



## **METRO PROJECT**

### *4th NEWSLETTER - December 2021*

#### ***Scientific conference within the METRO project was organized by Faculty of maritime studies in Rijeka***

On June 17<sup>th</sup> 2021, a scientific conference was held in Jadrolinija in Rijeka, at which the METRO project and the results achieved by it were presented. The scientific conference was attended by representatives of the Faculty of Maritime Studies in Rijeka, doc. dr. sc. Aleksandar Cuculić and prof. dr. sc. Damir Zec. At the meeting, the previous results of research on the METRO project were presented, which relate to the possibility of implementing the proposed types of hybrid vessels in the Republic of Croatia. Special focus is placed on the land infrastructure required to accommodate such ships.

An overview of available technologies for charging battery energy storage of existing regulations for low-voltage medium-voltage land connections was presented. The advantages and disadvantages of the implementation of onshore charging stations in the existing ferry ports and technical challenges with regard to the current state of the energy network on the islands were also analyzed. The methodology for estimating the need for electricity and the design of onshore charging stations on the example of the ports of Brestova and Porozina were also presented.





## *METRO project presented at event organised on by the Port of Leghorn and at the press conference held on Faculty of Maritime Studies in Rijeka*

The METRO project was presented at an event organised on June 15th 2021 by the Port of Leghorn in the framework of the ANCHOR ([www.anchorlife.eu](http://www.anchorlife.eu)) and RUMBLE ([www.interreg-maritime.eu/web/rumble](http://www.interreg-maritime.eu/web/rumble)) EU projects, co-funded by the LIFE and Interreg Italy-France Maritime Programmes.

Both projects aim at enhancing the awareness of port stakeholders – public administrations, land management decision makers, port authorities and private companies – on the topic of noise pollution in port cities, defining strategies and best practices for port noise management, focusing on the measurement and mitigation of noise pollution.

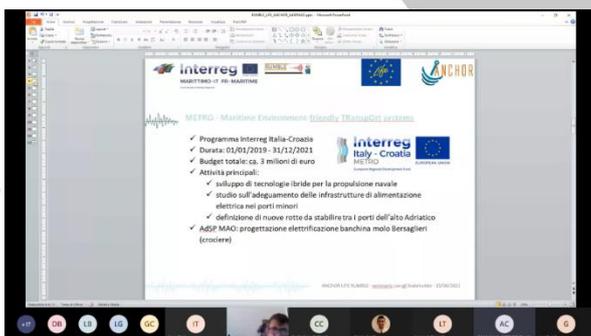
The Port of Trieste was invited to present its initiatives for improving the port's environmental sustainability and energy efficiency, among which METRO, underlining the importance of onshore power supply to reduce the impact of port operations on noise.

## *Press conference in Rijeka*



The conference was organized both by the Faculty of Maritime Studies and the Faculty of Engineering as project partners from Rijeka. The representatives of these institutions, prof. Aleksandar Cuculić from the Faculty of Maritime Studies, and Darin Majnarić, Ivan Sulovsky and prof. Roko Dejhalla from the Faculty of Engineering spoke about the importance of the project, its results and contributions.

Research and studies carried out at the Faculty of Maritime Studies refer to battery charging systems in ferry ports. They also refer to the review of meteorological and oceanographic features of the wider area of the Brestova-Porozina ferry route which includes both Bay of Kvarner, sea passage Vela Vrata and Rijeka Bay and the Split- Ancona ferry route which includes access waterways of the port of Split, part of the open Adriatic and approach to the port of Ancona. The Faculty of Engineering in Rijeka is involved in the work package related to the design of hybrid vessels, and its activities closely relate to the structure and hydrodynamics of the double-ended and Ro-Pax ferry. Prof. A. Cuculić pointed out that the direct positive effect of the project is the reduction of exhaust emissions during the ferry's stay in the port, which reduces the proven harmful impact of traffic on human health and the environment. In addition to a strong environmental component, the project also has a significant economic component.



The webinar was attended by more than 30 experts in this field, including the Port Authority of Leghorn, local municipalities and their associations, the Tuscany environmental agency and the port's Harbour Master's Office.

The recording of the webinar is available at this link:

<https://www.youtube.com/watch?v=g9JQ7DzyM>



**New interactive screens within pilot activities in Region of Istria**



New interactive screens were launched in Pula, Rabac and Poreč, which resulted from excellent cooperation between PENTA d.o.o. and Istrian Development Agency - IDA with the cities of Pula, Labin, Poreč, local tourist boards, port authorities. The main goal of this activity is to raise the level of customer service, informing them about transport options and the entire tourist offer, depending on the location where the screen is placed.

