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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D5.6 Documentation of digital competition results – Round 1	
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[1] **R**=Document, report; **DEM**=Demonstrator, pilot, prototype; **DEC**=website, patent fillings, videos, etc.; **OTHER**=other

[2] **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

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Acronyms and Abbreviations

AB	Advisory Board
WP	Work Package

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Executive Summary

This document is a report (R) on the results from the digital competition that is being conducted as part of the Sea of Experience project, deliverable "Documentation of digital competition results – Round 1"'. This effort falls under the scope of Task 5.3 "Advancement of Knowledge through Digital Competitions for Students (15-18 and 18+)". This is the first version of this deliverable and it contains the description of the digital competition's scope and purpose, structure, and progress as of April 2021.

In total, two (2) digital competitions related to hot topics that concern maritime transport, shipbuilding and ship repair, ports, and the cruise industry are foreseen in the Sea of Experience project. This deliverable is regarding the first digital competition that has initiated in March 2021 and will conclude in July 2021 and is related to the port operations and maritime transport domains.

The topic of the first digital competition, "Ports and Multimodal Transport", aims to familiarize the participants with the role of ports in multimodal transport as well as with their operations and major challenges. The target group is university students who are interested in pursuing a career in the maritime transport and port operations domains – two (2) of the four (4) Blue Economy Domains that are under the focus of the Sea of Experience project. The submission requirements include a technical report, a presentation in PowerPoint, and drawings in AutoCAD (if necessary). The technical report must contain both theoretical and computational parts.

The digital competition also aims at advancing non-technical skills of leadership, communication, and teamwork. In addition, two (2) supportive activities are being conducted as part of this task. First, a supervising committee provides regular guidance sessions to support the participants in their research. Second, two (2) webinars are being developed to enhance the skills of participants and support them towards their efforts. The webinars' registration will be open to the public. Finally, supportive material is provided to each team, upon request.

This document includes an introduction, describing the background, purpose, and approach of the deliverable, and a section on the structure of the digital competition. Selected parts of the competition are being recorded to be uploaded to the Sea of Experience Digital Repository on the sharing-pooling e-platform, as described in deliverable 5.1 "Digital Sharing Features – Part A" as soon as they are available. The results of this competition will be presented in the second version of this deliverable, which is due to Month 35 of the project, together with the results of the second competition which is planned for 2022.

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 5, Digital Sharing (Storytelling), Task 5.3 Advancement of Knowledge through Digital Competitions for Students (15-18 and 18+). This task aims at the implementation of two (2) digital competitions and the content of these competitions will be related to hot topics that concern maritime transport, shipbuilding and ship repair, ports, and the cruise industry. The Sea of Experience Sharing – Pooling platform will support the students' participation not only from the EMReN but also from other sea basins surrounding the EU coasts (e.g., Western-Mediterranean, Adriatic-Ionian Seas, Atlantic, North Sea, Baltic Sea and Black Sea). These digital competitions will promote and enhance the learning experience of the students and attract young people to follow a maritime career path. The main target group of this activity are high school students (15-18) and university students interested in following a career in one of the four (4) Blue Economy Domains that are under the scope of the project. In addition to the digital competitions, face-to-face competitions are also included in the Sea of Experience project as part of Work Package (WP) 4.

1.2. Purpose and scope

This document is a report on the results from the digital competition that is being conducted as part of Task 5.3 "Advancement of Knowledge through Digital Competitions for Students (15-18 and 18+)". This is the first version of this deliverable and it contains the description of the digital competition's scope and purpose, structure, and progress as of April 2021.

The aim of this report is to provide all the necessary information relevant to the organization of the first digital competition for university students. The scope of the competitions is bifold, 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. In total, two (2) digital competitions related to hot topics that concern maritime transport, shipbuilding and ship repair, ports, and the cruise industry are foreseen in the Sea of Experience project. This deliverable is a documentation of the first digital competition that

has initiated in March 2021 and will conclude in July 2021 and is related to the port operations and maritime transport domains.

