CAREMAR

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SIXTH FRAMEWORK PROGRAMME
PRIORITY 1.6.2
SUSTAINABLE TRANSPORT

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CONTENTS

Publishable Executive Summary

Main aspects of work and objectives

Abstract Proposal

CAREMAR focuses on the identification and development of mechanisms to link the expertise within European universities with the research, education and technological requirements from companies working in the area of marine technology and related sciences. CAREMAR addresses the delivery of innovative scientific research and Research Based Education (RBE) in the context of a changing global market where European growth and competitiveness depends upon industry's ability to be flexible and efficient and to develop innovative marine products. CAREMAR seeks to make an effective contribution to sustainable marine surface transport and marine tasks for the benefit of European society. The EU is investing heavily in research, training, and European maritime clustering to respond to the fierce competition by Far-East industries. CAREMAR will be a platform for the coordination of European university expertise and the delivery of this expertise in a way that responds to European maritime industry needs in both the short term and the medium to long term. No attempt has been made thus far to mobilise the greater part of this university expertise in one coordinated programme. This has been demanded by European industry to seek solutions for sustainable transport and competitive businesses through mobilising the skills and resources of the entire European marine technology academic community in areas prioritised by the European maritime industries themselves.

The marine sector embraces a broad range of industries; shipping and shipbuilding, the offshore sector, equipment manufacturers, fisheries and aquaculture, ports and terminals, shippers, customs and others. Taking shipbuilding alone, Europe is third in the world behind Japan and Korea with over 2500 companies employing over 200,000 people. These include equipment suppliers, many of which are SMEs, delivering products worth over €17 Billion. The offshore industry in the North Sea employs 180,000 and contributes 5% of GDP of the UK, Norway and other countries in the region (about €40 Billion). Shipping and maritime transport carries 90% of the EU's external trade in terms of volume of goods, and some 40% of trade by volume between member States are carried by sea[1]. The EU shipping sector is much diversified too, with e.g. dry and liquid bulk, container, tramping, passenger and freight ferries, cruising, towage and salving, and heavy lift. Maritime Industries are at the hub of world-wide challenges for the 21st century.

[1] The Maritime Industry R&D Masterplan, published June 2002, by Maritime Industries Forum

Problems of the European maritime technology business sector are partly due to strong fragmentation. This fragmentation is best demonstrated by examining the shipbuilding sector which has many competing companies, is geographically dispersed and varies considerably in size and profitability of companies and in terms of willingness and capability of firms to embrace innovation and technological development. This fragmentation can be also recognised in other areas of the Maritime sector such as marine equipment supply, ship repair, offshore oil & gas and underwater working. Substantial efforts have been made during recent years by a variety of EU mechanisms to overcome the fragmented structure and to build an integrated maritime technology community via an assortment of research projects and clustering exercises (through the associations WEGEMT and COREDES, Thematic Networks CEPS, PRODIS, ERASTAR, ERAMAR, SAFER-EURORO I & II etc.). On the whole though, there remains a lack of "joined up thinking" between industry such as the shipyards, maritime research institutes and universities.

European universities are in many engineering disciplines internationally accepted as leaders in education and research, as documented through a variety of activities (attractiveness to students from all over the world, participation in large scale research programmes, strong participation within international research and regulatory bodies, efficient dissemination of results) and several university departments/research units form themselves into Centres of Excellence in various disciplines, including marine technology. However, resources within European universities remain largely untapped, and it is an increasingly held belief that to support good quality EU-level development work conducted under the instruction of industry, the means to support a more collaborative approach between Universities and industry must be found. The advantage of improvements in methods to encourage scientific and technological collaborative research and knowledge exchange will sustain future Maritime industry activities. An under-investment in university systems and infrastructures in Europe thus far is a major factor contributing to many of the fragmentation issues that need to be addressed.

