



**CSA**  
**OCEANS**  
JPI Oceans support action

  
SEVENTH FRAMEWORK  
PROGRAMME

# A Foresight Process for JPI Oceans

## A Final Recommendation



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### ABSTRACT

The CSA Oceans project recommends to the JPI Oceans Management Board to implement a two-pronged foresight approach that addresses the needs of JPI Oceans. The first, a strategic foresight can support strategy-making in JPI Oceans, in particular the update of the Strategic Research and Innovation Agenda. Moreover, such an approach can help to strengthen JPI Oceans internally and externally, by generating buy-in from its member countries as well as from important stakeholder communities. For this to happen, the strategic foresight needs to have a clear procedure, be centrally rooted in the interests of the member countries, and finally build up strategic partnerships with stakeholders. CSA Oceans recommends an operationalisation of this approach in the future, which should seek to establish a structured relationship with key players, in particular, with the European Marine Board. The second, thematic foresight approach should be implemented to further develop specific topic areas or actions. The 6-step procedure that was developed and tested in the field of microplastics during the course of the CSA Oceans project, is recommended to be used as a blueprint by the Management Board for future foresight exercises.

## 1. INTRODUCTION

When Joint Programming Initiatives were first launched by the Competitiveness Council of the European Union, member countries participating in these initiatives were invited to address a number of framework conditions which were aimed at assisting the implementation of the JPIs. The Council thus tasked the High Level Group on Joint Programming (GPC) to develop voluntary guidelines with recommendations on how to address these framework conditions in the context of the JPIs.<sup>1</sup> In 2010, the GPC first published these voluntary guidelines for framework conditions<sup>2</sup>. In addition to addressing issues of common concern to all JPIs such as peer-review and evaluation procedures, funding of cross-border initiatives, dissemination and intellectual property rights, the voluntary guidelines also included a chapter on foresight and forward-looking activities. While these guidelines, as the name suggest, remain voluntary for use, the Member States, through the GPC, strongly recommended the use of these guidelines and the tackling of the framework conditions by all Joint Programming Initiatives.<sup>3</sup>

Since the voluntary guidelines left it open how individual JPIs should implement and operationalise the framework conditions and in order to meet the demands of the GPC, the Coordination and Support Action for JPI Oceans, CSA Oceans, took it upon itself to develop a concrete proposal for how to address the framework conditions within JPI Oceans. Work Package 7 “Designing a Foresight Process” aimed at developing a procedure for identifying future research themes and funding priorities for the national ministries and bodies responsible for research funding that are represented in JPI Oceans, i.e. the development of a foresight process for JPI Oceans. This aim was realised through three steps: (i) identification and review of the major foresight processes and activities in the European marine and maritime field (cf. Deliverable *D7.1 Foresight for JPI Oceans – Definitional Report*), (ii) the conceptualisation and running of a test foresight exercise (Deliverables *D7.4 Recommendation for a Foresight Test Exercise* and *D7.5 Foresight Exercise Test Run – Experiences from the field of Microplastics* respectively), and (iii) development of a transparent, inclusive, effective and efficient framework for identifying the key future themes and challenges related to the healthy and productive development of our seas and oceans. This report addresses the third step and itself represents the final recommendation for a JPI Oceans foresight process, from the CSA Oceans project to the JPI Oceans Management Board.

## 2. NEEDS-BASED FORESIGHT: A TWO-PRONGED APPROACH

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<sup>1</sup> The Council of the European Union. 2009. *Council conclusions concerning joint programming of research in Europe in response to major societal challenges*. 2009/C 24/04.

<sup>2</sup> European Union. 2011. *Voluntary Guidelines on Framework Conditions for Joint Programming in Research in 2010*. Luxembourg: Publications Office of the European Union.

<sup>3</sup> ERAC-GPC. 2010. *Joint Programming in research 2008-2010 and beyond*. ERAC-GPC 1311/10.

As participation in Joint Programming Initiatives is a voluntary for all EU Member States and Associated Countries, any procedures and processes developed JPIs must be anchored in the interests of the participating states and, ultimately, cater to the needs of the JPI. The voluntary guidelines identify two specific roles foresight or forward-looking activities – both terms will be used interchangeably in the context of this report – can play in the joint programming process. On the one hand, foresight can assist member countries in identifying grand societal challenges which need to be addressed collectively, i.e. foresight can help to identify potential areas in which entirely new joint programming initiatives might be set up. Second, foresight can assist with the orientation and strategy-making of existing JPIs.<sup>4</sup> Foresight has thus a role to play in the conception of JPIs as well as in their orientation.

