

MariFuture

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MariFuture Initiatives – Transforming the Maritime Education and Training

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Summary – The short presentation contains the summary of the papers drafted for major maritime conferences by several MariFuture partners in latter part of 2011. The presentation also contains a summary of the MariFuture previous, present and future maps.

Papers for presentation at International Maritime Lecturers Association

Paper 1 on SURPASS

SHORT COURSE PROGRAMME IN AUTOMATED SYSTEM IN SHIPPING

The modern ships particularly oil and container carrying vessels are becoming increasingly automated. The automation has brought two problems with it, one concerning the inadequacy of existing seafarers' education and training that if any aspects of automation fail the crew often are not trained to use alternative systems and hence respond it effectively. The second problem has arisen from the review of the arguments of recent IMO MSC meetings namely that human operators rarely understand all the characteristic of automatic systems and these systems' weaknesses and limitations which now have been found to be the main causes of the accidents.

This paper reports on the development of a short course programme design on automation in order to fill the knowledge and skills gap created as the result of emergence and application of the automation systems on board seagoing vessels. IMO developed several standards for merchant navy deck officers and engineer officers (STCW) in 1978. IMO introduced several model courses in 1991 and these were amended in 2003 later introducing significant changes in June in 2010 in Manila. The changes introduced in 2010 are intended to take into consideration recent changes in design of ships and the equipment used in the navigation and propulsion systems on board these vessels. However, research has shown that the resent changes introduced by IMO need to be complemented by the additional knowledge and skills in operating automated systems.

This project will learn from the in the past related and successful EU funded projects, EGMDSS (2006-08), E-GMDSS-VET (2008-10), MarTEL (2007-09), particularly on the delivery and e-assessment development.

Paper 2 on M'AIDER

MARITIME AIDS' DEVELOPMENT FOR EMERGENCY RESPONSES

This paper reports on the outcomes of the recent research carried out on accidents and incidents instigated to introduce a range of scenarios for training applications in full-mission simulators as well as reporting on the development of e-learning/assessment platform for cadets/officers/senior officers' skill development/updating. In the IMO MSC 82 (2006) meeting a great deal of emphasis was placed on the role human elements play in the cause of accidents at sea, focusing particularly on how human errors have led to great losses of life and property. It has also been acknowledged that the use of simulators have not been fully taken into consideration in the training of navigational officers.

The research presented here makes special references to the Leonardo Safety at Sea project [SOS, 2005-07], which concerned the updating of Maritime Education and Training (MET) programmes for deck and engineering officers. The SOS project identified deficiencies in maritime education and training, which M'AIDER intends to remedy by training the cadets/officers/senior officers specifically to avoid collisions, grounding and some other dangerous situations.

The scenarios to be used in the full-mission environment and in the e-learning platform are being developed by thorough investigation of past maritime accident reports. Thorough research has been conducted on MAIB (Maritime Accident Investigation Branch) database to identify the most critical/dangerous emergency cases that will be used in developing the scenarios in the novel training approach. Prior to creating the knowledge-base for the novel training approach, a careful study is being conducted to develop a questionnaire where the outcome is coupled with results of questionnaires that helped in creating scenarios on the bridge. What is novel in M'AIDER is that students will exercise in both full mission and e-learning platform where the scenarios are entirely developed from the past maritime accident cases that took place in different location of the world.

The next step is to conclude and test those developed knowledge-base further in the full mission and e-learning environment in a systematic manner to train cadet officers and higher ranks. The plans for these scenarios and how these are being developed are also included in this paper.

M'AIDER will adapt e-learning and e-assessment platforms developed by some of the partners involved in this project. This project is funded by the EU and the core partners are: Maritime Institute of William Barents (MIWB), Centre for Factories of the Future (C4FF), TUDEV Institute of Maritime Studies (TUDEV), Lithuanian Maritime Academy (LMA), University of Strathclyde (SU), Spinaaker d.o.o. and IDEC.

Paper 3 on UniMET

Unification of Marine Training and Education

This paper reports on the recent development and changes to Maritime Education and Training (MET) identifying the deficiencies and best practices across Europe in order to create a common STCW compliant MET programmes. IMO developed several standards for merchant navy deck officers and engineer officers (STCW) in 1978, introducing several model courses in 1991 amended in 2003 introducing significant changes in June 2010 in Manila. Despite these efforts there are no mechanisms for monitoring how these standards are being applied. European Maritime Safety Agency (EMSA) has started to monitor STCW compliance, however many MET providers have been found not to follow many of the requirements.

