Verification through **A**ccelerated testing **L**eading to **I**mproved wave energy **D**esigns

Deliverable 7.2

Data Management Plan

Version 1.0

2021-04-26

Lead participant: RISE

Dissemination level: PU

DOCUMENT STATUS

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Approval

Name	Organisation	Signature	Date

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Dissemination level

Short	Type	
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Executive Summary

Deliverable 7.2 presents the Data Management Plan (DMP) for VALID. The DMP describes the data management lifecycle for the research data to be collected, processed and/or generated within the Project, all while following the FAIR (findable, accessible, interoperable and re-usable) data principles. VALID results will feed into the Open Research Data Pilot in Horizon 2020.

The planned research data sets and publications have been described in this initial version of the DMP. Over the course of the Project, additional details pertaining to these data will be provided and documented in an updated version of the DMP.

VALID will manage publications based on a gold open access model and open access dissemination of publications will be made through various relevant channels over the course of the Project (e.g. VALID website, CORDIS, Open Research Europe). An open-access repository in line with the EU's principles on open-access for a variety of research output has been selected for VALID. Safeguarding and protection of sensitive data will be effectuated by the Project's platform. Archiving within VALID will follow the Green Open Access model.

Project partner names

RISE	RISE Research Institutes of Sweden AB
TECNALIA	Fundacion Tecnalia Research and Innovation
CORPOWER OCEAN	Corpower Ocean AB
RINA-C	RINA Consulting S.p.A.
BiMEP	Biscay Marine Energy Platform SA
IDOM	IDOM Consulting, Engineering, Architecture, S.A.U.
AAU	Aalborg University
AVL	AVL List GMBH
WAVEPISTON	Wavepiston AS
TU Delft	Delft University of Technology
AQUATERA	Aquatera Sustainability Ireland LTD
JFC	Julia F. Chozas, Consulting Engineer
Y4C	Yavin Four Consultants, Unipessoal LDA

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1 Introduction

1.1 VALID Data Management Plan (DMP)

The VALID Data Management Plan (DMP) was structured according to the Horizon 2020 DMP template and describes the research data management lifecycle for the data to be collected, processed and/or generated within the Project. This initial version of the VALID DMP presents strategies to address and treat collected or generated data, allocation of resources, data security and ethical aspects. Moreover, the VALID DMP will be a live document, such that it will be updated over the course of the Project.

1.2 FAIR Data

To ensure that the research data collected and generated in VALID is findable, accessible, interoperable and re-usable (FAIR), the DMP will include the following details:

- Procedure for handling research data during and after VALID.

- Specification for which type of data will be collected, processed and/or generated.

- Specification of the methodology & standards to be applied for data management.

- Categorization of research data as open or non-open.

- Specification of curating and preserving research data during and after VALID.

1.3 Data Management and Open Access

It is the aim to share non-commercially sensible knowledge and experience with the ocean energy sector to ensure learning is transferred and errors are eliminated. In line, with the strategy developed by EC to exploit and disseminate research results, the opportunities for open access publishing will be continuously pursued over the course of VALID. Accordingly, overall results of VALID will feed into the Open Research Data Pilot in Horizon 2020.

Engagement with different stakeholders is of great importance to maximize the actual impact of the project and the number of commercial opportunities arising from it. The sector's awareness is ensured by promotion of knowledge exchange and results-sharing, and stakeholders are encouraged to further spread the impact of the project to associated stakeholders (impacts trickling down through the sector).

Open access protocol shall follow the guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020. Efforts will be made to take advantage of the new Open Research Europe | Open Access Publishing Platform (europa.eu) – EC's open access publishing platform.

2 Data Summary

This section of the VALID DMP describes how each data set collected or generated within the Project shall be addressed and treated. Due to the early stage of VALID, the collected or generated data are limited and expected size unknown, such that they are not explicitly presented herein, but specified as per the following:

Research Datasets

- Open-access Dataset 1 from User Case #1: Testing of dynamic sealing failure (WP3).

- Open-access Dataset 2 from User Case #2: Testing of electric generator failure (WP4).

- Open-access Dataset 3 from User Case #3: Testing of hydraulic pump failure (WP5).

Publications

- Six open-access scientific peer-reviewed research papers by RISE, TEC, AVL, TUD, AAU and RINA-C.
  - Datasets mentioned above will be referred to in these scientific papers.

The main target groups who will be interested in the generated and compiled research data are the scientific community, technology developers, policy makers and public bodies, ocean energy stakeholders and general public. Effort will be made to aggregate meaningful data for external dissemination, to avoid commercial sensitivity, which maximise benefit and outcomes for the wider industry.