For JPI Oceans as an already existing initiative, foresight thus serves as an instrument to help shape the orientation of the initiative. However, two more precise needs can be identified in this context. First, JPI Oceans needs a *strategy-making process* for devising common European plans for research and technology development. JPI Oceans needs to identify common priorities which member countries would like to address collectively, i.e. it needs to develop and regularly update a Strategic Research and Innovation Agenda which outlines the strategic areas for transnational cooperation in marine and maritime research. Second, once strategic areas have been identified, JPI Oceans needs to follow these up with concrete joint activities. In order to launch such joint actions, an *implementation process* is required that supports the development of individual thematic actions. The collection of all thematic actions constitutes the Implementation Plan for JPI Oceans.

Foresight can cater to both the need to devise strategies and to implement joint activities. In order to do so, a two-pronged approach comprising both *strategic* and *thematic* foresight processes is needed.

### 3. STRATEGIC FORESIGHT – SUPPORTING STRATEGY-MAKING IN JPI OCEANS

As the review of existing forward-looking activities has revealed (D7.1), no foresight process exists to date in Europe which examines future developments, research needs and priorities in a continuous, participatory and integrated manner. While many forward-looking activities have already been and continue to be conducted, the majority of such endeavours have been one-off, drawn on the expertise of a small community, or been confined to specific aspects of marine and maritime RTD. Hence, there is no real forum for critical debate about the long-term strategic orientation of marine and maritime research in Europe, where the research and policy-making communities together with industry and civil society can openly discuss and devise integrated strategies for Europe.

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<sup>4</sup> European Union. 2011. *Voluntary Guidelines on Framework Conditions for Joint Programming in Research in 2010*. Luxembourg: Publications Office of the European Union. pp. 23-24.

JPI Oceans is in a unique position to change this. Due to its long-term and integrated nature as well as its capacity to implement any strategy developed in the process – it brings the relevant national funding bodies to the table – JPI Oceans is well-placed to create such a forum. Doing so would place JPI Oceans at the centre of debate about European marine research thus realising its ambition of becoming the European high-level strategy process for blue research. What is more, foresight structures and facilitates the selection of joint actions in JPI Oceans, as well as institutionalises and strengthens the joint programming process as a whole. Both are key factors for the success of JPI Oceans, which will be measured against its self-assigned mission to have mobilised in a coordinated way Europe's resources and capacities in the marine and maritime research, on the basis of an integrated marine and maritime strategic research and innovation agenda areas<sup>5</sup>.

## INTERNAL AND EXTERNAL STRENGTHENING OF JPI OCEANS

Foresight offers the ideal a framework for fostering critical debate and a mechanism to identify the common key future themes and challenges related to the healthy and productive development of our seas and oceans. In particular, foresight offers a transparent and inclusive procedure to update the JPI Oceans Strategic Research and Innovation Agenda in the medium-term and on a regular basis. This regular update will serve to guide the implementation of JPI Oceans, by helping to readjust the key strategic areas of JPI Oceans and offering a basis for the selection of joint actions. As a clear procedure for updating the SRIA, foresight will be the means to turn the SRIA into a “living document” – an aim that the JPI Oceans Management Board has repeatedly stated.

Moreover, foresight can institutionalise the regular update of the SRIA in a manner that is transparent and supported both by the members of JPI Oceans and its stakeholders. This is particularly important because of the context in which JPI Oceans is situated. As Joint Programming Initiatives are undertaken under the Open Method of Coordination, i.e. they are voluntary endeavours with no binding rules and no central authority, JPIs need to achieve buy-in from their member countries in order to be successful. As an intergovernmental initiative, JPIs can only prosper if the participating countries feel that they benefit from their participation. To achieve this, JPI Oceans needs to ensure that the identification and selection of future topics enables member countries to both project or “upload” their national interests and priorities to the European level as well as to receive or “download” input and ideas from the European level for the formation of national strategies. It thus needs a process that on the one hand enables member countries hand to realise their national interests in a European setting and embed their national research projects and programmes in a wider European strategy. On the other hand, a joint process should help to facilitate and inform strategy-making processes at national level. Only if JPI Oceans can instigate such a two-way interaction – a process which the political science literature

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<sup>5</sup> JPI Oceans . 2011. *Vision Document*.

commonly refers to as *Europeanisation*, in this case of research priority-setting – can the initiative generate the necessary buy-in from its member countries to enable the alignment of agendas and, thus, the accomplishment of the Joint Programming objectives.

