

Newsletter **EUWT** Synergies Ecosystem

July 2025

Welcome to the second newsletter of the

EUROPEAN WATERBORNE TRANSPORT SYNERGIES ECOSYSTEM (EUWT-SE)

Dear Waterborne community,

We are glad to share the second edition of our Cluster's Newsletter.

Join us in the second phase of our journey from July 2024 to June 2025 to discover our activities' development.

Find out more browsing through the following sections and visiting our projects' websites for a comprehensive look at our synergy!

Events

The FLEXSHIP Project M19 GA meeting in Trondheim, from July 3rd - 5th**,** hosted the

*EUWT-SE WORKSHOPS FOR MEMBERS, The roadmap to reach our EUWT-SE goals***,** 5th July



The workshop, organized by RINA, with the support of BRING and WEG, and attended by project coordinators, dissemination and communication leaders, and technical experts, managed to define the right pathway to achieve effective objectives.

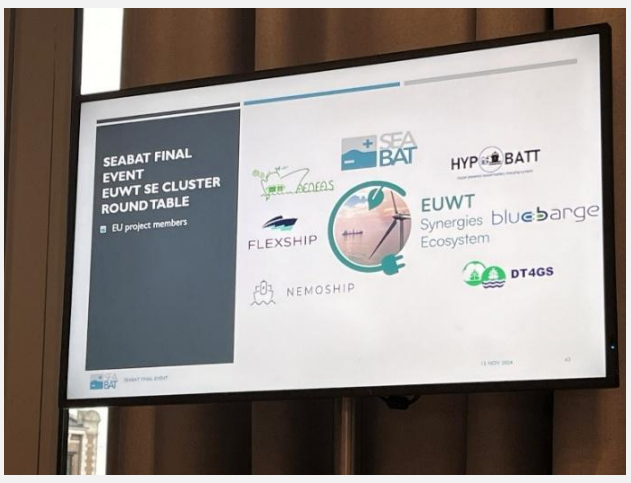
Participants were invited by RINA to discuss and give their feedback on the following topics:

- definition of the project's output and common results to understand the boundaries of the project, which is crucial for aligning team members and ensuring everyone is on the same page;
- significance of risk assessment in the innovation process, especially when there are no existing standards or rules for new technologies. This process is essential for ensuring safety and compliance in the development of new technologies;
- considering how to transfer knowledge from the project to operators or users effectively. This includes thinking about the accessibility of project deliverables and the potential for training or workshops to ensure the broader availability of project outcomes.

This dynamic gathering marked a pivotal moment in our journey toward achieving the ambitious goals set for the EUWT-SE initiative.

The SEABAT project Final Event, Antwerp, (Session 4: Expert Insights – Networking and Discussions)
13 Nov. 2024 hosted the

EUWT Synergies Ecosystem cluster round table



Linked EU projects from the EUWT-SE collaboration were also presented during a round table discussion. The session also covered additional demos and topics such as thermal systems, control and communication, type approval, and scientific publications.





These discussions offered valuable insights into the future of ship electrification and the broader challenges and opportunities in the sector.

The AENEAS project, invited

- ***the EUWT-SE at the AENEAS Second Stakeholders Workshop,*** Trondheim/online *9 April 2025*

RINA, as EUWT-SE coordinator, presented the synergy's scope, creation, activities and the common working plan, aimed at:



- Streamlining collaboration & dissemination
- Digitalisation & Digital Twins
- Safety and sustainability frameworks
- Supporting fleet decarbonisation & electrification

fully backing the EU's 2050 climate neutrality target
Access our presentation 🖥️ https://lnkd.in/dTx3e7Fb

FLEXSHIP and BlueBARGE projects were illustrated by their representatives who also participated.

💡 Through joint workshops, knowledge exchange, and a shared strategy, we are strengthening the impact of EU-funded R&D and helping shape the future of sustainable maritime transport.

NEMOSHIP project presented six papers

- ***at the ESARS ITEC conference, Naples,*** November 2024, ***as part of a dedicated session titled "Accelerating electrification of waterborne transport with battery systems***"

All papers are available in open access on our webpage. Among these, the paper written by NEMOSHIP partner Cidetec, reviews lessons learnt from research and innovation projects and provides information about the EU Waterborne Transport Synergy Ecosystem projects – Read it here.

