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D1.2
Data Management Plan

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Bauhaus of the Seas Sails

Document Info

Project data sheet

Title	Bauhaus of the Seas Sails
Acronym	BoSS
Project no.	101079995
Funding Programme	Horizon Europe
Type of Action	CSA
Topic Identifier	HORIZON-MISS-2021-NEB-01-01
Duration	36 months
Start	01/01/2023
End	31/12/2025

Deliverable details

Title	Data Management Plan
Work Package	1 - Management
Deliverable No.	D1.2
Type	Report
Dissemination level	SEN
Responsible Partner	IST-ID
Due date	30 Jun 2023
Submission date	27 Jun 2023

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History of changes

Date	Change	Author(s)
30 May 2023	Document Structure and general topics	LMS
6 June 2023	Development of the FAIR data section	LMS
15 June 2023	Development of Data summary section; Allocation of resources; Data security; ethics and Conclusion	LMS
23 June 2023	Revision, minor edits	NJN
23 June 2023	Minor edits	LMS
27 Jun 2023	Included WP3 contributions, final eds	LMS

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1. Executive Summary

The Bauhaus of the Seas Sails Data Management Plan is produced under the scope of the Extension of the Open Research Data (ORD) Pilot in Horizon Europe, the ORD aims to "improve and maximise access to and re-use of research data generated by Horizon Europe projects" and has been extended to all thematic areas of Horizon Europe.

The management of research data in the project will follow the procedures and approaches set in the template provided by the Horizon Europe Online Manual, and the recommendations on Data Management, including preparing a detailed Data Management Plan (DMP) within the first six months of the project. The Bauhaus of the Seas Sails (BoSS) will adopt the best practices in research data management, following the "OECD Principles and Guidelines for Access to Research Data from Public Funding".

As recommended, this document should be regarded as a living document, that will be updated throughout the project. It provides information on:

- What categories of research data will be collected, processed and/or generated by the project;
- Which methods and standards will be applied in respect of the FAIR data principles for handling research data during and after the end of the project;
- Whether research data will be shared or made publicly accessible and if so, following which open access model;
- How data will be curated and preserved, during and after the end of the project;
- Which additional safeguards will be implemented to ensure respect of the FAIR data principles in terms of allocation of resources, data security, research ethics and intellectual property rights.

As we detail below, research data that will be shared or made publicly accessible in BoSS will be dependent on the development of each of the pilots to be implemented during the project's life cycle.

Since the different pilots will be developed according to a co-design strategy, the Data Management Plan will need to be revised frequently according to the project's implementation.

This is due to the objectives and nature of BoSS: rather than being a purely research oriented project with mainly scientific objectives, it aims to explore real-life pilots and use cases of design innovation

in the context of the Horizon Europe missions, offering opportunities to engage with communities on as an environmentally sustainable, socially fair, and aesthetically appealing transition. These pilots will vary and datasets (or at least their descriptions) are crucial to guarantee the replicability aimed for with a lighthouse type of project.

Nonetheless, the project aims to evaluate on a continuous basis which research data is sufficiently anonymous, including strictly statistical and aggregate data, and this data will be made available for sharing and re-use wherever feasible.

The present document will take constant contributions from all of the Work Package leaders since they are also responsible for different scientific areas of research and innovation.

2. Introduction

The Data Management Plan (DMP) contains the main guidelines for implementing the Bauhaus of the Seas Sails (BoSS) project. The DMP describes the data management life cycle for the data to be collected, processed and/or generated by the project. It is part of a broader strategy to make research data findable, accessible, interoperable, and re-usable (FAIR).

The notion of "research data" refers to "*information, in particular facts or numbers, collected to examined and considered as a basis for reasoning, discussion or calculation*". Examples of research data include (among others) statistics, results of administrative procedures, measurements relating to exchanges, database contents, data captured in transaction logs (possibly curated to remove or reduce personal data), survey results, contents of applications, interview recordings and images. Trade secrets, commercially sensitive information and confidential information are however not considered to be research data. The implications of this scoping will be outlined in the following sections.

This Plan reflects the actual Consortium agreement policies on data and will, as recommended, be frequently updated might these policies need to be reviewed.

