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DRIVING INNOVATION FOR A GREEN, DIGITAL AND SMART MARITIME ECOSYSTEMS

INNO2MARE is a Horizon Europe project worth almost 5 million euros, in which 19 organizations from Slovenia, Croatia and Belgium participate.
The main goal of INNO2MARE is to strengthen the capacity for excellence of Western Slovenian and Adriatic Croatian innovation ecosystems through a set of jointly designed and implemented actions that will support the digital and green transitions of the maritime and connected industries.

INNO2MARE aims to initiate joint actions to boost cross-border cooperation and create scientific and economic synergies, primarily through:

- Formulating a shared R&I strategy and action & investment plan
- Implementing three R&I pilot projects addressing key challenges related to maritime transport
- Creating opportunities for the effective transfer of innovative technology to the markets
- Improving conditions for talent attraction and retention in accordance with the principles of equal opportunities and gender equality
- Fostering knowledge creation and transfer based on the “Quadruple-Helix” model.

INNOVATION COUNCIL

Considering the mission of the INNO2MARE project to act as a driving force that brings together different actors within and between the ecosystems, it was of critical importance to establish a joint coordinating body – i.e., the Innovation Council, comprising representatives of the project consortium and the other key actors in the Croatian, Slovenian and Belgian ecosystems.

The Innovation Council functions as a forum for the exchange of intelligence, ideas, opinions and initiatives concerning the ecosystems' innovative performances and feeds the development of the joint R&I strategy and action plan. The Council external members have the ambassador role, support talent attraction and retention, and facilitate the Citizens Connect activities where bottom-up civic participation is sought in tackling key issues in the Croatian and Slovenian innovation ecosystems through thematic discussions at dedicated annual events and campaigns in public spaces.

The Innovation Council was therefore established in May 2023 and consists of eleven members from the Slovenian, Croatian and Belgian ecosystems.

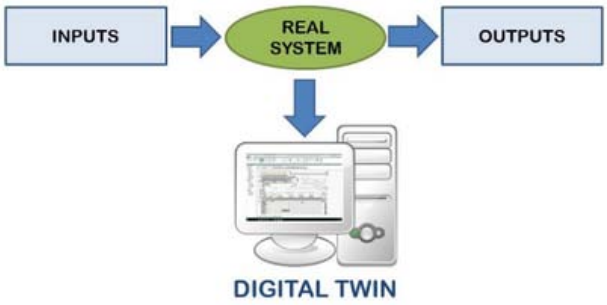
The Head of the Innovation Council is Prof. D. Sc. Saša Zelenika, Vice-Rector for Strategic Projects at the University of Rijeka, other appointed Council members of the Croatian ecosystem are: Vedran Kružić, D. Sc. Jakov Karmelić and Siniša Reljić.
Members of the Belgian ecosystem are D. Sc. Ali Anwar, Ghazaleh Kia and Deepak Mehta.
Appointed members of the Slovenian ecosystem are Prof. D. Sc. Niko Herakovič, Jurij Mirnik, Martin Pečar and Assist. Prof. D. Sc. Marko Perkovič.

The excellent and broad expertise and skill set of the selected Innovation Council members is a strong foundation for the successful achievement of the tasks and obligations of the Innovation Council. In fact, the members of the Council have actively participated in the 2nd INNO2MARE consortium meeting held in Rijeka in September this year, holding not only a regular Council meeting, but also actively participating in the Innovation Breakfast via a keynote speech "Maritime Transport Ecosystems for Impactful Innovation" of Deepak Mehta, to the Citizen Connect panel entitled "Innovation in Maritime Transport as contribution to sustainable communities" and to the brainstorming session "How to develop, attract and retain talent in maritime ecosystems".

ADDRESSING KEY CHALLENGES IN MARITIME SAFETY, SUSTAINABILITY AND EFFICIENCY

INNO2MARE seeks to contribute to existing knowledge via three joint pilot R&I projects in cutting-edge scientific and technological areas as a basis for the translation of research results into innovative business opportunities. Expected technological readiness levels for pilot projects are TRL 4 – technology validated in the lab, or TRL 5 – technology validated in the relevant environment. Addressing key challenges in maritime safety, sustainability and efficiency.

Pilot Project 1 "Improved fire evacuation VR model of a ship engine room" lead by Faculty of Maritime Studies Rijeka, is addressing the challenge of providing an improved, more realistic, albeit safer environment for onboard firefighting training. The broader goal is to advance maritime fire safety and to digitize maritime education and training (MET) process making it possible to be conducted onsite and online. The first prototype was successfully presented at the 23rd International Association of Maritime Universities Conference (IAMU AGA 23), held in Helsinki in October 2023. Also, a paper on the current findings has been published in the Journal of Marine Science and Engineering, freely available here: https://www.mdpi.com/2077-1312/11/9/1732.



Pilot Project 2 "Digital Twin for Optimizing Energy Management in Maritime Facilities" lead by University of Ljubljana, seeks to revolutionize the maritime logistics and ship production through sustainable and efficient energy use. Promises a paradigm shift in energy management for the maritime industry, positioning it as a blueprint for cutting-edge, eco-friendly practices in industrial operations.

