



STRATEGIC RESEARCH AGENDA

for the European
Waterborne Sector



An aerial photograph of a large port facility. Several container ships are docked at the pier, with their decks covered in colorful shipping containers. Yellow gantry cranes are positioned along the docks, and a vast yard filled with stacks of containers extends into the background. The water is a deep blue-green.

01

WHO ARE WE?



WHO ARE WE?

A European Technology Platform for the Waterborne sector

- Continuous dialogue between waterborne stakeholders such as shipbuilders, ship-owners, maritime equipment manufacturers, infrastructure and service providers, classification societies, universities or research institutes, energy companies, environmental non-profit organisations, waterway and port operators, fisheries and citizen associations and with the EU Institutions, including Member States;
- Common medium and long-term R&D Vision and a Strategic Research Agenda (SRA).
- Waterborne = Maritime + Inland Navigation and lakes + Ports!





02

MISSIONS OF THE WATERBORNE SECTOR



MISSIONS OF THE WATERBORNE SECTOR

- **The transformation of the Waterborne transport**
 - Green and clean Waterborne transport
 - Connected and automated Waterborne transport
 - Safe and secure Waterborne transport
 - Safe, competitive and eco-friendly yards
- **Developing European leadership and new business models for blue growth sectors**
 - Understanding and protecting the oceans, seas and inland waters
 - The oceans, seas and inland waters as a source/font of natural resources
 - Working and living at sea
- **Integrating shipping and inland navigation into seamless port and logistics operations**
 - Port operations
 - Integrating maritime and hinterland logistics
 - Port infrastructure



MISSIONS OF THE WATERBORNE SECTOR

Green and Clean
Transport

OBJECTIVE:
Green and Clean Waterborne Transport

Targets :

- 2030: New-build short sea ships and new-build inland vessels,
- 2050: All ship types.



MISSIONS OF THE WATERBORNE SECTOR

OBJECTIVE:

Safe and secure Waterborne transport

Targets :

- 2030: Radically improve management of safety of ships: aiming for zero fatalities,
- 2050: Radically improved safety culture: zero accidents, zero loss-of-life and zero pollution.



MISSIONS OF THE WATERBORNE SECTOR

Connected and
Automated
Transport

OBJECTIVE:
Connected and Automated Transport

Target :

- 2050: Largescale introduction of resilient and secure autonomous operations in 2050



MISSIONS OF THE WATERBORNE SECTOR

OBJECTIVE:

Safe, competitive and eco-friendly yards

Target :

- 2030: Digitalisation and automation will lead to the use of advanced design and production technologies, which will deliver flexible and cost-effective ships, vessels and offshore structures

