JPI OCEANS

jpi-oceans.eu

Strategy Framework

2026
2030

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Table of contents

Jon Dierking/GEOMAR

Introduction

01

Introduction

1.1 Vision and mission of JPI Oceans

JPI Oceans remains committed to the central idea that the founding members put at the centre of the organisation in 2011 via its full name: Joint Programming Initiative Healthy and Productive Seas and Oceans.

For the timescale relevant for this Strategy Framework 2026-30, however, JPI Oceans' vision focuses on what its members wish to have achieved over the next 5-10 years:

Vision

JPI Oceans is the leading transnational platform for ocean research programming, performance, and policy.

To fulfil that vision, JPI Oceans capitalises on the capacities of its members to strategically identify priority topics that are emerging as relevant for policy and society. The central enabler of JPI Oceans remains the facilitation of research and innovation and delivery of knowledge.

Mission

To facilitate the efficient provision of expert knowledge and sustainable solutions to enable informed policy delivery and economic development.

For pointed communication, and for succinct positioning of the organisation in the science-policy landscape, the vision and mission of JPI Oceans are condensed in a tagline.

Tagline

Advancing knowledge, informing policy, driving innovation

This strategy document constitutes an overall continuation of its predecessor strategy framework. It retains the aspects that provided the foundation for a productive and impactful phase from 2021—25. However, several aspects were refreshed, updated, or adjusted to make JPI Oceans fit for the coming five years (Figure 1).

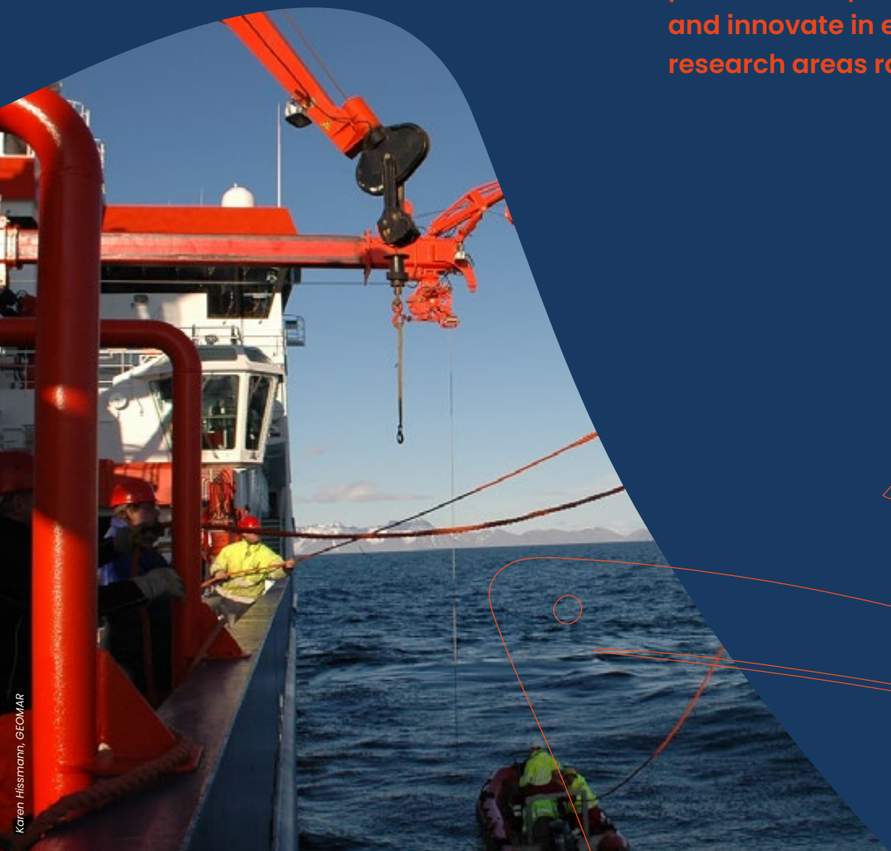
Figure 1: Overview of aspects of strategic evolution from the previous Strategy Framework 2021-25 to the current Strategy for 2026-30.

1.2 Achievements and impact

Since its establishment, JPI Oceans has demonstrated a track record of delivering impactful research and innovation through strategic coordination of national investments. Through its flexible operational model, JPI Oceans has mobilised substantial resources whilst fostering scientific excellence and policy relevance. The following numbers illustrate the scope and scale of JPI Oceans' contributions to advancing marine science and supporting evidence-based policy development.

Particularly noteworthy is JPI Oceans' capacity to identify and champion emerging research areas before they gain widespread attention. With its autonomous status and independence, JPI Oceans is uniquely positioned to prioritise and innovate in emerging research areas rapidly. As one of the early adopters, JPI Oceans actively developed the field of microplastics research from 2014 onwards, bringing this environmental issue to the forefront of scientific and policy agendas. Currently, JPI Oceans addresses recently emerging topics such as offshore freshened groundwater and changing light conditions in the ocean (see Example 1 below), demonstrating its continued leadership in frontier science.

> "JPI Oceans is uniquely positioned to prioritise and innovate in emerging research areas rapidly.



Karen Hissmann, GEOMAR

19 Joint Calls

154 funded projects

€201 million project funding mobilised through JPI Oceans and its partners, complemented by

€21.5 million co-funding from the European Commission

250 experts active in 8 Knowledge Hubs

Example 1 from our Joint Actions - From Strategy to Impact

Changing Marine Lightscapes

The Joint Action on Changing Marine Lightscapes represents JPI Oceans' pioneering approach to addressing an emerging scientific frontier that bridges marine ecology, climate science, and human impact assessment. This innovative initiative tackles the dual transformation of marine light environments through coastal darkening and the proliferation of artificial light at night (ALAN), reaffirming JPI Oceans as a first mover in this nascent field of marine research.

Aims & ambitions: illuminating hidden impacts

The Joint Action aims to fill critical knowledge gaps in understanding how changing marine lightscapes affect marine biodiversity, ecosystem functioning, and biogeochemical processes. By addressing both the reduction in water clarity due to climate change and eutrophication, and the increasing marine light pollution from urbanisation and maritime activities, this initiative seeks to provide the scientific foundation for evidence-based policy interventions that protect marine environments whilst supporting sustainable blue economy development.

Genesis of a pioneering approach: collaborative innovation

Following a comprehensive concept paper that highlighted this under-studied area, JPI Oceans launched a Joint Call in early 2024, mobilising € 4.05 million from six participating countries: Germany, Ireland, Malta, Norway, Poland, and the United Kingdom, with additional in-kind infrastructure contributions from Greece.

Two innovative projects emerged from this call: ALANIS, investigating artificial light impacts on pelagic ecosystems across European seas, and ISOLUME, assessing lightscape changes across four dimensions over decadal to centennial timescales. Both projects adopt an integrated approach spanning biodiversity, photobiology, and ecosystem services.

This Joint Action exemplifies JPI Oceans' strategic positioning as an incubator of frontier science, addressing topics too novel or politically sensitive for other funding mechanisms. A accompanying Knowledge Hub was set up to consolidate findings and provide science-to-policy recommendations, ensuring that this pioneering research translates into guidance for marine conservation and sustainable planning across European sea basins.

Bruna Casas

Maike Nicolai, GEOMAR

Strategic cornerstones

02

Strategic cornerstones

2.1 Strategic role

The distinctive role of JPI Oceans lies in its position as an **institutionalised, transgovernmental platform** with the capacity to strategically prioritise, structure, and fund transnational research and innovation. This unique status enables JPI Oceans to serve as an efficient facilitator and implementer of research and innovation initiatives addressing current marine and maritime challenges and opportunities.

JPI Oceans serves the interests and demands of its member countries, i.e. addresses those countries' socioeconomic and environmental challenges, both prevailing and emerging, and their ocean-related political priorities. JPI Oceans builds increasingly on a lean, agile and flexible governance and simple operational system to maintain a dynamic agenda of impactful activities. Key strategic elements include responding to the prevailing and emerging challenges raised and adopted by its member countries in response to their national strategies or to input from experts and stakeholders. JPI Oceans thus remains strongly driven by national, European, and international policy processes. To ensure a positive impact on ocean integrity and sustainable economy, JPI Oceans is strategically strengthening its operational capacities to feed expert knowledge effectively into policy processes and related decision-making.

2.2 Operational positioning

Forward-looking Joint Actions

In response to recent developments at the European level, particularly the launch of the Sustainable Blue Economy Partnership and the Mission Ocean, JPI Oceans has evolved to focus even more on **emerging and innovative** topics that are anticipated to gain increasing public attention, policy action, and demand for research, innovation, and knowledge. Forward-looking Joint Actions can unfold in three ways (Figure 2):

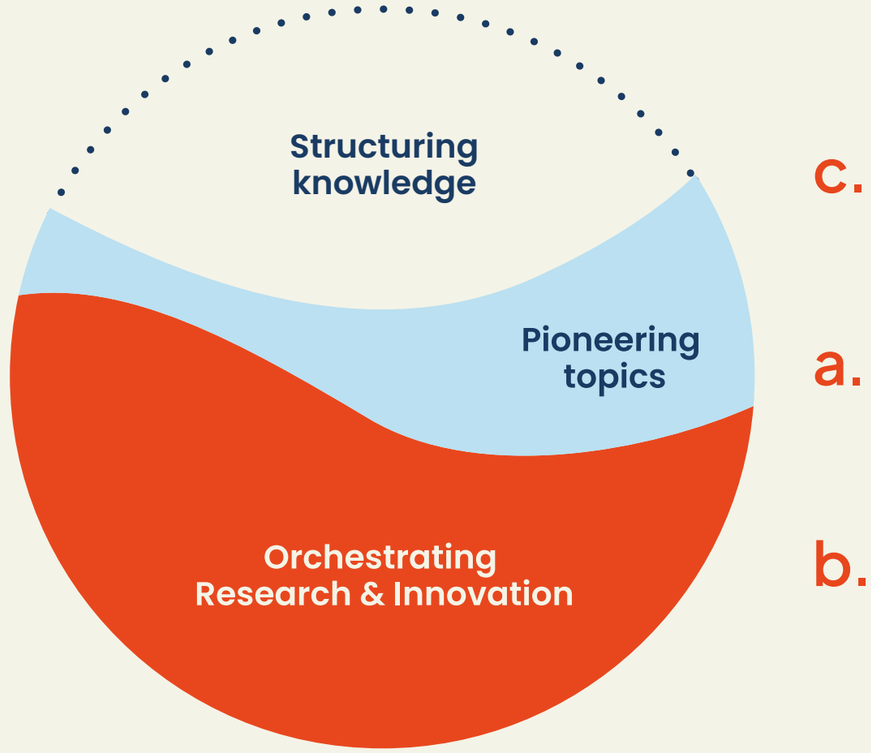


Figure 2: Three ways how JPI Oceans innovatively advances knowledge.