A second factor of success of JPI Oceans is its standing in the European marine research landscape, i.e. the external view of the initiative. This view from “stakeholders”, such as the scientific and industrial communities, as well as from potential partners, such as the European Commission and international collaborators, will be important for JPI Oceans’ success. If stakeholders are satisfied with and see the benefits of JPI Oceans, it will be easier for member countries to justify their involvement in the joint programming process. Moreover, if JPI Oceans can establish itself as a partner for cooperation, it will not only serve to legitimise the initiative, but also enhance the potential of the initiative to shape and impact on the (European) marine research landscape. Achieving this external validation is particularly important but also challenging, given the plethora of organisations with a focus on marine and maritime research that exist in the landscape. JPI Oceans thus operates in a crowded landscape and, as a relatively new initiative, still needs to demonstrate its added-value both to its own members and the wider community, particularly because alternative fora and organisations are plentiful. Foresight can help to achieve this external validation. If conducted correctly, foresight can be a transparent and inclusive process, in which stakeholders can participate and thus understand the selection of research priorities. Moreover, a transparent procedure for selecting funding priorities will also facilitate the planning for potential partners and thus may help to instigate cooperation. Foresight is thus one means to externally validate JPI Oceans, which in turn will serve to justify and increase the added-value of the joint programming process as a whole.

While it may seem evident that buy-in from the member countries as well as from stakeholders and partners are the two key factors for the success of JPI Oceans, it is important to keep these ultimate goals in mind when designing any process for cooperation.

## TOWARDS AN OPERATIONALISATION OF THE STRATEGIC FORESIGHT PROCESS

The ultimate aim of the strategic foresight process should be to create the basis for the launch of joint actions among the JPI Oceans member countries. In order to so, the foresight process should deliver an (updated) Strategic Research and Innovation Agenda as its principal output. Given that the first JPI Oceans Strategic Research and Innovation Agenda was only published in May 2015 and given the long and laborious process that was behind its development, the Management Board of JPI Oceans has so far been reluctant to dedicate resources on developing a process for the update of the SRIA. However, in medium-term the SRIA will need to be updated and the process for this will also have to be reconsidered. This task is something for the new Coordinating and Support Action, CSA Oceans 2 to develop. However, a few avenues to explore can already be recommended.

## THE NEED FOR CLEAR OBJECTIVES AND TRANSPARENT PROCEDURE

In order to create buy-in both from the member countries and stakeholders, the end product as well as the process for reaching this need to be clearly defined. An SRIA should outline the potential strategic areas of cooperation for JPI Oceans, i.e. the main thematic areas which JPI Oceans seeks to address, and the long-term goals JPI Oceans strives to attain. In addition, the SRIA should make some concrete proposals for joint actions on how to reach these goals. This combination shall serve as the basis for and facilitate the discussions on actions which member countries are willing to launch under the framework of JPI Oceans (and even beyond). As such, a strategic foresight exercise is not an end goal in itself, but a step in the process for the selection of joint actions. The development of the SRIA can be achieved in three steps: (i) identification of strategic research areas, (ii) articulation of the specific challenges in each research area and (iii) recommendations for joint activities to be implemented by JPI Oceans. CSA Oceans 2 should operationalise each of these steps.

## DIRECT INVOLVEMENT OF THE GOVERNING BODIES FROM THE START

One of the key challenges in the development of the first SRIA of JPI Oceans has been how to reconcile the broad proposals from the stakeholder community (through the bottom-up consultation) with the top-down priorities of the member countries. In order to avoid a potential situation where the areas highlighted by stakeholders diverge significantly from the priorities of the member countries, the process for identifying these strategic areas should start in the JPI Oceans governance boards. It should thus follow the established procedure in JPI Oceans that the Strategic Advisory Board makes a recommendation for the Management Board to discuss and adopt. Without this direct involvement, a lack of ownership can be expected.

## STRATEGIC INVOLVEMENT OF STAKEHOLDERS

As an actor in a vibrant research landscape which seeks to be part of and shape ongoing discussions, JPI Oceans needs to build on the work of and involve other key partners, in particular, from its two principal stakeholder groups, science and industry.

On the scientific side, the European Marine Board (EMB) is the body that has a structural impact on the marine and maritime research landscape in Europe. It's interdisciplinary nature and the broadness in scope makes it a natural strategic partner for JPI Oceans. The European Marine Board produces a number of publications which can serve to inform the strategy-making process in JPI Oceans, most notably, the Navigating the Future series. Despite some limitations, as outlined in D7.1, it still remains the most comprehensive and systematic collection of future marine research priorities, which are generally well-



respected in the research community. JPI Oceans can draw on this work when identifying its own strategic priorities. This would help to ensure the relevance of JPI Oceans' own strategies and generate buy-in from the marine scientific community which is organised in the EMB. Establishing such a structured cooperation would arguably hold even greater potential for the EMB. For while the EMB produces high quality strategy-papers, it lacks the capacity to implement these strategies and, thus, relies to a large extent on the European Commission for the funding and implementation of its strategies. However, JPI Oceans – by bringing together (almost) all relevant European ministries and bodies responsible for funding marine and maritime research and technology around the table – has the capacity to implement strategies and funding priorities. Moreover, cooperation between these two bodies may even be required from a more practical perspective. As both organisations are in the process of setting up legal entities and with it, demanding fees of its (to some degree overlapping) members, both organisations have to prove their added value. By setting up a structured cooperation and clearly dividing tasks, both organisations can benefit. CSA Oceans 2 should thus seek to explore how to institutionalise and structure the cooperation between the European Marine Board and JPI Oceans (which, of course, should not prevent JPI Oceans from interacting and cooperating with other organisations representing the marine research community).