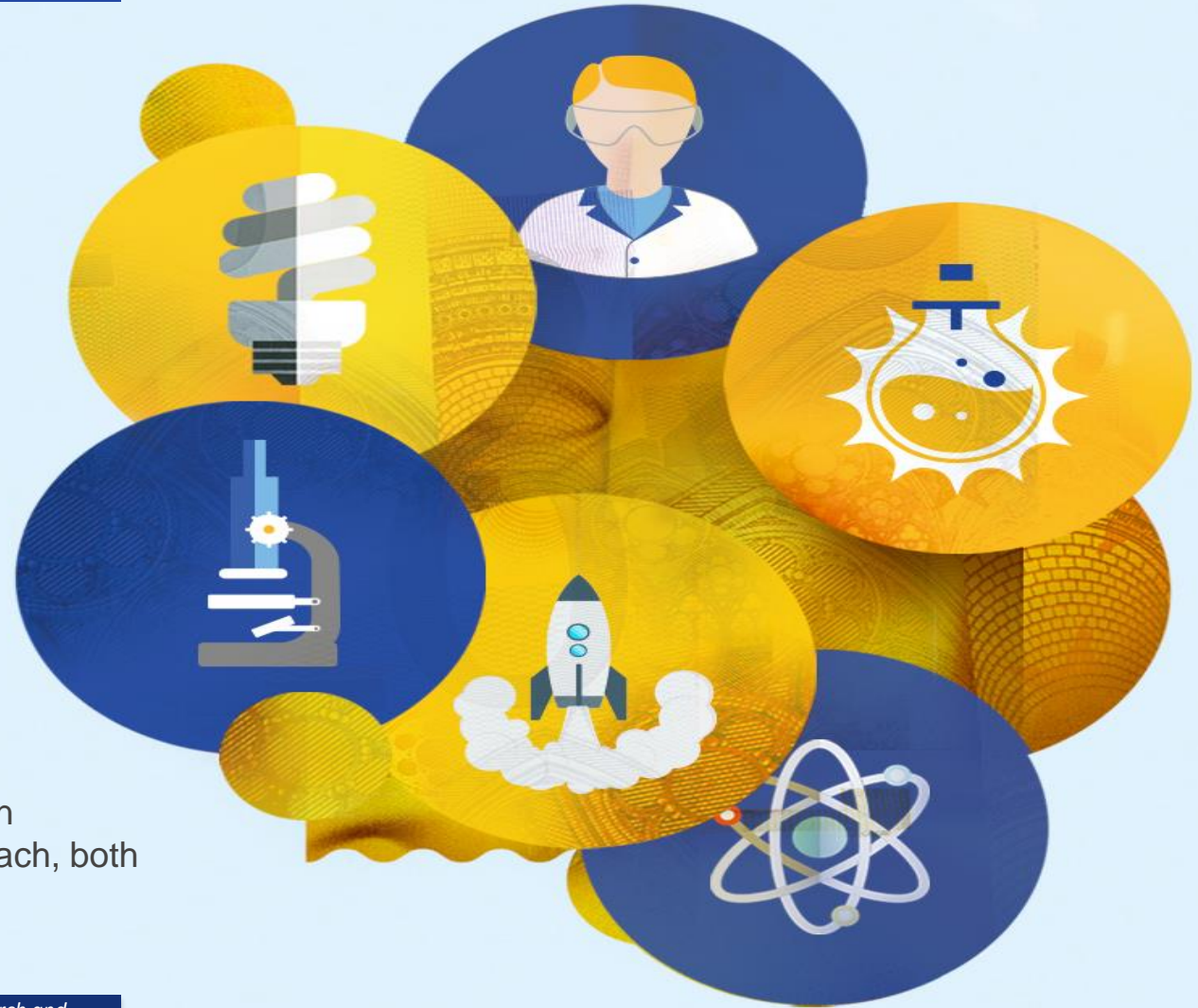


Horizon Europe

THE NEXT EU RESEARCH & INNOVATION INVESTMENT
PROGRAMME (2021 – 2027)

#HorizonEU

Based on the Commission Proposal for Horizon Europe, the common understanding between co-legislators and the Partial General Approach, both approved in April 2019





Horizon Europe - Investing to shape our future

Our vision

A sustainable, fair and **prosperous** future for **people** and **planet** based on European values.

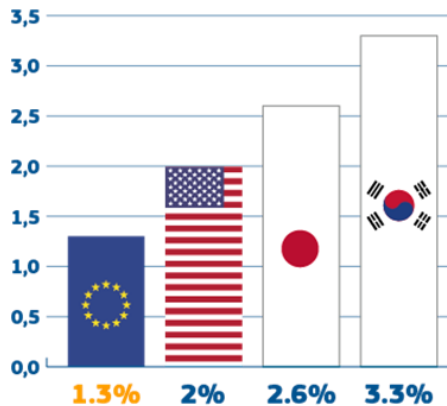
- Tackling **climate change** (35 % budgetary target)
- Helping to achieve **Sustainable Development Goals**
- Boosting the Union's **competitiveness and growth**



While benefiting from world–class research and strong industries...

Our knowledge and skills are our main resources.

- **7%** of the world's population
- **20%** of global R&D
- **1/3** of all high-quality scientific publications



1.3%
EU business
R&D
investment

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

Sibiu recommendations: Europe can shape its future through research and innovation

- Focusing research and innovation on the **ecological, social and economic transitions** and related societal challenges
- Leveraging Europe's scientific strengths into **leadership in breakthrough and disruptive innovation**
- Setting **ambitious goals** for issues that affect us daily, such as skills development, the fight against cancer, harmful emissions, and the state of the oceans, including plastics
- Focusing on **cutting-edge research and innovation** projects spanning from research and innovation to deployment

Horizon Europe

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



**to strengthen the EU's scientific and technological bases
and the European Research Area (ERA)**



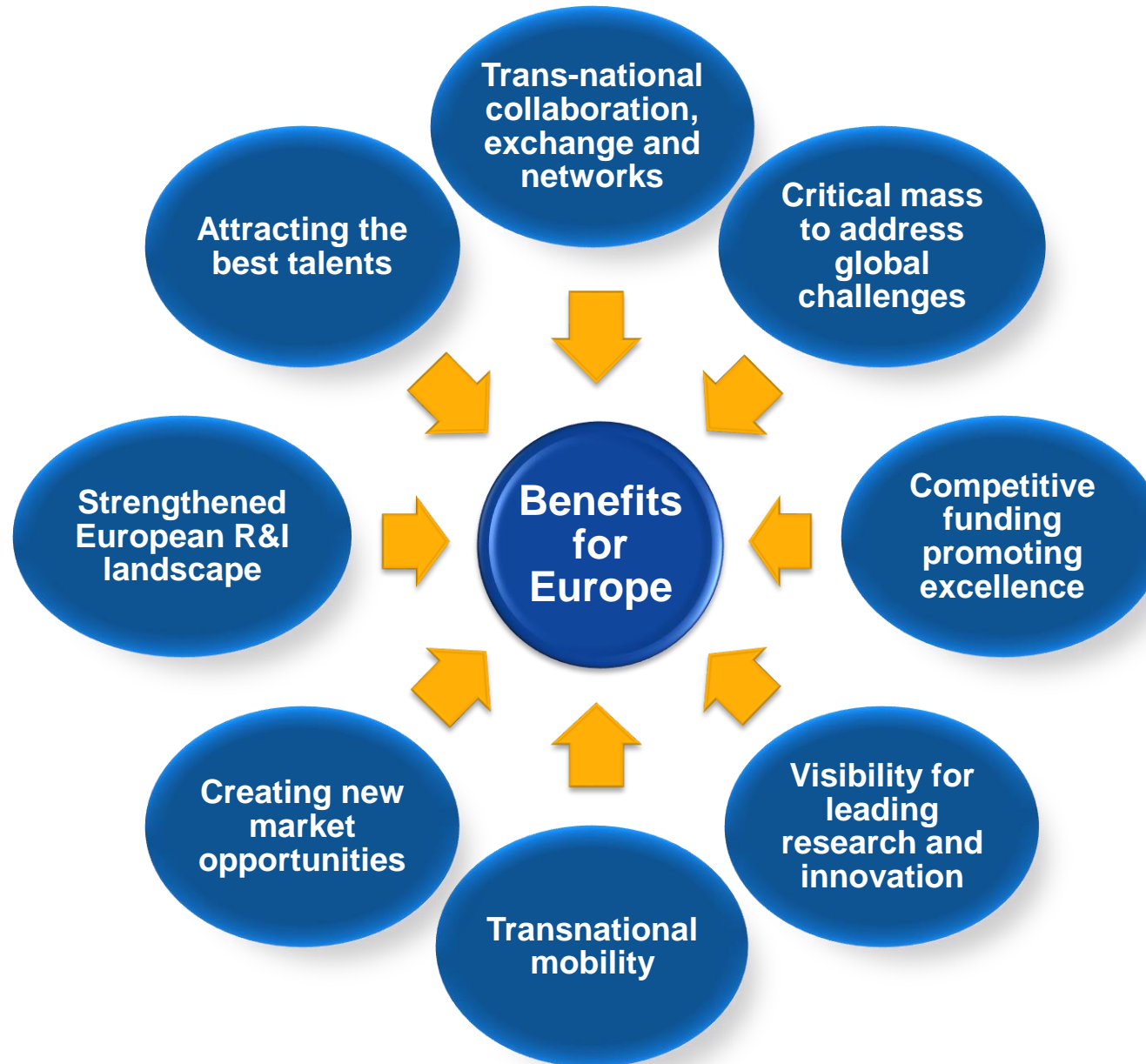
**to boost Europe's innovation capacity, competitiveness
and jobs**



