CSA OCEANS

JPI Oceans support action

SEVENTH FRAMEWORK PROGRAMME

Mapping of maritime research and innovation strategies and funding

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Content

1. INTRODUCTION

The marine and maritime industry, based on the respective research, fields and regions of interest as well as its impact, is by default global. Europe's competitive edge relies on developing knowledge-based innovations. Research and innovation programmes should therefore respond to the socio-economic needs of the European Union and its Member States and Associated Countries. Today, these countries are facing complex challenges that will shape our common future. The major challenges include a sustainable supply of food and energy, securing jobs and economic prosperity, human health and aging populations. The recent global economic downturn has made these issues even more pressing. By stimulating competitiveness of our maritime activities, marine research and innovation programmes can and should make an important contribution towards meeting these impending challenges and in providing significant economic opportunities. In doing so, they can also contribute to the development of greener, smarter economies, which is a central component of the new "Europe 2020" Strategy, the EU's knowledge-based growth strategy for the next decade. These activities are supported and promoted through different stakeholder groups from industry and policy like the Technology Platform WATERBORNE or the Conference of Peripheral Maritime Regions of Europe (CPMR).

Thus, European Research and Innovation programmes should serve the socio-economic as well as environmental protection needs of member states and the European Union. By defining sustainable joint framework conditions innovation will be harmonized and thus accelerated. In support of this goal, and to identify and propose changes to possible bottlenecks in the innovation cycle in an integrated approach for a better success on the market (e.g. maritime transport, blue biotechnology, fisheries, aquaculture, renewable energy, gas and oil exploration, mining, tourism, etc.) a comprehensive mapping exercise on maritime R&D strategies and programmes in Europe is a necessary prerequisite.

The objective of this deliverable is to report on the first phase of the WP4: the mapping and preliminary analysis of the maritime research and innovation funding landscape in Europe. Chapter 2 is dedicated to the work package methodology, Chapter 3 to the analysis of the various national and international maritime R&D strategies and their commonalities while Chapter 4 is focusing on the preliminary analysis of the national R&D&I programmes on maritime technologies.

2. WORK PACKAGE METHODOLOGY

2.1 STAKEHOLDERS CONSULTATION AND WORKSHOPS

In order to collect views of stakeholders, CSA Oceans hosted a series of workshops during the summer of 2013. Over 60 stakeholders took part in 6 workshops relating to different stakeholders groups and interests. The participants were asked to fill in a pre-workshop questionnaire to prepare their input on potential needs/actions/tools to achieve the JPI Ocean goals. These inputs were discussed and debated during the workshops which allowed highlighting a number of commonalities between stakeholders' views. After the workshops, stakeholders were encouraged to elaborate on their responses through an online open consultation. The output of this consultation, especially the results from the one with representatives from Technology platforms - Industry, Innovation & Economic Associations, was used to feed into the mapping presented in this report.

2.2 ONLINE PUBLIC CONSULTATION

The online open consultation allowed stakeholders from the marine and maritime community and general public to have an input into JPI Oceans' strategic research and innovation agenda including needs in the field of marine research infrastructure and human capacity building. The output of this consultation was used to feed into the mapping and preliminary analysis of marine and maritime research programmes.

2.3 RESEARCH FUNDING AGENCIES CONSULTATION

The major purpose of the CSA Oceans mapping exercise was to get hold of detailed information on the national marine and maritime innovation strategies and the associated R&D funding programmes. Thus, a questionnaire was sent to Funding Agencies and Ministries of the Member States of JPI Oceans to identify key challenges and opportunities for gathering information on functioning and mapping of:

- National RTD and innovation systems
- Science to policy mechanisms, and
- National research strategies and programmes

This part of the consultation was particularly important, not only to get the inputs of the Research Funding Agencies and ministries on their goals, needs and gaps, but also to feed as a baseline for assessment at a later stage if JPI Oceans contributes to aligning the European landscape in the long-term. However, it turned out to be difficult to collect the complete information from all member states. The very extensive questionnaire could be the reason for this insufficient result. Moreover, it was nearly impossible to get hold on information and figures from privately funded programmes covering maritime research. The R&I budget of the European maritime industry has never been assessed while private foundations funding RDI projects usually have generic programmes with no specific funding slots for marine & maritime projects. So if detectable at all, the proportion of privately funded maritime projects turns out to be rather small to the total figures. E.g. the

Volkswagenstiftung as one of the major private RDI foundations, provides roughly only 0.4% of its annual budget (2012: 144 M€) to projects related to engineering sciences. How much of this is of relevance for the maritime industry is unknown.

Table 1. Respondents to the Research Funding Agencies questionnaire (February 2014)

Country	Responding organisation	Status
Belgium	Belgian Science Policy Office www.frs-fnrs.be Flanders Marine Institute	delivered
Denmark	Ministry for Higher Education and Science	delivered
Estonia	Ministry of the Environment	delivered
Finland	Academy of Finland	delivered
Germany	Ministry of Education & Research Ministry of Economic Affairs & Energy Ministry of Food and Agriculture	Draft (2 ministries and DFG missing)
Ireland	Marine Institute	delivered
Italy	Ministry for Infrastructure and Transport The National Research Council	delivered
Lithuania	Research Council of Lithuania	delivered
Netherlands	Ministry for Economic Affairs Organisation for Scientific Research	delivered
Norway	Research Council of Norway	delivered
Poland	National Science Centre National Centre for Research and Development	delivered
Portugal	Foundation for Science and Technology	delivered
Romania	Ministry for National Education	delivered
Sweden	Swedish Research Council FORMAS	delivered
Turkey	The Scientific and Technological Research Council of Turkey	delivered
UK	National Environmental Research Council	delivered

2.4 MARITIME RESEARCH AND INNOVATION FUNDING LANDSCAPE IN EUROPE - DESKTOP RESEARCH

To fulfil the objectives of this deliverable, this report also includes substantial desk based research. While the consultation procedure has provided valuable information, it was also necessary to complement the findings with a certain level of desk-based research and experience based input. In addition, and as indicated earlier, many initiatives have been launched in the past years to better coordinate marine research and a lot of information on needs and gaps is already available. It was therefore necessary to build upon these initiatives and projects. An indicative list of reference documents is available in Annex 2.

Thus the information and mapping detailed in this report is also based on information and knowledge gathered in the framework of other completed or ongoing initiatives, networks platforms and projects including ERA-Nets (e.g. MARTEC and MARFISH), Industry associations (e.g. European

Dredging Association, European Ocean Energy Association) Coordination and Support Actions (e.g. MARCOM+, EMARRES) Technology Platforms (e.g. WATERBORNE, EATIP), available databases and targeted information from European benchmarking and cluster studies.

3. MAPPING OF MARITIME R&D STRATEGIES IN EUROPE

The European Union and its goals like to facilitating trade, harmonising policies or fostering individual freedom and mobility, have been built upon the interests of individual Member States. These Member States have quite different historical and cultural roots and therefore the intrinsic variety is also mirrored within the governmental structures and responsibilities of each country. So if you are e.g. looking for which national ministry is responsible for defining a maritime strategy in a Member State, you will find it spread from the Ministry for Transport, the Ministry for Fisheries, the Ministry for Economy or even the Ministry for Environment, depending from which angle the oceans are seen or which is the most important economic sector in a particular Member State. Some of them don't even seem to have a common maritime strategy across all ministries.

On average 3-6 ministries in each Member State claim to be responsible for at least certain aspects of a marine/maritime strategy. Among those ministries quite a number of them are also providing funds on RDI to support a specific interest or marine/maritime sector. However, for most RDI programmes listed below a certain annual budget cannot be provided as it is either unknown or it is a generic technology or marine RDI programme for which a specific maritime budget cannot be provided.

Given the above mentioned situation traditionally the RDI funding in Europe is quite fragmented on all levels and this is specifically true for the maritime sector. However, the most abundant common denominator seems to be a subsidiary support of the thematic foci of the EC Framework Programmes and HORIZON 2020 respectively, which are mirrored in most of the national maritime programmes, particularly focussing on green technology & growth. Intense cross-boundary collaboration of funding agencies and ministries is mainly limited to EC funded ERA-Nets and 185 initiatives and only to a minor extent multi-national programmes are being established on specific issues and in a quite limited scope (e.g. Wadden Sea call). Thus JPI Oceans can significantly contribute to the defragmentation of marine and maritime research and innovation efforts in Europe. Nevertheless these new programmes and initiatives have to meet the needs of the markets and which in some cases are difficult to implement within traditional forms of funding schemes and the business management in companies.

4. MAPPING OF MARITIME RESEARCH AND INNOVATION FUNDING IN EUROPE

4.1 OVERVIEW ON MARITIME R&D FUNDING IN EUROPE

This overview is based on the first JPI Oceans mapping exercise, the results from the extensive JPI Oceans questionnaire (Form E: National Research and Innovation Funding Programmes or Plans), dedicated stakeholder workshops and on results/deliverables and the respective websites from the ERA-nets MARTEC, MAREFISH and AMPERA.