On the private sector side, the situation is slightly different, as there is no equivalent organisation that is cross-sectoral and represents the breadth of the maritime industry – most organisations are very sectoral. However, SeaEurope comes closest to representing a broader community. With its Blue Growth Working Group, SeaEurope seeks to identify and define priorities for the maritime industry which are cross-sectoral. Therefore, CSA Oceans 2 should explore how a closer relationship could look like. However, it will also need to explore which other industry organisations should be involved in its strategy-making process and how this engagement can be structured.

Overall, by engaging with both stakeholder groups in a systematic manner, JPI Oceans can not only ensure that it features in the most relevant debates on marine research in Europe; what is more, the organisations can benefit from each other in such a way as to ultimately strengthen marine and maritime research as a whole at the European level.

#### **4. THEMATIC FORESIGHT – GUIDING THE IMPLEMENTATION OF SPECIFIC ACTIVITIES**

In addition to the strategic approach outlined in the section above, a foresight process to further develop specific thematic areas and help with the implementation of concrete activities is needed. Such approach can be used to develop (a) implementation plans for strategic areas of the SRIA, (b) embed existing actions (e.g. pilot actions) in a longer-term strategy and wider debate, or (c) explore newly emerging issues and make recommendations for transnational cooperation activities.

During the course of the CSA Oceans project, an operational and transferable proposal for such a thematic foresight process was developed and successfully tested in the field of microplastics. The test run, which amongst others involved the drafting of discussion papers, the organisation of experts' workshops and the development of recommendations for scientific priorities, helped to shape and implement the JPI Oceans Pilot Action "Ecological aspects of microplastics in the marine environment". In particular, the foresight process identified four main scientific priority areas of which two were subsequently addressed in a call for proposals. A third was addressed in an international experts' workshop for which the foresight report served as input for discussion. Finally, the foresight process contributed to the establishment of a scientific network which applied for a Marie Skłodowska-Curie Network. For a more detailed report please consult deliverable *D7.5 Foresight Exercise Test Run – Experiences from the field of Microplastics*.

Due to these successes, the cost-effective and efficient implementation as well as positive feedback from the participants, CSA Oceans can recommend to the Management Board to implement further thematic foresight exercises in the future. The blueprint for implementing these is the following, first outlined in Deliverable *D7.2 A Thematic Foresight Process for JPI Oceans*<sup>6</sup>.

## A THEMATIC FORESIGHT PROCESS

A thematic foresight exercise can be employed in order to explore and elaborate a specific topic area and shed light upon the key future needs and challenges associated with it. Such approach can either be used as an accompanying process for a JPI Oceans (pilot) action, or be used to examine new topic areas which JPI Oceans considers to be relevant but that require further analysis.

Essentially, the thematic approach will be *demand-driven*, i.e. it will be instigated by the JPI Oceans Management Board in topic areas which the MB would like to explore further. It is, therefore, a more *top-down* process in which the MB sets out the general framework and the question to be answered by the foresight process (e.g. "what ought to be the research priorities in topic area X? And what ought to be the means for their implementation?").

Moreover, the thematic approach will have a strong *product-orientation*. The principal aim of this type of foresight will be to deliver a sort of roadmap for the topic area in question, in order to develop and support future JPI Oceans actions in the field. Such roadmap should not only outline normative visions of the future with the key future needs and challenges, but also proposals for their implementation in the form of concrete recommendations for actions to be carried out by JPI Oceans. Effectively, this roadmap is

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<sup>6</sup> Please note that the original title referred to a "programmatic" foresight approach. However, for the sake of clarity, the name of the approach was subsequently changed to "thematic".

thus a proposal for a “joint programme” for the topic area in question. Once this roadmap is developed in the course of the foresight exercise, it will be presented to the JPI Oceans Management Board, which can choose to implement those recommendations it considers to be valuable. Ultimately, the foresight exercise will thus inform and guide the JPI Oceans decision-making process in a given topic area.