a. **Pioneering topics**

Through some of its Joint Actions, JPI Oceans pioneers research and innovation (R&I) on new or emerging topics and in areas that are hardly addressed by others yet. JPI Oceans enjoys recognition and a proven track record as an early mover since addressing microplastics in the ocean when it was still a niche topic. More recently, JPI Oceans is taking on other novel topics such as underwater noise, changing marine lightscapes, and offshore groundwater.

b. **Orchestrating Research & Innovation**

Joint Actions at the forefront can also mean to organise concerted R&I on topics that are discussed among stakeholders, the public, and policy makers, but lack European-scale progress in knowledge delivery from missing targeted research and innovation or the bridging between science and policy. Examples include the Joint Actions on ecological aspects of deep-sea mining and on underwater munition, where trans-national R&I action by JPI Oceans was a (or the) main driver of research initiation, knowledge provision, and creation of momentum in Europe.

c. **Structuring knowledge**

Finally, JPI Oceans addresses topics with collaborative trans-national R&I that are recognised as highly relevant, but lack actionable scientific guidance or knowledge products for efficient policy action. Examples from JPI Oceans' portfolio of past and current Joint Actions relate to sea level rise, blue carbon, environmental health monitoring of Good Environmental Status, and cumulative environmental stressors. In those cases, JPI Oceans took initiative to assess the science, provide policy recommendation, develop methodologies, or structure unwieldy knowledge.driver of research initiation, knowledge provision, and creation of momentum in Europe.

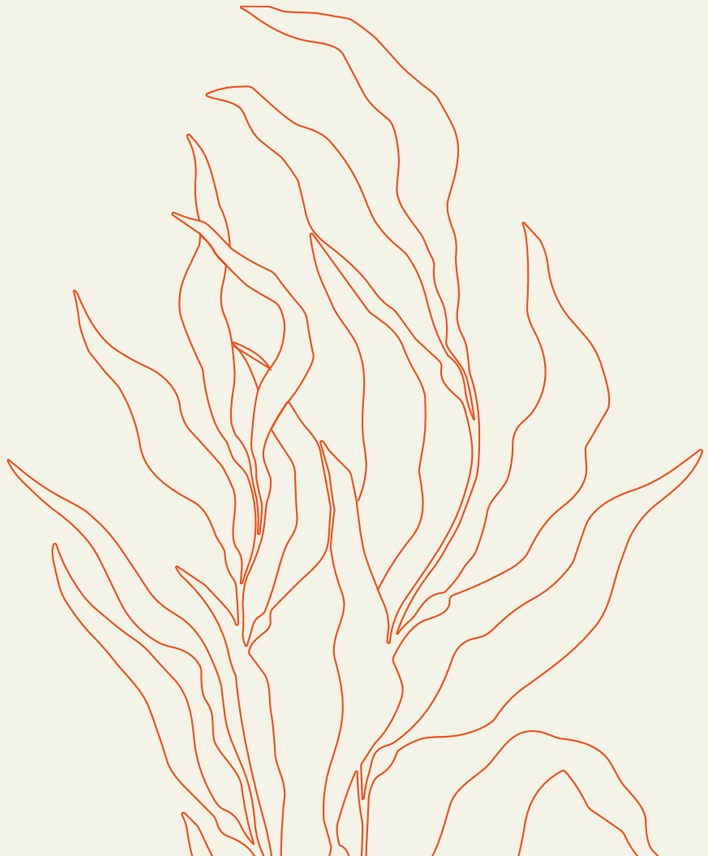
Agility

JPI Oceans offers its member countries and collaborators a mechanism that is agile in decision-making, **flexible** in implementation, and efficient in the use of the countries' resources and efforts for creating added value and impact. To that effect JPI Oceans capitalises on the straightforward governance of a non-profit association owned by the participating member countries.

> **To maximise the added value for participating countries, JPI Oceans operates with a high level of flexibility, allowing countries to participate on a case-by-case basis.**

To maximise the added value for participating countries, JPI Oceans operates with a high level of **flexibility**, allowing countries to participate on a case-by-case basis according to their specific priorities, needs, and capacities. This is paired with **pragmatism** in implementation that enables JPI Oceans to act swiftly in identifying and addressing knowledge demands with tailored actions, thus achieving rapid outcomes.

In its implementation, JPI Oceans is committed to implementing collaborative research and innovation in a manner that maximises **resource efficiency** and **transformational impact**. By fostering synergies and avoiding duplication of efforts, JPI Oceans can optimise the use of limited resources and achieve greater outcomes for its members and collaborators.



2.3 Policy impact

JPI Oceans is committed to maximising the policy impact of its research and innovation activities, contributing to informed decision-making at national, European, and international levels. This commitment begins at the Joint Action design phase, where potential applications and policy needs are proactively identified and incorporated into research objectives. Throughout the implementation of its projects, JPI Oceans facilitates ongoing dialogue between researchers and policymakers, ensuring research remains aligned with evolving policy needs.

JPI Oceans actively provides **science-based evidence** and recommendations to inform marine and maritime policies. To enhance the accessibility and uptake of this evidence, JPI Oceans is strategically utilising relevant technologies. This increasingly includes the exploration and integration of Artificial Intelligence (AI) tools for knowledge synthesis and dissemination. While advanced analytical tools are intended to make research outputs more promptly and more readily usable, JPI Oceans also upholds the increasingly important role of expert knowledge for validating AI outputs.

JPI Oceans plays a significant role in supporting the implementation of major global and European policy frameworks. At the global level, this includes contributing to the achievement of the UN Sustainable Development Goals, particularly **Sustainable Development Goal 14 on Life Below Water**, and actively participating as a Decade Implementing Partner in the UN Decade of Ocean Science for Sustainable Development. Within the European Union, JPI Oceans' work directly supports several key policies. First of all, JPI Oceans commits to implementing ambitions related to ocean knowledge as formulated in the **European Ocean Pact**, which consolidates existing EU ocean-related strategies and policies into a unified framework and is foreseen to culminate in an Ocean Act by 2027. **The European Green Deal**, with its ambitious legislations for climate neutrality as in the Climate Law and biodiversity protection as in the Nature Restoration Law, provides an overarching framework. The EU's **Integrated Maritime Policy** (IMP) seeks to foster a sustainable blue economy and coordinated governance of Europe's seas. The IMP encompasses a range of more specific directives and initiatives, most notably the **Marine Strategy Framework Directive** (MSFD), which requires EU Member States to achieve Good Environmental Status in their marine waters. JPI Oceans continues to monitor progress and contribute to the objectives of the **Zero Pollution Action Plan**, aiming at achieving a pollution-free marine environment. At the same time, JPI Oceans acknowledges the strategic importance of the **EU Competitiveness Fund** as a complementary driver of research, innovation and technological leadership across Europe.

Furthermore, JPI Oceans supports the development and implementation of evidence-based policies and management practices at the national and regional levels. This includes providing scientific input to the **Regional Sea Conventions** (OSPAR for the Northeast Atlantic, HELCOM for the Baltic Sea, Barcelona Convention for the Mediterranean Sea, and Bucharest Convention for the Black Sea), acknowledging their crucial role in addressing transboundary marine environmental issues.

Example 2 from our Joint Actions - From Strategy to Impact

Knowledge Hub on Sea Level Rise

The Knowledge Hub on Sea Level Rise is a collaborative effort between JPI Oceans and JPI Climate. This concerted initiative addresses the intricacies of regional and local sea level changes, weaving together a tapestry of insights from key experts spanning the European sea basins and varied disciplinary landscapes.

Aims & ambitions: crafting future-proof policies

The Hub's goal is to support the development and implementation of sea level rise related policy at local, national, and European levels by providing actionable knowledge, facilitating information exchange among involved disciplines and addressing knowledge gaps to enable well-informed decisions on protective and adaptive measures.

Genesis of the first report: a collective endeavour

The Knowledge Hub design adopts a cooperative, participatory and interdisciplinary approach to transfer knowledge and expertise among European member states, stakeholders and end-users, tailored to regional, national, and European policy development and implementation. The central product is a periodic assessment of knowledge on sea level rise drivers, impacts, and policy options in easily accessible and digestible reports.

The inaugural report, launched in November 2024, was built on the basis of inclusive stakeholder engagement. Inputs were harnessed through a Europe-wide stakeholder survey, dedicated workshops focusing on specific sea basin priorities, and a large conference held in Venice in 2022.

These efforts of JPI OCEANS add value at several levels: They create a connected and informed community of diverse actors, they generate a knowledge product tailored to user needs, and they enable that the impacts of sea level rise are addressed with suitable adaptation strategies. A second cycle of assessment is planned for this strategic period.

2.4 Objectives

To reach the vision and mission and fulfil its strategic role, JPI Oceans strives to achieve three overarching operational goals, each of them pursued through several high-level objectives:

Goal 1

Align priorities

Align and structure national, European, and international R&I agendas by identifying and jointly addressing marine and maritime issues of political and social relevance.

Objectives:

- Engage countries in sharing their national priorities and in adopting jointly identified topics in their national agendas and strategies.
- Identify emerging topics of shared interest through a bottom-up mechanism for contributing ideas and impulses.
- Enable the structuring effect of transnational collaboration on national research priorities and resource allocation through joint programming.
- Engage in transnational science-policy processes at regional, European and global levels to contribute to their agendas and identify opportunities for their implementation.

Goal 2

Implement collaborative R&I

Implement collaborative R&I that maximises resource efficiency and transformational impact.

Objectives:

- Offer an attractive agenda, efficient implementation processes and clear value proposition for countries to develop and participate in Joint Actions.
- Pursue opportunities for synergistic collaboration of JPI Oceans activities with regional, European and global initiatives.
- Maintain flexibility to respond rapidly to new opportunities and challenges.
- Seek co-funding opportunities with Horizon Europe and other champions of R&I support in both public and private spheres.

Goal 3

Impact decision-making

Ensure that R&I outcomes contribute to relevant transformative policy and decision-making towards healthy seas and oceans, and a sustainable ocean economy.

Objectives:

- Ensure uptake of R&I outcomes by creating ownership among member countries and experts from stakeholder groups through co-development of activities and products.
- Ensure knowledge transfer to maximise uptake and impact of R&I at knowledge-generation and decision-making levels.
- Increase ocean literacy among key sectors of politics and society.

