



Establishment of Eastern Mediterranean Regional Network: pooling, sharing, development of innovative face-to-face and digital training/mentoring tools for the maritime sector

## EMFF-02-2018 Blue Careers No. 863551

<b>D4.5 Documentation of Competition Results – Round 1</b>	
<b>Deliverable Number</b>	<b>D4.5</b>
<b>Deliverable Title</b>	<b>Documentation of competition results – Round 1</b>
<b>Nature<sup>1</sup>:</b>	<b>R</b>
<b>Dissemination Level <sup>2</sup>:</b>	<b>PU</b>
<b>Author, Institution:</b>	<b>CCCI, NTUA</b>
<b>Editor, Institution:</b>	<b>APOPSI SA</b>
<b>Leading Partner:</b>	<b>CCCI</b>
<b>Participating Partners:</b>	<b>NTUA, APOPSI SA, EVALION LTD</b>
<b>Official Submission Date:</b>	<b>30/04/2021</b>
<b>Actual Submission Date</b>	<b>30/04/2021</b>

<sup>1</sup> R=Document, report; DEM=Demonstrator, pilot, prototype; DEC=website, patent fillings, videos, etc.; OTHER=other

<sup>2</sup> PU=Public, CO=Confidential, only for members of the consortium (including the Commission Services), CI=Classified, as referred to in Commission Decision 2001/844/EC



This work is part of the Sea of Experience project. This project has received funding from the European Union's "European Maritime and Fisheries Fund (EMFF)", one of the five European Structural and Investment (ESI) Funds under Grand Agreement No. 863551

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Modification History			
Date	Version	Description	Edited by
20/04/2021	0.1	Table of Contents	CCCI
26/04/2021	0.2	Description of the Greek Competition and feedback	NTUA
28/04/2021	0.3	First draft of the report	CCCI
29/04/2021	Final	Final version of the deliverable	NTUA

## Acronyms and Abbreviations

<b>AB</b>	Advisory Board
<b>OOW</b>	Officer on Watch
<b>SoE</b>	Sea of Experience
<b>WP</b>	Work Package

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## Executive Summary

This document is dedicated to the 'Documentation of Competition Results – Round 1' of the Sea of Experience project. The aim of the deliverable is the organization of competitions for high school and university students to promote the development of new ideas from which could be further developed by industry stakeholders and enhance the attractiveness of maritime professions for teenager and students (18+) in general.

These competitions will be conducted first at a national level and then on an international level, as described in the Grant Agreement. For the national level competition, two sets of competitions in Greece and in Cyprus will be organized by NTUA and CCCI. Initially, the first would be planned for university students (18+) and the second for high school students (15-18). However, due to the ongoing covid-19 related restrictions, reaching high school students for the purposes of the competitions proved to be challenging. Thus, both national competitions are addressed to university students. The subject for these competitions is determined by the Consortium in collaboration with the AB.

Within the first half of the project's duration NTUA organized a competition for undergraduate university students of the maritime sector. The aim of this competition was the familiarization of the students with the importance and necessity of the human element as well as the significance of human-centred design in the design stage and operational life of a ship. The results of the competition are included in this report.

The subject for the second national competition that is conducted in Cyprus is included in this report. Due to covid-19 related restrictions, the competition in Cyprus had initiated later than expected, since communication with the required organizations was challenging. The specifications of this competition is included in this report, while its results will be available in June 2021, and, thus, will be included in the second version of this deliverable (Deliverable 4.6 – Documentation of competition results -Round 2).

The objective of the international level competition will be for each team to develop an innovative solution to address a specific challenge in the maritime domain. This competition is planned for 2022, and thus more details will be available on the second version of this deliverable.

## 1. Introduction

### 1.1. Background

Sea of Experience is a regionally oriented project that aims at creating, promoting and supporting a training/mentoring network; the Eastern Mediterranean Regional Network (EMReN), for professionals and youngsters related to maritime transport, shipbuilding and ship repair, ports and the cruise industry; it also aims at introducing a holistic and innovative way for mentoring in these fields. The EMReN network will consist of entities that represent the education, industry, and public authorities and therefore promote multiple pooling of resources, best practices as well as the mobility of teachers and learners amongst partners. By bringing together teachers and mentors with industrial stakeholders, potential employers, and policymakers, the Sea of Experience network will strengthen human's capita capacities, skills and attitudes to follow a successful career path in professions within the selected industries.

