



Recent Research by MariFuture to Identify Project Proposals in Support of the MariFuture Roadmap 2020

1. Come2Sea PROJECT Proposal

For inclusion in the KA2 – Cooperation and Innovation for Good Practices: Strategic Partnerships for VET.

Background and rationale of the proposal

The Maritime industry is responsible for almost 90% of the world trade employing over 1.2 million seafarers in almost one hundred thousand ships world-wide. A glimpse at a map of Europe shows us that we are a maritime continent in the centre of the world. The continent is surrounded by water almost on three sides. Our dependence is rapidly increasing on water transportation. The EU fleet is rapidly growing and EU ships are forming a major cornerstone of the world system of commerce. The increase in maritime transportation activities has led to a greater need for support services to serve and maintain the sectors involved, necessitating the need for more merchant navy officers of all types and ranks as well as marine and maritime business professionals together with marine scientists and technologists.

A ship at sea does not operate in a vacuum, ships depend on a framework of shore side activities for their operations; ports and terminals where cargo is handled; shipyards for repair; services like marine insurance underwriters, ship chartering firms, law, engineering and research companies; and increasingly today, reliance on marine science and technology as well as integrated logistics systems. Over recent years, the European maritime transport industries have created many jobs, directly and indirectly. Some 70% of shipping-related jobs are knowledge-intensive, high-quality jobs on shore. However, the growing shortage of maritime professionals, officers and ratings entails the risk of losing the critical mass of human resources that sustains the competitiveness of the European maritime industries in general. More challenges arise from the lack of enhancing the seafaring image in the eyes of European public and attracting young people in maritime jobs. Another important issue to be considered is the increasing amount of technological advanced ships used as well as the amount of new-building vessels entering the shipping market. This requires skill enhancement and retention strategy. Furthermore industry needs to produce solutions for seafarer's isolation at sea, provision of e-training, information technology and entertainment on board the ships that today's young generation sees as normal standards. Furthermore, as expressed by many seafarers as another major concern is that they are seen as potential criminals and not allowing them leave the port despite their right as seafarers (IMO, 2009a). Such maltreatment is reported to have increased since September 2001.

Along the lines of the EU maritime transport strategy for 2018 there is a genuine interest to make maritime professions in Europe more attractive to young people, women and minorities and improve the employment of seafarers. There is no doubt that the long term strategy of the EU will be driven by positive measures that will facilitate life-long career prospects in the maritime clusters; will enhance the image of shipping; will support the work of international



organisations on the fair treatment of seafarers; and implement simplification measures that aim at reducing the administrative burden on masters and senior ship officers.

The importance of shipping to Europe's well-being cannot be over emphasised. According to the report on the European Maritime Transport strategy 2009-2018 (2009), shipping is responsible for 90% of the freight exchanges of Europe with the rest of the world and for 40% of the inter-European trade. More than 400 million passengers pass each year from European ports. The latest report from the European Community Shipowners' Association (ECSA) mentions that European shipping increased its registered Gross Tonnage by 6.7% (ECSA 2009). It controls almost 40% of the merchant ship capacity worldwide with the EU share reaching a 21.6%.

Many studies conclude that young people not choosing the sea careers or leaving the career for land based jobs. Solution to the stated problem requires a concerted radical approach by all the corners of the maritime industry. Shipping industry needs to be an Industry of Choice (IOC) for the younger generation and shipping related companies recognised as Employers of Choice (EOC) in order to attract and keep young generation in the worldwide shipping family (Cahoon and Haugstetter, 2008). The same study also clearly stated that young group like instant social networking through online web platforms, job flexibility, fast-tracking of their careers and mentoring approach in their working environment instead of the old "authoritarian school" of thinking that prevails in the shipping industry.

Partners

1. Centre for Factories of the Future (C4FF) – UK
2. Plymouth University (PU) - UK
3. TUDEV - Turkey
4. University of Turku (UoT) - Finland
5. Maritime University of Szczecin (MUS) - Poland
6. IDEC – Greece
7. SeaTeach – Spain

2. SEAPROMO Project Proposal

For inclusion in the KA2 – Cooperation and Innovation for Good Practices: Strategic Partnerships for VET.

