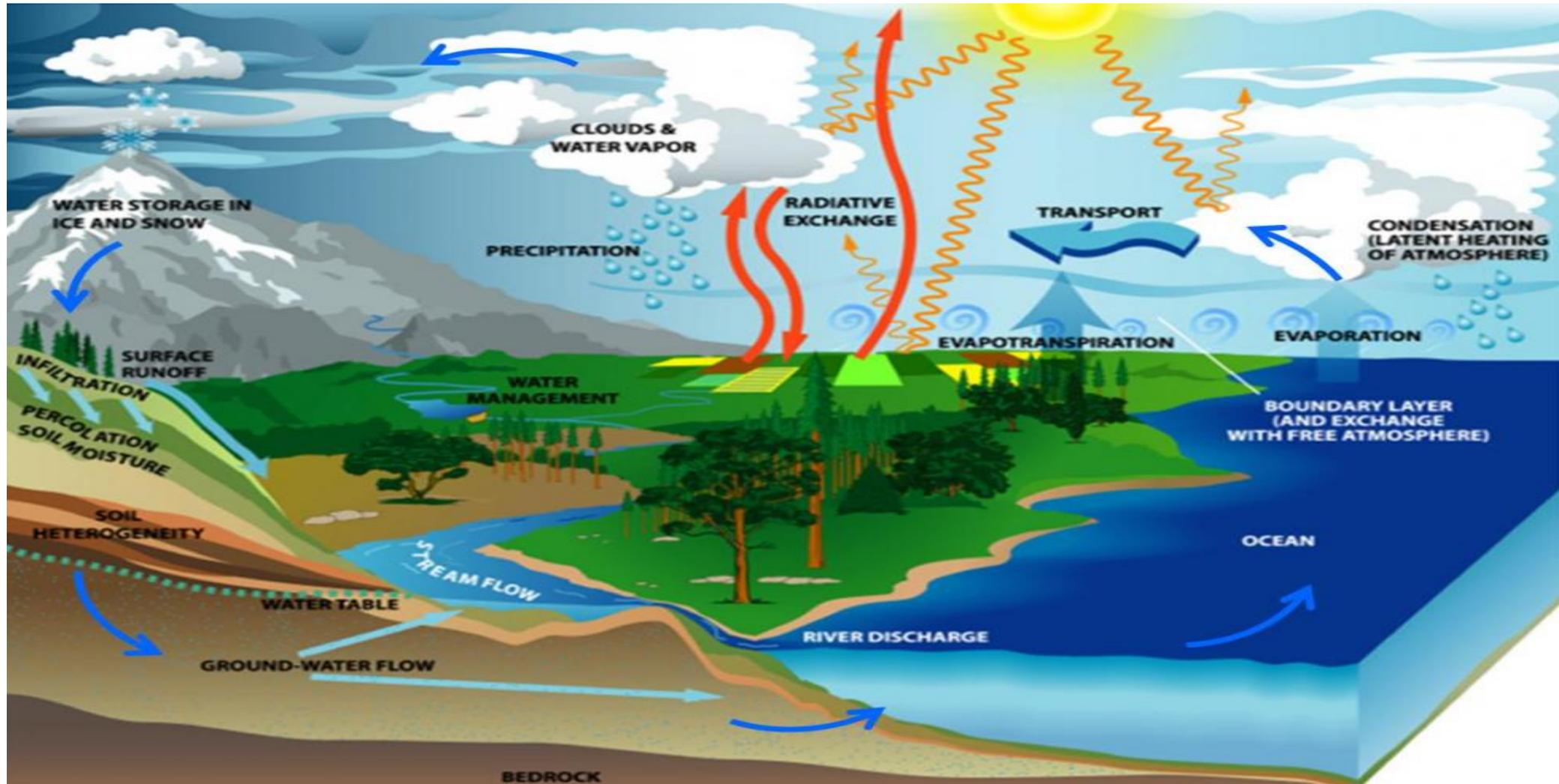
Canalisation and other watercourse modifications