The research presented here makes special references to the Leonardo Safety on Sea project (SOS, 2005-07), which was implemented in Turkey in the EU funded Train 4Cs I-II and III (2006-10) on-the-job-

training programmes. The SOS programmes strengthened with the additional materials developed through such as EGMDS (2006-08), EGMDS-VET (2008-10) and MarTEL (2007-09). The SOS project identified deficiencies in maritime education and training throughout its partnership which UniMET intends to remedy considering the Maritime Education and Training standards.

UniMET intends to harmonise MET practices across the Europe by identifying the best practices in each partner country. The UniMET partnership, working in collaboration with major awarding, accrediting and licensing bodies such as Edexcel, IMarEST and MCA will cross-reference and include the international and local/national requirements into the UniMET programme (SOS, MarTEL, EGMDS, EGMDS-VET & TRAIN 4Cs) with the aim of embedding the programme initially into 5 partner MET's countries Holland, Finland, Turkey, Spain and Lithuania.

UniMET is in line with and supports the priorities and objectives of the Lisbon treaty and Bologna accord regarding the harmonisation and standardisation of higher education programmes in Europe. Once accepted UniMET will ensure compliance with STCW and meet the local and international requirements of the industry for all ranks and types of seafarer. A quality assurance and control practice based on a well respected system for the delivery of UniMET will also be established to guarantee MET providers continue to follow the requirements.

Paper 4 on SAIL AHEAD

A New Online Guidance Tool for Captains

This paper reports on the development of an on-line guidance tool in order to provide a second career for deck officers/captains. Research has indicated that seafarers in general have a job with extraordinary features and that there is reluctance by many young people to join the seafaring profession even though the salaries in the sector are very attractive. Recent reports by prominent maritime organisations (such as BIMCO, ISF) have predicted severe officer shortages in the future.

The research being conducted in SAIL AHEAD project is identifying the transferable skills by comparing the curricula of different Maritime Education and Training (MET) institutions and by surveying the knowledge, skills and competences deck officers/captains developed during their education and training as well as in their seafaring profession. The data acquired will be used to develop an on-line e-learning tool which guides deck officers/captains to find jobs if they decide or wish to work onshore. The guidance tool will be the main outcome of this project. The tool is a roadmap and provides a list of competences that captains acquired in their education and training and when working at sea and a list of what knowledge, skills and competences they need to successfully seek employment onshore.

SAIL AHEAD will specifically be constructed by a team consisting of a social partner, maritime institutions including a maritime university and several maritime training providers and a consultancy firm from 6 EU countries to ensure all aspects of the project are implemented successfully.

Papers for presentation in International Maritime English Congress

Workshop Paper 1

Test of Maritime English for Ratings

MarTEL (Maritime Test of English Language) is an European Leonardo Da Vinci project which aims to establish standards for Maritime English. The project ended in 2009; evolving into a multi-layered structure with a thorough approach to the project objectives and creating standards in testing Maritime English of

three groups of seafarers, namely; the would-be cadets of maritime academies, graduates of these academies and the officers of junior rank and the seafarers of senior level who are captains and chief engineers.

MarTEL Plus, a new Leonardo da Vinci project which commenced in October 2010, intends to complement and extend the concluded MarTEL project by way of transferring gained knowledge into new areas of testing and teaching materials while utilizing innovative media features.

The workshop intends to focus on one of the testing elements of MarTEL Plus which aims to establish standards of Maritime English for *ratings*. This is a complementary aspect of MarTEL Plus as no standards were established in the concluded MarTEL project.

In this workshop, by allowing participants to join a *prototype ratings test*, the following questions are intended to be answered:

1. Which topics of maritime and social issues are expected to be in the range of ordinary seamen that should/can be expressed in English?
2. Which language skills and grammatical elements soundly address these issues?
3. How much computer literacy can be expected from an ordinary seaman to undertake a computer-based test?
4. How MarTEL Plus standards at this level/phase could be improved?

Workshop Paper 2

Who Is The Interlocutor?

MarTEL Plus, a new Leonardo da Vinci project which commenced in October 2010, intends to complement and extend the concluded MarTEL project by way of transferring gained knowledge into new areas of testing and teaching materials while utilizing innovative media features.