Background and rationale of the proposal

The World carries 90% of its goods through sea-transport, which requires a significant supply of labour, both at sea and ashore. A major obstacle for the maritime industry has been finding the right employee/trainee for a position in terms of skill and competence and vice-versa for both employees/trainees and employers.

The maritime industry has a shortage of qualified personnel, especially in Europe. Further employment in the maritime sector can help solve Europe's major unemployment crisis, especially youth unemployment. Throughout Europe, maritime education and training



qualifications of one country have not been recognised by other countries in Europe. One major contributing factor for this shortage of qualified personnel is a lack of internationally recognised maritime qualifications and lack of entrepreneurial activities, which inhibits the mobility of seafarers and shipbuilding personnel in finding work in their countries and/or different countries, starting up the business and reducing these shortages.

The SEAPROMO project addresses the need for cooperation between VET and the world of work in the maritime sector by fostering integration of maritime working life into maritime institution-based VET and enhancing the entrepreneurial skills of the people dealing with the maritime issues. This will be achieved by the promotion of more work related activities in the intended VET programmes, including the innovative models of work placement (work experience, work shadowing, work-based learning and apprenticeships). The project team will identify and map available maritime jobs /placements and business start-up both at sea and ashore in partner countries, in order for employers and employees/trainees to take advantage of the opportunities efficiently and effectively. The main benefits of the project are to improve the attractiveness of the maritime industry, to provide increased mobility across, to foster the career guidance, to enhance the placement opportunities and to develop the entrepreneurial competences of the people at maritime and VET sectors.

Partners

1. T.C. TUZLA KAYMAKAMLIGI (Turkey)
2. TMMOB Gemi Mühendisleri Odası (Turkey)
3. TUDEV (Turkey)
4. Centre for Factories of the Future (UK)
5. Satakunta University of Applied Sciences (Finland)
6. IMSSEA (Italy)

3. Project: PICK-UP (Professional, Industrial, Competence and Knowledge UP-dating)

Background and rationale of the proposal

Across the globe the training and certification of seafarers is highly regulated by the IMO and the STCW convention. The STCW was last amended in 2010 to include updated training requirements, these amendments came into force on the 1st January 2012 and will be mandatory from January 1st 2017. The 2010 amendments include, but are not limited to, the creation of new ranks on board ship, mandating refresher courses for specific skills, and mandating leadership and management training for Senior Officers. The purpose of PICK-UP is to enhance co-operation between EU Maritime Education & Training Institutions (METs) in delivering the 2010 STCW training requirements to the 624,000 officers in the Maritime Community. This will be achieved through development of a shared online course registry, an e-learning platform and materials, and the creation of assessment centres across Europe.



Although the IMO is the global governing body of the Maritime Sector, and its regulations state the standard qualifications, skills and competencies that seafarers must have, there are differences between National curricula, and so one of the outputs of PICK-UP will be an Indexing exercise regarding the courses offered by the partner METs relating to the STCW 2010 amended training requirements. This indexing exercise will include areas such as: learning outcomes, teaching methods (face-to-face, e-learning, distance learning), assessment methods etc. The purpose of this Indexing is to create a course registry to be included on the PICK-UP platform. This will allow seafarers the chance to compare and contrast in detail the options for taking their STCW recertification courses online and give them a real choice about how, when and where to take their training courses. The second purpose of the Indexing is to promote the sharing of good practices between the MET partners for delivery and assessment methods for these courses.

As the years pass it will become even more important to promote international cooperation in MET as it is predicted by BIMCO that by 2015 the labour shortage in Western Europe will reach a total of **63,000** for officers, and **192,000** for ratings. Whilst in Eastern Europe there will be a **surplus** of **105,000** officers and **72,000** ratings. The ECORYS 'Study on the Labour Market and Employment Conditions in Intra-Community Regular Maritime Transport Services Carried out by Ships under Member States' or Third Countries' Flags' showed that across the EU, on average Ships flying the national flag of a country employ 61% of the manpower for that ship from that same nationality. That leaves on average 39% of manning requirements open for qualified and mobile seafarers to gain employment across the EU. Thus seafarers will be willing to use platforms such as PICK-UP to train on STCW courses from more than one country to take advantage of these employment opportunities, and enhance their mobility, thereby allowing EU companies to employ EU seafarers for EU jobs. Thus the PICK-UP project is addressing the current regulatory needs of the industry, whilst laying a framework to train EU seafarers in the future to promote their mobility and address EU labour shortages with labour from within the member states.

