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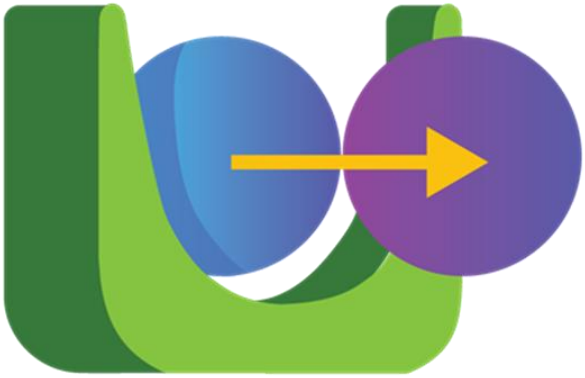

ARCHIMEDES

Trusted lifetime in operation for a circular economy

Deliverable	**Data Management Plan**		
Deliverable File	D8.2		
Project	ARCHIMEDES	**Grant Agreement Number**	101112295
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Table of contents

1 List of Abbreviations and Acronyms

Table 1 summarizes the abbreviations and acronyms used in this document.

TABLE 1: ACRONYMS & ABBREVIATIONS

Abbreviation/Acronym	Meaning
DMP	Data Management Plan
CA	Consortium Agreement
GA	Grant Agreement
LM	Liaison Manager
DPO	Data Protection Officer
WP	Work Package
SC	Supply Chain
FAIR	Findable, Accessible, Interoperable and Reusable
GDPR	General Data Protection Regulation
EU	European Union

2 Executive Summary

The Data Management Plan (DMP) provides guidance and best practice for data management within the ARCHIMEDES project.

The Data Management Plan (DMP) focuses on these three main tasks:

1. Protect commercially sensitive data.
2. Publication and Dissemination of project findings wherever possible.
3. Compliance with GDPR and/or other relevant personal data laws and requirements.

2.1 DMP execution & target groups

The execution of the Data Management Plan is the responsibility of all project members - relative to their roles and responsibilities. The Project Coordinator (PC), Work Package (WP) leaders, Supply Chain (SC) leaders and Task leaders, under the guidance and supervision of the Data Protection Officer (DPO), will provide wide reaching project support to implement the Data Management Plan and provide additional support where required.

The DMP describes the FAIR - Findable, Accessible, Interoperable and Reusable - best practice for data management (please see Section 7 for details on FAIR.)

The DMP provides guidance on how to label and classify data as well as the processes through which partners should go before making any data publicly available. This includes guidance on how to identify who is responsible for a data set, along with respective roles and responsibilities of project members relative to their ownership of or usage of data.

This Data Management Plan (DMP) defines procedures on how to handle personal data to guarantee project participants' fundamental rights and avoid misuse of the project results. The DMP complies with EU and international regulations for the management and use of data and will pay particular attention to the General Data Protection Regulation (GDPR), which came into effect in 2018.

If you are, or think you maybe, dealing with personally identifiable data you will be classed as a 'data controller' under GDPR. Whenever any project member intends on collecting, processing, or using personally identifiable data of any kind, GDPR and other legal compliance requirements must first be considered.

This DMP provides:

- **The key definitions**
- **The key principals**
- **Accessing further guidance**

As soon as partners are aware that data and findings are of public value, they will begin, in accordance with the guidance in this Data Management Plan - and the terms of the CA and GA - exploring the possibility of making that data publicly accessible. The DMP provides best practice guidance and

processes for making data available within the project and in order that that data be maintained and available beyond the time frame of the project.

Moreover, the DMP recommends approaches to data security and storage.

Finally, the DMP gives recommendations on whether data will be destroyed at the end of the project or archived for further use by the research community. In the latter case, the DMP provides recommendations for future maintenance and access to the data by consortium partners and external parties.

However, it should be noted that the DMP is in no way a substitute for the projects legal documents and do not replace their enforcement in any way – if in doubt the legally binding documentation takes precedence.

3 Non-Publishable Information

All Information in Deliverable D8.2 is non publishable.

4 Contributions of Partners

The ARCHIMEDES DMP profited from the contributions of multiple partners, please see Table 2.

TABLE 2: CONTRIBUTION OF ARCHIMEDES PARTNERS TO THIS DATA MANAGEMENT PLAN.

Chapter	Partner	Contribution
All	SAL	Draft preparation
All	AVL	Adjustments do draft
All	AVL	Chapters adaption
All	AVL	Chapters: insert contents
5.3	Teraglobus	Provision of contents
7	Teraglobus	Provision of additional contents
All	Teraglobus	Review of Contents

5 Introduction & Scope

5.1 Purpose

The ARCHIMEDES Data Management Plan (DMP) is thought to be a document that outlines the strategies and procedures for managing research data. It serves as a roadmap, providing guidance on how data will be collected, organized, stored, shared, and preserved. The DMP promotes transparency, efficiency, and compliance with data management best practices and funder requirements.

The purpose of a DMP is to ensure effective management of data to maximise its value and accessibility. The DMP helps to better understand data organisation, data documentation, data security, data sharing and dissemination, and long-term data retention. This minimises potential problems, enables data integrity and improves the overall quality and impact of ARCHIMEDES research activities.

The Data Management Plan (DMP):

I) **Outlines the data management procedures and infrastructure** that will be used, including data collection methods, data storage and backup systems, metadata standards, and data security measures.

II) **Includes a description of the research project and the types of data that will be generated or collected.**

III) **Addresses data sharing and access policies, specifying who will have access to the data, under what conditions, and for how long.**

IV) **Describes any restrictions on data sharing due to privacy concerns, confidentiality requirements, intellectual property rights, or legal and ethical considerations.**

V) **Additionally covers plans for long-term data preservation**, including strategies for data archiving, metadata preservation, and data format migration to ensure data longevity and accessibility.

In summary, the Data Management Plan outlines the strategies and procedures for managing research data throughout its lifecycle. It promotes good data management practices, facilitates data sharing and preservation, and enhances the overall integrity and impact of ARCHIMEDES research.

5.2 Target group

The execution of the Data Management Plan is the responsibility of all project members - relative to their roles and responsibilities. The Project Coordinator (PC), Work Package (WP) leaders, Supply Chain (SC) leaders and Task leaders, under the guidance and supervision of the Data Protection Officer (DPO), will provide wide reaching project support to implement the Data Management Plan and provide additional support where required.

Data generated in ARCHIMEDES will be stored in different locations based on its accessibility. The consortium defines four levels:

- **Partner**: accessible only by the partner that generates it.
- **Parts of Consortium**: E.g. Supply Chain or Task
- **Consortium**: data generated by a single partner (or multiple partners) that should be accessible to all partners.
- **Public**: data generated by a partner (or multiple partners) that is accessible to the public.

5.3 ARCHIMEDES guiding principles

ARCHIMEDES follows the FAIR data access according to the principle *<<as open as possible, as closed as necessary>>* Practical guide to address Open Science issues in Horizon Europe[1] (Figure 1):

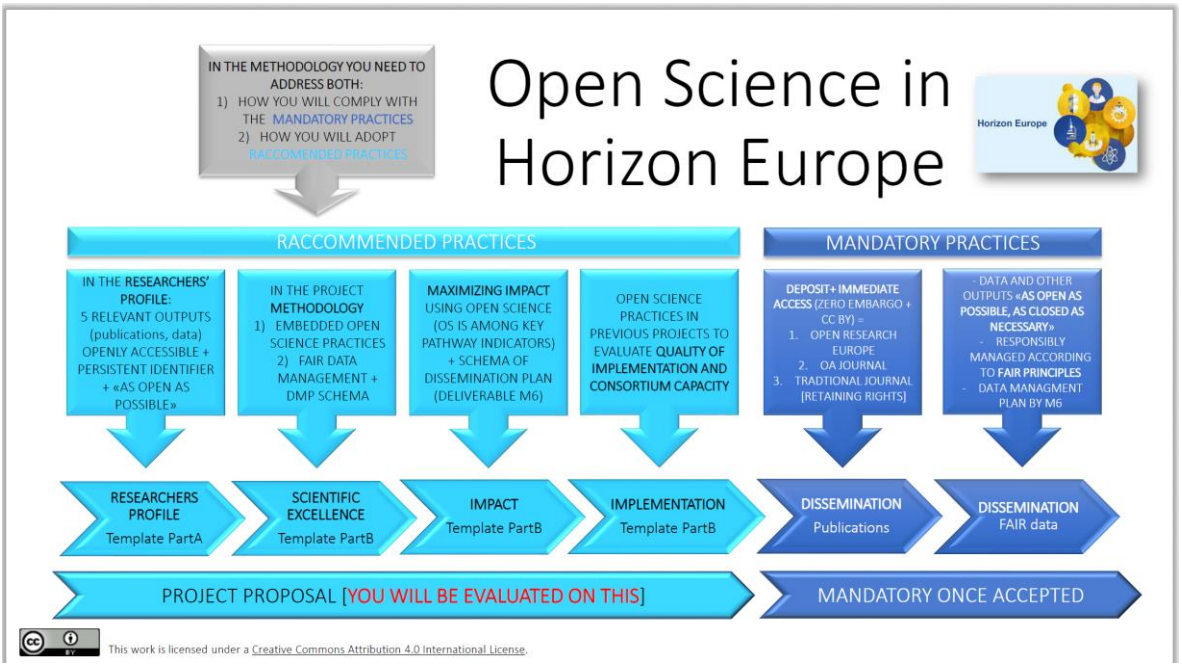

FIGURE 1: OPEN SCIENCE IN THE RECOMMENDED AND MANDATORY PRACTICES.

