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PERIOD COVERED:

2008-04 - 2009-03

AND

FINAL REVIEW OF THE PROJECT

Start date of project: 2005-04-01
Duration: 48 months
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Project co-ordinates:

TNE4-CD-2005-516216 – VISIONS

Visionary Concepts for Vessels and Floating Structures

Project Start Date: **2005-04-01**

Project End Date: **2009-03-31**

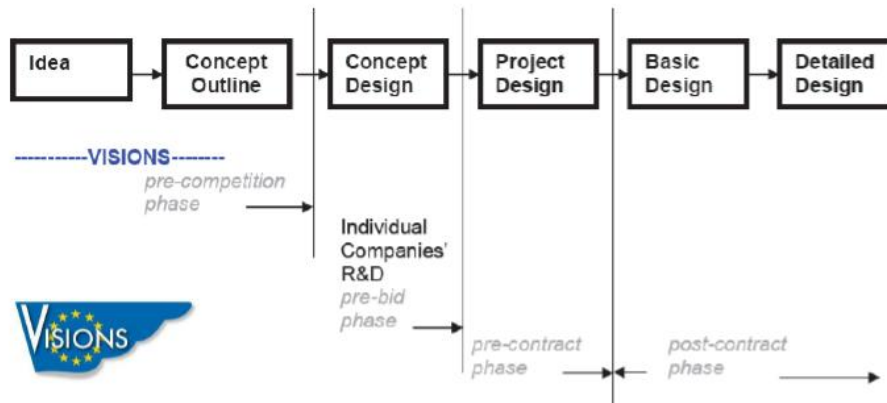
(Duration of the project: 48 month)

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NoE VISIONS Publishable Project Summary

Europe's maritime industry has an impressive track record of being competitive with leading edge innovations. However, to defend this position in a globalizing world, long term market, society and technology challenges must be identified and tackled as early as possible. Most companies know fairly well how the next generation of products will look like, which they would offer in the coming years. They do invest today into the development of such products of tomorrow. But in the usual business environment there are often neither further resources nor focus to develop already future ideas for "the day after the day after tomorrow" as well and thus to identify market and R&D challenges early enough for market dominance.



Product Development Phases in the shipbuilding Industry

Some early ideas for possible long term shipbuilding and maritime products and services appear today quite futuristic and have so far rarely subject of systematic investigation. On the other hand, it is harder to define and kick-off the industry-relevant R+D initiatives, which would be necessary to be prepared for future step changes, without the concrete challenge generated by visionary ideas. Acknowledging constantly decreasing technology life cycles and increasing innovation speed the need was felt to generate more visionary concepts in Europe, based on future scenario input and by using the creativity of young talents, as well as to organize a systematic assessment and showcase process.

Thus VISIONS had been created by major industry and science stakeholders of the European shipbuilding and maritime industry as a "Network of Excellence (NoE)" under the 6th Framework Program to establish a sustainable "over the horizon" view in the pre-competitive phase, with the main objectives

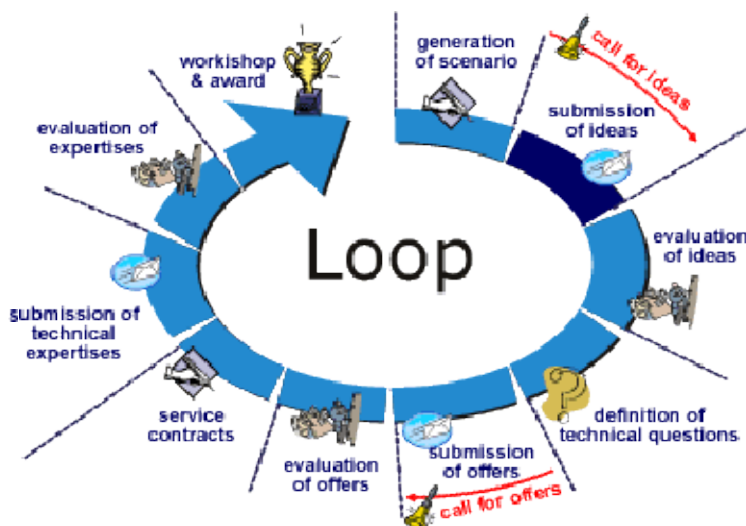
- to strengthen the European scientific and technological capability to develop innovative concepts for the products of the future, by developing a mechanism which involves all share holders and combines scientific excellence with market needs
- to contribute to the exploration of new market segments with a competitive advantage for European shipbuilders
- to contribute to the solution of medium and long term transport related problems, like the congestion of roads and cities, environmental and safety hazards
- to generate and assess more visionary concepts (potential products and projects for the next (5)-15 years) and thus to act as the sector's "periscope" beyond the today's and tomorrow's regular business and development horizon,
- to activate the potential of young talents in pre-occupation stage for generating more visionary concepts,
- to encourage scenario based thinking about future possibilities ("think tank"),

- to facilitate a closer link between industry and academia and more industry-relevant challenges for research institutes and universities,
- to foster an early identification of knowledge gaps and kick-off of respective R+D initiatives necessary for future challenges and step changes.

VISIONS has implemented an annual process (called "**innovation loop**") for the definition, assessment and validation of visionary concepts for vessels and floating structures, structured in 5 Business Areas



and based on challenges, presented by 9 professional market and society scenarios per Business Area, which were generated within **the VISIONS innovation loop process**.



The annual Call for Ideas, open for student teams of Europe's Maritime Universities, asked to respond the challenging scenarios by a "Concept outline", a structured professional description of an idea. This was done without the expectation, that all engineering or commercial aspects of the ideas would already have been investigated thoroughly by the proposing team. The most interesting proposals, in total 25 nominated by the NoE partners, were subject to feasibility and engineering reviews performed by scientific experts of Europe's Maritime Universities, who offered the required services in an annual tender process for 7 Expertise Fields:

- Market+Society Needs,
- Technical Feasibility+Design,
- Production Equipment+Systems,
- Operation+Security,
- Infrastructure+Logistics,
- Safety+Environment.

Based on the submitted technical expertises, which were attached to the respective proposal file, a jury of high level industry experts selected the 3 annual award winners for the respective year, which were honoured during

the Opening Session of the Maritime Industry Forum (MIF) General Assembly on 5.October 2006 in Oslo in front of more than 300 top level delegates, by EU-Commission VP, in charge of Enterprise & Industry, Günter Verheugen,



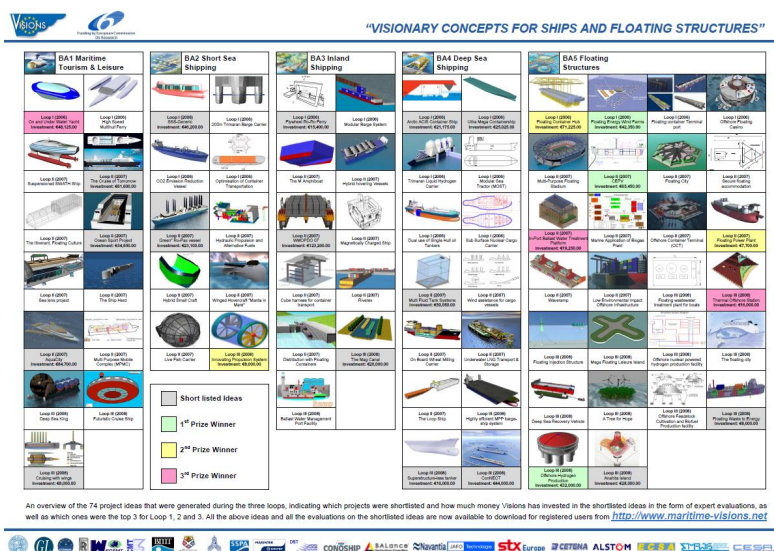
the 1st European Maritime Research Policy Conference on 17.October 2007 in Brussels by EU Commissioner Science and Research Janez Potocnik in the presence of more than 300 delegates and researchers, and

the CESA & EMEC traditional New Year Reception on the 17. February 2009 in Brussels by EU-Commission VP in charge of Enterprise & Industry, Günter Verheugen. in presence of more than 150 industrial leaders.



The prestigious award ceremonies have also created awareness of VISIONS and the most interesting proposals among many maritime industry deciders.

End Results of the Project:



Three complete "innovation loop" processes have been executed in 2006, 2007 and 2008 (the official project period of the NoE). 275 Students from 23 universities in 16 European countries proposed in total 74 ideas, of which more than 35% have been floating structures. 25 of these ideas have been shortlisted by the NoE Partners and have then been further evaluated by scientific experts, which have been selected in accordance with the identified validation tasks, in transparent tenders

out of larger a pool.

The process is since then still continuing in a modified form (today under the name "VISIONS Olympics").

The generated ideas as well as the underlying scenarios are visible for any interested party on the website <http://www.maritime-visions.net/>, however, the prerequisite for access to the showroom is registration (disclosure of identity, nature and location of business).



The ideas and scenarios have also been published by CESA and WEGEMT in a book (128 pages), the first edition of 1400 copies has been distributed during relevant industry events in 2009.

At the end of each loop a report of knowledge gaps and research needs, which had been identified while assessing the concepts, have been compiled. At the same time the "distance to market acceptance" as well as

the necessary economic, political, social and technical boundary conditions for eventual market success have been assessed for the short listed ideas. As expected, most of the visionary concepts would need significant changes in raw materials, fuel and waste economics, transport infrastructure and coordination, environmental and transport legislation and, last but not least, also adoptions of relevant rules & regulations, before their business ideas could finally become economically feasible. In particular the ideas for large floating concepts could require major financing efforts.