3. Project Overview

The Bauhaus of the Seas Sails (BoSS) intends to demonstrate and test solutions for climate neutrality, focusing on coastal cities as interfaces to healthy seas, oceans and water bodies, envisioning a new triangle of sustainability, inclusion and aesthetics, focused on the most important global natural space: water. The project promotes an open platform for gathering communities towards an environmentally sustainable, socially fair and aesthetically driven transition. The Atlantic Tagus River Estuary (Lisbon/Oeiras), the Lagoon in the Adriatic (Venice) and the Gulf of Genoa (Genoa), the Atlantic Rhine–Scheldt Delta (Rotterdam) and the Öresund Strait (Malmö) and North Sea / Elbe River (Hamburg) constitute the seven lighthouse demonstrators to work as pilots for the implementation of HE mission objectives and showcase innovative solutions with a high potential for replication. These seven pilots provide tangible examples of mission-oriented, impactful, measurable, and targeted approaches.

4. Data Summary

Research data and other types will be collected and generated throughout the project's lifecycle, related to the different aspects of the project´s management, deployment, monitoring, and evaluation.

The BoSS data management plan's main goal is to identify the different types of data and determine how it will be exploited and made accessible. The data collected throughout the project contributes to expanding transdisciplinary researcher's potential and fostering a critical mass of researchers in different fields of expertise. It also contributes to the project´s scalability and replication potential, a fundamental pilar of the project and its lighthouse dimension.

As the first year of the project is dedicated to co-design, which means that the actual deployment of the pilots is still under definition, the data management plan requires a periodical update, gathering input from the different pilots and WPs.

4.1 Data sets

At this early stage of the project, we can identify several different types of data which rely on the internal management of the project, the relation with external stakeholders during the co-design process, the development of the replication and monitoring strategies and the communication and dissemination dimension.

The following fundamental data sets were identified:

- Internal documents related to the management — contacts, reports, minutes for meetings and presentations;
- Documents and data related to the collaborative process — minutes and reports from the co-design groups (Sea Forum and Pilot teams) and interviews with pilot leaders;
- GIS data to be included in the development of the geospatial platform;
- Video, audio and other media resulting from the communication strategy.

Origin of data and re-use of existing data

Data from different sources will be re-used in the different pilots and with disparate purposes.

As the Co-design process is currently taking place until October 2023, only after this can we include further updates regarding the deployment of the several pilot case studies.

Specifically, we can address the case of WP5 which will re-use existing open data in order to allow analysis in the development of the BoSS Geospatial Platform. The data will be used to provide a comparative analysis on the territorial characteristics of the different areas where the pilots are taking place. The curated list of GIS data will be updated regularly. WP5 will mostly re-use existent data and not so much generate new one. WP5 data will be collected by TUDelft (Michael Rodrigues).

The other WPs do not foresee the use of existing data at the moment of the drafting of the current plan.

Types and formats of data generated and reused

During the life cycle of the project data will be collected and processed, as well as generated according to the nature of each Work Package's (WP).

The table below provides an overview of the types of data which will be collected and the associated file formats, corresponding WPs and, when applicable, the pilots to which they are related.

Whenever possible, the project's consortium will use file formats suitable for long-term preservation and re-use.

WP	Pilot	Type of data	Format
1	n/a	Email addresses	.xlsx
1	n/a	Project deliverables	.doc/.pdf
1	n/a	Meetings Minutes	.doc/.pdf
1	n/a	Powerpoint presentations	.ppt
1	n/a	Scientific papers	.doc/.pdf
2	All pilots	Summaries of Sea Forum meetings	.doc/.pdf
2	All pilots	Interviews with co-design leaders	.doc/.pdf
3	n/a	Reports on Expert Development Programme (EDP) activities	.doc/.pdf
3	n/a	List of participants in activities and relevant links	.xlsx
3	n/a	Recordings of EDP activities	.mov/.wav
3	All pilots	Summaries of Follow-up Sessions	.doc/.pdf
3	All pilots	List of creative leads	.xlsx
5	All pilots/territories	GIS data	basemaps/.xlsx
6	n/a	Video	.mov/.mp4
6	n/a	Áudio	.wav/.mp3
6	n/a	Pictures	.tiff/.jpg/.png

The purpose of the data generation and re-use is dependent on the different types of work developed under each WP.

WP1 will mostly produce internal documents such as the Project Management Plan, contacts and documents related to the project's daily management.