To comply with the open science nature of HE researches, open access data with dissemination purposes will be stored in one of these two widely accepted general purpose repositories:

- **Zenodo**[2]: it is a CERN datacenter-backed research data repository for the long-tail of science, enabling researchers to preserve and share their research output from any science, regardless of the size and format. ZENODO is an innovative and easy to use web-platform, which allows uploading, curating and sharing of the research data through an easy-to-use web interface and integration with other collaboration and data sharing services. ZENODO ensures the discovery and citability of the research output by assigning a Digital Object Identifier (DOI) to every upload, as well as promotes software citation and preservation through one-click integration with GitHub. For all public open data, it will remain reusable via Zenodo for at least 20 years. As stated by the Zenodo Repository

[1] Practical guide ***to address Open Science issues in Horizon Europe: mandatory and recommended Open Science practices, intellectual property rights and Open practices, rights retention clause to deposit and give immediate access...***

The infographic has been adapted from https://osf.io/dp6je/ created by the Open science team, Ghent University Library.

[2] https://zenodo.org/

- **Open Research Europe**[3]: "*is an open access publishing platform for the publication of research stemming from Horizon 2020, Horizon Europe and/or Euratom funding across all subject areas. The platform makes it easy for Horizon 2020, Horizon Europe and Euratom beneficiaries to comply with the open access terms of their funding and offers researchers a publishing venue to share their results and insights rapidly and facilitate open, constructive research discussion.*

  While open access to research data thereby becomes applicable by default in Horizon 2020, the Commission also recognises that there are good reasons to keep some or even all research data generated in a project closed.

  The Commission therefore provides robust opt-out possibilities at any stage, that is during the application phase during the grant agreement preparation (GAP) phase and after the signature of the grant agreement.

  The ORD pilot applies primarily to the data needed to validate the results presented in scientific publications. Other data can also be provided by the beneficiaries on a voluntary basis, as stated in their Data Management Plans. Costs associated with open access to research data, can be claimed as eligible costs of any Horizon 2020 grant."

"Participating in the ORD Pilot does not necessarily mean opening up all your research data. Rather, the ORD pilot follows the principle "as open as possible, as closed as necessary" and focuses on encouraging sound data management as an essential part of research best practice.[4]*"*

[3] https://open-research-europe.ec.europa.eu/

[4] https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/data-management_en.htm

Best efforts will be made to integrate all content into suitable alternative institutional and/or subject based repositories.

5.1 Data inventory for information collection

The data inventory table is a document or Excel File used to collect and organize information about the data assets within the ARCHIMEDES project. It serves as a centralized repository for collecting the details about each dataset, facilitating efficient data management, and providing a comprehensive overview of the available data resources (Table 3).

TABLE 3: DATA INVENTORY

Data Code	Data Name	Data type	Open / Restricted	Data utility	Data creation via	Size	Stored in	Who can use the data	Ethical issues yes/no

5.2 Dissemination data groups

PUBLIC DELIVERABLES

Dx,y TITLE Description and relation to the DMP.

TITLE	***Lead Beneficiary***	***WP***	***Type***	***Dissemination***
D1.1 TITLE	XXX	WP1	DMP	PU

5.3 Open access

The ARCHIMEDES consortium is informed about the obligation (GA, article 17) to ensure open access to peer-reviewed scientific publications relating to their results.

They must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND)information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements. Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machineactionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication. Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

The approach of the consortium to open science follows “The Guidelines on Open Access to Scientific Publications and Research Data” in Horizon Europe and aligns a strategy for knowledge management and protection to enable broader, faster, more transparent and equal access for the benefit of researchers, industry and citizens. The project partners are committed to provide open-access to all peer-reviewed publications relating to the results of the project. This will be achieved either via green (self-archiving) or via gold open access (author-pays-model). During the proposal preparation phase, the consortium reviewed the key open-access policies of relevant publishers in our field (including IEEE, ACM, Springer, and Elsevier) and budgeted reasonable publication costs to allow for open access publishing via the gold open access, also known as the “author pays-model”). The consortium will also base its green open access of the project publications on the infrastructure of the EU project OpenAIRE. The OpenAIRE’s catch-all data repository Zenodo is publicly available for all researchers and is designed to measure compliance with the EC’s Open Access policies and pilots. The OpenAIRE-compliant repository Zenodo is hosted by CERN that uses self-developed software to host and store data and publications produced within different kinds of projects. Software tools developed by the consortium will be released with open-source licences according to relevance and market potential to generate versatile solutions. Some of the background tools and libraries already use such open-source licence, e.g. RTAMT is licenced under BSD 3-clause. This policy enables the scientific community to benefit from our results and continue research and improving the tools for wider use than done in this project. Software results will be distributed using traditional channels such as Gitlab and major Linux distribution repositories when they can be considered stable.

5.3.1 Process for the dissemination approval

During the Project and for a period of 3 years after the end of the Project ("Dissemination Survival Period"), the Dissemination of own Results as well as jointly owned Results by one or several Parties including but not restricted to publications and presentations, shall be governed by the procedure of Article 17.4 of the Grant Agreement and its Annex 5, Section Dissemination, subject to the following provisions.

Prior written notice of any planned Dissemination shall be given to the other Parties at least 30 calendar days before submission of the publication to the publisher (not to be taken as the actual publication date. Any objection to the planned publication shall be made in accordance with the Grant Agreement by written notice to the Coordinator and to the Party or Parties proposing the Dissemination within 25 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted, provided that no Confidential Information, unpublished Background or Results of other Parties is included in the publication.

An objection is justified if

a) the protection of the objecting Party's Results or Background would be adversely affected, or
b) the objecting Party's Legitimate Interests would be significantly harmed, or
c) the proposed publication includes Confidential Information of the objecting Party.

The objection has to include a precise request for necessary modifications.

If an objection has been raised the involved Parties shall discuss how to overcome the justified grounds for the objection on a timely basis (for example by amendment to the planned publication and/or by protecting information before publication) and the objecting Party shall not unreasonably continue the opposition if appropriate measures are taken following the discussion.

The objecting Party can request a publication delay of not more than 60 calendar days from the time it raises such an objection. After 60 calendar days the publication is permitted, provided that the objections of the objecting Party have been addressed.

A Party shall not include in any Dissemination activity another Party's Results, Background or Confidential Information even if such Results, Background or Confidential Information is amalgamated with Party´s Results without obtaining the owning Party's prior written approval.

The Parties undertake to cooperate to allow the timely submission, examination, publication and defense of any dissertation or thesis for a degree that includes their Results, Background or Confidential Information subject to the confidentiality and publication provisions agreed in this Consortium Agreement. The disclosure of Confidential Information to the student's supervisor and supervising university not being part of the Consortium for the purpose of the respective supervision is permitted on a need to know basis as long as they are bound by a confidentiality obligation no less stringent than the terms and conditions as provided in Section 10.

In the frame of ARCHIMEDES project, the processes of dissemination approval are managed by dissemination Partner TeraGlobus (TG), monitoring the prior notifications about the upcoming dissemination cases. Each partner in the consortium handles their publications on the F&T portal. TG handles other dissemination cases' listing and delivering to related deliverables and F&T portal.

6 ARCHIMEDES Project Summary

ARCHIMEDES sets the path for a strong, autonomous, and resilient Europe through cutting-edge technologies in transport- and infrastructure industry. The project builds trust in the new technologies and contributes to accelerating the energy transition, increase safety and security for the future society 5.0. How ARCHIMEDES meets these goals is summarized in the following.

6.1 Advance cutting-edge technologies

ARCHIMEDES builds on the collaboration of three main pillars, united in the ARCHIMEDES triangle (depicted in Figure 1):

(1) Quantification Procedures and Standards, aiming at assessing and establishing standards and qualifying to enable new technologies in new use cases;

(2) Tools and Controls, aiming at providing control solutions for ECS to meet the challenge of extended lifetime; and

(3) ECS and Simulation models, delivering ECS and services for lifetime extension.

The goal of the ARCHIMEDES project are the advances of these cutting-edge technologies - used in the semiconductor branch – that are expected to change the landscape of the automotive as well as in the aviation industries.

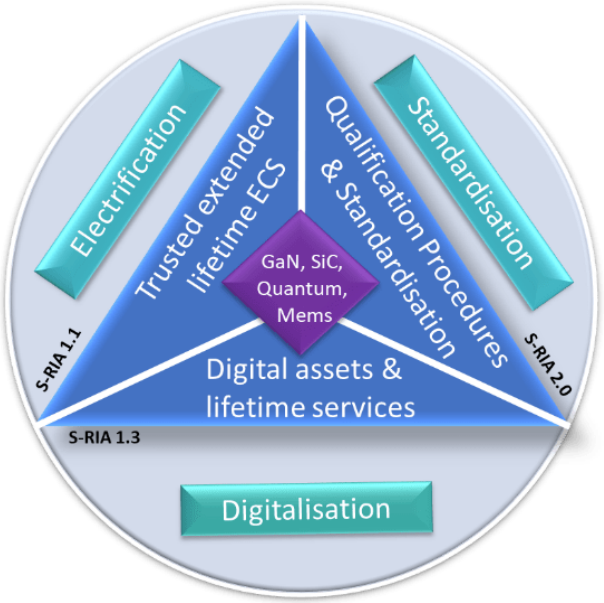

FIGURE 2: ARCHIMEDES TRIANGLE

6.2 Disrupt the semiconductor value chain

ARCHIMEDES will introduce new, innovative procedures. For example, within the project, monitoring during extended lifetime with a reference component with known and very limited degradation using Quantum Sensors will be performed.

Moreover, ARCHIMEDES will tackle state-of-the-art challenges related to optimizing the MTBF of GaN diodes (the estimation is that it will reach 10 years), the uncertainty of residual lifetime in GaN / SiC applications, and the uncertainty related to mission profiles.

