



Newsletter EUWT Synergies Ecosystem  
**July 2024**

Welcome to the first newsletter of the  
**EUROPEAN WATERBORNE TRANSPORT SYNERGIES  
 ECOSYSTEM (EUWT-SE)**

Dear Waterborne community,

We are pleased to announce that the partners of the EU-funded project **FLEXSHIP** launched the European [Waterborne Synergies Ecosystem \(EUWT-SE\)](#) in collaboration with the **HYPOBATT** and **SEABAT** projects.

**EUWT-SE** scope is to share research strategies, broadening the reach beyond each consortium, by actively partnering with other relevant EU-funded projects.

The initiative, set up in November 2023, successfully expanded the cooperation to four other projects **AENEAS**, **NEMOSHIP**, **DT4GS** and **BlueBARGE**, looking forward to further leveraging common results. We are proud of the interest raised by this initiative. Seven EU funded projects is a significant number, but regrettably we had to limit further partnership, inviting other interested applicants to rather join the WATERBORNE Technology Platform, already promoting and coordinating synergies among a large variety of R&D projects.

Discover more browsing through the following sections!

## Objectives

- To adopt common best practices, expanding the dissemination and exploitation of individual project results for the benefit of waterborne transport sector.
- To propose future EU policies, removing barriers hindering the successful applications of project results.
- To share and harmonize results with ongoing R&D projects focusing on fleet decarbonization and electrification, facilitating compliance with the international and EU emission targets.
- To facilitate open innovation principles, safeguarding IPR rights of technology providers.

## How does it work?

EUWT-SE follows a common working plan, regularly monitoring objectives and planned actions. The Ecosystem activities include **joint workshops**, **knowledge exchange**, **sharing of public documents**, **harmonized development of best practices**. EUWT-SE partners actively cooperate, taking advantage of all opportunities to enhance the visibility of the projects involved, showcase the results and the expected applications.

## Events

**At the FLEXSHIP 2nd GA meeting in Naples**, on 21-22 February 2024, the Project Officer was informed that the announced initiative to engage with more maritime projects had been successfully launched.

### EUWT-SE WORKSHOPS FOR MEMBERS

- **TRANSPORT RESEARCH ARENA (TRA 2024) conference, Dublin – 15-18 April 2024**



**TRA 2024 Conference** provided a shared opportunity to push the boundaries of Sustainable and Inclusive Mobility and to chart new territories in transport research. A multitude of projects were showcased in a vast array of presentations, workshops, poster sessions and discussions, demonstrating the value and impact of the R&D in the transport landscape across the road, rail, aviation, water and cross-logistics industries. Partners involved in the projects of the **EUWT-SE** met at the **WATERBORNE TP** booth to share some views on the TRA topics and priorities, focusing common interests and further defining the Ecosystem roadmap.

**DT4GS** and **FLEXSHIPS** showed their posters, including a QR-code to facilitate access to their official websites. The coordinator of **HYPOBATT** presented the project in **Special Session 4.5 - Innovations Supporting Waterborne Greening and Decarbonisation**. More in general, the Conference offered a valuable opportunity to

get first-hand insight of strategies shaping the future of transport, discuss the newest innovations aiming for more efficient, safer, carbon-free, accessible and sustainable transport. The massive participation of exhibitors and partners offered interesting and stimulating days of discussion and dissemination opportunities.

- **EUWT-SE invited to the SUCCESSFUL WORKSHOP on ZERO EMISSION WATERBORNE TRANSPORT!**

On June 17th, 2024, **WEGEMT** proudly hosted the workshop "**Empowering Change: Industry-Higher Education Collaboration for Novel Technologies in Zero-Emission Waterborne Transport.**" This event was highly-attended and delved into groundbreaking topics such as electrification and digital twins for green shipping, explored through the **FLEXSHIP** and **DT4GS** (Digital Twin for Green Shipping) projects, under Horizon Europe's ZEWTP framework.

