D1.4: Data Management Plan, rev. 1

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Project data

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Reviewer	30.06.2025	Jason Vlavianos (HYDRUS)

Acronyms and Abbreviations	
Acronym/Abbreviation	**Meaning**
ABS	American Bureau of Shipping
CA	Consortium Agreement
D	Deliverable
DECP	Dissemination, Exploitation, and Communication Plan (DECP)
DEM	Demonstration
DMP	Data Management Plan
DOI	Digital Object Identifier
EC	European Commission
EEAB	External Experts Advisory Board
FAIR	Findable, Accessible, Interoperable, and Reusable
GA	Grant Agreement
KPI	Key Performance Indicator
MoM	Minutes of Meeting
NDA	Non-Disclosure Agreement
NTNU	Norwegian University of Science and Technology
NTUA	National Technical University of Athens
OpenAIRE	Open Access Infrastructure for Research in Europe
PC	Project Coordinator
PEB	Project Ethics Board
R	Report
SEN	Sensitive
TSC	Technology Steering Committee
TM	Technical Manager
T	Task
TL	Task Leader
WP	Work Package
WPL	Work Package Leader
UiT	The Arctic University of Norway

Table of Contents

1 - Executive Summary

This document presents the first revision of the BlueBARGE Data Management Plan (DMP) [1], prepared at the midpoint of the project's 36-month duration. It outlines the data management strategies adopted during the first 18 months and provides updates on the implementation of the Findable, Accessible, Interoperable, and Reusable (FAIR) data principles.

The revised DMP details the types of data generated to date, including technical drawings, simulation outputs, and survey results, and describes the procedures for internal sharing and external publication. It also highlights the use of the DataverseNO repository for long-term preservation and open access to selected datasets, in alignment with Horizon Europe requirements.

This document complements the original DMP [1] and aligns with the provisions of the Grant Agreement (GA) [2] and Consortium Agreement (CA) [3]. It serves as a living document, guiding data governance throughout the project and ensuring that data outputs are managed responsibly, securely, and transparently.

A final version of the DMP will be delivered at the conclusion of the project, incorporating the full lifecycle of data handling.

2 - Introduction

BlueBARGE (Blue Bunkering of Anchored ships with Renewable Generated Electricity) aims to design, develop, and demonstrate a fully integrated and sustainable floating power barge system that supplies renewable electricity to moored and anchored vessels. The project addresses the need to decarbonize maritime operations by replacing conventional shipboard power generation, which traditionally relies on fossil fuels, with clean, shore-based alternatives. BlueBARGE will integrate renewable energy sources, energy storage systems, and advanced control technologies to deliver a scalable and replicable solution for ports and anchorages across Europe.

The BlueBARGE project will generate and reuse various types of data, including (but not limited to) data related to power generation, energy storage, environmental and operational aspects, safety and compliance, connectivity, and financial aspects. A Data Management Plan (DMP) [1] was prepared at the outset of the BlueBARGE project, in accordance with the OpenAIRE Guides for Researchers and the Horizon Europe template [5], [6]. The DMP outlines strategies to ensure the findability, accessibility, interoperability, and reusability of the data produced during the project and beyond its conclusion. It provides information on the proposed data storage infrastructure and allocation of resources for data management, as well as data security and ethics compliance.

The BlueBARGE DMP was designed to meet the European Commission's (EC) standards and set the following goals:

- To offer guidance on producing data that adheres to the FAIR principles.
- To detail the attributes of the datasets generated by the project, such as format, size, naming conventions, and accompanying metadata.
- To identify suitable open-access repositories for the submission of BlueBARGE data.
- To dedicate resources towards the preparation, storage, and long-term preservation of data.
- To ensure the security and protection of data through the establishment of comprehensive guidelines.

In the first 18 months, various datasets have been created, including text files, technical drawings, analysis and simulation outputs, and Microsoft Office files, all shared and stored on the project's internal SharePoint. Most of the project work has involved sensitive engineering studies, restricting dataset publication. Other deliverables, like administrative documents and design recommendations, have not produced significant datasets, a journal paper has been published in the MDPI open access journal. This DMP update highlights the ongoing approach to reviewing collected data and generating datasets suitable for public access.