In this way, ARCHIMEDES aims to disrupt the semiconductor value chain based on 4 core pillars (see Figure 3):

(1) **Electrification**, aiming at long-life GaN / SiC up to 120.000h of lifetime and trusted MTBF;

(2) **Standardization**, aiming at procedures for qualification of long-life GaN / SiC enabling economy of scale;

(3) **Digital Assets**, such as ECS behaviour models used in design, life-time and operation to provide value; and

(4) **Lifetime services**, aiming at monitoring lifetime providing trusted operation.

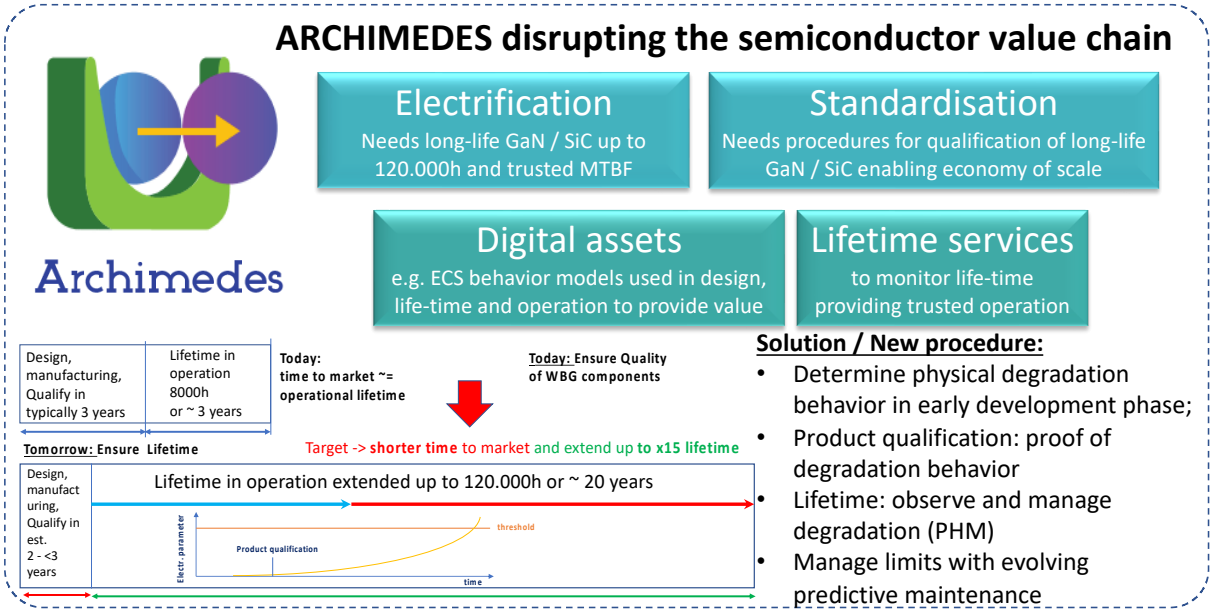

FIGURE 3: ARCHIMEDES - FOUR MAIN PILLARS TOWARDS DISRUPTING THE SEMICONDUCTOR VALUE CHAIN

Thus, ARCHIMEDES sets the path for a strong, autonomous and resilient Europe by breakthrough technologies in transportation and infrastructure industry that facilitate and accelerate the energy transition.

6.3 Project partners

ARCHIMEDES brings together expertise from about 50 partners out of 11 countries, see Figure 4.

FIGURE 4: ARCHIMEDES CONSORTIUM AND COUNTRY COVERAGE.

Figure 4 shows the ARCHIMEDES consortium and its country coverage. A full list of the ARCHIMEDES participants is shown in Table 4.

TABLE 4: LIST OF ARCHIMEDES PARTICIPANTS

Participant No	*Participant organisation name*	*Participant short name*	*Type*	*Country*	*National eligibility checked by participant (Y/N)*
1	*AVL List GmbH*	*AVL*	*LE*	*Austria*	*Y*
2	*Lionizers GmbH*	*LION*	*SME*	*Germany*	*Y*
3	*STMicroelectronics SA*	*ST-SA*	*LE*	*France*	*Y*
3.1	*Affiliated: STMicroelectronics SAS Grenoble*	*STGNB*	*LE*	*France*	*Y*
3.2	*Affiliated: STMicroelectronics SAS Rousset*	*STROU*	*LE*	*France*	*Y*
4	*STMicroelectronics SRL*	*ST-SRL*	*LE*	*Italy*	*Y*
5	*Mercedes-Benz AG*	*MBAG*	*LE*	*Germany*	*Y*
6	*Laboratoire de Génie Electrique de Grenoble*	*INP-GRE*	*RES*	*France*	*Y*
6.1	*CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE*	*CNRS*	*RES*	*France*	*Y*
6.2	*UNIVERSITE GRENOBLE ALPES*	*UGA*	*RES*	*France*	*Y*
7	*Commissariat à l'énergie atomique et aux énergies alternatives*	*CEA*	*RES*	*France*	*Y*
8	*Université Gustave Eiffel*	*UNIEIFF*	*RES*	*France*	*Y*
9	*STMicroelectronics Silicon Carbide AB*	*ST-SE*	*LE*	*Sweden*	*Y*

10	*Ostbayerische Technische Hochschule Amberg-Weiden*	*OTH*	*RES*	*Germany*	*Y*
11	*IFP Énergies Nouvelles*	*IFPEN*	*RES*	*France*	*Y*
12	*IRT St Exupery*	*IRT*	*RES*	*France*	*Y*
13	*RWTH Aachen University*	*RWTH*	*RES*	*Germany*	*Y*
14	*Riga Technical University*	*RTU*	*RES*	*Latvia*	*Y*
15	*MURATA INTEGRATED PASSIVE SOLUTIONS*	*MURATA*	*LE*	*France*	*Y*
16	*NextMove*	*NextMove*	*RES*	*France*	*Y*
17	*Renault s.a.s.*	*RENAULT*	*LE*	*France*	*Y*
18	*SAFRAN ELECTRICAL & POWER S.A.S*	*SAFRAN*	*LE*	*France*	*Y*
20	*Sherpa Engineering*	*SHERPA*	*SME*	*France*	*Y*
21	*SOITEC SA*	*SOITEC*	*LE*	*France*	*Y*
22	*Vysoké učení technické v Brně*	*BUT*	*RES*	*Czech Republic*	*Y*
23	*Teraglobus*	*TG*	*SME*	*Lithuania*	*Y*
24	*Elektronikas un datorzinatnu instituts*	*EDI*	*RES*	*Latvia*	*Y*
25	*Valeo Systemes de Contrôle Moteur SaS*	*VALEO*	*LE*	*France*	*Y*
26	*Uberwatch GmbH*	*UW*	*SME*	*Germany*	*Y*
27	*Vitesco TECHNOLOGIES FRANCE*	*VITESCO*	*LE*	*France*	*Y*
28	*Watt and Well S.A.S*	*W&W*	*SME*	*France*	*Y*
29	*SafeTRANS e.V.*	*STRANS*	*RES*	*Germany*	*Y*
30	*Infineon Technologies Austria AG*	*IFAT*	*LE*	*Austria*	*Y*
31	*INFORMATION TECHNOLOGY FOR MARKET LEADERSHIP*	*ITML*	*SME*	*Greece*	*Y*
32	*Silicon Austria Labs GmbH*	*SAL*	*RES*	*Austria*	*Y*
33	*Tokyo Electron Europe Ltd (TEEAC)*	*TEL*	*LE*	*Ireland*	*Y*
34	*Institut mikroelektronických aplikací s.r.o.*	*IMA*	*LE*	*Czech Republic*	*Y*
35	*Virtual Vehicle Research GmbH*	*VIF*	*RES*	*Austria*	*Y*
36	*Universität Stuttgart*	*ILH*	*RES*	*Germany*	*Y*
37	*IDEAS & MOTION SRL*	*I&M*	*SME*	*Italy*	*Y*
38	*Montanuniversität Leoben*	*MUL*	*RES*	*Austria*	*Y*

39	*Technische Universitaet Graz*	*TUG*	*RES*	*Austria*	*Y*
40	*Harokopio University of Athens*	*HUA*	*RES*	*Greece*	*Y*
41	*TTTech Auto Germany*	*TADE*	*LE*	*Germany*	*Y*
42	*Advantec GmbH*	*ADVANTEC*	*SME*	*Germany*	*Y*
43	*PSA AUTOMOBILES SA (Stellantis)*	*STLA*	*LE*	*France*	*Y*
44	*FRIEDRICH-ALEXANDER-UNIVERSITAET ERLANGEN-NUERNBERG*	*FAU*	*RES*	*Germany*	*Y*
45	*iCTLab SRL*	*iCTLab*	*RES*	*Italy*	*Y*
46	*PUMACY Technologies AG*	*PUMACY*	*SME*	*Germany*	*Y*
47	*Flexible Elektrische Netze*	*FEN*	*SME*	*Germany*	*Y*
48	*AVL Software and Functions GmbH*	*AVL-SFR*	*LE*	*Germany*	*Y*
49	*INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE*	*ITRI*	*RES*	*Taiwan*	*Y*
50	*Eunice Energy Technologies GmbH & Co. KG*	*EUNICE*	*SME*	*Germany*	*Y*

6.4 ARCHIMEDES supply chains & work packages

The work plan has been designed according to the familiar V-cycle model, cf. Figure 5. After working out detailed requirements and failure mechanisms analysis in WPs 1 and 2, the main research and implementation work is conducted in WPs 3 and 4, before an integration phase in WP5 and the final validation and verification actions in WP6 are conducted. In parallel and over the whole duration of the project, WPs 7 and 8 cover dissemination, exploitation, standardization, and project management respectively.