This proposal addressed the fragmentation issue by forming a network of universities that interacted with industry to address societal and industrial needs. Whereas other sectors of European industry can greatly rely on their own RTD resources (e.g. aerospace and automotive industry), marine industry RTD resources are very limited and in some cases practically non existent. This characteristic is so because of industry having to focus on short term challenges of having to respond to the fierce competition from Far-East marine industries that can produce products at lower cost.

Universities have the capacity to support maritime industry. According to a recent WEGEMT survey among its associates, the number of researchers within European academic institutions involved with marine technology by far exceeds 3000. They address all fields of interest to the marine and shipping industries, and thus, with the right investment, communication and strategic focus, could be harnessed effectively to support industry needs. This resource therefore, far exceeding the resources of marine industry and research associations, has tremendous latent potential, and will form the basis for the future supply of knowledge and expertise in industry and research associations. Sadly this potential is being constrained through lack of initiatives to exploit this potential. There is therefore a need to:

Develop synergies between European universities in marine technology and related sciences both in joint education schemes and joint research;
Develop interaction between universities and the European maritime industry in a coherent way through the definition and application of proper mechanisms;
Map the competences of European Universities in marine technology and related sciences against industry's need for knowledge and expertise.
Assess the short and long terms needs of the European maritime industry from the point of view of European universities and respond effectively to their needs through the development and adjustment of academic education and research
Market the results of European academic research and facilitate their exploitation by the European maritime industry.

CAREMAR focused on the mechanisms employed within European universities to deliver innovative high quality Research and Technological Development (RTD) and Research Based Education (RBE) in marine technology and related sciences, and the development of communications and collaborations between Universities and Industry. The objectives of the present CA were:

To undertake a thorough examination of current RTD and RBE practices of European universities and to propose improvements to the underlying processes in consultation with industry, especially where this brings together university consortia in joint programmes or course development to satisfy industry needs.
To provide a platform for the supply of RTD, which derives from and is initiated or coordinated by the university sector that meets industry needs through research, provision of manpower and knowledge transfer.
Identify and improve communications routes between universities, Research organisations and industry for improved RTD project development and undertaking.

To provide a focussed approach using innovative tools for the supply of RTD, especially in the identification and management of expertise and facilities.
To demonstrate through practical means how this can be achieved and to incorporate RTD results in the educational programmes
To effectively disseminate the results and facilitate the acceptance by European society.
To coordinate these efforts with those of proposers of integrated projects (IPs), Networks of Excellence (NoE) and other Coordinated Actions (CAs) for effective distribution of best practice.
To demonstrate the positive effect of this coordination through the participation in the preparation and presentation of IPs, NOEs and CAs, and proposals within IPs, NOEs and CAs.
To demonstrate the portability of the proposed solutions to other industry sectors.

Methodological approach to reach project's objectives

In order to achieve the project's objectives, the methodological approach undertaken embraced a variety of tasks that were expected to fulfil the identified objectives. A detailed workplan with clear deliverables and milestones through the project's execution integrating a series of tasks was therefore developed. The workplan involved four work packages. The first one provided the overall project co-ordination and final report integration (WP0); the second one related to the **C**AREMAR RTD and RBE Systematic Analysis (WP1); the third one related to the CAREMAR Infrastructure and Tools (WP2); while the fourth work package related to the CAREMAR Synthesis of needs in RTD and Dissemination (WP3).

Work package one (WP1) took a holistic view in identifying the organisational environment of universities in marine technology and in tackling the research and associated educational issues. The following objectives, addressing the general objectives from the project, were set for WP1 as follows:

To investigate the future working profile of a graduate in marine technology and especially to identify skills required for his/her successful contribution to RTD in marine technology and in this way to industry's well being.
To quantify and qualify the requirements for university RBE as a supporting mechanism for the innovation process through changes to curricula or teaching methods.