Coastal defence and flood

Offshore structures

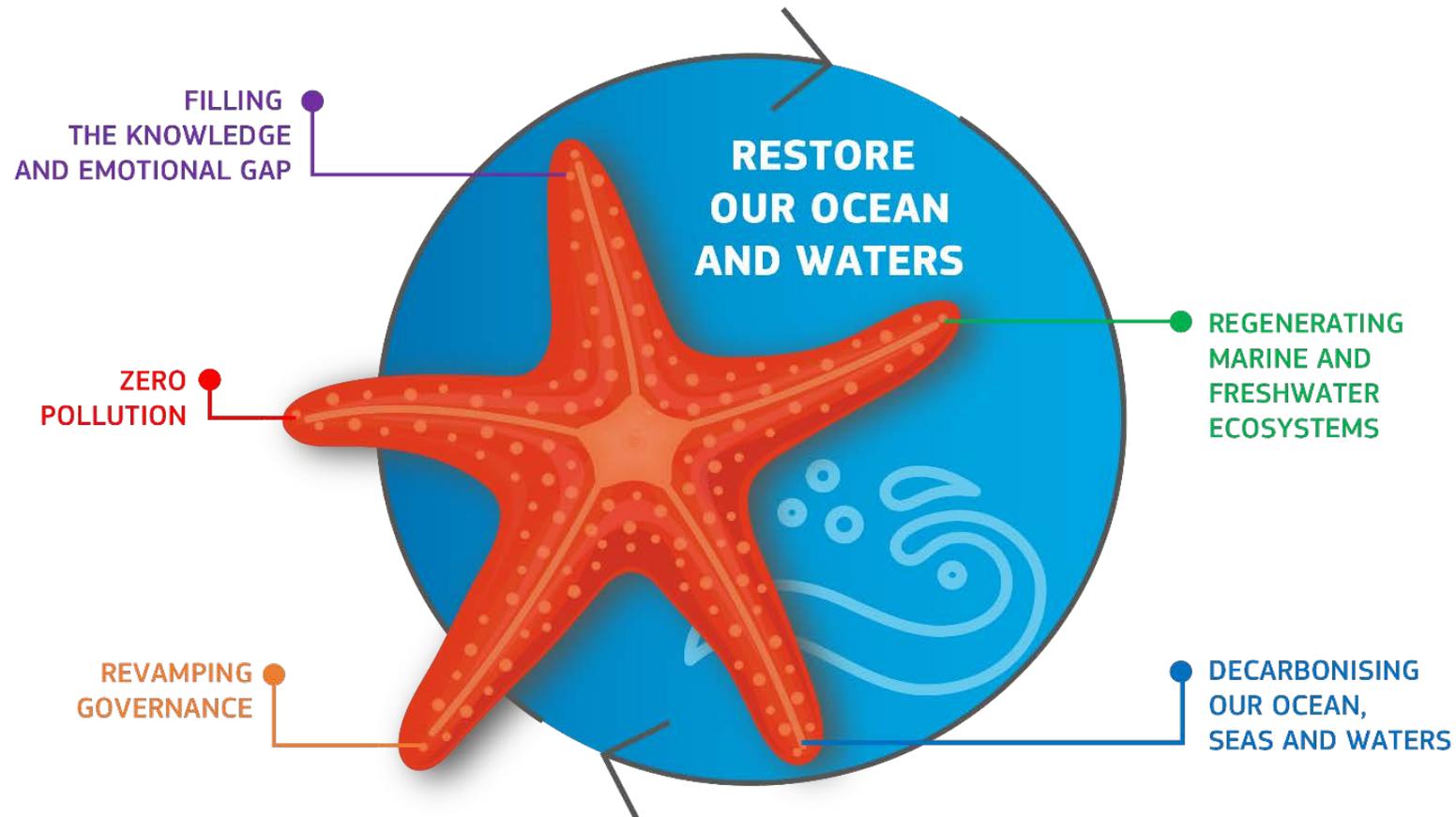
Waste management

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



# Mission Starfish 2030: Restore our Ocean and Waters

Inspired by the shape of the **starfish**, the Mission has **five mutually supporting objectives** for 2030, which together enable the restoration and regeneration of the water cycle as a whole.



# 1. Filling the knowledge and emotional gap



Each European is a citizen of our ocean and waters

- Pan-European Blue education programmes
- European blue regeneration voluntary corps and ambassadors
- Citizen's science with larger public engagement
- New Blue workforce
- Active cooperation and co-ownership by all public authorities



Marine and freshwater observation is streamlined and accessible to all via a digital twin of the ocean and all waters

- Digital Twin of the Ocean
- European Strategy for Marine Science
- Streamlining existing data, models and services

2030

# 2. Regenerating marine and water ecosystems



30 percent of EU-waters are highly to fully protected

- Expansion of Marine Protected Areas (MPAs)
- EU level definition of Marine Protected Area
- Effective management plans
- Coherent network of MPAs with local stakeholders