Pilot project 3 "Autonomous shipping technology" lead by Faculty of Engineering Rijeka, is a pioneering initiative aimed at the development of AI-based modules for autonomous shipping. These modules are poised to revolutionize the maritime industry by enhancing both reliability and safety in marine traffic. The project's primary focus is creating cutting-edge technologies capable of automatically detecting and responding to various critical aspects of marine navigation.

TRAINING FOR YOUNG RESEARCHERS

Innovation and knowledge transfer - value creation in science.

On September 30th and December 1st, a workshop for PhD students and postdocs titled "Innovation and knowledge transfer, value creation in science - training for early career researchers" was held at the STEP RI Science and Technology Park premises, organized by the University of Rijeka – Doctoral School and STEP RI Science and Technology Park as part of the EU project INNO2MARE.

The participants were welcomed by Prof. D. Sc. Gordan Jelenić, Vice-Rector for Science and Arts, and Boris Golob, Director of STEP RI. As an introduction to the workshop, UNIRI Project Operations Manager Hrvoje Marušić presented the objectives of the INNO2MARE project, including the tasks aimed at educating the various ecosystem actors and promoting reverse knowledge transfer, as well as contributing to the collaboration of the academic sector with business and community organizations on innovative projects.

In addition to the workshops led by Boris Golob (STEP RI) and Ani Gerbin (8 AM INNOVATION), participants gained an insight into basic concepts and modern instruments of innovation and knowledge utilization by developing their own ideas and working on practical tasks. At the same time, they were able to hear examples of best practices from Mr. Bram Verbinnen, Valorisation Manager for Exact and Applied Sciences at the University of Antwerp.

The workshop provided an opportunity for the PhD students to share their experiences and motivate them to develop their horizontal skills further and explore the possibility of collaborating with the wider public.

In the evaluation handed out to the PhD students at the end of the workshop, all participants rated the workshop as successful and expressed their satisfaction with the lecturers and the practical tasks they were given.

TOWARDS A JOINT CROSS-BORDER STRATEGY

A mapping of the Croatian ecosystem was conducted by the Regional Development Agency PRIGODA where 285 stakeholder organizations were identified.

The Croatian maritime innovation ecosystem is a dynamic environment that consists of many different stakeholders, including universities and research institutions, software companies, start-ups, shipyards, shipping companies, ports, clusters, boat builders, marinas, etc.

The stakeholders were categorized in the following categories: Production, Shipping, Infrastructure, Logistic, Software companies/IT providers, Start-ups, Research and academia, Services, Incubators/VC, Public institutions, and other organizations.

The largest share is represented by companies involved in the production category, where a total of 134 companies were identified, among which 34 companies also fulfil the innovation criterion.

The greatest concentration of maritime companies was found in Rijeka, i.e., Primorje-Gorski Kotar County, which is a maritime engineering hub in Croatia with around 1000 engineers working within the ecosystem. A strong nautical sector/marinas/presence of foreign companies/multinationals/competitive workforce are assets, although there is a decline in interest in the study of maritime engineering programs. There is a growing need for the modernization of study programs by implementing modern technologies.

SWOT ANALYSIS RESULTS — GAP ANALYSIS — STRENGTHS AND WEAKNESSES

The Gap analysis of the Croatian maritime innovation ecosystem was also conducted by organizing two workshops with stakeholders, which provided insight into the current state of the ecosystem and the possible actions to bridge the gap between the current and desired state.

The stakeholders emphasized these perceived gaps and proposed possible actions to bridge the gap.

INNOVATION BREAKFAST

The Innovation Breakfast was held at the University of Rijeka on September 15th 2023. The introductory lecture was given by Deepak Mehta, Ecosystem Developer for MCA (Maritime Campus Antwerp) and a member of the INNO2MARE Innovation Council, on "Maritime Transport Ecosystems for Impactful Innovation".

The second part of the Innovation Breakfast included the Citizens Connect framework developed in cooperation with the Center for Technical Culture Rijeka.
The panel discussion "Innovation in Maritime Transport as contribution to Sustainable Communities", was held with public attendance, aiming to strengthen the communication and cooperation between all relevant stakeholders.

The panellists were Prof. D. Sc. Saša Zelenika, Vice Rector for Strategic Projects of the University of Rijeka; Vedran Kružić, director of the Regional Development Agency PRIGODA; Teuta Duletić, executive director of Lurssen Design Center Kvarner; Donatan Balog, Master on LNG carriers and innovator; Stevica Kuharski, partner in the investment fund Fil Rouge Capital and Hrvoje Marušić, INNO2MARE Project Operations Manager.

Although the panelists presented different perspectives on technological trends and innovations in the maritime sector, they agreed on the importance of the maritime sector in the transition to sustainable development models and the vital importance of developing the appropriate knowledge and skills that are necessary to ensure the employment of new generations of seafarers and experts in the maritime sector.

The meeting ended with a brainstorming session facilitated by the Maritime Center of Excellence in cooperation with the Innovation Council and other consortium members on the topic of developing, attracting and retaining talent in the maritime sector.

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