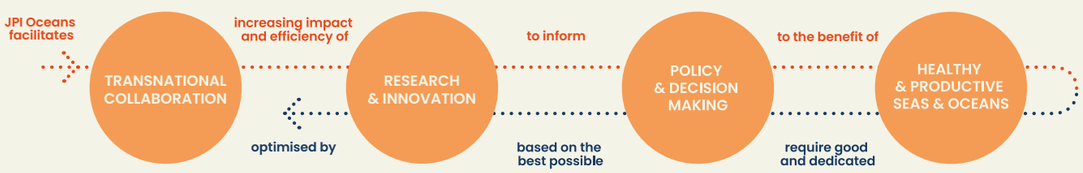


Figure 3: Illustration of the narrative underlying the strategic elements of JPI Oceans.

Jan Derking/GEOMAR

Strategic setup

03

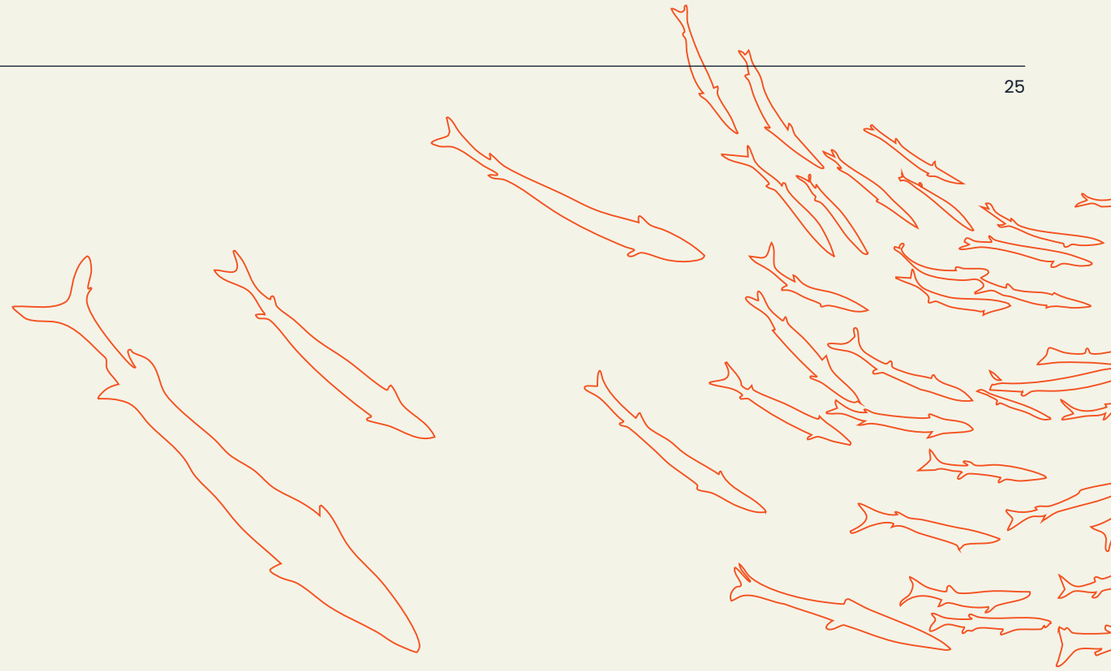
Strategic setup

3.1 Membership and participation

JPI Oceans was originally established in 2011 by request of the Council of the European Union as one of 10 JPIs, each addressing major societal challenges. Since then, JPI Oceans has established its function as a platform for transnational coordination, refined its approach to joint transnational research and innovation activities, positioned itself as a knowledge provider to the science-policy interface, set up its legal entity status for long-term operation, and positioned itself as a strategic platform and efficient implementation mechanism in the marine and maritime knowledge-to-action landscape.

While maintaining its European foundation, JPI Oceans recognises the inherently global nature of ocean challenges and engages strategically with international partners through flexible collaboration, participation, and membership mechanisms.

- Belgium
- Croatia
- Germany
- Greece
- Ireland
- Italy
- Malta
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- United Kingdom



> **While maintaining its European foundation, JPI Oceans recognises the inherently global nature of ocean challenges and engages strategically with international partners through flexible collaboration, participation, and membership mechanisms.**

3.2 Governance structure

The high-level governance of JPI Oceans is defined in the organisation's statutes as the legal reference document, complemented by operational procedures that describe further structural and procedural detail. JPI Oceans governance follows an onion-ring model with increasingly inclusive rings from the core moving outwards (Figure 4), while the governing power sits in a middle ring with the General Assembly representing the member countries.

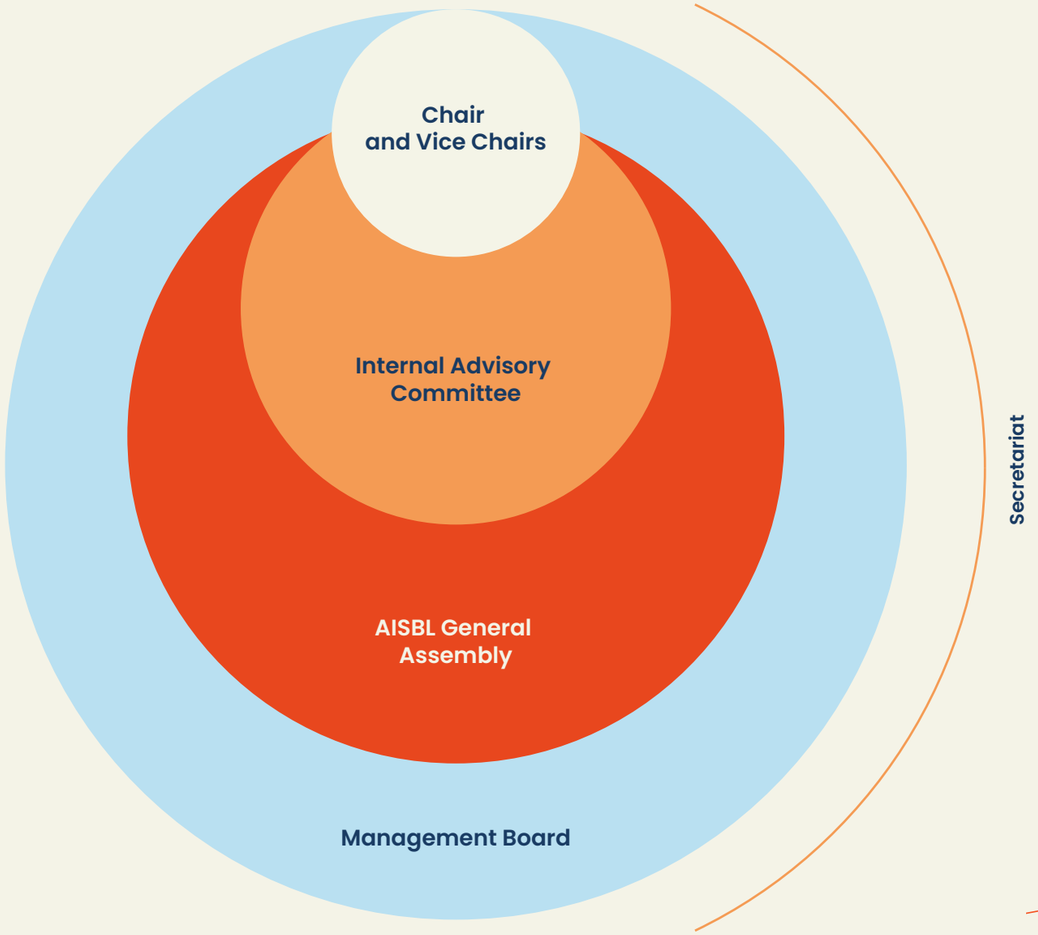


Figure 4: Governance structure of JPI Oceans.

AISBL General Assembly

The member countries composing the General Assembly hold the power of strategic decisions and organisational oversight. JPI Oceans is incorporated as an international nonprofit association (AISBL) under the name «Joint Programming Initiative Healthy and Productive Seas and Oceans». With the establishment of an international non-profit association under Belgian law (Association Internationale Sans But Lucratif, abbreviated AISBL) in 2018, JPI Oceans has become a member-owned organisation with a governance that is tailored to efficiently serve its members and deliver on its strategic mission.

Management Board

The Management Board serves as a temporary governance body established to ensure inclusive representation during JPI Oceans' institutional transition. This arrangement provides formal representation in the governance of JPI Oceans for member countries that have not yet completed their accession to the AISBL.

Internal Advisory Committee

The General Assembly is supported by the Internal Advisory Committee, providing advice on strategic decisions, assistance for developing governance aspects, and guidance for the implementation of actions and activities.

JPI Oceans country network

While owned and governed by its member countries, JPI Oceans is open to participation from non-members. An **Observer Country** status provides a formalised mechanism for non-member countries to engage with specific JPI Oceans activities without full membership obligations. Observer countries may participate in research and innovation sessions of Management Board meetings and join specific Joint Actions through expert contributions or in-cash funding, with participation fees calculated at one-third of their hypothetical annual membership fee.

Beyond this formalised status, JPI Oceans employs a variable-geometry approach to ad hoc **third country collaboration**, enabling topic-specific engagement with international partners where mutual interests align.

Secretariat

JPI Oceans has a permanent secretariat in Brussels, with staff members either seconded from member organisations or directly employed through the AISBL. The secretariat is responsible for the day-to-day management and implementation of JPI Oceans, thereby assisting the General Assembly, Management Board, and Internal Advisory Committee with the preparation of documents, reviews and reports. The secretariat ensures the necessary logistical coordination and communication among different governance bodies and relevant stakeholders.

3.3 Financial model and sustainability

JPI Oceans operates through a robust and adaptable financial model that combines stable institutional funding from its member countries with dynamic project-based resources. This hybrid approach enables the organisation to maintain its core functions while pursuing strategic opportunities and expanding its impact in the marine and maritime research landscape.

