DATA MANAGEMENT PLAN

D1.8

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TABLE OF CONTENTS

GLOSSARY

Term	Meaning
DMP	*Data Management Plan*
DOI	*Digital Object Identifier*
EU	*European Union*
FRP	*Fibre Reinforced Polymer*
IAB	*Industrial Advisory Board*
IP	*Intellectual Property*
OA	*Open Access*
ORDP	*Open Research Data Pilot*
POPD	*Protection of Personal Data*
WP	*Work package*
WPL	*Work package leader*

1 INTRODUCTION

According to Horizon 2020 "a Data Management Plan (DMP) describes the data management life cycle for the data to be collected, processed and/or generated by a Horizon 2020 project."[1] The project partners have agreed to participate in the Pilot on Open Research Data to improve and maximise access to and re-use of research data generated by the project. This DMP documents the context in which research data has been generated and how it will be managed, maintained and preserved, to the purpose to provide information that is necessary to re-use the research data in the future.

Fibre4Yards data management plan also details the data that will be generated in the project, whether it will be made accessible or not, and how it will be made accessible. By default, all data gathered and produced by Fibre4yards project will be defined as open access. Any exception to this general rule will be specifically stated, as it is done with those deliverables defined as confidential. Confidential data will be defined as such in order to protect the Intellectual Property (IP) rights of the partner, or partners, that have generated the data.

All open data of the project will be made public using the open access repository Scipedia (www.scipedia.com). When writing this document, the project public repository already had 18 different documents. These can be found in: www.scipedia.com/sj/fibre4yardsoa. Internal project data, to be shared among the project partners, and required for the correct project evolution, will be shared using the EMDESK (www.emdesk.com) platform. This platform will also store the confidential information.

The DMP is understood as a living document, which will be enhanced and complemented during the project implementation or when a significant updated is required.

2 DATA SUMMARY

2.1 Purpose of data generation and collection

The purpose of data generation and collection in FIBRE4YARDS project is to maintain European global leadership in ship building and ship maintenance, through the implementation and development of advanced and innovative FRP manufacturing technologies, in a new Shipyard 4.0. Throughout the project data will be generated regarding current processes used in EU shipyards, the new processes to be developed by the project, new design and analysis procedures, life-cycle assessments made on materials and procedures, data gathered from shipyards to develop a new shipyard 4.0, data obtained from processes in the framework of shipyard 4.0, etc. All this data is expected to facilitate FIBRE4YARDS consortium to achieve the project objectives.

Data will be generated from the own project developments, will be gathered from shipyards, and will be also obtained from public sources. The term data includes also the associated metadata (i.e., the descriptive information about a data set used to identify it).

2.2 Types and formats of data

Data produced and gathered by the project will have several formats. The consortium will take special care to minimize the size of the data generated, by selecting the best format to store it. In order to facilitate the reusability of the data, standard formats will be used to generate and store this data. Table 1 shows the preferable formats for the different types of data. Although these are preferable, they are not exclusive, and other formats can be used if necessary.

[1] European Commission, *H2020 Programme. Guidelines on FAIR Data Management in Horizon 2020*, Version 3.0, 26 July 2016, 4, last checked on 20.07.2018: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf.

Table 1. Overview of the data formats that can be used in the project

Description	Data format
Text document	DOC, DOCX, ODF, PDF, TXT, MSG, etc.
Presentation documents	PPT, PPTX
Images	JPG, GIF, SVG, PNG, TIFF, PSD
Video/films	MPEG, AVI, WMV, MP4
Audio recordings	MP3, WAV, AIFF, OGG, etc
Structured data	HTML, JSON, TEX, XML, RDF
Tables	CSV, ODS, TSV, XLS, XLSX, SAS, Stata, SPSS portable
Computational models	GID, IGES, STEP, .NAS, MODFEM, SLDDRW, SLDPRT, DXF, ODB, CAE
Source codes	C, CSS, JavaScript, Java, .m, .mat, .f, f90, etc.
Configuration data	INI, CONF,
Geo-referenced data	SHP, etc.
Databases	MS Access, MySql, Oracle, etc
G Code	SPF, MPF
Others	

2.3 Data management

Data management process will be carried out at a Work Package (WP) level, and the main responsible of such data will be the WP Leader (WPL). Table 2 shows the project WPs, and the institutions leading each one of them.