Originally we intended to include a quantitative overview on the national maritime programmes but with the quite poor response to the questionnaire and the missing money figures with most of the

individual programmes the few numbers available would provide a very biased picture on who is funding what on marine & maritime research in Europe.

However, from a first glance on the various national programmes the following, quite rough SWOT analysis can be derived. We will detail possible strategies and suggestions for improvement within Milestone 4.1.

Maritime Market / **European RDI Programmes**	**Opportunities** • Increasing markets for o Transport o Tourism o Resources o Renewable Energy	**Threats** • Increasing competition from other non-EU countries • Sea level rise • Economic crisis
Strengths • Ensuring technology leadership • Covering a broad range of themes	• Improved competitiveness of the EU maritime sector • Opening up to new markets • Better data for predictions, policy & ICZM	• Intensified trans-national collaboration/harmonization o maritime regions o national policies o companies
Weaknesses • Fragmented landscape with little coordination among MS • Inflexible funding instruments	• Focused joint activities o Programming o Pilot actions o New joint RDI instruments	• Complete market segments breakdown • Decreasing standard of living, especially in coastal areas

4.2 NATIONAL MARITIME R&D FUNDING PROGRAMMES

This mapping was conducted in February 2014 and should be regarded as a snapshot as the RDI funding landscape in Europe is changing quite swiftly. Like within ERA-Net MARTEC II a regular update of the programme database could be ensured by JPI Oceans partners supported by the secretariat and associated projects.

4.2.01. BELGIUM

Funding opportunities/ remarks:

Belgium has no specific Maritime Research programme as such. However, there are "Marine Research" action lines embedded in the context of the "Science for Sustainable Development" programme of the Belgian Science Policy Office. There is a database available called FEDRA, which is a database of research actions funded by the Federal Office. FEDRA offers various options for consulting the database. There is obviously not that much maritime technology research in Belgium, and this is mostly done by some research groups at universities. Most of this information can be found on the website from Flanders Marine Institute (VLIZ).

- **Phase VIII – North Sea Research - SSD (2012-2017):** On 5th October 2012, the Council of Ministers approved the launch of the first phase (2012-2017) of the recurrent framework programme for research, BRAIN-be (Belgian Research Action through Interdisciplinary Networks). This framework programme allows through the funding of research projects based on scientific excellence and European and international anchorage to meet the needs for scientific knowledge of the federal departments and to support the scientific potential of the Federal Scientific Institutions. North Sea research is fully integrated within the BRAIN-be programme. Seen the Federal competences related to the North Sea and the expertise present in the Federal Scientific Institutions it will receive the necessary attention in the programme. The BRAIN-be programme enables participation in transnational programmes, such as the ERA-NETs and the Joint Programming Initiatives (JPI). The current programmes and actions concerned and relevant for marine research are:

    - JPI Connecting Climate Knowledge for Europe (CliK'EU)
    - JPI Healthy and Productive Seas and Oceans (Oceans)
    - ERA-net BiodivERsA
    - ERA-net SEAS-ERA

The total research budget of BRAIN-be is around 117 MEURO.

Network projects:

BR/121/A2/TILES	TILES - Transnational and Integrated Long-term Marine Exploitation Strategies
BR/121/A3/4DEMON	4DEMON - 4 decades of Belgian marine monitoring: uplifting historical data to today's needs

- Support to the Exploitation and Research in Earth Observation data (STEREO III): Leading authority: BELSPO. Duration: 2013-2020.

The thematic research priorities are as follows:

  - Global monitoring of vegetation and evolution of terrestrial ecosystems;
  - Management of the environment on a local and regional scale (water, soil, forest, nature reserves and biodiversity, agriculture, coastal areas, urban and peri-urban areas):
  - Interaction between (change in) land cover and climate change;
  - Epidemiology and humanitarian aid;
  - Security and risk management.

- Flanders Innovation & Technology agency (IWT): the agency supports a lot of strategic and applied research. IWT provides yearly also +/- 300 grants in applied research fields, some of them are dealing with marine related topics (biotechnology, aquaculture, marine technology).

- The Fund for Scientific Research - FNRS has the exclusive support competence for the French-speaking Community of Belgium (Brussels and Wallonia). On a general note, the FNRS fosters research in all scientific fields, following a bottom-up approach of investigator-driven research. The Fund supports individual researchers on the basis of the criterion of excellence by offering temporary or permanent positions; funding to research projects; grants and credits for international collaboration and scientific prizes. The Fund's annual budget amounts to 150 M EUR.

4.2.02. DENMARK

Den Danske Maritime Fond – The Danish Maritime Fund

Year of programme start:	2005
Number of calls per year:	Open
Dates of call deadlines:	2014: 2nd May, 22nd August, 24th October
Programme information:	http://www.dendanskemaritimefond.dk/
List of completed projects:	http://www.dendanskemaritimefond.dk/
Funded R&D projects:	Basic; Applied; Demonstration and implementation
Funded disciplines:	Shipbuilding; Maritime equipment and services; Ship and port operation; Inland water and intermodal transport; Offshore industry/technology; Shipping
Programme budget:	2006-2011: 230 Mio. DKR
Funding type:	Scholarships/prizes; Subvention; Grants with repayment clauses
Funded cost items:	Direct costs (Human resources, travel, materials) Indirect costs (overhead)
Brochures:	"Vækst I det Blå Danmark" 5 years anniversary
Programme owner & manager:	Den Danske Maritime Fond – The Danish Maritime Fund
Contact address:	Den Danske Maritime Fond Amaliegade 33 1256 København K Telefon: +45 77 40 16 11 Telefax: +45 33 11 62 10

Further funding opportunities/ remarks:

There are no further maritime funding programmes but relevant strategic funding programmes which could be of interest for applicants in the marine and maritime sector. The programmes will be offered by the **Danish Agency for Science, Technology and Innovation** as an agency under the Danish Ministry of Science, Innovation and Higher Education.

- Danish Council for Independent Research (DFF): The Danish Council for Independent Research (DFF) funds specific research activities within all scientific areas that are based on the researchers' own initiatives and that improve the quality and internationalisation of Danish research. The programme funds bottom-up projects within a general research area (such as natural sciences). Projects are funded through competitive calls. The programme is focused only on research. There is no specification of sea basins or marine regions of interest to the programme. There is not a specific budget for marine or maritime research either. The

programme supports short to medium-term basic research projects, to stimulate excellent researchers at all stages of their career. Predominantly grants are given for medium-termed research projects, while a few smaller initiatives are also supported.

- Grants for Strategic Research:
    - Strategic Research in Sustainable Energy and Environment: next call will be published 5th March 2014; Themes: (1) Future energy technologies and systems, (2) Competitive environmental technologies and solutions,
    - Strategic Research in Strategic Growth Technologies: next call will be published 5th March 2014; Themes: (1) Strategic growth technologies with special focus on nanotechnology, biotechnology and information and communication technology, (2) Strategic growth technologies, including production and material technologies and information and communication technology,
    - Transport and infrastructure: next call will be published 5th March 2014, Theme: Sustainable transport and infrastructure,
- Collaboration between industry and knowledge institutions
    - Open funds: Support to collaorative projects between companies and knowledge institutions,
    - Innovation Voucher Scheme: Support to collaborative projects between small and medium sized enterprises and knowledge institutions. The purpose is to increase the innovation capacity of the enterprises and introduce them to the opportunities of collaboration with knowledge institutions,
    - Innovation Consortia: Support to collaboration about research and innovation between companies, research institutions and non-profit knowledge dissemination parties,
    - SPIR: Initiative which seek to strengthen the link between strategic research and innovation,
- The **Danish Ministry of Environment** has launched a programme on ecoinnovation. At least one call per year will be published. The call for 2014 is expected in March. The call is competitive, and predefined topics will be announced. In 2013 a budget of 130,9 Mio. DKK was planned for this call, dedicated to following topics:
    - Water and climate adjustments
    - Resources and waste
    - Resource efficiency in companies
    - Green building
    - Clean air and less pollution
    - Chemicals
    - Documentation of the green potential of technologies (cross-cutting)
    - International cooperation in the fields of environment and technological development

Further information: http://www.ecoinnovation.dk/ (unfortunately, the Danish websites are not up to date)

- **The ForskEL-programme:** Support for research and development of environmentally friendly power generation technologies. ForskEL is a PSO-financed research programme, the purpose of which is to support the development and integration of environmentally friendly power generation technologies for grid connection, and each year a call for funding is implemented. The programme budget is determined by the Danish Minister for Climate and Energy, who also approves the focus areas of the annual calls on Energinet.dk's recommendation. PSO is short for Public Service Obligation. Predefined topics, mostly on technologies. Projects are funded through competitive calls. Related to marine and maritime topics, a budget of M€ EUR 1.318.121 is planned for RTD activities. Within this programme, marine renewable energy (offshore wind and ocean energy) will be supported.

- **Dancea (Danish Cooperation for Environment in the Arctic):** Environmental support to the Arctic, with a focus on:

  - environment and health
  - effects of climate change
  - biodiversity and sustainable use of living resources
  - local environment

  Leading authority is the Danish Ministry of Environment. The annual budget for RTD actions is EUR 1.793.289.

