



Waterborne Transport



NAUTILUS Workshop:

**Potential and challenges of innovative
power systems and synthetic fuels for
emission reduction in waterborne transport**

05/07/2022

Lucerne, Switzerland and online

HORIZON EUROPE

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*EU initiatives and key projects to decarbonized waterborne
transport*

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In a nutshell



~ **58 billion** for the period
2021-2027



> **500 staff** by 2027

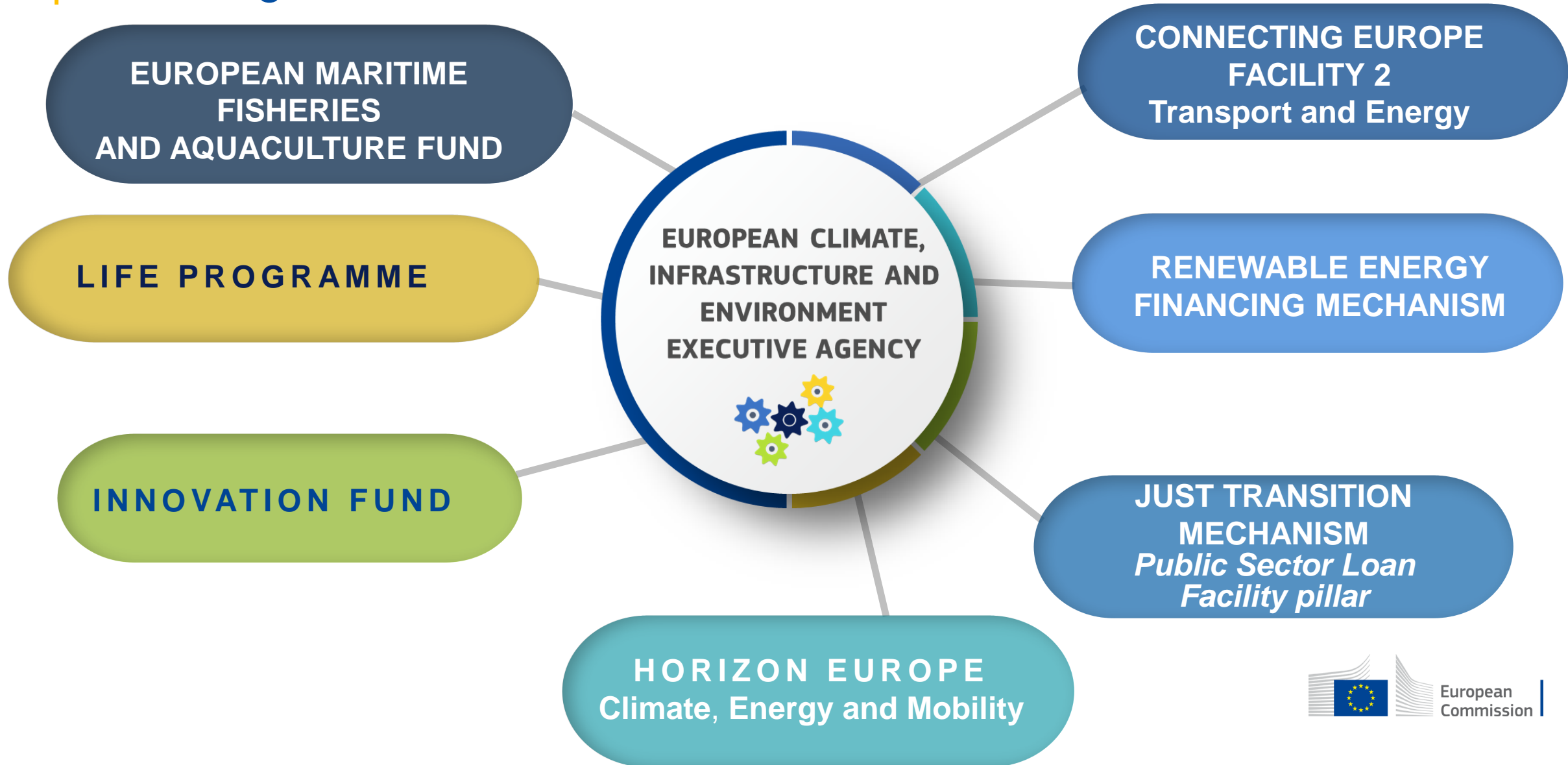


From 2800+ projects
managed in October 2021
to > **4500 projects** in 2027

- **Policy feedback** as an essential part of funding activities
- Expertise at the service of **beneficiaries** in managing the complete lifecycle of projects
- Exploitation of **synergies** and dynamic ways to work across programmes

