

# ECMAR Strategic Research priorities

Florian CARRE – Director of ECMAR

## About ECMAR

# ECMAR is a Brussels non-profit Association which aims to:

- Give a voice to the European Maritime Applied Research community
- Contribute to the Strategic Research Agenda of WATERBORNE TP.
- Facilitate networking and business opportunities to, and amongst, the Members: Technology days and Brokerage Events.



# Horizon Europe activities

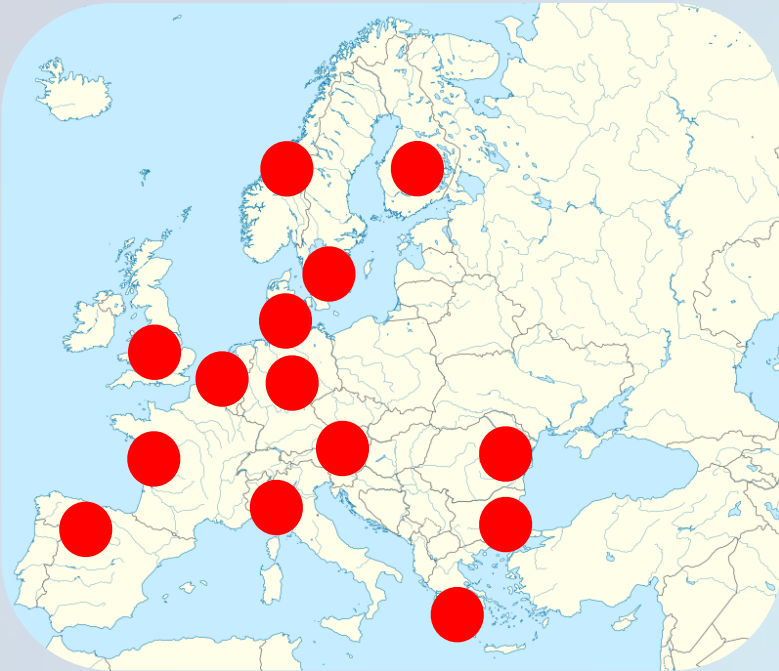
ECMAR will help you secure Horizon Europe fundings thanks to its:



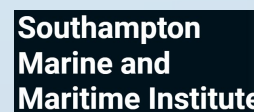
- Contribution to the Work Programmes and definition of new topics.
- Active participation through Waterborne TP and the Co-Programmed Partnership ZEWT - Zero-emission Waterborne Transport.
- Organisation of yearly Brokerage Events (most recent: January 2021, December 2021, November 2022, May 2023, May 2025).
- Research initiatives for ECMAR members to participate jointly to Horizon Europe calls.

# 24 Members all over Europe

- 24 applied research institutes/companies in 14 EU & EEA countries.

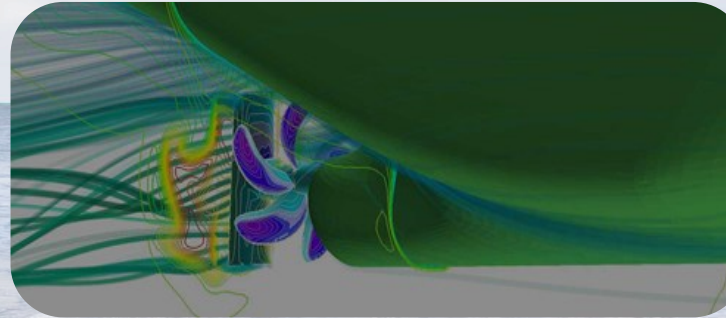


- Members x Employee Nos.**
  - ✓ 1-24: 5 Members
  - ✓ 25-99: 13 Members
  - ✓ 100+: 6 Members



# ECMAR members' fields of expertise

- Energy efficiency and Emissions
- Ship Powering Options
- Safety and Security
- Materials and Production
- Connected and automated maritime transport
- Integrated transport Logistics
- Human Factors.
- Acoustic and Underwater Noise
- Blue Growth and maritime activities in the Arctic region





## A VISION FOR EUROPEAN MARITIME RDI 2030

---



## ECMAR MARITIME STRATEGIC RESEARCH AGENDA

VISION AND PRIORITIES FOR 2030-2050



## STRATEGIC RESEARCH AGENDA

---

# Participation in EU projects

- ECMAR members > strong participation in EU R&D projects:



➤ **85** projects in FP7



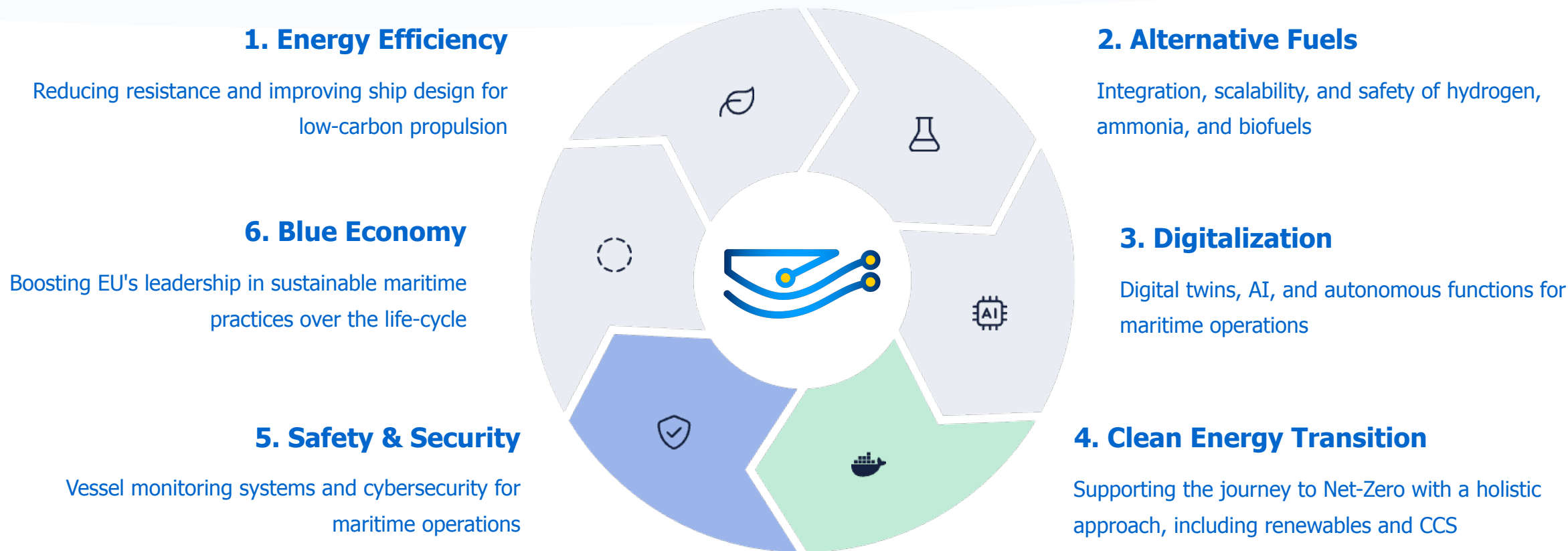
➤ **59** projects in H2020



➤ **39** projects in Horizon Europe (calls 2021, 22, 23, 24)

➤ Full list of projects on our website: [www.ecmar.eu](http://www.ecmar.eu)

# ECMAR's critical priorities for maritime research



**Modelling is key to translating deep physical understanding into ship models, leveraging DT and AI-driven design optimization.**

# Low vs. High TRL research priorities: why?

## Low TRL research is essential for (competitive) maritime R&D!

**Low TRL research is crucial for European maritime competitiveness** and is less constrained by specific ship types, providing **broader applicability**.

### Low to medium TRL Research (4-6)

- Innovative propulsion systems and energy efficiency
- Ship's automation technologies
- AI methods for ship's dynamics and safety
- New materials and production processes
- Carbon capture technologies
- Waterborne hydrogen production

### High TRL Research (7-9)

- Ship's operations and energy efficiency solutions
- Alternative fuels integration and electrification
- Early-stage design alternatives generation
- Automation and AI applications
- Port electrification & bunkering infrastructures
- **Green retrofit technologies**

**ECMAR prioritizes high TRL research solutions that can be rapidly deployed** to address pressing issues, like **ships' retrofitting**.

# Green & Digital Transformation: Short-To-Medium term challenges over the life-cycle



## 1. Energy Transition

Energy efficiency, low carbon & zero emissions fuels: new design methodologies and experimental challenges.



## 2. Ship's Digitalization & Human Factor

Technological challenges and human-centred solutions for clean and autonomous operations.