- **Green Development and Demonstration Programme (GUDP):** GUDP will be implemented by the Danish AgriFish Agency on behalf of the Ministry of Food, Agriculture and Fisheries http://agrifish.dk/. GUDP is a modern grant scheme for knowledge institutes and businesses that are open to innovation. GUDP invests in sustainability and growth in collaboration between industry and research. Innovation happens when researchers, farmers, fishermen and food businesses meet. However, growth that leads to increased export and create more jobs does not come about on its own. This is why GUDP requires environmental sustainability and a sound business philosophy as levers for innovation. Research can be part of a funded project if it is necessary for the development and innovation activities. The focus of the programme is on innovation. Circa 2.3 Mio Euro per year are reserved for marine and maritime topics (e.g. fisheries, aquaculture, seafood qualities)

4.2.03. ESTONIA

Funding opportunities/ remarks:

- **Polar and climate research programme 2014-2020:** The Estonian Research Council and Institute of Geology at Tallinn University of Technology commenced the devising of a polar and climate research programme. The programme describes the research topics and respective auxiliary activities of Estonian R&D institutions related to polar environments in the period 2014-2020. The objective of the programme is to assemble the activities of Estonian polar research groups into a unified programme and to provide an input to the operational programmes of the EU programming period of 2014-2020. The programme also strives to define the role and contribution of polar and climate research in realizing climate and environmental state policy. The programme will be completed in the autumn of 2012.

- **Environmental protection and technology programme:** The environmental protection and technology R&D programme concentrates on analysing and preventing research-based environmental risks and on developing sustainable technologies. The projects implemented in this programme address, for example, applied research on ecosystem matter cycles and conditions of biodiversity, innovative environmental-technological solutions and risk analysis encompassing environmental hazards in Estonia.

  The objectives of the programme are:

  - to achieve results in the priority fields of environmental protection and technology, which would provide scientifically proven adequate information to the state for the purpose of decision processes and policy-making
  - to ensure coherence and scientific support for fully developing the objects in the Estonian Research Infrastructures Roadmap
  - to analyse coherence between state-run and academic environmental information systems with the purpose of supporting research in the fields of biodiversity informatics as well as climatic and environmental changes
  - to develop research-based prognoses for responding to threats in a quick and precise way.

- KNOWLEDGE-BASED ESTONIA. Estonian Research and Development and Innovation Strategy 2007-2013. Acronym: "Knowledge-based Estonia" (RD&I strategy). Leading and implementing agency/organisation: The Estonian Ministry of Education and Research together with the Ministry of Economic Affairs and Communications. (The overall implementation of the strategy is organised by the Government of the Republic and advised by the Research and Development Council (RDC). Acronyms: MER; MEAC, Websites: http://www.hm.ee. http://www.mkm.ee.

4.2.04. FINLAND

Strategic Centres for Science, Technology and Innovation (SHOKs)

Year of programme start:	2006
Programme information:	The decision to set up the Strategic Centres for Science, Technology and Innovation (SHOKs) was made by the Science and Technology Policy Council chaired by the Prime Minister in 2006. The centres are intended to constitute national choices to assist in appropriate direction of limited resources.
Funded R&D projects:	6 SHOKs were set up between 2007 and 2009 (no maritime topic until now)
Funded disciplines:	CLEEN: Cluster for Energy and Environment FIBIC: Finnish Bioeconomy Cluster FIMECC: Finnish Metal and Engineering Competence Cluster SALWE: Strategic Centre for Health and Wellbeing RYM: Built Environment Innovations Cluster DIGILE: Future developments in digitalisation
Annual programme budget:	Between 2008 and 2012, TEKES funded the SHOK research programmes by a total of EUR 372,5 M€.
Funded cost items:	Direct costs (Human resources, travel, materials) Indirect costs (overhead)
Lowest funding rate:	An average of 40% of research conducted by the SHOKs will be co-funded by companies.
Further information:	The Academy of Finland supports the high standard of research carried out at the Strategic Centres for Science, Technology and Innovation (SHOK in Finnish) by providing funding to researchers at universities and research institutes.
Programme owner:	Tekes, the National Technology Agency of Finland
Contact:	Kyllikinportti 2 FIN 00101 Helsinki Finland *Bioeconomy* Chief Adviser Mikko Ylhäisi Tel. +358 2950 55877 *Built environment* Programme Manager Virpi Mikkonen Tel. +358 2950 55930 *Energy and the environment* Programme Manager Pia Salokoski Tel. +358 2950 55672

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Further funding opportunities/ remarks:

- The **TEKES** programme „Arctic Seas 2013-2017"has started recently, focused on business opportunities for finnish companies in the arctic seas. Further information:

- **Academy of Finland**: The Academy of Finland supports and facilitates researcher training and research careers, internationalisation and the application of research results. We are keen to emphasise the importance of the impact of research and breakthrough research by encouraging researchers to submit boundary-crossing applications that involve risks but also offer promise and potential for scientifically significant breakthroughs.

    - Arctic research programme: The research programme is designed to reinforce Finland's status as an internationally leading expert in Arctic issues. The programme has four themes: Good-quality life in the north, Economic activity and infrastructure in Arctic circumstances, The northern climate and environment, Cross-border Arctic policy.

    - Sustainable Governance of Aquatic Resources (AKVA): Major thematic areas: Pressures of change on aquatic environments and their management, ecosystem services in aquatic environments and safeguarding those services, sustainable use of aquatic resources in the future; projects will be funded during 2012-2016. Academy funding for the programme will come to EUR 11 million. Also connected to BONUS and JPI WATER.

- TEKES: The MERIKE funding programme ended in 2007, is there a follow-up planned?

- TEKES: A programme related to new forms of business in the maritime sector is currently under preparation. This should be realized within the Natural Resources and Sustainable Economy programmes. More information? See also Green Growth programme brochure.

4.2.05. FRANCE

Funding opportunities

There is no specific maritime programme. However, France offers via ANR (The French National Research Agency) several R&I Programmes covering mainly the "societal challenges" defined by Horizon 2020:

The 2014 framework programme is divided into 4 components which are subject to specific budget allocation:

- The major societal challenges, open to a broad range of proposals from basic research through to applied research
- At the frontiers of research
- Building the European Research Area and France's international attractiveness
- Economic impact of research and competitiveness

The number of calls for proposals is significantly reduced and the funding offer is made clearer. A range of funding instruments (collaborative projects, public private partnerships, young researchers, research networks, etc.) is offered to the researchers, depending on their scientific goals and their needs. The instruments are either dedicated or common to the four components.

Remarks:

The PREDIT (Research, experimentation and innovation in land transport) programme, was prolonged since 1990, the PREDIT IV programme recently finished in 2013. PREDIT 4 (2008-2013) was officially **decided** on 19th March 2002. A draft agreement was signed by the four ministers and two agency directors who promoted the programme. Predit 3 was marked by a specific effort put on goods transportation and energy and environment issues, greenhouse effect in particular, as well as a diversified research on safety. This third programme has been **prolonged until 2007** and given about **360** million Euros in public funds. It was officially launched in May 2008. It is the result of an agreement between the Ministry of Ecology, sustainable development and energy, the Ministry for economy, finance and industry, the Ministry of higher education and research and three agencies (Ademe, Environment and energy management agency, ANR, the French national research agency, OSEO (provides assistance and financial supports to French SME's). Predit unites their incentive measures relative to land transportation (i.e. road, rail and waterways) in response to current social issues, notably with a view to sustainable development. The objectives are entirely in line with the conclusions drawn by France's "Environment Round Table" ("Grenelle de l'environnement") and the recommendations formulated by the various working groups formed as a result. Predit 4 focus on coordinating the deployment of 400 million euros of public funds as part of an overall investment in research amounting to around 1 billion euros.
The programme is dedicated to six major fields and issues: Energy and environment (GO1), Quality and safety of transportation systems (GO2), Mobility in urban areas (GO 3), Logistics and freight transport (GO4), Competitiveness in the transport industry (GO5), Transport policy (GO6)

At the moment, the PREDIT programme will be reorganized and updated.