WP2 will generate different types of documents related to the co-design process, specifically guideline documents to the Sea Forum and ocean ambassadors programme, but also collect summaries from de sea forum meetings and the executive plans. The data will be collected through input generated by the local co-design leaders and through interviews led by WP2 responsible MAU

(Anna Seravalli with support from Ann Light and Froukje Zumbrik). Data analysis will be carried out by MAU (Anna Seravalli and Ann Light).

WP3, focusing on the deployment of the pilots, will collect records from meetings and information on the co-design process, figuring reports and graphic materials. Each local authority responsible for the respective pilot demonstrator will be in charge of collecting the data on each site and TBA will be responsible to consolidate the data in the project repository. It also will generate different types of documents regarding the expert development programme developed (EDP). WP3 will collect records from follow-up meetings with pilots on their delivery process, including reports and graphic materials. WP3 will also generate reports from the different activities of the EDP including graphic materials and their analysis. The responsible for sharing information on each pilot location is indicated in the table below:

Pilot	**Responsible**
Lisbon	Cristiano Pedroso-Roussado (IST)
Oeiras	Cristiano Pedroso-Roussado (IST)
Venice	Fabio Pitarello (UNIVE)
Genova	Silvia Campailla (CDG)
Malmo	Linn Johansson (MEC)
Hamburg	Georg Diez (DTH)
Rotterdam	Michael Rodrigues (TUD)

WP4 will collect information on each specific pilot, setting up indicators to assess their replication potential. It will produce open and shareable documents on the replication strategies.

WP5 will re-use existent GIS data in order to allow impact assessment within the objectives of the project.

WP6, dedicated to the communication will collect information from all partners, specifically pictures and general info on each institutional partner. It will also produce a series of videos and/or audio files, to be disseminated via different channels.

Below there is the assignment of each person responsible for organizing and sharing the details on the data management for each WP.

WP	Responsible
1	Nuno Jardim Nunes (IST
2	Anna Sevaralli / Ann Light (MAU)
3	Nicole Arthur / Miriam Calabrese (TBA 21)
4	Stefano Micelli (IUAV)
5	Michael Rodrigues (TUD)
6	Hugo Sousa (MAG)

Purpose of the data generation or re-use and its relation to the objectives of the project

The purpose of the data generation and re-use is dependent on the different types of work developed under each WP.

WP1 will mostly produce internal documents such as the Project Management Plan, contacts and documents related to the project's daily management. These documents will be stored in a shared cloud facility accessible by all project partners and managed by IST-ID.

WP2 will generate different types of documents related to the co-design process, specifically guideline documents to the sea-forum and ocean embassadors programme, but also collect summaries from de sea forum meetings and the executive plans. Data from WP2 might be re-used by other researchers and practitioners interested in applying a co-design methodology informed by a more-than-human perspective. These documents will also be stored in the shared project cloud facility accessible by all project partners and managed by MAU.

WP3, focusing on the deployment of the pilots, will collect records from meetings and information on the co-design process, figuring reports and graphic materials (e.g. records of participatory activities, digital transcripts and analysis of discussion in the form of affinity diagrams, etc.). These documents will be shared in the Project cloud facility and accessible by all project partners and managed by TBA. Data from WP3 might be re-used by other cultural institutions, municipalities, researchers and

practitioners interested in developing co-created, art-led projects that result in sustainable, inclusive and aesthetic outcomes. As well, the programme developed to support the pilots might be interesting to other cultural institutions looking to support projects in similar ways.

WP4 will collect information on each specific pilot, setting up indicators to assess their replication potential. It will produce open and shareable documents on the replication strategies supported by site specific indicators. These documents will be shared in the Project cloud facility and accessible by all project partners and managed by UNIVE.

WP5 will re-use existent GIS data in order to allow impact assessment within the objectives of the project. An online geospatial platform will enhance an existing GIS data management system platform to map heterogeneous spatial, socio-economic and cultural data, narratives and visuals for the pilots and follower cities in a standardised way. WP5 data storage infrastructure was designed to handle large amounts of geospatial data, from European-level datasets to street-level details, in an efficient and cost-effective manner. All its components are located on a web server hosted by an American web hosting provider in Amsterdam. The platform uses both a file-based storage system and a relational database management system. Geospatial data within the platform is stored in both file-based GeoJSON files and MariaDB, the relational database management system. MariaDB is pivotal to the platform's data storage. As a widely used open-source relational database management system, MariaDB offers a structured and efficient approach to data storage.