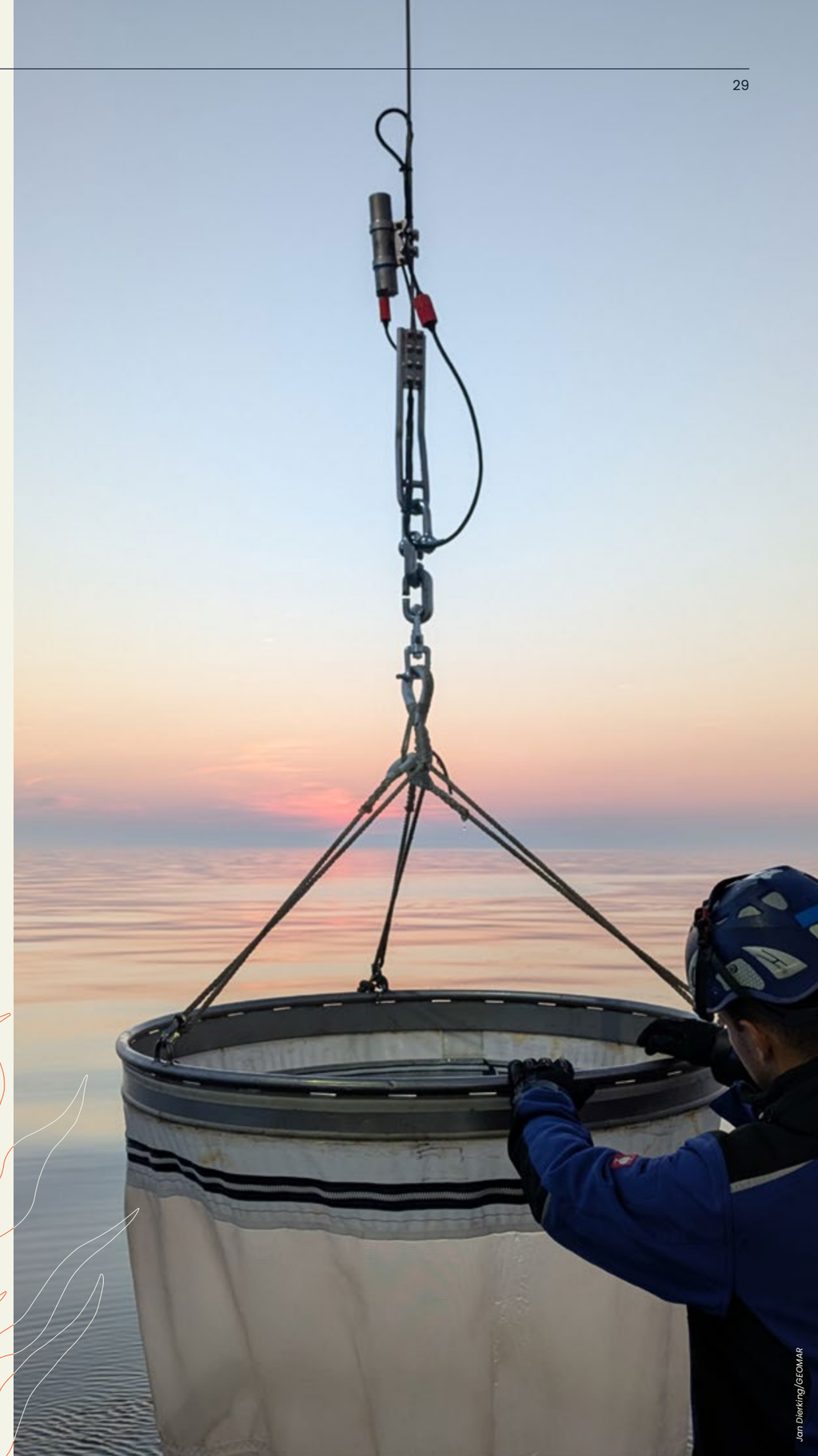
> **JPI Oceans operates through a robust and adaptable financial model that combines stable institutional funding from its member countries with dynamic project-based resources.**

The foundation of JPI Oceans' financial structure rests on **membership fees** from participating countries, providing essential stability for core operations. This approach is further supported by several complementary personnel secondments from JPI Oceans member countries. These form an essential part of the JPI Oceans secretariat's operating capacity. The membership fee model is complemented by administration fees for the participation of non-member countries to JPI Oceans Joint Actions.

Complementing this foundation is a strategically selected portfolio of **project-based funding**. JPI Oceans takes a targeted approach to project participation, engaging only in initiatives that either directly emerge from and support its Joint Actions or have clear strategic and coordination value at a pan-European or international level. This selective approach ensures that project participation aligns with JPI Oceans' core mission as a coordination platform while avoiding potential conflicts of interest among member countries.

Project engagement typically focuses on two main categories: research and innovation projects that are central to existing Joint Actions, and strategic coordination initiatives such as Horizon Europe partnerships that advance transnational collaboration. This targeted approach to project participation maintains JPI Oceans' clear role as a coordination platform while maximising the value of project-based funding for its members.

The effectiveness of this model is enhanced by **additional revenue streams**, including rental contributions for shared office space and occasional ad hoc contributions from members and observers.



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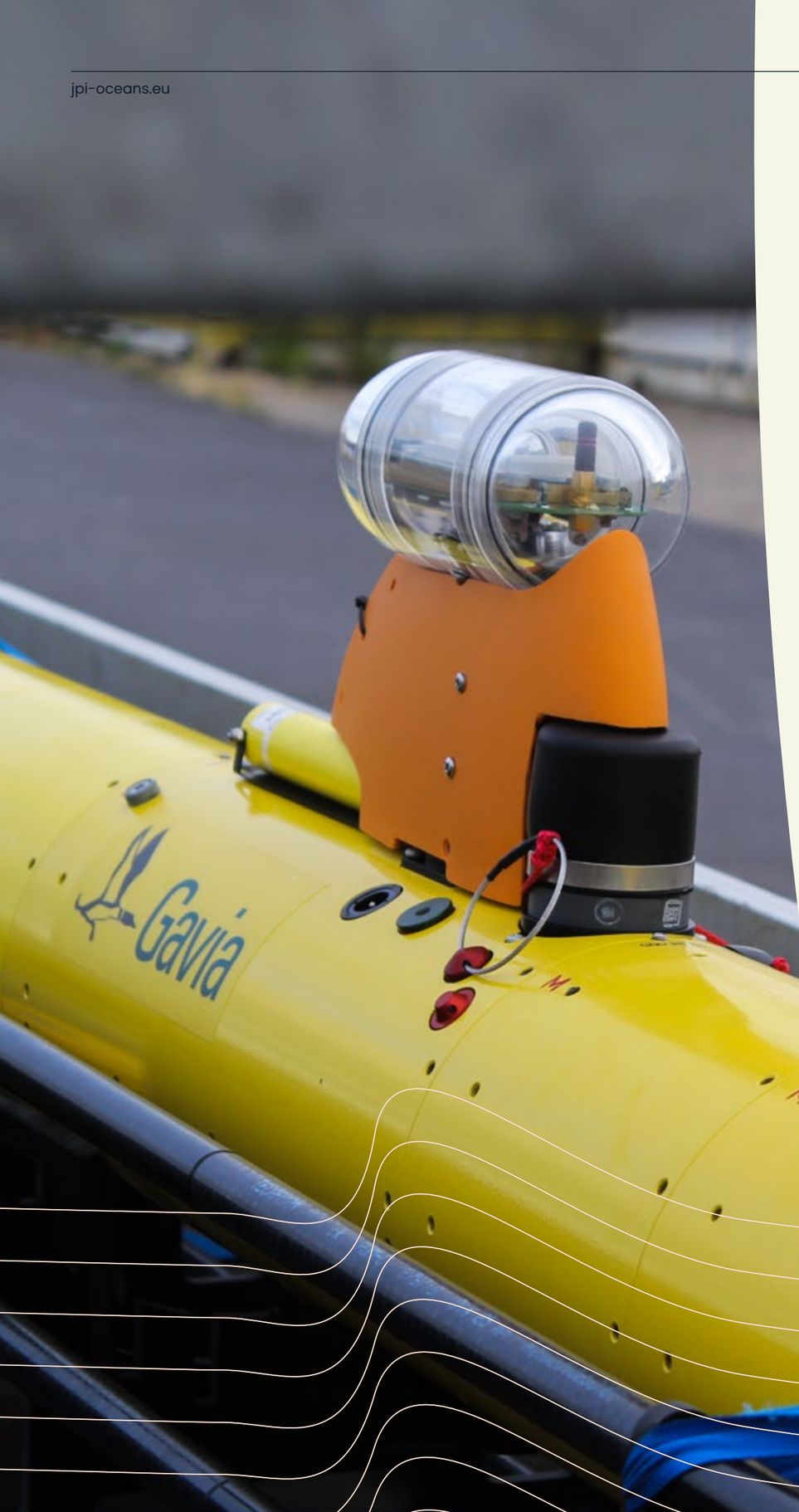

Thematic scope

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Thematic scope

JPI Oceans' thematic scope continues to be a continuous framing defined by the three interconnected priority areas for a resilient ocean including (1) **Ocean Stewardship & Governance**, (2) **Ocean Health**, and (3) **Ocean Economy**. These are complemented with three ambitions for maritime development that include responsibility, sustainability, and competitiveness.

This thematic space represents a general continuation from the Strategy Framework 2021-2025 with only subtle changes from rearranging the major thematic areas and evolving their terminologies.

- **Ocean stewardship and governance** was moved more prominently to the upper part of the circle, reflecting a strategic embracement of JPI Oceans to put more emphasis on marine research infrastructures, ocean observing and monitoring, data access, educational aspects, and other aspects of strengthening the foundations of knowledge-based interaction with the ocean.
- Healthy and productive seas and oceans remain at the heart of the vision of JPI Oceans. However, the current thematic scope has evolved the terminology from **ocean productivity** and blue economy to addressing the ocean economy with the ambition of enabling **competitiveness**. The rewording now also avoids confusion with Horizon Europe's Sustainable Blue Economy Partnership, to which JPI Oceans commits as an enabling mechanism for a competitive and sustainable ocean economy.
- JPI Oceans retains **sustainability** and **responsibility**, in addition to competitiveness, as guiding ambitions that characterise the thematic scope.

The revised thematic space represents the next evolutionary step of JPI Oceans on the trajectory since its first strategy, the SRIA 2015-2020. The Strategy Framework 2026-30 refrains from attempting to anticipate topics that could become relevant and feasible for adoption by JPI Oceans within the outlined high-level scope.

The **open thematic scope** (Figure 5) with a clearly formulated ambition but no fixed delivery plan on specific priorities generates manoeuvring space for JPI Oceans to adapt and react to challenges and opportunities that emerge over the course of the strategy period. This reinforces JPI Oceans' agility in the landscape of R&I enablers, i.e. to act as first or early mover and to mobilise resources relatively quickly through voluntary commitments of its members.

This approach emanates from the organisational constellation of JPI Oceans. While it is an effective platform to align national and regional research strategies and investments, it does not have a dedicated programme budget. The strategy framework's open thematic space therefore offers the flexibility to harness converging national interests that contribute to meeting the goals and challenges that lie within the scope of JPI Oceans through long-term structuring investments and commitments. This mode of operation can complement time-bound programmes with a fixed budget, such as the EU Framework Programmes.