1.3. Approach

This deliverable presents the progress of the ongoing digital competition as of April 2021. During this period, NTUA has organised a digital competition for undergraduate students in Greece, the results of which are included in this report. The digital competition was initially planned to be concluded by April 2021. The participation rate proved higher than expected, and the decision to extend the deadline until July 2021 was taken. This measure ensures that the supervising team can provide proper guidance to all teams participating in the digital competition and allows all participants to present their results fairly. Currently, the competition is ongoing.

In the following chapter, the scope, duration, structure, and evaluation procedure are described. In addition, the topic of the digital competition as well as the participant list and their assigned topics are included as annexes.

2. Documentation of Digital Competition Progress

2.1. Purpose and Scope

The topic of the first digital competition, "Ports and Multimodal Transport", aims to familiarize the participants with the role of ports in multimodal transport as well as with their operations and major challenges. The target group is university students who are interested in pursuing a career in the maritime transport and port operations domains – two (2) of the four (4) Blue Economy Domains that are under the focus of the Sea of Experience project.

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 purpose of this activity is to advance the participants' technical and non-technical skills through competition as well as to expose undergraduate students to a realistic work environment. Participants will advance their knowledge on various topics regarding ports and multimodal transport, which is related to the port operations and the maritime transport sectors, by reviewing the state-of-the-art, analysing hot topics, and by studying the existing and potential challenges. 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. To promote teamwork and expose the participants to realistic work environments, teams were formed where participants are required to work with other university students.

After the completion of the digital competition, the participants will be able to work in a collaborative environment more easily and to manage their time and work effort more effectively. In addition, participants will practise advance their presentation skills, which are essential in a real-life work environment. Finally, participants will explore specific topics and challenge their technical knowledge and skills on an unknown topic. Besides the valuable experience, NTUA is currently approaching potential sponsors to set up a symbolic reward for the winning team.

2.1.1. Duration

The competition initiated in the third week of March 2021 and will last until July 2021, with a duration of 18 weeks. During this period, at least four (4) guidance sessions for each team will be conducted as online teleconferences to provide guidance, teaching, and mentoring for the participants, providing clarifications and consulting on the process. It is worth mentioning that the digital competition was initially planned to be completed by April 2021, but due to high participation it was decided to extent the deadline to July 2021, to allow for adequate number of guidance sessions to be conducted for each team within the competition's time frame.

2.2. Participants

In total, 85 students decided to participate in the first digital competition of the Sea of Experience project. Participants originated from both Greece and Cyprus, with the majority of them being from Greece. In particular, 18 teams were formed by Greek and 3 teams were formed by Cypriot (teams 1, 7, 9) students. This proportional difference was expected due to the different size and populations of these countries. Participants were then divided into 21 teams. In addition, three (3) independent experts participated as evaluators. The participation to the competition was voluntary for all participants.

The first competition's participant list is included in this report as Annex 2. The leaders of each team are clearly marked in bold.

2.3. Approach

After the teams were formed, the topic of the digital competition, which is included as Annex 1, was provided to the participants and an introductory speech explaining the concept of the exercise and the scope of the competition was given by Associate Professor Nikolaos P. Ventikos. The participants were asked to express their preferences regarding the sub-topic in which they preferred to focus on, and the supervisory team collected their inputs. Following a review of the received input, the supervisory team assigned relevant sub-topics to each team. The preferences that were expressed by the team leaders and the assigned sub-topics, expressed as titles, are included in Annex 2, as the second and third column, respectively. The topic that was provided to the participants is included in Annex 1.

In addition, two (2) supportive activities are being conducted as part of this competition. First, a supervising committee provides regular guidance sessions to support the participants in their research. Team members are required to participate in several mandatory guidance sessions that are 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 guidance sessions will be carried out, to help students with the process of review and implementing changes. Every session lasts about 30 minutes, although exceptions may apply considering the complexity of each specific topic.

In addition, two (2) webinars are being developed to enhance the skills of participants and support them towards their efforts in the competition. The topics discussed in the webinars will not only help the participants towards their final presentation but also teach them valuable skills (e.g., presentation skills, time- management skills) that will help advance their future careers. The webinars' registration will be open to the public. Finally, supportive material is provided to each team, upon request.