Besides WPs, ARCHIMEDES is also structured into SCs, yielding the matrix organization as shown in Figure 6. The idea of SCs is to group research activities around common topics. Put differently, each SC concentrates on the development of one sub-topic addressed by ARCHIMEDES. For doing so, each SC defines specific tasks in ARCHIMEDES' WPs. These tasks will be worked off according to the V-cycle model referred to above. This setup allows "locked, stepwise execution" between SCs and, hence, cross SC synchronization in each phase, e.g., when elaborating requirements or validating the project results with respect to the requirements and KPIs. At the same time, SCs improve the manageability of ARCHIMEDES as there are defined leaders for each sub-topic, that would not be available in a WP-only structure. Every SC starts with the definition of specifications and requirements derived from the project key targets with respect to the defined KPIs. Next, new technology is researched/developed based on these specifications and requirements. After the development and integration, the integrated (sub) systems are tested to verify their functionalities and their behaviour/performance is compared/validated according to the original specification and requirements. The benefits of this approach were already proved in previous projects, e.g., 3Ccar, AutoDrive or AI4CSM.

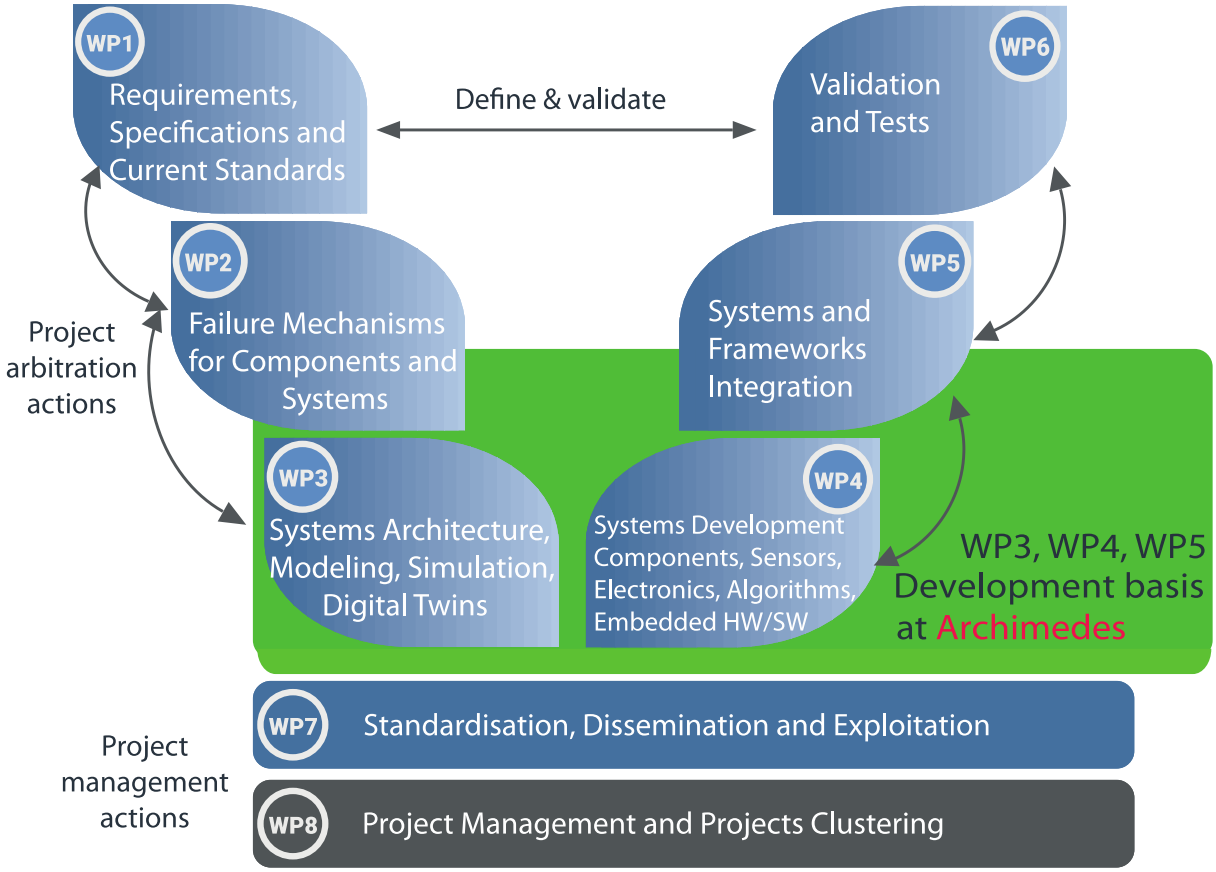

FIGURE 5: ARCHIMEDES WORK-PACKAGES STRUCTURE

ARCHIMEDES comprises 5 SCs dedicated to several automotive, airspace and industrial applications of long-life semiconductors solutions.

A careful partitioning of work and the definition of clear interfaces between the different Work Packages (WPs) and SCs is required for the success of the ARCHIMEDES project. As discussed, the ARCHIMEDES project will provide an approach where WPs represent the R&D domains with a focus on technologies and methodology, while SCs represent real implementation, demonstrators, experimental work, and implementation efforts leading to the integration of the (sub)systems and their verification and validation. The relation of the SCs and the WPs is depicted in Figure 6, whereas the interrelation of the ARCHIMEDES WPs is shown in Figure 7.

WP1 defines the system requirements as well as the use cases and validation methodologies, also making sure research results of ARCHIMEDES are aligned with targets set by the Green Deal, Ethics guidelines, and relevant upcoming standards. WP2 is dedicated to analysis of failure mechanisms to obtain knowledge necessary to design long-life semiconductor components and system. WP3 is dedicated to the system level design based on modelling and simulation of architectures for individual technologies in SCs and components. WP4 will evaluate and design the semiconductor devices and modules for subsystems and systems to support the demonstrators in all SCs. WP4 also includes development of embedded HW and SW allowing control, diagnostics, and fault mitigation in long-life

systems as well as qualification related topics especially stress conditions specific for automotive and industrial applications are considered.

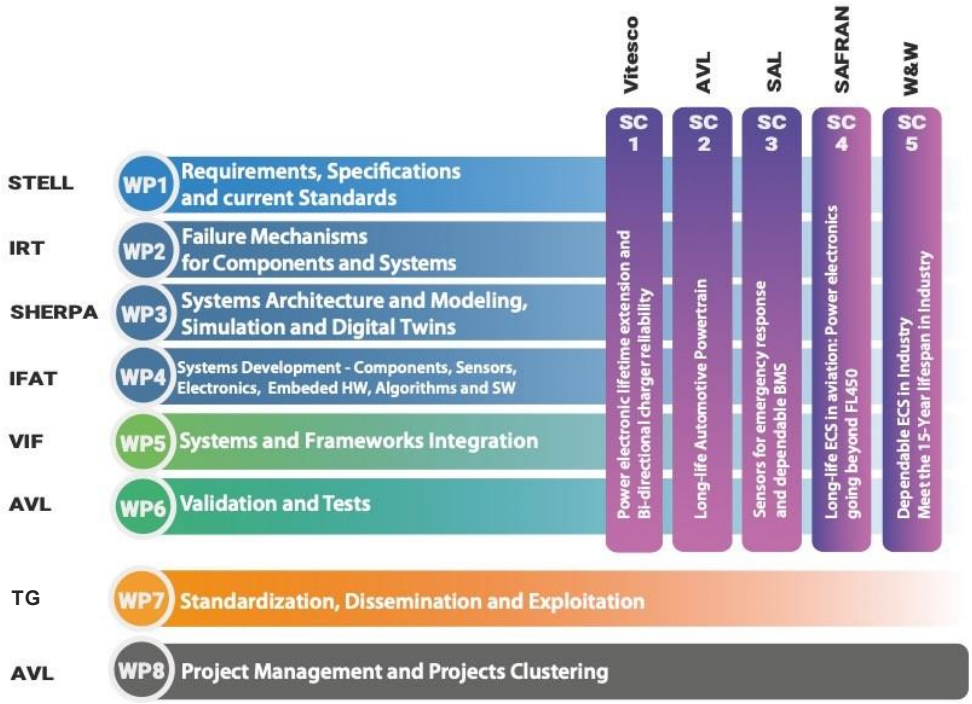

FIGURE 6: ARCHIMEDES MATRIX STRUCTURE OF WPS AND SCS

WP5 cares about the system integration for each supply chain. Within the frame of WP6, validation and testing of the SC demonstrators takes place. It focuses on reliability validation of the developed subsystems with the goal to demonstrate the properties and performance of the developed solutions in relation to the requirements defined in WP1. WP7 covers exploitation, dissemination, standardization, and market trends monitoring to analyse the solutions developed by competitors. WP8 performs the overall project management, including monitoring and all financial & contractual aspects.

The project will benefit from a bi-directional flow of information between work-packages. Research running in a given work-package will use outputs supplied by earlier work-packages (stages of the V-cycle), but also provide feedback to these WPs, to correct possible problems in the designed solutions. For example, WP4 will respond to feedback from WP5 and WP6 to resolve possible problems during system integration and testing. The timing of the WPs contains significant time overlap of WPs with strong interrelations to allow efficient bidirectional flow of information and iterative development process as mentioned bellow.

In more detail, WP1 provides requirements and specifications for the analysis performed by WP2, and the development phase covered WP3 and WP4. These WPs also provide feedback to WP1 if some requirements or specifications need to be refined or extended. WP2 supports the development of models and electronics in WP3 and WP4 as well as initial steps of subsystems and systems integration in WP5 with knowledge on failure mechanisms. WP3 will provide additional simulations based on feedback from WP4 and WP5 if needed. WP5 integrates the components provided by WP4 and uses knowledge on failure modes from WP2 and simulation results from WP3 to build long-life subsystems and systems. In the case of unexpected problems with integration and commissioning of the subsystems and systems, feedback to WP3 and WP4 will allow the change of component designs to

solve possible problems. Finally, the subsystems and systems are tested and validated in WP6 where conformance with specifications from WP1 will be checked.