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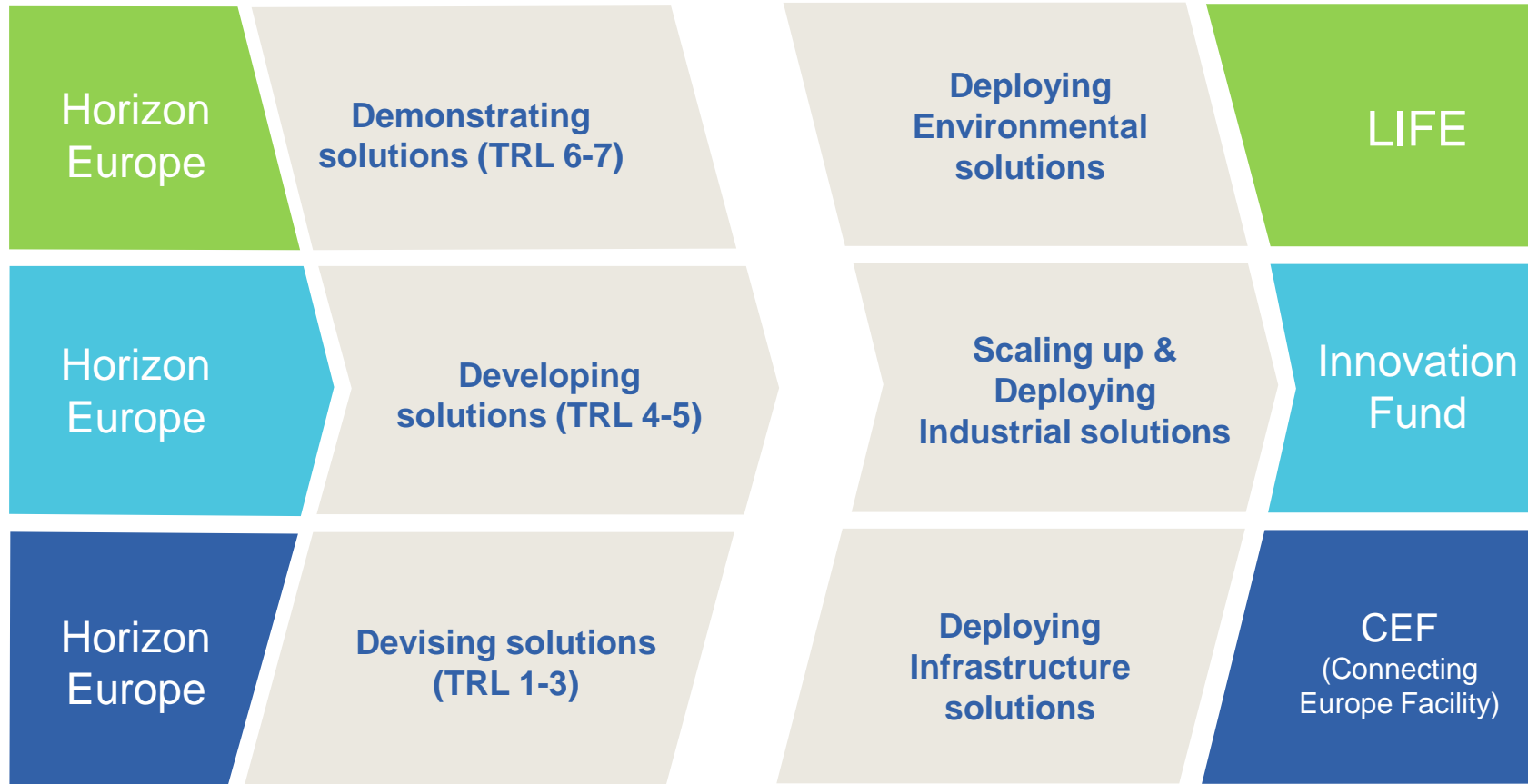
Our Programmes