VISIONS is intentionally, through it's key partners, closely linked with the sector's technology platform-, industry and R+D infrastructure. Results have been presented on a regular base to relevant association bodies such as the Boards of CESA, EMEC, WEGEMT and the Support Group of the WATERBORNE Technology Platform as well as in local meetings and individual company visits. The raised topics and identified knowledge gaps could thus be used as additional input for the definition and update of the Strategic Research Agenda of the European maritime industry.



The VISIONS consortium has acknowledged with satisfaction that some of the proposed ideas and topics have already been reflected in actual industry development projects. In particular for the area of floating infrastructures structures VISIONS has obviously acted as an important stimulus, since 7 of 9 awards of the first 3 loops were granted to this area, including all 3 winners.

The Commission agreed in October 2008 in a budget neutral 6 month extension of the Contract to enable the proper finalization of some deliverables, in order to use the potential of VISIONS also for future activities.

Main Sustainable Effects of the NoE VISIONS:

NoE VISIONS is by its nature not a "prototype" example of a "Network of Excellence" from the FP6 toolbox, since it is neither dealing with specific research disciplines or research infrastructure nor primarily linking individual researchers. It can be considered as a stimulus to facilitate pre-competitive "think tank" type processes incorporating industry and maritime academia on a regular base, to facilitate the generation and assessment of more visionary "beyond the short and med term horizon" concepts in the maritime sector than available in the past.

VISIONS did indeed fulfil these expectations in several aspects:

- ✓ a regular annual idea generation process based on industry relevant input scenarios and using young talents of the European maritime universities has been established (today named VISIONS Olympics),
- ✓ a large number of scenario based visionary concepts has been and will be generated, assessed and presented to the industry, which is a remarkable step forward, especially for floating infrastructure projects,
- ✓ through the established close link to the WATERBORNE Technology Platform and the relevant industry and academia/research associations the established processes are contributing to a comprehensive early identification of long term R+D needs,
- ✓ tools for the effective management and good practice for execution of such processes have been developed and are established,
- ✓ industry awareness for the necessity to accept future challenges early has been created
- ✓ a closer link and more practice based dialogue and cooperation between the European maritime industry and the European maritime universities has been facilitated, the universities will be able to execute more "long term horizon" research and education based on industry relevant input.

VISIONS is successfully ongoing. Sustainable structures and processes have been established and performed. But, also several lessons have been learned during the NoE-period, in particular in the attempt to motivate a broader range of individual enterprises to pick up and further develop generated visionary concepts. Steps to improve the identified shortcomings have been kicked off. However, it could be observed, that more and more VISIONS visionary concepts have been reflected by actual industry projects. Thus there is obviously a certain indirect fertilisation effect.

The VISIONS success is also documented by the fact, that the implemented processes are sustainable and still ongoing in the "post-NoE" period, with full industry and universities' commitment. The impressive potential of young talents has been activated, focused on professional scenarios, and the results of the creative process have fertilized the update of the maritime strategic research agenda. Thus NoE VISIONS has obviously delivered a contribution to keep European maritime industry and R+D resources on the leading edge of innovation and will continue to do so, for the sake of global competitiveness and to enable quick and sustainable solutions for future transport challenges in Europe.

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Section 1 - Project objectives and major achievements during the actual reporting period

Project objectives during the reporting period

The reporting period covers the final stage of the project. It consists of the time within the original contract duration (April – Sept 2008) and a budget-neutral extension period (October 2008 – March 2009), granted by the DG RTD in October 2008.

In a nutshell the main objectives for the final stage of the project were the following

- Completion of the Innovation Loop III process
- Enhancing certain project activities in order to achieve its full potential
- Creating summary reports on knowledge gaps and research needs
- Laying the tracks for the sustainable continuation of the innovation processes
- Self-Assessment and Closing of the NoE project

The first *overall* objective of the reporting period was the evaluation of concept ideas from in- and outside the consortium. The main instrument to reach this objective was the repeated Innovation Process (Innovation Loop III), which could be successfully completed during the reporting period.

The second *overall* objective was the Enhancement of the project activities to achieve its full potential, in particular in context with promotion and dissemination. Work package G-3 of Loop III has been modified with new tasks for the extension period to reach this objective (see 3.3). These tasks have been completed during the reporting period, most of them in a quite satisfactory manner. Furthermore the regular links with the WATERBORNE Technology Platform as the most relevant maritime technology R+D market place for academic, industrial and public administration stakeholders have been enhanced and a 4th student contest in 2009 has been successfully promoted and later executed by key VISIONS partners. Thus the sustainable anchoring of the VISIONS ideas and processes in the maritime industry and research community could finally be substantially enhanced.

The first *technical* objective for the reporting period was the Selection of technical experts (Loop III) for the evaluation of the short-listed ideas of the loop. The outcome, a list of technical experts (deliverable III-3), was completed within the schedule of Innovation Loop III.

The work for the second *technical* objective for the reporting period, the Evaluation of Technical Feasibility and Identification of Knowledge Gaps (see 2.2), was conducted within the regular project duration. The outcomes (Summary Reports on Technical Feasibility, Knowledge Gaps and Research Needs) were compiled during the extension period of the project.

Section 2 - Workpackage progress of the period

2.1 Loop III - WP 4 Selection of technical experts

To be edited by WP leader according to the requested structure
Responsible: **WEGEMT**

Workpackage duration

Workpackage start	2008-04-01
Workpackage end	2009-03-01

2.1.1 Objectives and starting point of work at beginning of reporting period

The objective of work package 4 according to VISIONS “Description of Work” document is the provision of the necessary scientific and technical excellence to develop outline concepts and define research needs for the Business Areas.

During the third loop the Visions consortium developed a set of 17 tenders based on the generated Ideas and Product Requirements that were developed in WP3 and opened them to the academic community in a tendering round.

The tendering round lasted for a month during which time WEGEMT related academic experts could bid for the available tenders.

A selection panel that incorporated representatives of WEGEMT and the Expert Field Managers was formulated. This selection panel was responsible for selecting who will be the most suitable expert for the job based on a rigid set of criteria that evaluated the bid and the experience and expertise of the bidding expert.

2.1.2 Progress towards objectives

The following actions were taken in order to achieve the objectives of WP4:

- WEGEMT was actively involved in direct and indirect marketing activities in order to generate awareness and raise the interest for the Visions Tenders, from the academic community.
- BALANCE maintained the online functionality where the Visions registered experts could go in online and bid for the tenders. A total of 37 bids were submitted for the 17 different tenders covering all of them (i.e. there was one or more bid for each of the advertised tender)
- WEGEMT was the focal point coordinating all the activities between the Experts the EFM and the WEGEMT selection panel
- After the closing of the bidding round the selection of the experts was coordinated where all the WEGEMT and the EFM made their final selections.
- The results were announced to the experts and the contracts to begin their evaluations were released to them. The expert evaluations would later on provide the necessary input for the WP5 reports.
- The final deliverable for WP4 D. III-3 "List of selected experts and budget per field of expertise" was completed and delivered to the EU. This was a 7 page document

containing a detailed description of the selection process that was followed and a list of all the selected experts as well as the budget per field of expertise.

- The performance of WP4 as well as the response we had from the academic community was satisfying. In general:
 - We released 17 tenders for which we received 37 bids covering 100% of the tenders.
 - We were able to identify a suitable expert for all the evaluation tasks.

2.1.3 Deviations from the project work programme, and corrective action taken / suggested

No deviations from the work programme occurred for work package 4.

2.1.4 List of deliverables

Del. no.	Deliverable Name	Workpackage no.	Date due	Actual/Forecast delivery date
D.III-3	List of selected experts and budget per field of expertise	III-4		2008-07-30

2.1.5 List of milestones

Milestone no.	Milestone Name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
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2.2 Loop III - WP 5 Technical Feasibility and Knowledge Gaps

Edited by WP leader according to the requested structure

Responsible: **WEGEMT**

Workpackage duration

Workpackage start	2008-07-01
Workpackage end	2009-01-15

2.2.1 Objectives and starting point of work at beginning of reporting period

The following objectives have been agreed according to VISIONS "Description of Work" document:

- I. To develop outline concepts for each Business Area.
- II. To analyse technical requirements, to define possible technical solutions respectively knowledge gaps and research needs
- III. To evaluate the technical feasibility of the outline concepts

The starting point of work will be the selected ideas of the academic contest and the defined validation tasks for the external experts.

2.2.2 Progress towards objectives

Most of the experts were assigned with their contracts by mid July 2008 and started working on the evaluations with a view to delivering most of their work by end of August 2008. As the time was very limited many of the experts submitted an interim report by the end of August and their final reports at a later date.

Once all the expert evaluations were in place WEGEMT together with the EFM compiled a report for DIII-4 "Summary Reports on Technical Feasibility per Business Area". This was a report containing all the expert evaluations as well as a SWOT analysis per idea per EF that the EFM prepared.

WEGEMT and the EFM also produced a report for DIII-5 outlining the Knowledge Gaps and Research Needs per Field of Expertise.

The overall progress of WP5 was satisfactory and the experience of the first two Loops has greatly contributed towards implementing numerous improvements for Loop III.