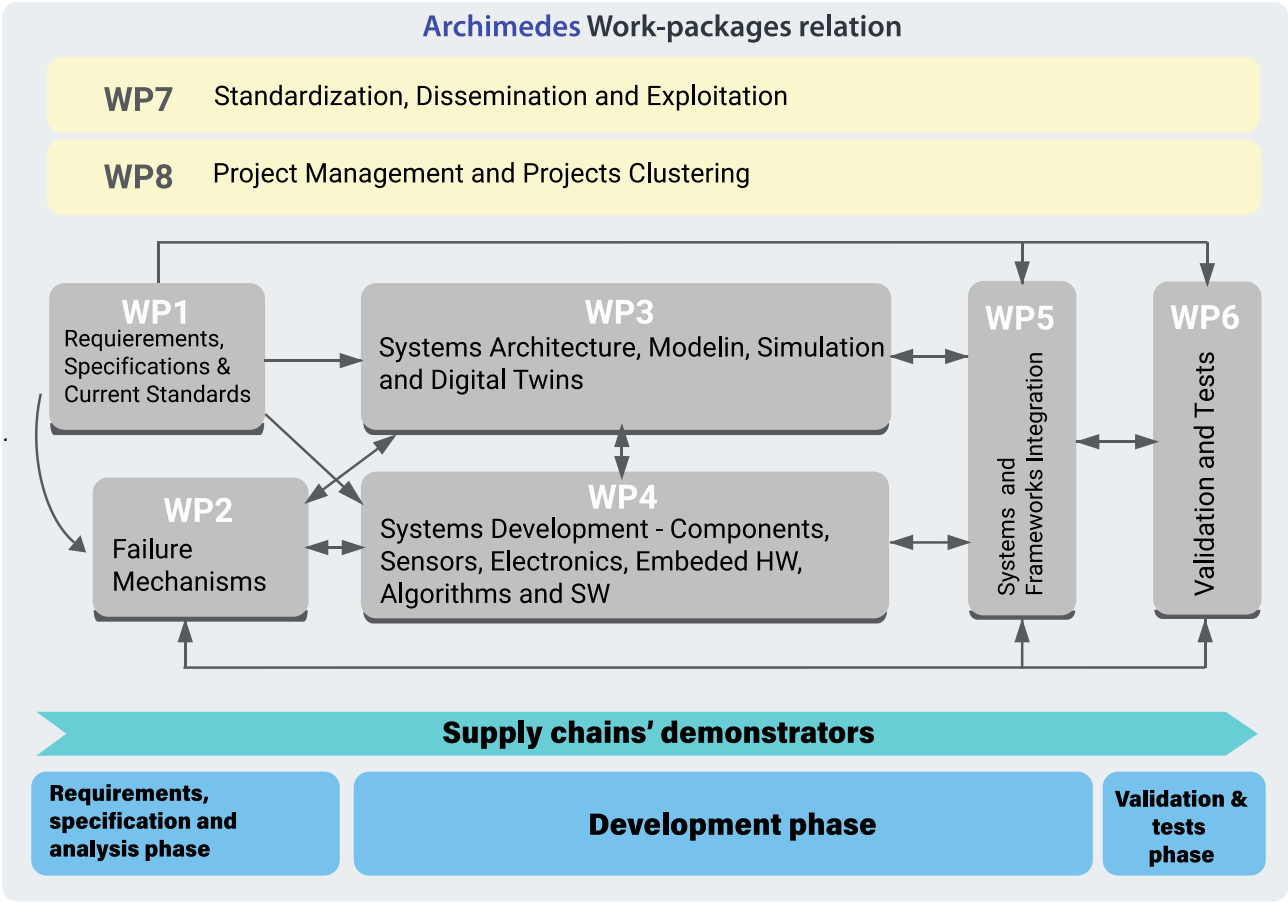

FIGURE 7: ARCHIMEDES WORK PACKAGES RELATIONS

7 FAIR Data Management

FAIR data refers to a set of principles aimed at enhancing the accessibility and usability of research data. The acronym "FAIR" stands for Findable, Accessible, Interoperable, and Reusable, highlighting key aspects that contribute to the overall quality and value of research data [5].

Findable: data should be easily discoverable and identifiable using unique identifiers, metadata, and standardized descriptions. This enables researchers, and interested parties, to locate and access the data efficiently.

Accessible: data should be openly available or accessible with clear and defined protocols, allowing users to retrieve and obtain the data without unnecessary barriers or restrictions. Access should be granted based on appropriate permissions and data usage agreements.

Interoperable: data should be structured and formatted in a way that facilitates seamless integration and interoperability with other datasets. Commonly accepted standards and protocols should be followed to ensure compatibility and the ability to combine data from various sources.

Reusable: data should be well-documented, clearly described, and include sufficient contextual information to enable its reuse for different purposes. This includes providing information on the methodology, data collection procedures, and any applicable licensing or usage terms.

By adhering to the FAIR data principles, researchers and organizations can enhance the value and impact of their data, promote collaboration and knowledge exchange, and facilitate the reproducibility of research. FAIR data principles are becoming increasingly important in the scientific community as they contribute to transparency, data sharing, and the advancement of research across disciplines.

More detailed information will be included in the questionnaire (Appendix 1) to which each partner will answer. This file will be part of the final report as part of the dissemination, exploitation, and data management of the project.

The exchange of data and information within the project is crucial for the success of the technological development and achievement of the project objectives. In this way, the data flow between the different SCs and WPs is essential. Figure 8 below shows the plan of data flow between SCs and WPs. The technical development of the project demonstrators and their use cases is performed in the SCs. The specified tasks in the technical WPs are responsible for keeping track of important data that is generated by the SCs within a specific point in technology development. Finally, any specific data and information that is required for project management, i.e. project risk mitigation or reporting, is shared with the Project Coordinator within WP8, and any data or information that is required for project outreach, dissemination, exploitation and publications is shared by the SCs and WPs to the WP7.

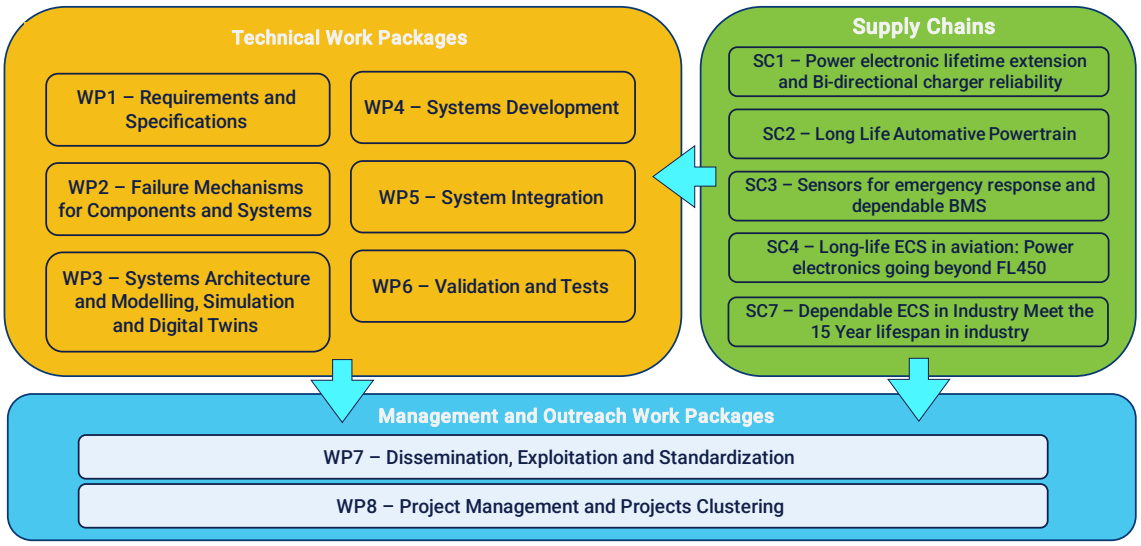

FIGURE 8: INFORMATION AND DATA FLOW IN ARCHIMEDES.

7.1 Making data findable, including provision of metadata

Data generated in ARCHIMEDES will be stored in different locations based on its accessibility.

The consortium defines four levels:

- **Partner**: accessible only by the partner that generates it
- **Parts of Consortium**: E.g. Supply Chain or Task

- **Consortium**: data generated by a single partner (or multiple partners) that should be accessible to all partners
- **Public**: data generated by a partner (or multiple partners) that is accessible to the public

7.1.1 Default catalogue metadata schema for open data generated by the project

Knowledge workers spend more than 50% of their time looking for information; it is a fundamental aspect to improve their experience by providing quick access to resources they need during and after the duration of the project. Classification and implementation of content metadata play a crucial role in that manner.

Metadata is the data that describes other data. It is essential to identify, locate and describe digital objectives generated by ARCHIMEDES, such as videos, files, images, websites, etc… They are helpful to assist users in finding and organizing the information generated.

In general the ZENODO repository metadata domain presented in Section 5.3 is based on DataCite's metadata that you find in the link: https://schema.datacite.org/meta/kernel-4.4/doc/DataCite-MetadataKernel_v4.4.pdf (Version 2021) with the title "**Metadata Schema Documentation for the Publication and Citation of Research Data and Other Research Output"[5].**

This document underlines the minimum recommended metadata schema terms should be used for open data generated by a project and deposited in an open access repository. The motivation is underlined by this explanation:

"Scholarly research is producing ever-increasing amounts of digital research data and it depends on data to verify research findings, create new research, and share findings. In this context, what has been missing until recently is a persistent approach to access, identification, sharing, and re-use of datasets.

To address this need, the DataCite[6]international consortium was founded in late 2009 with these three fundamental goals:

- *establish easier access to scientific research data on the Internet,*
- *increase acceptance of research data as legitimate, citable contributions to the scientific record,*

and

- *support data archiving that will permit results to be verified and re-purposed for future study."*

Below you find the Mandatory and the Recommended and Operational properties suggested. For Definitions and Allowed values, examples or other constraints we remand to the link above.