To identify and benchmark good practise in order to develop cross-European excellence in teaching and research for subjects in marine technology especially in view of enhancing student mobility and,
To develop suggestions for post graduate education and continuous professional development by introducing research topics suitable for postgraduates that will benefit industry as well.
To compile suitable courses and degree programmes focused on RBE which rapidly update the skills of practising engineers and enhance the abilities of university graduates.

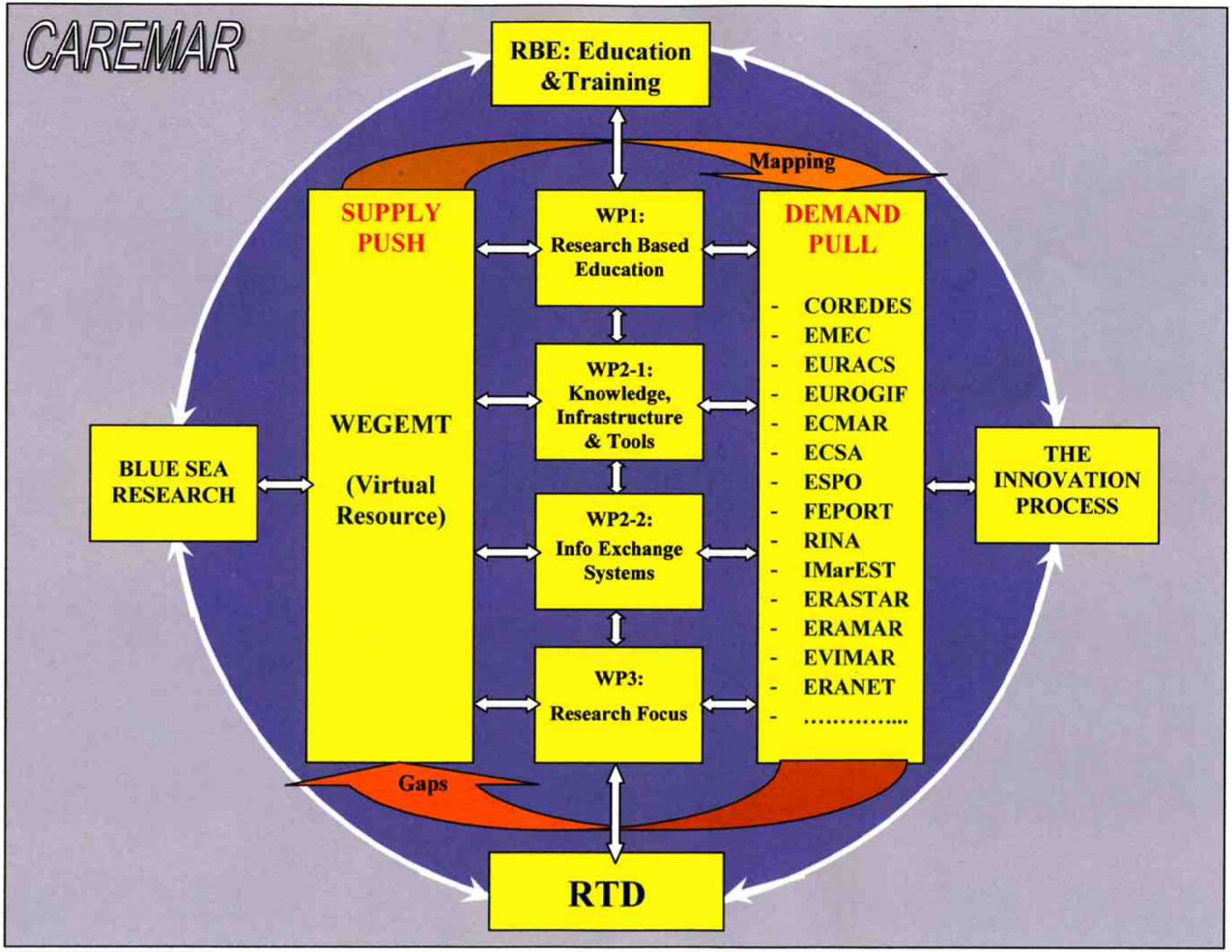
The objectives of WP2 were to develop and deliver a set of databases that contain the outputs from WP 1 and also provide a comprehensive information source of university based expertise and facilities. This should be a major European resource which can be used by a wide variety of organisations seeking a broad variety of information concerning RTD and RBE in marine technology and related sciences. In addition, WP2 had as another set of objectives the development and delivery of a user focused portal and online subject related community based on the outputs of WP1 and WP2.