Apart from producing a roadmap to support future JPI Oceans actions, the foresight exercise may also exhibit a number of *process benefits*. Firstly, the exercise will help to build up insights of important developments in the topic area in JPI Oceans consisting not only of science and technology challenges and trends but also of policy drivers, legal frameworks and socio-economic factors. It thereby facilitates the creation of a community of knowledgeable agents around JPI Oceans and potentially at the national level (see section below on member country engagement) and it is thus a direct contribution to mobilising the relevant stakeholder community in advance of possible JPI Oceans activities. Secondly, foresight capabilities will be built up both within JPI Oceans and among the participants, which should help them to better respond to future challenges and needs. And thirdly, a foresight process can also embed any JPI Oceans actions in the field in a wider process in which other aspects of the issue in question (scientific, ecological, socio-economic, technical, legal, etc.) are examined. Such a process could not only contribute to ensure that JPI Oceans acts in a coherent and integrated manner, but also that JPI Oceans becomes part of and shapes the wider political debates on marine and maritime issues in Europe.

THE THEMATIC APPROACH IN PRACTICE: A SIX PHASE FORESIGHT PROCESS

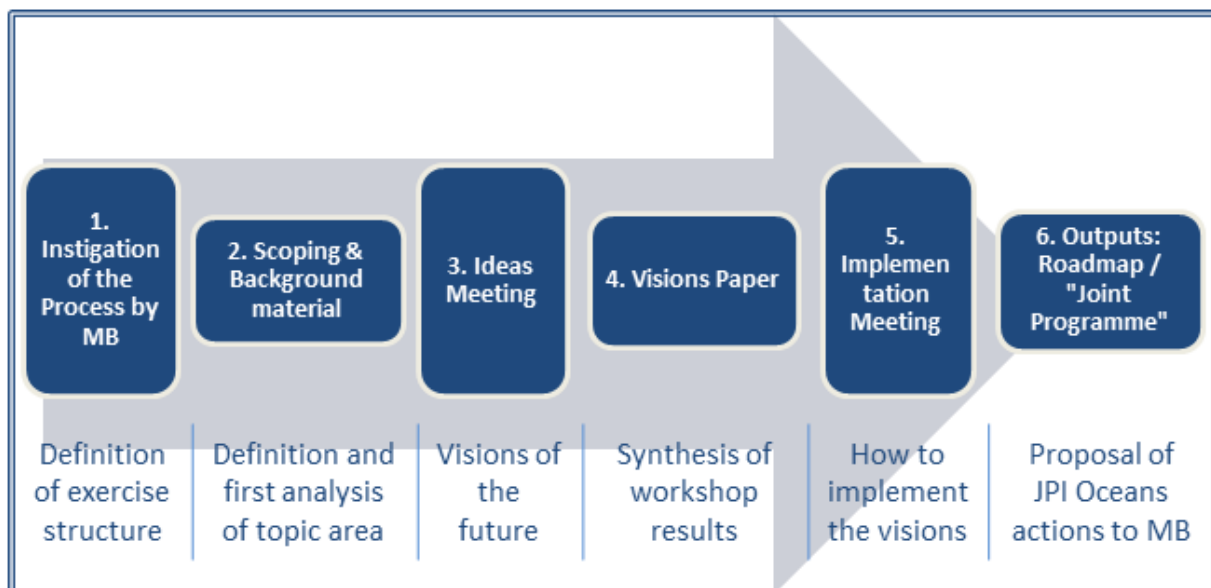


Figure 1 The six phases of a thematic foresight process

Typically, a thematic foresight process will pass through six phases, over a time span of approximately 12 to 18 months. After being instigated by the Management Board for a

specific topic area (phase 1), background material outlining the main themes and key challenges of the topic area will be prepared (phase 2). This background material will then serve as the basis for a workshop, where normative visions of the future for the topic area will be developed (phase 3). The results of the workshop will be synthesised and presented in a Visions Paper (phase 4), which will inform a second workshop concerned with exploring ways and steps for implementing the developed visions (phase 5). The results of the workshop will subsequently be developed into a roadmap or “joint programme” with concrete recommendations for JPI Oceans actions to be presented to the Management Board (phase 6). However, the foresight process does not necessarily pass through all six phases in such order, if the Foresight Steering Committee (see below) considers it to be advantageous to modify the proposed the process. For instance, the microplastics test run showed that at some stage, there was reluctance by some experts in the field to participate in another workshop without a clear perspective of implementation of joint actions. The following section outlines each of these phases in more detail.

#### PHASE I: INSTIGATION OF THE FORESIGHT PROCESS BY THE MANAGEMENT BOARD (PRE-FORESIGHT)

As with all JPI Oceans’ activities, it is the prerogative of the Management Board to instigate a foresight process in specific topic areas. Management Board members may propose to launch a foresight exercise on any given topic, however, they will need the support of at least one other member country in order for the process to be launched. The proposing country is also responsible for the funding of the exercise. If the MS in question is unable to provide an adequate budget for the exercise itself, it needs to secure financial contributions from other member countries. If they are unable to do so, the exercise will not be launched.