Active regeneration of 20 percent of degraded habitats

- EU Blue Parks Programme
- Pilot Blue Recovery Nursery
- Protection of biodiversity hotspots
- Large scale regeneration project for every Member State

Renaturalise rivers and waters

- Remove obstacles to sediment flows
- Remove hydro morphological pressures
- EU wide de-damming programme
- Solutions for storage of water in the landscape



End overfishing

- EU Low Impact Fishing Strategy
- Equip fishing vessels with geo-positioning systems
- Reduce incidental catches
- Most destructive fishing practices are phased out

2030



### 3. Zero pollution

#### Zero plastic litter generation

- Zero plastic pollution pilot in the Mediterranean sea
- Ban of all single use plastics and intentionally added micro plastics
- Reusability and recycling of all plastics in the EU

#### Eutrophication of European seas and waters is halted

- Reduction of loss of nutrients into the environment
- Reduction of use and risks of pesticides
- Advanced treatment of urban waste water

#### Zero spill

- Introduce EU Green Shipping label
- Reduce waste and container loss from shipping
- Reduce run off of micro pollutants
- Halt dumping of red muds and contaminated sediments

#### Underwater noise is regulated and reduced

- Enact regulation of underwater noise
- Reduce underwater acoustic emissions
- Noise free zones



2030

# 4. Decarbonising our ocean and seas

Climate-neutral  
waterborne transport

Support the energy  
transition through  
renewable, low-  
impact ocean energy

Zero-carbon  
aquaculture

**2030**

A thriving blue  
biotech

Climate neutral blue  
tourism



# 5. Revamping governance



An integrated and participatory EU-system of ocean and water governance

- European Ocean and Water Agency
- European Blue Citizens' Forum
- Integrated Ocean and Water Plan for Europe
- EU Ocean and Water Summit

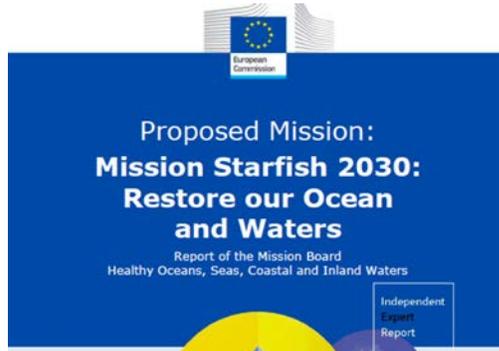


EU leadership for effective global ocean governance

- UN Agreement on areas beyond national jurisdiction
- International ban on activities causing seabed habitat loss
- IUU fishing eradication
- International Standards for ports harbours and shipping
- UN agreement on protection of major rivers
- Ocean governance agreements with strategic partners
- Circular economy agreements with Mediterranean riparian countries to ban and recycle plastic

2030

# Mission Starfish timeline



Mission concept and document presentation by the Board- 2020

Implementation Plan  
by the EC  
September 2021

Communication  
Approval, and launch of  
the Mission  
Septembre 2021



# Main elements of the Mission Starfish intervention logic

All water systems must be included: preserving natural capital offers enormous opportunities for health and economy



## Phase I (2022-2024)

- Large scale area based lighthouses covering all Mission objectives
- Boosting protection of blue ecosystems