## Engaging Discussions and Collaborative Efforts

Participants engaged in four focused groups of questions revolving around sustainable shipping technologies, especially vessel electrification and digital twins. These discussions, totaling 15 questions, facilitated a comprehensive dialogue on the advancements and challenges in green maritime technology.

### Poll Topics Explored:

- **Vessel Electrification and Digital Twins for Zero-Emission Shipping**
- **Training for Pertinent Applications in the Wider Waterborne Sector (Transferability)**
- **Long-term Skills Strategy and Higher Education Training for Seagoing Crew and Shore-Based Maritime Professionals**

The event drew the attention of the Waterborne Technology Platform (Waterborne TP) and featured insightful contributions from two keynote speakers representing this platform.

### Keynote Presentations by Waterborne Technology Platform:

Chiara Notaro, **Vice Chair of the Waterborne Technology Platform**  
**CETENA**



Konstantinos Voutzoulidis, **Board Member of the Zero Emission Waterborne Transport co-programmed Partnership**  
**American Bureau of Shipping**



Keynote speakers shared their expertise on several critical topics:

An overview of the co-Programmed Partnership's efforts towards achieving Zero-Emission Waterborne TP transport.

Insight into the long-term strategic direction of the Waterborne Technology Platform, including forthcoming consultation sessions.

A focused discussion on the new working group dedicated to digitalization, its recent initiation, and planned consultations.

An analysis of how technological innovations intersect with the social dimensions within the maritime industry.

### Other Keynote Speakers:

**Monia el Faziki**, Director of EU Social and Public Affairs and coordinator of the Shipbuilding and Maritime Technologies Pact for Skills / SEA Europe

**Lucia Fraga**, Head of Training and coordinator of the ORE Pact for Skills / CETMAR

### Panellists of the Workshop:

**Prof. Vicente Díaz Casas**, University of A Coruña

**Prof. Hossein Ghaemi**, Gdansk University of Technology

**Prof. Austin Kana**, TU DELFT

**Prof. Mehdi Zadeh**, NTNU

**Monia el Faziki**, SEA Europe

**Chiara Notaro**, CETENA

**Amaya Soto**, CETMAR

Special thanks to **FLEXSHIP's** project partners: Mehdi Zadeh, Christopher Lange, Toon Nachtergaele, Álvaro Reina Illanes.

### Key Takeaways:

- Continuous dialogue between industry and academia is crucial for innovation.
- SMEs play a vital role in driving innovation.
- There is a strong emphasis on multidisciplinary education and continuous learning.

The workshop was a significant step towards fostering collaboration between industry and higher education to achieve sustainable and zero-emission waterborne transport. The discussions and insights shared will undoubtedly contribute to the advancement of green maritime technology and the development of a skilled workforce ready to tackle future challenges in this field.

## Expected input and technical aspects

### FLEXSHIP

FLEXSHIP members, nowadays at the end of the first semester of the 2nd year of the project, and while already hitting the ground running in terms of technical advancements, are enthusiastic to share with the open public the status of some technical developments. This includes the following, but not exclusive, steadfast steps forward:

- The definition of FLEXSHIP KPIs, use vessels requirements, SoA technology baselines and analysis of waterborne standards and regulations are finally over and integrated into all current advancements.
- The preliminary future electric architectures for both ship of FLEXSHIP's portfolio have been frozen, as well as all its integration constrains have been compiled and processed.
- Transversal actions took place to ensure that the backbone of the project is kept safe, beyond the boundaries of all the Work Packages that the project consists of.
- Management Systems as PMS and EMS are being developed and optimized, as well as the Vessel's Digital Twin capabilities are starting to be clearly glimpsed.
- Components developments are proceeding apace thanks to the close communications between developers and vessel owners.
- Concreteness is landing at the FLEXSHIP testing and validation framework.
- Demonstration's Work Package is ensuring technical aspect backwards to guarantee success in the achievement of KPIs.
- A certification working group has been created to pursuit the fulfillment of all requirements needed to unlock the type of approval, class approval, and sea trials.
- Lastly, focused on reaching a solid deployment of technology beyond the end of FLEXSHIP, business modelling teams are undergoing a deep analysis and discussions related to enhanced business models for electric vessels.