If the above conditions are met and there is sufficient interest and support in the Management Board, the process will be instigated. Once the interested parties agree on the exact topic in which the exercise is to be conducted as well as on the principal parameters of the exercise, the first step for the participating member countries will be to nominate a Steering Committee for the foresight exercise. This Committee will assume the project management of the exercise, i.e. be in charge of organising and guiding the foresight process as well as ensuring that the exercise stays on time, on budget and fulfils the objectives set out by the Management Board. The Foresight Steering Committee shall regularly report to the Management Board on the progress of the exercise. In order to ensure that the process is sufficiently embedded in the JPI Oceans governance structures, the Steering Committee shall consist of one member of the Management Board and one member of the Strategic Advisory Board whose work will be supported by one dedicated member of the Secretariat. In addition to these individuals, the Management Board, advised by the StAB, shall also nominate one or more external experts who can demonstrate a particular ability to moderate a foresight process as well as experience and/or expertise in the topic area in question.

Here special attention should be paid to process vs. topic expertise. The external expert(s) need to be “socialized” in the area to be addressed, but need not necessarily be a full content expert(s). This content expertise shall be brought to the process through the national contact points of the participating states (see below).

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#### LEVEL OF MEMBER COUNTRY INVOLVEMENT

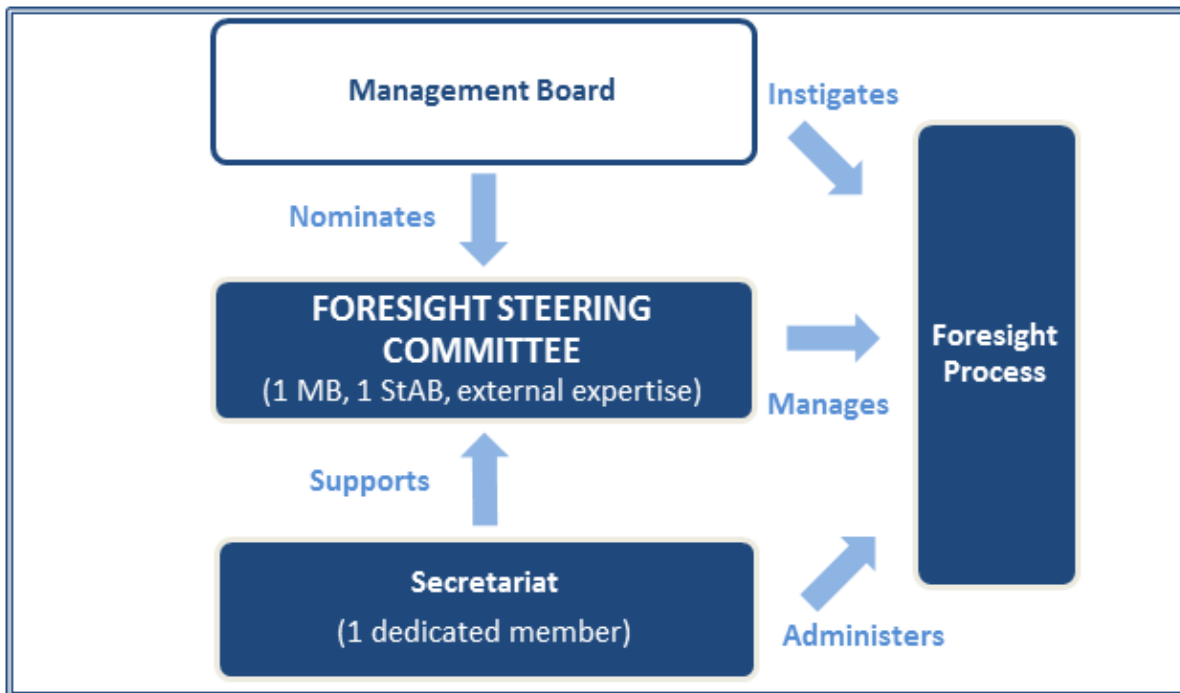
Member countries which are willing to participate in the foresight exercise may choose to have different levels of engagement. The minimum involvement for participating countries is to nominate one national contact point for the duration of one specific foresight exercise. These contact points should be topic experts in the area at hand; however, it is the decision of each member country whether their contact point should have, for instance, a scientific, industry, civil society or public authority background. The contact points will be invited to participate in the foresight workshops. Moreover, they shall assist, together with their respective Management Board member, in the identification of knowledgeable individuals and potential participants in the foresight process at the national level. They shall also support the external expert on the Steering Committee in the collection of inputs for the exercise as well as support the preparation of background material, the visions paper, and the final product of the foresight process, the proposal for a “joint programme”.

It is also conceivable that member countries may want to go beyond this mere nomination and set up a national mirror group to the foresight exercise. Such mirror groups can conduct an accompanying foresight process at national level to feed into the larger JPI Oceans exercise. The advantage of organising such a national mirror process would be to build a national network of experts around the topic, collect information and input from a wide range of national stakeholders and to elaborate and identify the national interests and positions in the European context in a specific topic area. The results of the national process can then inform and provide input to the transnational foresight exercise. In order to achieve this, however, the national mirror group must ensure that its national process is well synchronised both thematically and temporally with the larger exercise.