4.2.06. GERMANY

Maritime Technologies of the Next Generation

Year of programme start:	2011
Year of programme end:	2015
Next programme update:	2015
Number of calls per year:	Permanent open call
Dates of call deadlines:	Permanent open call
Programme information:	BMWI – Innovative Maritime Technologien (only available in German)
Funded R&D projects:	Basic; Applied; Demonstration and implementation
Funded disciplines:	Shipbuilding; Maritime equipment and services Ship and port operation; Inland water and intermodal transport; Offshore industry & technology; Offshore structures for renewable energy; Polar technology
Annual programme budget:	2008: 17,8 Mio. € 2009: 20,9 Mio. € 2010: 26,6 Mio. € 2011: 26,6 Mio. € 2012: 25,9 Mio. €
Funding type:	Grant
Funded cost items:	Direct costs (Human resources, travel, materials); Indirect costs (overhead)
Lowest funding rate:	25 % pre-competitive development
Highest funding rate:	100 % basic research
Programme owner:	Federal Ministry of Economic Affairs and Energy (BMWi)
Contact address:	Federal Ministry of Economic Affairs and Energy Maritime Economics (ASt-MaWi 1) Scharnhorststr. 34 - 37 10115 Berlin Dr. Thomas Rüggeberg Tel: +49 30 18 615-7118 Fax: +49 30 18 615 50 7118 Email: Thomas.Rueggeberg@bmwi.bund.de
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Website	http://www.ptj.de/maritime-technologies

Further funding opportunities/ remarks:

- BMBF: topics aquaculture and marine biotechnology (no open calls at the moment) as well as cross-cutting programmes and innovation oriented programmes (German High-Tech-Strategy) as well as research infrastructure like research vessels, www.bmbf.de
- DFG: The DFG (German Research Foundation) is the self-governing organisation for science and research in Germany. The DFG funds knowledge-oriented research without stipulation of topics and utilises competition to select the best projects in terms of scientific quality. The DFG funds the best scientists and academics and pays particular attention to the promotion of young researchers and equal opportunities in the German research system. The DFG promotes cooperation in science – especially interdisciplinary and international cooperation – as well as the interaction of science with industry and society. The DFG gives policy advice to parliaments, governments and public institutions as well as the general public on scientific issues. www.dfg.de
- BMELV: Aquaculture, fisheries and bioeconomy (e.g. algae for biomass-production), www.bmelv.de

4.2.07. ICELAND

Funding opportunities/ remarks:

- For the moment, there is no current research funding programme for maritime and innovation issues. For more information, please contact the Ministry of Transport and Communication: http://www.sigling.is/pages/386

4.2.08. IRELAND

Funding opportunities/ remarks:

- **Marine Institute (MI):** The Marine Research Sub-Programme, one of eight Sub-Programmes in the Science, Technology and Innovation Programme, is the dedicated marine research funding mechanism with the 2007-2013 NDP. The sub-programme targets €141 million at investment in marine research and innovation as part of the overall investment needs identified in Sea Change: A Marine Knowledge, Research & Innovation Strategy for Ireland 2007-2013.

- **Enterprise Ireland (EI):** Enterprise Ireland is the state agency responsible for supporting the development of manufacturing and internationally traded services companies. They provide funding and supports for companies - from entrepreneurs with plans for a high potential start-up through to large companies expanding their activities, improving efficiency and growing export sales. Enterprise Ireland also provides funding and supports for college based researchers to assist in the development, protection and transfer of technologies into industry via licensing or spin-out companies.

- Geological Survey of Ireland (Geosciences Sub-Programme) www.gsi.ie
- Higher Education Authority (Programme for Research in Third Level Institutions PRTLI) www.hea.ie
- Science Foundation Ireland (Fellowships /Programmes in Biotechnology, ICT and Sustainable Energy) www.sfi.ie
- Sustainable Energy Authority of Ireland (Sustainable Energy Research Programme) www.seai.ie
- Environmental Protection Agency (STRIVE Programme for Water, Climate Change and Sustainable Environment Research) www.epa.ie
- Irish Research Council (PhD Scholarships / Research Fellowships in Humanities and Science) www.research.ie
- Department of Agriculture, Food and the Marine (FIRM, Stimulus Programmes for Food Research including Marine Foods) www.agriculture.gov.ie

4.2.09. ITALY

Funding opportunities/ remarks

- The Italian Research for the Sea (RITMARE), Website: www.ritmare.it: Leading Authority: Ministero dell'Istruzione dell'Università e della Ricerca (CNR Managing authority), Acronym: MIUR, Website: www.istruzione.it; Implementing agency/organisation: Several Research Organizations and Universities, Acronym: CNR, OGS, INGV, SZN, ENEA, Conisma, Cinfai, Website: www.cnr.it; www.ogs.it; www.ingv.it; www.szn.it; www.enea.it; www.conisma.it; www.cinfai.it; Star year: 2012, End year: 2016, (funding is at the moment assured until the end of 2014); Average annual budget of the Programme/Plan: M€ 30
  The RITMARE main objectives are: to pursue scientific and technological achievements in the study areas; to achieve a real improvement in policies for the management of marine economy by supporting planning measures, networking and transnational cooperation, through integration of research groups and activities; to activate public-private partnerships and synergies in national and regional government intervention; to implement an integrated approach to marine research: to identify and implement opportunities for research alliances and development in the European area. RITMARE also intends to increase the synergy between Research Institutions and University Consortia involved in marine research, highlighting the excellence and enhancing collaborations, to strengthen collaboration between the Italian research community and industry; to promote Italian participation in European projects and initiatives with the aim of increasing the position as coordinator and to promote the participation in joint programs where the multiplier effect of increased resources can be seen.
  Both research and innovation are covered. The program is divided into 7 thematic sub-projects:

    - 1. Maritime Technologies
    - 2. Technologies for Sustainable Fishery
    - 3. ICZM and Maritime Spatial Planning in the Coastal Zone
    - 4. Planning for the exploitation of the Deep and Open Sea
    - 5. Observing Systems for the Mediterranean Marine Environment
    - 6. Research Infrastructures, Education and Outreach
    - 7. Interoperable infrastructure for the Observation System network and data

  Priorities are identified with each of the 7 sub-projects and further specified in their work programme.

  - Increase synergies between those Research Bodies and University Consortia that are involved in marine research, facilitating the emergence of excellence and promoting cooperation;
  - Strengthen cooperation between the world of research and Italian Industry in two complementary directions: inducing the research community to respond to the needs of

industry and encouraging the latter to contribute to a re-launch of the technologies available to marine researchers. This will enable the creation of a new generation of researchers, specifically by means of industry-research joint doctorates;

- Enhance Italian participation in European projects and initiatives, increasing the number of Italian scientists appointed as project coordinators and promoting participation in joint programmes (e.g. JPIs) where the resources made available by the participants are matched by contributions from the EU

RITMARE represents a significant opportunity for the Italian marine scientific community to:

- Increase synergies between those Research Bodies and University Consortia that are involved in marine research, facilitating the emergence of excellence and promoting cooperation;
- Strengthen cooperation between the world of research and Italian Industry in two complementary directions: inducing the research community to respond to the needs of industry and encouraging the latter to contribute to a relaunch of the technologies available to marine researchers. This will enable the creation of a new generation of researchers, specifically by means of industry-research joint doctorates;

Enhance Italian participation in European projects and initiatives, increasing the number of Italian scientists appointed as project coordinators and promoting participation in joint programmes (e.g. JPIs) where the resources made available by the participants are matched by contributions from the EU.

- Investments accounting for 900 million euro every year until 2020 to re-launch research in Italy start important innovative projects and encourage researcher growth and autonomy. This is outlined in the new **National Plan for Research (PNR)** for **2014-2020** presented by **Maria Chiara Carrozza,** Minister of Education, University and Research to the Italian Council of Ministers. In line with Horizon 2020, the new European Union programme for research and innovation, the new PNR planning covers seven years, instead of three, and follows a long process of **consultation** involving all the most important public and private, national and regional subjects, which was carried out by the **Ministry of Education, University and Research** (MIUR) and the **Ministry of Economic Development** (MISE). An important listening and coordinating effort leading to a radical departure from the past, making **research** the **new driver of the Italian cultural, social and economic growth**.

- Maritime issues are conducted by the Ministry of Infrastructure and Transport.

4.2.10. LITHUANIA

Funding opportunities/ remarks

- In Lithuania, research funding mainly takes place via the Ministry of Education and Science.
- Innovation funding: establishment of Clusters in different fields of research and innovation: Marine Valley

Initiators	Klaipėda University Nature Research Centre		
Partners	Lithuanian University of Health Sciences Public entity "Klaipėda Science and Technology Park" State enterprise Port of Klaipėda State Directorate Association of Lithuanian Trade Enterprises		
MTEP directions	Marine environment; Marine technologies		
Objective	To create the centre (Valley) for the development of Lithuania's maritime sector, aimed at promotion of fundamental and applied studies competitive on the global market and at training highly qualified specialists for the needs of Lithuania's maritime sector.		
Funds	59,954 M€		
Projects, funding	**Project**	**Funding M€**	**Funding institution**
	Creation of Nucleus and Update of study Infrastructure of Maritime sector valley	25,849	Ministry of Education and Science
	Equipment of engineering networks and communications and development of infrastructure of Klaipėda Science and Technology Park	6,44	Ministry of Economy
	Acquisition of the vessels for environmental monitoring	3,043	Ministry of Environment
	Reconstruction of the Laboratory of Fisheries and Marine Aquaculture and acquisition of its technological (research) equipment	1,44	Ministry of Agriculture
Web page; Programme of valley			

4.2.11. NORWAY

Maritime Activities & Offshore Operations (MAROFF)

Year of programme start:	2010
Year of programme end:	2019
Next programme update:	2012
Number of calls per year:	2 – 4
Dates of call deadlines:	different
Programme information:	http://www.forskningsradet.no/maroff
List of completed projects:	http://www.forskningsradet.no/servlet/Satellite?c=…
Funded R&D projects:	Basic; Applied
Funded disciple:	Shipbuilding; Maritime equipment and services; Ship and port operation; Inland water and intermodal transport; Offshore industry/technology; Offshore structures for renewable energy; Polar technology Fishing/aquaculture
Funded institutions:	Universities: 10 %, Public research institutes: 20 %, Regulatory bodies: 5 %, Companies: 65 %
Annual programme budget:	2010: 16 Mio. €
Funding type:	Grant
Funded cost items:	Direct costs (Human resources, travel, materials) Indirect costs (overhead)
Lowest funding rate:	24 % Innovation projects
Highest funding rate:	80 % Competence building projects
Programme owner & manager:	The Research Council of Norway
Website:	http://www.forskningsradet.no/maroff
Contact address:	The Research Council of Norway Division for Innovation Stensberggt. 27 N-0131 Oslo Norway Dr. Sigurd Falch

Phone: +47 2203 7302
Fax: +47 2203 7307
e-Mail: SF@RCN.NO

Further funding opportunities/ remarks:

Centres for Research-based Innovation (SFI)

The SFI scheme promotes innovation by supporting long-term research through close cooperation between R&D intensive companies and prominent research institutions.