WP 3 objectives related to the project's general objectives in the form of presenting a series of tasks and activities which demonstrates the overall appropriateness of the CAREMAR outputs to improvements in research coordination methodologies, the underpinning innovation infrastructure and the relationships between universities and industry. The focus of these outputs was aligned to Thematic priority 1.1.6 : Sustainable development, global change and ecosystems, and particularly:

1.1.6.2 Sustainable Surface Transport
1.1.6.2.i New technologies and concepts for waterborne transport
1.1.6.2.ii Advanced Design and production techniques
1.1.6.2.iii Increasing waterborne safety and avoiding traffic congestion
1.1.2.iv Knowledge and interface technologies

As a result the focus groups that were formulated addressed the above mentioned thematic priority and subsections.

All WPs were greatly interdependent; hence this project was a large piece of 'joined-up thinking' that was conveniently divided into work packages for both scientific and operational purposes. In order for the project to achieve its overall objectives full integration of the work of all components was necessary, thus specific integration activities were planned within WP0, WP1, and WP3, supported by tools developed in WP2. The graphical representation bellow demonstrates the interdependencies in the CAREMAR project:


CAREMAR
RBE: Education &Training
Mapping
SUPPLY PUSH
WEGEMT
(Virtual Resource)
BLUE SEA RESEARCH
WP1: Research Based Education
WP2-1: Knowledge, Infrastructure & Tools
WP2-2: Info Exchange Systems
WP3: Research Focus
DEMAND PULL
- COREDES
- EMEC
- EURACS
- EUROGIF
- ECMAR
- ECSA
- ESPO
- FEPORT
- RINA
- IMarEST
- ERASTAR
- ERAMAR
- EVIMAR
- ERANET
- .....
THE INNOVATION PROCESS
Gaps
RTD

Project execution and results

Throughout the duration of the project the work performed by WP1 focused on Task 1-1 (Future skills of graduates in marine technology disciplines), Task 1-2 (Matching the university education with the requirements placed by society), Task 1-3 (Future RBE systems) and Task 1-4 (Research based education: towards RTD). As a result questionnaires relating to tasks 1-1, 1-2 and 1-3 were developed, and circulated among European Universities, the shipbuilding industry, organisations and research institutes, related to marine technology and sciences. The data collected were analysed and evaluated and their output was disseminated in the form of reports, workshop presentations and proceedings. Despite the fact that at the beginning of the project, WP1 faced difficulties in gathering sufficient replies, proactive response from the consortium was initiated in order to overcome these difficulties. As a result WEGEMT provided incentives to Universities and approached various organisations and shipbuilding industries in the marine sector in order to gather a sufficient number of questionnaire responses. In addition, WEGEMT proceeded in subcontracting University College of London (UCL) in order to gather failing information regarding the warship and submarine design sector both for Europe and the US and to assist in proving further information regarding the subdivided subjects for WP1. The objectives set for WP1 and for CAREMAR project were reached and the end result from WP1 activities were the compilation of suggestions for further improvement and innovation in the educational system to strengthen European unity in education on marine technology in accordance to the Bologna Declaration; the identification of bottlenecks in the RTD process and key research areas and the presentation of suggestions for future RBE systems.