TABLE 5: DATACITE MANDATORY PROPERTIES

ID	Property	Obligation

[5] https://schema.datacite.org/meta/kernel-4.4/doc/DataCite-MetadataKernel_v4.4.pdf
https://schema.datacite.org/meta/kernel-4.4/

[6] https://datacite.org/

1	Identifier (with mandatory type sub-property)	M
2	Creator (with optional given name, family name, name identifier and affiliation sub-properties)	M
3	Title (with optional type sub-properties)	M
4	Publisher	M
5	PublicationYear	M
10	ResourceType (with mandatory general type description subproperty	M

TABLE 6: DATACITE RECOMMENDED AND OPERATIONAL PROPERTIES

ID	Property	Obligation
6	Subject (with scheme sub-property)	R
7	Contributor (with optional given name, family name, name identifier, and affiliation sub-properties)	R
8	Date (with type sub-property)	R
9	Language	O
11	AlternateIdentifier (with type sub-property)	O
12	RelatedIdentifier (with type and relation type sub-properties)	R
13	Size	O
14	Format	O
15	Version	O
16	Rights	O
17	Description (with type sub-property)	R
18	GeoLocation (with point, box, place, and polygon sub-properties)	R
19	FundingReference (with name, identifier, and award related subproperties	O
20	RelatedItem (with identifier, creator, title, publication year, volume, issue, number, page, publisher, edition, and contributor sub-properties)	O

7.1.2 How will the data be openly accessible in the project

Data generated in ARCHIMEDES will be stored in different locations based on its accessibility. The consortium defines three levels:

- **Partner**: accessible only by the partner that generates it.
- **Parts of the Consortium:** accessible to partners working together on technology development
- **Consortium**: data generated by a single partner (or multiple partners) that should be accessible to all partners.
- **Public**: data generated by a partner (or multiple partners) that is accessible to the public.

In the ARCHIMEDES Data Management Plan, Section "Data Storage, Access & Security", Question 26 *"Is any data known that will be made open access?"* addresses open accessible data that concerns the ARCHIMEDES project, please see Figure 9.

FIGURE 9: WORD CLOUD EVALUATION OF ARCHIMEDES DMP QUESTIONNAIRE - QUESTION 26.

7.1.2.1 Open Data for publication

communities: List of communities the deposition to appears in ***Collection***

URL:

https://zenodo.org/communities/ARCHIMEDES/

Above address links directly to your community collection.

Upload URL:

https://zenodo.org/deposit/new?c=ARCHIMEDES

Above address will automatically ensure people who use it will have their record added to your community collection.

A Decision Diagram of the "Research to Publication – Process" is shown in Figure 10.

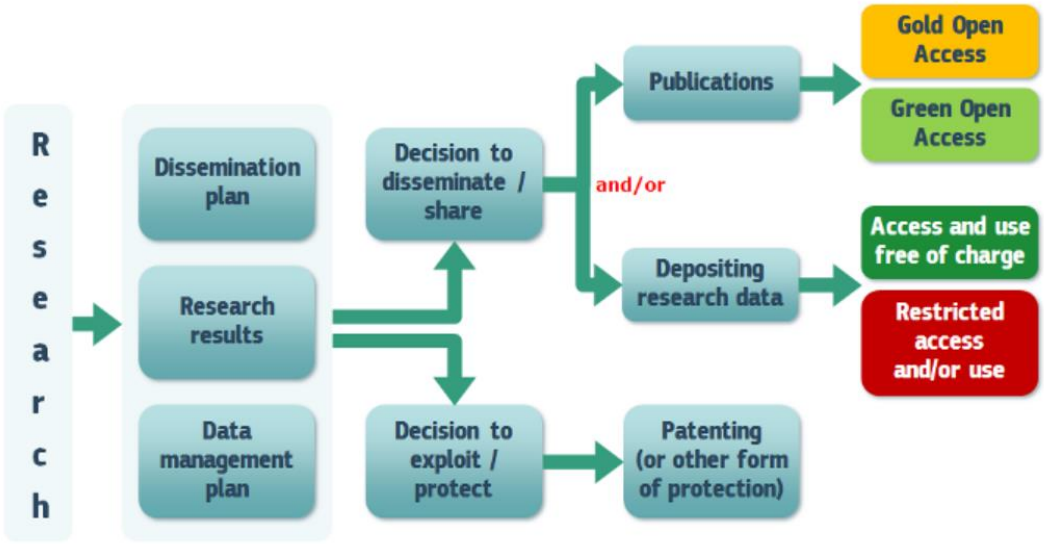

FIGURE 10: OPEN ACCESS TO RESEARCH DATA AND PUBLICATION DECISION DIAGRAM [7].

7.1.2.2 Scientific Publications

ARCHIMEDES prioritises strengthening open science through open-access sharing of knowledge and open, transparent cooperation among all stakeholders. The consortium embraces the vision that large and unrestricted access to knowledge is essential not only for the central role of knowledge and innovation in generating growth, but also as a fundamental human value of scientific knowledge progress. In this respect, the ARCHIMEDES consortium commits to open-source policies. Special emphasis is placed on fostering open access of ARCHIMEDES results. The Consortium fully addresses the European Commission requirements through the support of open access for published articles. All peer-reviewed scientific publications of project's results will be granted open access according to publisher and law regulations as set out in the Grant Agreement. Depending on the nature of the publication, the articles will be made available immediately through open access publishing ('gold' open access) (e.g., by an open access journal) or within a period of 6 months through self-archiving ('green' open access). ARCHIMEDES partners have already established various Open Access policies: supporting authors in retaining their rights to provide access to published articles, providing official repositories, and making the bibliographic metadata.

7.1.2.3 Green open access (self-archiving)

Green open access or self-archiving means that the published article or the final peer-reviewed manuscript is archived by the researcher itself in an online repository, in most cases after its publication in the journal. The journal must grant the researcher the permission to self-archive the final peer-reviewed article, at the latest, 12 months after publication.

7.1.2.4 Gold open access (open access publishing)

Gold open access means that the publication is available by the scientific publisher as open access. Some journals require an author-processing fee for publishing open access. Author-publishing fees for

gold open access journals can be reimbursed within the project period and budget. Some publishers allow the researcher to deposit a copy of the article in a repository, sometimes with an embargo period.

8 Personal Data and GDPR

The ARCHIMEDES project will comply with GDPR and/ or other relevant personal data laws and requirements. The PCA (4.5) states:

Where necessary, the Parties shall cooperate in order to enable one another to fulfil legal obligations arising under applicable data protection laws (*the Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and relevant national data protection law applicable to said Party*) within the scope of the performance and administration of the Project and of this Consortium Agreement.

In particular, the Parties shall, where necessary, conclude a separate data processing, data sharing and/or joint controller agreement before any data processing or data sharing takes place.

In case an additional agreement related to the processing of personal data is deemed necessary according to the Applicable Laws, or desirable by Parties, the Parties shall enter into good faith negotiations to reach such an agreement. In particular, the Parties shall, where necessary, conclude a separate data transfer, data processing, data sharing and/or joint controller agreement before any data processing or data sharing takes place.

As part of compiling this Data Management Plan, all project participants were asked to complete the ARCHIMEDES Data Management Questionnaire. Please see Section 14 for details. The questionnaire has provided valuable insight to the data types the project forecasts to generate.

Personally identifiable data could be very simple (i.e. a list of project contacts) or detailed and extensive (i.e. a systematic interview study with many stakeholders).

Whenever any project member intends on collecting, processing or using personally identifiable data of any kind GDPR and other legal compliance requirements must first be considered. Below an overview of GDPR considerations are provided, together with a set of further resources and support that can be accessed to help in final decision making.

8.1 Key definitions

The GDPR defines an array of legal terms at length. Below are some of the most important ones (https://gdpr.eu/what-is-gdpr/):

- **Personal data:** Personal data is any information that relates to an individual who can be directly or indirectly identified. Names and email addresses are obviously personal data. Location information, ethnicity, gender, biometric data, religious beliefs, web cookies, and political opinions can also be personal data. Pseudonymous data can also fall under the definition if it's relatively easy to ID someone from it.

- **Data processing**: Any action performed on data, whether automated or manual. The examples cited in the text include collecting, recording, organizing, structuring, storing, using, erasing…
- **Data subject**: The person whose data is processed. These are your customers or site visitors.
- **Data controller:** The person who decides why and how personal data will be processed. If you're an owner or employee in your organization who handles data, this is you.
- **Data processor:** A third party that processes personal data on behalf of a data controller. The GDPR has special rules for these individuals and organizations. They could include cloud servers or email service providers.

Please note that the Data Controller of any individual data set that requires GDPR consideration is the one responsible for ensuring GDPR obligations are accurately covered.

8.2 Key principals

If you process data, you must do so according to seven protection and accountability principles (https://gdpr.eu/what-is-gdpr/):

- **Lawfulness, fairness and transparency** — Processing must be lawful, fair, and transparent to the data subject. One of the following 6 must apply (Art. 6 GDPR - Lawfulness of processing - GDPR.eu):
    1. Consent provided.
    2. Performance of a contract.
    3. Compliance with a legal obligation.
    4. Protection of the vital interests of the data subject.
    5. Performance of a task carried out in the public interest or in the exercise of official authority vested in the controller.
    6. Legitimate interests pursued by the controller or by a third party.
- **Purpose limitation** — You must process data for the legitimate purposes specified explicitly to the data subject when you collected it.
- **Data minimization** — You should collect and process only as much data as absolutely necessary for the purposes specified.
- **Accuracy** — You must keep personal data accurate and up to date.
- **Storage limitation** — You may only store personally identifying data for as long as necessary for the specified purpose.
- **Integrity and confidentiality** — Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption). Please see also Section 10 of this DMP for more details.
- **Accountability** — The data controller is responsible for being able to demonstrate GDPR compliance with all these principles.