3 - FAIR data policy

Having introduced the BlueBARGE project, the following section outlines how the project aligns with the FAIR data principles, ensuring that all data generated is managed in a structured and sustainable manner.

The BlueBARGE project adheres to FAIR data policy principles, as outlined in the DMP [1]. The implementation of this policy, especially for data intended for public dissemination, is described in the following sections.

3.1 - Making data findable

The BlueBARGE project data intended for public access will be uploaded to the DataverseNO repository, where it is identified by a persistent identifier and metadata is created. The process of uploading data to the DataverseNO repository follows a simple structure [8]:

(1) Prepare and describe the data according to best practices. This includes using consistent and descriptive file names, saving data in recommended open formats, and documenting the dataset thoroughly in a ReadMe file (Figure 1).

(2) Create a user account and deposit the data into the appropriate (top-level') collection. Users not affiliated with a Norwegian research organization submit a form to request deposit access.

(3) Submit the dataset for review. A valid DOI is given at the draft stage but may only be used when the dataset has been curated and approved for publication in DataverseNO.

(4) Publish and cite the dataset. Once published, the dataset becomes openly accessible and citable. While published datasets cannot be deleted, they can be updated through versioning—previous versions remain archived and openly available. Project partners are required to generate or update a ReadMe file within each directory, encompassing, where feasible, the following elements: Title, Creator, Description, Publisher, Contributors, Date, Type, Format, Required Software for Execution, Required Software for Access, Language, Archive Status (Yes/No), and Public Access Status (Yes/No).

Figure 1– DataverseNO ReadMe file template

```
<Help text is included in angle brackets and should be deleted before saving. We recommend you to add "00_" in front of
the ReadMe file name (e.g. "00_README.txt"), which will make the file appear on the top of the file overview.>

<DataverseNO README File Template --- General --- Version: 2.4 (2024-03-21)>

This README file was generated on [YYYY-MM-DD] (YYYY-MM-DD) by [NAME].
Last updated: [YYYY-MM-DD].


-------------------
GENERAL INFORMATION
-------------------
// Title of Dataset:
// DOI:
// Contact Information
<The person to be contacted for questions about the dataset>
     // Name:
     // Institution:
     // Email:
     // ORCID:

<Whenever applicable, the following information should be registered in the metadata schema of DataverseNO. In the text
below, remove fields/lines that are not applicable, and leave the rest unchanged. >
// Contributors: See metadata field Contributor.
// Data Type: See metadata field Data Type.
// Date of Collection: See metadata field Date of Collection.
// Geographic location: See metadata section Geospatial Metadata.
// Funding sources: See metadata section Funding Information.

// Description of dataset:
<(Short) description of what the dataset is about, including reference to related project(s) and publication(s), if
applicable. Should correspond to the information entered in the metadata fields Description and Related Publication.>
```

BlueBARGE metadata will be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement [1].

3.2 - Making data accessible

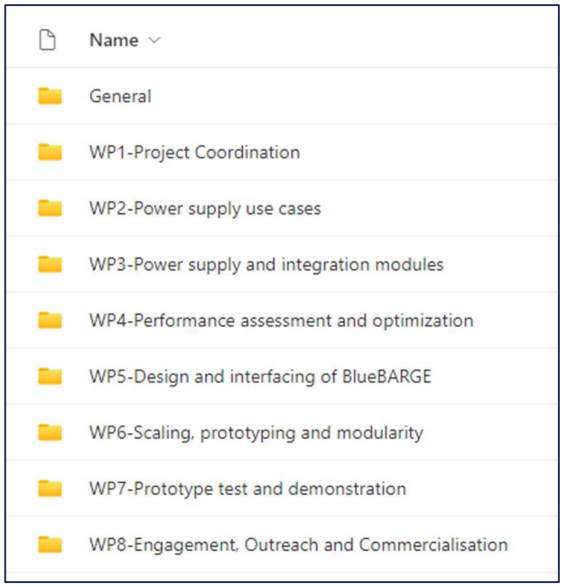
BlueBARGE's data storage infrastructure facilitates data exchange among Project partners during project execution and enables open data sharing and long-term preservation. The following sections cover internal and external data accessibility.