The interactive screen provides visitors with crucial and valuable information in one place, in an exciting and modern way, and makes it easier to navigate the city since a detailed city plan is available on each screen. At the same time, it enables cities as tourist destinations to keep up with innovations and recognize visitors' needs and desires. It is important to note that the screens are multilingual and provide information on transportation options in the city, cultural and archaeological sites, tourist events. Also on them are available information about accommodation (hotels, apartments, camps), the necessary contacts, and information about the rich restaurant offer. Given the current epidemiological situation and the possible transmission of COVID-19 disease, interactive screens provide detailed information on the measures taken to provide visitors with a safe and comfortable stay in our country's destinations.



The most frequent locations were chosen for the places where the interactive screens will be placed, so in Pula, the screen was set in the area of the Rijeka pier, in Poreč in the highly visited Peškera bay, while the third screen was placed in Rabac on the Rabac waterfront.



An intuitive CMS system (Content Management System) has been set up to manage and update the screen layout, add new audio and visual content. All interactive screens also have built-in side shelves for storing mobile phones with a USB socket for charging mobile phones, while screens set up in Poreč and Rabac also have a charger for electric vehicles and bicycles, with a built-in LCD screen for monitoring charging status.



## *Metro project final event – online conference*

On **Tuesday, December 14th 2021**, the final conference of the METRO project - Maritime Environment-friendly TRanspOrt systems was held and was attended by about 40 interested participants from the private and public sectors in the field of shipbuilding, tourism and maritime affairs. Due to the current pandemic situation, the conference was held online.

The main goal of the **METRO project**, worth a total of 2.959.605,20 €, funded by the European Regional Development Fund under the INTERREG VA Italy-Croatia 2014-2020 program, was to improve the quality, safety and environmental sustainability of maritime transport by promoting multimodality and eco- innovative solutions for maritime and coastal transport in the program area of Italy and Croatia.

As part of this cross-border project, detailed analyzes of the existing infrastructure regarding the development of recharging stations for hybrid vessels and maritime analysis of waterways in the Adriatic Sea were made, and the focus was on the existing ferry lines Brestova - Porozina and Split – Ancona. Two vessels have been designed for reducing the environmental emissions of these routes, evaluating their impact in terms of equivalent emissions of carbon dioxide in respect to the actual solutions. In addition to that, a new green route connecting Trieste and Pula ports using one of the designed ships was proposed, following transportation flows analyses. The impact of the recharging infrastructure required to properly utilize the new ships was analyzed, and proper modifications to the port power systems were proposed, whenever needed. Finally, an action plan was prepared, for the implementation of the new green routes was prepared.



During the final event, the project and its main results were presented by the project partners.

As an introduction of the final event, METRO project was presented by project manager of Lead partner - **dr. Andrea Vicenzutti**, from University of Trieste who greeted all present participants and explained the main goals and results achieved through the METRO project in the past three years. In addition, he presented how the tasks were divided through the project implementation, and the role of each individual partner in a particular work package.

First, **Mr. Lorenzo Brigati** from Wartsila Italia had a presentation with the topic „Sustainable propulsion systems with the use of actual vessel data“. Then **Mr. Obrad Kuzmanović** from the company Flowship design (external experts for Tehnomont Shipyard) presented „Environment friendly hybrid vessels for short-medium range routes“, after which an interactive poll with questions related to the maritime sector was conducted.

After the poll, the project partners continued with the presentations, so **Mr. Roko Dejhalla** from the Faculty of Engineering from Rijeka presented the „Hybrid vessel study: FEM, CFD and seakeeping analyzes" which they developed in collaboration with other project partners.