**to deliver on citizens' priorities and sustain our socio-
economic model and values**

The Commission proposes a budget of € 100 billion for Horizon Europe.

Added value through Horizon Europe:





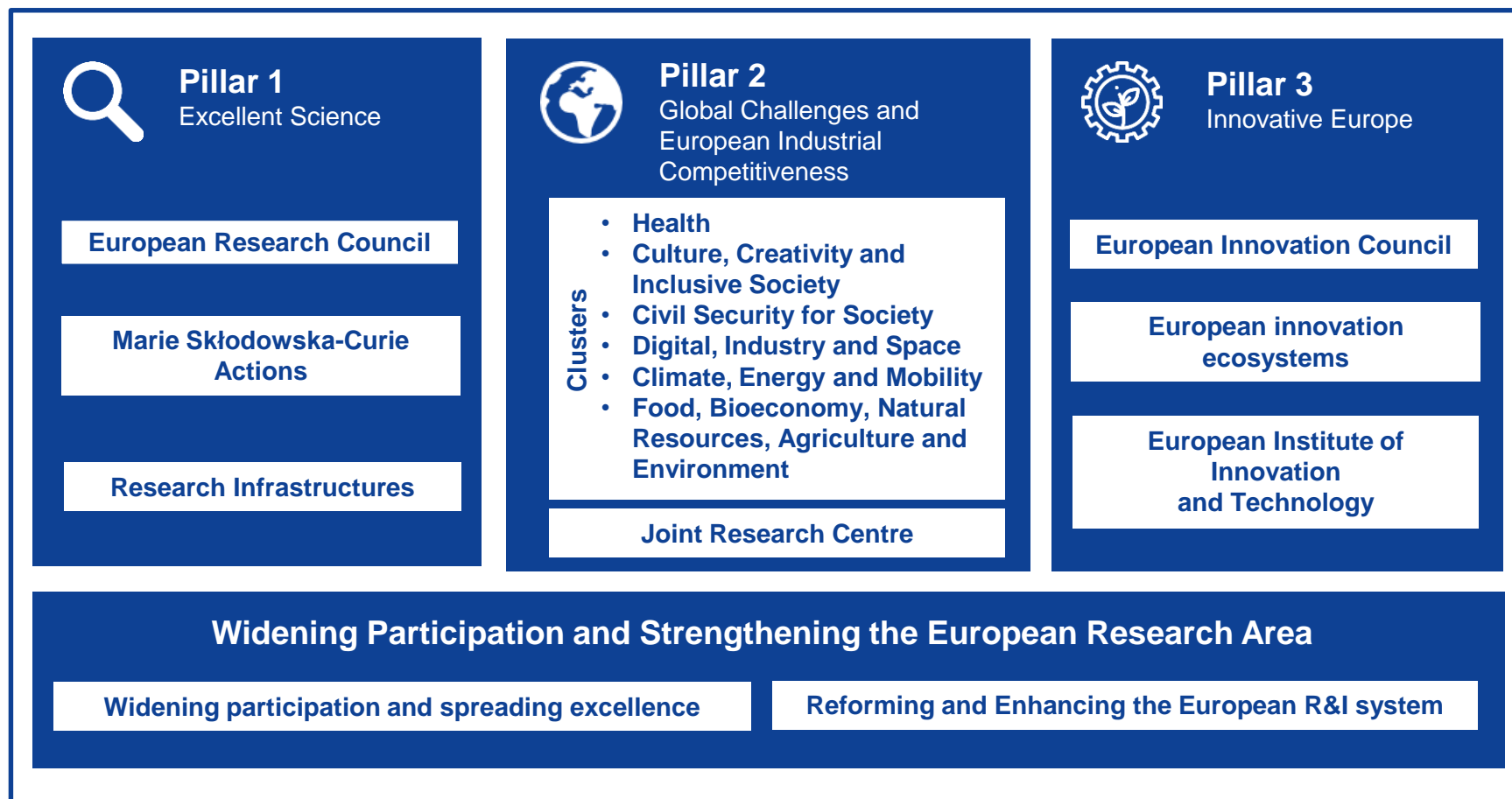
Horizon Europe – Political agreement

European Parliament and Council reached a common understanding on Horizon Europe on 19 March 2019

