

## Executive summary

**The Concept of VISIONS-OLYMPICS**, a Support project targeting call “SST.2008.6.3 Encouraging step changes / radical technology changes in the Surface Transport Sector” focused on developing innovative maritime products incorporating knowledge, design and manufacturing procedures meeting future market needs and to evaluate their feasibility and analyse the needs for further research and development,

Many stakeholders participated to achieve the ambitious goal. Industry, Universities, Research Institutions and Organisations, collaborated for making the “innovative ideas happen”.

The bridge between universities, industry and organisations has been reinforced and reconfirmed guaranteeing success.

In order to meet the primary objective of the call, “supporting the development of transport specific innovations that could deliver step changes into efficiency and cleanness in the next 20 years and beyond”, a systematic approach has been adopted using existing appropriate communication platforms and strategies within and outside the waterborne sector.

VISIONS-OLYMPICS took from the unspoiled/unbiased creative minds of the young generation that:

- Offered **out of the box concepts and ideas** for the future of European maritime transport,
- Developed these ideas within an environment where **purpose driven innovation** is cultivated and performed in a risk free environment,
- **Built bridges and enhanced coordination** between EU research networks and **strengthened the partnership** between research Universities and industry,
- Enhanced the **skills of future employees** in a highly competitive environment,
- Offered **targeted dissemination** to industry.

In terms of Facts, to VISIONS-OLYMPICS contests Year 2010 and Year 2011 have been participated more than 200 Students and more than 50 new concepts of projects ideas have been submitted. Two Books with the collection of the innovative ideas submitted for the contests have been published and disseminated. The two Awards have been sponsored by two major European Maritime Industries IHC-Merwede and Meyer Werft. A third contest is on going while the fourth is now under preparation already. All together the “Visions-Olympics Contests” sum up to 8<sup>th</sup> Editions (dating back to the VISIONS-NoE project) establishing this Students’ Competition as the most known and best attended in Europe in the Maritime Sector.

# Summary description of project context and objectives

Building on the NoE VISIONS, the VISIONS-OLYMPICS project starts 01.09.2009 with the aim to increase the European competitive advantage by tapping into the unspoiled/unbiased creative minds of the young generation.

It's worth to mention here the main lines and figures of the three loops.

## LOOP I

After an in depth analysis of the European market and technological situation three thematic areas have been identified as:

Research Area 1 (RA1): Transport challenges for offshore energy generation & conversion.

Research Area 2 (RA2): Transport challenges for sustainable food generation from sea

Research Area 3 (RA3): Sustainable waterborne transportation

On these 3 areas student teams have been called to submit their project ideas in two steps: Step 1 – Abstract submission (by January 2010); (2) Full project idea submission (by April 2010).

Results of the first submission round are:

136 students originally registered for the competition.

The students are from 7 European countries plus 1 EU candidate country (Turkey).

10 Universities participated in the competition.

32 ideas were registered. 27 of the abstracts were finally accepted.

22 final projects were finally submitted by the time of the deadline which was the 31st of May 2010.

Among those 22 projects ideas 6 were shortlisted for experts evaluations.

Building on the experts' analysis a High Level Jury formed by 6 industrial and research representatives awarded the three winning ideas.

The Award Ceremony was on the 16<sup>th</sup> of June during the 2<sup>nd</sup> European Maritime Research and Innovation Policy Conference

## LOOP II

The **Year 2011 Contest** has been launched and successfully carried out during the academic Year 2010/2011. After a in depth analysis of the European market and technological situation three thematic areas have been identified by a panel of Maritime Experts as:

Research Area 1 (RA1):

1. **Safety and Security:** 100% secure operations including
  - a. Improve safety utilising e-weather routing and avoiding
    - i. Collision
    - ii. Grounding
    - iii. Fire
    - iv. Capsizing
    - v. Structural damage
  - b. Improving Safety at sea

Research Area 2 (RA2):

2. **Sustainable logistics:** Reduce environmental impact improving logistics efficiency
  - a. 100% Container utilisation using satellite technology aiming to transportation without empty containers.
  - b. Improve environment while sailing
  - c. Reduce environmental impact increasing vessel-utilisation:
    - i. Multipurpose ship
    - ii. Flexibility regarding cargo
    - iii. Ship without ballast
    - iv. Incorporate upgradeability in ship design

Research Area 3 (RA3):

3. **Green Shipping:** Improve energy efficiency by 80% in operations
  - a. 0-Emission Ship utilising:
    - i. Smooth routing, JIT transportation
    - ii. “Learn from the best” e.g. from car industry, adapting procedures and technologies for reducing emissions.
    - iii. Friction less ship
    - iv. Improve environment while operating utilising:
      1. Carbon capture
      2. Plastics capture
      3. Improve “eutrophic Baltic” integrating treatment of ballast water.
  - b. Satellite enabled trim optimisation for better performance

On these 3 areas student teams have been called to submit their project ideas in two steps: Step 1 – Abstract submission (by February 2011); (2) Full project idea submission (by April 2011).

