RETROFIT55

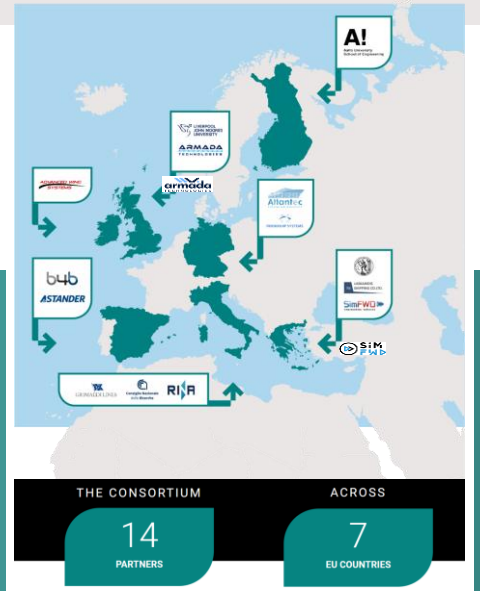
Funded by the European Union

Issue 4 – April 2025

e-Newsletter

- This issue of the RETROFIT55 newsletter focuses on the dissemination activities that have been carried out during the course of the project to raise awareness about the objectives of the project.
- Specific steps have been taken to engage stakeholders, inform them of the project's vision and to encourage the adoption of solutions and green technologies
- An effort to reach the widest possible audience has been made by…
  - ✓ Participation in international events and maritime fairs
  - ✓ Participation in Workshops
  - ✓ Publications in monthly magazines
- Numerous publications have been made to share the scientific outcomes
  - ✓ Publications in Scientific Journals
  - ✓ Participation in International Conferences and
- The reader can refer to website in Resources page to view a comprehensive list of journal publications & conference papers.
- Regular updates, announcements and relevant information have also been published on the News section of our website

Partners



Inside this Issue:

✓ Dissemination Activities
✓ Scientific Publications

Website: https://www.retrofit55.eu

Read more about:
✓ The project **here**
✓ The partners **here**

Check EU CORDIS factsheet published in **here**

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Follow us on:

Participation in industry events and fairs

TRA 2024, Dublin, April 15-18

The RETROFIT55 consortium participated at TRA2024 with a poster on display at the WATERBORNE stand along with a short video that played on loop on a screen. Project co-ordinator, Mr. Alessandro Iafrati made a brief presentation at the event introducing the project and speaking about its objectives.

Photo of the RETROFIT55 presentation at TRA2024 event

Posidonia 2024, Athens, June 3-7

Retrofit55's booth at Posidonia 2024

Photo of the RETROFIT55 forum at Posidonia 2024

RETROFIT55 consortium had a booth at the exhibition of Posidonia 2024 and a 1h45min info forum was organized at the exhibition premises. Presentations from members of the consortium took place describing their role in the project, while also speakers from other H2020 projects participated in the forum.

SMM 2024, Hamburg, September 3-6

Retrofit55's partners at SMM 2024

RETROFIT55 was also present at SMM trade fair in Hamburg. A scale model of the Flexible Wing Sail system was on display and fascinated visitors at the exhibition, while visitors were able to get a sneak preview of the Decision Support System (DSS), which is one of the major outputs of this project.

Demonstration of DSS at SMM 2024

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Waterborne Days 2025, Brussels, February 4-5

RETROFIT55's team attended the Waterborne Days 2025 where it was able to engage in discussions on the advancements of alternative fuels, digitalization and green shipping technologies. It was a great opportunity to communicate our objectives to all stakeholders.

RETROFIT55 partners at Waterborne Days 2025

Participation in Workshops

SAFeCRAFT 2024, Lisbon, December 10

SAFeCRAFT's Towards Zero Emissions Synergies Workshop, organized by WEGEMT and hosted by Instituto Superior Técnico on 10th December 2024 in Lisbon, brought together seven EU-funded projects, over 60 in-person participants and 35 online attendees from diverse sectors. This hybrid event marked a pivotal step toward fostering collaboration and innovation for a sustainable maritime future. Project co-ordinator, Dr. Alessandro Iafrati (CNR), attended the workshop and delivered a presentation about the RETROFIT55 project.

Read the full LinkedIn post here

Synergies workshop brochure

GNAOE 2024, Southampton, November 5-9

Photo taken during our participation in GNAOE 2024

The Global Conference on Naval Architecture & Ocean Engineering (GNAOE) 2024, took place in Southampton from 5-9th November 2024. Our partners from LJMU attended this event and Onur Yuksel delivered a presentation which was part of the "Emerging Topics" session and focused on the "Assessment of Retrofit Solutions on the Ship Electrification Plant: Fuel Cells, Batteries, and Waste Heat Recovery in a Bulk Carrier Case Study".

