

Svend Otto Remøe in cooperation with Pier Francesco Moretti

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Report on Operational Models and Procedures for Evaluation of Policy and structuring actions

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Authors: Svend Otto Remøe (sore@forskningsradet.no); Pier Francesco Moretti (pierfrancesco.moretti@cnr.it); David Gonzalez (david.gonzalez@aei.gob.es)

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1 INTRODUCTION: MODELS AND PROCEDURES

1.1 HOW SHOULD JPI OCEANS BE UNDERSTOOD AND MEASURED?

The overall aim of the Joint Programming process is to pool national research efforts in order to make better use of Europe's precious public R&D resources and to tackle common European challenges more effectively in a few key areas. It is a structured and strategic process whereby Member States agree, on a voluntary basis and in a partnership approach, on common visions and Strategic Research Agendas (SRA) to address major societal challenges. On a variable geometry basis, Member States commit to Joint Programming Initiatives (JPIs) where they implement together joint Strategic Research Agendas. The Joint Programming process was launched by a Communication of the Commission in July 2008 and the Competitiveness Council adopted several Conclusions since to guide the development of the process. Thus the Joint Programming Initiatives (JPIs) are a policy driven process aiming at better coordination of national research programmes and resources to tackle societal challenges.

In JPI Oceans, these are typically calling for an integrated knowledge base that enables a coherent policy to make the most of marine and maritime resources at a global scale in a sustainable way, with a view to understanding and mitigating the impact of climate change and environmental pressures on oceans seas and coastal areas. These issues are scientifically and technologically considered to be so complex that they required capacities beyond what could be addressed by any one country alone. The situation required concerted efforts at European level. To this end, and forming the basis for JPI Oceans intervention logic, the European Council encouraged member countries to; *“exchange information on programmes, activities and capacities, best practices, methodologies and guidelines; export and disseminate knowledge, innovation and interdisciplinary methodological approaches; conduct joint foresights; where appropriate undertake joint calls or mobilise resources, define modalities for research to be undertaken in areas to implement; share infrastructures and coordinate new facilities; encourage better collaboration between public and private sectors and innovation between research and business sectors; interaction and exchange across the marine and the maritime sectors; create synergies with present and future FPs and other ERA-initiatives; create networks between centres and develop appropriate science policy interfaces responding to key policies under the “Integrated maritime Policy for the European Union” notably the MSFD and MSP.*^[1]

Societal challenges address complex systems and the attribution of the impacts of different actions in a diversity of initiatives, stakeholders and sectors is a difficult task. In this context, an evaluation approach needs to be designed and adopted according to the different typologies of actions, responsibilities, control and timescales.

^[1] Council of the European Union, Brussels, 8 December 2011, 18345/11

In the diversity and complexity of interventions at national and EU levels, JPIs have been asked to provide solutions by research, technology and support to policy, but they are not acting in isolation from the socio-economic system. For this reason, conceiving causal chains from inputs to outputs, and outcome to impacts, is at best optimistic. In other words, designing a useful evaluation approach for JPI Oceans, with its high degree of complexity, cross-sectorial nature, needs to rest on some key considerations and avoid simplification which may divert the attention and incentives to the real issues even though they may be harder to understand and measure.

This means that, anytime addressing complex systems, it is more appropriate to address “contributions” than “attributions”. In fact, tracing the evolution of the system and distinguishing between impacts from different interventions is, by nature, possible only in short timescales and, consequently, not appropriate for processes like JPIs.

In this context, and in a renewed role of the European Union where Member States are asked to provide joint resources and solutions to the citizens’ needs and a socio-ecological development, JPIs can be considered a good example of how the European added value can be achieved with a variable geometry approach. The variable geometry in fact, in the vision of JPIs, is not a sort of opportunism to achieve national interests, but an inclusive process allowing contributions to be provided according to different capacities and commitments. The EU added-value is a fil-rouge of the JPIs’ actions, while the variable geometry is the adaptive strategy requiring a fit-to-purpose approach in identifying different typologies of actions, instruments, governance structures and paths towards the foreseen goals. The evaluation therefore should take into account this fit-to-purpose approach and the dynamics of the governance structure and processes which have been selected as the most appropriate.

JPIs can make the difference when contributing to changes of key structures and processes, in behaviors and, eventually, in introducing new technologies. In sum, JPIs, not least JPI Oceans, have an ambitious mandate: To help overcome manifest inertia and complexity through sound transition management for a systemic change in their respective parts of the European Research Area (ERA). For this reason, the evaluation approach will have to mirror this and serve as a tool for strategic guiding and learning, and not to be limited to the easily measurable, the tip of the iceberg.

1.2 AIMS AND OBJECTIVES

THE AIM OF THIS REPORT

Many of the other JPIs produced models or frameworks for evaluation and monitoring by introducing the Logical Framework Analysis (LFA) as the overarching approach. While the LFA is a useful tool, it is not invented for the JPIs, but represents rather an accumulated practice of evaluation much used by the evaluation community, in full or often in parts. In

other words, any evaluation will to some extent build upon this framework, depending on the scope and objective of the evaluation at hand. The earlier work done for JPI Oceans in CSA 1 did not explicitly use the LFA framework, but took such a general model for granted. That work rather highlighted some key theoretical perspectives and indicators that were necessary to ensure that the very nature JPI Oceans as a complex, cross-sectorial joint programming initiative was taken into consideration. This will be revisited in the next chapter.

The aim of this report is therefore manifold: It is firstly to align the evaluation approach better or more explicitly to the approaches taken by the others, but without compromising on the nature of JPI Oceans. Secondly it is to produce a more coherent and accessible framework in which monitoring and evaluation should be done for JPI Oceans. Thirdly, it is to bring about more precise procedures for monitoring and evaluation. And fourthly, it is to highlight "the why, for whom and by whom" issue: JPI Oceans has promoted itself as a learning organization, and monitoring and evaluation may be used in many fashions to ensure learning and sound decision making. Hence, resting on a one-and-only model for a JPI-level evaluation framework is less relevant than developing a flexible framework that helps the governing bodies of JPI Oceans, and the partnership they represent, to govern, steer and monitor the initiative as a whole.

THE OBJECTIVES OF JPI OCEANS

Any evaluation approach for an initiative such as JPI Oceans, with its far-reaching and comprehensive mandate and goals, will need to take reference to the set of statements that are laid down by the partnership as objectives for the initiative. The goals, seen as the top-level *raison-d'être*, are depicted in Box 1.

Box 1: Goals of JPI Oceans

- ✓ Enable the advent of a knowledge based maritime economy, maximizing its value in a sustainable way
- ✓ Ensure Good Environmental Status of the seas and optimize planning of activities in the marine space
- ✓ Optimize the response to climate change and mitigate human impacts on the marine environment

These goals are associated with some key objectives. They are here presented as end-states, that is, results or achievements in a given area, while below a further discussion on key actions that should contribute to those achievements is developed.