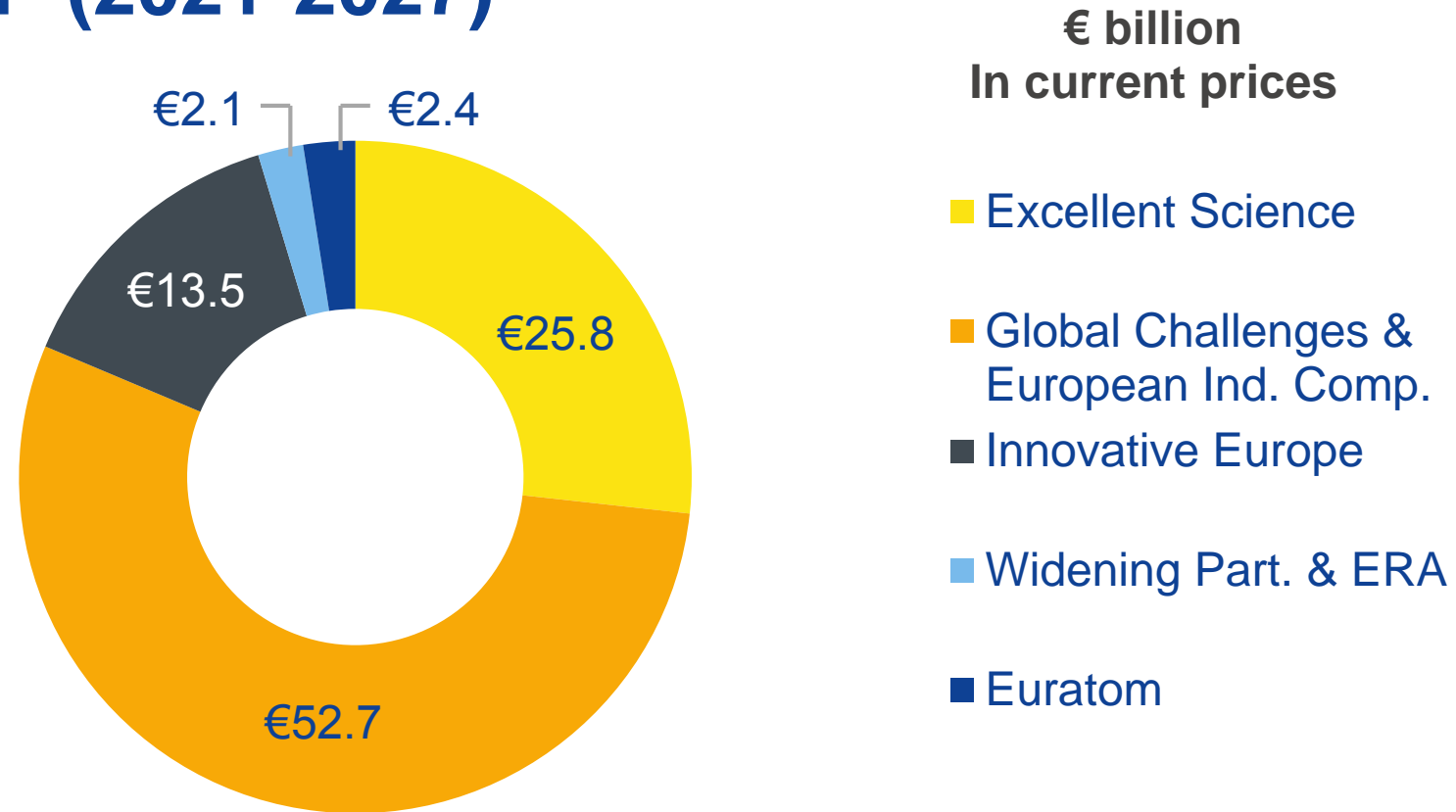
- Budget, synergies and third country association still pending, depending on the overall MFF negotiations
- Commission has started preparations for the implementation of Horizon Europe



Horizon Europe: Preliminary structure



Commission proposal for budget: €100 billion* (2021-2027)



* This envelope includes EUR 3.5 billion allocated under the InvestEU Fund.