Table 2. Fibre4yards Work Packages and institution leading them

WP #	WP Title	WP Leader
1	Management	CIMNE
2	Assessment of advanced FRP manufacturing and joining technologies to be transferred to the shipbuilding industry	INEGY
3	Design and engineering for vessel production improvement	COMPASSIS
4	Smart manufacturing approach for developing shipyard 4.0 strategy	TSI
5	Environmental life cycle assessment, recycling and waste management	TUL
6	Manufacturing and testing of demonstrators	NAVAL
7	Business plans and roll-out strategies. Cost-benefit analysis. IPR exploitation and market uptake	INNOVATEKNEA
8	Dissemination, communication and training	L-UP
9	Ethics requirements	CIMNE

2.4 Document Management

To facilitate the exchange of documents and other data among the different project partners, FIBRE4YARDS has setup a cloud document repository in the EMDESK platform. The access to this platform is restricted to the project partners. The platform also allows restricting the access to certain folders only to the partners working on them.

EMEDSK also allows making some documents public with a link, facilitating the exchange of information with individuals, industries and agencies that do not belong to the consortium. This will minimize the amount of information that has to be sent using email attachments.

Figure 1 shows a screenshot of the document Manager section in EMDESK platform. In this figure are shown the documents included in the Templates/Guidelines folder.