Preliminary objectives for JPI Oceans were presented in the deliverable 2.5: "Evaluation Guidelines for JPI Oceans: Workshop Report". Subsuming them under the overarching goals above and rephrasing them to state end-states, a set of objectives may look like the

following (bearing in mind that the end-states are the value against which impacts need to be understood and measured):

- Enable the advent of a **knowledge based maritime economy**, maximizing its value in a sustainable way:
 - A higher degree of cross-cutting technologies across the maritime sector
 - A significant increase in the activity level of the marine bio-economy (economic output and jobs)
 - A significant increase in the role and impact of marine renewable energy technologies
 - Knowledge and technologies have reached a level where the new deep-sea frontiers are assessed and realistic to achieve
- Ensure Good **Environmental Status (GES)** of the seas and optimize **planning of activities** in the marine space:
 - A research to policy-mechanism in place, in particular to support the implementation of the marine strategy framework directive and marine spatial planning
 - Satisfactory inter-disciplinary human capacities necessary for achieving the JPIs goals
 - A satisfactory level and quality of research infrastructures for an integrated data and information base enabling industrial development and supporting maritime governance
- Optimize the **response to climate change** and **mitigate human impacts** on the marine environment:
 - GES of the relevant seas and oceans has been reached by 2020 by mitigation of impacts of climate change and pressures from human activities on the marine environment
 - Knowledge based management and design of marine and maritime structures and activities that significantly improves mitigation and capacity for damage reduction related to climate change impacts on coastal areas

1.3 BACKGROUND

BUILDING ON CSA OCEANS 1

The nature of JPI Oceans is key to the approach to be chosen for evaluation and monitoring. While many of the other JPIs are simpler and resting on one or few sectorial ministries in each member country, or concentrated on aligning funding programmes directly for joint calls, JPI Oceans is multi-sectorial and encompasses a broad set of activities that go far beyond the notion of joint calls. In fact, resting on 21 member countries in the partnership, each one of these includes the coordination of typically several ministries, and aggregating this to the whole partnership gives a coordination challenge related to some 100 ministries

across Europe, each with the sectorial responsibility, culture, particular modes of policy making etc. JPI Oceans includes on the one hand both marine and maritime research and innovation, but these are on the other hand covering sectorial activities ranging from fisheries and aquaculture via research and development to energy and shipping. It goes without saying that developing and coordinating such a JPI is a complex matter, and that the evaluation and monitoring approach needs to play up to this challenge.

For this reason, a perspective on coordination of complex policy settings was seen as necessary. Further, a broad range of activities was being developed for the Strategic Research and Innovation Agenda (SRIA). Launching joint calls was but only one of these, while others were typically being implemented by other instruments. Hence, the range of actions to be implemented was and will be diverse. In addition to this, JPI Oceans, aiming at developing an experimental approach to its activities and agenda, introduced pilot actions as a way to deliberately experiment and test new approaches and tools to be fed back into the planning and decision making process.

Hence, the approach in CSA 1 was divided into three categories of actions:

- Policy actions: Concerned with achieving alignment and coordination between and within partner countries, and issues of partnership and governance with a specific focus on the efficacy and effectiveness of the governing bodies of JPI Oceans;
- Structuring actions: Concerned with the very instruments used to implement the priority areas of the SRIA;
- Pilot actions: Concerned with the projects developed and implemented at an early stage or aimed at testing new tools and approaches for the partnership.

Structuring and pilot actions are relatively straight forward, and represented easily identifiable actions within the thematic priorities of SRIA. Policy actions on the other hand are more complex and less easy to grasp, and will be further developed in this report. However, the notion of policy actions is concerned much with the same as what other JPI evaluation frameworks refer to as the policy level as different from the implementation level (see e.g. the evaluation framework of JPND using the LFA). But in JPI Oceans' CSA 1 this was discussed with reference to earlier academic work on the coordination challenge in European policy making, leading to inclusion of a coordination scale with corresponding indicators and measurements. Further, reference was made to recent research on innovation systems and different types of failures in such systems. As JPI Oceans is set to have an impact on the European landscape in marine and maritime research and innovation, it also has to address the systemic and transitional failures that may possibly block such impacts. This requires sound policy actions.

The governance and partnership issues may be summarized into three categories with key indicators:

- Representative efficiency: To which extent is the governance of JPI Oceans and the decisions taken representative of the partner countries and their interests and objectives?
- Administrative efficiency: To which extent is JPI Oceans' management systems and bodies efficient in implementing the decisions taken by the governing board?
- Relational efficiency: To which extent is JPI Oceans efficient in relating its activities to other national, regional, European and global actions and activities, and thus help reducing duplication and avoiding overlaps?

Hence, a number of key issues were raised in the CSA 1 report, but not put into a LFA model. The reason was a need to ensure awareness of these key issues (what to measure and understand) rather than insisting on a particular causal framework for evaluation in which the links leading to final impacts are difficult to trace or measure. This aspect is further developed in the next chapter while bringing in an overarching model for evaluating and monitoring JPI Oceans.

For structuring actions the plan was to develop an evaluation framework, taking into consideration (as far as possible) the specifications of these actions, building on the extensive list of indicators already identified in D2.6 of CSA Oceans. The evaluation framework, including the monitoring and assessment of activities, to be developed will build upon the normal, logical framework models for evaluation which take as a point of departure a step-wise process from inputs through activities and through-puts to outcomes and impacts. Such models have to some extent been developed for other JPIs (e.g. FACCE and Climate) and by GPC, and task 2.4 of CSA Oceans 2 will develop and adapt such models and their indicators to the key structuring actions of JPI Oceans

A Logical Framework Analysis (LFA) will be used as a general backdrop to the monitoring and evaluation procedures for JPI Oceans Structuring Actions. But again: attributing causal effects along an ideal-typical line as suggested by the LFA does not consider costs and benefits for this, neither the place in the overall governance and decision making process.

Moving from CSA 1 to CSA 2 have given the opportunity to reassess some assumptions for the further work:

- The recommended framework was developed without following the structure of objectives for JPI Oceans. The reason for this was that JPI Oceans' joint actions are by nature multipurpose and could contribute to more than one of the JPI Oceans objectives. However, the objectives of JPI Oceans can be considered in the evaluation approach, e.g. with reference to the SRIA (i.e. Strategic Area), since when using the logical framework analysis the first step of the intervention logic for monitoring and evaluation, and where the initial assessment is supposed to be made (i.e. on

relevance), is on the goals and objectives or challenges of the JPI¹.

- The approach proposed by CSA Oceans for evaluating structuring actions² was based on the classification of structuring actions in four categories³:
 - 1) Research and Innovation,
 - 2) Connectivity,
 - 3) Capacity Building,
 - 4) Supporting Actions

Thus, the indicators proposed by CSA Oceans in D2.6 were developed to measure a specific key issue for a particular type of action, implemented through a specific action/instrument. However, the classification of structuring actions in these 4 categories does not take into account the developments of the SRIA and those reflected in the more recent Operational Plan, since D2.6 was published in June 2014, almost one year before the final version of the JPI Oceans SRIA was officially launched (May 2015) and before the development of the Operational Plan. Because of this, the classification of structuring action in the above mentioned 4 categories⁴ may not reflect the actual nature and the complexity of the range of structuring actions.

The monitoring and evaluation framework has to take into account that a particular Structuring Action implemented by JPI Oceans may address one or more of the JPI Oceans goals and encompass one or more type of actions. For instance, a concrete joint structuring action may have several connected objectives and implement different type of activities (or sub-actions). Some actions might include, for example, the launching of a RTD project funded by JPI Oceans, but it also might include other activities running in parallel to the project as part of the whole joint structuring action to reach its objectives. These parallel activities might include, for instance, activities targeting the dialogue and cooperation with stakeholders, training and mobility of researchers, agreements for sharing and accessing to data, sharing infrastructures, development of foresight test, workshops, etc. The particular features of JPI Oceans structuring actions, including the multiple activities that can be conducted within a given action must be considered in the development of procedures for evaluating and monitoring joint structuring actions.