One of the aims of MarTEL Plus is to develop a more comprehensive process for the evaluation of oral skill for all former MarTEL phases and the newly added 'Phase R', the *ratings' phase*. This evaluation will be through a separate exam; a one-to-one session with a qualified examiner, an interlocutor.

The workshop intends to focus on the qualities of a possible interlocutor for MarTEL Phase 2 level (marine academy graduates, junior rank officers) and especially for Phase 3 level (senior officers: captains, chief engineers) one-to-one oral exams.

In this workshop, the participants will be introduced to the standards of Phase 2 and Phase 3 level oral exams and will be invited to answer the following questions:

1. What is needed to lead a highly professional discourse for a language oriented exam?
2. Who can provide a better level of competence for the role of an interlocutor and why?
3. In which way can such an interlocutor prepare for the session beforehand?
4. How could oral exam standards at this level/phase be improved?

Paper 1 on CAPTAINS

Communication and practical training applied in nautical studies

Communicative language training set in the context of real-life situations at sea have hardly been part of any curriculum for training merchant navy officers. Industrial and vocational training would benefit from the existence of a software training tool for its sea-going and port personnel which focuses on effective English language communication, an essential ingredient in safe and efficient ship operations. The CAPTAINS project will result in a novel, software based maritime English tool. This paper concerns the needs analysis element of this project, in which many seafarers and maritime English teachers were consulted. The methodology followed for this need analysis involved the creation of a cadet level questionnaire, which was piloted on the cadets at TUDEV Institute. This was followed by the development of two 'main' questionnaires, (one for seafarers, and one for maritime English teachers) which were made available online through the project website, and promoted widely throughout the partnership's network of contacts. These questionnaires remain online for additional data collection for future use. Following the elaboration of the questionnaire results, workshops and round table discussions took place in order to gather the opinions of the target groups. The following is an account of the results of the surveys for maritime English teachers and seafarers, and a summary of the workshop reports.

Paper 2 on MarTEL Plus

Ratings: Phase R – Recent Developments

The MarTEL Plus project will be concerned with enhancing the existing MarTEL standards with new features and functionalities. MarTEL Plus teachers guidelines are being created, an enhanced one-to-one oral exam is being prepared, and a mobile phone practice test application is being developed. In addition to these things, a maritime English test for Ratings is being developed. This test, entitled 'Phase R' is intended to become the international benchmark for the certification of ratings working on board ships worldwide. Phase R is being developed in maritime academies and universities in Turkey, Finland, and Poland. In developing the test, the partners have looked at content and structure from a 'user needs' point of view. The topics to be included in the test were the product of research which considered maritime vocational training syllabi, IMO 3.17 model course, and the duties of ratings on board ships. The structure of the test is modelled on a BTEC unit submission, and is divided into three sections: one 'general' section for all ratings, one 'deck' section, and one 'engineering' section. The test is due to be trialled in April 2011.