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Complementary programmes to deliver solutions

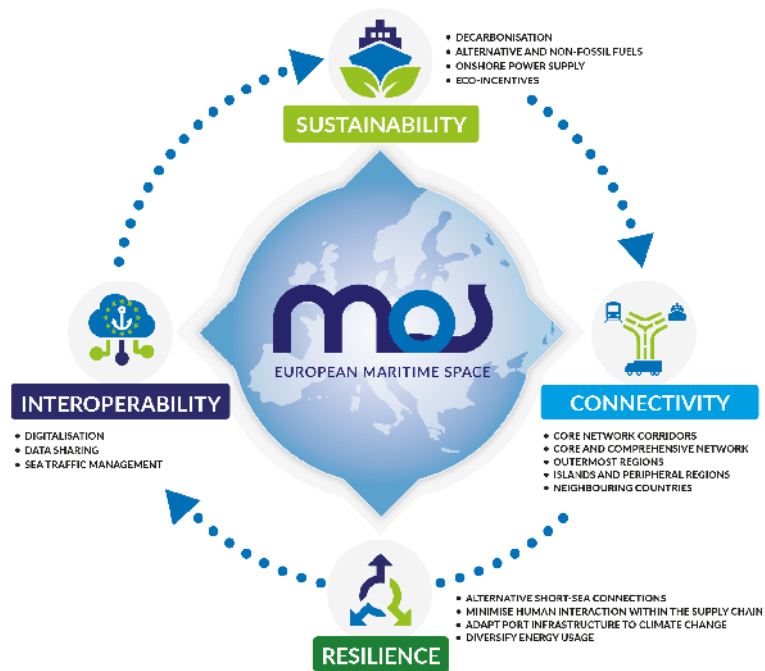
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/>



Examples on:

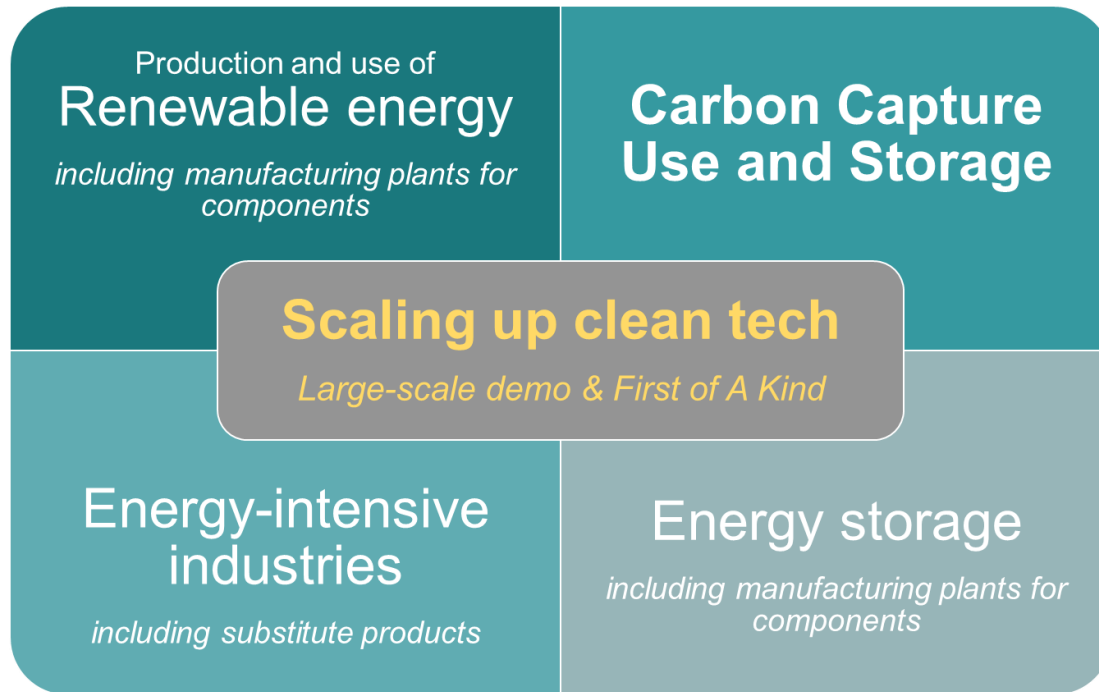
https://cinea.ec.europa.eu/system/files/2021-06/Exploitation_success_stories_H2020-2020_rev.pdf