## HYPOBATT

As HYPOBATT enters its third year, work is becoming more co-created, and the final design of the Hypercharger will soon be finalized. But before this can be demonstrated in Norddeich, further work is necessary. Here's what we're focusing on:

- Development of Hyper-Charging Technology: Advancing high-speed charging systems for maritime vessels.
- Standardization Activities: Ensuring interoperability and adoption across the maritime industry.
- Stakeholder Engagement: Strengthening partnerships with ports, shipping companies, and regulatory bodies.
- Environmental Impact: Demonstrating the environmental benefits of electrified maritime transport.
- Public Outreach and Dissemination: Thanks to a nomination for the electric and hybrid marine international award, we were recently able to present our project in Amsterdam. The feedback was consistently positive and interest is growing.

## SEABAT

SEABAT is embarking on the final leg of its journey, and its members are very excited by the long road traveled and very motivated to reach the end of the project and see how the efforts of these years bear fruit.

Over the past three and a half years, the collaborative efforts of all project members have propelled SEABAT forward in its mission to develop an all-electric modular marine hybrid battery concept to substantially reduce the costs of large aquatic battery systems. of more than 1 MWh.

Entering the last phase has been a very significant milestone for SEABAT: the virtual integration, validation and certification of the SEABAT solution. Today we are validating the battery concept that we have developed, which includes:

- Demonstration of the reliability and effectiveness of the chosen concept.
- Validation that the developed battery system topology performs as intended in a realistic environment.
- Verification of fault-tolerance.
- Verification of the failure response capabilities of the developed system topology and control system, considering both electrical and electromechanical faults.

Furthermore, at SEABAT we have developed a unique tool for battery sizing. The goal of this web tool is to demonstrate how battery hybridization can work for a multitude of applications and emphasize the potential cost and weight savings that can be achieved. All results shown are calculated using non-linear optimization, resulting in the lowest possible cost for the battery system.

## DT4GS

As we continue to deploy DT4GS solutions, we are keen to observe and incorporate feedback which will enable us to refine and perfect our offerings. Until Month 26 of the project, the following milestones have been achieved:

- Launching of the Open Model Library (OML), designed as a central hub where modelers and analysts can submit and access cutting-edge models of vessel components and functionalities.
- The Model Execution Engine (MEE) now features a Prototype Simulation Interface, which allows stakeholders to simulate various decarbonization scenarios.
- DT4GS platform is also making strides in automated feature selection using Knowledge Graphs. This approach trains Machine Learning models at the edge, significantly enhancing system intelligence.
- Developing and extending the Knowledge Hub, instrumental in defining various Key Performance Indicators (KPIs) and identifying pertinent decarbonization use cases.
- A versatile Decision Support System (DSS) has been implemented to evaluate the environmental and financial viability of potential mitigation solutions, covering various aspects such as retrofitting, energy management, and routing optimization.

## AENEAS

The AENEAS consortium, consisting of dedicated partners, spanning across industry leaders, research institutions, and regulatory bodies, is eager to update the broader community on the significant technical milestones achieved, now that we are midway through the second year of the project. These accomplishments highlight our commitment to advancing electric vessel technologies and shaping the future of maritime transportation. Here are some of the key achievements:

- Definition and detailed analysis of three Use Cases: Cruise Series Ship, Ro-Ro Series Ship, and Inland Motor Tanker, each examined to optimize electric storage system (ESS) integration and operational safety
- Establishment of comprehensive safety requirements and identification of critical risks associated with ESS installation across diverse ship types, ensuring adherence to stringent safety standards and regulatory compliance
- Development of optimized pre-design vessel simulation models tailored for conceptual refinement and performance enhancement, facilitating informed decision-making in early project phases
- Successful sourcing, procurement, and characterization of SC cells
- Manufacture and detailed characterization of SSB samples
- Active participation in six different conferences, workshops, and exhibitions, fostering knowledge exchange, collaboration, and visibility within the global maritime community

In parallel, close collaboration between AENEAS and similar projects has been very beneficial in ensuring further technological development and good dissemination at an accelerated pace. This synergy ensures that every technological development not only meets but exceeds performance expectations, driving AENEAS closer to our envisioned outcomes.

## NEMOSHIP

NEMOSHIP is now in its 2nd year. Over the past months, we have made significant progress on various Work Packages. Below are some of the key updates:

- WP1 is finalized! This WP lays the foundations for the NEMOSHIP project by 1) collecting experiences learnt and analyzing data from hundreds of BESS\* installations and operations; 2) reviewing lessons learnt from high impact research and innovation projects and 3) defining the requirements for the BESS, the digital platform and the uses cases. A key outcome of this WP is the publication of a journal paper titled "Lessons learned from the commercial exploitation of marine battery energy storage systems" – more information here. Moreover, deliverable D1.1 is available publicly on our website.
- We are working on WP2 to 6, among others:
- Digital platform: the structure of the digital platform has been refined based on WP1 requirements and the first prototypes have been developed.

- Digital twins: we are progressing with the digital twins of Solstad and Ponant case studies.
- Battery system sizing: we have recently defined the optimal sizing of the High-Energy (HE) and High-Power (HP) battery system for the Solstad case study. The corresponding deliverable is currently being finalized.
- Detailed planning for the installation of the 1MWh heterogeneous (HP/HE) BESS on the Solstad case study is ongoing.
- We have published a video summarizing key information about the project – watch it here.
- We participated at several events: Watts Up conference, a Maritime Battery Forum webinar, Seatrade Cruise Global Conference and a workshop from Batteries Europe. More about it on our news page.
- Keep an eye on our results page and follow our LinkedIn page for the most recent updates !

\*BESS: battery energy storage system

## BlueBARGE

The BlueBARGE project is proudly part of the European Waterborne Transport Synergies Ecosystem. This opportunity will enable BlueBARGE, a project aiming to develop an optimal power barge sustainable solution, to share its best practices and findings with other relevant EU projects in the waterborne transport sector.

Funded by the Horizon Europe program, BlueBARGE involves 14 diverse partners and has a budget of around 11 million euros over 36 months, concluding in December 2026. The consortium is dedicated to design, develop, and demonstrate an optimal power barge solution, following a modular, scalable, adaptable, and flexible design approach for supplying electrical power to moored and anchored vessels offshore. This effort will address challenges related to electrical integration, platform interfacing with ships, ports, and local networks, as well as operational safety and regulatory compliance.

One of its unique features, in addition to the holistic approach that will involve different perspectives, technologies, and solutions to find a high-readiness and complete "power bunkering" solution, is the aim of developing a solution ready to be commercialized by 2030. This aspect makes BlueBARGE a project focused on research and innovation, with a concrete output capable of being replicated in several contexts. Ultimately, the BlueBARGE solution will help reduce local polluting and greenhouse gas emissions, aligning with the strategies outlined by the International Maritime Organization, and contribute to the maritime industry's transition toward electrification and decarbonization at both EU and international levels.

In the context of the EUWT-SE, BlueBARGE will share its findings in electrification solutions and best practices, aiming to spread useful information among industry stakeholders, including other EU projects, and beyond to facilitate innovation within the European Union.

## EUWT-SE - Contacts of Project Members

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Project	Website	Project Coordinator	Comms&Dissems Leader
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Please follow this link <https://forms.gle/9Su6FvJHbNouvoyA9> to become part of the FLEXSHIP public stakeholder group.

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