The work performed by WP2 focused on the development and delivery of a set of databases that contain the outputs from WP 1 and also provide a comprehensive information source of university based expertise and facilities, as well as the development and delivery of a user focused portal and online subject related community based on the outputs of WP1 and 2. Therefore WP2 tasks and subtasks (Tasks 2.1-2.5) involved the development and delivery of databases, user manuals, training of consortium members and fully operation of the CAREMAR portal. The end result of WP2 activities is a fully functional CAREMAR portal. As a result of the impact of WP2 activities is the running up of the database/portal by WEGEMT after the project's completion, since the portal could be a major European resource, which can be used by a wide variety of organisations seeking a broad variety of information concerning RTD and RBE in marine technology and related sciences.

WP 3 objectives related to the project's general objectives in the form of presenting a series of tasks and activities which demonstrate the overall appropriateness of the CAREMAR outputs to improvements in research coordination methodologies, the underpinning innovation infrastructure and the relationships between universities and industry. The partners in this work package therefore delivered demonstrators that clearly addressed each of these areas. Throughout the duration of the project WP3 established focus groups and focus group leaders that addressed the Thematic priority 1.1.6 : Sustainable development, global change and ecosystems, and its subsections. For this work package subcontracting UCL was necessary, in order to obtain further information and input from industry and academia including USA.

Work performed by WP0 focused primarily on the overall coordination and management of CAREMAR Project, as well as the development and presentation of the project's exploitation and dissemination strategy and the organisation of the annual CAREMAR Workshops. As mentioned in a previous section, WPs were greatly interdependent in CAREMAR project. Therefore, throughout the duration of the CAREMAR Project initiatives and proactive responses were necessary steps for WP0 in order to overcome difficulties that occurred at the beginning of the project.

Overall, as a result of the CAREMAR project, questionnaires were developed and analysed; workshops, proceedings, initiatives, focus groups and databases were generated in order to compile suggestions for improvements in educational systems, to strengthen European unity in education on marine technology and to disseminate the obtained knowledge. Workshops and reports were used as tools both in achieving the compilation and the dissemination of these suggestions.

The impact of these actions can contribute towards employment, education, training and working conditions as the project deals with the identification of methods for educational harmonisation at a system level (a clear requirement of the Bologna Agreement of the European Ministries of Education), improvements in access to training and the overall evaluation of on-going education and training as it is currently practised. The likelihood that the improvements in the key processes in the RTD/RBE supply chain can lead to an increase of the competitiveness of the marine technology and maritime industry and eventually to economic growth. The use of tools created by CAREMAR can serve to enhance the speed and efficiency of the RTD process across the whole of Thematic Priority 1.1.6.2 and together with the planned RTD analyses can ultimately lead to better quality RTD projects that can help to improve scientific and technological prospects. Through CAREMAR's dissemination methodologies and reported recommendations decision makers can be better informed about university capabilities and can also have reports with guidelines for future RTD

and RBE strategies either through their active interaction with the CAREMAR system or as recipients of CAREMAR's dissemination and exploitation activities.

The state of the art achievement and impact of the CAREMAR CA is incorporated in the outputs provided by WP's activities with regards on suggestions on how European Universities should improve their RTD and RBE processes in order to increase competitiveness and to meet current industry demands. More importantly the impact of the CAREMAR CA activities is the identification of the great demand of graduates in the marine industry especially in the sectors of Machinery, General Safety, Environment, Structures. Raising awareness of potential job opportunities in the marine sector due to the identification of skills shortage are likely to have important strategic benefit in the EU, a state of the art impact recognised both in the VISION 2020 document produced by the WATERBORNE Technology Platform and the EU call under SST.2007.6.3 'Raising Awareness of potential jobs opportunities in the Surface Transport'. As a result of which was the successful proposal of the Promoting Marine Research Careers (PROMARC) project, which will primarily target school aged children, university students and graduates in order to encourage awareness of potential job careers in the marine sector as identified in CAREMAR CA.