Please note that a key responsibility of the 'Data Controller' is to document the GDPR decision making processes relating to their data set.

8.3 Accessing further guidance

If you are, or think you maybe, dealing with personally identifiable data you will be classed as a 'data controller'. To ensure GDPR compliance the following steps are recommended:

1. Consult with your organisational GDPR expert and other available organisational material.
2. Consult relevant guidance material, such as GDPR.eu (and ico.org.uk in the UK).
3. GDPR.eu provides an accessible check list (GDPR compliance checklist - GDPR.eu) that will help establish the correct processes and procedures in managing personal data.
4. Consult with the ARCHIMEDES project consortium; with the primary contact being the Data Protection Officer and the Project lead (please see also Section 7).
5. Record and document your decision making.

9 Open Data

The ARCHIMEDES consortium is committed to providing benefit to the European Community in terms of open and fair access to scientific knowledge, standardization, and economic impact.

Through its dissemination plan the project will aim to make findings and data known and available to specific stakeholders such as industry, policy makers, and standardization bodies. Furthermore, industry associations, stakeholder workshops and wider communications channels will be leveraged to enhance the project outcomes.

Within all these domains the data made available will adhere to certain standards and principles. This will ensure the data meets the FAIR standards of being findable, accessible, interoperable, and reusable (please see also Section 7 – for more information on FAIR). This is not only critical for its use by the intended target stakeholder groups, but also so a wider set of stakeholders from academic, industry and policy have the potential of making use of the data. The Data Protection Officer (DPO) can provide guidance and help in project partners meeting these requirements.

The guidelines the project will follow are detailed below (GA, Annex 5):

- Produce a data management plan (DMP) – this document
- Follow the FAIR principals – 'please see Section: 7 FAIR of this DMP
- All the relevant peer-reviewed publications relating to the project results will be made available to the Open Research Europe (ORE) (EC's open access publishing platform: https://open-research-europe.ec.europa.eu/).
- A machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications (at the latest at the time of publication).
- Immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a

licence with equivalent rights; for monographs and other Long-text formats, the licence may exclude commercial uses and derivative works (e.g.CC BY-NC, CC BY-ND)

- Information is given via the repository about any research output, or any other tools and instruments needed to validate the conclusions of the scientific publication. Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.
- Metadata of deposited publications must be open under a Creative Common Public Domain. Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output, or any other tools and instruments needed to validate the conclusions of the publication.

As soon as partners are aware data and findings are of public value they will begin, in accordance with the guidance in this plan and the terms of the PCA and GA, exploring the possibility of making that data public. In some instances, the time required to making data available, could be subject to external influences i.e. internal Governance processes or Peer Review. Data will be made available 'as soon as feasible' (GA, Annex 5).

10 Data Storage & Security

10.1 Best practice

The ARCHIMEDES project is forecast to use several data depositories. A secure file sharing and working area for the project partners will be established for the day-to-day operations. However as bespoke software, data and systems are used and generated (i.e. simulation platforms, scenarios, test data) a wider set of depositaries are expected to be used. In all instances project partners will follow the following best practice in selecting, implementing and maintaining data storage facilities:

- **Access Control**: ARCHIMEDES dataset repository must be capable of controlling the level of access that each user has depending on their role. There must be appropriate mechanisms to define and enforce such access control (e.g., firewalls, file systems permissions, secure log-in, password renewal) including physical control. This is provided by the IT department of the repository maintainer or by the dataset repository technology itself.
- **Authentication**: It must guarantee that the system being accessed is the intended one and that the user is who he or she claims to be. During the project, the partners will have access using a private password. Once the datasets become public, an e-mail-based authentication mechanism will grant access.
- **Non-Repudiation**: To ensure the capability to prevent users from denying that data files were accessed, altered, or deleted, auditing processes must be implemented. This is provided by the IT department of the repository maintainer or by the dataset repository technology itself.

- **Data Confidentiality**: Within the scope of the project, the protection of information from unauthorized access and disclosure must be preserved by restricting per-user access and encrypting the information during transmission and also during storage. After the defined retention period expires, information erasure or destruction must be ensured. This is provided by the IT department of the repository maintainer or by the dataset repository technology itself.
- **Communication Security**: Communication only flows through encrypted communication channels. This is provided by the IT department of the repository maintainer or by the dataset repository technology itself.
- **Data Integrity**: ARCHIMEDES must protect data from unauthorized, uncontrolled, or accidental alteration during storage or transmission with the use of checksum values, hash functions and digital signatures. This is provided by the IT department of the repository maintainer or by the dataset repository technology itself.
- **Availability:** Back-up mechanisms are a desirable property, mainly to avoid Denial of Service (DoS) attacks. This is provided by the IT department of the dataset maintainer or by the dataset repository technology itself.

The ARCHIMEDES project has implemented a shared repository for information and documents. This shared repository uses the BOX service, and it is protected by usernames and passwords so that only members that have been granted permission can access it.

The questions 18 and 19 in the ARCHIMEDES DMP Questionnaire ("*Will the data be safely stored in trusted repositories for long term preservation and curation?"* and "Where will this data be stored?") address the topic of safe data storage in the ARCHIMEDES project. The answers are evaluated using pie charts, see Figure 11: Data storage in the ARCHIMEDES project.

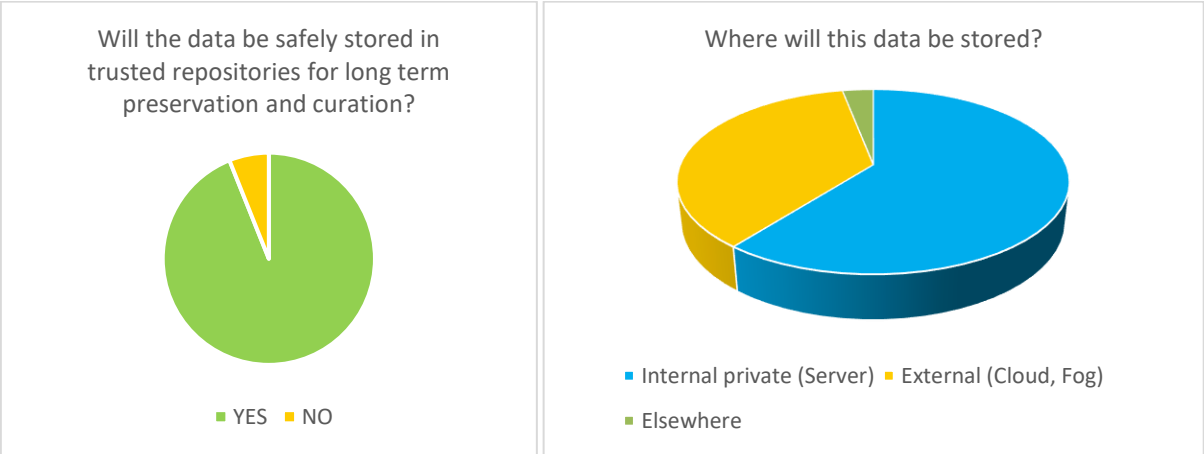

FIGURE 11: DATA STORAGE IN THE ARCHIMEDES PROJECT.

10.2 Data legacy

Before the end of the ARCHIMEDES project the dissemination and communications activities will establish a legacy plan for the project's outcomes. It is expected that this will include data sets that will be of value to the consortium and wider eco-system beyond the life of the project. For this long-term

preservation and curation of data, before the end of the project, an appropriate data repository (or repositories) will be identified and used. Established protocols for making such data sets available for public use such as ZENODO or OpenAIRE with guidelines on how to select such repositories, will be followed. For more information on ZENODO or Open Research Europe, please see Section 5.3 of this data management plan.

The answers to question 10 of the ARCHIMEDES Questionnaire *"What is the expected size of the data that you intend to generate or re-use? (If not a precise figure at least an order of magnitude)"* give an estimate of the data generated by various project partners within the ARCHIMEDES project. Please see Figure 12 for a depiction in a pie chart (the answers were assigned to data intervals).

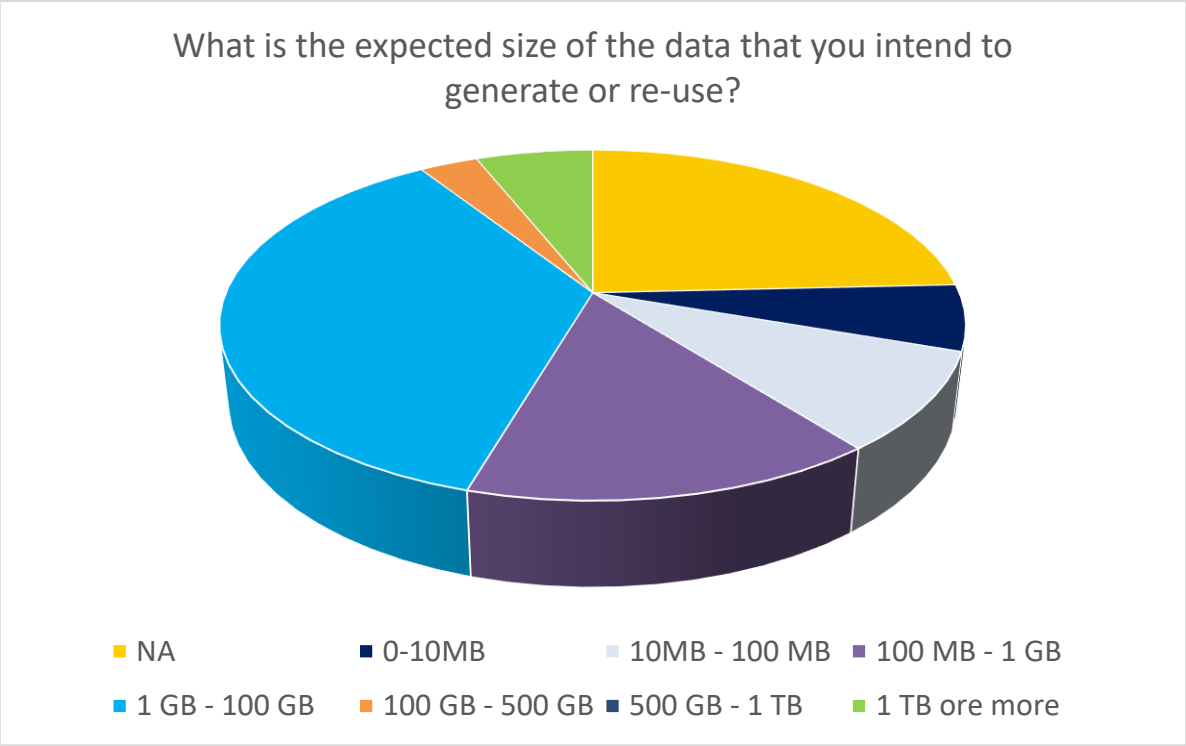

FIGURE 12: SIZE OF GENERATED DATA DURING THE ARCHIMEDES PROJECT (ESTIMATION).