2.1 Data summary template

Data collected or generated over the course of VALID will be documented in the following data summary template, as shown in Table 1.

Table 1: Data summary template.

DATA SUMMARY			Notes
Purpose of data	**Purpose**	**Objectives**	-State purpose and objectives
			-Relate to objectives of Project
Type and format of data	**Form**	**Format**	-Specify form and format
Text			-State model, model type, computer code, output
Numeric			
Audio-visual			
Simulated			
Discipline specific information			-Discipline type and format
Instrument specific			-Equipment type and format
Reused data			-Reuse existing data? Why?
Data origin			
Observational			-Data captured in real time (often not reproducible)

Experimental			*-Data from laboratory tests (often reproducible)*
Simulation			*-Data from computational models*
Derived/compiled			*-Data from analysis or compilation*
Reference (links)			*-Collection of datasets published*
Data security and storage	*Type*	*Security policy*	*-Data storage, applicable security policy*
Data Usefulness			*-Users, value, long-term reuse*

2.2 Standards and metadata

The available and generated data is limited at this stage of VALID, as such this version of the DMP solely provides standard formats to be used in the Project, see Table 2.

Table 2: Specification of file formats for VALID.

Document type	Description
Text-based	Microsoft Word document templates and final versions in pdf [.doc, .docx, .pdf]
Presentations	Microsoft PowerPoint templates [.ppt, .pptx]
Data sets	Microsoft Excel and compatible file format for large data sets. [.xls,.xlsx, .csv, .txt]
Illustrations and graphic design	Microsoft Visio, Photoshop or open source software Inkscape and GIMP [.png, .jpg, .tiff, vector graphics: .svg, .pdf]
Audio	MP3 or WAV
Video	Quicktime Movie or Windows Media Video
Models	To be specified
Metadata	To be specified

2.3 Data sharing, access and preservation

Research results in VALID are treated based on the project's dissemination plan (D7.1), the nature of the research results, as well as the DMP provided herein. According to Figure 1, dissemination or sharing of research results can take two paths: a) publications and/or b) depositing research data. *Publications* can lead to two levels of open access, while *depositing research data* can lead to either open or non-open research data. Research results can also be exploited and or protected, which leads to *patenting or other forms of protection*.
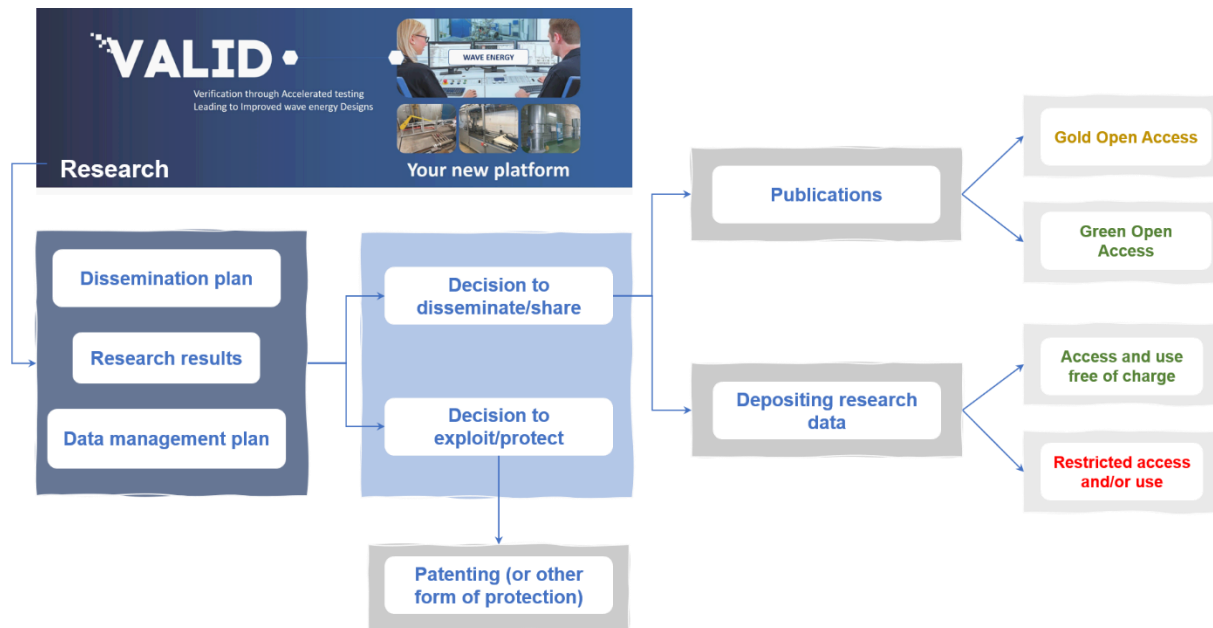
Figure 1: Flow chart on decision making related to research results (based on Open access - H2020 Online Manual)

2.3.1 Non-open research data

The non-open research data generated in VALID will be stored on the Project's SharePoint site/TEAMS' platform hosted and managed by the PC, as described in Section 4.