Finally, the set-up outlined by CSA Oceans in D2.6 for structuring actions only provides some indicators examples, as the aim was not to develop a comprehensive assessment procedure,

1 -Monitoring and evaluation of EU Joint Programming-Neurodegenerative Diseases Research (JPND)
-FACCE-JPI EVALUATION FRAMEWORK. Framework for monitoring and evaluation of FACCE-JPI and its joint actions (D3.5)

2 CSA Oceans, D2.6, Table 5

3 Four different type of actions are identified in D2.6 of the FP7 project “ CSA Oceans “: 1) Research and Innovation, 2) Connectivity, 3) Capacity Building, 4) Supporting Actions

4 Four different type of actions are identified in D2.6 of the FP7 project “ CSA Oceans “: 1) Research and Innovation, 2) Connectivity, 3) Capacity Building, 4) Supporting Actions

and therefore there is also a need to develop a more complete list of indicators to evaluate and monitor Structuring Actions. These will remain as they are as any given evaluation that the JPI Oceans governing bodies may decide to implement will have to develop their particular, empirical approach at the outset.

BUILDING ON OTHER PREVIOUS INITIATIVES

In addition, a lot of work on monitoring and evaluation has been done in the framework of other JPIs and JPIs related initiatives (e.g. JPIs to Co-Work), on the development of intervention logics and monitoring and evaluation indicators for JPIs. These previous works were taken into account, but as many of the JPIs deviated from the complexity of JPI Oceans, a direct copy and paste would not work. Still, the work to develop evaluation approaches has been going on for all, and there is also currently a JPI-wide cooperation to ensure a best possible harmonized approach among them.

Further, the framework developed by most of these JPIs has been formulated to monitor and evaluate the corresponding JPI as a whole , rather to evaluate individual joint actions. A solution is to adapt those indicators to JPI Oceans Policy or Structuring actions. Thus, many of the indicators developed by other JPIs, and often already included in the JPI Oceans' approach, can be adapted to and downscaled from the level of JPI to the level of individual joint action, with the purpose of measuring the performance, not of JPI Oceans as a whole. Therefore, the approaches used and indicators developed by other JPIs and initiatives for monitoring and evaluation can still be very useful for the purpose of the current task at hand.

LOGIC INTERVENTION MODELS

Different approaches have been used so far to develop frameworks for monitoring and evaluation of JPIs. Not all JPIs have followed the application of the logical framework analysis to develop monitoring and evaluation procedures. One of the most complete procedures for monitoring and evaluating, based on the LFA, is the one developed for JPND, which could be used as a model to develop the framework for monitoring and evaluating JPI Oceans joint actions. Thus, the intervention logic developed by JPND (Neurogenerative Diseases) could be used as a model to develop an adapted intervention model that fits to the particularities of JPI Oceans' joint actions. In fact, the logical framework used in this JPI, adapted to JPI Oceans, was the recommended in CSA Oceans (D2.5) for developing the intervention logic for the assessment of JPI Oceans as a whole. According to the final recommendations of this D2.5 report *“the guidelines for evaluation should be based upon the logical framework approach similar to the one used by JPND, but adapted in focus and priorities to better accommodate the nature and complexity of JPI Oceans”*

For this purpose the following intervention logic was recommended by CSA Oceans (D2.5) for the further development of the evaluation scheme and indicators for JPI Oceans:

1. *Key challenges of the marine and maritime sectors and their interactions*
2. *The rationales for JPI Oceans and the associated goals*
3. *Objectives to be operationalized and refined based on the goals*
4. *Inputs in terms of resources and capacities*
5. *Processes and activities, such as dedicated coordination activities, pilot actions and governance*
6. *Outputs and outcomes as tangible results from the specific activities*
7. *Impacts as system-wide measurable changes and transitions in the policy systems, e.g. measured according to the coordination scale.*

Another interesting feature of the framework developed by JPND, is that it differentiates between Type A and Type B indicators. Type A indicators have been proposed to monitor the effect of JPND at policy level, while the Type B indicators are intended to measure the effects of the research conducted within JPND on science and society (i.e. the societal and scientific impact). In the case of JPI Oceans, this classification of indicators can be useful in order to develop an approach for monitoring and evaluation JPI Oceans joint actions, since it fits with the different nature/ type of joint action (i.e. policy actions and structuring actions).

However, it has to be highlighted that the intervention logic proposed by JPND was developed to monitor and evaluate the JPI as a whole, rather than to monitor/evaluate particular or concrete actions of that JPI. This means that the indicators defined in the JPND's monitoring and evaluation framework were selected to measure the overall performance of JPND with regards to its different objectives and activities. Therefore the logic intervention model and the selected indicators developed by JPND need to be reviewed and adapted to the specificities of JPI Oceans joint actions and downscaled from the level of JPI to the level of joint actions.

Similarly, the intervention logic proposed by CSA Oceans in D2.5 was devised with the purpose of evaluating JPI Oceans as a whole, rather than for the evaluation of individual joint actions, which is the objective of CSA Oceans 2 (task2.4). Therefore the logic intervention model proposed by CSA Oceans for JPI Oceans also need to be reviewed and downscaled from the level of JPI to the level of joint actions. This should be done taking into account the intervention logic proposed by JPND which was used as a basis to develop the one proposed in D2.5 of CSA Oceans.

Similar intervention logics to the one proposed by JPND or the one proposed in D2.5 by CSA Oceans (based on the approach followed by JPND) have also been developed by other JPIs and JPIs related initiatives, such as JPIs to-Co Work or FACCE-JPI. However, all of them have

also been designed to monitor and evaluate each respective JPI as a whole, rather than for the evaluation of a particular type of action of implemented by these JPIs. This also implies that the indicators developed by each of these initiatives have been defined to measure the performance of the corresponding JPI, instead of the performance of individual joint activities.

Table 1: Selected JPIs' evaluation framework

	DIMENSIONS		Su-dimensions/content
JPI-AMR	Governing Policy Making		Structure
			Process
			Outcomes
	Governing Management of Research		Structure
			Process
			Outcomes
	Innovation and responsiveness		Structure
			Process
			Outcomes
	TARGETS	DIMENSIONS	
FACCE-JPI (Dimensions for monitoring and evaluation against the targets)	Alignment of national and European programmes	The organisational structure	
		The process	
		The outcome	
	High quality research activities	The outcome	
	Societal Impact	The outcome	

	DIMENSIONS	
FACCE- Project/Joint Action Level (Dimensions for Key questions at the level of Joint Action/Project for Monitoring)	Organization	
	Scientific Impact	
	Overall Impact	
	DIMENSIONS	
FACCE- MACSUR Monitoring Dimensions at the level of the project FACCE-MACSUR	Research	Scientific Impact
	Dissemination and Communication	Overall Impact
	Capacity Building	Scientific Impact
	Networkng	Overall Impact
	Coordination and Management	Organization

2 THE EVALUATION APPROACH

2.1 AN OVERARCHING MODEL

When specifying an overarching model for evaluation and monitoring of JPI Oceans' and its actions, it is also necessary to specify the various functionalities of these two activities. For the evaluation frameworks of many of the other JPIs, this has not been taken explicitly into consideration. This issue is also related to the questions of who will do the evaluation, for whom, and financed by whom? Another issue concerns the timing and objective of evaluations and monitoring, normally highlighted in the distinction between ex ante, ex nunc (mid-term) or ex post evaluations. And a last issue is related to the question of what is being evaluated (programme level or distinct projects or actions).