WP6, dedicated to the communication will collect information from all partners, specifically pictures, interviews, transcripts and general info on each institutional partner. It will also produce a series of videos and/or audio files, to be disseminated via different channels. The information will be recorded in the shared in the Project cloud facility and accessible by all project partners and managed by MAG. Edited version of the information will be posted publicly in the project website and social media channels. When required permission will be requested to publicly disseminate the information and consent forms will be registered in the project cloud facility.

Expected size of the data

At the current stage of the project, it's challenging to accurately determine the total volume of the generated data. It is plausible that the data might be quite extensive, considering it may involve the

exchange of numerous digital elements that could include or embed graphic images, thereby significantly augmenting the file sizes.

The size of transactional and survey data is likely to be smaller, of qualitative nature and primarily contingent upon the extent of project piloting, an aspect that is currently unpredictable. The volume of data derived from analysis is equally uncertain at this point. However, it's safe to infer that the projected size of these datasets should be potentially around 15 Gbytes.

Data utility

While the potential value of the evidence-based data sets is high, they are deemed irrelevant due to legal restrictions rendering them out of scope.

Transactional and survey data, however, are expected to be highly beneficial for both policy makers and scientific researchers. The transactional data can offer a detailed snapshot of piloted transactions and their key features, while survey data can shed light on the anticipations and experiences associated with the BoSS piloting initiatives. It's important to note that these potential benefits need to be weighed against privacy and confidentiality considerations, which generally prevent the sharing of transactional data in its original form.

Consequently, the outcomes of the project activities will primarily serve the interests of policy makers and academic researchers. For instance, these results can contribute to the enhanced design of governance models for Distributed Autonomous Organizations (DAOs), as improved understanding of challenges and key benefits can facilitate a more strategic allocation of responsibilities.

From a replication standpoint, the data processing and analysis conducted within the scope of this project is anticipated to foster the development of similar initiatives, thus laying a foundation for the successful execution of comparable projects. These projects would take into account a comprehensive view of bio-territories and promote regenerative approaches to ecosystems, as well as adaptations to climate crisis.

Other types of data

It is expected that the BoSS other types of data will be produced, such as:

- Articles in Scientific Journals, Conferences, and Workshops;
- Prototypes from the pilots
- Artistic interventions and artifacts
- Project Deliverables

Articles in Scientific Journals, Conferences, and Workshops

All scientific articles generated from this project, which intersects the fields of design, architecture, and climate studies, will adhere to the "gold" model of open access publications. This implies that the articles will exclusively be submitted to open access journals or hybrid journals that facilitate open access publication via the payment of specific fees. Upon publication, these research articles will be made publicly accessible on the project's website.

In line with our commitment to open access, submissions to workshops and conferences will also be limited to those events that permit authors to upload a personal copy of their accepted papers on their own websites. Fortunately, this open access approach is a standard practice at leading conferences across our interdisciplinary fields of study.

Prototypes

As part of our targeted approach, our aim is to develop a co-design approach and to construct, implement, and evaluate real-world prototypes of different scopes. Monitoring tools and a replication strategy will be developed, including a Geospatial platform, enabling the study of these prototypes to understand their actual effectiveness in enhancing global impact and citizenship. The replication strategy foresees spearheading the development of these prototypes and ensure their open access availability. These prototypes will be showcased to various local stakeholders, including local SMEs, startups, and micro-entrepreneurs, at a later stage of the project.

The data generated will yield value for a diverse range of groups, including:

- Cultural partners;

- Academic Scholars;

- Public Policy Stakeholders;

- The General Public.

Artistic interventions and artifacts

In the context of the BoSS project, the data management for the production of artistic interventions and artifacts involves meticulous planning, collection, organization, storage, and dissemination of the data associated with these creative endeavors aimed at promoting a renewed and regenerative aesthetics that are a result of a result of a plural, interdisciplinary and interspecies practice.

At the outset, BoSS will identify the types of data to be generated, such as design blueprints, digital renderings, photographs, project reports, and feedback data from public interactions. The Project will also define data formats, storage solutions, and data security measures, ensuring the protection of sensitive information and intellectual property rights.

Deliverables

The following list of deliverables includes the level of dissemination set and approved by the European Commission. After its approval by the Grant Authority they will be automatically published and made available online.

As an amendment is currently under revision by the EC the due dates of some of the deliverables will be subject to change after their approval.