2.2.3 Deviations from the project workprogramme, and corrective taken/suggested

No deviations from the work programme occurred for work package 5. A deviation from the schedule was agreed to start the work package on 01 July 2008 and to end the work package on 1 December 2008. This was slightly delayed due to experts submitting their evaluations by mid December and January which resulted in both deliverables for WP5 being delivered in January 2009.

2.2.4 List of deliverables

Del. no.	Deliverable Name	Workpackage no.	Date due	Actual/Forecast delivery date
D.III-4	Outline specifications, Project reports	III-5		2009-01-15
D.III-5	Knowledge Gaps and Research Needs per Field of Expertise	III-5		2009-01-15

2.2.5 List of milestones

Milestone no.	Milestone Name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
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2.3 Loop III - WP 6 Presentation of Concept Outlines

Edited by WP leader according to the requested structure

Responsible: **CESA**

Workpackage duration

Workpackage start	2008-09-01
Workpackage end	2008-09-30

2.3.1 Objectives and starting point of work at beginning of reporting period

The following objectives have been agreed according to VISIONS "Description of Work" document:

- I. Evaluate the market acceptability of the concepts for each Business Area. Define the boundary conditions under which the concepts can be turned into market success.
- II. Define focus for next innovation loop

2.3.2 Progress towards objectives

Based on the input from WP III-5 (Technical Feasibility) a PEST analysis was performed jointly to identify political, economical, social and technical boundary conditions leading to market success.

The concept outlines developed in the first Innovation Loop were benchmarked against the criteria established in WP III-1 and WP III-3. Results were communicated to the maritime community as well as policy makers and authorities, using the channels provided by the Industrial Associations (CESA, EMEC, ECSA) and the WATERBORNE Technology Platform / ACMARE.

A high-level jury selected 3 winning ideas, which were presented and awarded by EU-VP Günter Verheugen during the "CESA & EMEC New Year Reception 2009" in Brussels. The voting of the high-level jury was an independent experts decision and a voluntary task.

Input for the next innovation loop after NoE VISIONS and the follow-up project "VISIONS Olympics" was defined (deliverable III-7).

2.3.3 Deviations from the project workprogramme, and corrective taken/suggested

No deviations from the work programme occurred for work package II-6.

2.3.4 List of deliverables

Del. no.	Deliverable Name	Workpackage no.	Date due	Actual/Forecast delivery date
D.III-6	Distance to market for each Project report	III-6	2008-09-30	2009-03-30
D III-7	Main points for next innovation loop	III-7	2008-09-30	2008-09-30

2.3.5 List of milestones

Milestone no.	Milestone Name	Work package no.	Date due	Actual/Forecast delivery date	Lead contractor
M III-3	Successful Presentation of Outline Scenarios	III-6	2008-09-30	2009-02-17	CESA

Section 3 - Consortium management

3.1 Financial and Administrative Management

Objectives of these tasks are to ensure an efficient control and overview on project resources and the fulfilling of the reporting and financial administration requirements towards the EC.

The project resources were monitored using the project management tool (BAL.PM Europe). Each partner was requested to inform about the resources used and the results achieved.

Moreover, this task took care to prepare the yearly reports and cost statements towards the European Commission.

As the consortium decided to apply for an extension period, the necessary documents were prepared and submitted, they have been finally approved by DG RTD in October 2008.

3.2 Technical Integration and Management

Objective of this task is to ensure a monitoring of the technical results and achieved degree of integration against the objectives defined in the proposal. Moreover, the preparing of reports for project steering and the proposing of corrective measures are objectives.

Technical progress and quality was checked permanently against the objectives defined in the proposal and the benchmarking criteria defined in the course of the project. The project management tool (BAL.PM) supported this task. The project secretary prepared regular overviews for the coordinator and the project steering committee.

3.3 Dissemination and Co-operation

The following objectives have been agreed according to VISIONS "Description of Work" document:

- I. To ensure proper information and interaction with the maritime community
- II. To ensure practical relevance of the work of the network
- III. To monitor developments outside the European Union
- IV. To foster exchange of information and co-operation with related projects
- V. To promote exploitation of the project results

In particular the objectives I, II and V have been facilitated intrinsically through key partners (umbrella associations) like CESA, WEGEMT and EUROGIF and also reached by the regular interaction and reporting of VISIONS progress to the relevant associations (e.g. during CESA Board meetings or the CESA Technical Directors Summit) as well as to the WATERBORNE Technology Platform (e.g. Support Group Meetings). The prestigious award presentations during

- the Opening Session of the Maritime Industry Forum (MIF) General Assembly on 5.October 2006 in Oslo in front of more than 300 top level delegates, by EU-Commission VP, in charge of Enterprise & Industry, Günter Verheugen,
- the 1st European Maritime Research Policy Conference on 17.October 2007 in Brussels by EU Commissioner Science and Research Janez Potocnik in the presence of more than 300 delegates and researchers,

- the CESA & EMEC traditional New Year Reception on the 17. February 2009 in Brussels by EU-Commission VP, in charge of Enterprise & Industry, Günter Verheugen. in presence of more than 150 industrial leaders,

which were kindly supported by the leading industry sponsors for the awards Aker Yards in 2006, Rolls Royce Marine in 2007 and Bureau Veritas in 2008, have fostered these objectives and generated considerable awareness in the maritime community.

However, acknowledging that the dissemination of the project's results as well the project's exposure and visibility to the public and the marine industry would be essential for the sustainable effects of the NoE after termination of public funding, the consortium requested a 6 months extension of the project to enhance these aspects and to achieve VISIONS full potential.

A project enhancement plan was established to improve dissemination and achieve better sustainability (see detailed description below).

The plan included direct marketing activities, e.g. the editing of special presentations and materials ("road show") and meetings with identified multipliers of the industry, but also a final showcase event.

After fruitless efforts to find a suitable maritime event to combine with VISIONS presentations within the project period, the idea of the final showcase event was agreed to be abandoned in favour of executing direct marketing activities with multipliers, enhancing the regular ties to WATERBORNE TP and the associations and supporting a sustainable continuation of the innovation loop process.

The VISIONS consortium has initiated a series of enhancement activities in order to achieve the goals of the Project Enhancement Plan and defined the following new tasks:

- T III G-3.1: Book of Visions
- T III G-3.2: VISIONS Press Article
- T III G-3.3: Marketing Material / Brochure, (Poster, Video)
- T III G-3.4: Identify companies and ideas and promote to companies
- T III G-3.5: Analyze what is happening outside EU
- T III G-3.6: Setup and promote new services for sustainability

The following chapters as well as annexes 1 to 7 describe the results of these tasks.

3.3.1 T III G-3.1: Book of Visions

Following the structure proposed by project partner CONOSHIP a book concept with the following sections was developed:

1. Introduction
2. Scenarios for future market and need of society
 - Short description of the scenario generation process ("Think Tank")
 - Overview of all scenarios in the 3 loops
3. Europe's maritime business areas
 - Overview
 - Scenarios and needs
 - Academic contest (inputs and results)
4. Submitted ideas for the academic contest
 - Short descriptions of all 74 generated ideas
 - Evaluation tasks of the 25 short listed ideas
5. Summary + Conclusions

- o including contest participation statistics

6. credits

WEGEMT acted as the content editor and CESA performed the layout, processing, printing and distribution of the VISIONS book, which has 128 colour pages. The first edition was 1400 copies, which all have been delivered free of charge during maritime industry events.

The table of contents and some samples of book pages are included in Annex 1.

3.3.2 T III G-3.2: VISIONS Press Article

During the extension period WEGEMT developed a prototype article and forwarded it to the Royal Institute of Naval Architects (RINA) together with further material and information related to the results of Visions. RINA agreed to publish an article in relation to VISIONS in the May 2009 issue of the Naval Architect.

Dr. Nikolakis from URO has also prepared an article to be published in the German Press and Mr. Carlo Cau from CETENA prepared a VISIONS article for the Italian press. (the mentioned articles are in Annex 2)

3.3.3 T III G-3.3: Marketing Material-Brochure, (Poster, Video)

During the extension period WEGEMT developed an A2 poster for the VISIONS results (Annex 5). This poster has already been used in several dissemination events and its contents were also included in the published article. The earlier developed videos can be accessed via the VISIONS website www.maritime-visions.net.

3.3.4 T III G-3.4: Identify companies and ideas and promote to companies

During the extension period several dissemination visits were organised, for which WEGEMT prepared several customised presentations about VISIONS and the generated results and visited some key players and expected multipliers in the industry as well as held public lectures related to spreading excellence in Marine Technology. Annex 6 shows the presentation upon which most of the 1.5 to 2 hour dissemination visits were based upon.

In chronological order the following visits have been done within the project duration:

- **Extension Dissemination Visit #01**

Date:	20 th of November 2008
Place:	Newcastle University, Newcastle Upon Tyne, UK
Venue:	The North East Coast Branch of the Institute of Marine Engineering, Science and Technology (IMarEST) and the Royal Institution of Naval Architects programme 2008/2009
Type:	Public Lecture
Related Docs:	Lecture Programme 2008/2009
Description:	Gave a public lecture on VISIONS focusing on the generated results. There were about 30 attendees that participated in this lecture.

- **Extension Dissemination Visit #02**

Date:	17 th of December 2008
Place:	Lloyds Register, London, UK
Venue:	The Royal Institution of Naval Architects, London Branch, YMG Continuous Professional Development lecture.

Type:	Public Lecture
Related Docs:	Lecture Certificate Attendance List
Description:	Gave a public lecture on VISIONS focusing on the generated results. There were about 40 attendees that participated in this lecture.