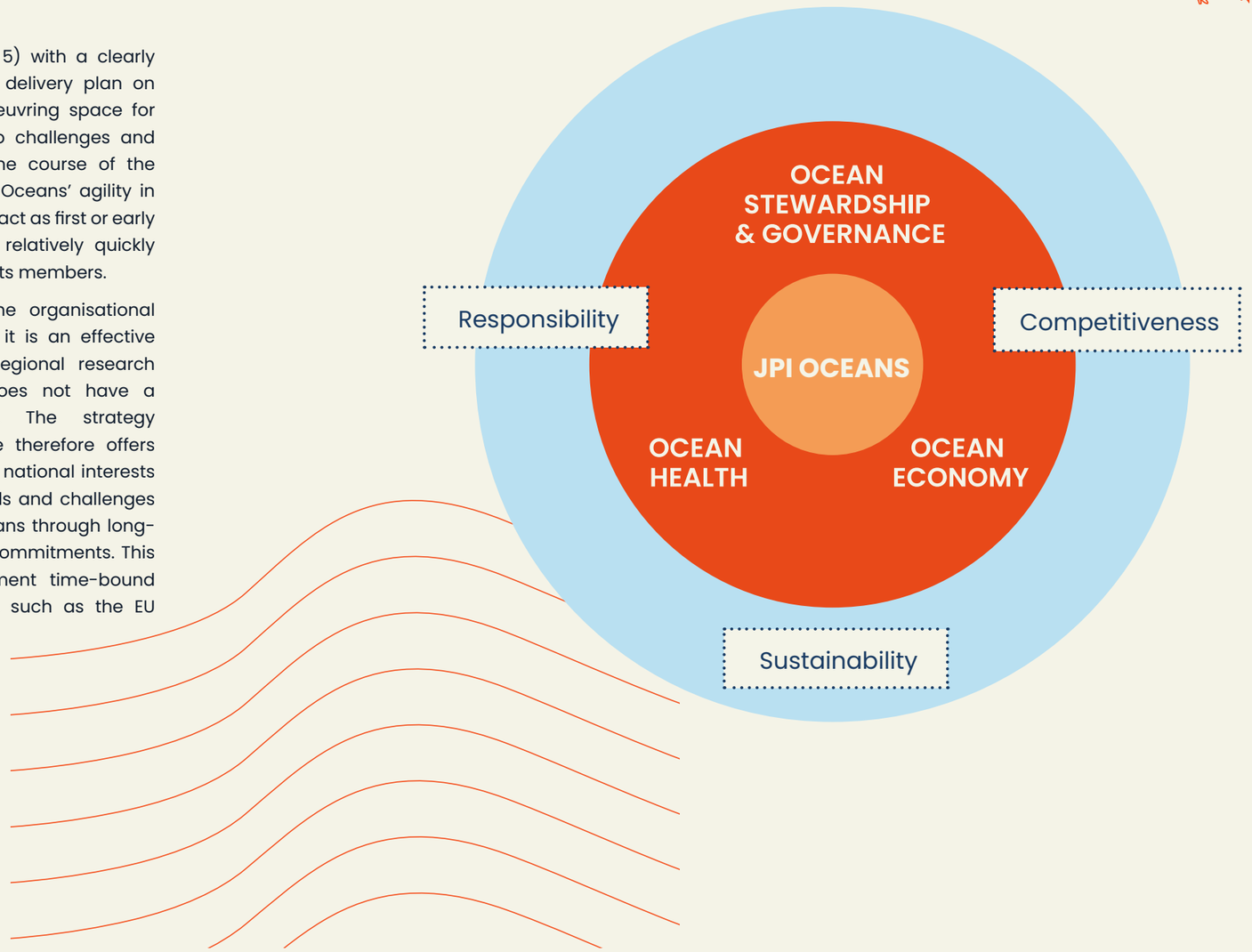


Figure 5: Open thematic scope of JPI Oceans, with the three development ambitions responsibility, competitiveness, and sustainability in the outer ring and the three priority areas for a resilient ocean including stewardship & governance, health, and economy in the middle ring. The inner circle is the thematic space that will be populated with Joint Actions on agreed topics of interest that adhere to the higher-level framing and the evolving needs and prioritisation of the member countries.

4.1 Domains

In its full name, JPI Oceans refers to **seas and oceans** as its domains of main concern. While we often use the term «oceans» in a broad and inclusive sense, the narrow definition relates to the open part of the ocean with a relatively uninhibited connection among the major ocean basins. This does not exclude distinct characteristics of particular ocean basins and ocean regions (hence the use of ocean in plural term), such as evident for instance for the Arctic Ocean where surface waters warm four times faster than the global average, giving rise to profound environmental, ecological, economic, and geopolitical changes.

Sea basins, on the other hand, are characterised by partial hydrographic isolation, which often leads to particularly pronounced impacts of anthropogenic pressures. As such, the Black Sea and Baltic Sea are severely affected by the loss of oxygen, the Mediterranean by pollution, and the North Sea by extensive economic use. Maritime Europe in particular is characterised by sea basins more than any other part of the world, calling for common and coordinated scientific and political approaches among different marginal sea basins and for the integration of expertise from similar settings elsewhere in the world ocean.

Socio-economic and environmental domains that JPI Oceans implicitly also considers central to its scope include the **coastal zone, small islands and the sea floor** with all their resources, ecological niches, economic activities, political constellations, and specific legal conditions. To adequately conduct R&I on such interconnected complex systems, JPI Oceans speaks to a wide scope of expertise that includes natural and social sciences, but can also reach out to the humanities, engineering, law, economy and finance.

Many of the challenges associated with the ocean are connected with adjacent spheres, (atmo-, hydro-, cryo-, bio-, and geosphere) which requires JPI Oceans to bridge beyond the core domains of JPI Oceans. The key to a comprehensive grasp of interconnected problems and their effective solution often lies at the interfaces with the climate system, with the land including inland waters and upstream activities, with the geology on and below the seafloor, and with societies including economic practices and coastal and inland management (Figure 6). JPI Oceans aims to increasingly address these domain interfaces in collaboration with suitable partners, such as sister JPIs, Horizon Europe partnerships, NGO partners, among others.

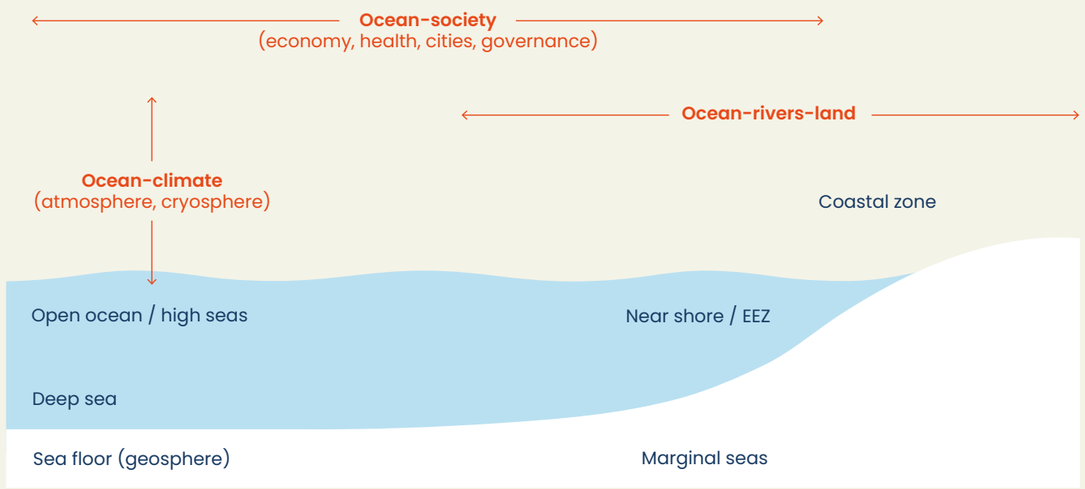
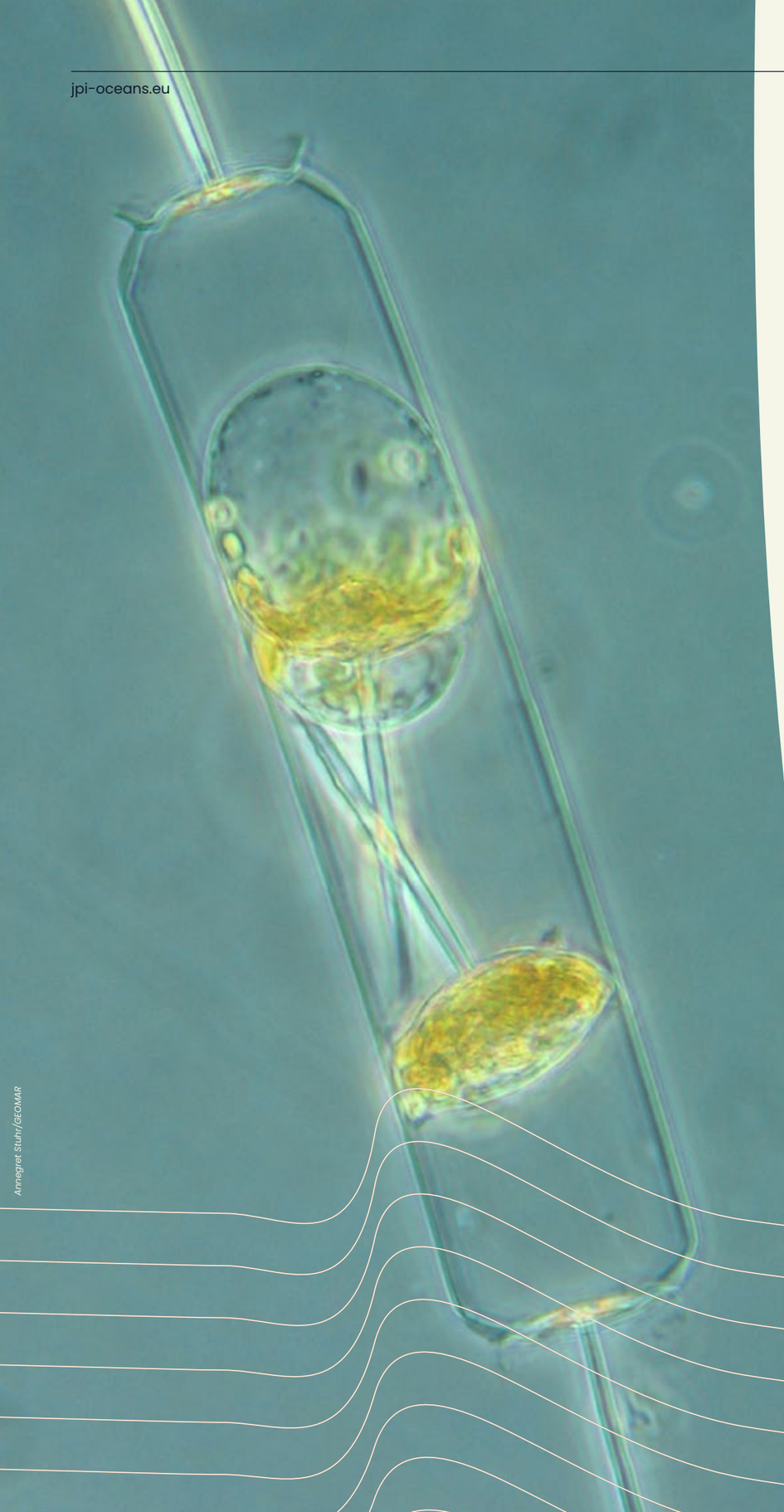


Figure 6: Schematic of the central marine and maritime domains addressed by JPI Oceans (in bold) and the interfaces with other domains which JPI Oceans can address in collaboration with external partners.