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#### GOVERNANCE OF THE FORESIGHT PROCESS

The following section outlines the governance and management of the foresight exercise and the specific roles of each of the individuals involved. These roles and tasks shall serve as guidelines and may be modified where required.



**Figure 2 Governance of the foresight process**

#### ROLE OF THE MB MEMBER ON THE STEERING COMMITTEE

The MB member in the Steering Committee will assume the responsibility for the management of the project. She will have to ensure that the process fulfils the agreed objectives and stays on time and on budget. Moreover, the MB member has the task to make sure that the foresight exercise is tailored to the needs and specificities of JPI Oceans – that the exercise is thematically relevant and that recommendations for actions made remain within the scope of JPI Oceans.

#### ROLE OF THE STAB MEMBER ON THE STEERING COMMITTEE

The StAB representative on the Steering Committee has the responsibility to advise on the scientific and societal relevance of the process. This comprises advising on the participants selected, the methods employed and the questions being addressed.

#### ROLE OF THE EXTERNAL EXPERT(S) ON THE STEERING COMMITTEE

The external expert(s) nominated by the MB, will have the responsibility to ensure the quality of the content of the exercise and to follow up on the progress of the project. Specifically, the external expert(s) should:

- assist in tailoring thematic foresight process design and methodological choices to the contextual specificities of the chosen topic;
- assist in identifying and selecting the relevant experts and workshop participants;

- assist in gathering the strategic intelligence / inputs for the exercise, supported by the national contact points;
- moderate the workshops;
- draft the visions paper, in consultation with the national contact points;
- draft the roadmap, in consultation with the national contact points.

The external expert(s) may need to receive an honorarium for these tasks.

Since the external expert(s) has/have an important role to play, the appointment of the individual(s) is a crucial step of the process. Nominating expertise of international reputation will give legitimacy to the exercise, may help to mobilise support for the process, and ultimately raise the profile of JPI Oceans. It is important that the expert(s) can engage and mobilise the participants and is/are able to maintain a degree of neutrality. It is, therefore, advisable not to nominate individuals for this position who have specific vested interests in the topic area.

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#### ROLE OF THE NATIONAL CONTACT POINTS

The national contact points shall support the foresight process by:

- identifying and mobilising relevant national experts and workshop participants;
- supporting the gathering of strategic intelligence / inputs for the exercise at national level;
- participating in the workshops;
- supporting the drafting of background material, the visions paper, and roadmap.

Similarly to the expert(s) on the Steering Committee, the national contact points have an important role to play both nationally and at the European level. As mobilisers of the national community, workshop participants, and supporters of the drafting of background material, the national contact points shall be engaging, demonstrate expertise in the topic area without having vested interests therein.

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#### ROLE OF THE DEDICATED SECRETARIAT MEMBER

The member of the Secretariat will assume the responsibility of all administrative and facilitating tasks. This may include the organisation of the workshops, the writing of meeting reports, as well as the drafting of the preliminary background material.

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### PHASE II: SCOPING AND INPUTS FOR THE FORESIGHT EXERCISE

In this phase, the Steering Committee will have to oversee two principal tasks:

Firstly, to identify the individual expert participants for the exercise, with the support of the national contact points, according to the scope of the topic area as defined by the Management Board. The StAB shall be consulted in this step. Apart from the national contact points, the Steering Committee shall select a limited number of workshop participants. When selecting participants, the Steering Group should also take into account relevant ongoing JPI Oceans activities in the field, such as pilot actions.

Secondly, to conduct a first analysis of the topic area at hand and collect preliminary information about the major future themes and trends as well as key challenges surrounding the problem, i.e. gathering of strategic intelligence. This strategic intelligence should be multidisciplinary comprising not only science and technology developments but also relevant policy drivers, legal frameworks and socio-economic developments. Assisted by the Steering Committee, the dedicated member of the Secretariat shall conduct this task by means of a desktop study / literature review. This desktop study may be complemented by other methods, such as surveys or social media tools, if considered necessary and beneficial to the exercise by the Steering Committee. The collected strategic intelligence will subsequently be collated and synthesised. This information will serve as input for the remainder of the exercise and will be presented to the participants, particularly in phase 3, the first workshop.

### PHASE III: THE IDEAS WORKSHOP

The stakeholders identified by the Foresight Steering Committee will be invited to participate in a foresight workshop, having received the background material prior to the workshop. The workshop will be moderated by an external expert and aims to engage the participants to think creatively about the future in the topic area, e.g. about the key future needs and challenges, about what situations would be desirable to achieve, and about what needs to happen to solve the societal challenge under examination.