As seafarers are an extremely mobile target group and often on sea service for months at a time, innovative approaches are required in order to up-skill the 624,000 officers to the new 2010 STCW requirements. Hence the development of the PICK-UP e-learning platform, to contain not only the online PICK-UP course registry of the 5 MET partners, but also e-learning versions of the METs course materials thus allowing the seafarers and cadets to undertake e-learning whilst they are at sea service, and then to attend the 5 PICK-UP Assessment Centres for their formal certification assessments. Facilitating e-learning on board ship and pairing it with face-to-face assessments will help to decrease the cost and time burdens of the mandatory re-certification processes imposed by the STCW through e-learning currently felt by seafarers and companies alike.

It is important to note that while MET is beginning to recognise the validity and importance of e-learning, indeed as part of the Manila amendments the IMO officially approved e-learning for Maritime Education (See 2010 STCW Code **Section B-I/6**) face-to-face assessments are still the status quo, as many countries and companies do not currently accept



e-assessment certificates, hence the creation of the PICK-UP 'Assessment Centres' in UK, Belgium, Portugal, Bulgaria, Malta, Slovenia and Turkey to validate the e-learning PICK-UP courses.

Partners

1. Centre for Factories of the Future (UK)
2. Escola Superior Náutica Infante D. Henrique (Portugal)
3. Nicola Vaptsarov Naval Academy (Bulgaria)
4. TUDEV (Turkey)
5. Antwerp Maritime Academy (Belgium)
6. Mediterranean Maritime Research and Training Centre Coop (Malta)
7. Spinaker (Slovenia)

4. IdealPort

To be considered under EU Horizon2020 Programme

Background and rationale of the proposal

IdealPort is an e-maritime solution which integrates the ship-port operations by putting more emphasis on port/waterway community system and linking the port/waterway operations to navigation and propulsion systems with a view to improve safety of shipping and, reducing fuel consumption and GHGs. Greater use of the Northern sea routes has created a new risk that needs to be minimised ensuring high levels of safety particularly for cruise passengers. One aim is to make port operations and shipping more competitive by offering an integrated transport chain between the ships and ports which will reduce congestion in ports and fairways and makes port traffic guidance systems more cost efficient and easily deployable. Synergies with existing systems is ensured, with the aim of integrating the use of port traffic guidance tools by all relevant authorities and ensuring the full interoperability between ICT systems, which monitor vessels, freight and port services. The project includes the demonstration of new operational solutions for the evacuation of large passenger ships, new and improved systems for the surveillance, monitoring and integrated management of port operations. The project makes cost effective use of the EGNSS, pilotage and guidance and will demonstrate how risk of accidents and incidents in port can be reduced. The system will minimise both delays and turn-around times. It builds a European maritime transport space without barriers allowing waterborne transport to be used to the full potential of the integrated intermodal logistic chain. The solution also provides the foundation for the deployment of autonomous and actively guided ships. It verifies IMO's EEDI and all the related certificates before the vessel enters or leaves the port. Inputs to EU and international bodies are expected. The project will significantly reduce the number of fatalities and accidents and incidents in ports and waterway.

Partners



1. VTEK Bilişim ve İletişim Teknolojileri - Turkey
2. Centre for Factories of the Future - UK
3. Satakunta University - Finland
4. TUDEV - Turkey
5. Port of Rauma - Finland
6. Malta Maritime Pilots - Malta
7. Malta Freeport - Malta
8. Transas Mediterranean SAS - France
9. Harwich Haven Port - UK
10. Regs4ships Ltd - UK
11. MakroShipping - Turkey
12. Assan Port – Iskenderun - Turkey