WP No	No	Name	Type	Dissemination Level	Due Date
WP1	D1.1	Project Management Plan	R	SEN	28-Feb-23
WP2	D2.1	Template and co-design process	R	PU	31-Mar-23
WP4	D4.1	Operations manual for replication strategy	R	PU	31-Mar-23
WP6	D6.1	C&D Plan	R	PU	31-Mar-23
WP1	D1.2	Data Management Plan	DMP	PU	30-Jun-23
WP5	D5.1	Report on Online geospatial platform (limited functionality)	DEM	PU	30-Jun-23
WP4	D4.2	Summary of baselines for local contexts	R	SEN	31-Aug-23
WP2	D2.2	Ambassador programme materials and instructions	R	PU	30-Sep-23

WP2	D2.3	Executive plans	R	SEN	31-Oct-23
WP3	D3.1	Report on BoSS-Zoöps for Pilots	R	PU	31-Dec-23
WP3	D3.2	Report on Expert Development Programmers for Pilots from Co-Design	R	PU	30-Apr-24
WP6	D6.2	C&D Plan Update	R	PU	30-Jun-24
WP4	D4.3	Intermediate report on implementation roadmaps for pilots	DEM	PU	31-Oct-24
WP3	D3.3	Report on Public-facing Programming and local Sea Forum	R	SEN	30-Jun-25
WP4	D4.4	Final report on implementation roadmaps for pilots	R	PU	30-Jun-25
WP4	D4.5	Summary of policy indications to EC	R	PU	30-Jun-25
WP3	D3.4	Consolidate Report on Pilots Toolkits and Experiential Storytelling	DEM	PU	31-Aug-25
WP4	D4.6	Guidelines for submitting projects to funders	R	SEN	31-Aug-25
WP2	D2.4	Report on outcomes of co-design approaches and review of contextual factors	R	SEN	30-Sep-25
WP4	D4.7	Report on funder expectations	R	SEN	31-Oct-25
WP5	D5.4	Report on Digital Twins of coastal cultural heritage	DEM	PU	31-Oct-25
WP2	D2.5	Report on eco-social change-making, sea-facing, and more-than-human	R	PU	30-Nov-25
WP5	D5.2	Analytical framework for impact assessment	DEM	PU	31-Dec-25
WP5	D5.3	Final online BoSS platform	DEM	PU	31-Dec-25

Scholarly Community

Through the generation of novel academic publications, the establishment of fresh frameworks and methodologies, and the orchestration of workshops or design studios, we will foster collaboration opportunities. These opportunities range from co-supervision of research students to co-authorship on specific pilot activities. We will also extend support to the community through various means such as social media platforms and inter-campus initiatives.

Public Policy Community

By delivering pilots and the co-design strategy, together with the replication strategy that speaks to central issues of public concern such as sustainable behaviours, social inclusion, and public well-being, we aim to provide useful tools for the public policy community which will inform the development of inspired-based sister projects in other coastal cities around Europe and beyond.

Wider-Public

As stated by the communication plan, the BoSS aims at a wide range of audience, with a relevant presence in the media, the organization of press events and written, video and audio publications related to the real-world applications and pilot development. As the demonstrators also aim at engaging with local communities and groups, there a is a need to both use and generate data related to those specific communities and groups.

5. Fair Data

BoSS, as a lighthouse NEB project, places significant emphasis on enhancing the discoverability, accessibility, and identifiability of its research data. In line with the (GA) and guidelines for data production, BoSS adheres to the FAIR data principles. These principles dictate that research data should be easily findable, accessible, interoperable, and reusable, thereby facilitating its effective utilization and maximizing its potential impact.

3.1. Findable

To ensure data is easily discoverable, an adequate amount of metadata will be registered or indexed in research databases, making it accessible to potential users. All data essential for the consortium will be consolidated in a dedicated internal repository that serves as the central source for all project-generated data. The access rights of original authors/publishers will be duly respected for the included entries. For public-facing data, the project website will disseminate the information using standard Search Engine Optimization (SEO) techniques. These methodologies employ selected keywords to enhance the visibility and discoverability of the data. By understanding how search

engines operate, considering user search behaviour, and utilizing preferred search engines, the platform aims to appear more frequently in search result lists. SEO strategies may encompass various types of searches, such as image search, local search, video search, news search, and theme-specific vertical search engines. Additionally, the website plans to integrate (via links or other tools) any other platform and content generated within the project, since each pilot will have its independent action.