Connecting Europe Facility (CEF2) and its waterborne perspective



- **Alternative Fuels Infrastructure Facility:** Recharging/refuelling infrastructure; Maritime and IWW Vessels, LNG bunkering vessels
- **Motorways of the Sea:** Upgrade of port infrastructure, Facilitation of Short Sea Shipping through ICT platforms
- **Maritime and Inland Ports:** Facilitation of port access, Shore-side electricity supply, Rail/road connections within the port
- **European Maritime Single Window environment (EMSWe)**
- **Vessel Traffic Monitoring and Information Systems (VTMIS)**
- **River Information Services (RIS),** inland single window, inland port community systems

Innovation Fund and its waterborne perspective



13 waterborne-related applications were submitted in the 2020 calls for large and small scale demonstrators:

Some examples:

- **HYDROGEN EUROPAX:** Zero-emission vessel powered by a large-scale fuel cell system will exclusively use green hydrogen from renewable sources (in PDA).
- **WAVE:** Large sailing cruise ship featuring an innovating wind propulsion technology (in PDA).

European Maritime, Fisheries and Aquaculture Fund (EMFAF) and its waterborne perspective



Project: Airseas

- Wind propulsion
- Ship stabiliser

- More sustainable **fishing and aquaculture** practices
- Support the growth potential of the **blue economy**
- Protect **marine ecosystems**



Project: Bound4Blue

- Onshore Power Supply
- Retrofit fuel

In Maritime transport, EMFAF supports Seabasin Strategies with a high interest on:

- Green shipping in the Western Mediterranean Region
- Ports in the Atlantic Region

14 waterborne related projects funded for a total €24M in 12 EU countries

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The H2020 Waterborne portfolio

H2020 WATERBORNE PORTFOLIO (2014-2021)

CINEA's Horizon 2020 waterborne portfolio covers projects funded via:

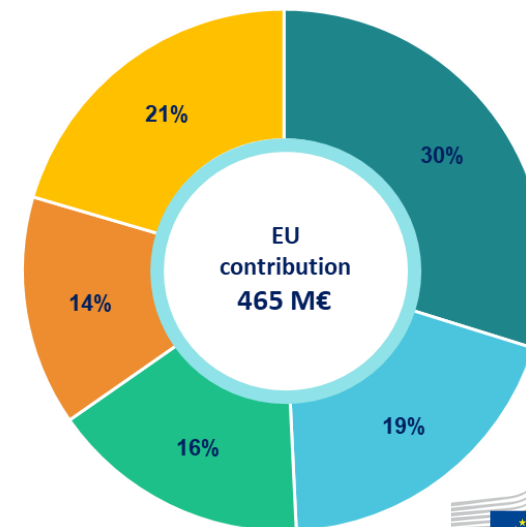
BLUE GROWTH
waterborne transport related topics

2020 GREEN DEAL CALL / AIRPORTS & PORTS TOPIC / PORTS SUBTOPIC

MOBILITY FOR GROWTH
waterborne transport topics (and related topics)



- Energy efficient and zero emission vessel
- Innovative shipbuilding and complex value-added specialised vessels
- Safer and more efficient waterborne operations
- Infrastructure
- New and improved waterborne transport concepts