### • ENABLERS:

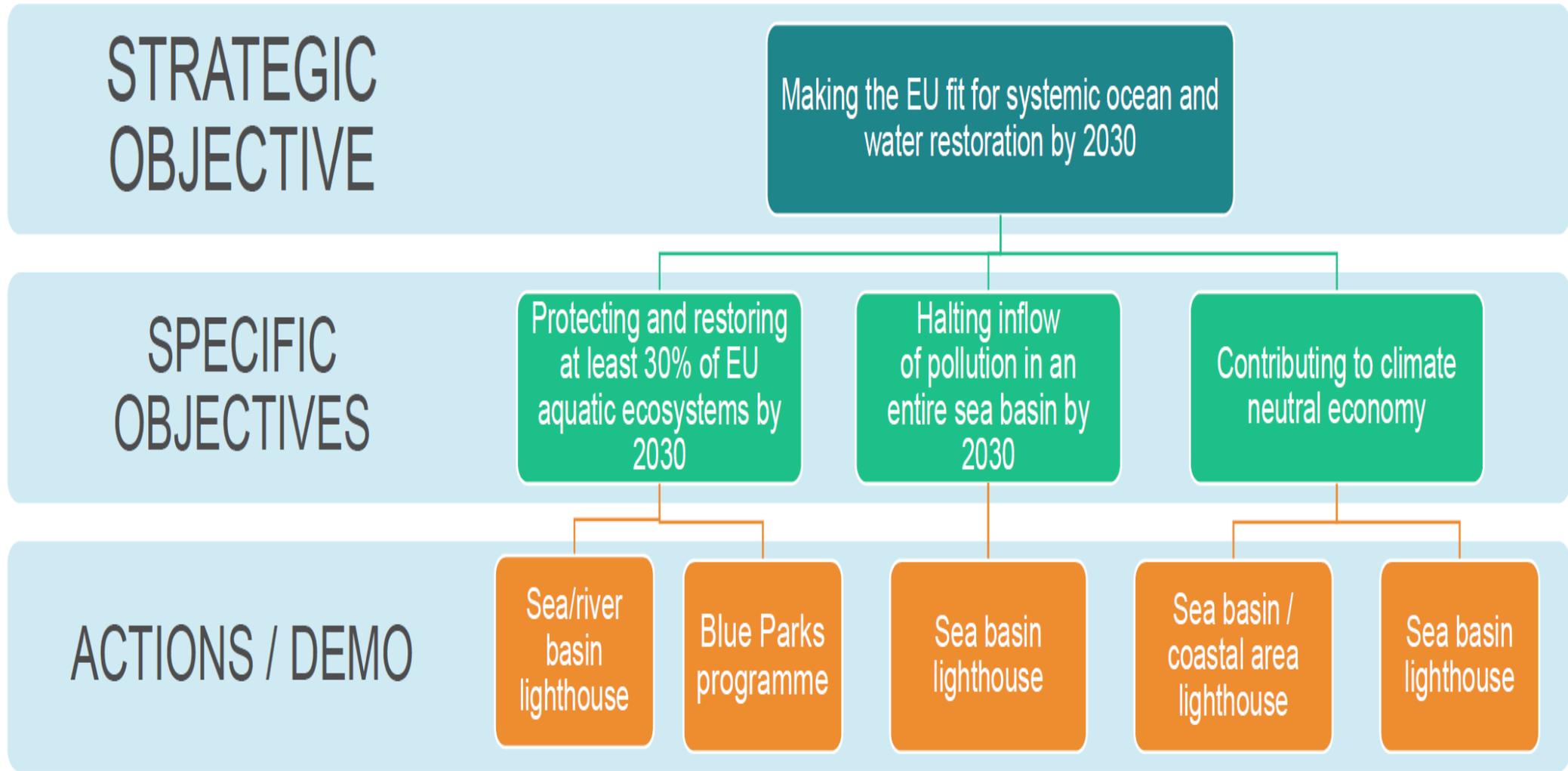
- Actions to increase knowledge and understanding of ecosystems, innovation, digitalisation and governance
- Launch of programme to boost blue education and skills
- Launch of citizen and stakeholder engagement activities throughout the EU



## Phase II (2025-2030)

- Scale up of large area based lighthouses
- Replication of lighthouses for all Mission objectives throughout the EU through a bottom-up selection process
- Implementation and scale up of the Blue programmes
- Actions to further boost knowledge, innovation, digitalisation, training and education, and governance
- Citizen and stakeholder engagement activities throughout the EU

# Main elements of the Mission Starfish intervention logic





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## What happens now?

In early 2022, the first calls for proposals under Horizon Europe will make available **€114 million** to support the rolling out of the Mission. Projects will develop and demonstrate breakthrough innovation to **protect and restore ecosystems, eliminate pollution and make the blue economy carbon-neutral and circular.**

Alongside Horizon Europe the Mission also mobilises the European Maritime Fisheries and Aquaculture Fund (EMFAF), InvestEU and other EU programmes. Together, they will provide around **€500 million** in seed funding during 2021-23. Along with Member State contributions and private funding, this will create a big and lasting impact.

Throughout its lifetime, the Mission will move from piloting to demonstration, deployment and market entry of innovative solutions to restore our ocean and waters.





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## What are the **lighthouses** and **how do they work?**

In the Mission Ocean and Waters we will set up **four Mission Lighthouses** at basin scale in:

- the Mediterranean Sea
- the Danube river basin
- the Baltic and North Sea
- the Atlantic-Arctic basin

For centuries, lighthouses have been guiding sailors through storms to safety.