2.3.2 Open access publishing models

In practice, there are two levels of open access which can be implemented for publications:

- **Green open access**: Self-archiving (depositing) published article or final peer-reviewed manuscript in an online repository before, at the same time as, or after publication. In some cases, open access can only be granted after a specific embargo period.

- **Gold open access**: Open access publishing is immediate. A one-off payment for open access is made by authors, i.e. Article Processing Charges (APCs). These costs can be covered by additional funding (see Section 3.2).

VALID will manage publications based on a **gold open access** model, when found appropriate, i.e., free from any commercially sensitive information. Furthermore, the open access dissemination of publications will be made through various channels:

- European Commission: CORDIS : Projects and Results : Home (europa.eu)
- VALID website media, publications, deliverables (PU)
- Technology and Innovation Platform for Ocean Energy
- Zenodo – an open-access repository in line with the EU's principles on open access for a variety of research output (focus on research data linked to publications)
- Open Research Europe | Open Access Publishing Platform (europa.eu) – EC's open access publishing platform

2.3.3 Open access for research data

Open access to non-commercially sensitive research data generated throughout the Project will also be given, following the open access guidelines of the Open Research Data Pilot in Horizon 2020 and in accordance to the VALID Grant Agreement. The open research data generated in VALID will be made available on Zenodo. A variety of research outputs, such as data sets, software, reports, presentations and publications can be shared and preserved on this repository.

There are two types of research data that will be treated:

- **Underlying data**, including associated metadata, refers to any research that helps validate the results within a publication.

- **Other data** refers to raw data not tied to a specific publication.

Measures need to be taken for research data that is deposited in the research data repository to manage the rights that third parties have regarding access, mining, exploitation, reproduction and dissemination. Creative Commons Licences (CC BY or CC0) can easily be attached to the deposited data in question to fulfil the requirements of the Open Research Data Pilot.

2.3.4 Open access for photos and video

An Image Library has been created in WP7 to share and save project-related images.

All Parties will contribute high-quality photos and videos as opportunities arise, helping to gather evidence and imagery of the success of the Project. It is the role of the capturer to ensure the photo or video does not compromise project or partner IP.

Parties should save a copy of the photo/video within the Image Library found on SharePoint. The Image Library will be maintained by the WP7 leader, and any photos/videos contributed to the Image Library will be automatically categorized as "open".

2.3.5 Protection of results

In accordance with Article 27 of the Grant Agreement, results which can be classified as the following must be protected:

- Results can reasonably be expected to be commercially or industrially exploited and

- Protecting them is possible, reasonable and justified (given the circumstances).

It is the beneficiary who must examine the protection possibilities and consider its own legitimate interests and the legitimate interests of the other beneficiaries.

3 Allocation of Resources

Data management in VALID will be effectuated in WP7 led by Aquatera, appointed as the Quality and Data Manager (QDM), in collaboration with the PC and WPLs. A certain percentage of the project's budget has been allocated to perform data management activities. Moreover, costs related to open access to research data are eligible as part of the H2020 grant (if compliant with the Grant Agreement conditions). Resources for long term preservation, associated costs and potential value, as well as how data will be kept beyond the project and how long, will be discussed by the whole consortium during General Assembly (GA) meetings.

3.1 Roles and responsibilities

The key roles and responsibilities related to data management in VALID are listed in the following:

WP7 leader/QDM is responsible for:

- Developing the DMP in collaboration with the PC.
- Identifying appropriate data repository to store and safeguard datasets.
- Monitoring data management activities in the Project.
- Supporting WP leaders with data management activities.
- Ensuring FAIR data management within the Project.

WP leaders are responsible for:

- Implementing DMP in respective WP.
- Monitoring data management activities in respective WP.

3.2 Costs for data management

Costs associated to open access could be reimbursed by the H2020 grant, given that they fulfil the general eligibility conditions specified in the Grant Agreement. Additional support can also be found through OpenAIRE and EUDAT2020 projects. The resources and costs associated with long term preservation of data shall be discussed over the course of the Project during GA meetings.

4 Data Security

The methods applied for handling, curating and preserving research data during and after VALID are described in this section.

