University of Rijeka,
Faculty of Maritime studies

PROJECT ACRONYM AND TITLE: ZEAS (Ferry demonstrator for the switch to safe use of sustainable climate neutral fuels in Adriatic – Zero Emission Adriatic Ships)

FUNDING PROGRAMME: Horizon Europe

PERSON RESPONSIBLE: prof. dr. sc. Vlado Frančić

FINANCIAL DATA

Project total cost	Overall funding assigned to PFRI
13 503 786,20 €	158 500,00 €

SUMMARY

The principal aim of the project is to contribute to accelerating the shift to safe use of sustainable climate neutral fuels in waterborne transport through a full scale on board operational demonstration of a new system powered by hydrogen fuel cells with maritime applications.

The project brings together 14 partners from seven European countries covering the whole innovation value chain, from technology developers (leading R&I organisations: academic institutions (TU Chemnitz, PFRI) and enterprises in hydrogen technologies, maritime engineering (TECO / TECO IC, HyCentA, SCAN) and digital transformation (ZenLab)) to intermediaries (standardisation society - DNV, environmental assessment consultant - TA, association promoting hydrogen acceptance with ecosystem stakeholders - HUV) and users (shipping company). The consortium is led by LDCK, a globally recognized marine engineering enterprise, and supported by MCoE, an innovation driven entrepreneurship maritime organisation (both headquartered in Croatia). Exploitation-oriented activities targeting policy makers, clusters, partnerships and industry will be coordinated by Gitone (Croatia). The end-user participation has been ensured through the involvement of Jadrolinija, the Croatian national shipping company. The consortium, together with its wider network, will achieve a broader European impact by contributing to the EU's Net Zero 2050 and Hydrogen strategies, introducing Industry 4.0 to the shipbuilding sector, and boosting maritime innovation and the blue economy.

The project proposes the development and construction of a newbuilt zero emission passenger ferry powered by hydrogen and associated hydrogen distribution, storage and bunkering solution. The ship's green powertrain consists of new green propulsion system components (hydrogen storage, fuel cells, electric motor, battery pack, safety system, power management and control system with associated sensor, network, computing and communication system). The commissioning and validation in the operational environment through sea trials will be performed to ensure compliance with certification authorities. Emissions assessment, environmental performance studies, risk and safety assessments will be performed on the new system. Advanced digital technologies, including digital twin for monitoring, control and simulation and predictive maintenance solution enhanced with augmented reality systems, will also be developed, documented, tested and optimized during the project for ship owners, operators, shipyards and associated engineering firms. Finally, a detailed commercial feasibility assessment and business development will be developed to establish commercialization opportunities.

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Start date	End date
01.01.2024.	31.12.2027.

PARTNERSTVO

Br.	Partner organization	Country	Role
1.	LÜRSSEN DESIGN CENTER KVARNER D.O.O.	Croatia	Lead partner
2.	GITONE KVARNER D.O.O	Croatia	Partner
3.	MARITIME CENTER OF EXCELLENCE D.O.O	Croatia	Partner
4.	JADROLINIJA	Croatia	Partner
5.	SVEUČILIŠTE U RIJECI, POMORSKI FAKULTET	Croatia	Partner
6.	TECO 2030 AS	Norway	Partner
7.	TECO 2030 INNOVATION CENTER AS	Norway	Affiliated partner
8.	DNV HELLAS SINGLE MEMBER SA	Greece	Partner
9.	HYCENTA RESEARCH GMBH	Austria	Partner
10.	TECHNO AMBIENTE SL	Spain	Partner
11.	SCAN PROJEKT D.O.O	Croatia	Partner
12.	TECHNISCHE UNIVERSITAET CHEMNITZ	Germany	Partner
13.	ZENLAB D.O.O	Slovenia	Partner
14.	HRVATSKA UDRUGA ZA VODIK	Croatia	Partner

WEBSITE: https://www.projectzeas.eu/

ADDITIONAL INFO:

PFRI project team members:

- Vlado Frančić
- Lovro Maglić
- Livia Maglić
- Goran Vukelić
- Josip Dujmović
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- Goran Vizentin