5. LeanShip

For consideration under EU Horizon2020 Programme

Background and rationale of the proposal

The reduction of pollutants such as greenhouse gases (GHGs) is far removed from the progress made in road transport, particularly in the category of older, small to medium-size, vessels which make up a large proportion of intra-European waterborne transport. Since water vessels life expectancy is around 30 years, developing technologies for reducing fuel consumption and pollutants such as CO₂ is a key challenge for current researchers in the field. LeanShip addresses 3 of the 4 key aspects of the Call: • The project, by monitoring the power output of Engine main shaft as well as wind strength and direction together with strength and direction of the sea currents, offers a feasible solution for optimisation the overall engine fuel consumption and engine exhaust emissions. The recent tests on part of the proposed solution have produce fuel consumption reductions of 8-10% and CO₂ reductions of over 12-15%. Thus higher reductions are expected. • The core of the proposed solution is low maintenance and affordable off-the-shelf retrofit solutions as all equipment for such installation have already been found and tested. • LeanShip offers a demonstration facility to show new and improved propulsion means and vessel configurations that include the entire drive train and the propeller optimisation for all types of vessels. In summary the LeanShip solution includes a novel torque and speed measurement, a series of lasers and transducers to measure sea and air conditions as well as an engine management and performance system. The project also involves new technologies such new Variable Geometry Turbochargers allowing also supersonic flows and use of water coolers as a means making the engines more and less adiabatic. LeanShip is a non-intrusive system and is free from vendor solutions. The LeanShip is ready for optimisation, testing and for exploitation

Partners

1. Centre for Factories of Future (Maritime Division) – United Kingdom
2. IMSSEA-FAIMM - Italy



3. TUDEV - Turkey
4. Southampton Solent University – United Kingdom
5. Satakunnan ammattikorkeakoulu - Finland
6. FT Genoa Tankers - Italy
7. Costa Crociere - Italy
8. Kaptanoglu Shipping - Turkey
9. Easy Marine - Italy
10. Transas Marine International AB - Sweden
11. Maritime University of Szczecin - Poland
12. International Propeller Club - Port of Genoa - Italy
13. Optima Shipbrokers Ltd - Greece

6. Lean Optimal

For consideration under EU Horizon2020 Programme

Background and rationale of the proposal

Lean Optimal addresses a critical barrier to manufacturing enterprises and their value chains successfully meeting the challenges arising from ‘the uncertainties of continuously and rapidly-changing market conditions and increasingly shorter time-to-market requirements’. Meeting these challenges requires predicting and managing successfully the increasing levels of internal process, product, and supply and demand variability arising from these market factors.

The presence of variability adversely affects process quality and reliability, which themselves then disrupt operational plans for supply, production and distribution. The use of the plethora of existing quality and planning control practices are futile since any plans produced quickly become obsolete. Optimising process capability and competence under these variability conditions is the key to successfully meeting the challenges. Lean Optimal, therefore, focuses on addressing the variability issues that ensure complex manufacturing value chains are able to optimise process competence and achieve efficient demand driven manufacturing in high product variety, low demand volume, low cost and high quality market environments. This is achieved by developing an autonomous and intelligent approach to process optimisation through use of highly responsive system combined with the use of intelligent algorithms to ensure optimisation. The autonomous system, through its detailed control networks, will enable rapid responses to changing product, process and demand uncertainty and change. Lean Optimal by providing means of managing the sources, levels and effects of variability will overcome the uncertainties problems.

The focus on lean based process optimisation will create an opportunity to optimise the cost, quality and delivery performance and the intended ICT solutions will enable enterprise-wide lean practices to be adopted by an increasing number of small manufacturing enterprises.

PRU Budget



246250 Euros

Partners

1. Centre For Factories of the Future - UK
2. ATB - GER
3. InnoPole - ES
4. TUDEV - TR
5. Newton Montgomery - UK
6. Armbruster - GER
7. TPV D.D - SLO
8. InnoLab (including CadcaMation) - SWISS
9. Adiks Shipyards - TR
10. Ctools - UK
11. Fundació CIM - ES
12. HSG-IMIT - GER
13. Micro Electronica - RO
14. Coventry University - UK

6. EXTREME FACTORIES PLUS

To be considered in the KA2 Knowledge Alliances

Background and rationale of the proposal

Whilst countries such as United States, Canada, South Korea or Australia have pursued sound entrepreneurial ecosystems, there are too many cultural, structural and administrative constraints that have got left Europe behind in this competition. Surprisingly Europe has got a strong entrepreneurial tradition, being most of the workforce concentrated in SMEs. http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/index_en.htm EU's 2013 Small Business Review Report shows: 99% of EU enterprises are SME's (with 92% of the enterprises being Micro enterprises) accounting for 66% of employment and 57% Value added income.