4.2 Geographic scope

The geographic focus of JPI Oceans is on those seas and ocean regions with extensive coastlines and exclusive economic zones of its participating countries, i.e. mostly on the Black, Mediterranean, Baltic and North Seas and the Atlantic and Arctic ocean regions. However, this does not exclude activities in regions of the Pacific, Indian, and Southern Ocean, should these be of relevance to the member countries' interests. For example, research under the Joint Action on deep-sea mining impact is partly carried out in the North Pacific because claims for the exploration of polymetallic nodules are located there. Assessment of the Atlantic Meridional Overturning Circulation takes an Atlantic-wide or even global ocean view as both, oceanographic drivers and socioeconomic impacts of the overturning, are often distant to Europe. Research on Blue Carbon includes mangroves, tropical ecosystems that are absent in mid an high latitudes, but are irrespective of their occurrence of substantial global value for climate mitigation and coastal resilience.



Annegret Stuhr/GEOMAR

Implementation principles

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Implementation principles

5.1 Agile approach

JPI Oceans' agility in responding to emerging challenges and opportunities is a core strength of its implementation approach. This agility is reflected in both operational structure and programming flexibility, enabling rapid response to evolving marine and maritime challenges while maintaining scientific excellence and strategic relevance.

At the operational level, JPI Oceans can swiftly mobilise expertise and resources through streamlined processes for launching targeted initiatives. This includes the rapid formation of expert groups and the efficient implementation of joint calls for proposals. The organisation's lean administrative structure facilitates **quick decision-making** while ensuring proper governance and oversight.

The programming framework is deliberately designed to accommodate **emerging priorities**. Rather than being constrained by rigid thematic boundaries, JPI Oceans maintains an open and adaptable approach that allows it to address new challenges as they emerge. This flexibility extends to ongoing activities, which can be adjusted based on evolving needs and insights.

> **JPI Oceans can swiftly mobilise expertise and resources through streamlined processes for launching targeted initiatives.**

Resource mobilisation is similarly agile, with established mechanisms for activation of national funding commitments and coordination of in-kind contributions. This enables JPI Oceans to act as a first or early mover on emerging topics, often addressing critical gaps before larger, more structured programmes can be established. This nimbleness is particularly valuable in areas requiring rapid research response or policy input.

5.2 Variable geometry

The principle of variable geometry is fundamental to JPI Oceans' operational model, providing a framework that enables efficient and flexible implementation. This approach has proven effective for maintaining momentum on identified priorities while accommodating the different interests and capabilities of participating countries.

At its core, variable geometry means that countries can participate in Joint Actions based on their national priorities and available resources. While a minimum threshold of four participating countries ensures critical mass for meaningful collaboration, the model allows for different levels of engagement and contribution. Countries can join ongoing activities as their interests and capacities evolve. The variable geometry extends to resource contributions, accommodating multiple options of both financial and in-kind participation.

5.3 Co-design of activities

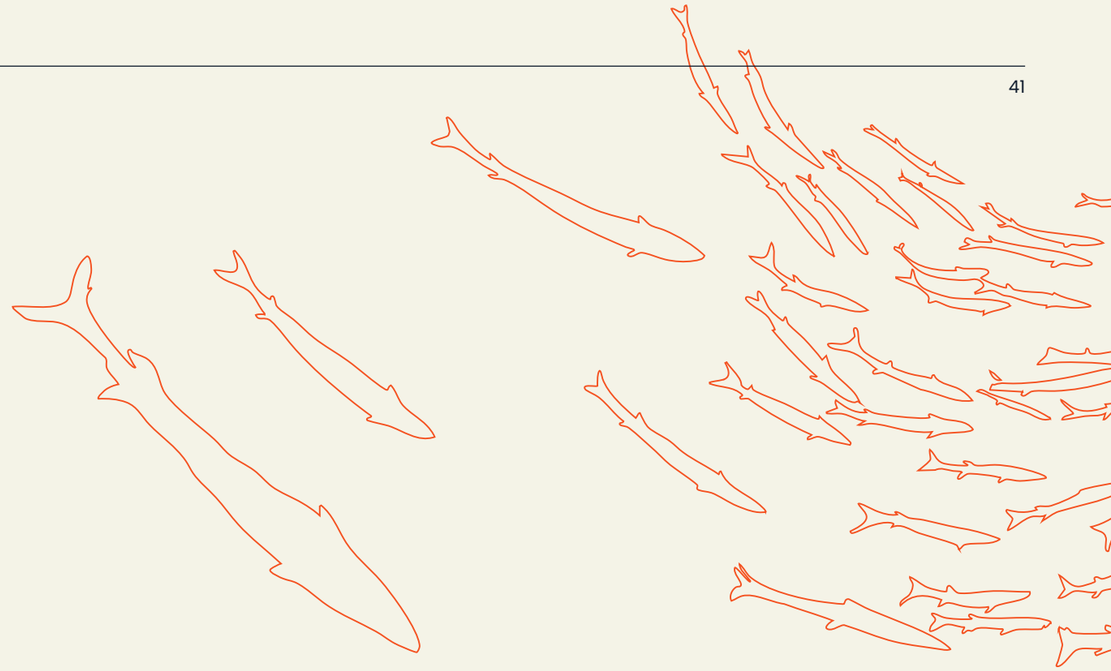
The co-design process of JPI Oceans Joint Actions (Figure 7), strategic engagements (chapter 6), and other activities is based on the **convergence of strategic interests** among multiple member countries, reflecting shared challenges and opportunities in marine and maritime research and innovation. This process is builds on the co-design elements described in the following.

Nikolas Linke/GEOMAR

Alignment of national priority topics

JPI Oceans facilitates the process of aligning national priority topics by soliciting member countries regularly to bring forward their marine and maritime research priorities that could benefit from transnational collaboration. This process encourages countries to identify areas where their national interests converge with those of other members, creating opportunities for joint research programming and resource sharing.

When multiple countries express shared interest in a topic and commit to providing resources, these initiatives can be developed into full Joint Actions or other activity formats that leverage combined expertise and infrastructure to achieve greater impact than would be possible through individual national efforts.



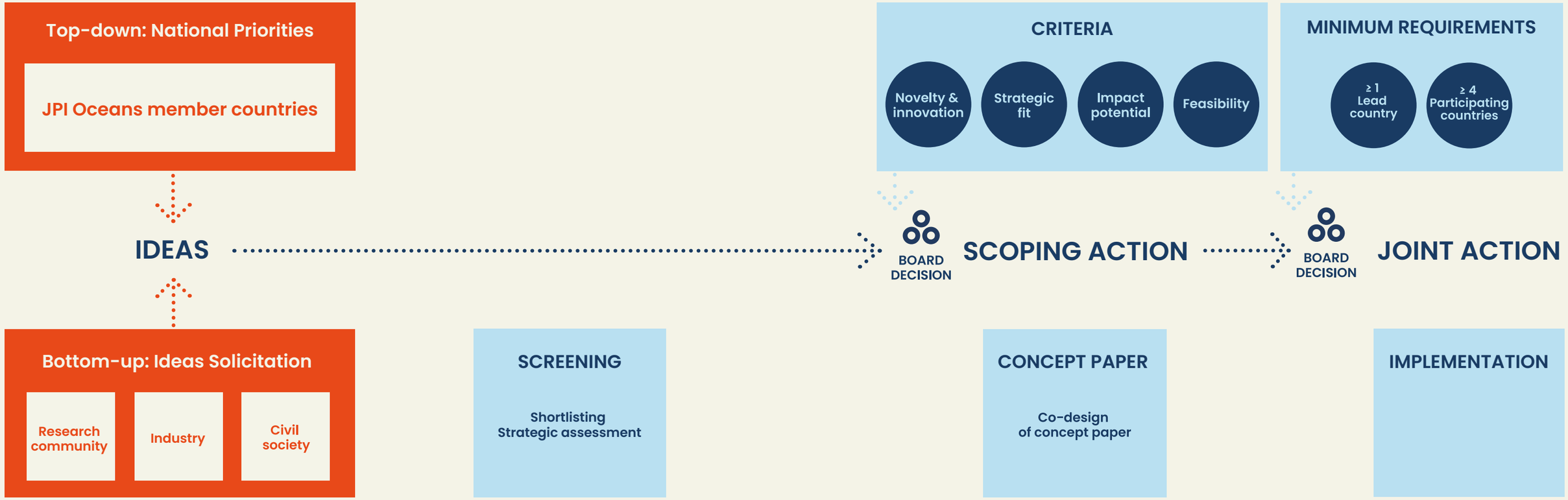


Figure 7: JPI Oceans Joint-Actions: from solicitation to adoption.

Ideas solicitation and bottom-up engagement

JPI Oceans maintains an open, bottom-up mechanism for identifying new Joint Actions through annual solicitation of ideas. This approach enables the marine and maritime research community, alongside other stakeholders, to bring emerging topics and innovative concepts directly to the attention of member countries. The process is designed to:

- Capture novel ideas that address gaps in current research and innovation landscapes
- Identify emerging challenges requiring transnational cooperation
- Ensure JPI Oceans remains responsive to evolving developments and opportunities

Ideas are evaluated based on their novelty, strategic fit, potential impact, and feasibility of implementation. For successful adoption of ideas as a Joint Action, proposals must secure leadership from at least one member country and participation of a minimum of four countries to ensure adequate implementation capacity.