In order to ease the interpretation of the data and to increase the identification, discoverability, re-use and preservation, the participants agree to provide adequate metadata within the data sets generated within the project. Metadata is structured information describing the characteristics of the sources. Authors of data will be asked to provide the following metadata that describes the data produced:

- Name
- Location
- References
- Date
- Keywords
- Methods of sampling
- Equipment
- Procedures

If possible, all datasets will be documented with the above-mentioned detailed metadata. Whenever considered viable by the WP leaders and according to what has been defined in the application, the datasets used for their publication will be publicly available for anyone to access. Other information that the research data contain include the reference period, project funding information (e.g. EU logo and information about the Grant Agreement and the action/program that funds the project, official project name and project ID), release policy including dissemination rules, information about the collection of the data such as the data source, geographic coverage of the data, language, and file format.

In all dissemination actions, such as scientific publications and conferences — foreseen during the course of the project in different areas — will include the acronym of the project, the grant agreement number, and a digital object identifier (DOI) in the bibliographic metadata.

WP 2 will explore the possibility to make co-design data available through a trusted and certified data repository. Every dataset will be assigned a Digital Object Identifier (DOI), to make them citable and persistently available.

In case data will be made available all datasets will be accompanied by rich metadata, adhering to the DataCite Metadata Standard, to ensure that they are findable.

3.2. Accessible

In compliance with Horizon Europe guidelines on accessible data, the materials produced during the project's lifespan will be disseminated following the provisions outlined in the Consortium Agreement. The project's deliverables designated as 'PU' (public) in the Description of Action will be openly accessible through the project website. Furthermore, these deliverables can be shared through relevant platforms such as Zenodo, OpenAIRE, and others, in accordance with the Grant Agreement and the Horizon Europe Open Access Guide, ensuring adherence to the principles of open access and maximizing the availability and reach of the project's outcomes.

The open access strategy does not encompass certain types of data due to their potential to identify individuals or their commercially sensitive nature. Therefore, data such as personal information of research participants, industry partners, or other stakeholders, raw qualitative research data derived from interviews, focus groups, and workshops, draft reports, incomplete work, personal notes, future research plans, preliminary analyses, peer reviews, and communication outside of a controlled testing environment are excluded from the scope of the open access strategy.

In accordance with the data anonymization approach, all data within Public deliverables will undergo the necessary steps to ensure anonymity. This implies that (1) evidences presented as a dataset are explicitly excluded from the scope; (2) transactional data related to exchanges will be reported only in aggregated and statistical form unless fictitious test data can be utilized for piloting purposes; and (3) survey outcomes will also be reported solely at the aggregated and statistical level. The intention is to prevent the traceability of such data to individual users, be they individuals, companies, government or non-government entities, as well as individual administrations or Member States, where doing so could potentially hinder their functioning. Original information that is non-aggregated and therefore identifiable will not be openly accessible, but the source information will be securely

retained by the project partners for the duration permitted by the Consortium Agreement and/or as mandated by applicable laws.

Nevertheles, most data generated by BoSS will be available to the broader public. These data include conference and workshop papers, journal articles, books and book chapters, deliverables (public ones) minutes of meetings, recordings of conferences and workshops, and project technical reports. This data will be accessible on the project website www.bauhaus-seas.eu, social media and other associated channels.

The open research data will be made readily accessible with the least technical barriers possible, meaning that no prior identification or authentication requirements will be imposed. However, to safeguard the privacy of research participants and create an environment that fosters open and honest communication, all reporting and communication pertaining to the project participants will be shared only in a pseudonymized or anonymized format, unless for specific cases, in which informed consent and all legal frameworks are considered. Original data that is not anonymized or pseudonymized will be securely stored separately from the research data, ensuring traceability and identification for research validations and follow-up purposes. The storage of such data will adhere to state-of-the-art confidentiality and security standards, incorporating measures like encryption, access logs, and seals. In cases where a document cannot be secured with a password, it will be stored within an encrypted container protected by a password (e.g., 7zip).