Each team must submit their reports and make a presentation on their assigned topic and approach by the specified deadline. The submission requirements include a technical report, a presentation in PowerPoint, and drawings in AutoCAD (if necessary). The technical report must contain both theoretical and computational parts. The detailed submission requirements are presented in the next paragraph.

2.4. Evaluation Procedure

The deadline for submission is the end of July 2021. Each team must respect the submission requirements presented below:

- A report of 5500 words (including references),
- A presentation of seven (7) slides,
- Drawings on AutoCAD (if necessary)

More specifically, the technical report should consist of four (4) parts:

- Introduction,
- Theoretical Part,
- Computational Part,
- References.

The methodology and tools which will be used in the computational part need prior approvement by the supervisors. Additionally, the technical report must include at least 15 references. The presentation will have a maximum duration of ten (10) minutes and all team members will participate in a Q&A session afterwards. It is important to note that the equal distribution of effort between team members will be count positively towards the overall score, to promote teamwork between team members.

The assessment of the submitted reports and presentations will be 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 will be based on multiple criteria with different weights on the overall evaluation. Table 1 presents the evaluation criteria.

Table 1 Evaluation Criteria

Criterion	Weight	Description
Theoretical Part	35%	Quality of the theoretical part of the submitted report
Computational Part	35%	The quality of the computational part of the submitted report
Presentation Skills	30%	Quality of the final presentation (not overrun the allocated time, language, delivery)

For each sub-topic, the evaluation committee will rank the relevant teams according to their score. The team with the highest score in each sub-topic will be pronounced the winning team for the specific sub-topic. Then, the evaluation committee will rank the aforementioned sub-topic winners according to their overall scores, to determine the overall winner of the first digital competition. The second place will be awarded to the team with the second highest overall score amongst the sub-topic winners, etc.

The results of the first digital competition as well as material from the reports and presentations that will be submitted will be included in the second version of this deliverable.

3. Concluding Remarks

The main objective of Task 5.3 is the organization of digital competitions for high school and university students. As the first digital competition is ongoing, participants show interest in the process and are actively engaged in the procedure, according to verbal feedback from the teams' supervisors. As all teams are in the first stages of their research, preliminary results will be available soon. These results will be documented in the second version of this deliverable, but their outcomes will be disseminated through all available project channels (e.g., recorded sessions will be available through the sharing pooling e-platform) as soon as they become available.

4. ANNEXES

Annex 1: Digital Competition Topic

National Technical University of Athens

School of Naval Architecture and Marine Engineering

Laboratory of Maritime Transport

«PORTS AND MULTIMODAL TRANSPORT »

Topic of Digital Competition 2021 (**Deadline: end of July 2021 –Submission Requirements: a report of 5.500 words (including references), presentation of 7 slides and drawings in AutoCAD (if needed).**

The aim of the competition is the familiarisation of the participants with port operations and the role of ports in multimodal transport. The participants will form working groups of 2-3 persons, in order to be exposed to a realistic work environment, to perceive and develop through the operation of the group that required non-technical skills of leadership, communication, and teamwork. Each team is assigned a specific topic, relevant to the topic of the competition. The participants are expected to research and review the state-of-the-art, operations, challenges, and outlook regarding their specific topic. Each team will present its results in a short presentation. The technical report must include:

1. **Introduction to the topic that has been assigned to your team,**
2. **Theoretical Part**
3. **Computational Part**
4. **References**.

Rules:

- *Regular guidance sessions will be conducted with each team.*
- *The report must contain at least 15 references.*
- *The methodology and tools which will be used in the computational part need prior approvement by the supervisors.*
- *To promote teamwork, active participation of all team members will contribute positively towards the final evaluation.*
- *One winning team will emerge between teams sharing the same or similar topic*
- *The overall winning team will be the team that has the higher evaluation*

Good Luck!!