- **Extension Dissemination Visit #03**

Date:	22 nd of December 2008
Place:	Hellenic Lloyds Register, Athens, Greece
Venue:	Hellenic Lloyds targeted visit.
Type:	Project Results Presentation
Related Docs:	MoM and Attendance List
Description:	Gave a lecture on Visions and all the generated results. Prepared a presentation focusing mainly on the generated products and the technical investigations that would also be of the most interest for Hellenic Lloyds Register. Several questions were discussed and the participants of HLR become aware of all the ideas plus evaluations we have developed and how to access them. About 25 delegates participated in the lecture.

- **Extension Dissemination Visit #04**

Date:	15 th of January 2009
Place:	Meyer Werft, Papenburg, Germany
Venue:	Meyer Werft Shipyards targeted visit.
Type:	Project Results Presentation
Related Docs:	MoM and Attendance List
Description:	Gave a lecture on Visions and all the generated results. Prepared a presentation focusing mainly on the generated products from BA1 Cruise and liesure, that would also be of the most interest for Meyer Werft. Several questions were discussed and the sales team of Meyer Werft has become aware of all the ideas plus evaluations we have developed and how to access them.

- **Extension Dissemination Visit #05**

Date:	16 th of January 2009
Place:	Beluga Shipping, Bremen, Germany
Venue:	Beluga Shipping targeted visit.
Type:	Project Results Presentation
Related Docs:	MoM and Attendance List
Description:	Gave a lecture on Visions and all the generated results. Prepared a presentation focusing mainly on the generated products from BA1 Cruise and liesure. Several ideas were discussed and presented upon request. The R&D team of Beluga Shipping was made aware of all the ideas plus evaluations we have developed and how to access them. Beluga shipping also expressed the interest to become more actively involved with Visions olympics and contribute to the developments of the next round of ideas.

- **Extension Dissemination Visit #06**

Date:	20 th of January 2009
Place:	Hellenic Register, Athens, Greece
Venue:	Hellenic Register targeted visit.

Type:	Project Results Presentation
Related Docs:	MoM and Attendance List HR Thank you letter
Description:	Gave a lecture on Visions and all the generated results. Prepared a presentation focusing mainly on the generated products and the technical investigations that would also be of the most interest for Hellenic Register of Shipping. Several questions were discussed and the participants of HR become aware of all the ideas plus evaluations we have developed and how to access them.

These activities can of course only be considered as a start. The consortium partners will continue the promotion work, also in context with the continued contest and innovation loop process (VISIONS Olympics) , using the prepared materials.

3.3.5 T III G-3.5: Analyze what is happening outside EU

It goes without saying that in a global market developments have to be considered on a global base. Thus a survey of eventual visionary concept ideas for vessels and floating structures published in other parts of the world was performed during the VISION project extension period.

The aim of the task was to explore visionary activities in the five market-oriented Business Areas in important maritime regions outside the European Union. The goal was to produce a survey report of the findings.

The following methodology was used:

1. Specify the maritime regions of importance for potential visionary activities.
2. Identify organisations of importance within these maritime regions.
3. Collect information about visionary activities and concepts from open sources such as journals and internet.
4. Visit a limited number of organisations of importance within each maritime region for informal discussions.
5. Summarize the findings in a survey report.

To an as large extend as possible, persons in the consortium with cultural and language background in the different specified maritime regions were used for the explorations.

The following countries/areas outside EU have been analyzed: Croatia, Turkey, Russia, India, Thailand, Vietnam, Malaysia, Singapore, Indonesia, Philippines, P.R. China, Taiwan, Japan, Australia, New Zealand, South Africa, USA, Canada, Brazil, South and Central America (except Brazil). The responsibility was distributed as follows among the partners:

Partner SSPA: Russia, Korea, P. R. of China, USA, Canada, Brazil (excl. Inland Shipping)

Partner DST: Brazil (Inland Shipping), Columbia (Inland Shipping), USA (Inland Shipping)

Partner CTO: Japan, South and Central America (excl. Brazil and Columbia), Australia, New Zealand

Partner EUROGIF: Floating Infrastructures and Deep Sea Shipping, related to the Oil & Gas offshore industry (globally)

Partner CMT: Production and materials issues (globally)

The survey report is attached as Annex 7.

3.3.6 T III G-3.6: Setup and promote new services for sustainability

During the extension period a lot of effort and though has been put towards designing the basis of a sustainable platform in order to perpetuate the work that has been achieved during VISIONS. The new services would also involve job advertisement, student recruitment and e-tendering opportunities for Universities and the industry as well as job hunting and other research tools for students. The platform has the long term objective to integrate the annual Visions competition into an environment covering all general student activities and options. The majority of the work allocated in the extension period for WEGEMT for this task has been completed, however the continuous development and improvement of this platform is an ongoing process to which WEGEMT will continue to contribute.

BALance had the task to care about the maintenance of Visions public website, including documentation of further loops. The development of new web-based services as starting point for sustainability of the student contest was one of the main tasks for the extension period. New functions will be in particular:

- student registration and home screen,
- eTendering of experts / students for studies or research tasks and
- a download shop for all VISIONS concepts and evaluations as well as other scientific publications from WEGEMT archives

The current status of development for the new platform can be found at

http://wegemt.visions-noe.org/bal_core.php/security/wegemtLoginForm

and in Annex 3, in which the functions are described.

3.4 Comments regarding contributions, changes in responsibilities and changes to consortium itself

The network management and the contractors **WEGEMT** and **BALance** decided that parts of the tasks of the extension period regarding task G-3.6 "Setup and promote the new services for sustainability" were reallocated from contractor WEGEMT to contractor BALance (7 man-months). The additional work to achieve sustainability for the VISIONS NoE planned by the VISIONS consortium for the last year of the project was presented to the Project officer and agreed upon by all parties. The required budget reallocation was based on the remainders from WEGEMT's subcontracting budget which was partly converted into budget for additional personnel for WEGEMT to promote the VISIONS results and to BALance to perform the implementation of the additional services (task G-3.6).

3.5 Comments and information on co-ordination activities in the period

The communication between the core partners was mainly organised in using the project management tool (BAL.PM). This tool provides amongst others functions to up- and download documents with an automatic e-mail notification to the recipients. Moreover e-mail lists were used to keep all partners at the same information level.

Project meetings and steering committee meetings were held regularly during the reported period, in detail in April 2008 (moved from March 2008) and September 2008. A meeting with the project officer was held in June 2008 to discuss the working plan for the extension period and also to address the preparation of the project conclusion.

Moreover individual meetings for the work packages and extension tasks were held with the partners concerned.

Section 4 – Final Project Review and Self Assessment

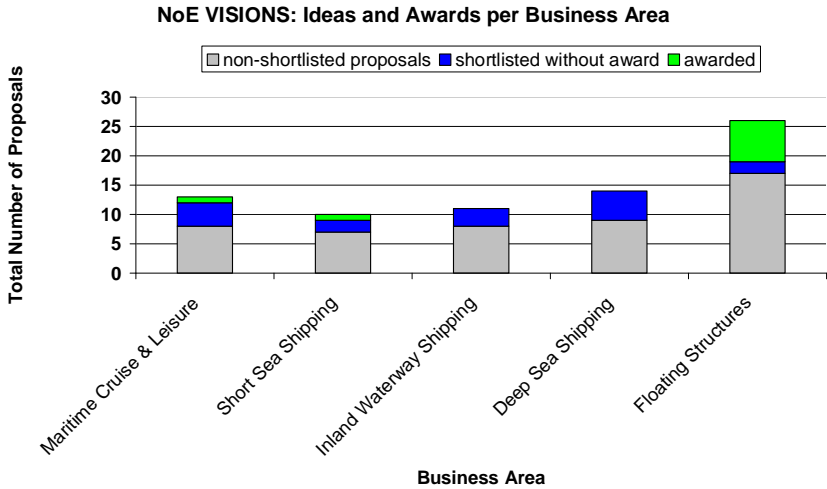
4.1 Summary of Project Results and the identified R&D Needs in Relation to the Strategic Research Agenda of the Sector

45 market and society based scenarios have been developed by a team of professional experts under the lead of EVIMAR and used as input for the annual Call for Ideas. In the course of a number of brainstorming sessions the VISIONS partners developed 3 scenarios ("Bonanza", "Troubled Waters", "Missed Opportunities") for each of the 5 business areas in every loop. For every business area a special scenario focus was set in each loop, as the following table shows.

Loop/ BA	Maritime Cruise+Leisure	Short Sea Shipping	Inland Waterway Shipping	Deep Sea Shipping	Floating Structures
1	Visibility, Attractiveness to consumers and to capital markets	General and non-containerized cargo	Inland waterway barge transport	General and unitized cargo	European Energy market
2	Niche markets in cruising	RoRo / RoPax in the Mediteranian	Intermodality, transferring cargo from road to inland waterways	Chemical Tankers	Lack of space, Platforms for renewable energy
3	Diversifying the maritime leisure offerings	Chemical Tankers	Transport of new environmentally friendly energy sources	Multipurpose vessels	Multipurpose floating offshore structures

Thus a wide range of market + society challenges has been considered and the related scenarios are available for further considerations.

In total 74 ideas have been created, involving 275 Students from 23 universities in 16 European countries, who responded to the defined scenarios during the 3 "innovation loops".



More than 1/3 of all proposals were addressing the upcoming BA Floating Structures, which is not yet a major business for the European shipbuilding industry and thus indeed "visionary".