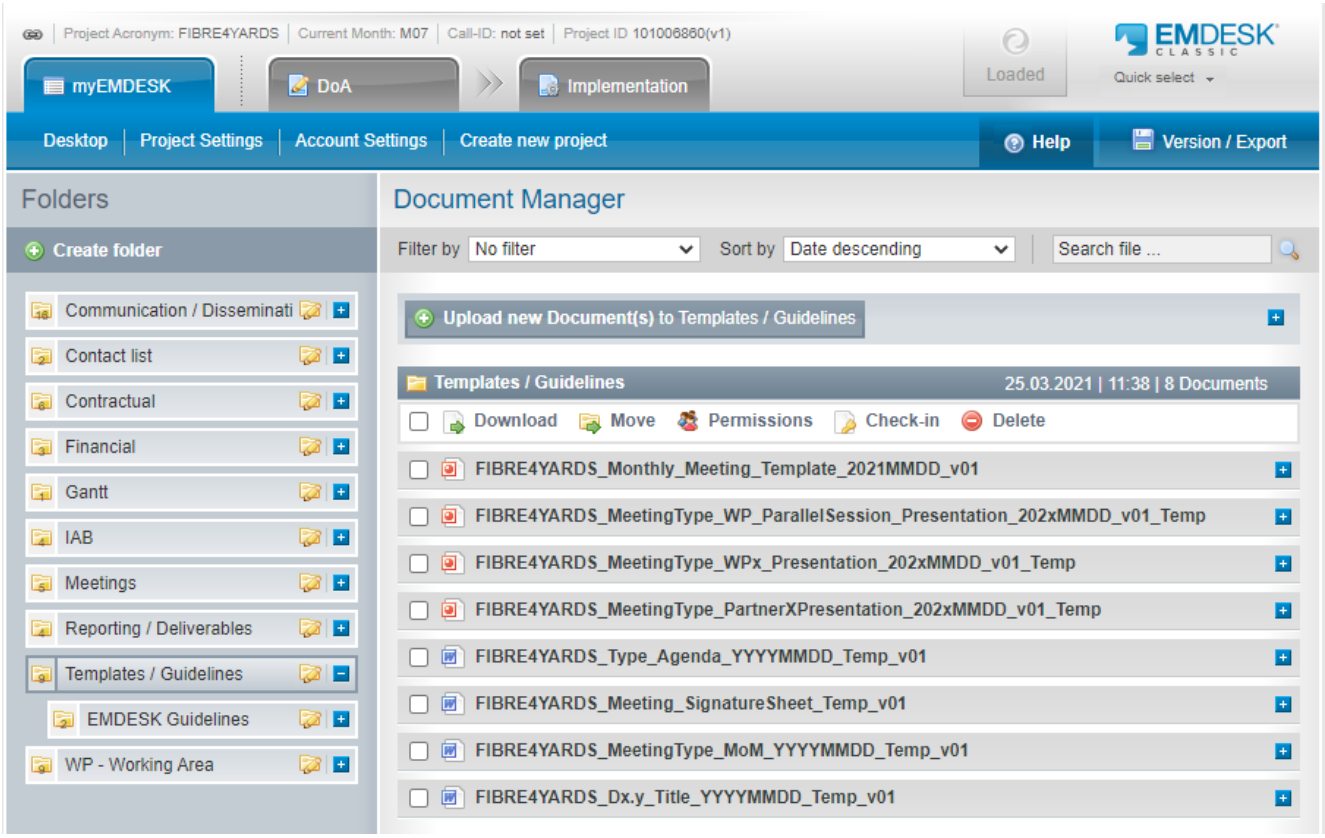

Figure 1. Screenshot of the document manager in the EMDESK platform

The project dissemination documents will be shared among FIBRE4YARDS partners, and with the rest of the community that has interest in the project results, using SCIPEDIA platform (www.scipedia.com). This is an open platform that is expected to maximize the impact on the project. Figure 2 shows a screenshot FIBRE4YARDS project in Scipedia webpage. The consortium has created a specific section in Scipedia platform to share all project public data: www.scipedia.com/sj/fibre4yardsoa.

2.5 Data Utility

The data generated in FIBRE4YARDS project is expected to be useful for shipyards, associated industries, and individuals willing to implement some of the technologies developed in the project. It can be also useful to other research projects working in the same, or similar, topics than FIBRE4YARDS. This data will be shared using Scipedia open repository.

This open repository is expected to maximize the use of the project data by agents, and individuals, external to the project. To facilitate this use, specific documents will be prepared and shared, considering the needs of the sector, and based on the inputs received from the members of the Industrial Advisory Board (IAB), and other relevant agents invited to specific Workshops or events, during the project.

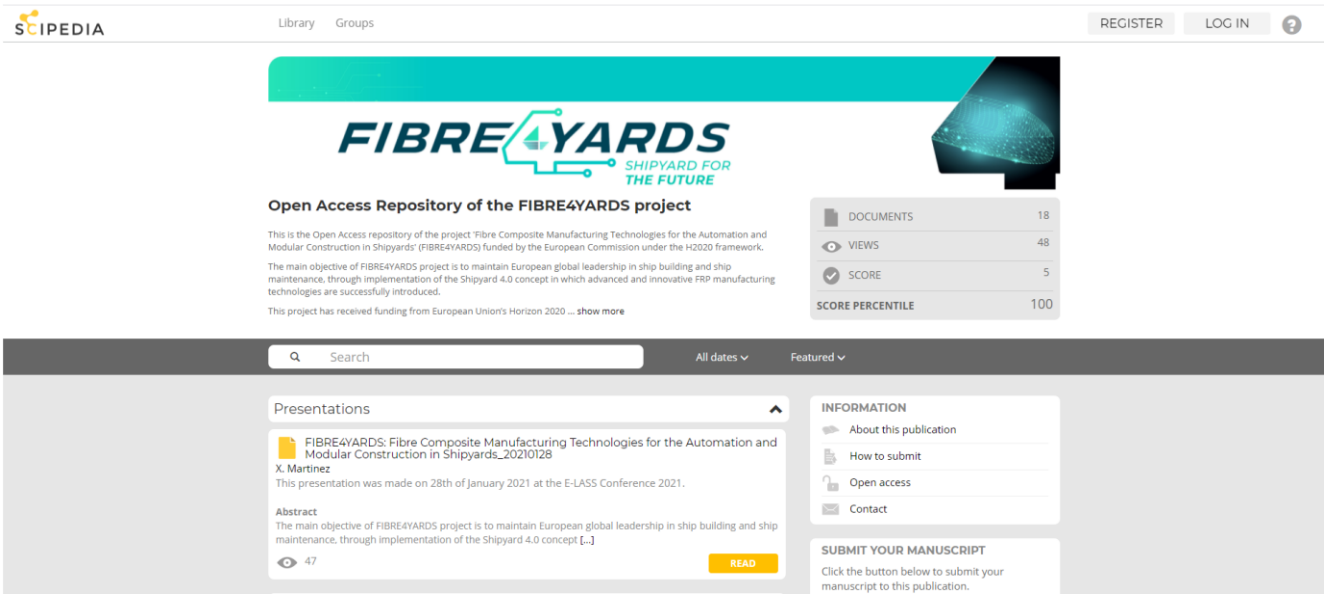

Figure 2. Screenshot of Scipedia FIBRE4YARDS public space

3 FAIR DATA

3.1 Making data findable

In order to make data findable, specific metadata will be generated and will be stored with the source data in Scipedia repository. Among the most important metadata stored with the document, it can be named: Title, Author, Abstract, Publication date, Keywords, Visualizations, and Public web address. Scipedia allows searching documents based on these parameters, in order to facilitate the localization of any given document.