The four Mission Ocean and Waters lighthouses will act as **hubs that will develop, demonstrate and deploy new solutions** far and wide across the world. Building on existing governance structures, the lighthouses will bring together relevant Member States, the European Commission and other partners, through a political implementation charter. In the charters, the partners commit to cooperating and aligning resources to achieve the Mission objectives.





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## The Mediterranean lighthouse

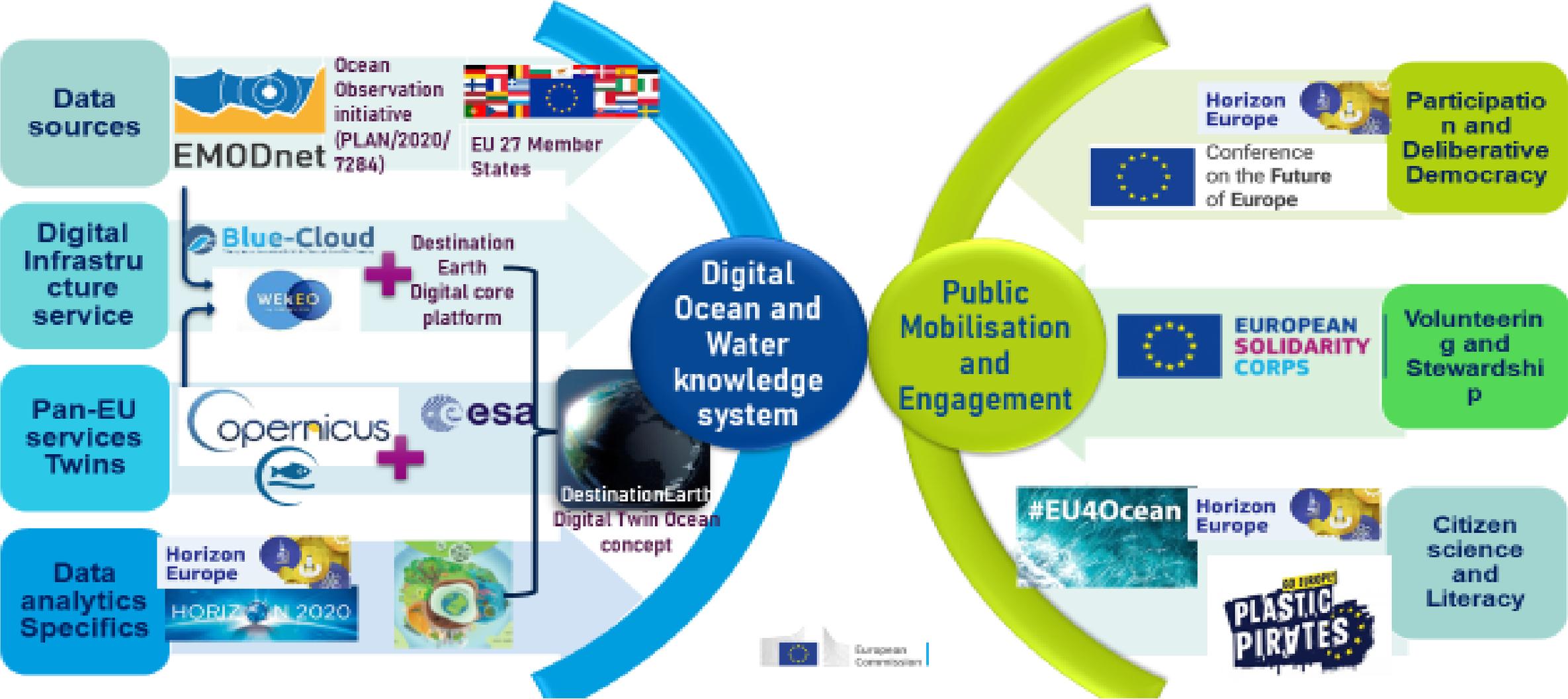
Objective: preventing and eliminating pollution of our ocean, seas and waters.

### Targets:

- Reduce by at least **50%** plastic litter at sea.
- Reduce by at least **30%** microplastics released into the environment.
- Reduce by at least **50%** nutrient losses, the use and risk of chemical pesticides.