This report is part of Work Package 4, Face to Face Sharing (Storytelling), Task 4.3 Advancement of Knowledge through Competitions for Students – The main objective of this Task is the organization of competitions for high school and university students to promote the development of new ideas from which could be further developed by industry stakeholders and enhance the attractiveness of maritime professions for teenager and students (18+) in general. Initially, the national competitions were planned as face-to-face events, although due to covid-19 related restrictions, the consortium opted for digital implementation of these competitions, taking the necessary provisions.

This deliverable includes the results of the competitions up to April 2021. During this period, NTUA has organised a competition for undergraduate students in Greece, the results of which are included in this report. Additionally, CCCI has organised the second national competition in Cyprus, but alas, due to covid-19 related restrictions in Cyprus, the competition's initiation was delayed. Currently, the competition in Cyprus is ongoing and is expected to be complete by June 2021. The results of the competition in Cyprus will be included in the second version of this deliverable, together with the results of the international competition that will be conducted in 2022.

### 1.2. Purpose and scope

The aim of this report is to provide all the necessary information that is linked with the organization of national competitions for high school and university students in Greece and Cyprus respectively. The scope of the competitions is to familiarise undergraduate students with a realistic work environment, and to help the development of non-technical skills that are essential in the labour market.

The competition that was conducted in Greece is described in section 2, while the ongoing competition in Cyprus is described in section 3, of this report.

## 2. Documentation of Competition Results - Greece

### 2.1. Scope

To promote project's objective to familiarise undergraduate students with a realistic work environment, and to help the development of non-technical skills that are essential in the labour market, SoE's consortium organised a competition for undergraduate university students of the maritime sector. The aim of this competition was the familiarization of the students with the importance and necessity of the human element as well as the significance of human-centred design in the design stage and operational life of a ship.

As it has been shown in D2.2, there is a skills gap between education offer and market labour needs, and this is more noticeable in the non-technical skills, which are as important as the technical skills. To this end, this competition was planned to help students practice and improve both their technical and non-technical skills.

The competition initiated in the first week of November 2020 and lasted until the last week of January 2021, with a duration of 13 weeks. During this period, six (6) sessions for each team were conducted as online teleconferences to provide guidance, teaching, and mentoring for the participants, providing clarifications and consulting on the process. The competition completed with the presentation of each team's submission.

### 2.2. Participants

Initially, the consortium planned this competition as a face-to-face competition, with the participation of undergraduate students from schools related to the maritime sector. Due to COVID-19 restrictions, the competition was performed online, both the mentoring sessions and the final presentations, and the participants were students only from the school of Naval Architecture and Marine Engineering, NTUA. In total, 27 students participated, divided into six (6) teams. In addition, three (3) independent experts participated as evaluators. The participation to the competition was voluntary for all participants.

### 2.3. Approach

Participants were asked to develop concepts based on human centred design principles for three (3) different areas of a ship, urging them to review literature, research existing methods of improving designs, and familiarise with applicable regulations. Each team received the guidelines for the development of their solutions (see ANNEX 1) and supportive material. As a performance-based competition, participants had to present their work at a certain time, so they could practice skills like time management, and anxiety management. Only guidelines were provided, whereas they had to organise their time on their own. The topics included the following areas of a vessel:

1. Design of a Ship Bridge
2. Design of E/R Control Room
3. Design of a Galley

For each topic, two (2) teams with four (4) to five (5) members were formed. Team-based competitions promote the communication with each other and familiarise participants with dealing with various personality types. Table 1 presents the participants and their teams.