11 Ethics

All currently identified ethical parameters to be obeyed will be documented in the Deliverables D7.5.1., D7.5.2. and D7.5.3. Please see Table 7: Deliverables - Ethical Aspects.

TABLE 7: DELIVERABLES - ETHICAL ASPECTS FROM ARCHIMEDES PROJECT

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Diseminatin Level	Due Date (month)
D7.5.1	Standardization State-of-the-Art and Analysis of Gaps	WP7	ST-SA	R	PU	m12
D7.5.2	Standards and Processes in Relation to *ARCHIMEDES*' Chosen Scenarios, Life Cycle Assessment and Approach	WP7	STGNB	R	PU	m22
D7.5.3	Standardisation Proposals Based on Identified *ARCHIMEDES* Demonstrators	WP7	STROU	R	PU	m36

12 Conclusion

The Consortium Agreement (CA) includes provision for data management as agreed between the project partners, and the Grant Agreement (GA) include provisions for data management obligations as agreed with the European Commission. However, good data management also requires best practice guidance and project level processes.

This DMP provides this guidance and best practice.

Execution of the DMP (Data Management Plan) is the responsibility of all project members relative to their roles and responsibilities. The Project Coordinator (PC), Work Package (WP) leaders, Supply Chain (SC) and Task leaders, under the guidance and supervision of the DPO (Data Protection Officer), will provide wide reaching project support to implement the DMP and provide additional support where required.

It should be noted that the DMP is in no way a substitute for the project's legal documents and do not replace their enforcement in any way – if in doubt the legally binding documentation takes precedence.

The DMP identifies the FAIR principals as a key guiding point to ensuring data is findable, accessible, interoperable and repeatable. The principals are summarised in the DMP along with an explanation of ARCHIMEDES's commitment to align with these principals. The ARCHIMEDES project will follow the FAIR principals where possible, relative to commercial and practical restrictions.

The way in which data is handled and disseminated, is of the upmost importance. The project brings together a wide range of partners with different internal processes and objectives, from commercial, to technology and research. It is essential that a common understanding of how data is handled, the conditions under which data is made public and the processes of agreeing such conditions is established and maintained. In doing so, a culture of trust can be established which in turn will enhance the collaboration of the partners, and ultimately the project outcomes. Whilst the day-to-day interactions between partners and the appropriate employment of due diligence is what builds such trust, the DMP provides guidance and recommendations on best practice.

This includes guidance on:

Identifying Data Originators: The data originator is the organisation that originally created the data. Unless otherwise and explicitly stated it should be assumed the Data Originator owns the data and has the authority and responsibility to define who that data can be shared with, for what purpose and its classification.

Best practice processes for managing data including:

- **Classifying data**
- **Labelling data**
- **Processes for public dissemination**
- **Key contact points**

In the preparation of the DMP, all project partners were consulted via a questionnaire. The structure of this questionnaire together with its outcomes, in the form of a definition of data themes and data types are provided.

It should be noted that a substantial component of the overall project is the creation of a data framework. This forms the deliverables in WP5 and WP6, with other work packages contributing. The specific data management policies developed within these WP's and for the framework itself fall outside of this DMP, as they will require substantial and specific consideration. Nevertheless, the principles and guidelines set out within this DMP, will act as an initial framework to inform the development of the data framework.

If you are, or think you maybe, dealing with personally identifiable data you will be classed as a 'data controller' under GDPR. Whenever any project member intends on collecting, processing, or using personally identifiable data of any kind, GDPR and other legal compliance requirements must first be considered.

This DMP provides:

- **The key definitions** (Personal data, Data processing, Data subject, Data controller, Data processor)
- **The key principals** that should be followed (Lawfulness, fairness and transparency, Purpose limitation, Data minimization, Accuracy, Storage limitation, Integrity and confidentiality, Accountability)
- **Accessing further guidance**

As soon as partners are aware data and findings are of public value, they will begin, in accordance with the guidance in this plan and the terms of the CA and GA, exploring the possibility of making that data public. The DMP provides best practice guidance and processes for making data available within the project and in order that that data be maintained and available beyond the time frame of the project.

Finally, the ARCHIMEDES project is forecast to use several data depositories. In all instances, project partners will follow best practices in selecting, implementing and maintaining data storage facilities.

13 References

1. ARCHIMEDES Consortium (2023). ARCHIMEDES Consortium Agreement.
2. ARCHIMEDES Consortium (2023). ARCHIMEDES Grant Agreement.
3. ARCHIMEDES Consortium (2023). ARCHIMEDES Handbook.
4. FAIR Principles - GO FAIR (go-fair.org)
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14 Appendix: ARCHIMEDES Consortium Data Management Plan

The purpose of the ARCHIMEDES Questionnaire is for project partners to provide their data management strategy for allocated resources, data generation, data storage, accessibility, security, data re-use and ethics.

The ARCHIMEDES Questionnaire can be found here.

FIGURE 13: ARCHIMEDES PARTNER DATA MANAGEMENT PLAN - HOME-PAGE

14.1 General information

The Data Management Questionnaire stores the following information for each participant of the survey:

ID	Progressive identification number
Startzeit	Time survey startet
Fertigstellungszeit	Time survey ended
E-Mail	E-Mail address of participant (can be anonymous)
Name	Name of participant (can be anonymous)
Language	Language selected
Zeitpunkt der letzten Änderung	Time of last changes

14.2 Participant's input

The full Questionnaire of the ARCHIMEDES Data Management Plan is given in Table 8.

TABLE 8: ARCHIMEDES DATA MANAGEMENT PLAN QUESTIONNAIRE

Participant Information
1. Full name
2. Email address
3. Organisation Name
Resources & Costs
4. Who will be responsible for data management in your organisation? (Please add name, last name, position and E-Mail)
5. Who decides how and which data will be kept and for how long? (Please add name, last name, position and E-Mail)
6. What will be the costs for making data or other research outputs findable, accessible, interoperable, and reusable - FAIR - in ARCHIMEDES? (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.)
7. How will these costs be covered? Note: costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions).
Data – General Information
8. Which type and format will generated data in the scope of your tasks and demonstrators have? (on partner level)
9. What is the purpose of data generation or re-use and its relation to the objectives of the project?
10. What is the expected size of the data that you intend to generate or re-use? (If not a precise figure at least an order of magnitude)
11. To whom might your data be useful, outside of the ARCHIMEDES project?
Metadata
12. Which metadata will be created in the scope of your tasks and demonstrators?
13. Will metadata be collected and indexed?
14. Will a documentation or reference about any software that is required to access or read the data be included? Will it be possible for your organisation to include the relevant software (e.g. in open source coude)?
15. Will metadata contain information to enable the user to access the data?
16. Will metadata vocabularies, standards, formats or methodologies be followed?
17. In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.
Data Storage, Access & Security
18. Will the data be safely stored in trusted repositories for long term preservation and curation?

19. Where will this data be stored?
20. Which provisions are or will be in place for data security (including data recovery as well as secure storage/archiving and transfer of sensitive data)?
21. Does the repository ensure that the data is assigned with an identifier?
22. Have you discussed and considered the terms and conditions that will apply for archiving and storage of data? For example: Security, Privacy, Availability, Rights and Accessibility
23. If your answer to Q22 is "Yes", What are the terms and conditions established for archiving and storing of your data?
24. Please select accordingly what applies to your data availability:
Our data will be made freely available to permit the widest re-use possible.
Our data will be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement
Our data will be available only and exclusively internally in the project?
25. How long will your data remain available and findable?
26. Is any data known that will be made open access? (e.g. publication, deliverables, other data for tests and experiments)
27. Will the data be accessible through a standardized access protocol, and which one?
28. If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?
29. In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?
30. Will you openly publish the generated project specific ontologies or vocabularies to allow reusing, refining, or extending them?
Third Parties & Data re-use
31. Will the data produced in the project be usable by third parties, in particular after the end of the project?
32. Will some data be re-used in different demonstrators/use cases and by different ARCHIMEDES project partners?
33. Will you use data from other sources (Other projects, other Demos in the ARCHIMEDES,…) be re-used, and in which format?
34. Is your usage of data from other sources affecting any IP?
35. How will you provide documentation required to validate data analysis and facilitate data re-use? (e.g. readme files with information on methodology, codebooks, data cleaning, analyses, variable definitions units of measures,...)
Ethics
36. Are there, or could there be, any ethics or legal issues that can have an impact on data sharing?

(These can also be discussed in the context of the ethics review. If relevant, references shall be included in relevant ethics deliverables and the ethics chapter in the Description of the Action (DoA))

15 List of Figures

16 List of Tables

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