In order to facilitate the long-term findability and perdurability of the published information, a Digital Object Identifier (DOI) will be generated for every document published in the Scipedia Open Access (OA) repository of the project

Another important set of data produced by the project are the deliverables associated to the different Work Packages. Each deliverable will have also specific metadata to make the data findable, as well as to make findable data associated to each deliverable. The most relevant metadata included in each deliverable is: Project relevant data (such as grant agreement number, funding scheme, duration, coordinator, webpage, etc.), Document version, Version date, Authors, Authors institutions, Approvals, Document history and Confidentiality level.

3.2 Making data open accessible

As it has been stated in the introduction, all data gathered and produced by FIBRE4YARDS project will be defined as open access. Any exception to this general rule will be specifically stated, as it is done with those deliverables defined as confidential. Confidential data will be defined as such in order to protect the Intellectual Property (IP) rights of the partner, or partners, that have generated the data.

All open data produced by FIBRE4YARDS project will be made accessible though the SCIPEDIA portal (www.scipedia.com/sj/fibre4yardsoa) and will be shared in an open, widely used, format. Examples of such formats are detailed in Table 1. In case of sharing data associated to a specific software, not used by a broad audience, the software will be specified to allow data visualization. The software associated to a given type of data will be open sourced, whenever it will be possible.

Table 3 shows the different deliverables that will be produced in FIBRE4YARDS project. The table also describes the type of data that is generated for each deliverable, as well as the dissemination level of each one of them. FIBRE4YARDS deliverables have two different types of dissemination levels:

P Public
C Confidential, only for members of the consortium (including Commission Services)

Table 3. Fibre4yards deliverables

#	Title	WP	Partner	Data Type	Dissem.
D1.1	Project ManagementPlan	WP1	L-UP	Report	C
D1.2	Project ManagementPlan – First revision	WP1	L-UP	Report	C
D1.3	Project Management Plan – Second revision	WP1	L-UP	Report	C
D1.4	Risk Management Planand Risk status report	WP1	CIMNE	Report	C
D1.5	Risk Management Planand Risk status report– First revision	WP1	CIMNE	Report	C
D1.6	Risk Management Planand Risk status report– Second revision	WP1	CIMNE	Report	C
D1.7	Risk Management Planand Risk status report– Third revision	WP1	CIMNE	Report	C
D1.8	Data Management Plan	WP1	CIMNE	ORDP:	P
D2.1	FRP manufacturing andconnection technologies mapping	WP2	INEGI	Report	C
D2.2	Conclusion of mechanical testing validation of coupons	WP2	INEGI	Report	C
D2.3	Guideline for processimplementation	WP2	IRURENA	Report	C
D2.4	FRP connectionstrategies	WP2	INEGI	Report	C
D2.5	Development and validation of the acoustic black holestechnology	WP2	JVERNE	Report	C
D3.1	Design optimization tools to be used to improve productionactivities	WP3	CIMNE	Report	C
D3.2	Small-length vesseloptimized design	WP3	COMPASSIS	Report	C
D3.3	Medium-length vesseloptimized design	WP3	TSI	Report	C
D3.4	Guidelines for modularship connections design	WP3	INEGI	Report	C
D4.1	Preliminary definitionof monitoring system based on IoTtechnologies	WP4	CIMNE	Report	C
D4.2	Implementation methodology of monitoring system incomposite productiontechnologies	WP4	TSI	Report	C
D4.3	Report on shipyard 4.0 strategy for improving production and maintenance processes for composite shipbuilding	WP4	TSI	Report	C
D4.4	Implementation of monitoring system in composite productiontechnologies	WP4	NAVAL	Report	C
D5.1	Environmental profilesof shipbuilding technologies based on Life-Cycle Assessment	WP5	TUL	Report	C