Exploitable Knowledge and its use

The CAREMAR project was a Coordination Action, and as such, the output exploitation potential was regarded as low and this is reflected on the comments against potentially exploitable outputs (please refer bellow). Due to the nature of the project, the strategy was to ensure that the majority of outputs to be available in the public domain for consideration and use by a wide range of stakeholders and organisations. The realisation of an exploitable product or service was limited by the nature of the work undertaken which was not research, but a collaboration between partners to improve the potential of high quality academic input research partnerships within research projects, and to invoke more academically driven ideas for research, impacting mainly on procedures in the project inception phase. Therefore the outputs of the project that can be further exploited are now available through WEGEMT. The table bellow provides in a summarised form the deliverables that were primary identified as potentially exploitable knowledge that could be further used, while there is also available explanation-where applicable- as to why planned activities considered to be exploitable results have been discontinued (please refer to the text bellow the overview table) :

Overview table

Exploitable Knowledge (description)	**Exploitable product(s) or measure(s)**	**Sector(s)** of application	Timetable for commercial use	Patents or other IPR protection	**Owner** & Other Partner(s) involved
1.RBE in Marine Technology(D 1.2)	*Report*	*1. Marine Industry 2.Universities 3. Decision and policy makers*	*M18-2008*	*n/a*	*n/a*
2. Suggestion for improvements in the educational systems (D 1.3)	*Workshop and Proceedings*	*1. Marine Industry 2.Universities 3. Decision and policy makers*	*M24 2008*	*n/a*	*n/a*
3. Suggestions and initiatives to improve the innovation system (D 1.4)	Report	*1. Marine Industry 2.Universities 3. Decision and policy makers*	*M24 2008*	*n/a*	*n/a*
4. Supply Chain Analysis of RTD and RBE- Analysis of Expertise and Future Potential (D 1.5)	Report	*1. Marine Industry 2.Universities 3. Decision and policy makers*	*M30 2008*	*n/a*	*n/a*
5. CAREMAR Database (D 2.3)	Web-based database	*1. Marine Industry 2.Universities 3. Decision and policy makers*	*M12-18 2007 2008*	*n/a*	*n/a*
6. CAREMAR Portal (D 2.4)	Web-based database	*1. Marine Industry*	*M36 2008*	*n/a*	*n/a*

Exploitable Knowledge (description)	**Exploitable product(s) or measure(s)**	**Sector(s)** of application	Timetable for commercial use	Patents or other IPR protection	**Owner** & Other Partner(s) involved
		2.Universities *3. Decision and policy makers*			

Originally there were six possible exploitable outputs against which more detailed monitoring and analysis took place. In the following a more detailed explanation is provided as to why the above mentioned deliverables failed to be fully exploitable:

D1.2 The Report on RBE in Marine Technology as provided in Europe and compared to external RBE systems. Proposals for systemic improvements (task 1-3). M18. This was regarded as having possible exploitation value to third parties. However, much of the information was openly presented, published and discussed thereby removing any opportunity for exploitation.

D1.3 Workshop and proceedings on suggestions for improvements in educational systems – Requirements and Challenges-The impact of the Bologna Declaration of European Ministries of Education on European maritime educational programmes (task 1-3). M24. Again, much of the information was openly presented, published and discussed thereby removing any opportunity for exploitation..

D1.4 Compilation of suggestions and initiatives to improve the innovation system (task 1-4). M24. as for D1.2 and D1.3.

D1.5 Supply Chain Analysis of RTD and RBE- Analysis of Expertise and Future Potential (task 1-4). M30. As above

D2.3. 1. A set of technical and content specifications for the CAREMAR Database (task 2-3). M12. Exploitable by partners.
2 Database(s) containing information pertinent to CAREMAR users (task 2-3-2). M18. Exploitable by partners.
3. User manual for the databases (task 2-3-3). M18. Exploitable by partners.

D2.4. A set of specifications for the CAREMAR Portal (task 2-4-1.) M12, and a fully functioning CAREMAR Portal (task 2-4-6) M36

The creation of the database proved to be the most interesting development when considered as an opportunity for exploitation. Broad agreement was given

that should there be future value in developing the database as a product, then this task could be taken on by WEGEMT at its discretion.