The framework for the JNPD is explicitly ex-post and directed on the programme level. It directs attention to the programming process and the approach is "based on the idea that there is a linked chain of logic that shows how the activities of an intervention can be expected to produce immediate outputs connected to longer-term effects and eventually

the realization of objectives (the impacts)"⁵. This chain of logic is then illustrated in the LFA model which depicts a comprehensive analytical model much used in evaluation research. Three levels are specified as relevant in ex-post evaluation of joint programming:

- Results of individual projects/actions
- Success of a specific JPI in addressing its societal challenge
- The Joint Programming concept as an effective way for cross-border collaboration

While this model is basically solid and relevant, it still begs the questions of for what, for whom, by whom and paid by whom. If the main purpose of the evaluation strategies developed for the JPIs is to assess the success of joint programming as such, including for GPC, the evaluation strategies are then not necessarily useful for other purposes and contexts. For JPI Oceans an overarching model of an evaluation and monitoring strategy will need to take several purposes into consideration.

Including a need for evaluation and monitoring of the JPIs partnership and governance, and addressing the broader spectrum of evaluation types, the result is depicted in table 1. It illustrates that a monitoring and evaluation strategy needs to fulfil a wider set of purposes, not least the need for each individual JPI to use such activities as part of their learning cycle, decision making and planning. Hence, while much attention to monitoring and evaluation has implicitly assumed GPC and the Commission as users and main interested parties, the JPI in question, in this case JPI Oceans, should be included and in fact seen as the main user. Further, evaluations are also assumed to take place as full-scaled and proper evaluations following the comprehensive LFA model, an assumption that implies costly and time-consuming evaluation practice without addressing at the same time who the client or user is and how the activity should be funded. For the sake of sound governance and learning organization, a clear objective in JPI Oceans, light-footed and cheap assessments that are integrated in the decision-making cycle may have a great cost-benefit ratio.

Table 2: Users and evaluations

Evaluation types	Ex ante	Ex nunc	Ex post
Key purpose			
JP as concept	MB/GPC Assessment of challenges, objectives and SRIA	GPC/EU through mid-term evaluations	GPC/EU through ex post evaluations and meta-evaluations
Success/performance of JPI Oceans		MB/GPC/EU through mid-term evaluations and monitoring	MB/GPC/EU through ex post evaluations and meta evaluations

⁵ "Monitoring and evaluation of EU Joint Programming – Neurodegenerative Diseases Research (JNPD). JNPD, 13 April 2012.

Individual actions	MB through evaluations of proposals and initiatives	MB through monitoring and light assessments	MB through ex post evaluations
Governance/partnership		MB through light assessments or dedicated evaluations	MB/GPC through ex post evaluations

The LFA model is mostly suited for the second level in the table above, i.e. for assessing the performance of individual JPIs. For the other levels, more moderate approaches seem appropriate. This becomes evident through a step-wise description of the LFA model for JPI Oceans, simplified and slightly adapted from the JPND framework:

1. A review or analysis of the challenge(s) for which JPI Oceans has been launched, with an assessment of the appropriateness of the intervention for that challenge: Is a joint programming initiative suitable to make a difference?
2. The objectives defined by and for JPI Oceans needs to be inferred from the above assessment. Are these objectives the relevant ones?
3. The JPI Oceans as an intervention provides resources or inputs, not only financial, but organizational and political. Are these inputs appropriate and relevant? Does the SRIA correspond well to the objectives?
4. The inputs enable activities or actions that lead to outputs. These are the immediate results of the actions that are implemented.
5. These outputs again enable further results, such as benefits for certain groups, these are termed outcomes.
6. Lastly, these outcomes are associated with wider impacts that may arise through spill-overs, or even specific (policy) actions taken on the basis of the aforementioned outcomes. An important assumption here is that these impacts are not necessarily achieved without attention and action from a policy system.

The LFA model as it has been promoted assumes implicitly that all these steps are to be included in a specific evaluation and that the causal links between the steps can be identified and effects be attributed to preceding steps. For JPI Oceans that will not be the case, although evaluations of JPI as a concept and performance of JPI Oceans will need to include most or all of these. A preliminary overview of how the LFA is relevant for JPI Oceans is illustrated in table 3.

Hence, the monitoring and evaluation framework for JPI Oceans will rest on the LFA as a generic, overarching model for evaluation, but exploit it as a flexible toolbox in which low-

cost, fit-for-purpose evaluations and assessments will be conducted and integrated in a learning and decision making cycle governed by the JPI Oceans Management Board.

Table 3: Applying the LFA to JPI Oceans

Assessment of the challenge	<ul style="list-style-type: none"> • A challenge may be a moving target • May be monitored by foresight studies or other horizon scanning techniques • Changes in the challenges lead to assessment of the relevance of JPI Oceans
Analysis of objectives	<ul style="list-style-type: none"> • Assessment of to what extent the specified objectives for JPI Oceans are relevant for addressing the challenge • Critical reviews of the need to adapt the objectives in light of changes in the challenge • Assessments of the SRIA and its relevance
Assessment of inputs	<ul style="list-style-type: none"> • Assessments of the partnership's willingness to secure financing running costs, funding of projects and participation in actions • Assessments of the partnership's social and human capital, efficacy of governance and management • Assessments of provisions of in-kind contributions, willingness to share resources etc • Assessments of political capital, national coordination and alignment platforms across sectors and borders, alignment of national R&I policies
Evaluation of outputs	<ul style="list-style-type: none"> • Assessments of predefined outputs in line with agreed indicators for the structuring or pilot actions in questions (publications etc)
Evaluation of outcomes	<ul style="list-style-type: none"> • Assessments of outcomes as results from outputs
Evaluation of impacts	<ul style="list-style-type: none"> • Impact assessments of the chain above • Structuring impacts on ERA landscape (marine/maritime) • Policy actions taken on the basis of outputs/outcomes (e.g. regulations) • Assessments of contributions to addressing the challenge(s) • Assessments of collaborations with other P2Ps to impact in the JPI Ocean challenges.

2.2 ABOUT INDICATORS

Monitoring and evaluation are different processes that involve different concepts and time scales and therefore different indicators need to be developed with different purposes for measuring the performance of the joint action at different time scales and dimension.

Evaluation refers to the assessment of the activity at the long term (after an initial period 3-5 years), while monitoring is a continuous activity that is developed periodically (one time per year, for instance) to measure systematically a set of indicators of performance of the intervention, with the aim of assessing whether the activities are being conducted according to the plan and whether they are achieving the expected results in an efficient and effective way. Thus monitoring indicators should be able to provide information on the performance of the intervention in the short-term and on the more immediate results, while evaluation indicators should be able to provide information of performance in the medium-long term and on less evident results and impacts of the intervention.