#	Title	WP	Partner	Data Type	Dissem.
D5.2	Environmentally optimal shipbuilding technology consideringcosts, risk and environmental impact	WP5	TUL	Report	C
D6.1	Test results analysis andrecommendations for shipyards	WP6	NAVAL	Report	C
D6.2	Qualification guidelines	WP6	BV	Report	C
D7.1	IPR exploitationstrategy	WP7	INNOVATEKNEA	Report	C
D7.2	Shipyard/shipping market analysis and business trendsmonitoring report	WP7	INNOVATEKNEA	Report	C
D7.3	Identification ofbusiness models	WP7	INNOVATEKNEA	Report	C
D7.4	Cost-benefit analysis	WP7	INNOVATEKNEA	Report	C
D7.5	FiBRE4YARDS finalbusiness plan	WP7	INNOVATEKNEA	Report	C
D7.6	Interim IPR Management Report&Exploitation Plan	WP7	INNOVATEKNEA	Report	C
D7.7	Final IPR ManagementReport & Exploitation Plan	WP7	INNOVATEKNEA	Report	C
D8.1	Dissemination and communication plan	WP8	L-UP	Report	C
D8.2	Communication set	WP8	L-UP	Report	P
D8.3	Project initial video	WP8	CIMNE	Video	P
D8.4	Training material	WP8	CIMNE	Repot	C
D8.5	Project final video	WP8	CIMNE	Video	P
D9.1	POPD - RequirementNo. 1	WP9	CIMNE	Ethics	C

3.3 Making data interoperable and re-usable

Interoperability is the ability to access and process data from multiple sources without losing meaning, and then integrate that data for various reasons of analysis or representation. The adequate procedures will be followed to ensure that the data produced in the project is interoperable, that is allowing data exchange and re-use between researchers, institutions, organisations, countries, etc. (i.e., adhering to standards for formats, as much as possible compliant with available (open) software applications, and in particular facilitating re-combinations with different datasets from different origins).

In order to facilitate the interoperability of the data produced by FIBRE4YARDS project, all software required to work with this data will be made available to all project partners. If the required software is licensed by one of the project partners, it will grant a licence to any other partner requiring it to work with the data generated. The license will be extended during the whole project duration.

4 DATA SECURITY AND PRESERVATION

The storage and maintenance of the public data generated by FIBRE4YARDS project will be carried out on the repository of Scipedia platform. On this platform the data will be stored beyond the lifetime of the project.

Scipedia hosting services are based on the most reliable technology, ensuring the long-term preservation of the stored documents and data. Scipedia.com is operating under Amazon Web Services, which offers the leading cloud-based solution including computing, storage and database. It provides a secure and resizable compute capacity in the cloud, while offering a storage system built to store and retrieve practically an unlimited number and volume of objects. It also ensures geographic redundancy and 99.999999999% durability of stored data.

Additionally, a copy of the data generated in FIBRE4YARDS may also be archived in the institutional repository of the different project partners.

Confidential data produced by the project will be stored in the EMDESK platform, which has special security measures to ensure data protection. As the EMDESK team states in their webpage: *"Security and confidentiality are our highest priority. EMDESK is designed from the ground up with security in mind. We put enterprise class security measures in place with strong technical, logical, and legal precautions to protect your data from loss or unauthorized access. We make sure your data is safe and secure by providing multiple layers of protection as well as controls that enable you to meet your security needs."* (https://www.emdesk.com/product/security).

Confidential data will be preserved by the partner that has produced such data once the project has terminated.

5 ALLOCATION OF RESOURCES

FIBRE4YARDS consortium has included funding for the payment of the fees required to publish articles in Open Access format in specialized scientific journals.

6 ETHICAL ASPECTS

The data generated in FIBRE4YARDS project will be mainly technical, therefore there are no major ethical concerns.

All data to be published or presented in an open format will be distributed among the project partners to obtain their approval before publication or presentation. This policy is expected to minimize any ethical or legal issue that can be derived from data sharing.

Project ethical aspects are detailed in D9.1.

7 CONCLUSION AND OUTLOOK

This is the initial DMP version of the FIBRE4YARDS project. This will be updated on a regular basis and as the information becomes available.