Dissemination of knowledge

Dissemination was done largely within the partnership. However, there were attempts to disseminate knowledge within EU and internationally through participation in conferences and forums. In addition, the creation of a public website has been a disseminating tool towards informing a wide range of stakeholders, such as educational bodies, research institutes, graduates, maritime industries and policy makers. The dissemination activities are listed bellow:

Overview table

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
17 Nov. 2005, Brussels.	*Forum: "Proc. of the New European Maritime Policy Forum"*	*Higher education Research Industry (marine Sector)*	*EU*	*n/a*	*WEGEMT/ Prof. Papanikolaou,A. Prof. Incecik, A*
31st May- 1st of June 2006 (Madrid)	*COREDES Conference Presentation*	*Industry (marine Sector) Higher Education-University Representatives*	*EU*	*n/a*	*WEGEMT*
May 2006, Ann Arbour-Michigan, USA	*9th International Marine Design Conference-IMDC06*	*Higher education Research*	*International*	*n/a*	*Papanikolaou, A. (WP2)*
June 2006	*CAREMAR Website*	*General public*	*International*	*n/a*	*WP2*
21 June 2006, Plymouth	*Presentation*	*CAREMAR Management Committee*	*EU*	*n/a*	*WP1*
3rd of October 2006, Liege	*1st CAREMAR Workshop (Presentations and Reports)*	*Higher education Research*	*EU*	*n/a*	*WP1, WP2, WP3, WP0*

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
5th of October 2007, Hamburg	*2nd CAREMAR Workshop (Presentations and Reports)*	*Higher education Research*	*EU*	*n/a*	*WP1, WP2, WP3, WP0*
14th of March 2008, Brussels	*Workshop (Presentations and Reports)*	*Higher education Research*	*EU*	*n/a*	*WP1, WP2, WP3, WP0*
6th of October 2008, Brest	*3rd CAREMAR Workshop (Presentations and Reports)*	*Higher education Research*	*EU*	*n/a*	*WP1, WP2, WP3, WP0*

Conclusions-Summary

The CAREMAR project was a Coordination Action (C.A) of the Sixth Framework Programme addressing Priority 1.6.2 Sustainable Transport. The projects' main objectives were the identification and development of mechanisms to link the expertise within European universities with the research, education and technological requirements from companies working in the area of marine technology and related sciences. CAREMAR addressed the delivery of innovative scientific research and Research Based Education (RBE) in the context of a changing global market where European growth and competitiveness depends upon industry's ability to be flexible and efficient and to develop innovative marine products. CAREMAR attempted to make an effective contribution to sustainable marine surface transport and marine tasks for the benefit of European society; as well as to become a platform for the coordination of European university expertise and delivery in order to respond to maritime industry needs in the short and long term. More specifically the objectives of the CAREMAR CA were:

To undertake a thorough examination of current RTD and RBE practices of European universities and to propose improvements to the underlying processes in consultation with industry, especially where this brings together university consortia in joint programmes or course development to satisfy industry needs.

To provide a platform for the supply of RTD, which derives from and is initiated or coordinated by the university sector that meets industry needs through research, provision of manpower and knowledge transfer.

To identify and improve communications routes between universities, Research organisations and industry for improved RTD project development and undertaking.
To provide a focussed approach using innovative tools for the supply of RTD, especially in the identification and management of expertise and facilities.
To demonstrate through practical means how this can be achieved and to incorporate RTD results in the educational programmes
To effectively disseminate the results and facilitate the acceptance by European society.
To coordinate these efforts with those of proposers of integrated projects (IPs), Networks of Excellence (NoE) and other Coordinated Actions (CAs) for effective distribution of best practice.
To demonstrate the positive effect of this coordination through the participation in the preparation and presentation of IPs, NOEs and CAs, and proposals within IPs, NOEs and CAs.
To demonstrate the portability of the proposed solutions to other industry sectors.