Stakeholder engagement in strategic development

Beyond individual actions, co-design extends to the continuous development and refinement of JPI Oceans' strategic orientation. This involves:

- Regular consultation with national funding bodies and ministries
- Engagement with European and international policy frameworks
- Dialogue with scientific advisory bodies and research performing organisations
- Input from industry and civil society representations
- Coordination with complementary initiatives and partnerships

This multi-stakeholder approach helps identify strategic priorities, avoid duplication of efforts, and maximise synergies with other programmes and initiatives.

Implementation through collaboration

Once priorities are identified, co-design continues through a scoping process, followed by the actual implementation as a Joint Action or other type of activity. These steps rely on close collaboration between:

- Lead countries providing strategic direction
- Participating countries contributing resources and expertise
- Scientific experts ensuring technical validity
- End-users helping define practical outcomes
- Policy makers ensuring relevance to decision-making needs

This collaborative approach ensures that activities remain focused on delivering tangible impacts while maintaining scientific excellence and practical feasibility.

5.4 Implementation tools

JPI Oceans employs a diverse set of implementation tools designed to maximise the impact and efficiency of transnational marine and maritime research and innovation activities (Figure 8). These tools are primarily deployed through **Joint Actions** - the central implementation mechanism of JPI Oceans. Joint Actions are formed around topics that fall under JPI Oceans' thematic scope and are supported by the commitment of several member countries under the leadership of one or more countries. These tools have evolved through practical experience and are regularly refined to meet emerging challenges and opportunities. Each tool serves specific purposes while maintaining flexibility to be combined or adapted as needed.

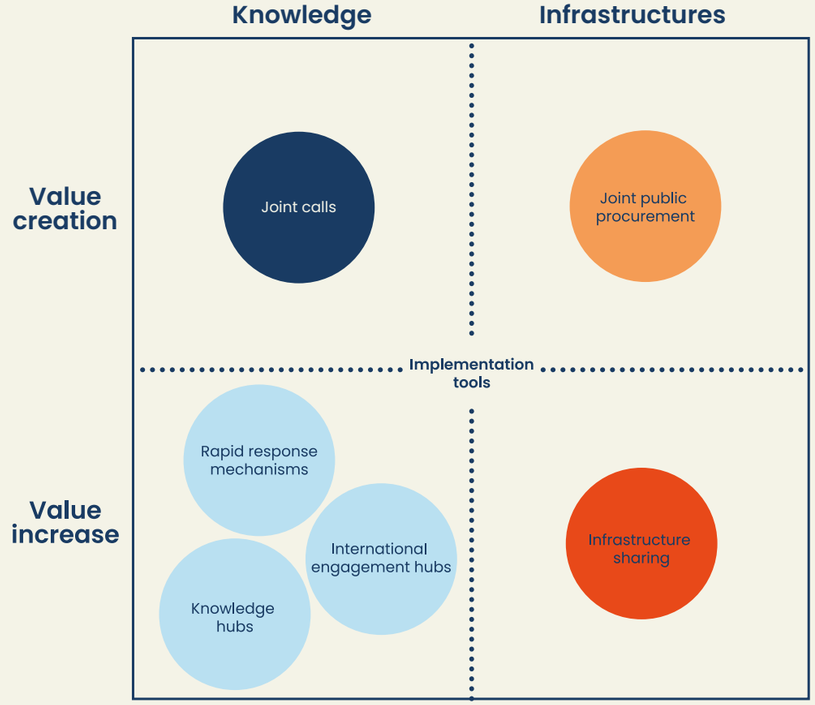
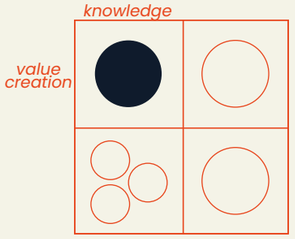
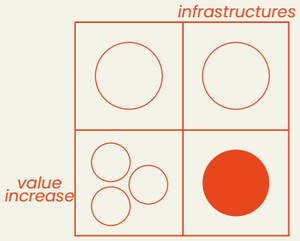


Figure 8: JPI Oceans Implementation tools.



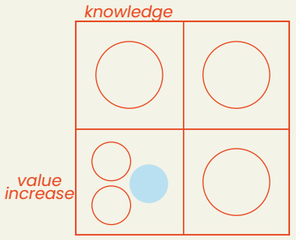
Joint calls

Joint calls for project proposals remain a cornerstone implementation mechanism for JPI Oceans, enabling coordinated research funding across participating countries to address specific knowledge gaps and emerging challenges in marine and maritime research. A particular strength of JPI Oceans' joint calls is their ability to integrate elements of infrastructure sharing into the funding framework. By combining research funding with coordinated access to research vessels and other marine infrastructures, the resulting hybrid joint calls can support more ambitious research than would be possible through standard funding mechanisms alone.



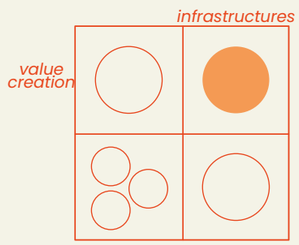
Infrastructure sharing

The sharing of marine research infrastructures represents a high-impact, cost-effective implementation tool that maximises the utility of existing national investments. While historically still underutilised in JPI Oceans, infrastructure sharing offers significant potential for enhanced transnational collaboration, particularly for expensive or specialised equipment and facilities. This is especially valuable for research requiring extensive sea-time or specialised equipment, such as deep-sea research.



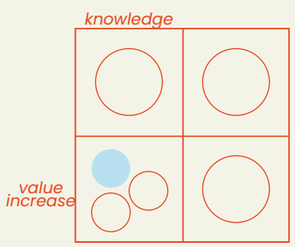
International engagement hubs

As a new implementation tool, international engagement hubs facilitate structured collaboration with partners beyond Europe. These hubs constitute platforms for knowledge exchange and transfer, capacity building, and collaboration on research efforts on global marine challenges.



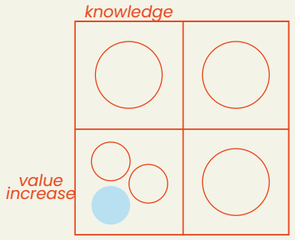
Joint public procurement

Joint public procurement enables participating countries to aggregate their purchasing power for research services or infrastructure. While this tool is been used less routinely, it holds significant potential for cost-effective acquisition of shared resources and services, particularly at regional scales. It can be especially effective for implementing standardised monitoring approaches or acquiring innovative solutions.



Rapid response mechanisms

Building on lessons learned, JPI Oceans introduces dedicated rapid response mechanisms to address urgent marine and maritime issues requiring immediate research attention or policy input. This mechanism enables swift mobilisation of expertise and resources across member countries, ensuring timely scientific input for critical decision-making processes.



Knowledge hubs

Knowledge hubs serve as focused expert networks delivering specific products tailored to identified user needs. These hubs excel at synthesising dispersed knowledge and connecting fragmented activities into coherent outputs such as policy recommendations, scientific assessments, or handbooks. The proven success of this tool in bridging science-policy interfaces makes it central to JPI Oceans' impact strategy.

The selection and combination of these implementation tools is guided by the specific objectives of each initiative, available resources, and desired impacts. JPI Oceans maintains flexibility in tool application while ensuring efficient use of resources and maximum value creation for participating countries. Regular evaluation of tool effectiveness ensures regular improvement and adaptation to evolving needs in marine and maritime research and innovation.

5.5 Good practice

Open science and transparent data access are fundamental principles in JPI Oceans' approach to marine and maritime research and innovation. As oceans face increasingly complex challenges, the ability to share, access, and build upon research findings becomes critical for advancing scientific understanding and informing effective policy responses.

Open science

The emphasis on open science supports the reproducibility of research findings and enables more efficient use of research infrastructure and resources. By encouraging the **sharing of data and methodologies**, JPI Oceans facilitates the validation of research results and encourages the development of new insights through data reuse and integration. This approach is particularly valuable in marine research, where data collection is often resource-intensive and opportunities for repeated observations are limited.

Data access

JPI Oceans encourages all research activities under its umbrella to adhere to **FAIR data principles**, making data findable, accessible, interoperable, and reusable, and to actively promote the compatibility for the use of artificial intelligence. Through a formal collaboration with the European Marine Observation and Data Network (EMODnet) JPI Oceans enables the availability of the outputs of its activities, contributing to a functioning value chain from ocean observing to knowledge provision.

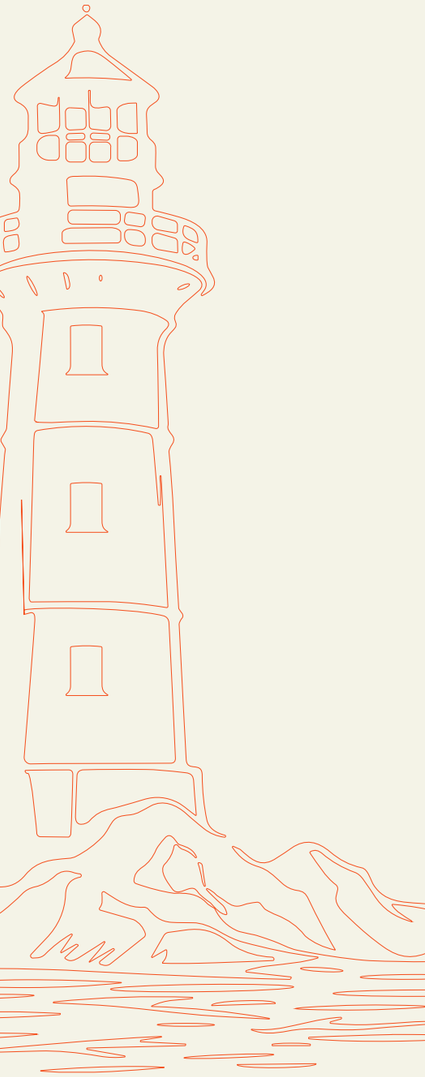
Ocean literacy

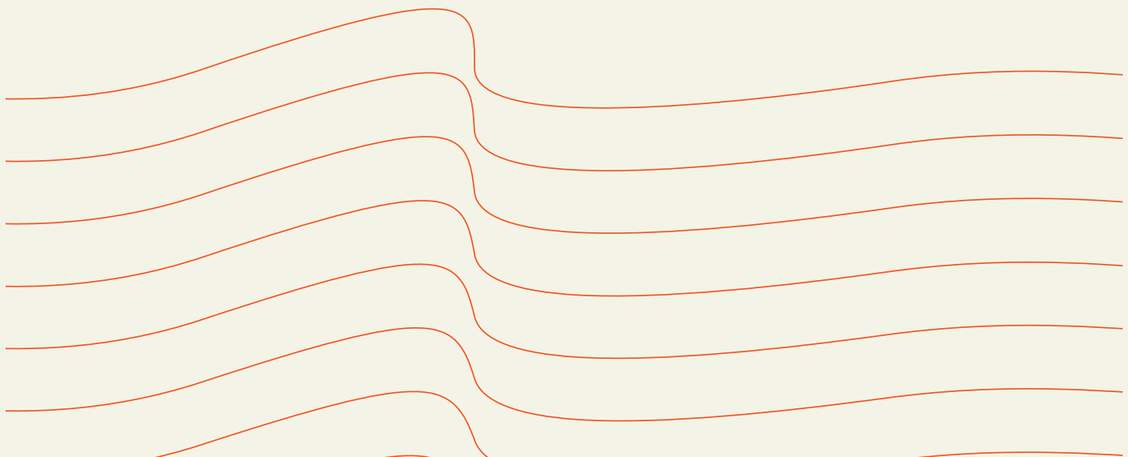
Ocean literacy is a critical enabler for the transformation towards sustainable seas and oceans, encompassing understanding of ocean-human interactions and fostering societal stewardship of marine environments. As a partner in the **European Ocean Coalition** (EU4Ocean), JPI Oceans mobilises its projects to translate complex marine science into accessible information. Through knowledge exchange, educational resources, communication campaigns, and engagement with youth forums, JPI Oceans integrates ocean literacy principles across its activities to create the societal foundation necessary for change in ocean management, supporting the Ocean Pact, European Green Deal and UN Sustainable Development Goals.