Thus based on the framework developed by JPND, the following types of indicators for monitoring and evaluation have been considered for JPI Oceans structuring actions⁶:

Types of Indicators for Monitoring:

- Input indicators: should be able to provide information on the planned activities and measure the resources used for the implementation of the joint action, in terms of countries involved, institutions involved, human resources, funding (in cash and in kind), the infrastructures used, etc.
- Output indicators: direct and tangible outputs of the joint action (e.g. calls, n^o funded projects/activities, n^o publications, patents, PhD Thesis, MoUs, reports, workshops, expert groups, networks, guidelines/recommendations, manuals, protocols, etc)

Types of Indicators for Evaluation:

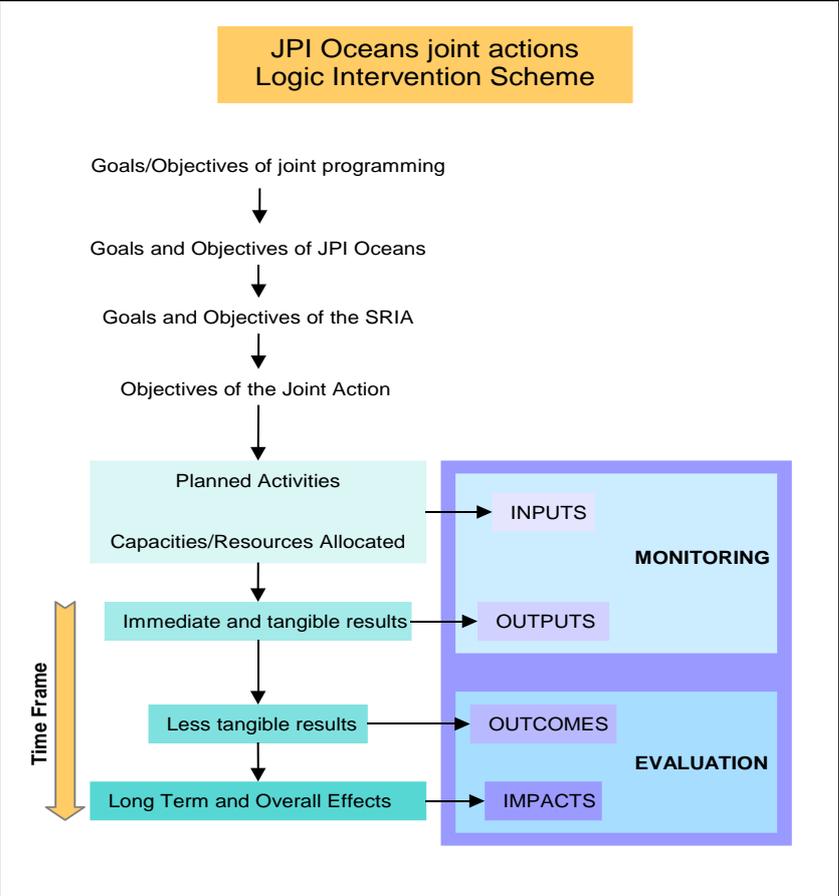
- Output indicators: are results of the intervention that are less tangible than outputs (e.g. alignment of national research programmes, enhanced cooperation, impact on the access to infrastructures, etc)
- Impact indicators: they measure the wider long term effects of the joint action in relation to the SRIA and the goals and objectives of JPI Oceans and to those of joint programming (e.g. impact on EU and national policies, alignment of national research programmes, reduced fragmentation, contribution to the goals of JPI Oceans, etc), collaborations between JPIs and other P2Ps, sustainability of the JPI and its long-term governance structure.

⁶Monitoring and evaluation of EU Joint Programming – Neurodegenerative Diseases Research (JPND)

Thus for monitoring purposes it will be necessary to develop Inputs indicators and Output indicators. While for evaluation it will be necessary to develop Outcomes and Impact indicators.

To distinguish between evaluation and monitoring, the latter often included as a key input to evaluations, the logic of the evaluation framework is presented in figure 1 below.

Figure 1: Overview of the evaluation and monitoring framework



Issues related to monitoring will be addressed further below. But here another important issue needs to be highlighted: There is an inherent problem in the LFA model when presented as a chain from objectives and goals via various inputs and outputs to impacts. This problem is about attribution. Is it meaningful to evaluate a causal chain all the way to specified impacts? The complexity of JPI Oceans' mandated areas of actions suggest that this is quite futile. Hence, rather than defining an evaluation approach strictly following the LFA, we suggest the following key pillars for the framework:

- Evaluation should be mostly concerned with following up and assessing identifiable actions, and hence assess outcomes and impacts on this basis.
- JPI Oceans is based on a variable geometry. This geometry is not limited to the degree to which different member countries participate in various actions or not, but rather the contributions they bring to the table. Hence, variable geometry concerns variable capacities. Partners need to be assessed according to their willingness to contribute relative to their capacities, be that cash or in-kind.
- It follows that the evaluation framework shifts from identification and evaluation of desired states to identification and evaluation of actions.

2.3 THE IMPACT INDICATOR FRAMEWORK

The perceived need to focus on capacities and contributions notwithstanding, JPI Oceans is supposed to have an impact. As mentioned, changes in the end-states of key indicators in the marine and maritime environment cannot automatically be attributed to the activities of JPI Oceans. Still, JPI Oceans is expected to generate added value, that is some measurable (and attributable) impact in the associated ERA landscape and in the marine and maritime environment.

This is the same challenge that meets the other JPIs, although JPI Oceans' challenge is more complex as it comprises several scientific areas, industrial sector, technological areas and policy domains. But based on the agreement among the JPIs in assembling some coherent framework for understanding added value and impacts, JPI Oceans also divide the impact indicators in two dimensions: Type A indicators are supposed to measure impacts in the associated ERA landscape, while Type B indicators are supposed to measure impacts in the area of the subject matter, or on the goals and objectives for the specific JPI. Type A indicators will include issues related to policy actions and governance, also in the context of variable geometry of capacities and resources, while Type B represent the more difficult problem of attributing JPI Oceans to impacts and changes in the marine and maritime environment.

The most important issue among the Type A is the alignment of research, development and innovation resources among participating countries. This is not only about aligning funding to joint calls, as is often understood as the key item for JPIs, but rather the broader issue of aligning the multitude of resources that go into marine and maritime research and innovation. This includes most certainly research infrastructures like research vessels which are highly expensive, and more important, unevenly distributed among member countries. A typical challenge in such a situation is to create an alignment of resources where some

countries provide more resources than others, and to create an acceptance for variable geometry of capacities and contributions.

Another issue of key importance for JPI Oceans is efficiency. Much of the monitoring programmes and the operation of e.g. research vessel is expensive. Hence there is an imperative in the partnership to use the cooperation to achieve cost savings through co-operation and integrated use of infrastructure. Cost savings and best possible resource efficiency contrast with the "normal" duplications and inefficiencies and needs to be assessed according to hard facts in terms of historical cost data and estimated savings.

Governance has been sufficiently commented above, but should be understood as the main operational process through which achievements are made.

Lastly, as human capital represents the ultimate resource in marine and maritime research, impacts on the quantity and quality of human capital is vital. JPI Oceans is supposed to make some measureable headway in increasing the quality and availability of human resources, e.g. through training or institutional cooperation between research institutions.

Concerning type B indicators (see table 5) these are, as alluded to earlier, more difficult. This is related to the attribution problem: Changes in the end-states, as formulated through the goals and objectives, cannot be attributed to the actions of JPI Oceans. Or more correctly: The marginal impacts from these actions on these end-states are hardly measurable.

This is also why it is necessary to focus on the contributions of JPI Oceans towards these end-states, rather than the end-states themselves. The type B indicators will therefore include three contributions:

- The relevance and effectiveness of actions relative to the goals and objectives of JPI Oceans, meaning an assessment of whether JPI Oceans actions have been selected as appropriate and delivered effectively with a view to make a contribution to the challenges formulated through the goals and objectives;
- The effectiveness through which JPI Oceans is able to feed scientific results and perspectives to policy actions and the wider policy community;
- The capacity and capability through which JPI Oceans is able to contribute through international cooperation.