The best 25 ideas (5 from Maritime Cruise & Leisure, 3 from Short Sea Shipping, 3 from Inland Waterway Shipping, 5 from Deep Sea Shipping, 9 Floating Structures) have been shortlisted by the NoE Partners, who also defined specific scientific questions to be validated and further evaluated by scientific experts from the European maritime universities. These experts have been annually selected according to their expertise for the actual tasks by tender (in total 58 experts selected).

Based on the idea proposal files and the related validation reports an independent jury of voluntary high level industry managers (representing many top European maritime players) selected the 3 annual awards, whereas in total 7 (including all 3 first prizes!) have been given to ideas for floating structures, while one award each went to Cruise & Leisure and Short Sea. This result, produced by the independent jury of high level industry managers, in majority non-partners of VISIONS, underlines the obvious attractiveness to address a new upcoming field of business, which was not common before the start of NoE VISIONS.

After every loop the partners summarized the knowledge gaps and research requirements generated which were identified while reviewing the concept ideas. The identified research needs correspond with the 12 Exploitation Outcomes (EO) and the WSRA Research Topics, defined in the WATERBORNE Strategic Research Agenda Implementation Plan, as shown in the table below.

Exploitation Outcomes		WSRA Topics												Deadline				
		2.1.1 Implementing Goal/Risk Based Frameworks for Cost Efficient Safety	2.1.2 Towards the Zero Accident Target	2.1.3 The Crashworthy Vessel, Offshore traffic safety and Cargo Containment	2.1.4 Low Emissions Vessels and Waterborne Activities	2.1.5 Enhanced Waterborne Security	2.2.1 Innovative Vessels and Floating Structures	2.2.2 Innovative Marine Equipment and Systems	2.2.3 Tools for Accelerated Innovation	2.2.4 Next Generation Production Processes	2.2.5 Effective Waterborne Operations	2.2.6 Technologies for New & Extended Marine Operations	2.3.1 Accelerated Development of New Port & Infrastructure Facilities		2.3.2 Interoperability between Modes	2.3.3 More Effective Ports & Infrastructure	2.3.4 Intelligent Transportation Technologies and Integrated ICT Solutions	2.3.5 Understanding the Environmental Impact of Infrastructure Building and
1.	The Low Risk Ship																	
2.	The Low Energy, Low Emissions Ship		2		6		2	7								9		
3.	The Autonomous Ship																	
4.	The Sustainable Recreational Craft						6											
5.	The Future Ship Designs for Short Sea Operations						2											
6.	The European Cruise Ship		3	3	2		12											
7.	Seven Day Ship Design																	
8.	Leading Shipbuilding									15								
9.	Offshore Energy Operations in Extreme Conditions				3		2	2				11						1
10.	Intelligent Integrated Transport Network		1				9					4	2	3			2	
11.	Intermodal Waterways				2		5						2	1				
12.	Accelerated Sustainable Port Development													1				
	Others		1				5	5										
		0	7	3	13	0	43	14	0	15	0	11	4	4	14	0	3	11

The majority of identified knowledge gaps in relation with the proposed concept ideas could be noted in cruise ship / structures design, production processes for "unusual" structures, technologies for offshore operations under extreme conditions, logistics and port infrastructure as well as integrated transport network questions.

The most addressed Exploitation Outcomes were The Low Energy – Low emission Ship, Intelligent Integrated Transportation Network, The European Cruise Ship and Offshore

Energy Operations in Extreme Conditions (e.g. 10 of 26 Floating Structures Ideas and all award winners).

At the same time, after every loop, the "distance to market acceptance" as well as the necessary economic, political, social and technical boundary conditions for eventual market success have been assessed and briefly outlined for the short listed ideas.

As expected, most of the visionary concepts would need increased market & society pressure as well as significant changes in

- fuel, raw materials and waste economics,
- transport infrastructure and coordination,
- environmental and transport legislation
- and, last but not least, also adoptions in the relevant rules & regulations

before their business ideas could become finally economically feasible.

In particular the ideas for floating concepts, which are in fact complex structures up to a "Floating City", could require major financing efforts. For some of them completely new business models would have to be developed and benchmarked against possible onshore or offshore concept alternatives in the future

4.2 Evaluation of Work in Relation to VISIONS Objectives and targeted Impact

4.2.1 Objectives

The particular VISIONS objectives are described in the VISIONS Description of Work (DoW) pages 3-4

The main overall objectives of NoE VISIONS had been defined as follows:

1. to strengthen the European scientific and technological capability to develop innovative concepts for the products of the future, by developing a mechanism which involves all share holders and combines scientific excellence with market needs
2. to contribute to the exploration of new market segments with a competitive advantage for European shipbuilders
3. to contribute to the solution of medium and long term transport related problems, like the congestion of roads and cities, environmental and safety hazards

Broken down to practical results the following detailed objectives had been specified:

- a. to establish a critical mass and a permanent cyclic process for joint definition and validation of innovative concept outlines for future products.
- b. to define and validate innovative concept outlines for products of the future based on market and society needs as well as scientific and technological excellence and thus to act as the sector's "periscope" beyond the today's and tomorrow's regular business and development horizon

Further objectives of NoE VISIONS have been

- to activate the potential of young talents in pre-occupation stage for generating more visionary concepts,
- to encourage scenario based thinking about future possibilities ("think tank"),
- to facilitate a closer link between industry and academia and more industry-relevant challenges for research institutes and universities,

- to foster an early identification of knowledge gaps and kick-off of respective R+D initiatives necessary for future challenges and step changes.

4.2.2 Performance

In the light of these objectives NoE VISIONS has performed fairly well and reached most of the goals, as described in the following:

A repeatable annual idea generation process based on industry relevant input scenarios has been developed ("innovation loop") and implemented, stimulating the creation of visionary maritime concept ideas and their evaluation.

This process links participants from academia and industry and also activates the creativity of young talents.

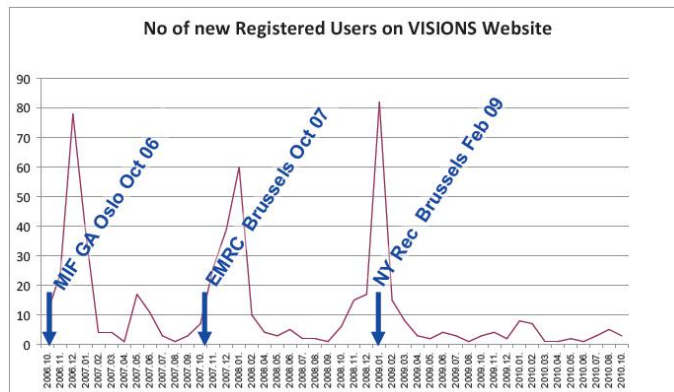
The process has been successfully executed three times within the project period, under a rather strict and effective management, supported by specifically adopted IT tools. The cyclic nature of the process enabled a continuous improvement. The annual process has been, in modified form, continuously executed also after the project period (today called VISIONS Olympics).

During the official project period of the NoE, in the years 2006-2008:

- 45 market and society based scenarios have been developed by a team of professional experts under the lead of EVIMAR and used as input for the annual Call for Ideas.
- In total 74 ideas have been created, involving 275 Students from 23 universities in 16 European countries, during the 3 "innovation loops", responding to these scenarios.
- The best 25 ideas have been shortlisted by the NoE Partners and further evaluated by scientific experts from the European maritime universities.
- During the 3 "innovation loops" of the project duration 58 scientific experts have been selected by tender out of a registered pool to evaluate specific questions regarding feasibility of the shortlisted ideas, which have been raised by the VISIONS consortium partners, they have been respectively contracted by VISIONS through a fair and transparent tender process.
- In total 12 high level managers, representing major industry players (and in majority non-members of the VISIONS consortium) like IHC Holland, Aker Yards, Rolls Royce Marine, Carnival Cruises, Fincantieri, Wilhelm Wilhelmsen, Hatlapa, IMTECH, Wadan Yards, Meyer Werft, Damen Shipyards, RINA and Bureau Veritas, have reviewed the shortlisted ideas and the related expertise reports in voluntary work and have then selected the 3 best concepts every year (2006-8).
- 3 x 3 "CESA Smart Awards" have been sponsored by the major industry players Aker Yards (2006), Rolls Royce Marine (2007) and Bureau Veritas (2008) and have been presented to the winners during
 - the Opening Session of the Maritime Industry Forum (MIF) General Assembly on 5.October 2006 in Oslo in front of more than 300 top level delegates, by EU-Commission VP, in charge of Enterprise & Industry, Günter Verheugen,
 - the 1st European Maritime Research Policy Conference on 17.October 2007 in Brussels by EU Commissioner Science and Research Janez Potocnik in the presence of more than 300 delegates and researchers,
 - the CESA & EMEC traditional New Year Reception on the 17. February 2009 in Brussels by EU-Commission VP, in charge of Enterprise & Industry, Günter Verheugen. in presence of more than 150 industrial leaders.

All generated ideas as well as the underlying scenarios and evaluation reports are accessible for any interested company or research institute on the website <http://www.maritime-visions.net/>, however, the prerequisite for access to the detailed ideas is registration.

The prestigious award ceremonies, including a general promotion video for the VISIONS process, have successfully contributed to create awareness of the VISIONS innovation process as well as for the most interesting proposals among the maritime community, as the following graph demonstrates.