Zero emission waterborne transport

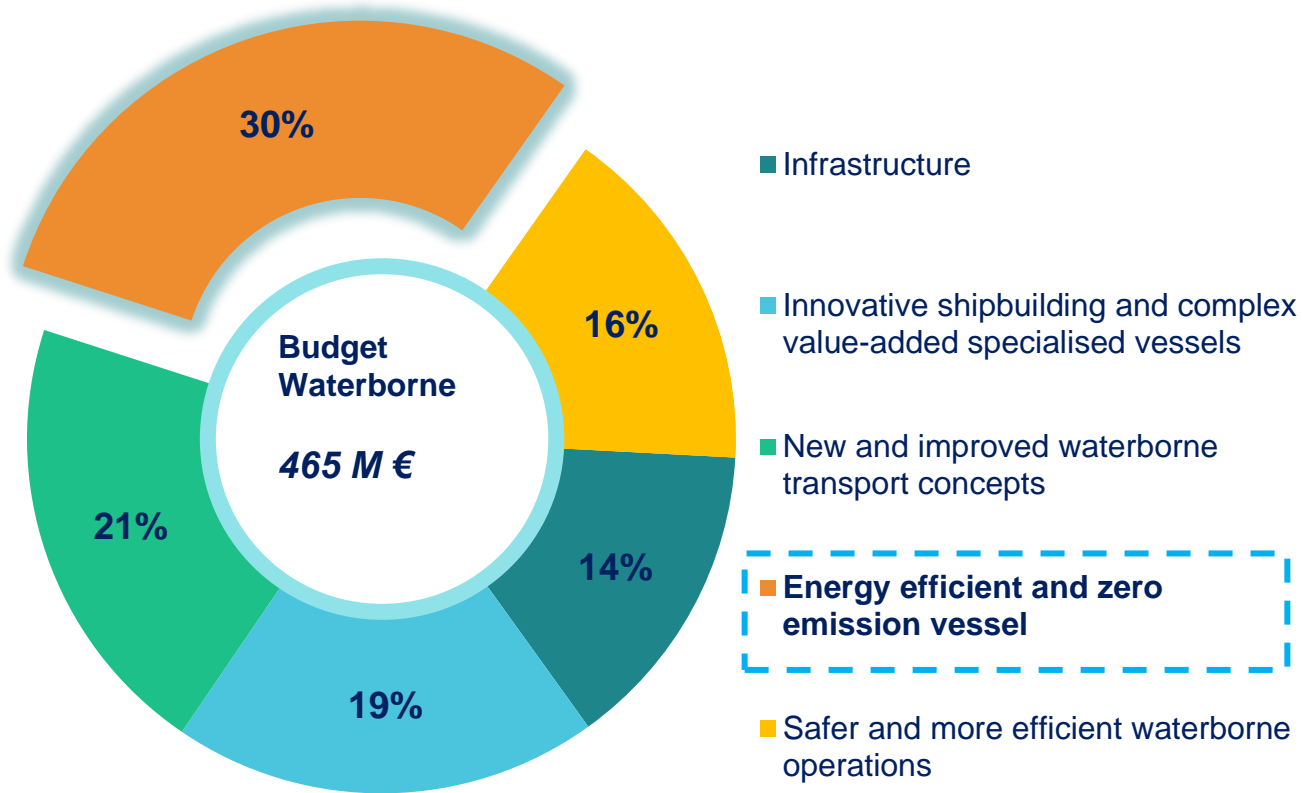
Key challenges addressed under Horizon 2020

Energy Storage
emission control
Renewable
energy
Wind power
Fuel cells
Air pollution
engineering
decarbonise
Wave power
Energy Conversion
Synthetic
fuel

- To develop innovative solutions to **decarbonise shipping**
- To improve the **competitiveness** of European maritime industries and shipping companies in relation with green shipping
- To create wide spread awareness and "**buy in**" of **stakeholders** towards zero-emission shipping
- To better understand impact of the vessels through monitoring detection and **modelling of emissions**
- To provide technical evidence to **assess gaps in current regulation** of vessels and air quality

H2020 Waterborne Portfolio (2014-2021)