Moreover, NEMOSHIP took part in a **clustering session** at that same ESARS ITEC conference with projects AENEAS, V-ACCESS, POSEIDON. All four projects are contributing to the advancement of maritime transport electrification. The session included an overview from each project and a panel discussion. The session highlighted the critical role of cross-project collaboration and innovation in advancing energy storage and power systems for maritime applications.

Expected input and technical aspects

FLEXSHIP *project enters optimization stage*

In the last convening of the project, during the FLEXSHIP M30 General assembly in Gorinchem NL, the project consortium has been engaged in intensive review and recalibration process to ensure that the system architecture and implementation path delivers maximum performance, reliability, and impact.
This has involved:

- **In-depth scenario re-analysis** to confirm relevance and adaptability of the targeted use case Kocaeli in evolving market and regulatory contexts.
- **Refinement of system models and algorithms**, incorporating new datasets and improved simulation accuracy.
- **Cross-WP validation workshops**, bringing together experts from all technical work packages to align interfaces, dependencies, and performance targets.
- **Technical risk mapping** to anticipate integration challenges and streamline subsequent deployment stages.

While this phase has required the shifting of timelines, it is a strategic investment in quality and robustness. The technical team is leveraging the current review period to future-proof the system design and ensure that the next development and testing steps are efficient, cost-effective, and fully aligned with the FLEXSHIP project objectives.
The next months will see:

- A consolidation of the updated system specifications.
- Integration of revised component requirements into the design framework.
- Preparations for resumed development and validation activities.

This optimization stage underscores the FLEXSHIP consortium's commitment to delivering a technically sound, scalable, and high-impact solution for the marine sector.

Technical Status Highlights

AREA	Current Focus	Progress
Scenario Reanalysis	Revisiting and validating the Kocaeli project Demo against updated components.	80% Complete
Cross WP alignment	Conducting multi partner workshops to align interfaces, dependencies and time lines	GA Technical Workshop accomplished
Specification Updates	Integrating recalibrated requirements into the next designs.	Ongoing

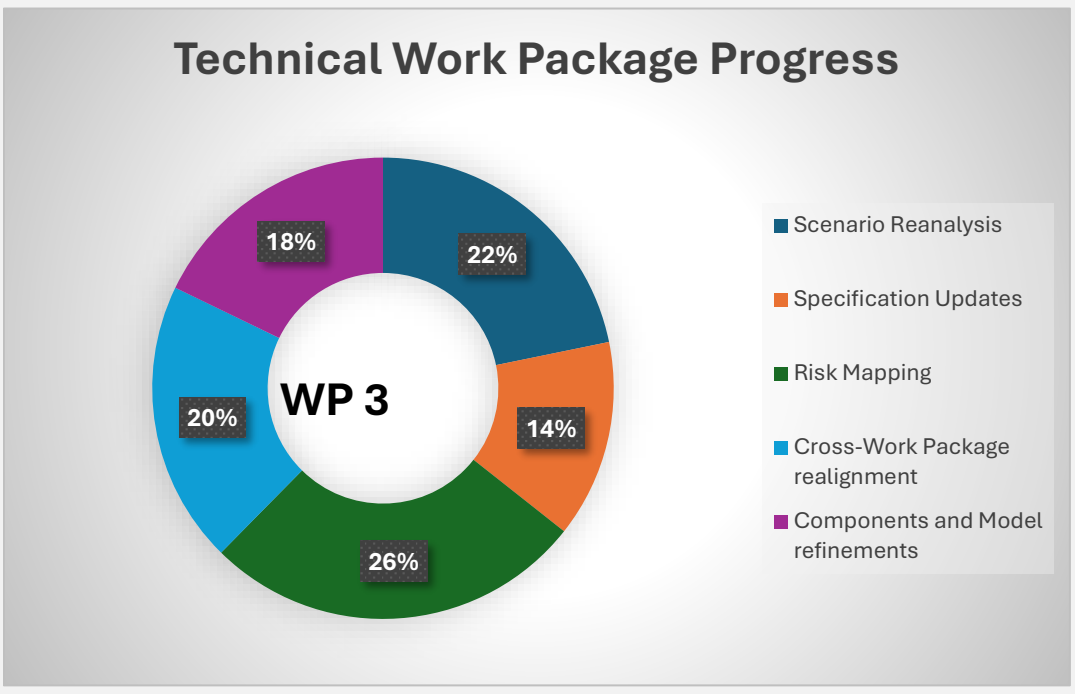
Phase Summary

The Technical team in WP 3 is leveraging this strategic review period to;