Influence of award presentations on VISIONS web registration

Initially the plan had been discussed with DG MARE, to present the awards of the 2009 contest during the European Maritime Day in Gijon (May 2010), which finally could not be realized. The thus missing awareness push can be clearly understood from the graph above. Realizing this, WEGEMT, CESA and EMEC have already made sure, that the award presentations for the 2009 and 2010 contests will happen in the proven prestigious environment, even if slightly delayed for 2009 (events see 5.1).

In total approx. 800 users are registered with permitted showroom access on the VISIONS website in November 2010, ~ 50 of them are companies, 9 are associations, 15 are research institutes, 8 are from public sector/government and nearly 660 users are based in more than 60 European maritime universities, both students and experts. There are still 5-20 new registrations every month, even in periods of low promotion level.

At the end of each "innovation loop" a report on knowledge gaps and R&D needs, identified while assessing the proposed visionary concepts, had been compiled, which was then available for the R&D agenda work of the WATERBORNE Technology Platform.

Through the established close link to the WATERBORNE Technology Platform and the relevant industry and academia/research associations the established processes are contributing to a comprehensive early identification of long term R+D needs.

Tools for the effective management and good practice for execution of such processes have been developed and are established.

Industry awareness for the necessity to address, on a regular base and scenario driven, visionary potential "over the horizon" business ideas has been created.

A closer link and more practice based dialogue and cooperation between the European maritime industry and the European maritime universities has been facilitated, the universities will be able to execute more "long term horizon" research and education based on industry relevant input.

The new IT platform functionalities will contribute to thus easier access and closer link between industry and university experts, for outsourcing development tasks and studies.

4.2.3 Accomplished Objectives

To conclude, NoE VISIONS has, compared to the main overall project objectives stated above, obviously contributed

- ✓ to keep European maritime industry and R+D resources on the leading edge of innovation, by scenario based innovation stimulus (1)
- ✓ to contribute to the exploration of new market segments (in particular floating structures) with a competitive advantage for European shipbuilders (2), but also
- ✓ to facilitate the later quick and sustainable solution of future transport challenges (in particular short sea and inland shipping / intermodal transport) in future Europe (3).

In particular measured against the above detailed project objectives, NoE VISIONS has successfully

- ✓ established a critical mass and a permanent cyclic process for joint definition and validation of innovative concept outlines for future products (a), and,
- ✓ defined (74) and validated (25) innovative concept outlines for products of the future based on market and society needs (45 scenarios) as well as scientific and technological excellence (58 selected experts and the partners) and thus acted as the sector's "periscope" beyond the today's and tomorrow's regular business and development horizon (b).

As described above, also the further VISIONS objectives specified above have been well addressed, in particular

- ✓ by establishing a sustainable (annual) market and society driven, industry relevant challenge for young talents at the European maritime universities,
- ✓ by ensuring industry awareness and attention for the so generated ideas (granting awards by high level industry jury, presentation in prestigious events), and,
- ✓ by moving the upcoming business area floating infrastructures more into the industry's focus (7 of 9 awards granted) and thus stimulating more R&D-Initiatives on this field (e.g. through WATERBORNE TP's advice for new EU programs).

However, it will remain a common challenge of all stakeholders to maintain the focus and support the further development of as much as possible validated ideas in R&D institutions and/or industry. First improvement steps to address this intention have been taken in the post-NoE VISIONS process (e.g. the scholarship type awards).

4.2.4 Impact

The targeted impact of NoE VISIONS is described in the VISIONS Description of Work (DoW) on pages 9-11, as follows

1. Contribution to standards
2. Contribution to solve challenges in European maritime Industry, such as a too fragmented long term approach, sub-optimal cooperation between academia, research and industry, lack of holistic visionary concepts covering new market segments, lack of practical relevance of many futuristic solutions developed by academia or external inventors and a missing systematic approach to develop new product generations and to explore upcoming markets (in particular for floating structures)

Since the NoE VISIONS was focused on the creation of ideas and visionary concepts for future products, it was not expected that new standards would be developed directly by the network. However, it can be assumed that the VISIONS results are indirectly contributing to

define future needs for standards, regulations and rules, which is an ongoing, continuing process.

NoE VISIONS has significantly contributed to foster a more systematic "over the horizon view" on upcoming markets and new product generations within the European maritime industry and research community, by connecting leading experts of the 5 business areas to evaluate the European needs and creating a batch of 45 scenarios, which can now also be used as starting point for ongoing further considerations. VISIONS has definitely kicked off and enhanced the holistic engagement in new tasks, in particular for floating infrastructures, but also in the business areas of short sea and inland shipping, in the European maritime industry and research community.

The scenarios and ideas developed in NoE VISIONS have influenced the updating process of the WATERBORNE Strategic Research Agenda and proposals for R&D funding programs (e.g. "Oceans of tomorrow / Multi-use Offshore Platforms"), through the mutual engagement of key partners (umbrella associations) like CESA, WEGEMT and EUROGIF and also by the regular interaction and reporting of VISIONS progress to the relevant associations (e.g. during CESA and WEGEMT Board meetings or the CESA Technical Directors Summit) as well as to the WATERBORNE Technology Platform (e.g. Support Group Meetings). This influence is granted also for the future, since e.g. VISION Olympics progress reports are regular agenda item for the WATERBORNE TP Support Group.

4.3 Evaluation of Work in Relation to the general Network of Excellence Objectives of the 6th Framework Program

NoE VISIONS's focus was intentionally not on pure academic research but on stimulating the generation of visionary maritime concepts and product ideas. Thus some of the general Network of Excellence objectives such as building-up a lasting "research infrastructure" among participating institutes or producing "intermediate collective research goods" were not a focus target for NoE VISIONS.

NoE VISIONS must be seen in the context and as a part of the maritime sector's joint activities towards a Strategic Research Agenda as well as its implementation and update, for which the central forum is the WATERBORNE Technology Platform (www.waterborne-tp.org). The members of the NoE VISIONS consortium are either relevant associations of the maritime sector themselves, such as CESA (shipyards), WEGEMT (maritime universities), EUROGIF (Oil+Gas industry) and, in the beginning, ECSA (shipping) who handed the responsibility later to one of their members (Wilhelmsen Consulting), or leading members of other relevant associations as EMEC (marine equipment) and ECMAR (maritime research institutes). Thus NoE VISIONS and its activities, scenarios and processes were an intrinsic part of the sector's strive for innovation, the "over the horizon / long term business periscope". This is also reflected by the high level attention given to VISIONS presentations and reports in association board meetings, WATERBORNE Support Group meetings, CESA Technical Directors' Summit and also during in context with the award presentation ceremonies at the MIF General Assembly (Oslo 2006), the First European Maritime Research Conference (Brussels 2007) and CESA&EMEC New Years Reception (Brussels 2009).

On this background NoE VISIONS has definitely contributed to general NoE objectives such as

- building the sector's common (strategic) research agenda, paving the way for new ideas and for developing new fields and innovative approaches

- ✓ 7 of the 12 "Exploitation Outcomes" of the Waterborne Strategic Research Agenda Implementation Plan have been addressed, but also some new areas have been opened
 - ✓ in particular the upcoming floating infrastructures field has been moved into the focus and new R&D initiatives have been stimulated for it
- Fostering excellence by competition and quality assurance /scientific assessment
 - ✓ Competition and quality assessment were key VISIONS processes, e.g. the academic student contest and the tendering process for the selection of academic experts for ideas validation
- Developing, sharing and validating common working methods
 - ✓ A cyclic process for concept stimulation, generation and assessment was implemented and successfully executed, incl. clear cut "rules of the game" and effective IT based management tools
- Providing a favourable environment for young researchers
 - ✓ The new established academic students contest has contributed to developing the new generation of European researchers through early stage participation in industry relevant innovative idea creating and industry feedback (e.g. awards).
- Organising outreach to the professional community and providing joint information tools, e.g. a common web portal
 - ✓ A service oriented website, which is linked to the sector's other main professional portals, has been established and will be continuously improved with useful features (e.g. down load shop, eTendering tool, students registration and CV management)
 - ? However, promotion still to be improved to optimize the impact
- Ensuring professional and public awareness (for the maritime sector)
 - ✓ The 3 prestigious award ceremonies, including a general promotion video for the VISIONS process and related press articles, have successfully contributed to create awareness of the VISIONS innovation process as well as for the most interesting proposals among the maritime community
- Supporting European and international visibility and competitiveness
 - ? An impact on competitiveness is expected, due to the stimulated earlier and systematic addressing of long term challenges and opportunities, however, the concrete business impact will become visible in the future only.
 - ✓ The VISIONS process (incl. a.m. events) is part of the annual reporting of industry (associations) and universities, it has thus been internationally noted with interest
 - ✓ See also remarks on website visits below

In particular the visibility point is also underlined by the considerable number of visitors on the NoE website www.maritime-visions.net, who are based outside the EU. According to the web statistics the site has been found by approx. 20.000 visitors since 1.Jan 2008 (compare presently 800 registered users with permission to assess the detailed concepts and reports in the showroom). 30% of all visitors definitely came from EU27 plus 7% from Turkey and 5% from Norway, while 12% visits from China and 1% from Japan have been recorded. The largest group of visitors (40%) came via IT-addresses registered in US. However, it is to be assumed that more than half of them could likely be located in different countries, since only their server is based in US companies (e.g. Microsoft, which hosts alone 18% of the visitors).

29% of all visitors had a ".com" origin and it can thus be assumed that they are commercial enterprises. After the expiry of the NoE project period the web site has still continuously between 200 and 400 visitors per month.