Results of the first submission round are:

- About 70 students originally registered for the competition.
- 5 countries participated.
- 7 Universities participated in the competition.
- 16 ideas were registered.
- 9 final projects were finally submitted by the time of the deadline which was the 30th of April 2011.
- Building on the experts’ analysis a High Level Jury of maritime personalities formed by 6 industrial and research representatives awarded the three winning ideas.
- The Award Ceremony took place during the TRA 2012 Conference, Athens April 2012.

### **Launching LOOP III**

In the meantime the project team started the process for the Academic Contest Year 2011/2012 which at the time of writing on going on the following research areas:

Research Area 1 (RA1):

**Offshore installations for the Marine Industry:** Offshore shipbuilding products and ships for maintaining, supplying and servicing the offshore installation such as:  
Offshore wind, Aqua farming, Underwater mining, Garbage processing, Leisure, Etc.

Research Area 2 (RA2):

**Alternative products for the Marine Industry:** Alternative meaning substitution of conventional fossil fuels. In particular: Alternative energy sources and converters, Alternative energy storage Alternative energy management, Energy efficiency

# Description of the main S&T results/foregrounds

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## MAJOR FOREGROUND and DISSEMINATION MATERIAL FOR LOOP I

**VISIONS-OLYMPICS Book Year 1 – Contest 2009/2010**

**VISIONS-OLYMPICS Video Year 1 – Contest 2009/2010**

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## **MAJOR FOREGROUND and DISSEMINATION MATERIAL FOR LOOP II**

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# **The potential impact and the main dissemination activities and exploitation of results**

VISIONS-OLYMPICS has been the link in the broader maritime community, introducing a degree of competitiveness mobilizing the larger university and broader industrial stakeholders, enabling of stronger links between industry and recent graduates from European universities as universities possess the fundamental skills and transferability/flexibility that research associations and industry lack.

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The added value for the European marine industry, universities and the European society can be identified considering that European universities run on public funds, their impact on society's welfare is imperative and any mechanism enhancing their impact has to be supported. The willingness of the European universities in marine technology and related sciences to see this coordination in place was demonstrated in this SA by the engagement of WEGEMT – an association of 41 universities involved with marine technology who all seek to further improve links between each other and with their natural customers, namely the marine technology and maritime industry, herein represented by their European associations CESA, and EMEC, and to commonly address the needs of the European marine industry for the successful implementation of the Waterborne 2020 Strategy.

VISIONS-OLYMPICS addressed:

- Supporting the development of transport specific innovations that could deliver step changes into efficiency and cleanness in the next 20 years and beyond.
- Stimulating the development of new breakthrough technologies and concepts for transport. New concepts and ideas will be investigated for radically new solutions and paradigm change in transport, in particular to address impact on climate change and energy dependency.

A side effect of VISIONS-OLYMPICS CA has provided skilled future employees to European maritime companies.

Education in naval architecture (all over Europe) is at a highest quality level, nevertheless maritime companies claim that naval architects starting their professional life are not experienced in themes like, self-organization, project management, interdisciplinary, ability to work in a team etc. All the previous aspects have been addressed and successfully exploited by the young professionals during the contests loops of Visions-Olympics.

Student contest participants had indeed the opportunity to demonstrate these skills, improving their curriculum vitae. The performance of a concept idea from ideas definition to the completion of concept description (including technical and economic feasibility, social and technological impact) within a group demonstrated that the participants are now able:

- - to perform market oriented innovation,
- - to work in a self organized group,
- - to manage the time and the deliverables and

- - to manage multidisciplinary.

The project's main added value has been its ability to contribute to both short-term and long-term needs of the European marine industry in RTD and technological innovation through innovative and out of the box thinking.

The VISIONS-OLYMPICS Contests has been beneficial for the broader maritime industry (especially SMEs) to develop new product ideas from scratch.

The outcomes of the VISIONSOLYMPICS CA are likely to have important strategic benefit have also scope for transfer to other academic/industry sectors.

Companies and Universities had the opportunity to collaborate and benefit from this. The participating organizations of this CA CESA, EMEC and WEGEMT have ensured constant dialogue between industry, universities and society in times in which is vital that the resources (particularly human resources) are available to help support the maritime industry.

As a Support Action, a main thrust of this project has been to develop strategies and activities which have improved the dissemination of innovative thinking which has encouraged entrants in engaging into the maritime field also through the active role of the industry via sponsorship of the Visions-Olympics yearly awards

The project offered an innovative approach to multi-disciplinary coordination including key academic institutions, industry and organizations responsible for the promotion of maritime excellence ensuring that the appropriate emphasis on the research-oriented activities of the project received the appropriate uplift. VISIONS-OLYMPICS enabled an important advances in interdisciplinary maritime promotion in this respect.

The information generated by this project have been disseminated in five main ways:

- Through the website to be established for the project. The web site will be the central focus of communication amongst the participants. It will have openly accessible areas as well as password protected areas for „work in progress“.
- Following a series of annual workshops, reports on activities will be edited under strict peer review procedures. The reports would include individual and collective articles.
- Through publications in maritime journals, particularly those of participating and related associations. These will be used to present the „cutting edge“ achievements of the project.
- By targeted direct marketing activities within the industry (mainly the associated members of CESA and EMEC) where the new ideas and their evaluations will be distributed in order for them to be finally adopted by the industry.
- By publishing annual yearly publication s with all the new ideas generated. These publications will be open to the public and also target marketed to the industry.