1. Enhance design robustness before physical integration

2. Ensure that the upcoming deliverables are aligned with stakeholder expectations and market needs.
3. Streamline the development pathway by pre-emptively resolving the technical risks.

Wheel Infographic



The final outcome of this optimization period is expected to lead to revised technical specifications of the components and models in the FLEXSHIP project.

We are currently pushing towards amending the projected timelines for outcomes from WP-3 and therefore, we are looking at November-M35 as the updated delivery date for the critical path of the project. For this reason, outcomes at the moment are focused on re-optimization, until the technical scope of the project is fully in perspective.

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.

Over the past 12 months, HYPOBATT has made strong progress in promoting the concept of standardized, modular, and high-power charging solutions for maritime applications. Three key events stand out:

1. **Technical Workshop in Madrid (September 2023)** – Hosted in hybrid format with speakers from all Work Packages, this workshop provided comprehensive insights into the technical progress and strategic goals of the project. It attracted stakeholders from ports, shipbuilders, and technology providers.
2. **Public Workshop in Gdynia (March 2025)** – Organized by MOTUS Foundation, this event gathered an expert audience of port authorities and ship owners. The session featured presentations and discussions that helped validate project directions and identify key user requirements.
3. **Participation at Electric & Hybrid Marine Expo (June 2025, Amsterdam)** – HYPOBATT consortium members showcased the project at various booths and presented the latest promotional video. Direct engagement with future users highlighted growing interest in high-power maritime charging.

Expected Input and Technical Aspects

HYPOBATT continues to deliver valuable input to the synergy on:

- **Standardization of high-power charging interfaces**, including mechanical, electrical, and communication layers.
- **Development of a scalable and modular MW-charging system**, adaptable to different vessel types and port infrastructures.
- **Digital twin applications** for system optimization on both ship and shore sides.
- **Stakeholder engagement activities**, including workshops and tailored dissemination formats, to promote adoption and gather feedback from key user groups.
- **A planned full-scale demonstration** of the charging system, currently under preparation.

The project has recently been extended to 46 months to ensure a comprehensive demonstration phase. Public deliverables and results will continue to be shared to benefit the broader synergy network

SEABAT

After four years of intensive and close collaboration between industry and various research institutions, the SEABAT project has reached a successful conclusion. This ambitious initiative has resulted in the development of an innovative hybrid battery system, specifically designed for the maritime sector, which is both flexible and scalable. The system represents a significant leap forward in terms of energy efficiency, structural design, and cost reduction, positioning it as a cutting-edge technological solution to support the maritime industry's transition toward more sustainable operations.

Key Achievements and Outcomes of the SEABAT Project:

The project has delivered major technical and operational improvements, with a direct impact on the performance of electric propulsion systems and onboard energy infrastructure:

- 30% increase in energy efficiency, resulting in optimized management of electrical consumption onboard vessels.
- 19% reduction in system footprint, allowing for more efficient use of available space within ships.
- 30% decrease in total system weight, contributing to lower energy demand during navigation and increased payload capacity.
- 13% reduction in overall costs, enhancing the economic viability of fleet electrification in the maritime sector.

Innovative Technology for Maritime Applications

The SEABAT system is built on a modular architecture that utilizes scalable DC-DC converters, enabling the efficient integration of both high-power (HP) and high-energy (HE) battery cells. This configuration allows the system to be tailored to a wide range of operational profiles and energy demands—from high-power maneuvers to long-duration sailing operations.