Table 1 Topic and participants of each team

# of Team	Topic	Title	Participants
1	Design of a Galley	Design and Optimization of a Cruise Ship Galley	1. Fountas Alexandros 2. Koropouli Eleni 3. Kouliouri Maria-Eleni 4. Sigalas Paris 5. Zafeiri Afroditi
2	Design of E/R Control Room	Designing the Engine Control Room (ECR) of a Tanker through Human Centred Design (HCD)	6. Tsiotas-Niaxopetros Andreas 7. Diamantis Kristoforos 8. Giannopoulos Giannis 9. Tzioras Dimitrios 10. Dimopoulos Athanasios
3	Design of a Galley	Human-centred, anti-pandemic Galley	11. Kourougkiaouris Michael 12. Lainas Eleftherios 13. Malouhos Ioannis-Georgios 14. Radiotis Konstantinos 15. Routsis Dimitrios
4	Design of a Ship Bridge	Design of Harbour Tugboat Bridge	16. Antoniadis Panagiotis 17. Ntouklias Andreas 18. Rapsomanikis Georgios-Konstantinos 19. Spathias Georgios
5	Design of E/R Control Room	Design of E/R Control Room	20. Kalogridakis Georgios 21. Koutras Dimitrios 22. Lontos Konstantinos 23. Mpakogiannis Emmanouil-Thiseas
6	Design of a Ship Bridge	Design of a Containership Bridge	24. Rentas Stefanos 25. Giantsidis Christos 26. Koukos Athanasios 27. Kouroupakis Georgios

Participants followed several sessions that were implemented as online discussions. At the beginning of the competition, an event was addressed to all participants, aiming at introducing them to the competition's structure and aims. Throughout the competition's duration, several feedback and mentoring sessions were carried out, to help students with the process of review and implementing changes. Every session lasted about 30 minutes.

Each team had to submit a report of 1500 words (excluding cover and references (at least 10)), drawings (AutoCAD), presentation of six (6) slides.

## 2.4. Evaluation and Results

The assessment of the submitted reports and presentations has been performed by an independent evaluation committee consisted of the following members:

1. Associate Professor Nikolaos P. Ventikos, Naval Architect and Marine Engineer, School of Naval Architecture and Marine Engineering, NTUA
2. Dr. Christos Pollalis, Naval Architect and Marine Engineer
3. Georgios Lykos, Research Engineer, Human factor expert

The evaluation was based multiple criteria with different weights on the overall evaluation. Table 2 presents the evaluation criteria.

Table 2 Evaluation Criteria

Criteria	Weight	Description
Innovation	30%	The degree which the proposed solution differs from existing ones.
Technical Quality	20%	Absence of technical shortcomings that have been either not been addressed or were inadequately justified.
Expected Impact on the Human Element	30%	The solution is based on human centred design principles
Presentation skills	20%	Quality of presentation (not overrun the allocated time, language and delivery)

The presentation of the submitted proposals conducted at an online event on the 10<sup>th</sup> of February 2021. The event started with a welcome speech by Associate Professor Nikolaos P. Ventikos, who presented the agenda of the event (Figure 1).

### 1<sup>st</sup> National Competition of Greece – Topic: Introduction to Human Reliability in Maritime Transport



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Agenda

- Brief Introduction from the Coordinator
- Presentation of the E/R Redesign Solutions
- Presentation of the Galley Redesign Solutions
- Presentation of the Bridge Redesign Solutions
- Announcement of competition results
- Virtual Award Ceremony



Nikolaos P. Ventikos Associate Professor (NTUA) – 10/02/2020

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Figure 1 Agenda of the evaluation event

The teams with the same topic presented their solutions, and then a Q&A session followed for each topic. After the completion of the presentations, the evaluation committee met to assess the proposed solutions. For each topic, the committee selected the team with the higher score, and then the best solution among these three was declared as the winner of the competition.

The team that proposed a solution for a human centred galley (Team #3) that considered Covid-19 related measures was the team that scored higher and win the competition. This team presented a redesign of a smaller, autonomous galley of a cruise ship, designed for a BBQ – Grill restaurant with capacity of 250 customers, and 20-25 culinary crew. The followed approach and the novel design suggestions are presented in Figure 2 and Figure 3.



Figure 2 Design approach



Figure 3 Novel design suggestions

All online sessions were recorded and a brief promotional video has been developed for dissemination purposes. Noteworthy recordings are uploaded on the sharing-pooling e-platform and on the project's YouTube channel for both educational and dissemination purposes.

### 3. Outline of the Competition in Cyprus

The aim of the competitions in Cyprus is the familiarization of the students and young professionals in the culinary arts (more specifically the Cooks) with the importance and necessity of the reduction of food waste on cruise ships.

Initially, the consortium planned this competition as a face-to-face competition, with the participation of undergraduate students and young professionals from schools related to culinary arts and cooks. Due to COVID-19 restrictions, the competition will perform online between Month 19 and Month 20.