Ultimately, the objective will be to develop normative visions of the future for the examined topic. However, the workshop does not necessarily need to conclude with one single common vision. For instance, the topic area may be broken down into different sub-topics, so a multitude of visions may be produced, which may be complementary but may also be conflicting. Since the workshop aims to stimulate the participants to reflect upon the (long-term) goals which JPI Oceans shall pursue in the given topic area, there may be a multitude of perspectives among the participants. However, rather than trying to stifle such critical debates, the workshop seeks to foster such discussions.

In order to develop these visions of the future, a wide range of experts – such as representatives from science, industry, civil society and public authorities – may be invited to participate in the meeting and/or express their views prior to the meeting. Since JPI Oceans seeks to act in an integrated manner and find solutions to societal challenges, this ambition shall also be reflected in the selection of the participants.



#### PHASE IV: VISIONS PAPER

On the basis of a meeting report prepared by the Secretariat member, the external expert with the support of the national contact points will draft a visions paper. This paper shall synthesise the workshop discussions and outline the developed visions. It will thus provide information on key (future) challenges, needs and research gaps, which have been identified as a hindrance to the realisation of the visions. If the topic area has been divided into sub-themes, it is conceivable that individual sections can be drafted by (a group of) other participants.

The visions paper will serve as a basis for the subsequent development of action proposals for JPI Oceans. The paper will be presented and discussed at a second “implementation workshop”, but may also be circulated domestically by the national contact points, in order to collect input and ideas from the national expert community prior to this workshop. Such dissemination and input collection may not only lead to a more active engagement of expertise from the member countries, but also to wider and more diverse ideas for solutions to the identified challenges. Any input collected at national level should be collated and presented at the second workshop.

#### PHASE V: IMPLEMENTATION WORKSHOP

On the basis of the visions paper and any further input collected, the second workshop will seek to translate the visions into concrete action proposals. The workshop discussions shall focus on the best means for realising the visions, in particular, on how to realise the visions through the JPI Oceans framework. The aim of the workshop will thus be to develop ideas and proposals for concrete actions that the JPI Oceans member countries can implement in order to address the identified challenges and move towards the previously developed visions. Since JPI Oceans does not have a pre-defined toolkit, but its actions rather take on the form of fit-for-purpose solutions, a wide range of activities may be proposed. However, the workshop may want to address issues such as research and technology needs, capacity and infrastructure gaps, policy and legal frameworks, user needs, education gaps, etc.

Since the workshop focuses on the implementation and solution side, it is likely to be of a more technical nature. Hence the composition of the participants group shall also reflect this need. Science and industry representatives as well as public authorities shall be strongly represented in this workshop, as they are the most likely to be the ones implementing any of the solutions identified.

#### PHASE VI: ROADMAP OR “JOINT PROGRAMME”

On the basis of a meeting report prepared by the dedicated member of the Secretariat, the external expert(s) together with the national contact points will develop a roadmap for the

topic area at hand. This roadmap is effectively a proposal for a “joint programme” for this topic area. Once again it is conceivable that individual sections of the roadmap are drafted by working groups. This roadmap will not only include the developed visions, but also an implementation plan with concrete recommendations for JPI Oceans’ actions. Drafts of this roadmap may also be circulated for comments among the workshop participants or to a wider community by the national experts.

Once this roadmap is finalised, it will be presented to the JPI Oceans Management Board, which can choose to adopt and implement any of the recommendations made in the roadmap.

## OUTLOOK: POTENTIAL FUTURE APPLICATIONS

The thematic foresight approach outlined above can be a very useful tool for JPI Oceans. In particular it can guide the implementation of joint actions, place existing actions in a wider debate or explore completely new areas of cooperation. CSA Oceans, therefore, recommends applying this foresight procedure for other thematic areas. While the exact themes will have to be discussed and selected by the Management Board according to the needs of JPI Oceans, a few specific areas could be envisaged at this point in time. First, JPI Oceans is currently running a pilot action investigating the ecological aspects of deep-sea mining. While this action will make a concrete and meaningful contribution to the understanding of deep-sea ecosystems and the potential ecological impact of mining operations, it focuses on one specific aspect of a wider issue. A foresight exercise in this field could help to explore further questions and embed the pilot action in a broad and long-term strategy, namely how best to conserve and sustainably use the deep seas. Second, JPI Oceans is – at the time of writing – developing a proposal for an ERA-Net Cofund on maritime technologies. Next to a joint call, discussions are also ongoing whether further joint activities could be implemented around the topic, for instance, training and education programmes. A foresight exercise in this area could help to define what further activities of this kind may be useful and explore strategies for future maritime technology development in Europe such as the setting up of a Marine-KIC or a Public-Private-Partnership.