3.3. Interoperable

Apart from the geospatial platform which will consolidate different sources of data across pilots, partners, open sources datasets and additional information collected from other projectswe don't expect BoSS to involve substantial interoperability of data. The BoSS geospatial platform shares data and content from the Leiden-Delft-Erasmus PortCityFutures research group. The platform will feature specific data from the Port City Atlas book, which was created within the PortCityFutures research group and the Faculty of Architecture TU Delft. The Port City Atlas book is a printed paper atlas, so there is no interoperability between projects. Nevertheless, the atlas provides the mapping for 100 European ports, which serves as the foundation and provides content for the construction of the BoSS platform.

Nevertheless, when applicable and to promote online interoperability, when applicable, the project's team will adhere to the guidelines provided by OpenAIRE, as outlined in their documentation (https://guidelines.openaire.eu/en/latest/).

Furthermore, the project will commit to upholding the FAIR principles for data management, as mandated by the Horizon Europe open-access policy. The team will oversee the adherence of the project's data to these principles. Detailed information regarding the FAIR principles in the GOFAIR Iniative[1].

As the project progresses and generates more data, subsequent versions of the Data Management Plan will provide additional information on data interoperability, ensuring that our approach evolves in line with best practices and requirements.

No community-agreed metadata standards exist for qualitative co-design activities. To ensure interoperability the data will be documented appropriately (e.g. ReadMe files etc.) to allow re-use and operability across disciplines. Additionally, the data underlying the publications will be available through 4TU.ResearchDataOpens in a new window (which uses DataCite metadataOpens in a new window schema and Dublin Core).

3.4. Reusable

The (meta)data intended for open and reusable access will adhere to widely adopted terminologies, standards, and methods. This approach aims to enhance interoperability and foster interdisciplinary collaboration. To ensure accessibility and availability, depositing the data in specialized research repositories is planned. Moreover, measures will be implemented to enable third parties to freely access, mine, exploit, reproduce, and disseminate the data (including associated metadata) required for validating the outcomes presented in scientific publications.

Once the project concludes, there will be no restrictions imposed on the use of the data by third parties. It will be made perpetually reusable, clearly labelled with the applicable licenses to indicate the permissions granted for usage. This commitment ensures that the data remains available for

[1] https://www.go-fair.org/fair-principles/?utm_source=CPB&utm_medium=cms&utm_campaign=JQC19229

exploration, analysis, and further research endeavours, promoting the scalability and replication possibilities of the demonstrators, including the co-design approaches and the impact assessment.

6. Allocation of resources

As outlined in the BoSS Grant Agreement, within the boundaries of intellectual property rights and in alignment with the Extension of the Open Research Data (ORD) Pilot, the Bauhaus of the Seas Sails project will disseminate its findings by making available public project deliverables on the openly accessible section of the project's website. The decision between utilizing Green Open Access or Gold Open Access will be made on a case-by-case basis for each research outcome.

According to the Grant Agreement, the project coordinator will oversee the data management, with support from all partners involved in data collection, generation, or provision, with piloting partners being particularly notable contributors.

The consortium has accounted for the costs of long-term data preservation. There will not be any additional costs (beyond those already allocated in the overall project budget) related to the maintenance of data beyond the funding period. Furthermore, the management of the data generated by the project will also be discussed by each institution and follow their specific guidelines relating to data keeping and any sensitive issues connected to intellectual property and privacy.

The expenses associated with open-access scientific literature (or participation in conferences and workshops that allow for personal copies of papers to be posted), produced within the scope of the project, are eligible for reimbursement under the Horizon Europe Grant Agreement. The project Coordinator, along with the Research Management Unit, will ensure compliance with the Data Management Plan throughout the project's duration.

A Knowledge Transfer Plan will be discussed and addressed specifically within WP4 Replication Strategy and WP5 Impact Assessment, foreseeing the transfer of knowledge generated by the BoSS project to the broad society and specifically to the identified stakeholders. It will take into consideration the identification of potential indicators to measure and assess the impact of the demonstrators both in social aspects as well as territorial and ecosystemic terms. It will also consider

the aspects of public and community participation, and the main pillars of the NEB: Aesthetic, Inclusive, Sustainable.

7. Data Security

Data security is a critical aspect of any Data Management Plan (DMP), especially for Horizon Europe projects, given the often sensitive nature of the research data involved. The following are some basic security measures we will implement to ensure the integrity, confidentiality, and availability of our project's data:

Data Encryption: All stored and transmitted data will be encrypted using robust algorithms. This measure protects data even in case of unauthorized access.