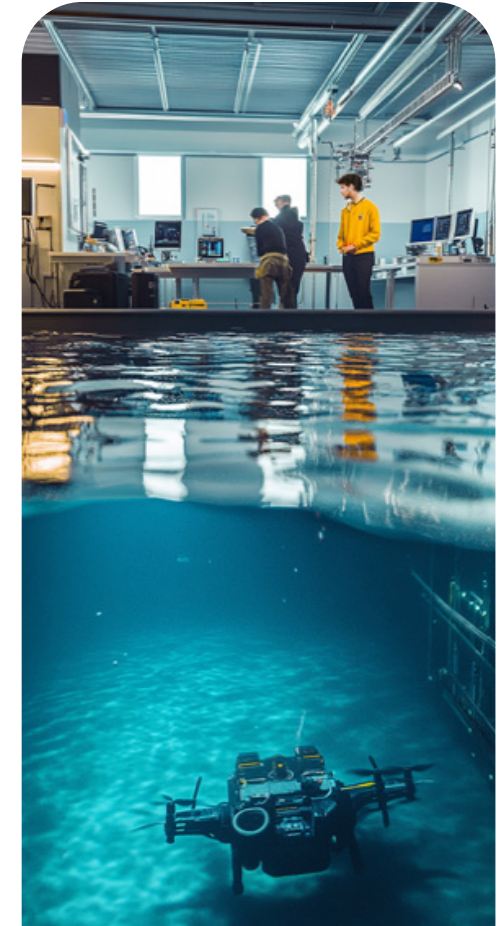
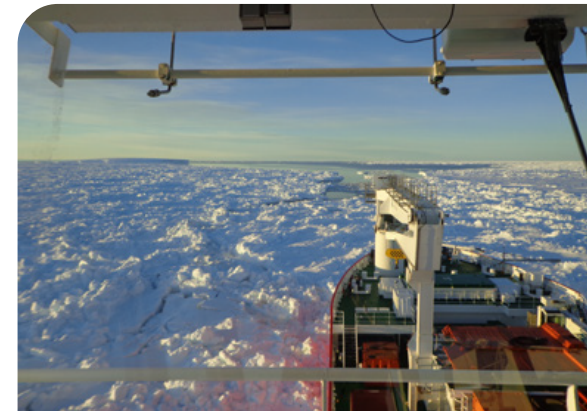
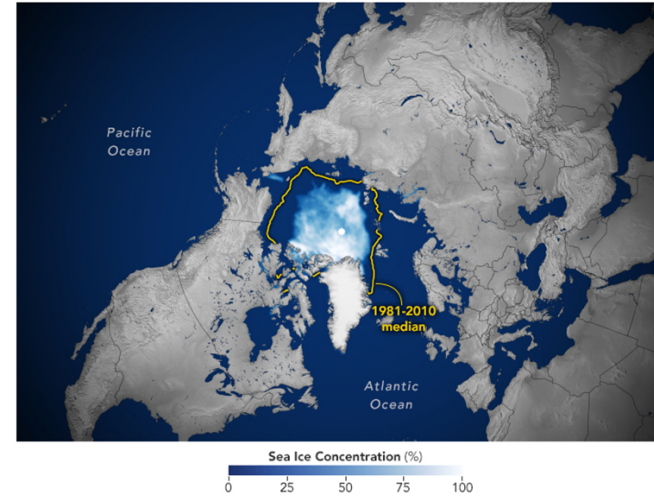
## 3. Maritime Renewables

Integration of wind-assisted propulsion systems and offshore wind energy technologies.



## 4. Strategic Domains

- **Arctic opportunities** addressing climate change impacts,
- **Underwater technologies**, and
- **Exploring nuclear energy** for economically viable green shipping.



**These challenges require risk-based class requirements for clean and digital ships throughout the lifecycle, with safety and circularity embedded in the design process.**

# Energy Efficiency: the cornerstone of sustainable (and competitive) shipping

## Sustainable Alternative Fuels



Integrating hydrogen, ammonia, and methanol systems

## Electrification



Advanced battery technologies and DC-powered ships

## Energy-Saving Technologies



Resistance reduction and optimised hull designs



**Energy saving technologies remain underdeveloped despite their relevance.**

**Focus must shift to cost-efficient saving technologies,** alongside alternative fuels.

1

## Increase support for low to medium range TRL projects

Focus on **projects with TRL 4-6** to build sustainable advancement.

2

## Reshape the proposal evaluation process

Select evaluators with **specific technical expertise**, focus on **tangible results like patents**, and adopt a "**trust first, evaluate later**" scheme.

3

## Increase EU Budget for maritime research

Allocate **more resources** to maritime research, particularly for **competitive** clean solutions and areas not covered by existing initiatives, such as **safety, autonomy, and non-CO<sub>2</sub> emissions**.

4

## Adopt cost-effective green technologies

Focus on technologies that will **lower or control the costs of the green transition**, benefiting EU citizens.

5

## Establish an integrated 'Reship EU' policy

Focus on **technology adoption and strategic independence** through critical maritime technologies.

# Interested to Join ECMAR ?

**ECMAR Membership is opened to organisations which Undertake applied maritime R&D**



**ECMAR Membership will enable you to:**

- Contribute to the EU Strategic Research and Innovation Agenda
- Define Horizon Europe topics
- Participate to brokerage events
- Join a family network of 24 research organisations

To evaluate your potential to Join ECMAR, **contact:**

Florian CARRE (Director ECMAR)

→ **[director@ecmar.eu](mailto:director@ecmar.eu)**

# Thanks for your attention



Florian CARRE – Director of ECMAR - [director@ecmar.eu](mailto:director@ecmar.eu)