Objectives: The main objective for the Centres for Research-based Innovation (SFI) is to enhance the capability of the business sector to innovate by focusing on long-term research based on forging close alliances between research-intensive enterprises and prominent research groups. The SFI scheme will:

- Encourage enterprises to innovate by placing stronger emphasis on long-term research and by making it attractive for enterprises that work on the international arena to establish R&D activities in Norway.
- Facilitate active alliances between innovative enterprises and prominent research groups.
- Promote the development of industrially oriented research groups that are on the cutting edge of international research and are part of strong international networks.
- Stimulate researcher training in fields of importance to the business community, and encourage the transfer of research-based knowledge and technology.

Host institution and partners: The host institution for a centre can be a university, a university college or a research institute, or an enterprise with a strong research activity. The host institution should have a strong reputation within the disciplines or industrial areas the centre addresses. The host institution's administration must make a declaration of intent stating that it will undertake the obligations entailed by hosting, and explain how the SFI's research will fit into the host institution's research strategy.

The partners (enterprises, public organisations and other research institutions) must contribute to the centre in the form of funding, facilities, competence and their own efforts throughout the life cycle of the centre. User partners must point out the commercial potential they envisage resulting from the centre's activities.

Budget: The total budget allocation from the Research Council for the 14 centres of SFI-scheme will amount to 1120 MNOK over the live span of eight years. Each centre will receive an allocation from the Research Council of roughly 10 MNOK per year and the host institution and partners must contribute with a at least the same amount as RCN.

4.2.12. POLAND

Krajowy Program Badawczy - National Research Programme

Year of programme start:	2011
Programme information:	http://www.mnisw.gov.pl
Funded R&D projects:	Basic; Applied; Demonstration and implementation
Funded disciplines:	Funded MARTEC disciplines, according to PL interests: - Shipbuilding - Maritime equipment and services - Ship and port operation - Inland water and intermodal transport - Offshore industry/technology - Offshore structures for renewable energy - Fishing/aquaculture - Safety and security - Environmental impact - Human elements
Funded institutions:	Universities: 100 % Public research institutes: 100 % Private research institutes: 100 % Companies: 80 %
Funding type:	Refundable foretastes and loan; Scholarships/prizes; Grant
Funded cost items:	Direct costs (Human resources, travel, materials) Indirect costs (overhead)
Lowest funding rate:	25 % LE - experimental development 50 % LE - industrial research
Highest funding rate:	100 % research entities (universities, etc.)
Further information:	The National Research Programme aims to realize such goals as directing a stream of funding for research and development work on those areas and disciplines that have the greatest impact on social and economic development of the country. It also defines strategic fields of research and development, which are later a base for formation of strategic research programmes, to be implemented by National Centre for Research and Development. It's an instrument accompanying the

Reform of Higher Education in Poland, defining Polish needs. When strategic programme is already formulated, a call can be launched and its budget is established.

The National Research Programme is a general programme, which consists of seven strategic interdisciplinary areas of scientific research and development work. These directions are:

- new technologies in the energy sector,
- lifestyle diseases, new drugs and regenerative medicine,
- advanced information technologies, telecommunications and mechatronic
- technology of materials,
- environment, agriculture and forestry,
- social and economic development in the Polish conditions, global markets,
- security and national defense.

Except of lifestyle diseases, new drugs and regenerative medicine, all MARTEC priority areas are distributed among all others listed above NRS areas.

To choose these fields following criteria were adopted: long-term needs of the economy, high level of research in national centres, development of innovative sectors in enterprises on micro, small and medium scale based on Polish technologies, priority development directories included into the European research programmes.

Programme owner:	Ministry of Science and Higher Education
Website:	http://www.mnisw.gov.pl
Contact address:	Ministry of Science and Higher Education Department for European and International Cooperation ul. Wspólna 1/3 ul. Hoża 20 (main entrance) 00-529 Warszawa tel. +48 22 52 92 250 sekretariat.dsm@nauka.gov.pl
Programme manager:	National Centre for Research and Development
Website:	http://www.ncbir.pl

Contact address: National Centre for Research and Development
Section of Research Projects - INFOTECH
Nowogrodzka str. 47a, PL 00-695, Warsaw
Poland

PhD Jakub Sypień
Phone: +48 515 061 539
e-Mail: j.sypien@ncbir.pl

Further funding opportunities/ remarks:

- There are more domestic research funding programmes, especially with focus on the interlinkage between science and industry as well as technology transfer. Updated information about running programmes is available on: http://www.ncbir.pl/programy-krajowe/
- English versions of web pages of NCN and NCBiR, www.ncn.gov,pl and www.ncbir.pl should foremost be examined, but this is indeed a very tedious work. Also, web pages of some ministries might be relevant: the Ministry of Science and Higher Education, the Ministry of Transport Construction and Maritime Economy. Finally the websites of key entities listed in one of previous parts of this questionnaire should be scrutinized.

4.2.13. PORTUGAL

Funding opportunities/ remarks:

The Centre for Marine Technology and Engineering (CENTEC) is a research centre of IST, recognized and funded by the Portuguese Government through the Foundation for Science and Technology of the Portuguese Ministry of Science and Technology.

The Unit of Marine Technology and Engineering was founded in 1994 following a restructuring of the Portuguese research and development system, which led to the extinction of the National Institute of Scientific Research (INIC), from where the 3 PhD researchers that founded this Unit were transferred. In 2007, already with 20 PhD researchers, the Unit's denomination changed to Centre as a result of IST's newly created statutes. In late 2010, CENTEC had 32 PhD researchers, among its more than 80 researchers.

CENTEC concentrates its activities on developing scientific research, development and demonstration, and their application to sustainable exploration and exploitation of marine resources, through the various fields of interest such as maritime transport and ports, ocean space utilization, including coastal areas, exploration and exploitation of marine resources, and nautical activities, as well as the protection of the marine environment and its resources. These activities are made possible by the design, construction, and maintenance and planning of operation of ships and other floating structures and submersibles that constitute the main objectives of CENTEC's activities.

Fundação para a Ciência e a Tecnologia **(FCT), the Portuguese Foundation for Science and Technology**, is the national funding agency for science, technology and innovation, under responsibility of the Ministry of Education and Science. FCT started its activities in August 1997, succeeding the *Junta Nacional de Investigação Científica e Tecnológica* (JNICT). FCT aims to continuously promote the advancement of scientific and technological knowledge in Portugal, achieving the highest international standards in quality and competitiveness in all scientific and technological domains, and encouraging its dissemination and active role in society and in the economic development of the country.

FCT pursues its mission by supporting researchers through fellowships, studentships and research contracts for scientists, by funding the development of research projects and supporting internationally competitive research centres, as well as state-of-the-art infrastructures, and ensuring Portugal's participation in international scientific organisations. FCT promotes knowledge transfer between R&D centres and industry and establishes partnerships with universities and other public or private institutions, in Portugal and abroad, through cooperation agreements and other types of support.

The results of FCT activities are, in essence, the result of the contributions of the individual scientists, research groups and institutions that are funded by FCT. http://www.fct.pt/apoios/ Considering marine science, the following sub-areas are considered:

- Wide Ocean and Deep-sea Systems;
- Estuarine, Coastal and Littoral Systems;
- Marine Biotechnology, Fisheries and Aquaculture;
- Energy and Marine Technologies.