Table 4: Type A indicators: effects on research programming, policy and funding⁷

JPI issue	Indicators	Measurement	Comment
Alignment of R&D&I resources	<p>1 Effective sharing of infrastructures, human capacities and data</p> <p>2 Mobilization of resources to joint actions</p>	<p>1 Increased joint use and cooperation</p> <p>2 Integrated monitoring and data collection</p> <p>2 Joint calls</p>	<p>1 Monitoring/assessing the role of infrastructures in joint actions</p> <p>2 Joint budgets, in kind resources, relative capacities</p>
Efficiency	<p>1 Cost savings of operations</p> <p>2 Resource efficiency</p>	<p>1 Estimated savings</p> <p>2 Input/impact ratio</p> <p>3 New modes of operations</p>	<p>1 Calculation of initial cost levels</p> <p>2 Imperative to bring about change with small resources</p> <p>3 case studies and light assessments</p>
Governance	<p>1 Representative efficiency</p> <p>2 Administrative efficiency</p> <p>3 Relational efficiency</p>	<p>1 Commitment in MB, policy actions</p> <p>2 Implementation of SRIA</p> <p>3 Alignment with international bodies and industry</p>	<p>1 Monitor domestic, cross-ministerial platforms</p> <p>2 Monitor secretariat, learning and resource mobilization</p> <p>3 Cooperation, overlap and duplicity</p>
Human capital	<p>1 Foster human capacities</p> <p>2 Effective networking</p>	<p>1 Interdisciplinary capacities</p> <p>2 Co-publications and -patents</p>	<p>1 Training and project management</p> <p>2 Cooperative arrangements</p>

⁷ The indicator framework developed here rests on previous work and current activities in CSA 2 for JPI Oceans. Further, there are a great number of detailed measurements for various indicators that are not presented here. Rather, these are available in separate documents and are also related to the need for specific approaches concerning evaluation of very different actions and activities in JPI Oceans.

Table 5: Type B indicators: Effects on the subject matter (societal impact)

Issue	Indicators	Measurement	Comment
Contribution to societal challenge (sustainable Blue growth, Climate change, food security, energy security.....)	1 Maritime economy 2 Marine environment 3 Ocean related impacts on key challenges (e.g. ocean-climate link)	1 Innovation, technological development and value creation 2 Seas and oceans' health indicators 3 Knowledge contribution to food, climate etc impacts	1 Blue growth related 2 Use existing data on relevant challenge indicators 3 Assess attribution 4 Cross-sectorial links
Science to policy	1 Policy measures 2 Effective channels for policy advice	1 New regulations and policies (MSFD, REACH,WFD, R&D programs) 2 User up-take 3. More effective policy implementation and ocean management at European level and internationally	1 Assess attribution 2 Demand-side assessment 3 Case studies of contributions
International cooperation	1 Concerted European voice 2 Global relevance	1 Impact on global/international agenda (e.g. climate) 2 Improved international oceans governance 2 Actions with international partners	1 Monitor decisions in global bodies 2 Real joint actions rather than agreements 3 Best practices sharing and mobility 4 Presence at/invitations to international fora

Based on the analysis of indicators, questions and issues proposed by CSA Oceans as well as on the indicators proposed/used by other JPIs, task 2.4 of CSA Oceans 2 has developed a list of possible indicators to monitor and evaluate Structuring Actions

The table below contains a comprehensive set of possible indicators to monitor and evaluate JPI Oceans Structuring Actions. Indicators have been classified attending to the dimension to be evaluated (Governance/Management; Partnerships: Capacities and Resources; Alignment and Coordination; Excellence; Stakeholder Engagement; Communication and Dissemination) . These dimensions have been selected taking into account the outcomes from CSA Oceans as well as inputs from other previous initiatives. It has to be highlighted that the funding modalities have been considered within the governance/management dimensions, while the funding resources available have been considered within the partnership dimension and taking into account overlaps with other P2Ps or funding programs..

The indicators developed are no specific for a particular joint action, instead they have been developed with the aim to be potentially applicable to a wide range of Policy Actions undertaken by JPI Oceans. Thus every indicator might not be suitable for every Structuring Action. The suitable indicators to be used for each particular Action must be identified and adapted/tailored when needed to the particular structure and objectives of the Structuring Action to be monitored and evaluated.

In order to develop the indicators, different possible governance/management and partnerships options for a Structuring Actions have been considered. These include the implementation of a Structuring Action by only some countries, or the implementation of a joint action in partnership with third countries or stakeholders.

On the other hand, for the purpose of the developing indicators on governance/management as well as other indicators, we would have to consider at least 3 hierarchy levels in relation to the implementation of a structuring action. The first level is the overall governance of the Joint Action and in principle this task corresponds to the JPI Oceans MB as the ultimate decision making body of JPI Oceans (the MB may for instance to withdraw a joint action eventually in case it is questioned its success or it may take decisions and ask participating countries to introduce changes needed in the joint action in case of deviation from the original plan). The second level would be the day to day management of the joint action. That task would in principle correspond to ministries and funding agencies of participating countries in the joint action that have been appointed officially by their MB representatives. In some cases, participating countries may delegate this task in other institutions (such as research institutions). We will then assume that structuring actions will be governed by the JPI Oceans MB, as the ultimate decision making body of JPI Oceans, while agencies and ministries of participating countries in the joint action will be involved in the daily managing of the joint action for its implementation. The third level is the practical implementation of the joint action by research institutions, industry and/or other public authorities, through different projects or other joint activities (e.g. winning consortium of a

call for proposal). It is important to have in mind these different levels of hierarchy when devising indicators of performance for structuring actions.

In order to define indicators for evaluation and monitoring of JPI Oceans' structuring measures, it is necessary to take into account that in this Joint Programming Initiative structuring actions are implemented according to the principle of variable geometry. This implies that any interested JPI Oceans country may take part in the action on a voluntary basis.

Structuring actions are also open to the participation of observer countries and third countries, based on a case by case analysis and upon decision of the MB, as described in the guidelines adopted by the MB for the participation of third countries in the JPI Oceans joint actions.

Likewise third countries may be involved at least in the 2 lower levels of hierarchy, i.e. the day to day management and the practical implementation of the joint action through the participation of institutions or other stakeholders in projects and other joint activities.

2 MONITORING AND EVALUATION: ACTIONS AND INDICATORS

3.1 POLICY ACTIONS AND GOVERNANCE

In the framework for monitoring and evaluation suggested in this report, assessments of policy actions and governance take centre stage. The two concepts are defined as follows:

- Policy actions are deliberate actions taken by the partnership, or individual partners (member countries and their ministries/institutions) that aim at changing the policy setting, prioritization and coordination mechanisms serving as a policy environment for JPI Oceans, and/or deliberate outputs and outcomes from governance processes in JPI Oceans.
- Governance refers to the structures and processes for internal and external management by JPI Oceans governance bodies (Management Board Executive Committee, Secretariat, and Strategic Advisory Board).

These two are critical for JPI Oceans' capacity to deliver according to goals and objectives. Policy actions take place on the one hand in organizing for capacity within member countries, e.g. in the form of decisions to create a coordination committee among involved ministries in a given member country, or dedicated processes to define new priorities for involvement in the partnership. On the other hand, and in line with the idea that organizational or institutional entities produce outputs and outcomes, the launch of funding opportunities, new regulations or laws/by-laws in given policy areas.