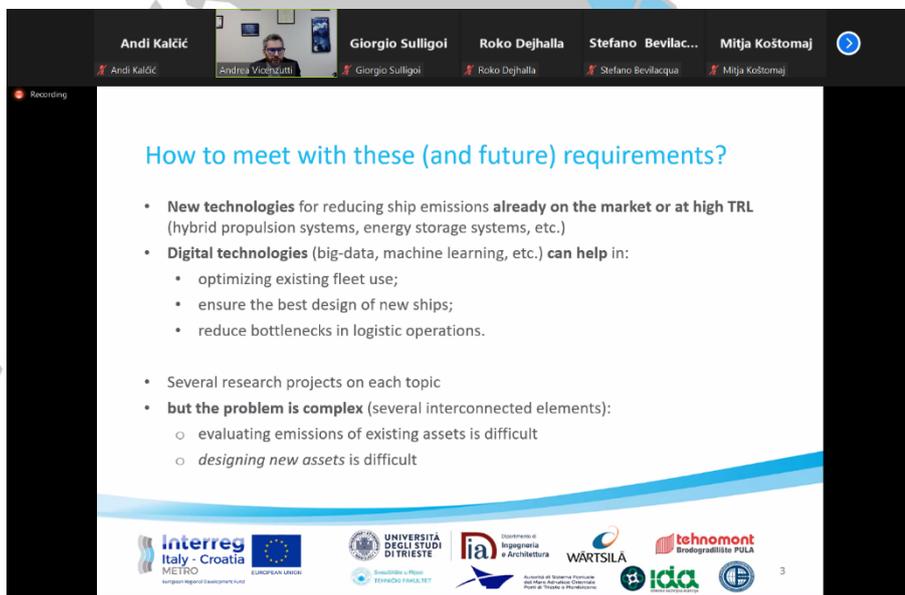


Mr. Aleksandar Cuculić from the Faculty of Maritime Studies from Rijeka presented the main challenges in the implementation of hybrid electric ferry charging stations developed within work package no. 4 „Technical infrastructure and regulatory scenario“.

Mr. Stefano Bevilacqua from the Port Network Authority of the Eastern Adriatic Sea presented „Environmental sustainability and energy efficiency in Trieste and Monfalcone ports“ and the final presentation was made by mr. Andi Kalčić from the Istrian Development Agency, concerning the „Action plan for the establishment of new tourist routes based on green technology vessels“ and pilot activities carried out by the IDA in the Region of Istria – Installation of 3 interactive screens in the cities of Pula, Poreč and Rabac & passenger counter device in the port of Pula.

Finally, dr. Andrea Vicenzutti closed the event by analyzing the results of the polls with the public, and providing the following final remark: “It is well known that electrification is one of the ways to improve environmental sustainability of maritime transport. However, being the maritime transportation framework a very complex one, the results of actions towards reducing its environmental impact depend on several different data and parameters. Ships need to be designed differently, depending on their type, size, route, and operative cycle, in order to provide the expected advantages. The port infrastructure also needs to be properly prepared to fully support the new green ships, otherwise the overall results may be impaired. The regulatory framework must be updated to include new technologies and environmentally sustainable solutions, to allow their diffusion. Therefore, designing a more sustainable transportation system requires an integrated

approach, which starts from single technologies and components, but must be widened up at the point of considering all the interconnected elements involved in transporting something from a point of the world to another.”



**How to meet with these (and future) requirements?**

- **New technologies** for reducing ship emissions already on the market or at high TRL (hybrid propulsion systems, energy storage systems, etc.)
- **Digital technologies** (big-data, machine learning, etc.) can help in:
  - optimizing existing fleet use;
  - ensure the best design of new ships;
  - reduce bottlenecks in logistic operations.
- Several research projects on each topic
- **but the problem is complex** (several interconnected elements):
  - evaluating emissions of existing assets is difficult
  - *designing new assets* is difficult

Logos: Interreg Italy - Croatia METRO, European Union, Università degli Studi di Trieste, fia, WARTSILA, tehomont, IDA, etc.



Participants (47)

Panelists (10) Attendees (37)

Q Search

- JP Jasna Prpic-Oršić
- LG LA GIUSEPPE
- LB Luca Braidotti
- LR Lukša Radic
- MG Manuela Gabric
- MP Marko Pirija
- MB Martina Balestra
- MC Massimiliano Chianzone
- MP Matej Plenca
- MF Michele Favretto
- MG Michele Grassi
- NP Nikola Pomerić
- RG Robert Grubiša
- SK Sanjin Kujarić
- SV Sara Volarić
- SB Serena Bertagna



## PROJECT PARTNERS



UNIVERSITÀ  
DEGLI STUDI DI TRIESTE



dipartimento  
di ingegneria  
e architettura



WÄRTSILÄ



tehnomont  
Brodogradilište PULA



Sveučilište u Rijeci  
TEHNIČKI FAKULTET



Autorità di Sistema Portuale  
del Mare Adriatico Orientale  
Porti di Trieste e Monfalcone



ida  
ISTARSKA RAZVOJNA AGENCIJA



## CONTACTS:

**University of Trieste - Department of Engineering and Architecture (DIA)**

**Email:** [segreteria@dia.units.it](mailto:segreteria@dia.units.it)

**Tel.:** +39 040 558 7300

**Email:** [dia@pec.units.it](mailto:dia@pec.units.it)

**Istrian Development Agency – IDA Ltd.**

Mletačka 12/4, Pula

**Phone:** +385 (0) 52 381900

**Email:** [andi.kalcic@ida.hr](mailto:andi.kalcic@ida.hr)