Paper 3 on MarTEL Plus

Piloting The MarTEL Standards

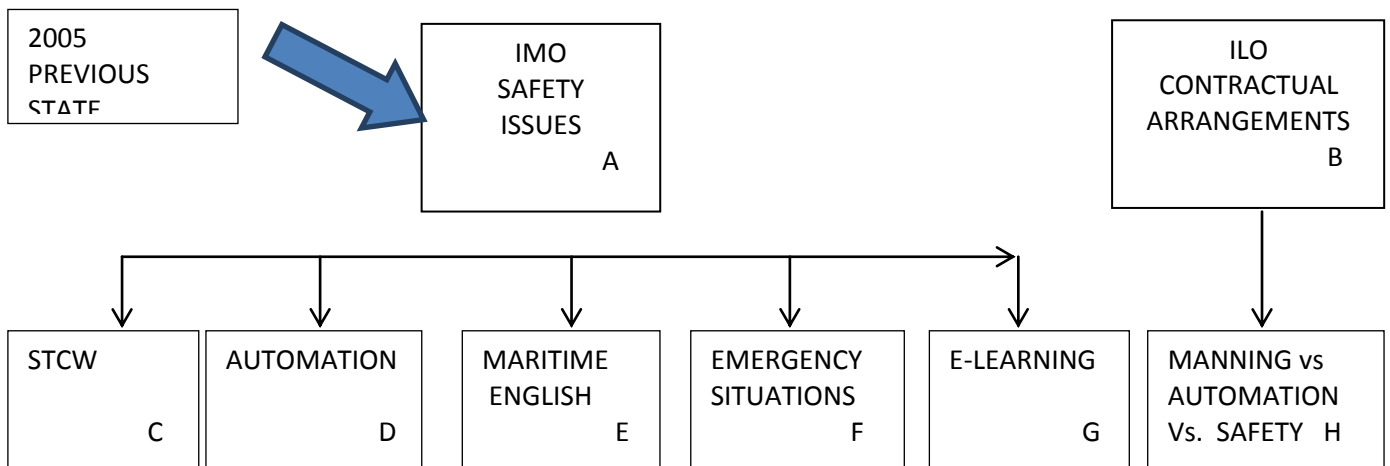
The MarTEL tests were initiated under the EU Leonardo Lifelong Learning programme in order to create an internationally recognised battery of maritime English language tests designed for seafarers at specific intervals in their career. Since the funded period, the tests have continued to develop, taking into account feedback from IMEC 22 and a range of other sources. Modifications have been made to the structure of the tests, and the types of questions that are presented to test takers. These enhanced tests are to be piloted at selected MariFuture partner institutions in the summer of 2011 in anticipation of a full launch later in the year. During piloting, statistical methods of analysis such as facility value and discrimination index are taken into account and reflected in the revisions. This paper summarises the findings of this piloting, and the subsequent decisions made.

Paper for International Association of Maritime University Paper

Management of the safety of automation challenges the training of ship officers

Management of the safety of the increasing automation onboard ships is a challenging task for ship officers. In this paper, the competency requirements and the training of deck and engine officers on this area is discussed. Ship officers must be able to operate the automation systems safely, not only in normal operational situations, but also in abnormal situations. Preserving the safety is a key issue also in the maintenance of these systems. The safety of automation can be ruined by poor maintenance. As the training of officers is considered, It is crucial to define correctly the knowledge and the skills that the officers should possess on this area. What and how should be trained? On one hand, the training should not be too general, and on the other hand, it should not be loaded with in-depth information about the finesses of digital technology. It is important to understand what is essential for successful management of safety of automation. The aim of this paper is to give some answers to these questions. A draft syllabus for a training course on management of the safety of automation is presented. The proposed course syllabus is created in the ongoing SURPASS project, which is carried out by Satakunta University of Applied Sciences together with four other European institutions. The general outline of the SURPASS project and its goals are briefly described in this paper.

MariFuture Map – Previous State



- A- Accidents and incidents due human factors are increasing (Ziarati, 2006, 2007)
 Accidents and incidents due automation factors increasing (IMO/MSC, MCA, 2006)
- B- Manning On Board Vessel vs Concerns (ILO, 2008)

Actions taken by MariFuture partners 2005-2010:

- C- Identification of STCW deficiencies and development of complete programmes for Marine Engineering Officers and Deck Officers recognised worldwide and developed in collaborations with leading national and European awarding accrediting and licensing authorities (for details refer to www.maredu.co.uk and www.c4ff.co.uk). The projects developed:
 - EU funded SOS programmes (2005-07), TR/05/B/P/PP/178 001, 2005, Value 350000 €.
 - EU funded TRAIN 4Cs I and II (2008-2010), TR/06/A/F/PL1-132, 2006, Value 1150000 and 85000 € respectively.
- D- Review of accidents and incidents at sea due to automation failures - industry continues to express concerns about engine stops (SAS, 2010) and development of an e-learning course in automation (www.surpass.pro). Project developed:
 EU funded SURPASS (2009-10), 2009-1-TR1-LEO05-08652, 2009, Value 281000 €.