4.2.14. ROMANIA

Partnership Programme

Year of programme start:	2007
Number of calls per year:	1
Programme information:	http://www.uefiscdi.gov.ro/Public/cat/593/Partener…
Funded R&D projects:	Applied
Funded disciplines:	The maritime disciplines can be funded within the following research domains: Energy, Environment, Innovative materials, processes and products
Funding type:	Grant
Funded cost items:	Direct costs (Human resources, travel, materials) Indirect costs (overhead)
Lowest funding rate:	65 % large companies
Highest funding rate:	100 % research organizations
Programme owner:	National Authority for Scientific Research in Romania
Programme manager:	The Executive Agency for Higher Education, Research, Development and Innovation Funding
Website:	http://www.uefiscdi.gov.ro/
Contact address:	Contact person: Nicoleta DUMITRACHE Telefon: 021/3023886, nicoleta.dumitrache@uefiscdi.ro Fax: 021/3115992 Address: Str. Mendeleev nr. 21-25, Sector 1, Cod 010362, Bucuresti.

Further funding opportunities/ remarks:

- **National Plan for Research, Technology Development and Innovation (PN 2) (2007 – 2013):** Leading Authority: Ministry of National Education (since January 2013, previously National Authority for Scientific Research) Website: http://www.research.edu.ro/; Implementing agency/organisation: Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI), Website: http://uefiscdi.gov.ro/: PN 2 aims at achieving the three strategic objectives of the National RDI System, namely:
  - 1. Creating knowledge, in the sense of achieving leading edge scientific and technological results, competitive at global level, in order to increase the international

visibility of the Romanian research and to subsequently transfer the results in the socio-economic practice.

- 2. Increasing the competitiveness of the Romanian economy by innovation, with impact at the level of companies and by transferring knowledge in the economic practice.
- 3. Increasing the social quality, namely finding technical and scientific methods which support the social development and improve its human dimension.
- Aiming at achieving these three general objectives shall be performed according to a long term vision regarding the National RDI System and its role in society. Therefore, the RDI system can become the engine for the development of knowledge environment in Romania, being able to sustain the performance by innovation in all domains contributing to citizens' welfare and in the same time to achieve scientific excellence recognized worldwide.
- In order to meet these challenges, the RDI system shall be characterized by its opening, firstly towards Romanian companies, then towards the international scientific environment, society's needs and educational system.
- Marine and maritime RTD activities will be "embedded" in the following research directions: (1) Environment quality and safety, geochemistry of lithospheric processes (2) Pollution processes, catalysis, catalysts and depolluting techniques
- Average annual budget of the Programme/Plan: 535 M€; Average annual budget for marine and maritime: a) RTD: 192 M€, b) innovation: 72 M€

- Information is only available in Romanian, so it is difficult to prove the websites. Please cross-check with national experts. The programmes shall be updated with respect to the funding period 2014-2020.

4.2.15. SPAIN

Proyectos de Investigación y Desarrollo (PID), Research and Develoment Projects

Year of programme start:	2008
Number of calls per year:	open call
Programme information:	http://www.cdti.es/
Funded R&D projects:	Applied; Demonstration & implementation
Funded disciplines:	Shipbuilding; Maritime equipment and services; Ship and port operation; Inland water and intermodal transport; Offshore industry/technology; Offshore structures for renewable energy; Fishing/aquaculture
Annual programme budget:	2009: 1400 Mio. €
Funding type:	Mixed (loan + grant); Loan, grant
	Funded cost items: Direct costs (Human resources, travel, materials); Indirect costs (overhead)
Lowest funding rate:	25 % development
Highest funding rate:	50 % applied research
Programme owner & manager:	Centro para el Desarrollo Tecnológico Industrial (CDTI)
Further information:	Projects are divided into three categories: (A) Individual R&D Projects, (B) National Cooperation R&D Projects, (C) International Technological Cooperation Projects
Contact address:	Instituto Tecnológico para el Desarrollo de las Industrias Maritimas Trespaderne 29 28042 Madrid, Spain Mr. Carlos Sánchez Lafuente Phone: +34 91 747 21 16 Fax: +34 91 329 07 13 e-Mail: csanchez@innovamar.org

Further funding opportunities/ remarks:

- The websites of CDTI are not really up to date. Therefore, the funding possibility has to be cross-checked with the results of the JPI Oceans questionnaire.
- Mainly, marine research funding in Spain will be performed by the Ministry of Science and Innovation.

4.2.16. SWEDEN

Funding opportunities/ remarks:

VINNOVA - Swedish Governmental Agency for Innovation Systems – is Sweden's Innovation agency. Our mission is to promote sustainable growth by improving the conditions for Innovations, as well as funding needs-driven research.

Transportation and Environment (one of four strategically important knowledge areas, further: health, services and IT, manufacturing and working life), Updated: 20 June 2013: Transportation and Environment is one of VINNOVA's strategic areas. The area deals with meeting challenges in the fields of transport and environment and with the crossover to a resource-efficient and fossil fuel-free society. Trade and travel in Sweden is increasing and keeping pace with ongoing urbanisation, deeper European Integration and rapid advances in contact with the rest of the world. This increased mobility brings advantages, including greater freedom of movement for goods and millions of people. However the increase also brings problems such as carbon emissions, overcrowding, accidents and increased road and traffic system costs. VINNOVA has identified a number of key areas showing major possibilities. These are: solutions to air pollution, noise, congestion and traffic accidents; fossil fuels, waste and recycling; bio-based materials in new applications; a smart electricity grid; sustainable cities and sustainable urban development; transport efficiency and logistics; city growth and attractiveness. No calls open at the moment.

- **Innovativeness of specific target groups,** Updated: 15 January 2014: Strengthening the innovative capacity of actors necessitates awareness of the opportunities of innovation. Strategic projects for developing innovations are also required. Therefore VINNOVA manages programmes for developing leadership, innovation strategies and development projects which are important for the innovative capacity of specific target groups. The projects can be managed either by individual actors or groups of actors. In 2014 the programmes for strengthened innovative capacity mainly target small and medium-sized companies, actors within the public sector as well as universities and colleges. VINNOVA's programmes within "Strengthened innovative capacity" are divided into four strategic areas:

  - **The Knowledge Triangle:** The Knowledge Triangle aims to create an interaction between education, research and innovation thereby creating the conditions for increased relevance and utilisation of universities' activities.

  - **Innovation Capacity in the Public Sector:** The public sector's role as a driver for innovation is an important political issue. Which is strongly promoted by the government for example through the National Innovation Strategy 2012.

  - **Innovative SMEs:** These enterprises are characterised by an ability to accept, apply and develop new knowledge and techniques in new business opportunities. They thus strengthen their competitiveness and growth prospects.

  - **Individuals and Innovation Milieus:** A strong research and innovation milieu is a geographically and thematically cohesive network of research and innovation actors spanning all sections of the innovation process. A strong research and innovation milieu attracts resources, corporate partners and internationally prominent researchers.

4.2.17. THE NETHERLANDS

Funding opportunities/ remarks:

At present, there is no Dutch funding programme for maritime topics implemented. But there are several funding programmes with relations to maritime and innovation issues:

- **Open programme (earth and life sciences):** The Open Programme wants to be a breeding ground for innovation and talent. Proposals are not related to a theme or ambition. The Open Programme's aim is to promote innovative scientific research of a high quality across the entire breadth of the earth and life sciences. The earth and life sciences research domain covers geology, the seas, the atmosphere, living organisms in the biosphere, and the interactions between and within these facets. http://www.nwo.nl/en/funding/our-funding-instruments/nwo/free-competition/alw/open-programme.html. This programme was established by NOW: The Netherlands Organisation for Scientific Research (NWO) is the national research council in the Netherlands and has a budget of 625 million euros per year. NWO promotes quality and innovation in science. NWO falls under the responsibility of the Dutch Ministry of Education, Culture and Science.

- **Innovation credit:** You have an innovative idea. You see opportunities for a new product in the market. You have the knowledge, vision and ambition, but you lack the financial clout. For this scheme, only those projects are eligible which are technologically innovative and unique to the Netherlands, Bonaire, St. Eustatius and Saba. For this reason, you are required to explain in detail the technical challenge involved and to approach the project systematically and according to a plan. Its technical feasibility needs to be established and all activities up to and including the testing of prototypes must be able to be supported. http://english.rvo.nl/subsidies-programmes/innovation-credit. This programme will be implenmented by the Netherlands Enterprise Agency. Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland - RVO.nl) encourages entrepreneurs in sustainable, agrarian, innovative and international business. It helps with grants, finding business partners, know-how and compliance with laws and regulations.

- Access to **Maritime Industries** in The Netherlands: Maritime by Holland is a joint initiative for 12,000 companies powering the maritime sector in Holland. Together, they generate social and economic value for clients worldwide through an unbeatable combination of expertise, imagination and collaboration. www.maritimebyhollnad.com

- The Netherlands have not filled in the Form E of the CSA Oceans questionnaire yet.

4.2.18. TURKEY

Funding opportunities/ remarks:

- There is no special maritime R&D funding programme in Turkey. The former "International Industry R&D Projects Support Program (1509)" will be implemented by member states driven EU programmes like ERA-Nets and COST.