Read the full LinkedIn post here.

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Magazine Articles

An article about the RETROFIT55 project featured in the April 2024 edition of The Naval Architect Magazine. This article encapsulates the important aspects of this project and briefly talks about the technologies that shall be deployed to reach the goals of the project. Thanks to all the parties involved in making this publication possible!

Front page of the April's 2024 Naval Architect magazine

Scientific Publications

International Conferences:

- Di Piazza, M.C., Pucci, M., Iafrati, A. *Status and future trends of electrification-based solutions for efficiency-oriented ship retrofitting* , IEEE SARS ITEC Europe, Naples, 2024
- Renzsch, H., Spiteri, A., *et al. Optimisation of an Air Lubrication System for Geometry and Topology: A Proposed Solution for Ship Retrofitting*, 16th Symposium on High-Performance Marine Vehicles - "Technologies for the Ship of the Future", Germany, 2024
- Zhang, M., Liu, C., Kujala, P., and Hirdaris, S., *Comparison and Evaluation of Learning Capabilities of Deep Learning Methods for Predicting Ship Motions*, 15th International Marine Design Conference
- Zhang, M., Tsoulakos, N., Kujala, P., and Hirdaris, S., *An AI Model for the Prediction of Ship Motions and Fuel Consumption of a Kamsarmax Bulk Carrier*, Global Conference in Naval Architecture and Ocean Engineering, Southampton (UK), 2024
- Shademani R., Mikkola T, et al., *CFD Modeling of Air Lubrication Systems in Ships, NuTTS: Numerical Towing Tank Symposium*, Germany 2024
- K. Belibassakis, *A vortex-element method for the calculation of waves and ship motion effects on propeller performance*, 34th Internation Ocean and Polar Engineering Conference, Rhodes, June 2024
- Zhang, M., Tsoulakos, N., Kujala, P., and Hirdaris, S., *AI-Based Surrogate Model for the Prediction of Ship Fuel Consumption Reflecting Hydrometeorological Conditions*, 43rd International Conference on Ocean, Offshore and Arctic Engineering, Singapore, June 2024

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International Conferences (cont.):

- Iafrati, A., Hirdaris, A, *et al. Retrofit solutions to reduce GHG emissions in maritime transport*, Transport Research Arena (TRA), 2024
- Zhang, M. *Artificial intelligence based digital twin models to monitor ship safety and efficiency*, The Gulf of Finland and Eastern Baltic Sea Science Days, Tallinn, Estonia, 2023
- Tavakoli, S. and Hirdaris, S. *Analysis of compressible fluid flow during the the water entry of a body equipped with an air lubrication system*, Nutts 2023 : 25th Numerical Towing Tank Symposium, Ericeira, Portugal
- Zhang, M., Hirdaris, S. and Tsoulakos, N. *A ship digital twin for safe and sustainable ship operations*, Build IT 2023 Workshop, CNR, Italy
- Themelis, N., Nikolaidis, G., Zagkas, V. and Tsoulakos, N. Operational data analysis to aid the optimization of Retrofit solutions within the RETROFIT55 framework, 7th Annual Conference of Marine Technology, 2023
- Renzsch, H and Thies, F. *Hydrodynamic optimization of ships with retrofitted WASP* systems, Innov'Sail conference, 29-31 May 2023, Lorient, France

Journal Papers:

- Kondratenko, A., Zhang, M. *et al., Decarbonizing maritime transportation: a review of existing technologies and scientific advancements to reduce CO2 emissions from ships by retrofitting*, Renewable and Sustainable Energy Reviews
- Yuksel, O., Blanco-Davis, E. *et al., Optimising the Design of a Hybrid Fuel Cell/Battery and Waste Heat Recovery System for Retrofitting Ship Power Generation*, Energies, 2025
- Themelis, N., Nikolaidis, G. and Zagkas, V. *Assessment of Hull and Propeller Degradation Due to Biofouling Using Tree-Based Models*, Applied Sciences, 2024
- Zhang, M., Tsoulakos, N., Kujala, P. and Hirdaris, S. *A deep learning method for the prediction of ship fuel consumption in real operational conditions*, Engineering Applications of Artificial Intelligence, 2024
- Anevlavi, D., Zafeiris, S., Papadakis, G. and Belibassakis, K. *Efficiency Enhancement of Marine Propellers via Reformation of Blade Tip-Rake Distribution*, Journal of Marine Science and Engineering, 2023.

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