In addition, the use of real-time EtherCAT communication ensures seamless coordination between system modules, allowing for precise control and continuous monitoring of battery charge status, performance, and safety. Thanks to this advanced architecture and the technologies applied, the system achieves an overall operational efficiency of 97–98%, an exceptional figure in the field of maritime electric propulsion.

A Collaborative International Effort

The success of the SEABAT project was made possible through the active cooperation of a wide network of partners from different countries and sectors, including research centers, universities, equipment manufacturers, and maritime industry players. Key partners involved include: **Flanders Make**, **Damen**, **Fincantieri Marine Group**, **RINA**, **SOERMAR**, **VARD**, **AVESTA**, **IMECAR**, **Uniresearch**, **CEA**, **Fraunhofer-Gesellschaft**, **IKERLAN**, **Mondragon Unibertsitatea**, **SINTEF**, and **Politecnico di Torino**.

Each partner contributed its specific expertise in critical areas such as electrical system design, naval integration, research in advanced energy storage technologies, and large-scale collaborative project management.

https://youtu.be/zIfTuzNC6aU.

DT4GS

After three years of collaborative innovation, the **DT4GS (Digital Twins for Green Shipping)** project has officially concluded in May 2025, marking a major milestone in the digital transformation of Europe's maritime sector. As a Horizon Europe-funded initiative, DT4GS advanced the deployment of **Digital Twin technologies** to support predictive maintenance, real-time performance monitoring, emissions reduction, and decarbonization planning.

At the core of DT4GS lies the **DGS Industry Platform**: a modular and interoperable infrastructure that integrates data pipelines, AI-based simulation models, and decision-support tools for voyage optimization, regulatory compliance, and emissions management. Real-world validation was achieved through **four operational Living Labs**—onboard vessels from Euronav, Danaos, Baleària, and Star Bulk—each demonstrating measurable gains in fuel efficiency, operational insight, and decarbonization strategy. To ensure continued impact, the **DGS Alliance** was launched to facilitate knowledge transfer, promote open standards, and foster cross-sector collaboration aligned with EU climate goals. DT4GS has thus delivered a future-ready framework for a greener, smarter, and more resilient shipping industry.

To illustrate this journey and its achievements, two videos were produced. The first—**DT4GS - Digital Twin For Green Shipping research project**—captures the project's purpose, key challenges, and research-driven ambitions. The second—**DT4GS - Core Capabilities of Digital Twins**—highlights the deployable nature of the DGS Industry Platform, showcasing how its components interconnect to deliver real-time, data-driven support for sustainable maritime operations.

Video 1: https://www.youtube.com/watch?v=ZpRHzxgrObM
Video 2: https://www.youtube.com/watch?v=Edk0z1nKwp4

AENEAS

In the first 18 months of **AENEAS**, the project team has made substantial progress, already completing two foundational work packages: Operational scenario Specification and Requirements (WP1) led by Grimaldi, and Cell level characterization and model development (WP3) led by CEA. WP1 concentrated on defining the project's use cases, while WP3 completed the testing and characterization of **AENEAS's** energy storage solutions.



Moving forward, AENEAS is currently developing advanced simulation tools to apply its innovative solutions to these use cases, with the goal of enhancing overall energy efficiency and reducing energy consumption.

The fourth General Assembly and **first Review Meeting** were successfully held in Brussels, showcasing all the work carried out in the first half of the project. The consortium provided a detailed update on the progress of the project, covering the completion of work packages, the status of deliverables, and the general progress.

NEMOSHIP

The NEMOSHIP project is now in its 3rd year and has progressed significantly. Currently WP3 to 10 are ongoing.