Bringing the two together, table 6 below highlights the four key aspects of policy actions and governance:

Table 6: Policy actions and governance

	Process	Outputs
Policy actions	Coordination, prioritization, connectivity among national players	Policy delivery
Governance	Steering, representation, administration, institutional coordination (with other JPIs etc)	Management Board decisions, minutes of meetings, advisory outputs

Hence, and contrary to what is often understood in the LFA framework, policy actions and governance measures not only provide input-related contributions, but also their own specific outputs. These are not directly and casually linked to impacts from JPI Oceans, but need to be understood as intermediates, and assessed accordingly.

Governance will be seen as the core of the evaluation framework. The reason for this is that sound and effective steering and management of the various tasks and issues pave the ground for the best possible implementation of JPI Oceans. The governance and partnership issues may be summarized into three categories with key indicators:

- Representative efficiency: To which extent is the governance of JPI Oceans and the decisions taken representative of the partner countries/JPI members with their capacities, interests and objectives and in line with the JPI objectives?
- Administrative efficiency: To which extent is JPI Oceans' management systems and bodies efficient in implementing the decisions taken by the governing (management) board?
- Relational efficiency: To which extent is JPI Oceans efficient in relating its activities to other national, European and global actions and activities, and thus help reducing duplication and avoiding overlaps?

In accordance with previous work in JPI Oceans CSA1, the following table may envisage relevant indicators for these three efficiency dimensions:

Table 7: Evaluating governance

Issue	Key question	Indicator example
Representative efficiency	Is representation legitimate?	<ul style="list-style-type: none"> ▪ High level representatives in Management Board (ministries and funding agencies) ▪ Existence of clear mandate ▪ Stakeholder legitimacy, representativeness and involvement of Strategic Advisory Board ▪ Integrated advice across sectors/stakeholder groups
	Is representation effective?	<ul style="list-style-type: none"> ▪ Effective chairing of Board meetings ▪ Competent representatives in Executive Committee ▪ Effective variable geometry in actions ▪ Development of a consistent and coherent strategic research and innovation agenda (SRIA) & Implementation plan ▪ Proven capacity for implementation of agreed actions
Administrative efficiency	Is the management of JPI Ocean's secretariat effective?	<ul style="list-style-type: none"> ▪ Well-functioning organizational structure and procedures ▪ Well-functioning preparation of

		<p>board and committee meetings</p> <ul style="list-style-type: none"> ▪ Capacity for learning and adaptation ▪ Capacity for negotiating diverse interests and agendas ▪ Effective/efficient implementation of MB decisions ▪ Establishment of sound governance structures in actions that require these ▪ Capability to induce appropriate analyses of gaps and bottlenecks to ensure planning and decision making
<p>Relational efficiency</p>	<p>Are interfaces with other agendas effective to ensure alignment?</p>	<ul style="list-style-type: none"> ▪ Adherence to marine and maritime policy frameworks ▪ Cross-sectorial dialogue and coordination with ERA agendas and objectives with EU Commission and H2020 ▪ Interfaces and dialogues with industry groups ▪ The identification of non-technological barriers ▪ Effective involvement of academics, industry, regulatory agencies and policy makers ▪ Address differences or inconsistencies in policy frameworks that have impacts on a given product or process ▪ Involving experts and the external advisory board in ethical, regulatory and safety matters ▪ Effective communication and information system for interaction with users and producers of knowledge ▪ Effective contribution to global/regional activities through variable geometry

3.2 EVALUATING STRUCTURING ACTIONS

Indicators for inputs, outputs and outcomes are related to evaluation of specific actions in the Strategic Research and Innovation Agenda (SRIA, structuring actions) and the associated operational plan. The most important are listed below.

The list is structured around four categories of actions expected to play a key role in implementing the SRIA. These are actions on research and innovation, structuring features termed connectivity, capacity building among the partnership's research and innovation community, and supporting actions, typically of horizontal nature. Then a number of dimensions and indicators are highlighted in the table, commensurate with monitoring laid down in the operational plan. An important aspect is that these are suggested as the a priori most relevant indicators for monitoring and evaluating these actions, but there may also be others, and depending on the nature of evaluation in question, and the purpose, additional indicators could be included.

While evaluating these structuring actions will be done singularly with a view to assess the performance and impacts of each action as they are being designed and implemented, it is also clear that they aggregate into the key impact indicators suggested earlier. Hence, these different foci need to be seen in association, and the indicators suggested in table 8 are in fact output and outcome indicators that in the end feed into real impacts.

Table 8: Evaluating structuring actions

Type of action	Action/instrument	Key issue	Indicator example
Research and innovation	Design and management of joint calls	Successful launch of joint calls Successful response to the call by the research community	<ul style="list-style-type: none"> • See separate doc on joint calls • Web link:
	Joint public procurement	Implemented JPP projects	<ul style="list-style-type: none"> ▪ Agreed platform for JPPs for selection and implementation ▪ Number and scope of JPPs ▪ Significant impact on aggregate demand ▪ Identifiable new solutions on the market
	Engaging structural funds	Inclusion of JPI Oceans activities in strategic planning of structural funds for enhanced synergies between structural funds, H2020, and national/regional funding	<ul style="list-style-type: none"> ▪ Inclusion in strategic documents for selected regions ▪ Number of co-funded activities ▪ Scope of co-funded activities ▪ Regional economic impact ▪ Regional impact on research and innovation
Connectivity	Research alliances	Creation of strategic research alliances in marine/maritime domain to achieve a more coordinated institutional structure in Europe Search for shared topics with other JPIs and P2Ps	<ul style="list-style-type: none"> ▪ Coverage of marine and maritime research fields ▪ Number of alliances ▪ Identifiable coordination/alignment of strategic research programs ▪ Number of co-publications and scientific impact ▪ Improved science-to policy links
	Knowledge hubs	Creation of dedicated knowledge hubs to achieve a more coherent	<ul style="list-style-type: none"> ▪ Increased scientific and tech excellence ▪ More effective tech transfer and innovation of products/technologies

		institutional structure with critical mass in selected areas	<ul style="list-style-type: none"> ▪ A significant improvement in critical mass ▪ Improved external funding ▪ Improved access to and sharing of data and results ▪ Better visibility and communication to policy makers ▪ Improved scientific output/productivity ▪ Capacity to better address challenges and ensure uptake/relevance
	Networks of people	Creation of networks of excellence as virtual networks to enhance structuring of the research landscape in Europe	<ul style="list-style-type: none"> ▪ Greater intensity of collaboration in selected fields ▪ Higher scientific output ▪ Improved basis for continued funding ▪ Better use of infrastructures ▪ Contribution to and capacity in risk assessments in emergencies and emerging issues, like expert panels
	Network of bilateral agreements	Reduce the fragmentation stemming from bilateral agreements	<ul style="list-style-type: none"> ▪ Number of agreements in formal networks ▪ Achieved synergies in selected fields
	Mutual opening of programs	Reduce the fragmentation stemming from independent national programs	<ul style="list-style-type: none"> ▪ Number of openings ▪ Number of countries in participation ▪ Size of budgets in synergy
	Interacting with ERA-Nets and other activities	Creation of synergies in the ERA landscape	<ul style="list-style-type: none"> ▪ Synergy in funding and/or establishing joint topics with ERA-Nets ▪ Alignment with ERA initiatives (ESFRI, SFIC, HGRM, etc) ▪ Synergies achieved with KICs, JTIs and ETPs
Capacity building	Training	Structured actions to enhance human resources in marine and maritime research and innovation	<ul style="list-style-type: none"> ▪ Organized training for young scientists ▪ Organized training in key fields ▪ Training in research management ▪ Dedicated Ph.D. programs ▪ Cafeteria system for short term courses ▪ Industrial Ph.D.s