# Cross cutting enablers for the Mission



# Brest- Ocean Summit February 2022 - a priority the **DIGITAL TWIN** of European seas and ocean

Finally, the ocean is still largely a great mystery for humankind. That is why Europe is building a **digital twin of the ocean**. We are connecting our assets – like the Copernicus satellites, marine infrastructure like icebreakers, buoys and underwater drones, and high performance computing. We will gather the raw data and turn it into real-time knowledge and longer-term predictions. We are putting the power of the digital revolution at the service of our climate.



a **digital twin** should be operational by 2024. It will make ocean knowledge open-access, available to citizens, scientists and policymakers around the world. It will be a platform for global cooperation.

# Cross cutting enablers

## Examples of activities in the Friuli Venezia Giulia Region- Italy- and in Trieste

**Networks and synergies are the key :** University of Trieste, SISSA, OGS, Area Science Park, Port Authority, Clusters, Environmental Associations, schools, local authorities :





# Public private cluster

*Mare* Technology Cluster FVG

MARITIME TECHNOLOGY CLUSTER  
OF FRIULI VENEZIA GIULIA

[www.marefvg.it](http://www.marefvg.it)

[info@marefvg.it](mailto:info@marefvg.it)

**SAILING  
TO BLUE  
GROWTH**



# Collaboration with big and small companies



Cruise ships



Pleasure Yachts



Marinas



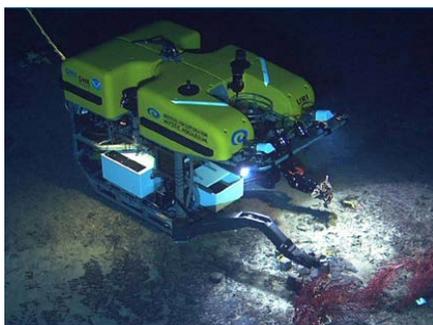
Maritime transport



Offshore systems



Refitting and maintenance



ROV



AUV



Acquaculture



# DIGITAL TWINS FOR THE GULF AND THE PORT OF TRIESTE



**OGS**  
Istituto Nazionale  
di Oceanografia  
e di Geofisica  
Sperimentale



**UNIVERSITÀ  
DEGLI STUDI  
DI TRIESTE**

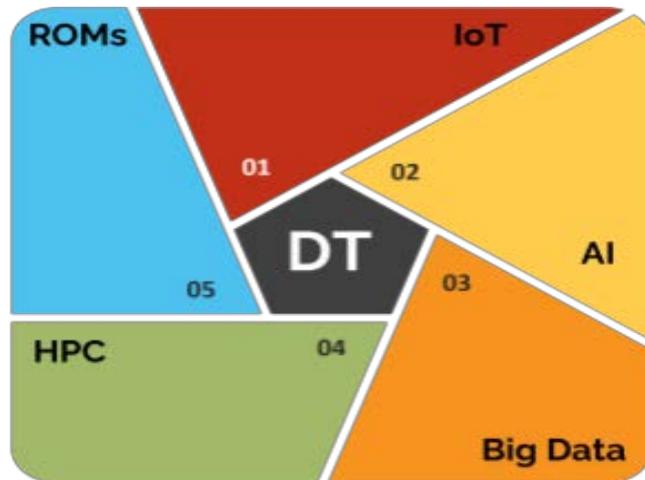


Figure 1: DT foundation pillars



Figure 6: Optimisation of transport paths and logistics

# Education and training

## Citizen Science and citizens engagement



# Training, capacity building and Science Diplomacy

## Summer School and Master in Sustainable Blue Economy

### SUMMER SCHOOL 2021 - THE HYBRID FORMULA



- The initiative is labelled by the [Union for the Mediterranean](#)
- endorsed by the [UNESCO within the Ocean Decade](#).
- funded by the Italian Ministry of University and Research (MUR)





# Citizens engagement

## The role of Environmental Associations



# Citizens involvement, creating emotions

il mare inizia qui - Cerca con Google

<https://www.google.com/imgres?imgurl=https://www.dorabatea...>



 Dorabatea

[←](#) [🔖](#) [⋮](#)

La campagna di sensibilizzazione francese per combattere l'inquinamento idrico | Dor

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# Creating emotions: Science and Art in Trieste

**Exhibition**  
**PLATIC-OCENE**  
Elisabetta Milan



# For citizens of any age

Exhibition “Dall’Inferno al Paradiso:  
un viaggio nel Plasticocene”



Booklet  
“Martina Stella di Mare”



# Mission Starfish 2030: Restore our Ocean and Waters

## The time to act is NOW!

*Ursula v. d. L.*  
Ursula von der Leyen

“Missions have enormous potential for the EU to deliver on key targets while empowering citizens to participate in the implementation of solutions that have meaning for their lives”.

