WP10 - Project and data management

D10.4: Second period of the Data Management Plan - Public Summary:

This report was developed as part of the Project and Data Management Work Package (WP) of the NEMOSHIP project. It corresponds to deliverable D10.4 and provides an updated version of the Data Management Plan (DMP) for the project.

A DMP is a formal document outlining how to obtain, document, analyse, and use data both during the project and after the project is complete. It describes in detail the methods and processes for creating, providing, maintaining, storing and protecting data.

The present report addresses each question from the Horizon Europe Data Management Template (version 1.1 – 01/04/2022) - this template follows the FAIR principles, which aim to make the data Findable, Accessible, Interoperable and Reusable.

More specifically, the present DMP addresses the following elements:

- Description of the data re-used or generated by the project (Section 2);

- Application of FAIR principles (Section 3);

- Other research outputs (Section 4);

- Exploitation topics: resources, security, preservation (Section 5).

Research data management aspects of the NEMOSHIP project are managed by the Project Coordinator, CEA, with the support of the consortium.

A key output of the project will be the development of a digital platform as well as algorithms for design and management strategies to ensure an optimal and safe exploitation of battery energy storage systems (BESS); these have been developed in WP2 and WP4. This platform and the algorithms take advantage of the large amount of data coming from previously installed BESS and above all from both Ponant and Solstad demonstration vessels (WP5 and WP6). At the time this report is written, the platform has been deployed on Ponant vessel and is in the final steps of development for Solstad vessel.

In terms of data flow and interoperability, this digital platform cloud repository is composed of multiple adapter modules that collect data exported by onboard, onshore, and other third-party applications into a cloud repository.

The process is the following: the digital twin simulation model can access data stored in the third-party applications (Marorka, DIPAI, OpenMeteo) through the Digital Platform and executes the simulation based on that data and user-configured scenarios. The results are then processed by the digital platform to allow for easier decision-making and optimisation of battery systems usage. The results are then exported back to the platform where they can be manually analysed or viewed through the output user interface by the support crew.

Each vessel has access to its own digital twin simulation model and its respective storage space in the platform repository where the user interface will be used to start the digital twin simulation. The present version of this deliverable provides an overview of the data available as of end 2025, as well as data that will be shared/collected in the future.

Co-funded by the European Union

The NEMOSHIP project has received funding from the European Union's Horizon Europe Research and Innovationprogramme under grant agreement No 101096324. Views and opinions expressed are however those of the author(s)only and do not necessarily reflect those of the European Union or or the European Climate, Infrastructure and Environment Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

In terms of re-used data, project partners Solstad, Corvus Energy and Ponant have provided several years of data relating to installation and operation of battery systems on vessels. Such data have been used to for example, develop lessons learnt, identify typical risks and how BESS operations could be optimised (D1.1 and 1.3); they have also been used to size the battery system (D3.1) and to feed into the digital platform (WP2, WP5 and WP6). The NEMOSHIP project will generate a significant amount of new data and research outputs through the two demonstration work packages among others. These outputs/data are expected to consist mainly of experimental test results, operational data, numerical calculations and text and figures interpreting the results.

In terms of storing and sharing, data are saved on an internal project repository and/or in the cloud repository of the digital platform. One full task of WP2 (T2.3) was related to the implementation of a cybersecured cloud infrastructure. The NEMOSHIP platform's cybersecurity measures are built on Microsoft Azure's enterprise-grade security infrastructure and protocols. These measures are developed and tested in alignment with maritime cybersecurity guidelines and frameworks, including the IMO guidelines and the NIST CSF (Cybersecurity Framework) 2.0.

By adopting the CSF core functions (Identify, Protect, Detect, Respond, and Recover) the platform integrates a comprehensive approach to managing cybersecurity risks. Part of these data are being and will be made available publicly, for example, via analysis described in the non-sensitive project deliverables or published papers. Two datasets from the Ponant and Solstad vessels are in the final stages of preparation and are foreseen to be shared publicly in 2026. Also, sharing of data and results has continued in 2025 via NEMOSHIP communication activities such as newsletters, LinkedIn posts, webinar etc.

A final update of the data management plan will be provided in the next edition of this DMP at the end of the project in December 2026.