- The 1MWh heterogenous BESS container has been designed/sized, including the share of high-energy (HE) and high-power (HP) units. The BESS installation on Solstad's vessel is in its final steps. The vessel is called Normand Drott and is a hanchor handling tug supply. More information and photos are available on our website and on our Linkedin page, including a video of the vessel at this link.
- The Battery Power Management System (BPMS) algorithms to optimally pilot a HE/HP BESS have been developed and validated in the lab. Next step is to install it on vessel Normand Drott.
- In May 2025, the NEMOSHIP consortium successfully completed the first onboard deployment of its advanced digital platform aboard "Le Commandant Charcot", Ponant's LNG-electric hybrid polar exploration vessel (see here). The platform's beta release is now being enhanced with trip and leg optimization tools.
- Adaptation of NEMOSHIP innovation to full electric virtual case studies has also progressed, with the precise definition of these case studies.
- 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 currently midway through its implementation, having reached Month 18 of its total 36-month duration. A substantial portion of the preparatory work required to support the project's core technological innovations has already been completed. This includes the identification and validation of relevant use cases and the definition of system requirements. To ensure robustness and relevance, these steps were supported by surveys conducted with a diverse group of stakeholders and domain experts. Additionally, the power specifications were established through a rigorous and structured process. A key objective of BlueBARGE is to determine the most effective barge configuration in terms of size, integration of technologies, and propulsion system—whether self-propelled or not. In this context, evaluation criteria and key performance indicators (KPIs) have been set, and a series of alternative design concepts has been developed.

The proposed design concepts will undergo detailed evaluation to determine the most suitable option for further development and in-depth technical analysis. A hybrid battery system will be engineered, while power supply modules will be subjected to verification and qualification procedures. This will be followed by the construction of a small-scale prototype, which will be used for testing activities. A demonstration phase will then take place to validate system performance. Furthermore, a full-scale design will be designed in detail and assessed comprehensively, paving the way for the Approval-in-Principle to be issued. The project will conclude with the preparation of a detailed exploitation and commercialisation strategy.

EUWT-SE - Contacts of Project Members

EUWT-SE		Coordinator: RINA	Antonella Frassinetti antonella.frassinetti@rina.org Alessandro Maccari alessandro.maccari@rina.org
Project	**Website**	**Project Coordinator**	**Comms&Dissems Leader**
FLEXSHIP	www.flexship.eu	Alvaro Reina (BRING) alvaro.reina@bringvzw.be replaced by Christopher Haruna since April 2025 christopher.haruna@bringvzw.be	Nikoleta Dozic (WEGEMT) ndozic@wegemt.eu
HYPOBATT	www.hypobatt.eu	Endika Bilbao (IKERLAN) ebilbao@ikerlan.es	Philipp Lang (CARISSMA/THI University) Philipp.Lang@carissma.eu
SEABAT completed	www.seabat-h2020.eu	Jeroen Stuyts (FM) jeroen.stuyts@flandersmake.be	Cayetano Hoyos (SOERMAR) cayetano.hoyos@soermar.com
AENEAS	www.project-aeneas.eu	Mohsen Akbarzadeh (FM) Mohsen.Akbarzadeh@Flandersmake.be Anesa Begovic (i2m) anesa.Begovic@i2m.at	Cayetano Hoyos (SOERMAR) cayetano.hoyos@soermar.com
NEMOSHIP	www.nemoship.eu	Guenael Le Solliec (CEA) Guenael.lesolliec@cea.fr Solene Goy (CEA) Solene.goy@cea.fr	Margaux Faure (IEIC) margaux.faure@inextenso-innovation.fr
DT4GS completed	https://dt4gs.eu/	Georgia Tsiochantari (INLECOM) georgia.tsiochantari@inlecomsystems.com	Nikoleta Dozic (WEGEMT) ndozic@wegemt.eu; Martina Galluccio (RINA_C) martina.galluccio@rina.org
BlueBARGE	https://bluebarge.eu/	Konstantinos Voutzoulidis (ABS Hellenic SM LLC) kvoutzoulidis@eagle.org	Valeria Burlando (Magellan Circle) burlando@circletouch.eu Enrico Giunta (Magellan Circle) giunta@circletouch.eu

Funded by the European Union

The projects have received funding from the European Union's research and innovation programs Horizon Europe (FLEXSHIP, HYPOBATT, NEMOSHIP, AENEAS, BLUEBARGE, DT4GS) and Horizon 2020 (SEABAT)".

Please follow this link https://forms.gle/9Su6FvJHbNouvoyA9 to become part of the FLEXSHIP public stakeholder group.
You can be updated with the latest FLEXSHIP newsletters, events, workshops and stakeholders activities.