3.1.1 – Internal accessibility

The Project SharePoint in Microsoft Teams has been established to streamline internal accessibility and data exchange throughout the project lifecycle among Consortium members Consortium members have unrestricted access to all data stored within Project SharePoint files, facilitating internal data re-use between work packages.

The organizational (file) structure of the BlueBARGE SharePoint is shown in Figure 2.

Figure 2 – Organizational (file) structure of BlueBARGE SharePoint on Microsoft Teams



3.1.2 – External accessibility

Scientific peer-reviewed publications produced during the project will be open access under open licenses. Upon the project's conclusion, a curated selection of datasets—which have not been previously published to bolster scientific papers and have received unanimous consent from the consortium—will be preserved and made publicly available in the DataverseNO repository. The open access repository DataverseNO will facilitate the sharing of project data with external entities for future research and commercial endeavours, as well as ensure the preservation of data after the project's completion.

DataverseNO is a national, generic repository for open research data, owned and operated by The Arctic University of Norway (UiT). DataverseNO is aligned with the FAIR Guiding Principles for scientific data management and stewardship. The Norwegian University of Science and Technology (NTNU) is a current DataverseNO partner institution with an institutional collection for publishing data from affiliated researchers and will facilitate the depositing of project data to the repository.

3.3 - Making data interoperable

Interoperability essentially implies that each computing system is aware of the data exchange protocols of others. For datasets to be automatically discoverable and interoperable, employing widely recognized controlled vocabularies and uniform file formats is essential.

Consequently, Consortium members are requested, where feasible and irrespective of file type, to submit files in ASCII format.

This standardization allows every member to access the files using basic text-editing software, facilitating the use of shared work without needing additional software. Should there be a necessity to store a file not in ASCII format, it is mandatory to detail the file's operability and the necessary software tools in the designated metadata ReadMe file.

3.4 - Increase data re-use

Horizon Europe mandates that research data be deposited in a trusted repository, with accompanying details on any outputs, tools, or instruments necessary for their reuse or validation. These elements

include, but are not limited to, data, software, algorithms, protocols, models, workflows, and electronic notebooks.

BlueBARGE partners producing data to be deposited in DataverseNO repository will accompany the data with instructions for access, information on dependencies, and details on versions, types, and parameters. While open access to these materials is encouraged, exceptions are allowed for legitimate reasons.

Data made available on the public domain (open access repository) will be documented with descriptive metadata to facilitate re-use and licensed under the latest version of CC BY (attribution required) or CC 0 (public domain), or equivalent.

4 - Project datasets

The BlueBARGE project generates and reuses a wide range of data to support its research, design, and demonstration activities. These datasets are essential for developing the project's technical solutions and validating their performance. The data spans multiple domains, including power generation, energy storage, environmental impact, operational logistics, safety, compliance, connectivity, and financial modelling.

Following the completion of the first 18 months of the project, this section provides an overview of the datasets which have been produced or are envisioned to be produced in the remainder of the project.

Table 4.1 outlines the specific types of data generated, their sources, and who can access them.

Table 4.1 – Project data types, origin, and accessibility specifications (as foreseen at month 18)

Lead Partner	Data Type	Origin	Accessibility
NTUA	Numerical computations for power and energy demand of vessels at anchorage and in berth (aggregate results in D2.1 and D5.1).	From the combination of the Sea-web™: The Ultimate Marine Online Database, with the permission of S&P Global under various subscription options, and literature references.	Restrictions apply to the availability of some of the data shown as aggregates in D2.1; on demand access by Consortium partners.
NTUA	Survey results from partners, end users and other stakeholders (presented in D2.1 and D5.1).	Original contribution from partners and external stakeholders.	Consortium members.
HYD	Engineering drawings for the BlueBARGE promoted alternative design solution (T5.3).	Technical specifications developed during the project.	Consortium members.
HYD	Retrofit design of the barge and the demonstrator vessel (T6.1).	Technical specifications developed during the project.	Consortium members.
HYD	Basic drawings and arrangements of modules developed under BlueBARGE alternative design solutions (T5.1).	Technical specifications developed during the project.	Consortium members.