The transformation towards zero-emission waterborne transport



✓ **18 projects**

✓ **139 M € H2020 EU Contribution**

✓ **295 beneficiaries**

Safe and Secure waterborne transport

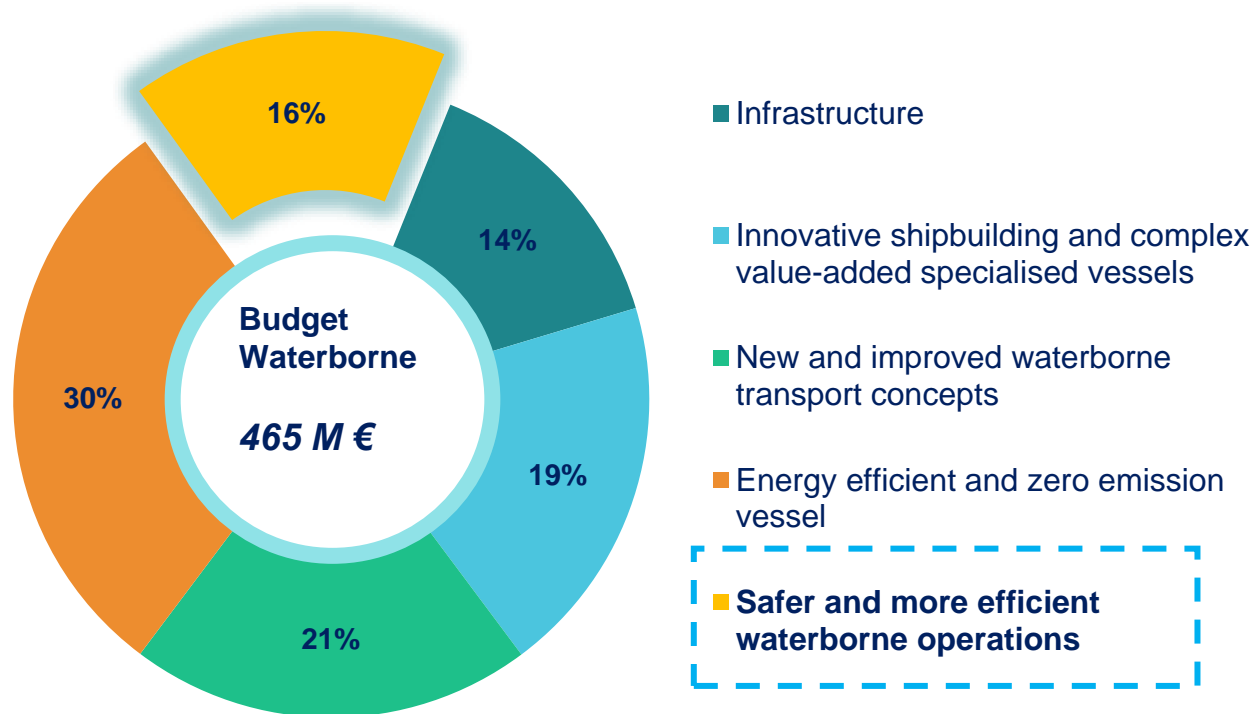
Key challenges addressed under Horizon 2020

evacuation
crisis
data exchange
management
pollution satellite
technology
drones big data
Automation and control
systems
human factor sensors
ship building
ecosystem
Fire protection

- ✓ To radically **redesign of evacuation systems** for passenger ships
- ✓ To greatly enhance the **prevention and management of fires** at sea without recourse to external intervention
- ✓ To develop and demonstrate **innovative solutions for ship design** and waterborne operations in order to avoid and mitigate passenger risks and ensure high levels of safety
- ✓ To improve the observation and predictions of **oil spreading in the sea** using novel on-line sensors on-board vessels, fixed structures or gliders
- ✓ To build the **enabling knowledge, technologies, and operational procedures** and test them in a real world environment with the aim of guaranteeing safe and environmentally sound waterborne operations
- ✓ To improve transport safety through a more timely, focused and integrated adoption of human factors in the design of vessels and **minimise the human error**
- ✓ To develop solutions that address these risks and can be reflected within forthcoming revisions of relevant **IMO Rules**

H2020 Waterborne Portfolio (2014-2021)

Safe and Secure waterborne transport



- ✓ **9 projects**
- ✓ **H2020 Net EU Contribution: 75 M €**
- ✓ **208 beneficiaries**

Competitive, Connected and Automated Waterborne Transport

Key challenges addressed under Horizon 2020

Autonomous
Sustainable Ship
Infrastructure
Underwater Vehicles digital
Smart Shipyards
Connected Ports
Automation and control systems
Inland waterway
Robots Intermodality