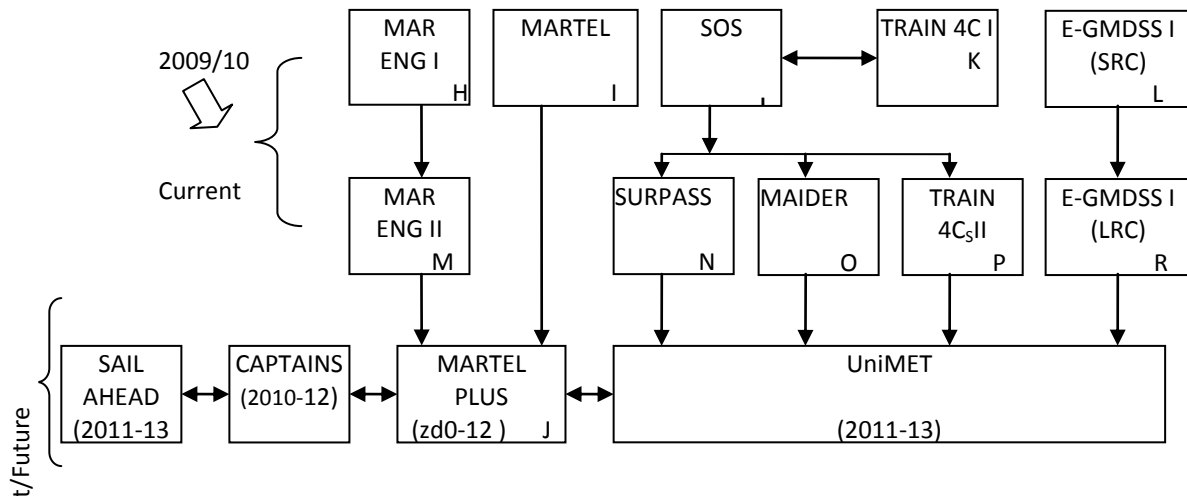
- E- Concerns about communications failures (IMO (MSC, MCA, 2006, Ziarati, 2006) and development of standards for maritime English (www.martel.pro). Project developed:
 - EU funded MarTEL (2007-09), UK/07/LLP-LdV/TOI-049, 2007, Value 410000 €.
- F- IMO and industry’s concerns (Ziarati, 2007) about emergency situations - development of an e-learning course in emergency situations (www.maider.pro). Project developed:
 - EU funded Mai’der (2009-11), 2009-1-NL1-LEO05-01624, 2009, Value 395000 €:
- G- To develop e-platforms for e-learning and EGMDS certification (www.egmdss.com) .
 Projects developed:
 - EU funded EGMDS e-learning platform, SI/06/B/F/PP-176006, 2006, Value 395000 €:
 - EU funded EGMDS-VET e-learning platform, 142173-LLP-1-2008-1-SI, Value 390000 €.

Also the EU funded Leonardo EBDIG Project, UK/09/LLP-LdV/TOI-163_262, 2009, Value 400000 €. This project was developed to create the EU first platform for Small craft design with emphasis on sustainability, ergonomics and telmatics with a the intention of transferring knowledge and skills from other sectors particulalry auto industries. For more details please refer to www.ebdig.eu.

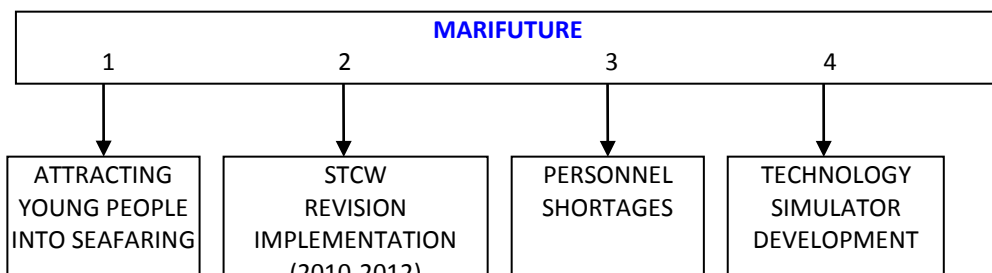
Newly Approved EU Funded Projects:

- SAIL AHEAD - To provide opportunities for captains to find job onshore. Value 385000 EUR.
- CAPTAINS - To develop 2D/3D case studies for Maritime English – www.captains.pro. Value 390000 EUR.
- MarTEL Plus – To develop Maritime Standards for Ratings, www.martel.pro. Value 400000 EUR.
- UniMET - To build on the success of SOS and TRAIN 4Cs Projects to reduce variability in MET, Value 400000 www.unimet.pro (Under construction).

MariFuture Map - Current State



MariFuture Map - Future State



Conclusions

1. The strategic plan for establishment of MariFuture was achieved with over 30 refereed papers and articles.
2. The Existing and Current State Maps were implemented in full and with commendation by EU.
3. The Future Map infrastructure developed and proposals being prepared – see www.marifuture.org.

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For projects please refer to EU sites and use project numbers.