- **1509 - TÜBİTAK International Industrial R&D Projects Grant Programme:** The objective of the program is to create market focused R&D Projects between European countries and to increase cooperation between Europe wide firms, universities and research institutions, by using cooperation webs such as EUREKA. There are mainly two phases of the operation for the programme:

  - The application and evaluation phase: A company applies for a project. Then the project is taken for preliminary examination by a TEYDEB expert and sent to independent referees who will prepare the evaluation reports. Upon the completion of the evaluation reports the relevant technology group committee discusses the project proposal to give the final decision of acceptance or rejection.

  - The monitoring and granting phase: For the accepted projects the project agreement is signed by the company and TUBITAK. Afterwards, the company can send the performance and expense reports to TUBITAK semi-annually during the project duration. The company's expenses are examined and approved by Independent Finance Auditors. The project performance is followed up by the independent referee(s). The accepted amount of expenses is multiplied by the programme's grant ratio and the respective amount of grant is deposited to the company's account.

- **1001 - The Support Program for Scientific and Technological Research Projects:** The purpose of this program is to support research in Turkey for generating new information, interpreting scientific findings, or solving technological problems on a scientific basis.

- **1002 - Short Term R&D Funding Program:** The purpose of this program is to support short-term R&D projects with small budgets and immediate start requirements. Proposals are accepted from members of universities, research hospitals, and research institutes.

- **Seyir Hidrografi ve Oşinografi Dairesi Başkanlığı (Office of Navigation, Hydrography and Oceanography)**, Acronym: SHODB (ONHO) Website: www.shodb.gov.tr. Leading and implementing authority: Turkish Scientific and Technologic Research Council, Acronym: TUBITAK, Website: www.tubitak.gov.tr: There is no specific programme for marine science.

4.2.19. UNITED KINGDOM

Funding opportunities/ remarks:

- Marine and Fisheries evidence programme (MFScU): Leading and implementing authority: Department for Environment, Food and Rural Affairs (Defra), to manage the inter-dependencies between the policy outcomes for Defra's Marine Programme, evidence gathering and analysis within the marine and fisheries evidence programme is based around three themes:

    - **Marine environment** - Understanding the state of the marine environment, including ecosystem dynamics, natural variability and features. Understanding the impacts of various pressures on the marine environment, such as climate change, fishing, and anthropogenic inputs i.e. hazardous substances, noise, litter. Identifying measures for sustainable marine management and informing marine licensing decisions.

    - **Marine biodiversity** - Supporting development and implementation of Marine Protected Areas and marine planning, and protection of vulnerable or sensitive marine habitats and species.

- **Sustainable fisheries (including migratory and freshwater fisheries)** - Delivering commitments to the European Commissions' Data Collection Framework (DCF), which requires various economic and biological data on all aspects of fisheries management. Informing negotiation and implementation of CFP reform. Strengthening the evidence base and assessment approaches for non-quota species to support effective management of their exploitation. Understanding the biology of new, freshwater and migratory species, and the impacts of various pressures on migratory stocks to underpin development and implementation of effective conservation and management plans.

  The evidence programme covers all aspects of evidence gathering, including monitoring/data collection, technical advice, R&D and innovation. Evidence priorities are determined by policy needs/requirements. Defra identifies new and emerging evidence needs, and consults with others, e.g. Devolved Administrations, Defra network organisations, external stakeholders to identify priorities and ensure effective join-up of evidence. Average annual budget of the Programme/Plan: M€31.52 (based on 12/13 budget)

  The marine and fisheries evidence programme has undergone a significant reduction in budget over the spending review period (2010/11 onwards), against a backdrop of increasing policy needs/requirements. We are keen to continue to work with other partners to further explore opportunities for collaboration and identifying efficiencies in monitoring/data collection. The programme also aims to keep up-to-date on existing and emerging evidence in a number of ways – an area we are looking to strengthen is our approach to keeping updated on international evidence.

  The marine and fisheries evidence programme contributes funding towards specific Research Council (NERC) programmes to help support strategic research that underpins the wider marine

programme. Specific joint NERC-Defra programmes include shelf sea biogeochemistry, offshore renewables, marine ecosystems.

- **Technology Strategy Board**: The Technology Strategy Board is the UK's innovation agency. Their goal is to accelerate economic growth by stimulating and supporting business-led innovation. Funding of collaborative projects with regard to innovation. Example for a maritime related call:
  - **Vessel Efficiency II - better systems at sea:** Investment of up to £3m in collaborative R&D projects to stimulate the development of systems that can reduce emissions and improve efficiency of marine vessels. Programme: Collaborative Research and Development. Opens: 06 Jan 2014, Registration closes: 26 Feb 14, Closes: 05 Mar 2014,

- **Research Councils UK (RCUK):** The RCUK mission is to optimise the ways that Research Councils work together to deliver their goals, to enhance the overall performance and impact of UK research, training and knowledge transfer and to be recognised by academia, business and government for excellence in research sponsorship. The overall aim of RCUK is for the Research Councils to be recognised as the benchmark around the world in terms of the impact they have and the ways they work. http://www.rcuk.ac.uk/ Research Councils with connection to maritime research funding and Innovation:
  - **EPSRC - Engineering and Physical Sciences Research Council:** EPSRC supports fundamental research in the physical sciences through to more applied topics in engineering and technology. This includes research in the following areas: mathematics; chemistry; physics; materials science; engineering; computer science, including high performance computing; energy research; research into the built environment; information and communications technology; research into innovative manufacturing. http://www.epsrc.ac.uk/Pages/default.aspx
  - **NERC - Natural Environment Research Council:** NERC funds environmental research, survey and observation work across a wide spectrum of disciplines, including: the geo- and earth sciences, hydrology, soil science, atmospheric research and oceanography; biological and microbiological research on animal and plant biodiversity, population dynamics and ecology; climate change research; environmental chemistry and physics; satellite based Earth observation; polar research; management of land and natural resources. http://www.nerc.ac.uk/
  - The Research Councils fund world-class research with successive studies demonstrating the quality of the research base and the UK's strength international performance. Novel, multidisciplinary approaches are needed to solve many, if not all, of the big research challenges over the next 10 to 20 years. To achieve this, RCUK will coordinate the delivery of **multidisciplinary research** in the following six priority areas:
    - **Digital economy**
    - **Energy**
    - Global **Food Security**
    - Global uncertainties; security for all in a changing world
    - Living with environmental change (LWEC)
    - Lifelong health and wellbeing

Each theme is important in terms of the knowledge and skilled people which will be generated and has significant potential for delivering economic impact. Effective coordination of the programmes through RCUK will accelerate delivery of benefits and economic impact. Other multidisciplinary priority areas are being taken forward bi/tri-laterally by the Councils.

5. ANNEX 1: MEETING WITH STAKEHOLDERS FROM INDUSTRY – MINUTES

MEETING WITH STAKEHOLDERS TECHNOLOGY PLATFORMS - INDUSTRY, INNOVATION & ECONOMIC ASSOCIATION - MINUTES

30TH MAY 2013, JPI OCEANS SECRETARIAT, RUE DE TRONE 130, 3RD FLOOR, 1050 BRUSSELS, BELGIUM

List of Participants

Stakeholders:

Maribel Rodriguez Olmo ARIEMA – EFTP; Francois Marie Duthoit DCNS – WATERBORNE; Courtney Hough EATiP; Paris Sansoglou EuDA – WATERBORNE; Ralf Fiedler MARTEC Leif Magne Sunde SINTEF – EATiP; Hanne Digre SINTEF – EFTP; Patrick Sorgeloos UGent – EATiP.

CSA/JPI mapping WP:

WP1 Kathrine Angell-Hansen; Berit Johne;
WP2 Pier Francesco Moretti;
WP3 Teodoro Ramirez;
WP4 Ulrich Wolf; Elena Calzado Roldán; Dalia Pérez;
WP5 Tom Redd;
WP6 Florence Coroner;
WP8 Wendy Bonne; Angel Muniz Piniella; Kristin Thorud;
WP9 Szymon Sroda;

1. **Welcome and tour de table**

Short presentation of the stakeholders and the Technology platforms they represent followed by a short presentation of CSA Partners with connection to their WPs.

2. **Presentation of JPI Oceans and CSA Oceans**, by CSA coordinator Kathrine Angell-Hansen

As an introduction, it was mentioned that regarding the development of the European Research Area, even though the Commission has done major efforts to align the European landscape through networks of excellence and initiatives such as ERANETS, there is actually a small sum of budgets aligning Europe and the result is that there is no long-term sustainable platform.

Afterwards, JPI Oceans was presented as the only high-level strategic body that exists, to provide a long-term integrated approach to marine and maritime research and technology development in Europe. JPI Oceans is policy driven and focused on solving the grand challenges of our seas and oceans face.

The following three main characteristics were pointed out:

- JPI Oceans is a coordinating and integrating platform, open to all EU Members and Associated Countries who invest in marine and maritime RTD.
- The authority of JPI Oceans lies in the high level management board which consists of high level
- Representatives of 18 member countries appointed for their ability to agree on joint action plans and potential funding initiatives across Europe.
- JPI Oceans focuses on making more effective and efficient use of national research investments in the broadest sense by developing joint research programs and other instruments, tools and initiatives in which countries can participate and be involved on a voluntary basis. It will increase the value of national R&D investments in Europe by increasing integration of resources and capacities in a long-term strategic manner.