Although NoE VISIONS is probably not a "prototype" example for the generic idea of the new FP 6 instrument "Network of Excellence", it can likely be taken as a blueprint for strict and effective management and work distribution, an attractive proposition for the sector, involvement and added value for all partners and dedication and drive of the key members. All partners have been interviewed by an independent auditor and confirmed their full satisfaction with the project.

NoE VISIONS thankfully acknowledges the auditors positive conclusion regarding the project during the "Assessment of the impact of the new instruments introduced in FP 6" performed by EPEC in 2009, in which NoE VISIONS is a case study.

4.4 Conclusions

As already mentioned under 4.3, VISIONS is probably not the most "typical example" for the new FP6 instrument "NoE". NoE VISIONS was, as the tool "NoE" in general, intentionally an experiment:

1. on one hand, to challenge and activate, bright young minds to think out of the box, but focused on professional scenarios, and thus to unlock additional and unconventional sources of visionary concepts,
2. on the other hand, with the intention to stimulate more industrial activities in early development of more visionary concepts, as potential business cases for "the day after tomorrow".

It can fairly be stated, that the first part has been quite successful. We did reach a large community of bright young talents who created an impressive range of unconventional ideas, as the VISIONS book (Annex 1) demonstrates. Furthermore the enthusiasm, with which the "post-NoE" loops 4-6 (today VISIONS Olympics) are received by these young bright people, paired with the continued attention at high level industry events, definitely justify all the trust that the implemented processes mechanism will survive beyond direct support of the EU-Commission, which is one of the prime goals of the general NoE program.

But looking at the second part of the experiment and paging for concrete examples of VISIONS concepts, which would have been directly picked up in continuation of the VISIONS process so far, it has to be concluded, that there are more indirect stimulation effects (see also Annex 4) rather than direct follow up. Stimulating (or even managing) such direct follow up cases has proven to be very difficult to within the NoE VISIONS framework, in particular during the unexpected boom in maritime business in the reported NoE VISIONS contract period, which in fact absorbed "all hands" within industry for getting orders executed.

We have to conclude, that efforts are necessary, to build more bridges over the gap between the generated concept ideas on one side and the direct industry follow up of as many as possible of them on the other side. For this reason e.g. the awards of the ongoing and future VISIONS contest loops now include a 6 months-scholarship to continue works and make necessary R&D investments as well as future business potential more transparent for industry enterprises.

However, it is obvious that even more must be done to optimize the VISIONS impact. The industry associations CESA, EMEC and ECSA as well as the university side (WEGEMT) are ready to continue striving for this goal, motivated by the fact, that the future of the European Maritime Industry is dependent on how it will succeed in using the opportunities of the economic crisis as well as those of climate change with leading edge technology, products

and services. Several improvement ideas, such as e.g the extension of added value to visit and register on the VISIONS website, possible national pre-contests or more individual company brokering, are under discussion.

In this context the importance of the prestigious awards events and the publicity around them can not be overstated, as these demonstrate "process ownership" and commitment and furthermore provide a revolving awareness push for industry and public (as demonstrated by the registration statistics of the VISIONS website).

We thankfully acknowledge in this context, that also the EU-Commission continues to support the VISIONS process (VISIONS Olympics), after the 4th loop has been performed without any public funding.

NoE VISIONS has been and now VISIONS Olympics still is a "self learning" experiment. However, we see it as an as a project, which has established common processes and provided valuable results until now and is furthermore sustainable and flexible enough to incorporate lessons learned.

This makes it worthwhile to be maintained and continuously improved in the future.

Section 5 – Sustainable Structures and Effects: The Way Forward

5.1 Sustainable Structures and Effects

NoE VISIONS has contributed to foster a more systematic "over the horizon view" on upcoming markets and new product generations within the European maritime industry and research community. During the NoE VISIONS project duration some sustainable structures have been implemented, which are now an important basis of the ongoing long term innovation activities of the maritime industry and research sector:

- A regular annual idea generation process based on industry relevant input or scenarios and using young talents of the European maritime universities has been established (today named VISIONS Olympics): following the 3 "innovation loops" during the NoE VISIONS contract duration meanwhile the 6th loop is in progress (today under the project name "VISIONS Olympics"), whereas the 4th loop has been completely financed without support of the EU-Commission.
- A large number of scenario based visionary concepts has been and will be generated, assessed and presented to the industry. The professionally created 45 scenarios are available for future considerations as well. This is a remarkable step forward, especially for upcoming areas such as floating infrastructure projects, but also inland and intermodal short sea shipping. It has been observed and published in a conference paper of G.Smyrnakis and G.Politis, presented at "The First Global Conference in Marine Technology and the Future of Marine Transportation (<http://www.globalmaritimeconference.org/>), Istanbul Nov2010, that some of the ideas generated in 2005 – 2008 are today already closer to business and reflected in some companies' projects (see Annex 4). However, a direct link between the proposers of the ideas and the later products cannot be proven, since such cooperation is outside the VISIONS scope and process.
- Through the established close link to the WATERBORNE Technology Platform and the relevant industry and academia/research associations the established processes are contributing to a comprehensive early identification of long term R+D needs and consequently in the update of the WATERBORNE Strategic Research Agenda. Today the actual progress report of "VISIONS Olympics" is a regular agenda item of every WATERBORNE TP meeting.
- (IT-) tools for the effective management and good practice for execution of such processes have been developed and are established. After the expiry of the NoE

project period the VISIONS web site www.maritime-visions.net has continuously between 200 and 400 visitors per month, where 29% of all visitors have a ".com" origin and can thus assumed to be commercial enterprises. In total approx. 800 users with permission to access the showroom details are registered on the VISIONS website in November 2010, ~ 50 of them are companies, 9 are associations, 15 are research institutes, 8 are from public sector/government and nearly 660 users are based in more than 60 European maritime universities, both students and experts. There are still 5-20 new registrations every month, even in periods of low promotion level.

- Industry awareness for the necessity to take a regular look into the "crystal ball" has been created, very much supported by the 3 prestigious award presentations in 2006, 2007 and 2009, in front of a high level audience and with participation of EU-Commissioners Potočnik und Verheugen. It will be the common challenge of all stakeholders to continue to organize such "lighthouse events", which are regularly featuring the long term innovation process and visionary concepts, to keep the awareness and the commitment of the stakeholders high. The failure to include the 2010 award presentation into the framework of the European Maritime Day in Gijon has clearly demonstrated the negative impact on the awareness. Therefore WEGEMT, CESA and EMEC have organized the presentation of the winners of the 2009 contest at the CESA/EMEC New Year Reception Feb 2011 and of the winners of the 2010 contest during the Second European Maritime Research and Innovation Policy Conference on 15.June 2011 in Brussels.
- A closer link and more practice based dialogue and cooperation between the European maritime industry and the European maritime universities has been facilitated, the universities will be able to execute more "long term horizon" research and education based on industry relevant input.
- The 58 academic experts, who have carried out the evaluation of technical questions around the shortlisted ideas, are listed, together with many more colleagues, in a matrix according to their expertises and are thus made available to interested companies for further similar evaluations, outsourcing of development tasks and studies. The matrix is accessible on the VISIONS website www.maritime-vision.net and is open for new entries, it will be continuously updated. An eTendering tool for such activities has been developed.

5.2 Way forward: Plans for Dissemination and Using the Knowledge

5.2.1 Exploitable knowledge and its Use

NoE VISIONS's focus was rather on stimulating the generation of visionary maritime concepts and product ideas than on developing specific scientific knowledge. The main objective of VISIONS was to prepare the ground for future competitiveness of the European industry in existing but also upcoming market segments. For this purpose,

- an annual process to stimulate the creation of visionary concepts for long term products involving academia and industry has been implemented,
- 45 professional scenarios have been generated 2005 – 2008 and
- the creation of 74 visionary concepts in 5 maritime business areas has been facilitated during the NoE project duration 2005-8.
- For 25 short listed concepts specific questions of technical feasibility as well as distance to market have been assessed by experts from the European maritime universities.

The knowledge generated during NoE VISIONS project duration has been and will be exploited by the maritime community in several ways.

- **Innovation Process and R&D Agenda Building:**

- The "innovation loop" process has been exercised 3 times and consequently improved. It is still used by the maritime stakeholders (today under the name VIONS Olympics, the 6th loop is in progress).
- Since the VISIONS process is through partners, reporting and promotion activities an integral part of the WATERBORNE Technology Platform's strategic R&D Agenda (SRA) efforts, the annual VISIONS results, e.g. concept ideas and findings regarding eventual knowledge gaps and R&D needs are available for definition of SRA elements. Furthermore the business area "Floating Infrastructures" has already contributed to motivate respective WATERBORNE R&D program proposals (e.g. "Oceans of Tomorrow").