4.1 Secure project platform

To facilitate the sharing of documents between the Parties, a secure site has been set up by the PC. The Project's SharePoint site/TEAMS' platform will act as a secure file repository and will only be accessible to members of the GA. All Parties can access the SharePoint site/TEAMS' platform to view, download and upload documents. The site and platform are synchronized to ensure that the same information is saved in both places. Every partner is responsible to ensure that the data are stored safely and securely and in full compliance with European Union data protection laws. After the completion of the project, all the responsibilities concerning data recovery and secure storage will go to the repository storing the datasets.

4.2 Long term preservation and curation

Archiving within VALID will follow the **Green Open Access** model published by the EC, whereby the consortium will:

- Deposit all the research articles produced during the Project in institutional or partner repository.

- Ensure that all articles are made open access via repository indexed by OpenAire (e.g. Zenodo/Open Research Europe) within 6 months of their publication (or after given embargo period).

- Ensure that all required metadata, including bibliographic metadata required in section 4 of the Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020 accompanies each publication.

- All data produced follows FAIR (Findability, Accessibility, Interoperability, and Reusability) practises.

- Ensure that each publication receives a unique persistent identifier.

- Provide statistical information on the number of views and downloads of each publication.

All items in the repository will be retained indefinitely through Zenodo and will be migrated to new file formats where necessary to ensure continuing readability and accessibility. This repository will follow international best practice for the preservation of digital content and aim for perpetual preservation.

5 Ethical Aspects

This section deals with ethical and legal compliance issues, like the consent for data preservation and sharing, protection of the identity of individuals and companies and how sensitive data will be handled to ensure it is stored and transferred securely according to Grant Agreement Article 34. Data protection and good research ethics are major topics for the consortium of this project, especially in between the user cases. Good research ethics meet all actions to take care and prevent any situation where sensitive information could get misused. Research data which contains personal data will be disseminated for the purpose for which it was specified by the consortium. Furthermore, all processes of data generation and data sharing will be documented and approved by the consortium.

VALID parties must comply with the ethical principles outlined in Article 34 of the Grant Agreement:

- Ethical principles (including the highest standards of research integrity).
- Applicable international, EU and national law.

5.1 General Data Protection Regulation (GDPR)

VALID parties must process personal data under the Agreement in compliance with applicable EU and national laws on data protection (including, without being limited to, authorisation or notification requirements). Further information related to actions involving personal data can be found in Attachment 5 of the Consortium Agreement.

5.1.1 Methods to ensure GDPR

As the Project develops, WPLs will continually adhere to GDPR policies through all stakeholder engagement efforts. At the date of this deliverable's submission, GDPR compliance has included a privacy policy attached to the WP1 survey on wave energy converters, as shown in Figure 2 and a question within the survey asking for potential stakeholders to opt in to receiving future information on VALID, which will aid in developing the WP7 Stakeholder Database, as shown in Figure 3.

Privacy Policy:
By completing and submitting this form, you agree that the data you provide can be used by the VALID Project. The data is only used for the purpose and duration of the VALID project.

The data you provide will be used in compliance with the GDPR, data protection principles in Regulation (EC) 2016/679 (more information can be found on the official website: https://gdpr.eu/)

If you have any questions regarding the Privacy Policy, do not hesitate to contact us via email to fabiola.roccatagliata@rina.org

The privacy policy for the survey is available here:
VALID_T1.1_survey_privacy_policy.pdf

* I have read and agree to the VALID Survey Privacy Policy
○ Yes
○ No

Submit

Figure 2: VALID survey on wave energy converters privacy policy.

* Last Name

* First Name

* Please provide here your email

@

* Are you open to receiving communications from VALID (e.g. newsletters, etc.) as a potential stakeholder?
- ○ Yes
- ○ No

Figure 3: Potential stakeholder opt in question, WP1 survey.

5.2 Rights and obligations related to results

Results, any tangible or intangible output of the action, are owned by the beneficiary that generates them, as per Article 26 of the Grant Agreement.

5.3 Confidentiality

Over the course of the Project, VALID parties must keep confidential any data, documents or other material (in any form) that is marked as "confidential" upon its disclosure. Additional details pertaining to confidentiality are provided in Article 36 of the Grant Agreement. The protection of results, further described in Article 27 of the Grant Agreement, also plays an important role in preserving confidentiality.

6 Nomenclature

Abbreviations

EC	European Commission
EU	European Union
H2020	Horizon 2020
WP	Work Package
WPL	Work Package Leader
DMP	Data Management Plan
QDM	Quality and Data Manager
GDPR	General Data Protection Regulation
GA	General Assembly
PC	Project Coordinator

7 References

H2020 templates: Data management plan v1.0 – 13.10.2016

European Commission. Open access Open access - H2020 Online Manual (europa.eu)

VALID, Deliverable 7.1 Knowledge Exchange and Dissemination Strategy, version 1.0