Annex 2: List of Participants

Team #	Team Preferance	Assigned Title	Participants
1	Environment	Calculation of ship emissions	1. Kasinos Pantelis **2. Lefkiou Michalis** 3. Damianou Sofia 4. Epaminonda Lefteris
2	Sustainability	Design of a sustainable port terminal	5. Oikonomou Konstantinos 6. Beltsidis Ioannis-Marios **7. Papoutsis Ignatios** 8. Poulimas Spyridon-Nikolaos 9. Panagou Alexandros
3	Automation	Equipment for autonomous navigation of tugs	**10. Makras Ilias** 11. Avlonitis Spyridon 12. Tzatzimakis Georgios 13. Efstathiadou Ioanna
4	SAR	Optimization of tug – survival crafts installation in the Aegean Sea	**14. Karadimas Georgios** 15. Arvanitis Aggelos 16. Kapsimali Eleni 17. Kypriotis Christos
5	Regulation	Coding of national contingency planning for maritime accidents	**18. Daskalopoulos Nikolaos** 19. Tzitzi Iliana 20. Delidimitris Andreas
6	Resilience	Network analysis for transport networks, case study of COVID-19 impact	21. Kourougkiaouris Michail 22. Antonakos Panagiotis **23. Lainas Eleftherios** 24. Malouchos Ioannis-Georgios 25. Vlahos Panagiotis
7	Automation	Induction charging on ferries	26. Vrahimi Kyriakos 27. Solomou Kassiani 28. Kyriakidis Andreas 29. Georgiou Christoforos 30. Androutsos Adnreas
8	Safety	Risk related to the operation of large containerships in ports	31. Pantazopoulou Sofia **32. Papadopoulos Konstantinos-Marios** 33. Chondrelis Orestis 34. Chatzipli Ekaterini 35. Skretas Athanasios
9	Safety	Dispersion of COVID-19 on a cruise ship	36. Chrysagis Rafail-Vasilios 37. Tryparolis Konstantinos **38. Stergioulis Stylianos** 39. Allas Giorgos
10	Regulation	Contingency plans in the Adriatic region	40. Gkoufas Dimitrios 41. Kanellopoulos Nikolaos 42. Charalabakis Michail 43. Anastasiadis Alexandros
11	Safety & Security	Crisis clarification	44. Holevas Nikolaos **45. Smyrnioudis Polyhronis** 46. Ozntamar Pouloglou Stavros

			47. Tseliou Sophia
12	Safety	Cruise ship evacuation	48. Peppa Ioanna 49. Andromida Evangelia **50. Pantazidi Persefoni-Irini** 51. Georgiopoulos Giannis
13	Environment	Ship emission calculation	52. Papadopoulou Christina-Despina 53. Mylonas Antonios 54. Psalidas Dimitrios **55. Naoum Panteleimon**
14	Sustainability	Life circle sustainability assessment of MARPOL double hull regulation	56. Danopoulos Charalampos 57. Kousoulos-Bairamis Panagiotis **58. Themo Aggelos**
15	Environment	Ship emission calculation at ports	**59. Sigalas Paris-Fotios** 60. Christou Georgia 61. Christoforidi Viviani
16	Resilience	Ship resilience, regulations and analysis	62. Vana Maria 63. Argiris Alexandros **64. Zervou Korina** 65. Siouti Christina
17	Safety	Ammonia bunkering at port, risk analysis	66. Vasiliou Evangelos 67. Fakos Konstantinos 68. Mageiras Dimitrios
18	Transportation	Optimization of port's efficiency	69. Sachinidou Anastasia **70. Mosialos Nikolaos** 71. Spanoudakis Konstantinos 72. Syrrou theodora
19	Transportation	Container transport network simulation analysis	73. Stouraitis Spyridon 74. Tzagakis Georgios 75. Paxivanakis Dimitrios 76. Bralios Eleftherios
20	Sustainability	Optimization with sustainability criteria in ports	**77. Theodoropoulos Panagiotis** 78. Pantazis Konstantinos 79. Xourafas Konstantinos 80. Stylianou Georgios 81. Kalandranis Nikolaos
21	Transportation	Multi-agent modeling on container feeder	**82. Kalogridakis Georgios** 83. Koutras Dimitrios 84. Zervas Nikolaos 85. Liontos Konstantinos