Horizon Europe – Central elements

Lessons Learned

from Horizon 2020 Interim Evaluation

-  Support breakthrough innovation →
-  Create more impact through mission-orientation and citizens' involvement →
-  Strengthen international cooperation →
-  Reinforce openness →
-  Rationalise the funding landscape →
-  Encourage participation →

Key Novelties

in Horizon Europe

European Innovation Council

R&I Missions

Extended association possibilities

Open science policy

New approach to Partnerships

Spreading Excellence



R&I 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 (drawing on inputs from other pillars)

**Adaptation to climate
change, including societal
transformation**



**Healthy
oceans,
seas,
coastal
and inland
waters**



**Mission
areas**



Cancer

**Climate-neutral
and smart cities**



**Soil health
and food**



New approach to European Partnerships

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

Key features

- **Simple architecture and toolbox**
- **Coherent life-cycle approach**
- **Strategic orientation**

Co-programmed

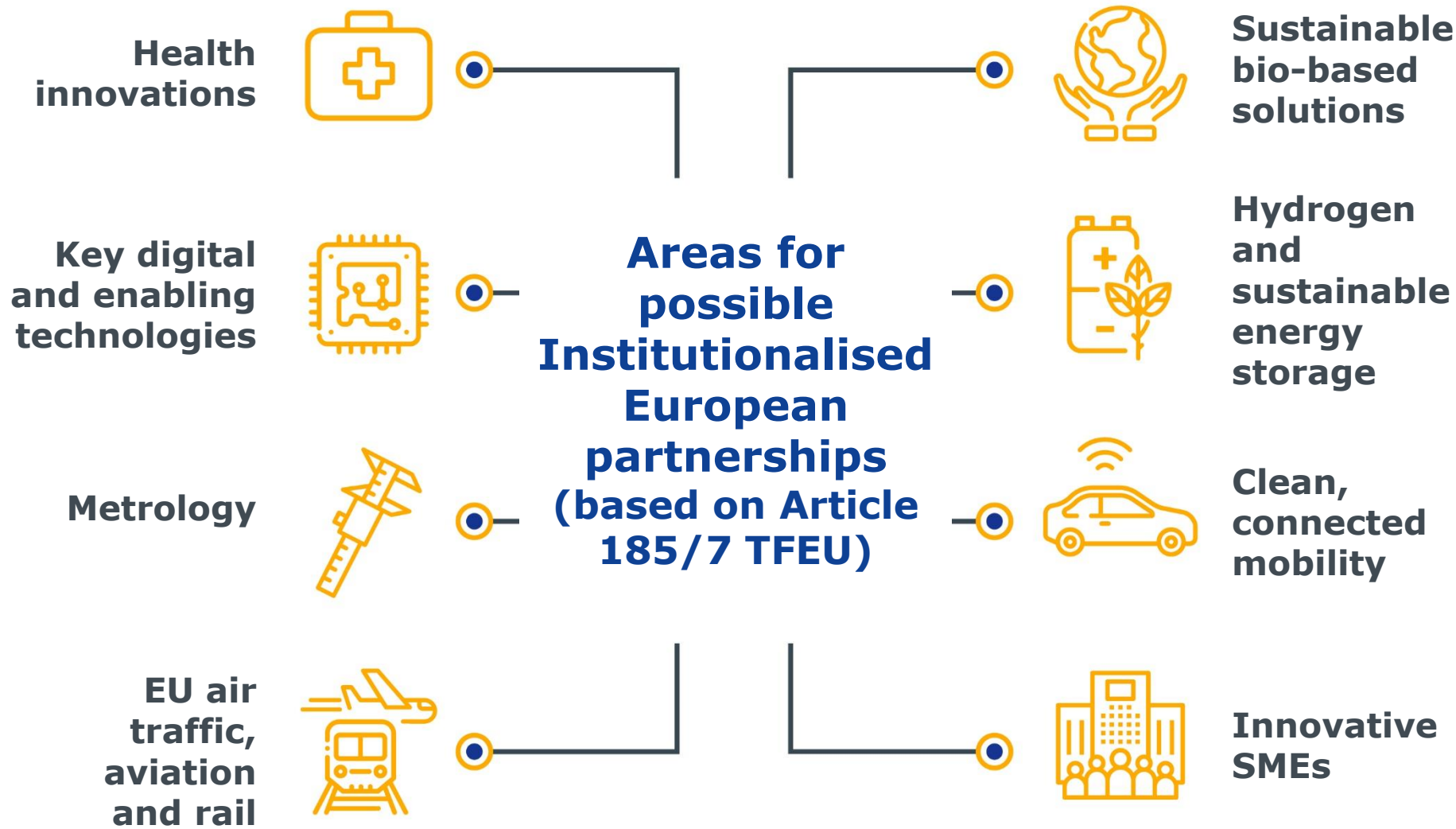
Based on Memoranda of Understanding / contractual arrangements; implemented independently by the partners and by Horizon Europe

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 Articles 185 / 187 of TFEU and the EIT-Regulation supported by Horizon Europe



Horizon Europe

Candidate co-programmed partnership

Zero-emission waterborne transport





Paris Agreement objective to limit global temperature increase to well below 2°C, try to limit increase to 1.5°C



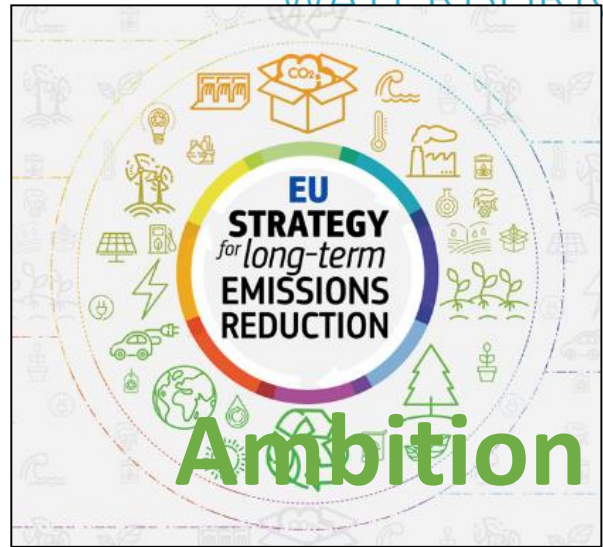
By 2050, Minimum 50% net GHG cut compared to 2008
objective zero GHG by end of century



Increase the EU's GHG reductions target for 2030 to at least 50% and towards 55% compared with 1990 levels in a responsible way.