Infrastructure

- ✓ To improve logistics efficiency and **integration of the port** in the surrounding socio-economic area
- ✓ To **optimise passenger and freight flows** for low emission mobility
- ✓ To accelerate the **deployment of sustainable alternative fuels and electromobility**
- ✓ To commit and contribute to a **Europe-wide take up** of technological, non-technological and socially innovative solutions

Competitive, Connected and Automated Waterborne Transport

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New and improved waterborne transport concepts

- ✓ To develop validation, certification and safety assessment methodologies and tools to support **autonomous ships**
- ✓ To improve maritime and inland waterways **logistics operations** and enhancing modal shift concepts for freight transport.
- ✓ To **deliver improved systems for waterborne operations**, feeding and short sea vessels, with regard to **smart connections**
- ✓ To develop and demonstrate **autonomous vehicles** for under-sea services and surveillance

Competitive, Connected and Automated Waterborne Transport

Key challenges addressed under Horizon 2020

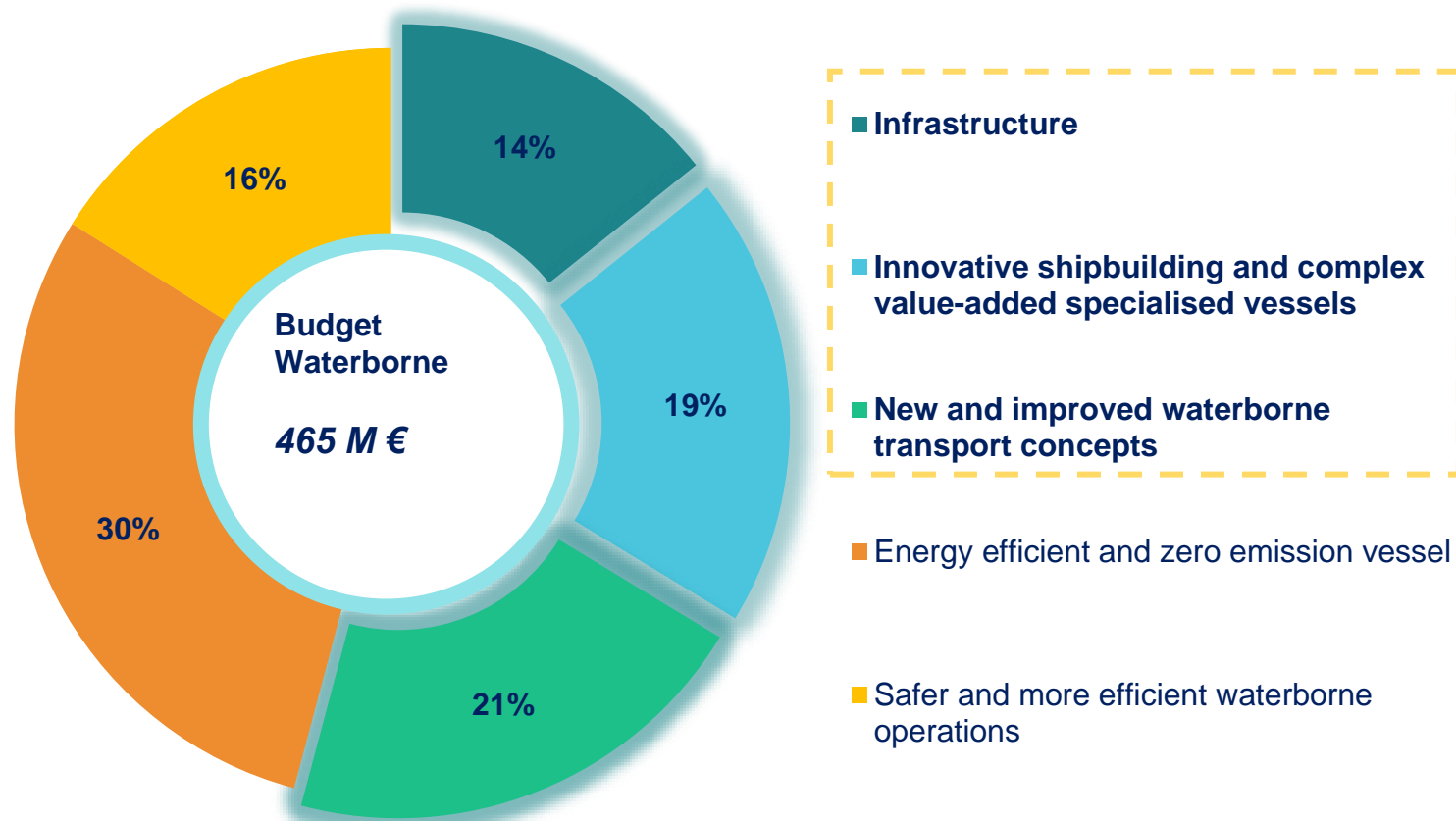
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Innovative Shipbuilding and complex value-added specialised vessels