In most of the cultures, young people (18 to 34s) are the most prone to launch business initiatives. As highlighted in the report "Generation Entrepreneur? The state of global youth entrepreneurship" by The Prince's Youth Business International (YBI), the strong recession in Europe has had a very negative impact in the confidence of European youngsters when they are asked about starting a business. But pessimism is not the only factor that determines the lack of entrepreneurial initiatives. As remarked in the report, just the 38% of 20 to 30-year-olds in the EU feel they have the prerequisite skills to start their own business; opposite to over 70% of the same age range from Sub-Saharan Africa that felt they had the skills required to start up a business.

ExtremeFactories+ aims at having a positive impact on both confidence and skills of European youth by enabling:



1. a platform where higher education students can be mentored and trained in skills required to develop an effective entrepreneurial attitude. Some of the contents that will be provided are: Creativity Techniques, Design Thinking, Creative problem solving, New business models, etc. These contents will be implemented using novel techniques (such as gamification) and in novel formats (such as videos or interactive presentations).
2. a platform where real enterprises (big or small) and students meet together, so the companies can provide students with first-hand knowledge about the real needs of the market, reducing the high risk of technology push business ideas. Companies can also use the platform to launch innovation challenges to the students and to establish incentives for those who solve them.
3. a platform that educators and mentors in entrepreneurial skills can use as a support of their daily teaching activity, from which they can stimulate students to collaborate in real business contexts and follow-up all the process, from the ideation of a startup/business idea to its implementation or launch to the market.

Partners

1. INNOPOLE / Spain
2. C4FF / UK
3. ATB /Germany
4. Vaibmu /Finland
5. TUDEV/ Turkey
6. University Coventry / UK
7. Kaptanoglu Shipping/Turkey
8. Off-Grid/UK
9. GOTTRAINING/Spain

7. iSHIP

To be considered in the KA2 Knowledge Alliances

Background and rationale of the proposal

It is well-known fact EU needs to invest in quality driven & business led Maritime Education to be able to supply the Maritime Sector with highly-qualified workers in the future. Better structured & long-term cooperation between HEI & Businesses should be promoted to develop innovative ways of producing & sharing knowledge through result-driven objectives.

iSHIP project will deliver new & multidisciplinary Maritime Entrepreneurship Transport, Trade & Shipping Course responding directly to the needs of companies, while stimulating entrepreneurial mind-sets & facilitating the co-creation of knowledge between all involved actors. Since, the content & quality of maritime transport, trade & shipping education & training are varied throughout Europe efforts are necessary in order to initiate a more uniform & Curricula across Member-States that reflect the real needs of the market.



In order to achieve this goal, iSHIP will tackle three approaches:

1. Facilitate mutual exchange of academic & business knowledge: By building an alliance of 9 partners representing HE Institutions, shipping, trade & transport companies, training providers & research centres from 7 EU countries
2. Open access to the business world to prepare graduate-students from HEI for the world of work in the Maritime Industry: through the iSHIP course with improved curricula for Maritime Transport, Trade & Shipping HEI that can be applied across European countries. The course will also introduce entrepreneurial thinking by identifying entrepreneurial competences that are most relevant to the maritime sector & will stimulate the flow & exchange of knowledge between higher education & enterprises, by offering a course in which companies are fully embedded in the curriculum & that credited (ECTS).
3. Support the sustainability of the project through the implementation of 15 internship schemes for graduate students, in sector companies for a period of 2 months.

Partners

1. INNOVA - Portugal
2. Piri Reis University - Turkey
3. University of Turku - Finland
4. KTK - Finland
5. C4FF – United Kingdom
6. INNOVAMAR - Spain
7. HSW - Germany
8. SM2 - Italy
9. Kaptanoglu Shipping - Turkey