WATERBORNE



Potential for net zero economy-wide emissions by 2050

EU financial support for green shipping

Concept

Market

R&I

- 2014-2020
Horizon 2020
- 2021-2027
Horizon Europe

CEF

- upgrade of maritime links
- innovations
- Ports

Innovation Fund (CLIMA)
Regional funds ESIF

Market

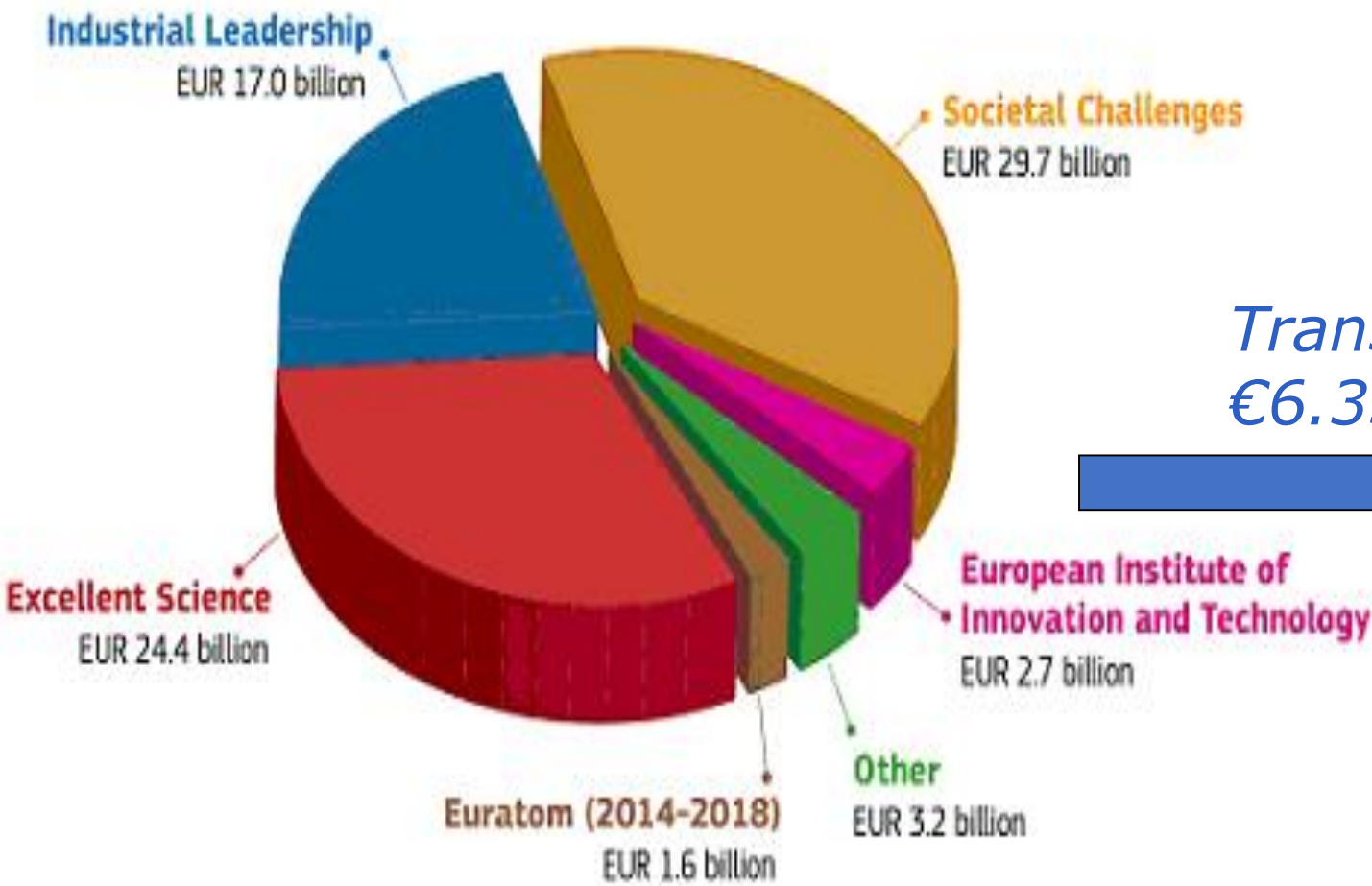
Mechanisms ?

- EIB Green Shipping Guarantee
- To come ? ETS?
Carbon border tax ?