- ✓ To provide a comprehensive performance analysis and simulation **for new advanced materials** and entire constructions
- ✓ To develop and validate **advanced modular standardised shipbuilding** concepts for European waters (urban, inland waterways and short sea)
- ✓ To increase the **professional skills** of workers and the capability of European shipbuilding industry to **develop and commercialise specialised vessels** and related technology
- ✓ To explore and validate low impact cruise and passenger **ship designs and operations**

H2020 Waterborne Portfolio (2014-2021)

Competitive, Connected and Automated Waterborne Transport



✓ 29 projects
✓ 252 M€
✓ 475 beneficiaries



- 4 Calls evaluated (16 waterborne related research topics)
 - 2021-D5 : Clean and competitive solutions for all transport modes
 - 2021-D6 : Safe, Resilient Transport and Smart Mobility services for passengers and goods
 - 2022-D5 and 2022-D6 have just been finalised
- 13 Projects have signed the Grant Agreement (€97M EU funding)
 - *Alternative fuels*
 - *Energy efficiency on-board*
 - *Electrification*
 - *Digitalisation*
 - *Safety*
- Work Programme 2023-2024 under preparation. First deadline in April 2023.

- Fighting **climate change**
- Make the energy **and transport sectors** more sustainable



“The European Green Deal is not only about emissions. It is about boosting innovation. It is about modern mobility.

The European Green Deal is our new growth strategy.”

Speech by President von der Leyen in the Plenary of the European Parliament at the debate on the European Green Deal (11 December 2019)

Keep in touch - CINEA



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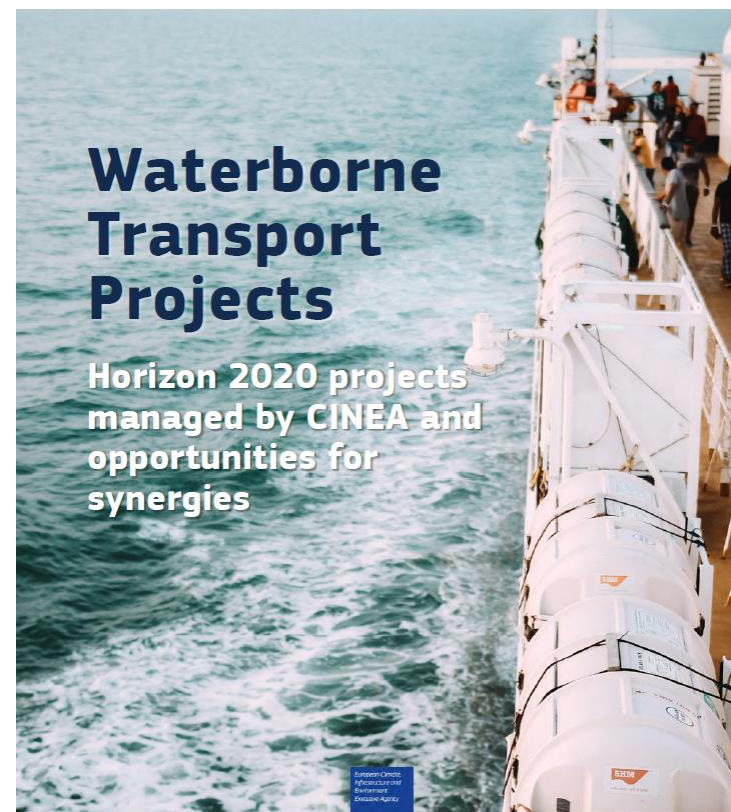
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Thank you