Transdisciplinarity

Addressing complex marine challenges requires a truly transdisciplinary approach that **integrates natural sciences with social sciences, economics, and legal perspectives**. JPI Oceans recognises that effective marine research and innovation must understand not only biophysical processes but also human behaviour, governance frameworks, economic drivers, and cultural values.

JPI Oceans actively incorporates expertise from fields such as environmental economics, marine governance, maritime law, and social-ecological systems research into its Joint Actions. This approach has yielded tangible results, particularly in areas such as deep-sea mining, dumped munition, microplastics management, and sea level rise, where technical solutions alone would be insufficient. By embracing this interdisciplinary ethos, JPI Oceans strengthens the science-policy interface and develops practical solutions that address both ecological imperatives and societal needs.





5.6 Impact generation

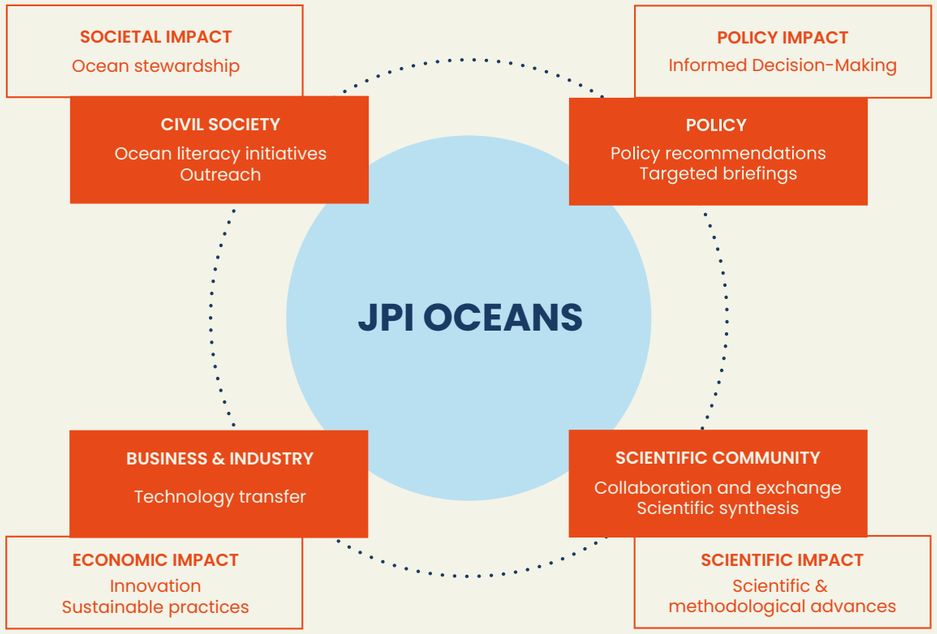


Figure 9: Impact generation within JPI Oceans across the science-policy-society interface.

Knowledge transfer and impact generation are central to JPI Oceans' mission of enabling informed policy delivery and sustainable economic development (Figure 9). A multi-faceted communication approach is employed to ensure that research findings reach and influence key stakeholders across the science-policy-society interface.

Impact generation begins at the project design phase, where potential applications and end-user needs are identified and incorporated into research objectives. Throughout project implementation, JPI Oceans facilitates **ongoing dialogue** between researchers and stakeholders, ensuring research remains aligned with user needs and emerging opportunities for impact.

Overall, **effective communication** is a fundamental pillar of impact generation, ensuring the research findings reach the intended audiences and inspire action. By translating complex scientific insights into clear, compelling messages, JPI Oceans enhances the accessibility and influence of its research, bridging the gap between knowledge production and real-world applications.

Knowledge transfer through communication takes multiple pathways depending on the target audience and intended impact. For **policy makers**, findings are synthesised into clear, actionable recommendations that can inform **decision-making processes**. This includes targeted briefings, policy papers, and participation in relevant policy forums. For the scientific community, results are shared through peer-reviewed publications and scientific conferences, contributing to the advancement of marine science. Recognising the increasing role of Artificial Intelligence (AI) in shaping the science-policy interface, JPI Oceans also develops AI-ready communication materials, including structured summaries of research findings and policy implications, optimised for consumption by Large Language Models and other AI tools.

The **business sector** represents another crucial pathway for impact, with knowledge transfer activities aimed at **supporting innovation** and sustainable economic development. This includes identifying commercialisation opportunities, facilitating technology transfer, and supporting the development of new products and services based on research findings.

Public engagement forms another important dimension of impact generation, with activities designed to increase **ocean literacy** and public understanding of marine challenges and opportunities. Through strategic partnerships with policy and cultural organisations, JPI Oceans ensures research findings reach broader audiences and contribute to informed public discourse on marine and maritime issues.

Success in impact generation is measured not just by traditional academic metrics but by tangible influences on policy, practice, and public awareness. This comprehensive approach to knowledge transfer ensures that JPI Oceans' research activities contribute meaningfully to addressing societal challenges and advancing sustainable development of marine and maritime resources.

Positioned at the intersection of science, policy, industry and society, JPI Oceans is uniquely equipped to drive impact across all these different sectors, strengthening the collaboration amongst its stakeholders. Ultimately, JPI Oceans maximises the visibility and relevance of its work through its strategic communication efforts and extensive network.

Fokmar Hauff/GEOMAR

Strategic engagement and expansion

06

Strategic engagement and expansion

Strategic engagements are distinct from Joint Actions and represent JPI Oceans' collaborations with other key partners and participation in projects with a strategic or coordination character, such as initiatives in Horizon Europe or the UN Ocean Decade. Strategic engagements usually operate at a European, Atlantic or global level and have to demonstrate clear strategic value in advancing JPI Oceans' mission. This selective approach ensures that engagements complement Joint Actions while strengthening JPI Oceans' role as a multigovernmental platform.

6.1 Engagement with European institutions

JPI Oceans maintains **strategic relationships** with European institutions to maximise the impact of marine and maritime research and innovation activities while ensuring complementarity with EU-level initiatives. This engagement extends beyond traditional project participation to include strategic dialogue on research priorities, policy development, and implementation approaches.

> **Engagement extends beyond traditional project participation to include strategic dialogue on research priorities, policy development, and implementation approaches.**

Central to this engagement is JPI Oceans' role in informing and responding to major European policy frameworks. Through targeted initiatives and strategic input, JPI Oceans helps bridge national and European research priorities, ensuring efficient use of resources and maximising impact across scales.

Being a legal entity, JPI Oceans also increasingly joins consortia that implement EU Horizon projects. These projects can have the form of Coordination and Support Actions, where JPI Oceans participates in the implementation of European science-policy initiatives. Projects can also be Research and Innovation Actions (or just Innovation Actions) in which the European Commission's R&I agenda overlaps with the one of JPI Oceans.

6.2 Cooperation with sister JPIs and European partnerships

Collaboration with other Joint Programming Initiatives and European Partnerships forms a key element of JPI Oceans' strategic approach. These collaborations enable addressing complex challenges that cross traditional sectoral boundaries, such as climate change, food systems, and environmental pollution.

Building on successful **joint initiatives**, such as those with JPI Climate on ocean-climate interactions, sea level rise, and Atlantic ocean circulation and with the Water JPI and Antimicrobial Resistance JPI on aquatic pollutants, JPI Oceans continues to develop **strategic alliances** that leverage complementary expertise and resources. Particular attention is paid to collaboration with the Sustainable Blue Economy Partnership, ensuring synergies while maintaining JPI Oceans' distinct role in addressing emerging and frontier topics in marine research.

The experience gained through these collaborations has demonstrated the value of joint programming in tackling complex societal challenges. This includes not only shared funding initiatives but also strategic alignment of research agendas, coordinated stakeholder engagement, and joint approaches to knowledge transfer and impact generation. As such, JPI Oceans will seek to engage in the policy arena developing with the European Ocean Pact and to contribute to related implementation demands.

6.3 International cooperation

JPI Oceans' approach to international cooperation reflects the inherently global nature of ocean challenges and opportunities. While maintaining its European foundation, JPI Oceans engages strategically with international partners through **flexible, topic-driven collaboration** mechanisms.

Key elements of this international engagement include:

- Targeted cooperation with key international partners and countries on specific research challenges, as demonstrated through participation in Joint Actions by Canada, Brazil, and South Africa
- Expansion of the JPI Oceans country network to membership and observership from countries beyond Europe
- Participation in the UN Decade of Ocean Science for Sustainable Development as a Decade Implementing Partner
- Basin-scale collaboration through science-policy initiatives like the All-Atlantic Ocean Research and Innovation Alliance
- Strategic alignment with international frameworks such as the G7 Future of the Seas and Oceans Initiative and the International Platform for Ocean Sustainability

International engagement is sought where it adds value to JPI Oceans' objectives and participating countries' interests. This includes addressing shared challenges that transcend the European dimension, accessing complementary expertise and infrastructure, and contributing to global ocean governance frameworks. The recently established format of International Engagement Hubs (see 5.4) provides a structured low-threshold implementation mechanism for fostering such collaborations.

Through strategic engagements at European and international levels, JPI Oceans strengthens its ability to address marine and maritime challenges of global or basin-scale relevance and to contribute to global-scale policies such as the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement).

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