HORIZON 2020 BUDGET (in current prices)

EUR 80 bn (total)



Transport
€6.339 Bn



Societal Challenges

Health and Wellbeing

Food Security, Sustainable Agriculture, Forestry, Marine, Maritime, Inland Water and Bio-economy

Secure, Clean & Efficient Energy

Smart, Green and Integrated Transport

Climate action, Environment, Resource efficiency and raw materials

Inclusive, Innovative and Reflective Societies

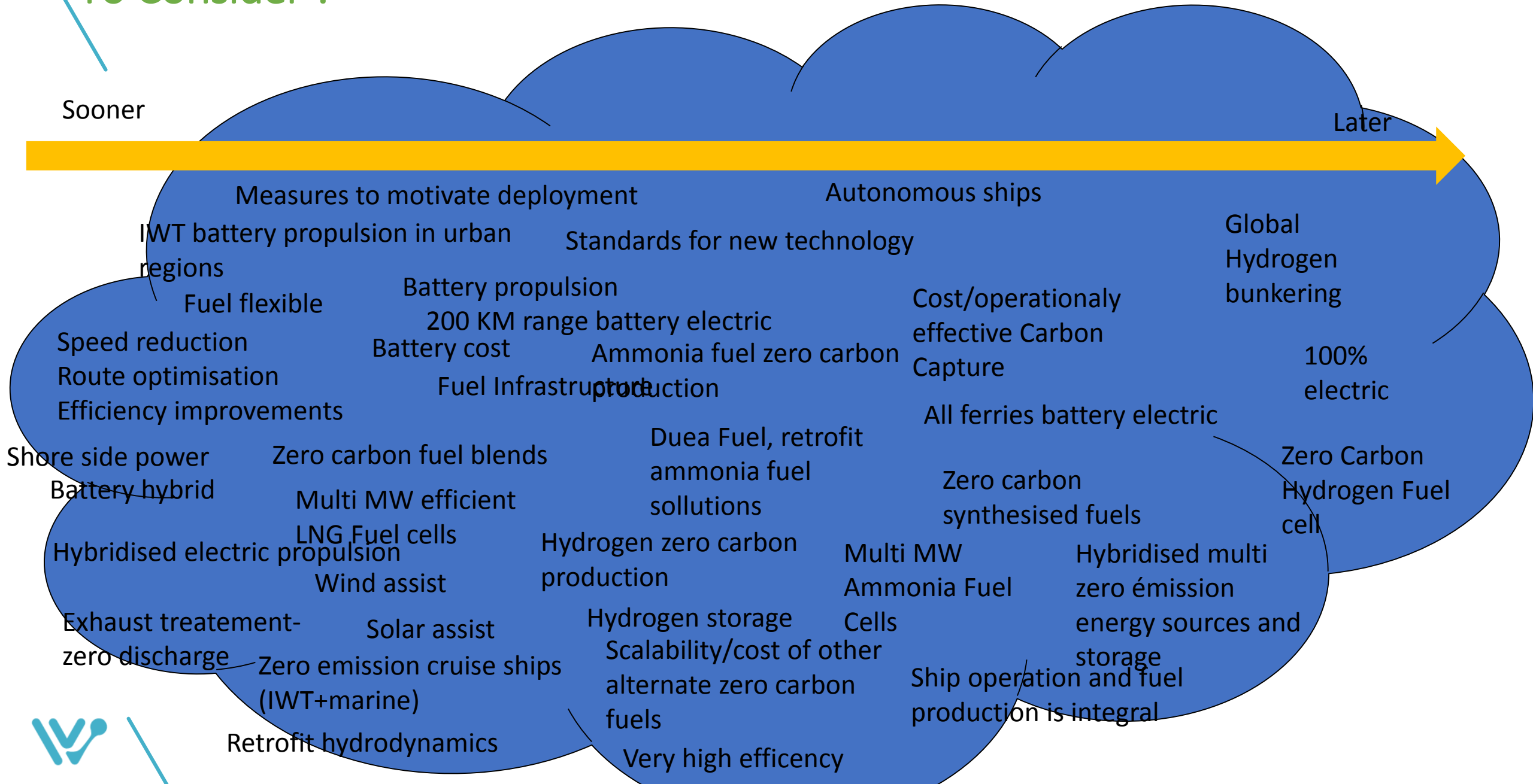
Secure Societies

Typically €50m/year to waterborne transport
(≈400 m in total)

To Consider ?

Sooner

Later



Horizon Europe Candidate co-programmed partnership Zero-emission waterborne transport

Horizon Europe

EU R&I Framework Program 2021-2027

Candidate

24/10/2019 included on the list of candidate partnerships

co-programmed partnership

Sector + Member States +COM
Work Program, open calls

Zero-emission

Decarbonisation, no air and water pollution

waterborne transport

All ship types and services (inland and maritime)



Portfolio of current candidates for European Partnerships (48)

HEALTH

EU-Africa Global Health
Innovative Health Initiative
Chemicals Risk Assessment
Fostering an ERA for Health research
Large-scale innovation and transformation of health systems in a digital and ageing society
Pre-clinical / clinical health research
Personalised Medicine
Rare Diseases
One Health/ AMR

DIGITAL, INDUSTRY AND SPACE

High Performance Computing
Key Digital Technologies
Smart Networks and Services
AI, data and robotics
Photonics Europe
Clean Steel - Low Carbon Steelmaking
European Metrology
Made in Europe
Carbon Neutral and Circular Industry
Global competitive space systems
Geological Services

FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT

Accelerating farming systems transition
Animal health: Fighting infectious diseases
Environmental Observations for a sustainable EU agriculture
Rescuing biodiversity to safeguard life on Earth
A climate neutral, sustainable and productive Blue Economy
Safe and Sustainable Food System for People, Planet & Climate
Circular bio-based Europe
Water4All: Water security for the planet