The specifications of the competition have been drafted by CCCI and have been sent to three (3) schools related to culinary arts and cooks. The specifications can be found in the Annex 2 of this report.

More details about the competition and its results will be included in Deliverable 4.6 – Documentation of competition results -Round 2.

## 4. Closing remarks

The main objective of Task 4.3 is the organization of competitions for high school and university students to promote the development of new ideas from which could be further developed by industry stakeholders and enhance the attractiveness of maritime professions for teenager and students (18+) in general.

NTUA organised a competition for undergraduate university students of the maritime sector. The participants were students only from the school of Naval Architecture and Marine Engineering, NTUA. The competition completed successfully, and all the recordings are uploaded on the sharing-pooling e-platform and on the project's YouTube channel for both educational and dissemination purposes.

## ANNEX 1 – Specifications of the first national competition (Greece)



### National Technical University of Athens

School of Naval Architecture and Marine Engineering

Laboratory for Maritime Transport

## **«HUMAN FACTORS - INTRODUCTION TO HUMAN RELIABILITY IN MARITIME TRANSPORT»**

The aim of this competition is the familiarisation of the students with the importance and necessity of the human element as well as the significance of the human centred design in the design and operation phase of a ship. The participants will form working groups of 3-4 persons, in order to be exposed to a realistic work environment, to perceive and develop through the operation of the group the requires Non-Technical Skills of leadership, communication and teamwork.

### **Topic 1 Design of a Ship Bridge**

A ship bridge will be designed based on the following specifications:

- Ship type (Tugboat/Containership)
- Tasks performed by the Master/OOW (from a human-centred point of view)

The ship bridge layout should be depicted in a 2-D design and 2 individual elements in 3-D drawings. The students should also prove that the proposed design meets the aforementioned specifications and capture the areas where the individual tasks are performed by the Master/OOW (Officer on Watch).

### **Topic 2 Design of E/R Control Room**

An E/R control room will be designed based on the following specifications:

- Ship type (Tanker/RoPax)
- Tasks performed by the Engine Officer (from a human-centred point of view)

The E/R control room should be depicted in a 2-D design and 2 individual elements in 3-D drawings. The students should also prove that the proposed design meets the aforementioned specifications and capture the areas where the individual tasks are performed by the engine officers.

### **Topic 3 Design of a Galley**

A galley of a ship will be designed based on the following specifications:



- Cruise ship
- Number of Staff (At least 40 cooks)
- Preparing lunch/dinner

The galley layout should be depicted in a 2-D design and 2 individual elements in 3-D drawings. The students should also prove that the proposed design meets the aforementioned specifications and capture the areas where the individual tasks are performed by the culinary personnel.

**(Submission Requirements: a report of 1,500 words (excluding cover and references (at least 10)) drawings (AutoCAD), presentation of 6 slides)**

***Good Luck!***

## ANNEX 2 – Specifications of the second national competition (Cyprus)



Establishment of Eastern Mediterranean Regional Network: pooling, sharing, development of innovative face-to-face and digital training/mentoring tools for the maritime sector  
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The current exercise will be submitted in the context of the «name of the course» course. The aim of the exercise is the familiarisation of the students with the Cruise ship chefs' jobs and its competencies. The students will form working groups of 3-4 persons, in order to be exposed to a realistic work environment, to perceive and develop through the operation of the group the required soft skills of leadership, communication and teamwork.

In recent times, cruise ship companies have received negative attention for **food wastage**. However, in any commercial kitchen, it is difficult to completely eliminate waste as much of this depends on the consumer. But wastage is not just bad for the environment, it is also bad for the bottom line. Reducing kitchen waste can save the company a lot of money. Food waste on cruise ships has been estimated to be as much as 30 per cent, so making changes in house can help a great deal.

Food wastage is a vital issue that many cruise ships are trying to tackle to not only help the environment but also reduce financial losses. Cruise ship chefs can **get innovative to reduce wastage!**

Students will be asked to:

- Identify the different stages in which to focus food waste reduction strategies.
- Identify prevention actions.

**Submission Requirements: a report of 500-800 words and a presentation of 3 slides**

*Good Luck!*  (Ctrl) ▾