Lead Partner	Data Type	Origin	Accessibility
NTNU	Simplified numerical model of barge, port, and vessel power systems.	Technical specifications developed during the project.	Consortium members.
NTNU	Simulation models for the barge EMS and PMS from Matlab/Simulink.	Software modelling and simulation.	Consortium members.
NTNU	Simulation result files for design optimization and EMS optimization.	Simulation software output files.	Consortium members.
NTNU	BlueBARGE Design and optimization tool (T4.3)	Simulation software output files.	Consortium members.
NTNU	Digital twin testing and performance result.	Simulation software output files.	Consortium members.

Many datasets generated so far are classified as sensitive due to their technical nature and relevance to ongoing engineering studies. As such, they are currently accessible only to consortium members. Other deliverables prepared thus far include administrative documentation, communication activity reports, and design recommendations, which have not produced meaningful datasets.

Each dataset is reviewed and classified before release, ensuring compliance with legal and ethical standards, as further detailed in BlueBARGE D8.5 on IPR management [9]:

- **Confidential/Internal**: Technical data, risk models, and partner-specific contributions,
- **Restricted**: Interim results awaiting review or IP clearance,
- **Public/Open Access**: Validated datasets approved for release under open licensesPublic datasets will be curated and made available through the DataverseNO repository once approved for release.

Thus far, a journal paper on "Defining the Power and Energy Demands from Ships at Anchorage for Offshore Power Supply Solutions" [9], authored by NTUA, has been published by MDPI under an open access license. All articles published by MDPI are made immediately available worldwide under an open access license and may be reused in part or in whole without special permission, provided the original article is clearly cited [11].

5 - Allocation of resources

To support the effective implementation of the data management strategy and ensure compliance with FAIR principles, the project has also defined the allocation of resources and responsibilities, as outlined below.

No additional financial costs (in excess of the grant amount) are expected to be required to facilitate data management and storage for the BlueBARGE project in line with EC standards.

The following individuals act as contact persons for data management aspects of the BlueBARGE project:

Ms. Venetia Lazaratou, Project Manager – Europe Contracted R&D, ABS

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- Responsible for initial draft and continuous update of DMP
- Administration of Microsoft Teams
- Project coordination

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- Administration of NTNU Open Data Repository (NORD), DataverseNO

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- Technical project coordination

6 – References

The following references provide the regulatory, procedural, and technical frameworks that underpin the data management practices described in this document.

[1] BlueBARGE "D1.3: Data Management Plan", V1.0, 2024-06-21
[2] BlueBARGE Grant Agreement, Project 101138694, 2023-11-21
[3] BlueBARGE Consortium Agreement, V1.0, 2023-12-22
[4] BlueBARGE "D1.1: BlueBARGE Project Administrative and Financial Management", V1.0, 2024-04-26
[5] OpenAIRE. (n.d.). How to comply with Horizon Europe mandate for RDM. Retrieved from https://www.openaire.eu/how-to-comply-with-horizon-europe-mandate-for-rdm
[6] Openaire. HORIZON EUROPE Data Management Plan Template. (n.d.). https://www.openaire.eu/images/Guides/HORIZON_EUROPE_Data-Management-Plan-Template.pdf
[7] DataverseNO access and use policy. info DataverseNO. (n.d.-b). https://site.uit.no/dataverseno/about/policy-framework/access-and-use-policy/
[8] DataverseNO Deposit Guidelines. info DataverseNO. (n.d.-b). https://site.uit.no/dataverseno/deposit/
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[10] Ventikos, N.P.; Sotiralis, P.; Annetis, M.; Koimtzoglou, M.-A.; Keratsa, L. Defining the Power and Energy Demands from Ships at Anchorage for Offshore Power Supply Solutions. *Energies* 2025, *18*, 1766. https://doi.org/10.3390/en18071766
[11] MDPI Open Access Information and Policy. (n.d.). https://www.mdpi.com/openaccess