CLIMATE, ENERGY AND MOBILITY

Transforming Europe's rail system
Integrated Air Traffic Management
Clean Aviation
Clean Hydrogen
People-centric Sustainable Built Environment
Towards zero-emission road transport
Mobility and Safety for Automated Road Transport
Zero emission Waterborne transport
Batteries
Smart Cities and Communities
Clean Energy Transition

PILLAR III AND CROSS-PILLAR

EIT Climate KIC
EIT Health
EIT Manufacturing
EIT Food
EIT InnoEnergy
EIT Manufacturing
EIT Raw Materials
EIT Digital
EIT Urban Mobility

Innovative SMEs

European Open Science Cloud (EOSC)



Candidate zero-emission waterborne transport partnership

Strategic Objective:

Demonstrate zero-emission solutions by 2030 which can be implemented, so to achieve zero-emission ambitions by 2050

Expected impacts

- Demonstrate of deployable zero-emission solutions suitable for all main ship types and services by 2030.
- Maintain and reinforce Europe's global leadership in green shipping technologies.
- Contribute to clean and a carbon neutral future.



Candidate zero-emission waterborne transport partnership

Specific objectives

Develop technological solutions to enable **decarbonisation of all main ship types** responsible for the most GHG emissions, which could be first deployed by 2030

Cut **air and water** pollution

Develop technologies **enabling the use of zero-carbon fuels**

Exploit the **full potential of smart technologies** to increase energy efficiency.

Deliver **comprehensive risk assessments for the new technologies**, supporting regulation, enabling faster deployment.

Accelerate impact by **improving the environmental performance of existing vessels**, developing and deploying new technologies to achieve deep decarbonisation.



How does it work?

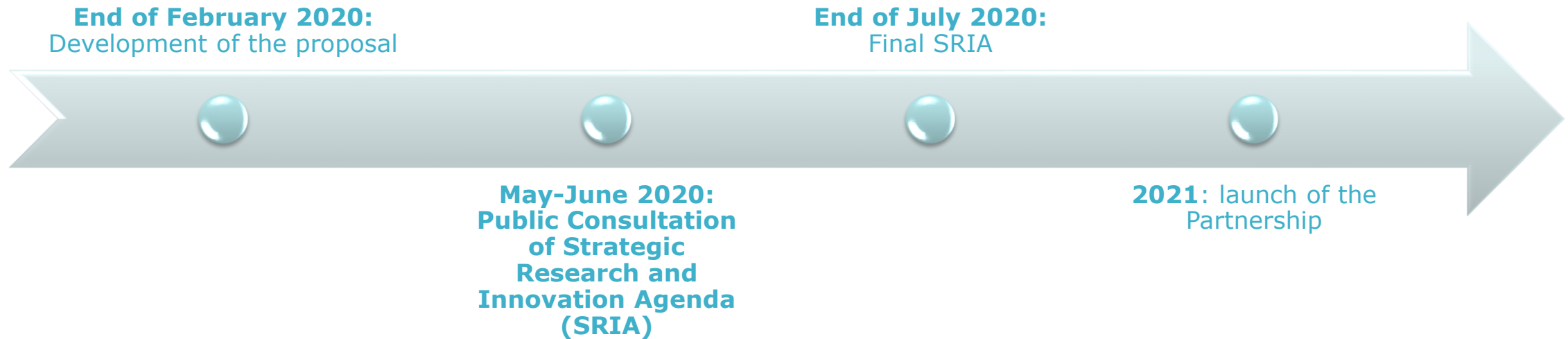
- Based on a Strategic Research and Innovation Agenda, agreed with the Commission Services;
- Partnership with industry, but possibility to use co-programmed Partnerships with Member States, or with Member States and private partners;
- Partners implement their commitments under their responsibility;
- Union contribution is implemented via the Horizon Europe Work program (comitology);
- Partners provide input on the drafting of the respective parts of the Work programme;
- Contractual arrangements signed with the association representing the private partners;
- These will need to specify objectives, key performance and impact indicators, and outputs to be delivered, as well as the related commitments for financial and/or in-kind contributions of the partners.



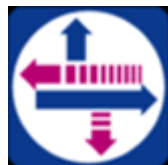
Where are we now?

Waterborne TP

*A **European Technology Platform** for the **Waterborne** sector*



Waterborne TP Association Research Members



Waterborne TP Association Industrial Members

ABB

airseas



Navantia

RINA

CHANTIERS
DE L'ATLANTIQUE

Concawe
Environmental Science
for European Refining

PONANT

DAMEN

DNV·GL

eekels | TBI



ROYAL
ASSOCIATION OF
NETHERLANDS
SHIPOWNERS

FINCANTIERI

ib
influencing business

European
IWT
Platform

IHC

WÄRTSILÄ

KONGSBERG

Lloyd's
Register

MAN
MAN Energy Solutions

MEYER WERFT
PAPENBURG 1795

Royal Belgian
Shipowners'
Association



ULJANIK

MV
WERFTEN
WIERMAN - ROTTERDAM - STADLERS

NAVAL
GROUP



Waterborne TP Association Academia



Aalto University
School of Engineering



UNIVERSITY OF
Southampton



Waterborne TP Association Associations



Thank you!

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