Access Control: We will implement strict access control mechanisms, granting data access only to authorized individuals. This includes password protections, multi-factor authentication, and role-based access controls.

Data Backup and Recovery: Regular data backups will be conducted to safeguard against data loss. A data recovery plan will be in place to ensure the rapid restoration of data in the event of a disaster.

Regular Updates: We will carry out regular updates to identify and address potential vulnerabilities. Software and systems will be kept updated to mitigate the risk of security breaches.

Data Anonymization and De-identification: To protect the privacy of individuals involved in the research, personally identifiable information will be anonymized or de-identified where possible.

Data Retention and Disposal: We will establish clear policies on data retention and disposal, ensuring data is kept only as long as necessary and disposed of securely.

Incident Response Plan: A clear plan will be established for responding to security incidents to minimize damage and downtime.

These basic security measures form the foundation of our data security strategy, but we will also ensure that our approach evolves as needed to respond to emerging threats and the specific requirements of our project.

8. Ethics

Ethical considerations are integral to every aspect of BoSS, particularly when it comes to managing data. Below are some fundamental ethical issues related to data that we will address in our Data Management Plan (DMP):

1. **Informed Consent:** All data collected from individuals will be done so only after obtaining informed consent. This includes a thorough explanation of how the data will be collected, stored, used, and shared, ensuring that all participants have a clear understanding of the process.

2. **Privacy and Confidentiality:** We will take measures to protect the privacy and confidentiality of all participants by anonymizing or de-identifying personal data wherever possible. Strict access controls will ensure that only authorized individuals have access to the data.

3. **Data Protection**: In line with the General Data Protection Regulation (GDPR), we will implement strategies to ensure the safe storage, transfer, and use of personal data. This includes secure data encryption and regular security audits.

4. **Data Sharing and Reuse:** While promoting open science and data sharing, we will balance these goals with respect for the privacy and wishes of the individuals whose data is being shared. Data will only be shared in a manner that is consistent with the informed consent obtained from participants.

5. **Vulnerable Groups:** Special care will be taken when working with vulnerable groups to ensure that their rights and well-being are protected. This includes making sure that their participation is voluntary and that they fully understand the implications of their involvement.

6. **Non-discrimination:** We will ensure that the collection, analysis, and dissemination of data does not lead to discrimination or stigmatization of any group or individual.

7. **Respect for Cultural Differences**: Taking into consideration the multinational and multicultural nature of the project, we will respect cultural differences and local norms when collecting and handling data.

8. **Responsible Use of Data**: We will commit to using the data responsibly and only for the purposes outlined in the project.

In addition to these basic principles, our DMP will be flexible enough to accommodate specific ethical considerations that may arise during the project's lifecycle. Our overall goal is to ensure that our data management practices meet the highest ethical standards while facilitating an effective and innovative approach which includes research and knowledge transfer.

9. Conclusion

In closing, the Bauhaus of the Seas Sails project's Data Management Plan (DMP) maps our strategy for overseeing the complete data lifecycle, spanning from the initial phases of data collection to the ultimate archiving or disposal.

Our approach to data collection is systematic, ensuring we amass high-quality, reliable data that underpin our activities and research. An effort will be made to ensure that accompanying this data detailed documentation and metadata is produced, which lends valuable context, thereby enhancing its usability and understandability for both our team members and external researchers and stakeholders.

When it comes to data storage and security, robust measures will be employed. These include encryption, access control, and regular updtaes to shield our data from unauthorized access or loss. As we balance our commitment to open science with a respect for privacy and confidentiality, we aim to make our data accessible to other researchers in a responsible manner.

The project's DMP accounts for long-term data preservation measures. These ensure that our data will remain available and usable even after the project's lifespan has ended. Ethical considerations are underscored throughout our DMP, with emphasis on practices such as obtaining informed consent, protecting privacy, and ensuring non-discrimination.

We pledge to comply with all relevant legal requirements, inclusive of those related to data protection and intellectual property rights. For the successful implementation of our DMP, clear roles and responsibilities have been delineated for all partners.

Resources have been allocated to cater for all costs related to data management within our project's budget. This ensures that the resources needed for effective data management will be available throughout the project.

The Bauhaus of the Seas Sails project is fully committed to adhering to this DMP. We will review and update it in a semestral basis to cater to the project's evolving needs. Our ultimate goal is to facilitate high-quality research while fostering transparency, collaboration, and respect for all individuals involved in our project.