- **Results of the innovation loops: scenarios, concepts, evaluations**

- 45 professional scenarios in 5 relevant maritime business areas, such as Cruise + Leisure, Deep Sea Shipping, Short Sea Shipping, Inland Shipping and Floating Infrastructure, are available as benchmark and also starting point for future considerations in the maritime community.
- The 74 Concept outlines, of which 25 have been closer evaluated, are available for the maritime industry (registered users) in a "showroom" on the web site www.maritime-visions.net, to stimulate further development of marketable designs and products
- It would of course be an appreciated result of NoE VISIONS, if concept outlines, which were presented during the high level events (2006, 2007 and 2009) and at various other occasions, e.g. CESA Technical Directors' Summits, as well as in the web site "showroom", would be directly picked up by interested companies and jointly further developed with the creating student teams and research institutes. However, in reality some time will elapse between presentation and a individual companies' decision to invest R&D efforts into a visionary concept. In this time the students in most cases will have finalized their degree and will be already employed in different positions. Thus such direct continuation would likely rather be an exemption than the normality. However, with the intention to stimulate more direct follow up of promising concepts, in Visions Olympics the winning idea will now be granted a scholarship - equal to 6 months post doc work - to allow the winner to develop his idea further, with or without the support of a research institute, towards a full concept design project, including to estimate which investment in time and manpower would be needed to take the idea to a higher level. This "post-VISIONS bridge" will make it easier for industry to assess the potential of a visionary idea and to decide upon the possible route to implementation and will thus be a stimulus for step change innovations.
- Research needs and knowledge gaps have been identified and made available for the WATERBORNE TP agenda building process, to ensure that they are dealt with to meet technical challenges of new products. They may serve as benchmark and input for future considerations.
- Distance to market and implementation obstacles have been assessed for the short listed visionary concepts. They are available in loop reports for future consideration by the maritime community and policy makers.
- A open pool of experienced scientific evaluators at the European maritime universities, listed on the VISIONS website in a matrix according to fields of

expertise such as Market + Society, Technical Feasibility + Design, Production Equipment + Systems, Operation + Security, Infrastructure + Logistics, Safety + Environment, has been made easy accessible for the maritime community and is available for similar future evaluations, outsourcing of development tasks and studies. An eTendering tool, which is supporting finding and contracting the experts and also students (for smaller research / thesis work) has been developed.

5.2.2 Dissemination of knowledge

The following means of dissemination are available and will be used also in the future:

- **IT platform www.maritime-visions.net**

VISIONS has established an internet based communication and dissemination platform, which is linked with the maritime sectors main IT-platforms such as www.waterborne-tp.org and www.eramar.net as well as to other relevant large projects. The VISIONS website displays an overview to the general public and provides access to the "showroom", the reports and more detailed information for registered users only, who must disclose their identity, business and organisation type and location as prerequisite of access permission.

Since 1. Jan 2008 the VISIONS site had approx. 20.000 visitors thereof presently approx. 800 registered users with permission to assess the detailed concepts and reports in the showroom. 30% of all visitors definitely came from EU27 plus 7% from Turkey and 5% from Norway, while 12% visits from China and 1% from Japan have been recorded. The largest group of visitors (40%) came via IT-addresses registered in US. However, it is to be assumed that more than half of them could likely be located in different countries, since only their server is based in US companies (e.g. Microsoft, which hosts alone 18% of the visitors). 29% of all visitors had a ".com" origin and it can thus be assumed that they are commercial enterprises.

Of the 800 registered users with permission to access the showroom and reports approximately 50 are companies, 9 associations, 15 research institutes, 8 are from public sector/government and nearly 660 users are based in more than 60 European maritime universities, both students and experts.

After the expiry of the NoE project period the VISIONS web site has continuously between 200 and 400 visitors per month, where approx 1/3 have a ".com" origin and can thus assumed to be commercial enterprises. There are still 5-20 new registrations every month, even in periods of low promotion level.

The VISIONS website IT platform, hosted by partner BALance, is the main dissemination platform and includes furthermore database functions regarding events, documents as well as support and communication tools for the processes. In the framework of the ongoing VISIONS Olympics project, enhanced tools and functionalities, as described in Annex 3, will be implemented

(the actual status is visible on

http://wegemt.visions-noe.org/bal_core.php/security/wegemtLoginForm)

- **The VISIONS Book**

During the VISIONS extension period WEGEMT and CESA published the VISIONS Book, which is presenting the processes, scenarios and ideas on 128 colour pages. The first edition was 1400 copies, which all have been delivered free of charge during maritime industry events in 2009.

The VISIONS Book will be updated with new results and made available in further editions in the coming years.

- **Integration in the WATERBORNE Technology Platform**

NoE VISIONS is a part of the maritime sector's joint activities towards a Strategic Research Agenda building, implementation and update, for which the central forum is the WATERBORNE Technology Platform (www.waterborne-tp.org). The members of the NoE VISIONS consortium are either relevant associations of the maritime sector themselves, such as CESA (shipyards), WEGEMT (maritime universities), EUROGIF (Oil+Gas industry) and, in the beginning, ECSA (shipping) who handed the responsibility later to one of their members (Wilhelmsen Consulting), or leading members of other relevant associations as EMEC (marine equipment) and ECMAR (maritime research institutes).

Thus NoE VISIONS activities, scenarios and processes have been and continue to be an intrinsic part of the sector's innovation processes, providing the "over the horizon / long term business periscope". The status report of the VISIONS (meanwhile VISIONS Olympics) activities is a regular part of the WATERBORNE Support Group meetings.

- **Communication and Dissemination to Industry**

The Industrial Associations representing the European maritime industry (ECSA, CESA, EMEC and EUROGIF) are either directly partners or are represented in VISIONS by key members and have the task to disseminate the results of VISIONS to their members and to collect input to the work of the NoE. This was done in several ways, using the associations infrastructure, e.g. in working group meetings etc.. High level attention has been achieved for VISIONS presentations and reports in association board meetings, WATERBORNE Support Group meetings, CESA Technical Directors' Summit and also during in context with the award presentation ceremonies at the MIF General Assembly (Oslo 2006), the First European Maritime Research Conference (Brussels 2007) and CESA&EMEC New Years Reception (Brussels 2009). In particular the prestigious award ceremonies, including a general promotion video for the VISIONS process, have successfully contributed to create awareness of the VISIONS innovation process as well as for the most interesting proposals among the maritime community. It has thus been ensured that European industry actors are closely involved in the innovation process.

This attention and involvement is also reflected by the fact, that 12 high level managers, representing major industry players, which were in majority not members of the VISIONS consortium, such as IHC Holland, Aker Yards, Rolls Royce Marine, Carnival Cruises, Fincantieri, Wilhelmsen, Hatlapa, IMTECH, Wadan Yards, Meyer Werft, Damen Shipyards, RINA and Bureau Veritas, took their time to reviewed in voluntary work the shortlisted ideas during the 3 loops within the NoE VISIONS project period and have then selected the 3 winners of the VISIONS student contests 2006-8. This industry commitment ("High Level Jury") has also been demonstrated for the "post NoE" contests 2009 and 2010.

Since the high level presentations have clearly had a repeated "awareness push" function, which can be measured e.g. by the strong increase of user registrations on the VISIONS website during the weeks around those events, it will be the common challenge of all stakeholders to continue to organize such "lighthouse events", featuring the long term innovation process and visionary concepts, to keep the awareness and the commitment of the stakeholders high. The presentation of the winners of the 2009 contest could not be done in during the European Maritime Day 2010 in Gijon, as originally intended, but it is now scheduled, slightly delayed and together with general promotion for the VISIONS process, for the CESA/EMEC New Year Reception Feb 2011,

which will ensure the necessary high level attention. The winners of the 2010 contest will be honoured during the Second European Maritime Research and Innovation Policy Conference on 15 June 2011 in Brussels.

- **Communication to Member States and the European Commission**

The future Communication and Dissemination of results to authorities of Member States and the European Commission is facilitated through their membership in the WATERBORNE Technology Platform, which has a specific advisory group for the member states, and also the Maritime Industry Forum, who regularly receive reports on the innovation process results. Thus policy needs and legislative aspects may be identified and considered.

- **Communication to Academia and the Research Community**

Maritime academia is one of the key stones of VISIONS, which is documented by the prominent role of the umbrella of the European maritime universities WEGEMT in organizing the student contest and the concept evaluations. Moreover, some of the core partners (CMT, CTO, MARINTEK, which are partly also in charge of the co-ordination of maritime research in their countries) are members of ECMAR, the European Maritime Research Co-operation, which provide the links within the research community.

A pool of experienced scientific evaluators at the European maritime universities, listed on the VISIONS website in a matrix according to fields of expertise such as Market + Society, Technical Feasibility + Design, Production Equipment + Systems, Operation + Security, Infrastructure + Logistics, Safety + Environment, has been made easy accessible for the maritime community and is available for similar future evaluation tasks (open pool, subject to updates), supported by a respective new eTendering tool, which was developed within VISIONS.

The VISIONS process has established a closer link between industry and academia. It has successfully contributed to activate the potential of young talents in pre-occupation stage for generating more visionary concepts, to encourage scenario based thinking about future possibilities ("think tank"), to facilitate a closer link between industry and academia and more industry-relevant challenges for research institutes and universities and to foster an early identification of knowledge gaps and kick-off of respective R+D initiatives necessary for future challenges and step changes.

WEGEMT and its members are prominently involved in the sustainable continuation of the VISIONS processes (e.g. VISIONS Olympics).

5.2.3 Publishable results

The publishable results have been described in SECTION 3-5. They are

- The VISIONS Presentations providing an overview on the processes and results
- The VISIONS Book (128 pages) featuring all scenarios and ideas 2006-8
- The VISIONS promotion video (visible on www.maritime-visions.net)

More detailed results, e.g. also the scenarios and the knowledge gap and distance to market reports, are available on the website for registered users only.

The results of the sustainable process after the NoE VISIONS project period (first 3 innovation loops), loops 4 and 5, are available for registered users on www.maritime-visions.net, which also will continue to be the entry gate to future publishable results. A new download shop function supporting the use of the concepts has been developed.