	Mobility	Enhanced exchange of human resources in marine and maritime research and innovation	<ul style="list-style-type: none"> ▪ Increased intra-Europe mobility rate in the domain ▪ Greater participation of young researchers novel to international cooperation ▪ Better career paths in the research community ▪ Establishment of research management careers for female candidates
	Accessing/sharing marine infrastructures	Better alignment and exploitation of infrastructural resources	<ul style="list-style-type: none"> ▪ Intergovernmental agreements to share selected infrastructures ▪ Intergovernmental agreements to a division of labor/responsibilities over key infrastructures ▪ Significant cost reduction impacts ▪ Significant increase in activity levels of shared infrastructures
	Procedures/agreements for TNA and sharing of infrastructures	Transparent and effective procedures agreed among partners in JPI Oceans	<ul style="list-style-type: none"> ▪ Establishment of a legal procedural framework for transnational access ▪ Regulation of in-kind contributions ▪ Agreed rules for JPP connected to new infrastructures (see action on joint public procurement for innovation)
	Access to data	Cost-effective data collection and management	<ul style="list-style-type: none"> ▪ Adherence to ERAs open access policy ▪ Pan-JPI agreement on location and management of key data resources ▪ Actual use of data in research by researchers external to location ▪ Effective virtual infrastructures with open access to data
Supporting actions	Feasibility study, impact assessments, workshops	Support to decision making in governance bodies	<ul style="list-style-type: none"> ▪ Transparent and manageable system for evaluation and monitoring in place ▪ Monitoring procedures for pilot actions (see below) ▪ Effective use of supporting actions results in governance bodies
	Foresight	Forward-looking tool for decision making	<ul style="list-style-type: none"> ▪ Selective use of foresight studies in priority areas related to gap analysis ▪ Effective exploitation of existing studies

	Emergencies/	Support to decision making in evaluation and intervention	<ul style="list-style-type: none"> ▪ Relevance for action by JPI Oceans ▪ Contribution to pan-European contingency plans ▪ Contribution to and capacity in risk assessments ▪ Reduction of time scales for intervention ▪ Preparedness and organization of scientific input in emergency situations, e.g. expert boards ▪ Creation of structured dialogue/procedure in addressing emergencies
	Emerging issues	Issues of significant future potential	<ul style="list-style-type: none"> ▪ Relevance for action by JPI Oceans ▪ Capacity for identifying the issue ▪ Capacity for agenda setting and mobilization

4 MANAGEMENT AND PROCEDURES

As mentioned earlier in this report, the evaluation framework is not intended to be used as a wholesale evaluation model which will be used for any evaluation purpose. Rather, it is intended as a framework from which bits and pieces will be used (and developed) according to the purpose. While evaluating JPI Oceans as a process, that is to assess the performance and impact as a single cooperative intervention, should exploit the various components as much as possible, such evaluations are normally instigated by others, and not the JPI Oceans itself. Initiating such broader evaluations could be the European Commission, ERAC, GPC or others who want to assess the JPI(s) as a whole with their impacts and performance. However, mostly, evaluations and assessments are part of the toolbox for the management of the JPI as such, and hence are supposed to be an integral part of the governance system of the JPI in question. For the broader, external evaluation, governance bodies of JPI Oceans have no particular responsibility, except to ensure that the framework is adhered to and that JPI Oceans are measured on the indicators suggested in the framework.

Concerning the situation in which JPI Oceans itself is the user and benefactor, which is the normal case, some procedural issues need to be highlighted to illustrate how evaluation and monitoring are integrated in the governance and learning process of the partnership.

- Evaluation and monitoring of governance and policy: Assuming that the partnership's intention is to deliver on the objectives laid down for JPI Oceans, the governance and policy issues should be regularly assessed. The Management Board should regularly initiate such evaluations, including on the coordination platforms in the partnering countries, to ensure that the institutional conditions are best possible for JPI Oceans to deliver. Following the indicator system suggested in this report, a transparent exchange of views and lessons should be an integral part of the overall governance of JPI Oceans. Further, each partner country may conduct or initiate such an assessment on an individual basis with reference to the common indicator framework.
- For the planning and launch of joint actions (structuring actions), the project plan shall include specified objectives and targets, with targets in line with the indicator framework. Depending on the nature or type of the action, the indicators for outputs, outcomes and impacts may differ, and the Management Board shall ensure that a proper evaluation and indicator solution is defined in each case.
- The evaluation approach shall consist of a useful mix of proper ex post evaluation, monitoring of key indicators, and light assessments. The latter is conducted when there is a perceived need to assemble information and knowledge on important aspects concerning the actions and governance issues in question.
- The evaluation framework shall be integrated in the operational plan (which is based on the Strategic Research and Innovation Plan), to ensure a direct link between the implementation of actions and monitoring and evaluation.

- The link will be first and foremost to the Information Management System (IMS) which has been built to facilitate the evaluation of actions. In the attachment a draft version of this is enclosed, illustrating the fields in which information will be provided for evaluation purposes.

5 CONCLUSIONS

This report includes a review and development of the framework for evaluation and monitoring for JPI Oceans. It builds on earlier work in the EU funded CSA 1. It contains an assessment of the usefulness of the Logical Framework Analysis model that has been used in some JPIs, and adapts this framework to the needs of JPI Oceans.

Evaluation and monitoring of JPI Oceans cannot be only based on general, all-purpose approaches to evaluation. Rather, it needs to be clearly linked to the very needs of JPI Oceans, arising from the fact that evaluation and monitoring are governance tools and tightly linked to the steering and management process.

The very key issue of evaluation and monitoring for JPI Oceans is the following: How can JPI Oceans' contributions and capacity be assessed with a view to enhance the performance of the partnership, including delivering on implementing the Strategic Research and Innovation Agenda (SRIA) through the implementation and operational plan. A clear weight is given to the need to focus on commitments and contributions, that is the capacity to mobilise resources to the implementation process. Less weight is given to long term impacts (against the goals and objectives of JPI Oceans), as they are difficult to attribute to the implemented actions.

ATTACHMENT: JPI OCEANS INFORMATION MANAGEMENT SYSTEM INPUT FORM

Summary Information

Title	
Summary	
Start Date	
End Date	
Action Status	
Funding (including in-kind)	
Type of Action	<p><i>* multiple selections permitted*</i></p> <ul style="list-style-type: none"> • <i>Joint call</i> • <i>Joint public procurement</i> • <i>Engaging structural funds</i> • <i>Research alliance</i> • <i>Knowledge hub</i> • <i>Network of people</i> • <i>Network of bilateral arrangements</i> • <i>Mutual opening of programmes</i> • <i>Interacting with ERA-Nets and other activities</i> • <i>Training</i> • <i>Mobility</i> • <i>Accessing or sharing of marine infrastructures</i> • <i>Procedures or agreements for transnational access and sharing of infrastructures</i> • <i>Access to data</i>
External partners	

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Data DOI	
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