JPI Oceans has settled the following **three goals**:

1. Enable the advent of a **maritime economy**, maximising its value in a sustainable way;
2. Ensure **good environmental status** of the seas and optimise planning of activities in the marine space
3. Optimise the response to **climate change** and mitigate human impact on the marine environment

To achieve these goals, JPI Oceans focus on the intersections between: marine environment, climate change and maritime economy/human activities, addressing the cross-cutting interrelationship between those areas.

The CSA Oceans was shortly described as a FP7 Coordination and Support Action, co-funded by the European Commission, to provide dedicated support to JPI Oceans to shorten the time required reaching the JPI Oceans implementation phase. The CSA will also support the development of the Strategic Research and Innovation Agenda (SRIA), the Implementation Plan (IPlan), and the Framework conditions (E.g.: IPR, cross border funding, foresight).

Finally, it was explained that there will be 9 workshops with the stakeholders identified by the CSA Oceans project, to consult what are the potential needs and priorities that JPI Oceans could address. CSA Oceans will organise also a large workshop with all stakeholders in spring 2014.

3. **Session I: Input and discussion with stakeholders:** Introduction by WP 4 leader Ulrich Wolf.

An energized and open discussion was held with input from stakeholders related to the main goals of JPI Oceans (Q1-3) and other emerging issues.

Stakeholders highlighted that three goals are interconnected and should not be discussed in isolation.

During this part, stakeholders agree that they have many common denominators, which can results in synergies in the future. They also agreed on some of the following barriers to innovation:

- *In Europe the way the projects are structured doesn't promote the use and dissemination of results. In general, projects are structured in order to achieve goals but when they finish there is no assessment of the good practices, the goals achieved and recommendations for future activities. Thus, it was detected a lack of evaluation of results which creates no continuation of projects, overlaps and inefficiency of the system.*

- *Nowadays, there is still a significant gap between scientific community and industry. The first one is focused on delivering publications for the evaluation of their scientific career and the other one on producing and exploiting results to have benefits.*

- *Regarding financial issues, on one hand it was stated that the landscape in Europe is very scattered with different compartments; there is a lack of harmonization of R&D funding. JPI Oceans could bring added value on cross sector activities identifying economic opportunities. On the other hand, there are financial barriers for SMEs due to the lack of concentration of funding and skills. It should be a mechanism to concentrate the funding for those SMEs really capable and interested in a project.*

- *In relation to the Technology landscape, it was agreed that the structure is very fragmented; there is a lack of implementation of innovative technologies.*

- *Sometimes the innovation goes further than the regulation does; as a result the industry finds regulations and standards as a barrier to innovation. It was pointed out that a technical standard with a specific technology will block innovation. Therefore, it should be a "goal based standard" that addresses a specific problem with a recommendation to solve it as a starting point. This measure can create a continuity of innovation through the willingness of doing it better.*

- *In order to achieve market stimulation we need to cooperate looking at the common denominator and sharing money, so the solution is cross sector cooperation. JPI could create the conditions for the dialogue between the industry, that has a short term vision (need to have results in no more than 5 year), and the science, that has a long term vision (tendencies of research).*

- *It was stated that there is a lack of qualified persons with multi-disciplinary background*

In conclusion, the stakeholders agreed that JPI Oceans should constitute a 'Marine Community', a platform to put all the stakeholders together, to share experiences, to link science and industry, to identify common interests and work together and to bring added value.

4. **Session II: Input and discussion with stakeholders:**

A structured discussion addressing specific questions (Q4, Q5 Q6) with particular attention on technologies, competitiveness, innovation barriers and growth potential in the maritime sector was done.

During this session, the following main points were discussed:

- *Maritime spatial planning should have a threefold flexibility: time (to integrate), space (local and regional specifications) and policy (adaptive management).*
- *Marine Infrastructures: we should benefit making some services available for stakeholders (monitoring programs, gathering data, exploring alternative uses of the infrastructure, etc.). JPI Oceans could strength the use of infrastructures that already exist, contributing to communicate research results to industry, making profit of it, and therefore contributing to new innovations.*
- *Common monitoring Strategy for Europe*
- *Using existing technologies in different context*
- *Using data in more efficient ways; standardisation of data*
- *Science to policy: we should transform a problem into an opportunity, for every threat we can identify an opportunity for improvement.*
- *IPR barriers: we need more motivation and satisfaction for innovating. In this process the inventor creates the invention and the innovator put the invention into use. The inventor can be rewarded on the money the innovator makes but we are not rewarding innovators.*
- *Financial barriers: if we are moving into the ocean, which is 'the new space', it is a relatively costly activity. Maritime activities should be a European priority in terms of funding but in many cases it is not a national priority.*
- *Access to data as a barrier: there is a large potential to use data in a proper way, we should be able to put data together to use it and improve the industry operations.*
- *Policy should have the following characteristics:*
    - *allow industries to develop new technologies*
    - *have stability (in long term perspective 30 years)*
    - *be flexibility to adapt to market changes*
    - *Take less time to set up.*

5. **Session III: Input and discussion with stakeholders:**

Focusing on science to policy (Q7, Q8), the potential role of JPI Oceans, and additional questions by CSA WP leaders

Regarding the data needs, it was said that there is a lack of information useful to plan the maritime activities (fisheries, aquaculture, etc.). It was stated that monitoring activities needs data gathering.

JPI Oceans can play a role in facilitating science to policy because there is a need for cooperation between the Ministries and the different parts of the government, putting forward their objectives on cooperating to achieve their goals. This would be stimulation at national level to do the same as we are currently doing at European level.

6. **Meeting follow up and presentation of the extended questionnaire**

The presentation of the extended questionnaire was made by CSA coordinator, Kathrine Angell-Hansen (RCN – Norway). It was agreed that the questionnaire will be sent to each stakeholder so they can elaborate on what was said at the workshop with detailed data and information.

7. **Stakeholders highlights**: Were could JPI Oceans add value? New ideas?

The stakeholders see JPI Oceans as an initiative to facilitate interaction between stakeholders and building in maritime network through actions that lead to an impact. Having concrete actions/activities would increase the potential answer of the industry.

New ideas: a possible next step was proposed by stakeholders, JPI Oceans could organised a workshop called 'From targets to actions' with the aim of having the industry and researchers together and analysing how they could achieve a particular objective.

It is essential that we shorten the time to market for a "product".

ANNEX 2: REFERENCE DOCUMENTS

- European Commission Expert group final report on MRI (January 2013) : https://webgate.ec.europa.eu/maritimeforum/content/3158
- Marine Board position paper "Navigating to the future IV", and especially its chapter 11 dedicated to the EOOS issue (European Ocean Observing System) (June 2013) : http://www.marineboard.eu/images/publications/Navigating%20the%20Future%20IV-168.pdf
- Seas-Era deliverables related to the MRI : http://www.seas-era.eu/np4/19.html
    - D4.1.1 "MRI updated overview, European integration and vision of the future" (October 2012)
    - D4.2.1 "MRI common management guidelines for joint research activities" (March 2013)
    - D4.3.1 "Access methodology to both private and public MRI" (October 2013)
- OceanObs'09 Plenary and Community papers : http://www.oceanobs09.net/
- 'A Framework for Ocean Observing' , report prepared by the post-Oceanobs'09 Task Team for an Integrated Framework for Sustained Ocean Observing (IFSOO – UNESCO 2012) : http://unesdoc.unesco.org/images/0021/002112/211260e.pdf
- EuroGOOS Strategy for 2009-2013 : http://www.eurogoos.org/documents/eurogoos/html_page/eg09_05eurogoos_strategy5.pdf
- EurOCEAN 2010 declaration : http://www.marineboard.eu/images/publications/EurOCEAN%202010%20and%20Ostend%20Declaration-76.pdf
- Consultation on "Marine Knowledge 2020 : from seabed mapping to ocean forecasting" (15 Dec. 2012) : http://ec.europa.eu/dgs/maritimeaffairs_fisheries/consultations/marine-knowledge-2020/index_en.htm
- Marine Data Infrastructure: Outcome of Public Consultation. EC staff working document SEC(2010)73 final : https://webgate.ec.europa.eu/maritimeforum/system/files/COMM_PDF_SEC_2010_0073_F_EN_AUTRE_DOCUMENT_TRAVAIL_SERVICE.pdf
- The Rio Ocean declaration (16 June 2012) : http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/pdf_Rio_Ocean_Declaration_2012.pdf
- EMSO OOCP conference (Ocean Observatories Challenges and Progress), Scientific ideas, early results and infrastructure development), Roma 13-14-15 Nov. 2013. http://www.emso-eu.org/management/index.php?option=com_k2&view=item&layout=item&id=43&Itemid=160

- EMODNET: The European Marine Observation and Data Network. Joint Vision Document by the Marine Board-EuroGOOS (2008)
http://www.marineboard.eu/images/publications/EMODNET-7.pdf