The exploitation knowledge produced from the CAREMAR CA actions is to inform policy makers and stakeholders such as universities, graduates and maritime industry how to address the issue of competitiveness in the European maritime industry by providing solutions for sustainable transport and competitive businesses through mobilising the skills and resources of the entire European marine technology academic community in areas prioritised by the European maritime industries themselves. In this way, CAREMAR CA actions can contribute towards employment, education, training and working conditions as the project deals with the identification of methods for educational harmonisation at a system level (a clear requirement of the Bologna Agreement of the European Ministries of Education), improvements in access to training and the overall evaluation of on-going education and training as it is currently practised.

There is therefore a need to:

Develop synergies between European universities in marine technology and related sciences both in joint education schemes and joint research;
Develop interaction between universities and the European maritime industry in a coherent way through the definition and application of proper mechanisms;
Map the competences of European Universities in marine technology and related sciences against industry's need for knowledge and expertise.

Assess the short and long terms needs of the European maritime industry from the point of view of European universities and respond effectively to their needs through the development and adjustment of academic education and research

Market the results of European academic research and facilitate their exploitation by the European maritime industry.

Through the CAREMAR CA actions and the application of tools created by CAREMAR throughout the duration of the project there is potential that the compiled knowledge and databases generated can act as a (1) platform that can serve to enhance the speed and efficiency of the RTD process across the whole of Thematic Priority 1.1.6.2 and (2) together with the planned RTD analyses can ultimately lead to better quality RTD projects that can (3) help to improve scientific and technological prospects, and (4) lead to an increase of the competitiveness of the marine technology and maritime industry and eventually (5) to economic growth.

Through CAREMAR's dissemination methodologies and reported recommendations decision makers can be better informed about university capabilities and can also have reports with guidelines for future RTD and RBE strategies either through their active interaction with the CAREMAR system or as recipients of CAREMAR's dissemination and exploitation activities.

The state of the art achievement and impact of the CAREMAR CA is incorporated in (1) the outputs provided by WP's activities with regards on suggestions on how European Universities should improve their RTD and RBE processes in order to increase competitiveness and to meet current industry demands; and (2) the identification of the great demand of graduates in the marine industry especially in the sectors of Machinery, General Safety, Environment, Structures. Raising awareness of potential job opportunities in the marine sector due to the identification of skills shortage are likely to have important strategic benefit in the EU, a state of the art impact recognised both in the VISION 2020 document produced by the WATERBORNE Technology Platform and the EU call under SST.2007.6.3 'Raising Awareness of potential jobs opportunities in the Surface Transport'. As a result of which was the successful proposal of the Promoting Marine Research Careers (PROMARC) project, which will primarily target school aged children, university students and graduates in order to encourage awareness of potential job careers in the marine sector as identified in CAREMAR CA.

Participants of the project/ Contractors involved

Participant name	Participant short name	Country
WEGEMT - A European Association of Universities in Marine Technology and Related Sciences	WEGEMT (Project Co-ordinator)	UK
Helsinki University of Technology	HUT	Finland
National Technical University of Athens	NTUA	Greece
Universities of Glasgow and Strathclyde	NA-ME/SSRC	UK
University of Plymouth	UOP	UK
Instituto Superior Tecnico - Universidade Tecnico de Lisboa	IST	Portugal
Norwegian University of Science and Technology	NTNU	Norway
University of Newcastle-upon-Tyne	UNEW	UK
University of Southampton	USOTON	UK
Hochschule Bremen	HSB	Germany
Technical University of Denmark	DTU	Denmark
Gdansk University of Technology	GUT	Poland
Institute for High Performance Computing and Information Systems – St Petersburg	IHPCIS	Russian Federation
Committee of European Shipbuilding Associations	CESA	Belgium

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Further Information

More information about the CAREMAR project can be found at the project's website http://www.caremar.org

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